



OURHRM
ALLIANCE

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To: Douglas Olson, President + CEO, O2 Planning + Design.

From: Our HRM Alliance Greenbelt Scientific Advisory Committee

Re: Principles crucial for the success of the greenbelt in protecting biodiversity and ecosystem services.

Date: April 20, 2015

Dear Mr. Olson,

The Greenbelting and Public Open Space Priorities Plan is an unprecedented opportunity: Halifax Regional Municipality is poised to establish the long-term land use management rules needed to ensure that the natural ecosystems of the region will thrive. The urban core of Halifax is surrounded by forest and edged by natural coast, unlike many other Canadian cities where suburbs are replacing farmland at the urban fringe. Even our suburbs are interspersed with wild land. The largest urban population in Atlantic Canada has practically back-door access to forested and barren wild lands, innumerable lakes and rivers and 2000 km of coastline. This wilderness is a hiker's, biker's and paddler's dream.

HRM citizens greatly value the amenity of wild and semi-wild spaces. Nature-oriented outdoor clubs are thriving: for example, participants in out-door oriented MeetUp groups are now in the thousands. Twenty trail groups are hard at work creating and maintaining ecologically compatible trails. The Safety Minded ATV Association and others build multiuse trails and encourage responsible ATVing. Paddling groups work to widen the circle of folks who access wild spaces via the water.

While the wild lands, coast, lakes and rivers of HRM are important for human health and well-being, they are essential for protecting and conserving local and global biodiversity; examples include a small population of endangered mainland moose on the Chebucto peninsula, habitat for the threatened Canada Warbler, and the globally rare Jack Pine/Broom crowberry barrens. Our wildscapes maintain ecosystem services crucial for the health of our natural and human developed communities: for example, our substantial forests clean our air, and stabilize the soil; wetlands (this area is rich in bogs, fens, swamps and coastal wetlands) store carbon and control water quality and quantity in our rivers, lakes and in the ground.

Halifax can and should boast about its 11 provincial Protected Wilderness Areas and portions of three others, as well as various smaller Nature Reserves and lands protected by covenants or purchased by the Nature Conservancy of Canada or Nova Scotia Nature Trust. Add our municipal and provincial parks and 16 percent of the municipal land area is protected from development.

However, while such areas protect important habitat and are essential to conserving biodiversity,



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they are too small and dispersed to do the job on their own. The wilderness in between these areas exists by chance, not by design, and is therefore vulnerable to development. Large, contiguous wildlands protect species from extinction. A population of a plant or animal species might die out in one area because of a chance event (e.g. fire, hurricane), but can re-establish if individuals from another population recolonize remaining local, suitable habitat. When wildland habitat is fragmented into isolated patches (e.g. by roads, houses, farms and forestry clear cuts), populations also become isolated. The more fragmented and distant habitat patches are, the harder it is for individuals to replace losses or to increase genetic diversity in a population. A sudden loss of a population in one locale can be permanent. Multiple losses can mean local extinction. If the species is already threatened or endangered, the loss can be global. Fragmentation over the whole range of a species can cause it to go extinct. An estimated 80 percent of recent species losses have occurred through habitat fragmentation. Remnant populations may persist for long periods, so the full effects of massive habitat loss and fragmentation since the 1950s are only just beginning to unfold.

To slow or reverse our march towards a major extinction event, conservation science tells us that we need to manage large areas for biodiversity conservation, with natural corridors connecting high quality habitats across roads and through larger patches of highly altered landscapes. How large an area needs to be so managed? Conservation science estimates that we need 50 to 60 percent of the landscape in general, and for Nova Scotia in particular. Remarkably, Halifax still retains a mostly natural landscape (approximately 85 percent of HRM is classified as Open Space & Natural Resource land) and 43 percent of undeveloped land is publicly owned, including the 16 percent in Parks and Protected Areas. Thus a goal of managing at least 50 percent of our capital region area for biodiversity conservation is well within our grasp. The proportion of public land in our municipality is uncommonly high for the Province as a whole: provincially, only 29 percent of our land is Crown land. Thus Halifax Regional Municipality has an exceptional opportunity to manage wild public land for biodiversity conservation.

Halifax Regional Municipality has committed to greenbelting in the new Regional Municipal Planning Strategy (2014) as a parks and open space planning approach. We applaud this recognition and policy direction. We will support its implementation by advancing a greenbelting strategy that has at its core principles conservation of biodiversity and protection of ecosystem services that support all life and protect sustainable human development. A greenbelt planned and designed on these principles will establish Halifax Regional Municipality as a leader in natural urban wildland conservation and biodiversity protection and ecological land use planning.

Planning Principles

Overarching principals:

- Apply principles of landscape ecology and conservation biology (best practices) to guide the plan and the planning process; specifically,
- Preserve and enhance natural land- and waterscape structures, functions and processes; and



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- Plan the municipality as a matrix of natural lands with urban and other developed areas as patches or islands within the matrix (so-called ‘reverse matrix’).
- All other principles and practices flow from these core principles.

General principles:

- Planning extends beyond HRM boundary to:
 - Consider larger-scale processes and structures; and
 - Connect to important natural areas outside HRM
- Plan at multiple scales:
 - Fine neighbourhood, local and urban scale (walking distance to urban natural parks; urban wilderness; fingers and ribbons of green); and
 - Regional scale (natural blocks and interconnecting linkages)
- Consider both public and private lands of high ecological and natural heritage value;
- Ensure natural and wild public areas are accessible by:
 - foot within ‘x’ minutes of walking; and
 - bus
- Biodiversity conservation must be a primary objective on 50-60% of land and water
- Ensure natural wild areas are connected for:
 - biodiversity; and
 - people

Biodiversity conservation planning principles:

- Biodiversity conservation is a primary objective on 50 to 60 percent of the surface area of land and water spaces in the HRM;
- Incorporate terrestrial, aquatic and coastal/marine biodiversity;
- Incorporate considerations of three tracks:
 - Focal species;
 - Representation of eco-sites; and
 - Special elements (e.g., rare and endangered species; hotspots of diversity and rarity; old growth remnants, etc.);
- Incorporate resilient sites (i.e., geophysical diversity, local connectivity, and regional flows such as identified by TNC);
- Protect remaining areas of no roads and low road density;
- Create networks of core, connected and buffered areas:
 - Large areas (and small); and
 - Connected, at various scales
- Ensure connecting linkages or corridors are sufficiently wide and managed to maintain the biodiversity values for which they are established;
- Give special attention to riparian zones as corridors, expanding buffer zones accordingly, e.g. to 150 m (all watercourses should have a minimum 30 m buffer);



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- River headwaters and floodplains should be highlighted;
- Lakes that remain undeveloped, likewise lake islands (large and small) that remain undeveloped should be highlighted and protected as much as possible;
- Incorporate monitoring of aquatic habitat and water quality;
- Give special attention to edge, transitional, and ephemeral ecotones; specifically:
 - Aquatic and riparian zones, including vernal pools and seasonal watercourses;
 - Coastal zone – the interface between land and ocean that is especially critical in the planning process of this coastal municipality. Connectivity along the coast as well as inland, especially along river courses, ensures the health of maritime wilderness systems. Strategy for the zone should be related to the 100 Wild Islands Legacy Campaign.

Tools:

- Policy principles:
 - Establish a tiered approach to land-use planning for conservation composed of the following categories, or other categories that achieve the same goals:
 - Core Conservation Areas (e.g., ~20 percent of land area): Land formally protected by the municipality or province;
 - Biodiversity Management Areas (e.g., ~30 percent): Development is carefully regulated to ensure species' habitat is maintained;
 - Connectivity land (e.g., ~10 percent): Development is regulated to ensure wildlife may pass between Core Conservation Areas and Biodiversity Management Areas;
 - Working Landscapes: Land designated for agriculture, mining, forestry or other land use but not large-scale residential development; and
 - Coastal Management Areas: Regulations focus on protecting cultural heritage, maintaining connectivity between ocean and wilderness, limiting erosion by maintaining native plant species on coastlines, and reducing effluent discharge from settlement.
 - Implement interim land-use development controls to avoid 'buccaneer' development during the planning period;
 - Develop policy and governance tools to allow consideration and inclusion of private lands;
 - Work at multiple scales;
 - Clearly identify key stakeholders, and include members of the general public as stakeholders;
 - Fully engage the public to identify and plan for areas that are important for recreation, conservation, sustenance, livelihoods, aesthetics, spirituality, etc.;
 - Prohibit resource extraction in core areas;



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- Implement forestry and agricultural conservation practices in connectivity and linkage and buffer areas (that is, retain wider riparian buffers, use smaller clear cuts, and leave larger wildlife habitat patches and more connected habitat);
 - Issue an Annual Report Card on the State of the Greenbelt
 - Contain development in the natural landscape matrix through densification and clustering and retain as much natural topography and vegetation as possible in urban development; and
 - Restore and retrofit existing development with natural vegetation as opportunity arises (e.g. daylight streams, replace exotic with indigenous tree species in the urban forest, install natural vegetated swales for storm water management in parking lots – which also enhances the aesthetic environment, etc);
- Technical principles:
 - Use diverse engagement tools including: community meetings; small group discussions (“kitchen meetings”); design charrettes; crowd sourcing; social media tools and other techniques; for optimal public input;
 - Use Google Earth Pro with polygon overlays for clear communication of the plan;
 - Work at multiple scales;
 - Use best practice site planning and design for wildlife road crossings (underpasses, overpasses, culverts, directional fencing, etc.); and
 - Determine a defensible, equitable, socio-ecologically-based system for weighting of values (e.g., which layers are to be considered; how are they weighted; which ones count; who decides). Ensure a clear process for input to determine weighting.

We are ready to begin work on this very important initiative. It is not often that a city redefines its form, and especially not often according to ecological planning principles. These are the principles we will advance. We are very much looking forward to working with you.

Sincerely,

Tristan Cleveland

A handwritten signature in black ink that reads 'Tristan Cleveland'.

On behalf of the OurHRM Alliance Greenbelting Scientific Advisory Committee:

- Patricia Manuel, Associate Professor, Dalhousie University’s School of Planning
- Karen Beazley, Professor, School for Resource and Environmental Studies
- Martin Willison, Professor of Biology, Dalhousie University, retired.
- David Patriquin, Professor of Biology, Dalhousie University, retired.