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# **Natural Areas Enhancement and Preservation**

May 23, 2003

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# Natural Areas Enhancement and Preservation

## Introduction

The Office of the City Auditor's (OCA) 2002 Annual Work Plan included a project, "Natural Areas Enhancement and Preservation," that was intended to examine Edmonton's management of its natural areas.

The management of natural areas, however, is in transition. The Community Services Department is developing an Urban Parks Management Plan that would provide a long-term strategy for the acquisition, development and maintenance of school and parkland including natural areas in the River Valley and Ravine System. Additionally, Council recently funded the position of Conservation Coordinator to oversee the implementation and coordinate the ongoing management of City Policy C467, *Conservation of Natural Sites in Edmonton's Tablelands*.

The OCA therefore redefined this project to complement the work of both the Conservation Coordinator and the Community Services Department.

## Background

Conservation of Edmonton's natural areas became a focal point in 1985 when Edmonton recognized the need to better guide development in the River Valley and establish a Bylaw outlining permissible uses. Bylaw 7188, *North Saskatchewan River Valley Area Redevelopment Plan Bylaw*, decreed that the river valley and adjoining ravines would be primarily used for major urban and natural parks and for environmental protection purposes.

Although the North Saskatchewan River Valley Bylaw protected the river valley in part, no policies were in place to protect natural areas in the tablelands.<sup>1</sup> Prior to developing a policy, the City engaged Geowest Environmental Consultants in 1993 to provide an inventory of the City's natural areas in the tablelands.

The City adopted Policy C467, *Conservation of Natural Sites in Edmonton's Tablelands* in 1995 to encourage the conservation and integration of as many environmentally sensitive and significant natural areas into Edmonton's future urban environment as were sustainable and feasible. One of the expectations was the creation of a Conservation Coordinator position to implement the policy and to coordinate management of natural areas in the tablelands.

Additional impetus was given to the protection of natural areas with the creation of Edmonton's municipal plan, *Plan Edmonton*, in 1998. The Plan identifies "preservation and enhancement of the natural environment and open spaces" and "protection of the natural environment" as two of its many priorities. The subsequent Environmental Strategic Plan issued in 1999 supported these priorities through its objectives and key strategies.

In 2000, the Community Services Department formalized its commitment to the conservation, preservation and protection of natural areas through its long-term plan, the Integrated Service

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<sup>1</sup> Tablelands are those suburban and agricultural lands, outside of the North Saskatchewan River Valley that were annexed to the City of Edmonton in 1982.

Strategy (ISS). The document outlined Community Services' targets, success indicators and actions to preserve and enhance City's river valley system and system of parks and natural areas.

Concurrently, the Alberta Environmental Network Society approached the City in 2000 to partner on a project to collectively save more natural sites, a direction supported by the ISS. The resulting report, *Conserving Edmonton's Natural Areas: A Framework for Conservation Planning in an Urban Area* (2001), identified a series of actions to be taken by both the City and Community to further the efforts to conserve important elements of our natural heritage. Council adopted most of the recommendations in the fall of 2001, and funded the position of Conservation Coordinator. A Conservation Coordinator was appointed in April 2002.

A summary of additional corporate actions impacting preservation of natural areas from 1985 to the present is presented in Appendix A.

## Governance Model

Over the past several months, the City Administration has worked to develop a governance model that would help facilitate natural areas management. The model has since received approval by the Senior Management Team.

The purpose of the Governance Model for Natural Areas Conservation is to:

- Effectively integrate Plan Edmonton's Vision, the associated principles and the City Policy and strategic directions on the topic of conservation of natural areas into City operations;
- Ensure that policies, procedures and practices are in place in all City operations to address natural conservation policy and issues;
- Provide general direction for incorporating conservation of natural areas and a conservation ethic into departmental operations;
- Ensure effective coordination of interdepartmental and corporate activities and projects;
- Provide a focal point for natural area initiatives, information and status reporting; and,
- Facilitate the coordinated development of City of Edmonton positions or submissions on natural area conservation matters to outside agencies.

The natural areas governance model proposes three standing committees: the Senior Management Team, the Natural Areas Policy Implementation Committee and the Natural Areas Advisory Committee.

- The Senior Management Team will provide strategic direction to the Natural Areas Policy Implementation Committee regarding conservation issues and will consider recommendations from the Natural Areas Policy Implementation Committee and the Natural Area Advisory Committee.
- The Natural Areas Policy Implementation Committee will provide coordination and direction of the natural area conservation activities of the City. This 7-member committee will be comprised of managers from Community Services, Planning and Development, and Asset Management and Public Works Departments.
- The Natural Areas Advisory Committee will advise the Natural Areas Policy Implementation Team on policy and operational matters relevant to Administration's responsibilities for

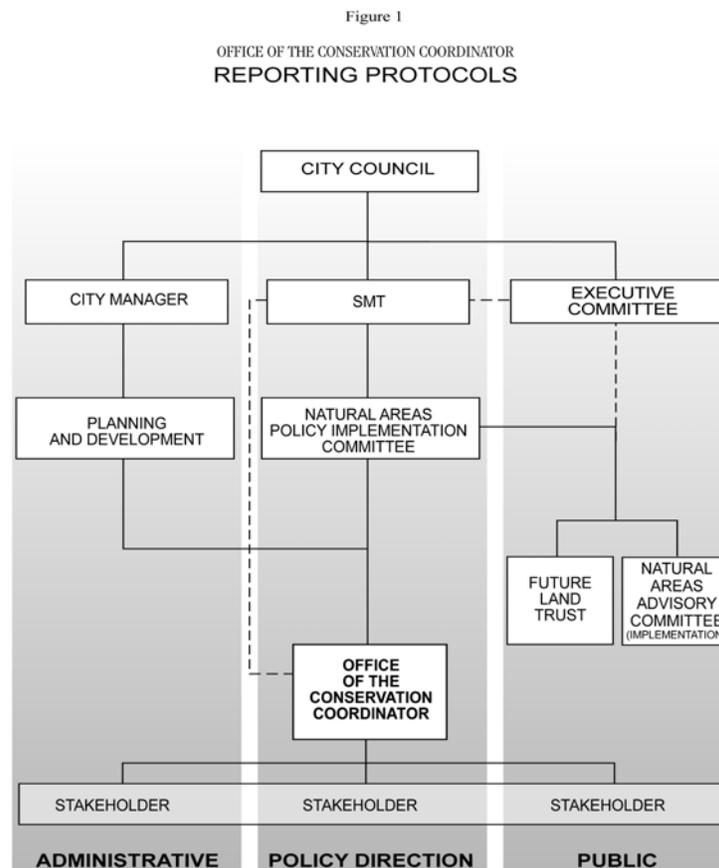
Natural Areas Conservation. This 12-member committee will be chosen from persons outside the City Administration who have demonstrated expertise and interest in the conservation of natural areas and related matters. The Natural Areas Advisory Committee will be expected to report to Executive Committee at least once a year.

There is also the potential for the creation of ad hoc committees and a future land trust. If a future land trust is created, its role will be to bring information or requests to the City of Edmonton via the Natural Areas Policy Implementation Committee.

The General Manager of Planning & Development will retain organizational responsibility for the Office of the Conservation Coordinator and provide administrative support to the Natural Areas Policy Implementation Committee and the Natural Areas Advisory Committee.

The Office of the Conservation Coordinator will support and facilitate the effective operation of the Natural Areas Policy Implementation Committee and the Natural Areas Advisory Committee.

The reporting protocols are illustrated in Figure 1.



## Observations

The OCA asked City departments to provide an overview of their initiatives and challenges with respect to natural areas. Their complete responses are presented in Appendix B. Overviews of the five main challenges the OCA identified is presented below, in no particular order.

### *Differing Mandates*

Departments acknowledge that their mandates can and occasionally do differ. Key differences identified are as follows:

- Retention of City-owned natural lands for conservation purposes that were originally acquired by the City for development purposes may compromise the Land Enterprise Fund.
- Fire Rescue Services needs greater access and hydrants in the river valley and ravine system, which could impact the functioning of parts of the natural areas network.
- There are shared corporate concerns regarding the impact of untreated storm water on natural water bodies. Drainage Services is working to ensure a sustainable water supply to the wetlands exists, and that wetlands are not degraded by untreated storm water inputs.
- Transportation and Streets is attempting to balance natural area preservation with traffic safety, access and mobility issues.

Differing mandates are not limited to City departments. The Province's no-net-loss policy has the effect of mitigating City wetland loss with replacement of wetlands outside of the City limits. Wetland creation outside the City of Edmonton could result in a significant or complete loss of wetland natural areas within our city limits.

The departments are making concerted efforts to work together and find mutually agreeable solutions and the Conservation Coordinator is developing stronger working relationships with various provincial representatives.

### *Short-term Focus*

Departments highlighted the importance of the City formulating and broadly communicating long-term conservation objectives. The City does not currently have a long-term vision of its natural areas system, which increases the potential for fragmented conservation, increased costs, and conflict and frustration between various stakeholders.

Generally, natural areas have been acquired opportunistically rather than strategically, because of time pressures and limited resources. The risk is that the integrity of the natural areas system may be compromised if natural areas become more isolated and fragmented due to development and other pressures. Additionally, natural wetlands cannot effectively function in isolation as land surrounding natural wetlands is developed. Considerable effort must be made to include natural area wetlands within developed landscapes.

Opportunistic purchases may also have serious implications in terms of drainage and transportation infrastructure plans and costs. For example, Edmonton's rapid growth and the push for suburban development mean that greater demands are being placed on the City's drainage infrastructure. Wetlands can be used to mitigate some of this demand, but in some cases landowners are filling in the wetlands to make their land more developable, and thereby more marketable. This adversely affects the hydrological integrity of the wetland system, limits

the City's stormwater management options and increases the costs of stormwater management.

An unplanned purchase of a natural area can also substantially impact the transportation network and can have significant impacts on roadway network continuity and accessibility. Cost implications can be significant and are borne by both the City and adjacent landowners. Therefore, being able to anticipate the incorporation of a natural area into the cityscape can improve costs and the efficient functioning of the transportation network.

The voluntary nature of Policy C467, *Conservation of Natural Sites in Edmonton's Tablelands*, necessitates greater communication efforts to educate developers and other landowners of the value of natural areas and to encourage landowners to protect and conserve them. Once landowners have a better idea of the long-term vision of the City's natural area system, the conservation process may become more collaborative, efficient and effective.

### ***Limited Conservation Tools***

The City has limited means to acquire natural areas, using primarily municipal and environmental reserves where applicable. This generally limits both the amount and the type of land that the City can acquire.

Currently, the City of Edmonton does not acquire wetlands as environmental reserve due to the financial impact on developers. However, according to the Drainage Services, Alberta Environment officials state that the City could exercise direct control over natural wetlands under the *Municipal Government Act* in concert with the *Water Act*, through the development of specific bylaws.

Municipal reserve dedication is also a very limited solution to conservation because the land is primarily allocated for schools and playing fields. The City has legal commitments to the school boards to provide a certain amount of land for schools and to jointly plan the location of these sites. The location of these sites may not coincide with the location of a natural area and there may not be enough money or land to achieve both aims.

Participation of the development industry should be considered to be an important conservation tool. To date, conservation of natural areas through the development process has been the most successful way of expanding the City's network of natural areas.

### ***Limited Resources***

Governments at all levels are challenged in terms of allocating adequate resources to needed initiatives. For example, the provincial government is seeking greater involvement from the City of Edmonton in monitoring lands that fall within the province's jurisdiction. At the same time, the City is struggling with budget constraints and is reluctant to embark on new initiatives.

The City's Natural Areas Reserve Fund was established in 1999, and sets aside approximately \$250,000 per year to facilitate the acquisition and conservation of natural areas. Departments note, however, that additional resources are required to properly manage the ongoing ecological health of natural areas, a responsibility that extends well beyond the acquisition investment. This includes the costs of ensuring that any surface run-off directed to a wetland for stormwater management meets quality standards, that biodiversity is maintained, and that encroachments are detected and discouraged. The City relies on its broad-based expertise,

augmented by external experts and community partners, where possible, to ensure that issues related to biology, hydrology, engineering, and planning are properly addressed.

The Conservation Coordinator is developing partnership arrangements in order to increase the capacity of the City of Edmonton to undertake conservation initiatives. By working with development and environmental communities, the City can develop additional means by which to protect natural areas. The City needs to determine with whom and how it can partner with outside agencies to protect its natural areas. Funding should not be the City's sole role.

### ***Incomplete or Dated Information***

In the past, there have been challenges regarding how information was shared among City departments, between governments and with other stakeholders. This issue may be resolving itself, as parties focus on improving the accessibility and completeness of the information. Two examples of these initiatives are improved accessibility to the City's Property Planning One Stop Service (POSSE) and the development of a natural area management plan guidebook.

The City's POSSE System is now functioning in the Planning and Development Department and most recently in the Asset Management and Public Works Department. Additionally, further use of the City's Intranet and/or the Internet will aid in the sharing of data among City departments and other stakeholders. Both media will facilitate more effective decision-making. The Planning and Development also has plans to use POSSE to flag Environmentally Sensitive Areas and Significant Natural Areas, which will aid other departments in their planning.

Developers prepare natural area management plans for the City, which detail the baseline data for a natural area. The studies are prepared at the developer's expense and submitted to the City as part of the planning process. The information contained in these studies is not always complete, accurate or reliable. Recently, however, the quality of the information has improved as the City, developers and consultants become clearer about information and process requirements.

To further increase the quality of information received, the Conservation Coordinator is working with other parties to develop a natural area guidebook that would provide greater direction for the preparation of management plans. The Natural Areas Management Plan Guidebook will be circulated to all affected departments for comment and will ultimately be endorsed by Senior Management Team. The Conservation Coordinator has also reviewed and commented on the Constructed Wetlands Servicing Standards that have been recently developed by Drainage Services Branch.

A significant, unresolved issue is the absence of an official Provincial list of permanent water bodies (e.g., some wetlands) that exist within the City of Edmonton. The lack of a list causes surprises and frustrations in the development process because landowners are often unaware that the Province can take control of the bed and shore of permanent water bodies.<sup>2</sup> The Conservation Coordinator continues to work toward development of such a list so that these water bodies can be included in the City's planning well before construction projects or land use decisions are imminent.

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<sup>2</sup> The issue of determining which water bodies are Crown is a long-standing issue with the City of Edmonton. The Province has stated that they do not want to spend the resources to assess whether the water bodies are Crown but will do it on an individual basis, as it becomes necessary. The City estimates that there are likely 32 sites in the City of Edmonton that meet the definition of permanent water bodies that will eventually be claimed by the Crown. It is being assumed that the Province will claim all water bodies until advised otherwise.

## Conclusion

Over the past 18 years the City of Edmonton has taken significant corporate actions protecting natural areas in the river valley and ravine system, parklands, and tablelands. Now, with the creation of the Office of the Conservation Coordinator, the City has the potential means with which to effectively address the 5 conservation challenges that the OCA noted in this document. The Office of the Conservation Coordinator can facilitate the integration of departmental mandates, the formation of a long-term conservation vision, the creation of additional conservation tools, the maximization of resources both internally and externally and the sharing of information.

It must be emphasized that the Office of the Conservation Coordinator is charged with an immense undertaking and the OCA considers the Conservation Coordinator's workload over the next three to five years to be fairly ambitious and challenging. City Council will be kept apprised of progress through the current requirement in Policy C467 that the Conservation Coordinator report annually to Council. The first annual report will be for the year 2003.

The success of the Office of the Conservation Coordinator will be dependent, in part, upon sponsorship by a Senior Management Team (SMT) manager who will be assigned responsibility and accorded the authority needed to fulfill that responsibility. Currently, no one member of the Senior Management Team is assigned this role. Without an SMT sponsor, the Office of the Conservation Coordinator may not attain the desired momentum, support, accountability and outcome. Another vital component is corporate commitment to the concept, given effective protection of natural areas is dependent upon all departments.

It is the OCA's opinion that, with the implementation of the Governance Model for Natural Area Conservation, the City is strategically positioned to advance required tableland conservation initiatives and further communication between stakeholders. The Office of the Conservation Coordinator has been designed to draw together decision-makers, project personnel and expertise from across the City administration. Great gains in the City's conservation objectives can be gained by working collaboratively.

### Management's Comments:

The success of the Office of the Conservation Coordinator will be dependent upon sponsorship by a SMT manager. The Governance Model for the Office of the Conservation Coordinator approved by SMT late last year has assigned management responsibility to Planning and Development and by extension the General Manager. In addition, with the creation of the Natural Areas Policy Implementation Committee, the development of a corporate perspective on natural area conservation will be developed. SMT will oversee the functioning of this committee.

## Appendix A: Significant Corporate Actions Protecting Natural Areas

- 1985 City Council enacts Bylaw 7188, *North Saskatchewan River Valley Area Redevelopment Plan Bylaw* to set forth permissible land uses within the river valley.
- 1989 City Policy C456, *Corporate Tree Management* is adopted by Council, serving to protect the trees on municipal property, including natural treed areas, and obtain equitable compensation if trees are damaged or lost.
- This same year, Council adopts City Policy C307, *Parkland and North Saskatchewan River Valley Utility Installation* to minimize damage to Edmonton parkland through environmental impact assessments of proposed utility installations.
- 1991 City Council adopts the following environmental mission statement: *“The City of Edmonton is committed to conscientious environmental management, practices and stewardship in all aspects of its corporate activities.”*
- 1993 The Planning and Development Department enlists consultants to create an inventory of Edmonton’s natural areas within the tablelands (i.e., lands annexed in 1982).
- 1994 The City establishes the Environmental Steering Committee to ensure that the planning, implementation and monitoring of environmental management functions within civic operations are carried out in a coordinated, effective and efficient manner.
- 1995 City Council passes Policy C467, *Conservation of Natural Sites in Edmonton’s Table Lands*. The purpose of this voluntary policy is to ensure consistent, uniform and equitable conservation of natural sites beyond the river valley.
- 1998 Council approves its Municipal Development Plan, *Plan Edmonton*, which includes “preservation and enhancement of the natural environment and open spaces” and “protection of the natural environment” as priorities.
- 1999 The Environmental Strategic Plan is approved by City Council, and includes “minimiz[ing] the loss of natural heritage, specifically biodiversity and natural areas” as one of its objectives. Additionally, Natural Areas Reserve Fund is established to facilitate the acquisition and conservation of natural areas.
- 2000 The Community Services Department releases its Integrated Service Strategy, highlighting “Ribbons of Green and Blue” as one of the six key service themes in the department’s long term plan. The document outlines Community Services’ targets, success indicators and actions to preserve and enhance City’s river valley system and system of parks and natural areas.
- Bylaw 12308, *Unauthorized Use of Parkland* is passed by Council to give the Administration a tool to assist in control and elimination of encroachments without having to resort to litigation.
- 2001 Community Services and the Alberta Environment Network jointly sponsor the report *Conserving Edmonton’s Natural Areas (A Framework for Conservation Planning in an Urban Area)*. The report provides a ranking of Edmonton’s significant natural areas and makes several recommendations, including the need for a Conservation Coordinator. Council adopts most of the recommendations in the fall of 2001.
- 2002 The City appoints its first Conservation Coordinator and drafts a governance model for natural areas conservation, titled the “Office of the Conservation Coordinator.”

## Appendix B: Current Departmental Initiatives and Challenges

Each section represents the department's perspective on its initiatives and challenges with respect to natural areas.

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### *Planning and Development*

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#### Initiatives

Three main initiatives directly support the protection of natural areas: the proposed governance model, site conservation efforts, and partnerships. These are initiatives of (or supporting) the Conservation Coordinator and serve to complement other departmental initiatives.

#### **1. Governance Model**

The Planning and Development Department and the Community Services Department have drafted a governance proposal that would see the creation of the Office of the Conservation Coordinator (OCC). The Senior Management Team (SMT) has recently approved the model, and it will be presented to City Council for review in 2003.

The purpose of the OCC is to provide a governance structure that provides general direction for incorporating the conservation of natural areas. Additionally, its role is to support a "conservation ethic" into departmental operations, and to ensure effective coordination of interdepartmental and corporate activities and projects. Various committees comprised of internal and/or external stakeholders are being considered to advise the OCC – including a Natural Areas Policy Implementation Committee comprised of branch managers and a Natural Areas Advisory Committee comprised of citizens and members of organizations. The Planning and Development Department would retain organizational responsibility for the OCC.

The Conservation Coordinator has developed a three-year work plan that covers such areas as natural areas planning, the approval process, site conservation, partnerships, and community outreach, as well as management systems, metrics and cartography. The work plan includes priorities and target dates for completion and will be approved and finalized by the proposed Natural Areas Policy Implementation Committee early in 2003. This accountability framework is further strengthened by the Administrative Procedure for Policy C467 that requires annual reporting to Council.

#### **2. Site Conservation**

IDENTIFICATION OF POTENTIAL SITES FOR CONSERVATION. The Conservation Coordinator has recently completed a review of all Environmentally Sensitive and Significant Natural Areas in the table lands that are owned by the City of Edmonton but do not have conservation status and are at risk of sale for other purposes. Nine natural areas owned in full or in part by the City of Edmonton have been identified and the Asset Management and Public Works Department has placed the sale of these properties on hold. When the Office of the Conservation Coordinator is functioning, this matter will be reviewed to determine how many of these properties can be conserved.

The Conservation Coordinator and the Manager, Planning and Policy Services, have met with Alberta Infrastructure regarding the sale of surplus lands for the Transportation Utility Corridor/ Restricted Development Area right-of-way. Portions of 11 environmentally sensitive areas and/or significant natural areas have been identified as recently sold or currently for sale. Alberta Infrastructure is now aware of the City of Edmonton's interest in obtaining these sites

for conservation purposes and plans are being made to find a way to conserve the remaining sites.

SCHONSEE WETLAND MANAGEMENT PLAN (NE8094). The City of Edmonton is developing a Neighbourhood Structure Plan for Schonsee Neighbourhood. Part of this work includes the production of a management plan for an 11-hectare wetland. A 1999 analysis of the conservation value of natural areas in Edmonton by Community Services ranked this site as the second most important natural area in the city.

OGILVIE RIDGE WETLAND MANAGEMENT PLAN (SW6002). A management plan is currently being finalized for Ogilvie Ridge Wetland in Hodgeson Neighbourhood in southwest Edmonton.

PYLYPOW WETLAND (SE5093). Pylypow Industrial Area Structure Plan is currently being completed and it is anticipated that that Pylypow wetland will be conserved.

NATURAL AREA MANAGEMENT PLAN GUIDEBOOK. A natural area guidebook is in preparation to provide direction for the preparation of management plans. Currently, there is not a common understanding of what a management plan should include and who should manage natural areas. The Natural Area Management Plan Guidebook will be circulated to all affected departments and will ultimately be endorsed by Senior Management Team.

CONSTRUCTED WETLANDS SERVICING STANDARDS. The Conservation Coordinator has reviewed and commented on the Constructed Wetlands Servicing Standards that have been recently developed by Drainage Services Branch.

### **3. Partnerships**

The Conservation Coordinator is developing partnership arrangements in order to increase the capacity of the City of Edmonton to undertake conservation initiatives. At the time of writing, the following conservation partnerships are underway:

BIG LAKE NATURAL AREA MANAGEMENT PLAN. The City of Edmonton, in partnership with Alberta Community Development, City of St. Albert, Parkland County, and Sturgeon County, is participating in the development of the Big Lake Natural Area Management Plan. Big Lake Natural Area is a provincially designated natural area and has recently been designated as a "Globally Significant Important Bird Area" by Bird Life International. The success of managing Big Lake Natural Area requires the cooperation of the municipalities around Big Lake Natural Area and the Province.

Although Big Lake Natural Area is outside of the City of Edmonton, part of the southern boundary of the Natural Area is also Edmonton's boundary. Some of the lands within Edmonton's Big Lake Area Structure Plan (ARP) are connected to Big Lake Natural Area and have been classified as being regionally significant natural areas. These lands have also been designated for future conservation as part of the North Saskatchewan River Valley and Ravine System ARP. Conservation of these lands is important to ensure the long term conservation of Big Lake Natural Area, and therefore, the City of Edmonton's continued participation in the conservation of Big Lake Natural Area with the Province, the City of St. Albert, Sturgeon County, and Parkland County is also important.

BEAVERHILLS SUSTAINABLE COMMUNITY INITIATIVE. The City of Edmonton is participating in this regional initiative started and managed by Parks Canada. The purpose of the initiative is to

identify shared opportunities involving landscapes and lifestyles in Beaverhills. This partnership includes Parks Canada (Elk Island National Park), the surrounding municipalities, industry, non-governmental organizations and the Provincial government.

CALGARY WETLANDS POLICY – IMPLEMENTATION COMMITTEE. The City of Calgary has invited the Conservation Coordinator to participate in the development of its wetland policy.

The Planning and Development Department gives credit to the development industry that has saved some or part of natural areas through the development process.

### **Other Related Departmental Initiatives**

Planning and Development will present its revised Top of the Bank (TOB) Roadway policy (now titled “Development Setbacks from River Valley/Ravine Crests”) to Council in 2003. The purpose of the revised TOB policy is to provide a development boundary that will separate *urban development*, where environmental hazard risk can be managed, from *environmental reserves*, where serious environmental risk does not allow for urban development. Planning and Development anticipates that the new policy will reduce encroachments and introduce a clear technical standard to manage the proximity of development near environmental reserves.

The department is currently working on its “Smart Choices for Developing our Community” project. Conservation of natural areas will be addressed through the physical vision planning process in part two of the project.

The Planning and Policy Services Branch is conducting a “Process and Effectiveness Review” project to examine the effectiveness and efficiency of current business processes in the Branch. The relationship of the current planning functions to the Office of the Conservation Coordinator is part of the scope of this project and process improvement recommendations will be forthcoming.

### **Challenges**

#### ***1. Wetland Drainage and Mitigation***

Wetland drainage and filling appears to have increased with the increase in development activity over the past few years. Alberta Environment has requested that the City intervene in some way to regulate these activities; however, the statutory authority resides with Alberta Environment as the administrator of the *Water Act*. Much of the wetland filling is occurring in areas that are beyond current planning areas, in areas currently used for agriculture.

The City is mostly unaware of filling until well after the activity has occurred. In some instances, such as the regionally significant wetland (SE5010) located at Ellerslie Road and 17 Street or the internationally significant Big Lake Natural Area have experienced clearing and/or filling on land within the City of Edmonton’s jurisdiction. The City of Edmonton does not have any regulatory authority in the Zoning Bylaw to address these issues and refers these matters to Alberta Environment.

The good news considering wetland drainage is that Alberta Environment is implementing a “no net loss” policy for wetland drainage. No net loss means that if a wetland must be drained, mitigation with an equivalent or larger area must be provided with full replacement of the wetland functions in another location. Some proponents of drainage find this option attractive because they can provide mitigation money to conservation organizations to purchase an equivalent or greater area of wetlands in locations with lower land values for their projects well

outside of the City limits. This practice, however, is counter to the City of Edmonton's conservation goals.

## **2. Tree Stand Cutting**

The City is receiving complaints from the public and some media coverage concerning the loss of tree stands that are listed in the City's Inventory of Environmentally Sensitive Areas and Significant Natural Areas. Although there is a loss of tree stands occurring, it is the right of property owners to remove trees as they feel is appropriate.

## **3. Public Lands and Permanent Water Bodies**

The *Public Lands Act* allows Alberta Sustainable Resource Development to take control of the "bed and shore" of permanently occurring water bodies. Although this can be considered a positive to the goal of wetland and lake conservation, there is not an official Provincial list of these lands that exist within the City of Edmonton. The lack of a list causes surprises and frustrations in the development process because landowners are often unaware that the Province can take control of the bed and shore of wetland areas.

The compilation of a list of permanent water bodies is considered by Alberta Sustainable Resource Development to be beyond the capacity of the department at this time; however, they are working on a methodology to determine permanent water bodies that could be implemented by others. The Conservation Coordinator continues to work toward development of such a list so that these water bodies can be included in the City's planning well before construction projects or land use decisions are imminent.

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## **Community Services**

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### **Initiatives**

Community Services' commitment to the protection of the environment and natural areas has been a policy direction for some time. The North Saskatchewan River Valley Bylaw, the Corporate Tree Policy, and more recently the "Ribbons of Blue and Green" service theme in Community Services' Integrated Service Strategy (ISS) are examples of initiatives supporting the natural environment.

### **1. Land Purchases**

In recent years, Community Services has been active in acquiring environmentally sensitive properties. In the tablelands, the Department used the Natural Areas Reserve to purchase NW384; a 20-hectare parcel of land in the far southwest corner of Edmonton north of the river. This purchase was grounded in the ISS, the "Conserving Edmonton's Natural Areas" report, and was a site originally identified in the 1995 Geowest Inventory of sites. Community Services has also pursued purchases in the river valley, such as the Centennial properties.

In both the tablelands and river valley, the department has used municipal reserve dedications to acquire natural areas (e.g., the Quarries in NE Edmonton). There are other options to save sites as well, including the use of Public Utility Lots to save wetlands, Local Improvement Bylaws for the community to purchase sites, donations, private conservancies, and expropriation. Another option that has been used elsewhere is where lands with environmentally sensitive features are purchased and the non-sensitive lands are developed to help pay for the retained features.

Currently, a significant amount of the land in the river valley and ravine system remains privately or provincially owned. Community Services maintains a list of properties that it would like to or needs to acquire in the valley and pursues them on an opportunity basis.

## **2. Governance Model**

Recently, Community Services provided input into the proposed governance model for the Office of the Conservation Coordinator. The Community Services Department would be one of the three departments having representatives on the Natural Areas Policy Implementation Committee, along with the Planning and Development Department and the Asset Management and Public Works Department.

## **3. Urban Parks Management Plan**

A current major initiative of the Community Services Department is the development of the 10-year Urban Parks Management Plan (UPMP), to be completed in 2004. The UPMP will provide a long-term strategy for the acquisition, development and maintenance of park and school lands. This includes the integration of conservation lands with the river valley and open space lands.

The new guidelines will address acquisition guidelines in and out of the river valley as well as protection of natural features once they have been added to our inventory. Maintenance and construction practices will be reviewed as part of that process.

## **4. Bylaw 12308, Unauthorized Use of Parkland**

The "Unauthorized Use of Parkland" Bylaw allows the City to issue fines to property owners if they fail to remove encroachments in a timely manner. Since the Bylaw came into effect in August 2000, compliance with voluntary removal of encroachments and restoration of City land has been good. However, experiences have been limited and there is a large backlog of sites to address.

Unfortunately, only limited resources are available for the City to proactively detect encroachments, due to the expense of surveying and the vastness of the River Valley and parklands. Currently, the main means for encroachment detection are through Real Property reports (i.e., when property is sold), complaints, or detection by park rangers.

## **5. Proposed Bylaw 2202, Parkland**

Through the recently drafted Bylaw 2202, *Parkland*, park rangers and Bylaw Enforcement Officers will be able to issue fines for prohibited activities occurring in the City's parklands. "Parkland" is any property whether developed or not, owned, controlled or maintained by the City of Edmonton that is intended to be used by members of the public for recreation and general enjoyment or is preserved as a natural area. This includes parks, natural areas, open space and recreation facilities like swimming pools and arenas, and major attractions like the Valley Zoo and Fort Edmonton Park.

## **6. River Valley Alliance**

The City, through the Community Services Department and City Council, has established the River Valley Alliance. This group of neighboring municipalities from Devon to Fort Saskatchewan seeks to protect and enhance the river valley park system in an environmentally sensitive manner.

## **7. Education**

Education may be one of the most effective means to highlight the value and encourage the protection of natural areas and parkland. Park rangers and the John Janzen Nature Centre are two means that the City uses to provide environmental education to its citizens and encourage appreciation of the natural environment.

### **Challenges**

Several issues challenge Community Services and the City in the protection of natural areas:

#### **1. Lack of Conservation Goals and Performance Data**

The department is hampered by the lack of specific goals for natural area preservation or performance outcomes to track success. The question of how much conservation is necessary or appropriate needs to be addressed both corporately and with community partners. While the department recognizes that not all sites can be conserved, the City needs a more definitive set of goals or statements and supporting data to focus its efforts. This will also help to create certainty with the development industry.

The City does not have the resources to purchase all of the privately and publicly (e.g. Provincial lands) owned significant natural areas highlighted in the 1995 Geowest Inventory, or the *Conserving Edmonton's Natural Areas* report, even with the establishment of the Natural Areas Reserve Fund. As of December 31, 2002, the Fund totaled \$450,000. Its success depends upon partnership funding. The Natural Areas Reserve Fund was intended, however, to be one tool of many in the preservation of natural areas. The City uses municipal and environmental reserves to protect select natural areas, but the application of these tools is limited by competing demands for open space. We need to better articulate all available options to landowners, the community and city staff.

The City, through the Office of the Conservation Coordinator, needs to work with environmental and development communities to develop additional means by which to protect natural areas. The City acting alone can only be partially successful. One of the recommendations supported by Council in the "Conserving Edmonton's Natural Areas" report was the creation by the community of a community-driven land-trust organization.

Such an organization could provide a number benefits working with the City: another option for landowners who do not wish to donate lands to a governmental organization, fund raising and provision of stewardship programs by volunteers. The availability of such an organization could prove to be very beneficial and the Community Services Department recommends that the Office of the Conservation Coordinator support the community in this effort. The synergy of a community/city approach will be far more successful than the City acting on its own.

As more time passes and the push for development increases, land values increase. It is, therefore, very important to protect natural areas before the establishment of Area and Neighborhood Structure Plans (i.e., early in the process) when prices are more reasonable, timing is not an issue and options for landowners are more plentiful. *This is the single most important element of the City's efforts. The City needs to take proactive action to save sites.*

#### **2. Lack of Good Information and Technical Expertise**

The 1995 and 1999 Geowest Inventories are dated. The information contained in those documents is limited and cannot be relied upon as the sole source for identifying sensitive environmental lands.

Additionally, the process to acquire natural areas' baseline data ("natural site assessments" or NSA) requires the development industry to prepare the studies at its expense and submit the results to the City as part of the planning process. That process is hampered by a number of factors: some developers resist paying for studies, studies are submitted with dated or limited information and the NSA terms of reference may be insufficient to guide the developers regarding the information required. Therefore, the overall reliability of the results can be questionable. It may be time to consider alternative ways to fund studies.

Once the data are sent to the City, there is no single person or area capable of providing technical, holistic and consistent response to natural area reports. The City historically has relied upon engineers and planners who may not have been trained in the discipline of conservation science. Even the proposed Office of the Conservation Coordinator will be hard pressed to be an expert on biology, hydrology, engineering, planning, etc.

The Administration needs to review the Natural Site Assessments development and review process to ensure that the studies are accurate, comprehensive, are reviewed by the appropriate expertise and that it responds consistently to its development partners.

### **3. Potentially Differing City Uses & Mandates**

Generally speaking, there are a number of City departments vying for natural areas lands. As a result, departmental goals may differ. For example, Asset Management and Public Works' Drainage Services has a mandate to provide efficient and reliable drainage in addition to water quality management. If AM&PW accommodates Community Services' vision of maintaining natural areas surrounding stormwater-influenced wetlands, this impacts costs.

AMPW's development arm holds natural lands that were often acquired time before policy direction valuing natural areas was passed. Corporate policy dictates that any department interested in adding land from surplus holdings to its own inventory must purchase the land at market value. This hampers Community Services' conservation efforts because it does not have the resources to purchase highly valued "developable" land that it does not intend to develop. That means the surplus land could then be purchased by other parties, most likely with the intent to develop the land.

One of the internal challenges Community Services has in protecting sites is the lack of site identification on POSSE. Staff reviewing development planning applications are sometimes not aware natural sites are under consideration for development. Flagging sites on POSSE would easily address this issue and save unnecessary duplication of work in various departments in identifying and verifying sites as natural areas.

Natural area preservation goals and public safety goals (e.g., fire management of natural sites can occur, including the need for controlled burns, emergency access to sites, user safety from crime, etc.) can also differ. Both Community Services and the Emergency Response Department highlighted these issues in their August 1, 2002 response to Council's Administrative Inquiry regarding woodland fires.

The City has also been challenged to effectively implement the policy direction that is currently available. The original Top of Bank Policy has not been applied in the way that was originally envisaged: environmental protection of the top of bank, access to the river valley and views of the river valley have been compromised. Hopefully the recent work by Planning and

Development on the new Top of Bank policy (now titled “Development Setbacks from River Valley/Ravine Crests”) will address this issue.

#### **4. Inability to Provide On-going Monitoring**

The development of Management Plans for conserved sites has been problematic. These plans can be costly and developers often resist paying those costs. The City needs these plans to guide its development and maintenance practices. The plans are an integral part of preservation of sensitive features in the short- and long-term.

Natural areas cannot be completely sheltered from the effects of human activity given they offer many recreational and educational opportunities valued by the community. The key to managing the impact of human activity in natural areas is to identify and understand the sensitive areas and design and construct site improvements (trails, signage, etc.) to protect the natural elements, as well as revisiting maintenance practices to the same end.

#### **Conclusion**

Although the Geowest Inventory and *Conserving Edmonton’s Natural Areas* report identify sites deserving of protection, Community Services must balance factors such as availability, location, sustainability, competing interests, landowner interests and price against allocation of its scarce resources. The City needs to address conflicting department mandates and articulate an overall vision for its natural areas.

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### ***Asset Management and Public Works***

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Natural areas impact two branches within the Asset Management and Public Works Department: Drainage Services and Land and Buildings. The department also has administrative inter-departmental responsibility for the Office of the Environment, which provides overall coordination of development of environmental policy in the City of Edmonton.

#### **Drainage Services Branch**

Drainage Services values the hydrological function of wetlands in reducing demands on the storm water drainage system and for providing water quality management.

##### **1. Stormwater Management**

Urban development leads to increased surface runoff. As development continues to occur, more surface water must be directed to the North Saskatchewan River through existing or new licensed outfalls to the river. The challenge for Drainage Services lies in providing effective stormwater management, in spite of an existing drainage infrastructure that, in some areas, was not built with extensive new development in mind. Drainage Services embraces the concept that wetlands are effective in capturing water and reducing the rate of outflow to the stormwater system. With good planning natural wetlands can be incorporated into the City’s drainage system to help provide better and cost-effective surface runoff management.

##### **2. Water Quality Treatment**

Natural wetlands also provide water-quality treatment benefits. Wetlands are biologically active. The plant communities of natural wetlands utilize nutrients, which are a major pollutant from urban runoff. They are effective in removing heavy metals and filtering sediments suspended in the runoff water. For these reasons, wetlands serve an important function for Drainage

Services. They help improve surface runoff quality before water is discharged to the North Saskatchewan through the City's stormwater outfalls and they represent progress towards a cleaner river. The Province of Alberta (Alberta Environment) licenses the City's stormwater outfalls and this license is subject to renewal in 2005. It is expected that stormwater quality requirements will be incorporated into the license renewal for the first time.

### **3. Constructed Wetlands**

Where wetlands do not exist but are needed, Drainage Services has incorporated *constructed* wetlands (i.e., man-made wetlands) into the drainage system. Like natural wetlands, constructed wetlands serve as effective stormwater management and stormwater quality treatment sites and provide indirect benefits such as green space and wildlife habitats. The current constructed wetland design criteria, has been developed with input from the City's Conservation Coordinator.

### **4. Wetland Sustainability**

Natural wetlands are part of an existing hydrological regime. In an altered urban environment, special consideration needs to be given to wetlands in planning to ensure their sustainability such that a long term sustainable water supply is available to meet their unique requirements. Drainage water quality to the wetland may be inconsistent with water quality objectives in the wetland. Pre-treatments for grit and oil removal may be needed in order for the wetland to meet natural habitat or other requirements.

The challenge ahead lies in developing natural wetland management criteria that can resemble the benefits of constructed wetlands, maintain the benefits and sustainability of the natural wetland, and where possible incorporate the natural wetland into the City drainage infrastructure.

### **5. Regulatory Environment**

Natural wetlands are protected under the Provincial Government's *Water Act*. As such, wetlands cannot be altered in any way without approval from Alberta Environment. The City if it so wished, could exercise direct control over natural wetlands under the *Municipal Government Act* in concert with the *Water Act*, with the development of specific bylaws.

### **6. Long-term Strategies**

Drainage Services is in the process of preparing Stormwater and Water Quality Servicing Strategies for the City that will identify issues that will impact the long-term development of the City's drainage infrastructure and recommend strategies to deal with them. The preservation, utilization and management of Edmonton's natural wetlands will form a part of these strategies.

## **Land and Buildings Branch**

### **1. Parcel Identification**

Land and Buildings Branch is working with the Planning and Development Department to maintain a mailing list of owners of parcels of land identified as being or having significant natural areas. Of the 66 sites evaluated in the February 2001 *Conserving Edmonton's Natural Areas* report, 9 were owned or partially owned by the City of Edmonton. Of the City-owned sites, 2 were originally acquired for future development purposes, one was purchased for storm water management and the rest were received as Municipal and Environmental Reserve dedications and reside in the inventory of the Community Services Department.

As more resources become available, it may be possible to identify the 66 sites on Commercial POSSE, the upgraded version of the City's current land database, City POSSE. This initiative would make the information more readily available to all City departments, which may further aid in the proactive management of these natural areas.

## **2. Land Inventory Management and Development**

Land inventory management and development also falls under the purview of the Land and Buildings Branch. The Land Enterprise funds the development, servicing and marketing of the City's raw land holdings and surplus properties through net land sale proceeds. Net land sale proceeds (retained earnings) must also be used to cover the book costs of past land purchases that were not capitalized.

When holdings are declared surplus, the land is first offered to all City departments. If departments are uninterested or unable to fund the purchase of land, the land is then placed on the market. In the case of the City's large undeveloped holdings, enhancements such as subdivision and servicing are undertaken (on a business case basis) in order to optimize the financial return to the City for its surplus land assets.

As a self-funded operation, the Land Enterprise must be compensated for any land that is removed from the City's surplus land inventory and committed to City projects and programs. The challenge in this environment is that, while the Land and Buildings Branch recognizes the ecological value some departments place on retaining natural areas, it must place an economic value on the same land to ensure adequate sales revenue to finance future land development and the payment of outstanding book costs of the City's land inventory. Therefore, its goals may conflict with those of other departments.

Communities can purchase natural areas through a Local Improvement Charge (LIC). The LIC requires that local residents agree to pay an additional fee with their property tax over 20 years. To date, only one community (Weinlos) has acquired land in this manner, given the process is fairly complex.

## **3. Non-City-Owned Lands**

Many natural areas are not within the City's holdings and are owned by private landowners, land developers or the provincial government. The Province of Alberta currently owns 12 significant natural area sites, either wholly or in part. The majority of these sites is either within the Transportation Utility Corridor (TUC) or adjacent to it. Those parcels that are adjacent to the TUC are being declared surplus by the Province and are being offered to the City prior to being placed on the open market. To date, three properties containing natural areas have been offered to the City by the Province.

While Land and Buildings identifies the existence of these natural areas on the Property Offering circulation to the various civic departments, there is currently limited funding available to acquire these natural areas. It is expected that many of the other private owners would also be willing to sell to the City natural areas in the Table Lands at market value (approximately \$30,000/acre). However, given that the City cannot afford to purchase all of these lands at market value to remain undeveloped, the City risks the loss of these natural areas to those with more aggressive plans for the land.

It is also noted that as *wetland* natural areas are incorporated within developed areas, there is the need for management capability of these wetlands, particularly where they form a part of drainage infrastructure. Therefore, it would be in the City's interest to acquire ownership of

these wetlands to enable Drainage Services to appropriately manage these wetlands in the future.

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### ***Corporate (Inter-Departmental)***

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#### **Office of the Environment**

The Office of the Environment is responsible for facilitating the development of environmental policy to guide City departments. The office is also involved with other government agencies and key community stakeholders to enable Edmonton to become a leader among municipalities in maintaining and enhancing our environment.

In 1999, City Council approved its *Environmental Strategic Plan*, aimed at guiding a balanced approach to Edmonton's sustainability in terms of ecology, social and economic aspects, recognizing that the environment is the foundation of human existence. The *Environmental Strategic Plan* identified nineteen environmental topics, their objectives and key strategies. The topics were grouped into three categories: conservation, environmental receptor and environmental stressor topics.

Two conservation topics relate to directly natural areas. The "Natural Heritage" conservation topic's objective is "to minimize the loss of natural heritage, specifically biodiversity and natural areas." The "Sustainable Urban Form" conservation topic's objective is "to provide a balanced approach to urban development and renewal while conserving resources for future generations." Additionally, one of the environmental-receptor topics, "Surface Water," holds as its objective "to ensure the quality of surface water is suitable for a diversity of compatible uses and that its ecological value is maintained."

The Office the Environment produces *Reports on Environmental Performance* (May 2001, October 2002) to provide City Council with an accounting of the implementation of the City of Edmonton's *Environmental Strategic Plan*. Additionally, the City's first State of the Environment Report – *Edmonton Environment: A Snapshot 2002* was approved by the Transportation and Public Works Committee in March 2003. This report is intended to provide an 'environmental snapshot' of Edmonton including the *Natural Heritage*, *Sustainable Urban Form* and *Surface Water* topics.

The Office of the Environment also facilitates the Environmental Advisory Committee (EAC) which provides advice to the administration regarding the implementation of the Environmental Strategic Plan, including protection of natural areas. The EAC is made up of seven citizens-at-large along with representatives the University of Alberta, the Capital Health Authority and Alberta Environment. The EAC provides advice to the Senior Management Team.

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### ***Emergency Response***

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The Fire Rescue Services (FRS) branch respects the river valley's value to the City, yet is duly concerned about the significant fire-threat it creates.

The increasing undergrowth, citizens' dumped lawn clippings and yard debris, as well as the convective air currents to which the river valley is prone can readily turn a small fire into a much

larger one, even without drought conditions. This, combined with increased recreational activity in the river valley and ravine system, heightens the potential for wildland-urban interface fires. Control of such fires is compromised by limited access to the river valley and ravine system and to water.

Due to these unique challenges and risks that wildland-urban interface fires present in the river valley and ravine system, FRS is building its wildland fire-equipment inventory and training its members how to effectively fight wildland-urban interface (vs. structural) fires. When necessary, FRS can also utilize private helicopters fitted with bambi buckets as another means to control wildland-urban interface fires. FRS is in the process of reviewing wildland access points and possible fire hydrant locations where wildland areas interface with water mains. The report will be submitted to the Community Services Committee in 2003.

FRS also recognizes the value of proactive public education through the print and TV media in preventing wildland-urban interface fires. Longer-term measures, such as posting fire safety signs in the river valley and ravine systems, are also being considered.

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## ***Transportation and Streets***

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### **Initiatives**

The Transportation and Streets Department recognizes the importance of the Edmonton's Natural Areas through the Transportation Master Plan. The Strategic Goals described in the Master Plan include Strategic Goal E, which directs the department to "support initiatives that encourage the reduction of transportation-induced impacts on Edmonton's natural environment." The Multi-Use Trail Corridor Study is a project initiated by this direction, intended to link and encourage greater access to the river valley and ravine trail systems.

Transportation projects may be impacted by or may have impact upon natural areas. Concept level plans for these projects are taken to Transportation Planning Review Committee, where interdepartmental issues and initiatives, including natural area impacts, are identified.

### **Challenges**

The Transportation and Streets Department faces a number of challenges while trying to balance the need to develop and maintain a safe and efficient transportation network with the need to preserve natural areas. A natural area can be a major barrier to the transportation network and can have significant impacts on roadway network continuity and accessibility. Cost implications can be significant and are borne by both the City and adjacent landowners.

Current challenges the Department is facing include:

- Recognizing and identifying natural areas and preservation requirements in a timely fashion.
- Resolving conflicts between natural area preservation and traffic safety, access and mobility issues. The fundamental role of the transportation network in the urban system must be balanced against the natural area preservation.
- Balancing construction schedules with natural area preservation initiatives and requirements.

- Identifying the source of funding required to construct the additional roadway infrastructure required to accommodate the natural area, as well as the special maintenance considerations in the vicinity of the natural area.
- Managing resources and the time required to complete environmental impact assessments.

Identification of land requirements and the proactive purchase of required land are challenges for all City Departments and their various development initiatives. Current practice involves waiting until issues arise and/or funding is in place with a project before land purchase is initiated. A process that facilitates easier and more efficient land purchase would greatly benefit both natural area preservation and roadway development requirements.

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### ***Corporate Services***

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The Law Branch provides its view on the challenges of acquiring and owning natural areas:

#### **Acquiring Natural Areas**

##### ***1. Municipal Reserves***

As a condition of subdivision, the City can require the owner to provide up to 10% of the parcel (or its value in cash) as “municipal reserve” (MR). This land can be used for schools or parks.

The advantage of this is that the City acquires that land at no cost. The main disadvantage is that most of our municipal reserves and cash-in-lieu are used to assemble school/park sites. The location of these sites may not coincide with the location of a natural area and there may not be enough money or land to achieve both aims. We have legal commitments to the school boards to provide a certain amount of land for schools and to jointly plan the location of these sites.

The Subdivision Authority is the approval agency for subdivisions and thus reserves.

##### ***2. Environmental Reserves***

As a condition of subdivision the City can acquire land that is unstable, prone to flooding or otherwise unsuitable for development as Environmental Reserve (ER). This is how the City often acquires lands in the River Valley. There is no limit on the amount of land that the City can acquire as ER but there is a limit on the type of land it can acquire in this way. Essentially the City can acquire river valley, ravine and wetlands. A tree stand in the upland areas (e.g., Little Mountain) does not meet the definition of ER.

##### ***3. Purchase or Expropriation***

The City can always choose to purchase lands as a natural area. If the owner is unwilling to sell, it can expropriate. The main downside to this method is, of course, price. The party whose land is expropriated is entitled to full compensation (as determined by the Land Compensation Board) and payment of all of his legal bills. Expropriation is an expensive way of acquiring land.

#### **Ownership of Natural Areas**

Ownership of land always carries the risk of legal liability for accidents that happen on the land. In most respects, natural areas carry no greater risk of liability than other City-owned land, perhaps less. For example, claims for injuries sustained in the undeveloped portions of the river

valley are relatively rare compared to claims for “slip-and-falls” at busy City parks or recreational facilities.

People have sued the City for landslides on the riverbanks and at least one such homeowner was partially successful. However these lawsuits do not arise because of the City’s ownership of the areas below the top-of-bank. They arise because of the City’s role as the regulator of land-use. The City was sued in these cases because it approved residential lots when it (allegedly) knew or ought to have known that the bank was unstable. The plaintiffs would have made the same allegations even if the City did not own the riverbanks and valley.

A related legal issue, however, is that of encroachment onto natural areas by neighbouring homeowners. People who own land next to the river valley or ravine seem to be tempted to extend their outdoor amenities beyond their property lines and into public lands. In rare cases, they may even do things (removing trees, sinking pilings, or installing underground sprinklers) that destabilize the bank. We have the legal right to prevent that activity, but given the sheer number of transgressions, enforcement is difficult. In most of these cases, the homeowners are not consciously trespassing; they just incrementally begin to take over the public land and fail to see the harm. One of the best ways to prevent this is to design subdivisions so that public walkways or roads separate natural areas from private lands.

### **Conclusion**

Although the City has the ability to acquire certain environmentally significant sites as a condition of subdivision, it is limited (in the case of municipal reserve) by the amount of land that it can acquire and (in the case of environmental reserve) by the type of land that it can acquire. Acquiring large areas of land outside the river valley or in areas that are not going to be subdivided may require purchasing or expropriation.

Once the City owns the land, there are increased risks of third party liability but in most cases this risk is manageable. If private homes abut natural areas, the City will probably experience problems with encroachment onto these areas. However, this problem can be mitigated with proper subdivision design.