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PREFERRED GROWTH SCENARIO ENVIRONMENTAL EVALUATION ADDENDUM

The Planning and Economic Development Committee recommends that Council adopt the recommendation contained in the following report dated November 24, 2008, from the Commissioner of Planning and Development Services:

1. RECOMMENDATION

It is recommended that:

1. Regional staff proceed with Regional growth management amendments in 2009 based on environmental modelling results of the refined preferred growth scenario.

2. PURPOSE

The purpose of this report is to advise Committee and Council of additional environmental evaluations undertaken to assess the impact of the preferred growth scenario in the watersheds of the Lake Simcoe Region Conservation Authority and the Toronto and Region Conservation Authority. This is part of the Region's conformity exercise with the Provincial Places to Grow Plan.

3. BACKGROUND

Need for more detailed environmental evaluation of the preferred growth scenario

Regional Council at its meeting of May 15, 2008, adopted Clause 2 of Report Number 6, dealing with the comparative analysis of selected growth scenarios. Regional staff, in the May 2008 report, committed to undertake a more detailed assessment of the preferred growth scenario. In the case of the environmental evaluation, the more detailed evaluation would consider the impacts of the preferred scenario on water balance/budgets to the extent possible.

It should be noted that in each of the three whitebelt areas in York Region, the Greenbelt has introduced significant permanent green space areas, with opportunities in each for restoration and connection to the balance of the natural heritage system. The Greenbelt Natural Heritage system will form one of the cores in the wider natural heritage system in the Region.

4. ANALYSIS AND OPTIONS

Analysis of environmental impacts at both the preliminary and the more detailed stage was undertaken by staff of the Lake Simcoe Region Conservation Authority and Toronto and Region Conservation Authority. Environmental Impacts from the comparative analysis remain valid and additional best practices identified in that report remain integral to the development of both whitebelt lands and intensification areas.

4.1 Lake Simcoe and Lake Ontario Watersheds respond differently to additional growth

As previously reported to Committee and Council, the Lake Simcoe and Lake Ontario watersheds respond differently to growth pressures.

To reiterate the key messages from the previous report:

Lake Simcoe Watershed

- The majority of anticipated development in the East Gwillimbury whitebelt is likely to occur in the East Holland River watershed. Reducing the Nitrogen (N), Phosphorous (P), and sediment loads is critical to improving the health of Lake Simcoe.
- In general, lower Nitrogen (N) and Phosphorous (P) loads, but greater sediment loads can be anticipated when lands are converted from agricultural to urban uses.
- The examined growth scenarios show a marginal decrease in N and P as a result of development and an increase in sediment loads lower intensification levels.

Phase 2 of the environmental evaluation was anticipated to:

- Provide greater details on impacts of the preferred scenario on nutrient and sediment loading.
- Evaluate impacts of the preferred scenario on water balance and budgets and on terrestrial habitat and linkages.
- Quantify the investment required for remediation in upstream area stormwater management facilities to reduce N, P and Sediment, based on a recent LSRCa report on the subject entitled *Lake Simcoe Basin Stormwater Management and Retrofit Opportunities 2007*.
- Evaluate the potential of target setting for N, P and Sediment reduction techniques on a catchment level.

Lake Ontario Watershed

- The Markham and Vaughan whitebelt lands are divided between three watersheds. Markham's lands are within the Rouge River and its tributaries. In Vaughan, the majority of the whitebelt lands are within the Humber River watershed with a small portion of the Don River watershed.
- In all of these areas, development has occurred in downstream areas and downstream flooding (water quantity) and erosion (volume and velocity) are already issues on some creek systems.
- None of the York Region growth scenarios anticipate development areas beyond those in current TRCA watershed modelling and even the 30% scenario (the most land extensive) assumes fewer acres developed in both the Humber and the Rouge River watersheds than the assumptions of the watershed modelling.
- Development scenarios that slow or halt the expansion of development into Greenfield areas (greater intensification scenarios) give scientists more time to study current mitigation and remediation practices and make adjustments to future works.

Further detailed environmental evaluation in the Rouge and Humber rivers were expected to undertake water balance/budget calculations for the preferred scenario as well as assess impacts on terrestrial habitat and linkages.

4.2 Lake Simcoe Watershed

A new approach to improving water quality and reducing the impacts of upstream development is required

It is clear that future growth in York Region cannot proceed on the same basis as previous growth, whether in the Lake Simcoe or the Lake Ontario watershed. In the Lake Simcoe watershed, the combination of the Places to Grow Act, the proposed lake Simcoe Protection Act and the implications of the Great Lakes Charter on intra-basin transfers relating to servicing options, will require a new suite of development standards and approaches to mitigation. These are discussed in subsequent sections of this report and include: the need to provide enhanced infiltration to aquifers, green building technologies, including green roofs, rainwater harvesting and other water and energy use reductions and natural heritage restoration. Other responses and standards will be developed through the Region's Best Practices for New Communities initiative as part of the Growth Management work.

Water Budget in the Lake Simcoe Watershed

A water budget is a common tool used in water management studies to evaluate the balance between the inputs and output of water, similar to 'balancing the books' in the financial realm. Typical inputs include rainfall and recharge.

Background studies undertaken by York Region to evaluate a range of water management initiatives indicates the greatest influence on the water budget in the York portion of the Lake Simcoe watershed can be attributed to Regional pumping rates for potable water supplies from Regional wells. The impact of adding new wells to draw additional groundwater is more significant to the overall water budget than the loss of recharge capability through further development.

In addition, the Region is currently in the process of applying for approval for additional intra-basin Transfer of water above 19 MLD, currently permitted under the 1985 Great Lakes Charter Agreement. This is required to permit additional Lake Ontario water supply to meet the growth need of the Towns of Aurora, Newmarket, and the communities of Holland Landing, Queensville, and Sharon in the Town of East Gwillimbury to the year 2031.

In supporting our request for additional water transfer, the application will outline the Region's good planning and sustainability approach to servicing future growth together with its water conservation and efficiency initiatives.

Wastewater servicing options for new growth in the Lake Simcoe watershed will be evaluated in the Master Plan Update and further in the Upper York Servicing System Individual Environmental Assessment project, which is currently underway. The Upper York Servicing System project will determine the preferred wastewater servicing option. The project will also evaluate wastewater servicing options, and the water servicing options will be assessed against the requirements of intra-basin transfer regulations.

Alternatives for providing both water and sewer services for growth in the Lake Simcoe watershed will also be directly impacted by the proposed *Lake Simcoe Protection Act, 2008* and Plan. At the date of writing this report, there are no firm details of the Plan's contents, however, Regional staff is monitoring this initiative and will report to Committee and Council as information is released for comment.

Some watercourses are degraded and a range of improvements in riparian zones, as well as upstream stormwater management facility remediation, are required to improve water quality

In 2007, the Lake Simcoe Region Conservation Authority prepared a report entitled *Lake Simcoe Basin Stormwater Management and Retrofit Opportunities 2007*, which quantified the investment required in remediation in upstream area stormwater management facilities to reduce Nitrogen, Phosphorus and Sediment.

The results of this report are instructive in identifying the preliminary magnitude of the costs and the amount of Phosphorus reduction that could be achieved.

In total, with existing stormwater treatment, urban areas of York Region annually contribute approximately 10,466 kg/yr of the 22,655 kg/yr of Phosphorous to Lake Simcoe.

Table 5.1 of the LSRCA report identifies 150 retrofits within settlement areas in York Region that represent a total investment of approximately \$54 million (2007 dollars). This level of commitment is anticipated to reduce York's phosphorus loading contribution from its 2007 level of 10,466 kg/yr to 7,303 kg/yr. Overall, the report identifies 279 retrofits required in the entire watershed at an estimated value of \$116.8 million, including those required in Orillia, which is not currently a member of the LSRCA.

However, urban stormwater is only part of the issue and there remains a need to undertake an effective riparian improvement scheme in many rural areas with degraded watersheds in the Region. Programs, such as the Provincial/LSRCA "Healthy Futures" and other water quality improvement projects in the Lake Simcoe watershed, have been successful in the past in leveraging available public funds with those private funds of willing land owners, resulting in significant water quality improvements at relatively low cost. These programs should be expanded and the bank of available public monies increased to assist in the early remediation of key areas.

As part of the Provincial initiative on Lake Simcoe, it is anticipated that new Phosphorous targets for the Lake and potentially stormwater management facility standards may be developed. The cost of remediation to increased levels are not known at this time.

A restored and enhanced Natural Heritage System is required

In addition to improvements in existing and future stormwater management systems, the establishment of a robust functioning natural heritage system, including development of natural heritage linkages and enhancement of riparian habitat, is central to improving water quality, reducing runoff and providing quality urban communities. Natural heritage enhancement programs in headwaters areas, the establishment of an integrated natural heritage system in whitebelt areas and urban regeneration in existing areas must be the focus of efforts by both public and private sectors.

The Greenbelt Plan provides an extensive system of natural heritage core areas that extend into all whitebelt areas in the Region. Parts of this natural heritage system offer opportunities for restoration and enhancement that must be pursued as development proceeds.

Evaluation of Preferred Growth Scenario on Terrestrial Habitat and Linkages ongoing

Further work on the impact of the preferred scenario on terrestrial habitat and linkages is ongoing as part of the Official Plan work being conducted by the Town of East Gwillimbury and the LSRCA. Additional reports will be brought to Committee and Council on an as-needed basis.

4.3 Lake Ontario Watersheds

Water Budget calculations show impacts from future development that must be mitigated

Background water budget studies undertaken by the Toronto and Region Conservation Authority suggest the greatest influence on the overall health of the groundwater system in the Rouge and Humber watersheds is the protection of significant recharge areas, which are located at the northern reaches of the watershed, mainly outside of the whitebelt areas. In these areas, protective policies initiated from the Greenbelt Plan and Oak Ridges Moraine Conservation Plan already contributes to the protection of these important areas.

In addition, both the Rouge and Humber watershed plans contain modelled water budget and balance calculations for TRCA scenarios. Expected results from development include:

- Increased peak and total annual flow volumes in rivers and streams due to increased runoff in proportion to the degree of upstream development and impervious cover, with the greatest increases in summer and fall.
- Increased erosion potential affecting stream stability will create and exacerbate erosion sites even with implementation of stormwater management ponds in new development.
- Minor decreases in ground water levels in portions of all aquifers in the Humber, however protective policies of the Oak Ridges Moraine Conservation Plan and Greenbelt Plan contribute to protecting important recharge areas, but whitebelt lands have generally low recharge rates as they are composed of clay soils.

A robust Natural Heritage System is key to improving downstream water quality and reducing the impacts of upstream development

The Humber, Rouge and Don Watershed Plans recommend a number of best practices to offset impacts and enhance these water systems including, but not limited to:

- Enhancement of the terrestrial natural heritage system and linkages. In this regard the Greenbelt Natural Heritage System in the City of Vaughan encompasses large areas of land adjacent to the main branch of the Humber River and will act as core areas along with the TRCA terrestrial natural heritage system and provide opportunities for restoration and enhancement. In the Town of Markham, the Greenbelt Plan extends along the main and tributary branches of the Rouge River. Opportunities for restoration and enhancement in this watershed will be pursued as part of the implementation of the Rouge North Management Plan.
- New development and intensification to the extent possible must utilize green technologies for stormwater management such as green roofs, grey-water re-use and rain water harvesting, permeable pavements where possible, naturalized landscaping, pesticide and fertilizer management, reduced energy demand and winter road maintenance practices that minimize de-icing compounds where possible.
- Higher densities to ensure effective utilization of land and services.

Given that York Region's preferred growth scenario is lower than the TRCA full development scenarios in most watersheds, it can be expected that impacts on water budgets and balances will be marginally less. However, detailed calculations of water balance will be required as part of the Master Environmental Servicing Plans in developing areas.

Potential development envisioned in the Don Watershed is greater than TRCA models predicted; therefore further work is necessary to identify impacts and mitigation

At the time the Comparative Analysis was undertaken in the spring of 2008, information on the Don River was still to be provided. Part of this information is now available and is appended as *Attachment 1*.

The main area of issue in terms of the land budget is the TRCA's inclusion of a wide east-west terrestrial natural heritage linkage in the central portion of the Don River-Vaughan whitebelt. This is depicted on Figure 1 attached.

The Authority maintains that developing of connections between the Upper West Don River corridor and a corridor leading to Purpleville Creek in the Humber River watershed, an area with a relatively rich degree of biodiversity, is important to maintaining biota in both watersheds. Regional staff has yet to be convinced that this linkage can effectively be achieved. At the very least, this would require significant securement activities before restoration and enhancement could be undertaken over the long term. The City of Vaughan is currently undertaking an environmental planning component as part of their Official Plan background work. Discussions are on-going with

Vaughan and the TRCA regarding this proposed terrestrial linkage, its need and opportunities for achievement.

TRCA also advises the introduction of additional development in the Don River watershed may also be at least locally significant in terms of its potential effect on stream hydrology, since the southern portion of this sub-basin is already developed. While the tributaries of the Upper West Don are currently among the few quality streams remaining in the watershed, TRCA expects they will soon begin to show the typical signs of erosion and water quality degradation associated with urban impacts.

TRCA modelling of existing urban areas, combined with the greenfield build-out identifies that stormwater management facility retrofits have the potential to reduce erosion in this catchment area by up to 13% over 2005 conditions. Given that York Region assumes a higher development level than the TRCA build-out, it will be even more important that best practices and stormwater management retrofits be undertaken as part of future development to mitigate impacts.

Further discussions are therefore necessary between the Region, TRCA and the City of Vaughan as the preferred scenario is allocated to traffic zones to ensure that impacts can be mitigated and natural heritage objectives can be met.

Restoration and Mitigation required in Intensification Areas as well as Whitebelt Areas

The TRCA studies are also significant for intensification sites in existing built-up areas, where opportunities for mitigation may be constrained. While it will be important in these areas to require the highest standard of green building necessary to mitigate impacts both on-site and downstream, there is a need to balance these imperatives with both fiscal and community goals in Regional city-building. As well, remediation of existing stormwater management facilities throughout the watersheds must be undertaken to ensure they function as planned and restoration of degraded sites must be increased to ensure a robust natural heritage system.

The Region and the City of Vaughan are currently reviewing land budgets for the 2031 period as part of background work to the new official plan. As well, consultants of the City are developing a natural heritage system. The TRCA's comments and desire for this east-west linkage will be discussed with Vaughan as part of ongoing work and the implications, from a land budget standpoint, will be assessed.

Best practices for both new development and for retrofitting intensification areas will be required regardless.

Next Steps

Modelling work for scenario development will continue and be refined as development applications are brought forward, however, it is clear at this time that changes, to offset the impacts on surface and groundwater systems will be required as new community development and intensification occurs.

The Region will take the lead and partner with a range of agencies to ensure that development occurs differently in the future, through the New Communities Criteria, Best Practices for Intensification Areas and through the Natural Heritage Strategy.

These changed standards will be embodied within future Regional policy work as the growth management exercise proceeds.

Relationship to Vision 2026

Vision 2026, York Region's strategic plan for the future, establishes the overall vision and direction for Regional Council. As well, Council has adopted the Sustainability Strategy and the Natural Heritage Directions Strategy. Further work is being undertaken on New Communities Criteria and Best Practices that will determine a new way of proceeding with development. TRCA watershed studies, LSRCA work on Lake Simcoe and the Provincial proposed *Lake Simcoe Protection Act*, 2008 and Plan all require that development takes place differently in the future.

5. FINANCIAL IMPLICATIONS

Costs of stormwater retrofits and natural heritage restoration and enhancement are substantial but required

Currently only the LSRCA study has attempted to quantify the costs of retrofitting development in the York portions of the Lake Simcoe basin. These costs are substantial and largely unfunded. Future development charges or other funding mechanisms should be sought to ensure retrofits occur in a timely fashion.

6. LOCAL MUNICIPAL IMPACT

Local municipalities are all pursuing and analysing the impacts of improved standards on their quality of life and their natural systems. The impacts identified in this report will be shared with local municipalities; however changing standards identified in this report are consistent with current municipal thinking.

7. CONCLUSION

An Environmental analysis of the preferred growth scenario has been undertaken and has identified a number of conclusions that will need to be reflected in future community planning. These are:

- The Natural Heritage System, including lands within the Natural Heritage System of the Greenbelt Plan, forms a good base but must be restored and enhanced.
- The preferred growth scenario is aggressive, even in terms of Conservation Authority modelling for both stormwater runoff and for water balance and water budgets. New communities in whitebelt areas will need new community development criteria to ensure that downstream impacts are mitigated. Examples of mitigation are included in watershed plans and will be further identified in the Regions New Communities Criteria. Further analysis and fine tuning of required elements will be undertaken as part of the Master Environmental Servicing Study process when applications come forward.
- Retrofits for stormwater management facilities and restoration of natural systems in existing built-up areas are an ongoing challenge and an opportunity to provide an improved quality of life.
- Changes required to development criteria and targets for stormwater management in the Lake Simcoe watershed are unknown at this time, but will likely be dependent on the proposed *Lake Simcoe Protection Act, 2008* and the proposed Lake Simcoe Protection Plan currently in preparation. These changes will be included as the Lake Simcoe Plan proceeds and as Regional New Communities Criteria are brought forward.

For more information on this report, please contact John Waller, Director, Long Range and Strategic Planning at 905 830-4444. Ext. 1525.

The Senior Management Group has reviewed this report.

(The two attachments referred to in this clause are attached to this report.)