SURREY
CITY OF PARKS

Corporate Report

NO: R053

COUNCIL DATE: March 31, 2008

REGULAR COUNCIL

TO:	**Mayor & Council**	DATE:	**March 31, 2008**
FROM:	**General Manager, Planning and Development**	FILE:	**6440-20-2008**
SUBJECT:	**Update of Environmental Inventory for the Official Community Plan Review**		

RECOMMENDATIONS

The Planning and Development Department recommends that Council:

1. Receive this report as information;

2. Endorse the approach and methodology for the update of Surrey's environmental inventory as described in this report; and

3. Authorize staff to proceed with the update of the City's environmental inventory, as detailed in the Ecosystem Management Study Terms of Reference, attached as Appendix I to this report.

INTENT

The purpose of this report is to provide a summary of the various policies and procedures that the City currently has in place to provide for the protection, stewardship and enhancement of the City's natural environment, and to seek Council's approval to proceed with mapping and developing management processes for the City's environmental inventory based on a proposed terms of reference.

POLICY CONSIDERATIONS

The City has policies and practices that it uses to protect and enhance the quality and diversity of its natural environment. The guiding policies for environmental protection are set out in the Official Community Plan (the "OCP"), augmented by various by-laws, regulations and partnerships between the City, senior levels of government and community groups. One of the key components of Surrey's environmental protection policies is the identification, classification and mapping of Environmentally Sensitive Areas ("ESAs").

A major review of the OCP is to be commenced in 2008. It is, therefore, timely to update a number of background studies and plans, including the environmental (ESA) inventory of the City. These updates will ensure that OCP policies and plans respond to current information about the City, and incorporate the City's most recent plans. In addition to an update of the ESA inventory, other significant studies and plans that will inform the OCP review including the Sustainability Charter, the City Centre Plan Update, the Employment Lands Strategy, the Economic Development Strategy, the Surrey Crime Reduction Strategy, the Transportation Master Plan Update, the Parks, Recreation and Culture Strategic Plan, the Plan for the Social Well-being of Surrey residents, the proposed Housing Action Plan and various secondary plans.

BACKGROUND

ESA classification of land is one of several components of the City's environmental protection and management strategy, as set out in the OCP. Other significant components include environmental studies as part of Neighbourhood Concept Plan ("NCP") processes, the Tree Protection Bylaw, the Watercourse Classification Map, the Sediment Control By-law and the implementation of the Department of Fisheries and Oceans ("DFO") Land Development Guidelines for the protection of aquatic habitat, among others.

These various components and their inter-relationships are summarized below.

Environmentally Sensitive Areas Mapping

The City's ESAs are based on a study completed in 1990, entitled *Finding the Balance: Environmentally Sensitive Areas in Surrey*. This study identified areas considered to be environmentally sensitive, based on criteria that included biotic (vegetation, fisheries, wildlife), abiotic (soils, hydrology, landforms) and cultural (archaeological, heritage, visual) factors. A database was created that summarized the factors associated with each ESA, along with recommended management guidelines. Each ESA was rated as having "high," "medium" or "low" environmental sensitivity. A summary map of these rated ESAs is included as Schedule 17 in the current OCP. The ESA map and database are used as a reference document in the review of land development applications in areas adjacent to or within identified ESAs.

A second ESA study was completed for the Parks, Recreation & Culture Department in 1997. This study, entitled *Environmentally Sensitive Areas Update and Park Acquisition and Enhancement Strategy*, updated the ESA information in the 1990 study, and was intended to provide a basis for the acquisition and management of City parkland for conservation purposes. Like the 1990 study, the 1997 study identified ESAs based on a set of criteria, rated each ESA as "high," "medium" or "low", linked each ESA to recommended management guidelines and mapped the rated ESA at a city-wide scale. In addition, the 1997 study included a "toolbox" of policies and practices that the City could use to manage and protect the environmental values of ESA on City-owned lands. Significant parkland was acquired or dedicated in response to the 1997 study. The study also informed the management of City-owned lands, including parks and hydro corridors, for wildlife habitat enhancement.

Neighbourhood Concept Plans

Much of the conversion of land from rural and low density suburban to higher density urban uses occurs within NCP areas. The NCP process typically includes detailed and comprehensive environmental studies. Environmental protection and management objectives are typically included in adopted NCPs. These studies are guided by the ESA designations, while also relying on more detailed assessments, up-to-date information and ecosystem management guidelines.

Watercourse and Riparian Area Protection

In areas around watercourses and wetlands, the City utilizes DFO's Land Development Guidelines in the land development review process. This is done in collaboration with DFO staff through the Environmental Review Committee ("ERC").

The Land Development Guidelines seek to protect and enhance the quality of aquatic and riparian areas through such means as establishing "no-disturbance" setbacks, establishing compensation areas for disturbed habitat areas, encouraging the replanting and restoration of riparian habitats and controlling the rate and quality of storm water runoff within watersheds. Increasingly, new neighbourhoods are being planned and developed utilizing "low-impact development standards" that seek to mimic natural rainwater runoff patterns by implementing "rain gardens" and "bio-swales", requiring significant replanting of trees on development sites, and increasing permeable surfaces and the infiltration of rainfall into the soil.

The City has embarked on a program of completing Integrated Stormwater Management Plans ("ISMPs") for all of its watersheds, in consultation with DFO. These ISMPs seek to balance flood risk mitigation with aquatic habitat protection and enhancements. The City also maintains a Watercourse Classification Map that shows all known streams and channels, and rates them by their importance in contributing to healthy fish habitat. This map is updated as new information becomes available, in consultation with DFO, through the ERC. Stream restoration and enhancement work, including the replacement of culverts that limit or block fish passage, is part of City capital works projects that are focused on enhancing the natural environment while providing for the on-going growth of the City.

Tree Protection and Replacement

Surrey Tree Protection Bylaw, 2006, No. 16100 (the "Tree Bylaw"), seeks to minimize tree removal on development sites and in the rest of the urban area. The Tree Bylaw regulates tree cutting of larger trees (30 centimetres or more in diameter) in the City and specifies a stringent tree replacement requirement. While the City of Surrey has the most stringent tree protection and replacement bylaw in the region, staff is continuing to work on additional improvements and enhancements to the bylaw.

Parks and Conservation Areas Management

The City maintains and manages a number of large natural parks. The management of these areas is guided by the Parks, Recreation & Culture Department's Natural Areas Management Plan.

Together with Metro Vancouver Parks, such as Surrey Bend and the Tynehead Regional Parks, and conservation areas like the Serpentine Fen and Boundary Bay Wildlife Management Area, these areas provide critical habitat protection and wildlife "reservoirs" and corridors that contribute to Surrey's biodiversity.

Stewardship and Education Programs

The City runs, funds and participates in a number of education, stewardship and ecosystem restoration programs that encourage people to interact with nature. These include the "Nature Matters" and "Re-leaf" programs in Surrey parks and schools, the Surrey Natural Areas Partnership (SNAP), and the Salmon Habitat Restoration Program (SHaRP), among others.

While the City's environmental policies and practices are multi-faceted and involve many partnerships, the ESA map and its associated database remains a key City-wide reference document. In preparation for the major review of the OCP, beginning in 2008, it is timely to also undertake a major update of the City's environmental/ecological inventory.

DISCUSSION

The *Local Government Act* (Section 877(1)) requires municipalities, in their OCPs, to identify and map areas where there are "restrictions on the use of land that is subject to hazardous conditions or that is environmentally sensitive to development". In addition, municipalities may include policies "relating to the preservation, protection, restoration and enhancement of the natural environment, its ecosystems and biological diversity" (Section 878(1)).

The City's current OCP maps ESAs and also includes policy statements on:

- enhancing the quality and integrity of ecosystems (Policy G-1.2.8); and
- striving to balance habitat losses with habitat replacement and/or compensation (Policy G-1.3.3).

As the City prepares to undertake a major review of the OCP commencing later in 2008, an updating of the 1990 ESA information is an important component. The current ESAs focus only on the identification and management of sensitive habitats, while more current thinking indicates that a broader focus on ecosystem management, including environmental objectives for all areas and the identification of ecological restoration opportunities is a preferred approach.

At the time of the 1990 ESA study, the ESA approach was "cutting edge", and Surrey's approach to mapping and classifying these areas was considered to be progressive. Since that time, there has been a growing awareness that a more comprehensive and integrated

approach, based on maintaining and enhancing ecological *function* is required. This focus on ecological function is in addition to merely protecting environmental *features*.

Pros and Cons of the Current ESA Mapping Approach

The current ESA map and database has been a useful tool in the review of land development applications and in identifying priority areas for parkland acquisition. Updating the current ESAs would allow continuity with past ESA inventories and comparisons over time. The current approach enjoys a degree of familiarity by staff, citizens, land developers. The ESA map shows priority areas for conservation in a concise and easy to understand format, and is relatively simple to administer.

However, the current ESA approach also has limitations. In fact, in NCP and other secondary plan areas, the City has moved beyond the ESA approach and seeks a more comprehensive set of environmental studies before the "green infrastructure" of urban developments is designed. In some cases, this "green infrastructure" involves the restoration and enhancement of ecological corridors, along with the preservation or conservation of significant habitats and the development of environmental management strategies applied to various areas.

The limitations of the current ESA approach include:

- <u>The potential for public misunderstanding of the implications of ESA ratings.</u>
  These misunderstandings can take several forms. On the one hand, areas rated as "low" or not rated at all may be misunderstood as having no ecological value or as having little or no contribution to make towards environmental sustainability. On the other hand, areas rated as "high" or "medium" ESAs may create the expectation that these areas are "inviolate" and inappropriate locations for any human-induced change or activity whatsoever, including farming, recreation or land development. This is not the case. These misunderstandings will be particularly acute in areas where current ESAs are reclassified.

- <u>The perception of net environmental loss.</u>
  In a growing and developing City, where some suburban areas are planned to transition to urban uses and densities, there will be land use changes within some ESAs. This inevitably leads to the perception that ecological integrity and biodiversity is reduced. While this may be the case in localized terms, it is also possible that higher density development along with restoration and enhancement efforts may in fact be more environmentally sustainable by redirecting growth away from more sensitive areas and contributing to biodiversity.

- <u>A defensive "protection" stance, rather than a proactive "enhancement" stance</u>.
  The current ESA approach does not set out proactive environmental strategies or identify areas where ecological restoration or enhancement can have the greatest benefit. While the preservation of existing ecosystems is important, it is also important to identify potential links and corridors that can enhance the *functioning* of the environment.

A Proposed New Ecosystem Management Approach

An alternative to merely updating the current ESA map and database is to move towards an "Ecosystem Management" approach. Such an approach shares many of the components of an "ESA approach", but has a somewhat different emphasis. While an "ESA approach" focuses on the protection of existing priority areas (such as riparian areas, wooded slopes and wetlands), an Ecosystem Management approach recognizes that *all parts* of the City can contribute to ecological sustainability. It stresses that the ultimate goal of environmental policy is the preservation and enhancement of biodiversity, and not just the protection of certain landscape features.

For example, planting of native trees in urban neighbourhoods, or the replacement of narrow culverts with open-bottomed box culverts as part of road construction works can contribute significantly to wildlife habitat enhancement. This more holistic approach has been followed in such recent "best practice" examples as the award-winning Whistler 2020 Strategic Plan and Protected Areas Network Plan, and the Capital Regional District's Growth Management Strategy.

An Ecosystem Management approach would include three major components:

1. An updated, definitive City-wide ecological inventory and assessment;

2. A classification of ecosystem management areas and sub-areas and related management practices and policy recommendations; and

3. A set of ecological indicators and measures.

A citywide inventory, assessment and mapping of existing and potential ecological values, using existing information sources augmented with field investigation, would include several "layers" including:

- watercourses and wetlands;
- vegetation associations and habitat types;
- sensitive slopes and soils (surficial geology and geomorphology);
- species of management concern (blue and red listed species at risk); and
- candidate areas for ecological enhancement and restoration based on "gap analysis" that prioritizes "value added" habitats that are proximate to other high-quality environments.

The delineation and mapping of "Ecosystem Management Areas" ("EMAs") would classify the City's ecosystems according to ecological characteristics, based on the results of the ecological inventory. Examples of different types of EMAs include riparian areas, upland forested areas, steep forested slopes, wetlands, urban areas, lowland agricultural areas, etc. Each EMA would be mapped and cross-referenced to a database, which outlines the ecological features, and processes that are significant in each area. Recommended management practices and policies for protecting and enhancing the ecological value of each EMA would also be included in the database. The map and database would serve as a key reference for a range of City initiatives, including conservation land acquisition and management, land use planning, land development review and approval policies, and capital works projects.

As a way of measuring biodiversity and ecological health over time, a set of key ecological indicators would be established within the context of the *Sustainability Charter*, along with a monitoring program to track performance over time.

An Ecosystem Management approach has several advantages over the current ESA approach. These include:

- a more holistic set of maps and associated management strategies than the current ESA study and related map;
- avoiding the problem of "high," medium" and "low" ratings which can lead to misunderstandings by the public and landowners;
- identification of potential restoration areas and "value-added" areas, which lead to a more proactive and creative approach than the current ESA approach allows;
- a set of management practices and policy recommendations; and
- indicators and measures, which are a "performance-based" approach, rather than a "feature preservation" approach, in addition to preserving key natural areas.

Moving to an Ecosystem Management approach in the OCP has some disadvantages. This new approach may not be as immediately familiar to staff, citizens and landowners, and the implications of EMAs may need to be clarified. The resulting set of maps will expand upon the existing ESA map approach by providing additional levels of information to assist with decision-making, and may require some degree of synthesis and interpretation. The selection of ecological indicators and measures may involve significant discussion among stakeholders and may require a realignment of City resources or efforts to maintain them over time.

Staff hold the view that the advantages of moving to an Ecosystem Management approach outweigh the benefits of the current ESA mapping approach, and that this new, more contemporary approach will form an integral pillar of a new OCP, based on the principles of sustainability as set out in the *Sustainability Charter*.

Terms of Reference

Based on the above, staff has developed a terms of reference for an Ecosystem Management Study to replace the current ESA mapping approach. These terms of reference are attached as Appendix I.

CONCLUSION

Based on the above information, it is recommended that Council:

1. Endorse the approach and methodology for updating Surrey's environmental/ecological inventory as described in this report; and

2. Authorize staff to proceed with the updating the City's environmental inventory, as detailed in the Ecosystem Management Study Terms of Reference, attached as Appendix I to this report.

Jean Lamontagne
General Manager
Planning and Development

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Attachment:
Appendix I Ecosystem Management Study Terms of Reference

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Appendix I

SURREY
CITY OF PARKS

Terms of Reference
Ecosystem Management Study

March 2008

THE PROJECT

In preparation for a major revision of its Official Community Plan (OCP), and in keeping with its draft *Sustainability Charter*, the City of Surrey requests proposals from qualified consulting teams to undertake a City-wide Ecosystem Management Study, including:

- An updated inventory, assessment and mapping of significant ecosystems in the City;
- An identification and mapping of ecological management areas; and
- Recommendations on the setting and monitoring of key ecological indicators.

INTRODUCTION

The City of Surrey is committed to protecting and enhancing the integrity and diversity of its natural environment, and environmental goals are an integral part of the City's draft *Sustainability Charter*, and its Official Community Plan (OCP). The City uses a number of policies and practices to protect and enhance the quality of the natural environment. The guiding policy direction for environmental protection is set out in the OCP, augmented by various bylaws, regulations and partnerships between the City, senior levels of government and community groups.

Policies in the OCP related to the protection of sensitive ecosystems include, among others [emphasis added]:

Policy G-1.1 Preserve Watercourses and Wetlands

1. *Protect and enhance the aquatic environment of the Fraser, Nicomekl, Serpentine, and Campbell Rivers, as well as creeks and aquifers throughout the City and along the City's ocean shoreline.*

2. *Preserve ravines and watercourses in their natural state, and wherever possible, link them with green spaces to develop a continuous network of the natural environment throughout and between the developed areas of the City. These networks may provide for public access where such access is not detrimental to the environment.*

Policy G-1.3 Follow Environmentally Sustainable Practices in Development

1. *Conserve areas containing significant natural features (e.g. treed slopes, riparian areas) and wildlife as open space.*

2. *Retain significant trees native to the site and replace trees based on guidelines in the City of Surrey Tree Preservation By-law.*

3. *Maintain the City's inventory of Environmentally Sensitive Areas (ESAs) as a reference document for reviewing compatibility of developments on or adjacent to an Environmentally Sensitive Area [refers to a map of ESAs in the OCP].*

8. *Protect the quality and integrity of ecosystems, including air, land, water and biota (vegetation and wildlife); and, where quality and integrity have diminished, encourage restoration to healthy conditions.*

Policy G-1.3

1. *Identify and endeavour to protect Fisheries Sensitive Zones (in-stream aquatic habitats, out-of-stream habitat features: side-channels, wetlands, riparian areas) as defined in conjunction with the Department of Fisheries and Oceans, the Ministry of the Environment, and the City.*

2. *Identify significant natural habitats for protection.*

3. *The City recognizes the intrinsic value of wildlife, bird and fish habitat to the quality of life for the citizens of Surrey. Through the development process the City will strive to balance habitat losses with habitat replacement and/or compensation.*

4. *Conserve, enhance and protect wildlife corridors connecting parks, open spaces, and other large wildlife habitat areas, thereby increasing the variety of wildlife and availability of wildlife habitat throughout the City.*

5. *Incorporate environmental protection as a factor in selecting parkland and promote passive parks in or adjacent to appropriate environmentally sensitive areas.*

One of the key components of Surrey's environmental protection policy is the identification, classification and mapping of Environmentally Sensitive Areas (ESAs). The OCP includes a map of currently designated ESAs. This map and the accompanying ESA database is used as a reference document in the land development process, and in the development of secondary plans, such as Neighbourhood Concept Plans (NCPs) in various parts of the City.

The existing ESA inventory and map is derived from a study completed in 1990, entitled *Finding the Balance: Environmentally Sensitive Areas in Surrey*. A second City-wide environmental inventory, entitled *Environmentally Sensitive Areas Update and Park Acquisition and Enhancement Strategy* was completed in 1997. This 1997 study was used primarily to guide parkland acquisition and management in environmentally sensitive areas.

In addition to the ESA studies, the City has developed and maintains a Watercourse Classification Map, which shows known watercourses and wetlands, rated according to their fisheries habitat status and integrity. In certain parts of the City, particularly in Neighbourhood Concept Plan (NCP) areas, large City or Regional Parks and along the Fraser River and Boundary Bay shorelines, various agencies, community groups and environmental consultants have completed more detailed environmental studies. The Parks, Recreation and Culture Department has developed and maintains a Natural Areas Management Plan, to guide the management of City-owned lands that are classified as environmentally sensitive.

PURPOSE

The purpose of the Ecosystem Management Study is to:

- Substantially update existing ESA inventory information, using published data, remote sensing information and selective data collection and "ground-truthing" of remote sensing information in the field;
- Identify and map a City-wide set of Ecosystem Management Areas based on the ecological inventory; and
- Develop a recommended set of ecological indicators and a program for measuring and monitoring these indicators over time.

STUDY AREA

The Study Area will be the entire area of the City of Surrey. In addition, consideration shall be given to areas immediately adjacent to the City boundaries, insofar as there is a significant ecological influence or connection across the boundaries of the City.

PROJECT SCOPE

The project will proceed in three stages, guided by a Steering Committee made up of key City staff from the Departments of Planning & Development, Engineering and Parks, Recreation & Culture, and representatives from senior government agencies and community environmental groups.

The general scope and sequence of the project is summarized below.

Project Components

Stage 1 (March – May 2008)

- Summary review of existing ecological data and identification of data gaps and needs.
  - Review of existing ecological inventories, including the 1990 and 1997 ESA studies, as well as Watercourse Classification and Sensitive Habitat Inventory Mapping (SHIM) information, and various Provincial, Regional and City environmental studies

conducted for parks management, capital works or Neighbourhood Concept Plan (NCP) purposes.
  - Identification of environmental data gaps and needs.

- Development of criteria and methods to be followed for ecosystem inventory development and assessment.
  - analysis and confirmation of existing ecological information;
  - air photo interpretation program; and
  - selective field inventory and "ground truthing" program.

Stage 2 (May – October 2008, with a Spring and Summer field work program)

- City-wide inventory and mapping of:

1. Watercourses, wetlands and riparian areas, rated for significance and integrity.
2. Vegetation communities, forests, fields rated for significance and integrity.
3. Slopes, soils, surficial geology, and aquifers rated for sensitivity to disturbance.
4. Known and potential sensitive wildlife locations and habitat features (nests, roosts, burrows, travel corridors etc.)

- Criteria and methods for determining and mapping ecological management areas.

- Criteria for the identifying and prioritizing ecological restoration and enhancement areas

Stage 3 (September – December 2008)

- Delineation of general and special ecological management areas (EMAs) and sub-areas, along with ecosystem management practices and policy recommendations for each area and sub-area;

- Identification and prioritization of candidate ecological restoration areas and related management practices;

- Recommended indicators of ecological health, along with associated monitoring programs and protocols

CONSULTANT SUBMISSION REQUIREMENTS

Consultant teams responding to the Request for Proposals will be required to include (at a minimum):

1. A statement of understanding of the project and project requirements and any proposed augmentations to the terms of reference to ensure that the objectives of the study will be fully met;

2. The proposed approach to undertake the project;

3. Proposed work plan with project phases, detailed listing of project tasks, key deliverables, and milestone dates;

4. The qualifications of the Consultant Team, including team leaders and all personnel to be used in carrying out the various components of the project;

5. A list of similar projects the consultant has completed, with a brief description of these projects along with reference contacts for no less than 5 of these projects;

6. A description of how the team adds value to the project beyond simply complying with the Terms of Reference; and

7. Project budget, including fees (broken down by individual staff, including time commitment to each task, and the hourly billing rate for each staff), disbursements and expenses (including travel and direct project expenses).

PROJECT DELIVERABLES

Stage 1
A "start-up" meeting with the Project Team (PT#1) to confirm the project scope and deliverables, and to exchange existing information, data and mapping.

A brief Stage 1 Progress Report in electronic form, summarizing:

- Existing ecological data gaps and needs; and
- Criteria and methods for ecosystem inventory and assessment, including a survey of existing data, and a program for air photo interpretation and selective field inventory and "ground truthing" of data.

Day-to-day contact will be maintained between the Consultant and the Project Manager, and with the Project Team as necessary.

Stage 2
A set of City-wide Environmental Inventory (EI) maps in electronic (GIS) and hard-copy form at a scale of 1:25,000, including:

- Watercourses, Wetlands, Riparian areas, mapped and rated according to significance
- Vegetation Communities / Habitat Types, mapped and rated according to significance
- Steep and/or Unstable Slopes, sensitive soils and Groundwater / Aquifer areas, rated according to sensitivity to disturbance
- Known and potential sensitive wildlife locations, habitats, special features mapped, including location and "best management practice" buffers

A progress meeting with the Project Team (PT#2) to review the EI maps and supporting data, and to review draft materials for Workshops and the Public Information Meeting.

Materials, including mounted copies (boards) and projectable slides (in PowerPoint or PDF format) of the EI maps along with explanatory text, in a format appropriate for a Public Information Meeting.

Workshops with City Advisory Committees (DAC/AAC/EAC/HAC/PRC), Land Developers and Environmental/Stewardship Groups to review draft EI maps and to receive input on determining Ecosystem Management Areas.

A Public Information Meeting (PM #1) on the EI findings and project progress, including Consultant participation in a presentation and public open house.

A brief Stage 2 Progress Report in electronic form, summarizing:

- Criteria and justification for the significance ratings associated with the EI maps;
- Criteria and methods for determining and mapping ecological management areas; and
- Criteria for identifying and prioritizing ecological restoration and enhancement areas.

A progress workshop with the Project Team (PT#3) to review the results of the PIM, and to confirm the process for developing Ecosystem Management Areas. Day-to-day contact will be maintained between the Consultant and the Project Manager, and with the Project Team as necessary.

Stage 3
A set of summary City-wide maps in electronic and hard copy form at a scale of 1:25,000 showing:

- Ecosystem Management Areas (EMA) and sub areas (sub-EMAs), based on the EI maps listed above; and
- Candidate areas for ecological restoration and enhancement (shown in general form).

Materials, including mounted copies (boards) and projectable slides (in PowerPoint or PDF format) of the Stage 3 maps along with explanatory text, in a format appropriate for a Public Information Meeting;

A Public Information Meeting (PM #2) on the Stage 3 findings and project progress, including Consultant participation in a presentation and public open house;

A progress workshop with the Project Team (PT #4) to review the results of the Public Information Meeting and to review a draft Table of Contents for the Final Report;

A Final Report, in electronic and hardcopy report format, including:

- A description of the criteria used and the justification for the significance ratings associated with the EI maps;
- A description of the criteria used and the justification for the delineation of EMAs and sub-EMAs;

- A database of the existing and potential ecological characteristics associated with each EMA and sub-EMA;
- Ecosystem management practices and policy recommendations for each EMA and sub-EMA;
- The criteria used, the justification, prioritization and recommended implementation strategies/management practices for ecological restoration and enhancement areas; and
- Recommended indicators of ecological health, along with associated monitoring programs and protocols

Participation in a Final Presentation of results and recommendations to Council.

RESPONSIBILITIES

The Consultant shall be responsible for:

- Production of maps and associated database in an ArcGIS format, compatible with the City of Surrey's GIS system;
- Production of reports and database appendices in an appropriate electronic format (MS-Word for text reports, Excel for databases and charts);
- Production of 20 bound copies of final report in colour, including maps;
- Production of presentation materials, including maps, for Public Information Meetings and a final Council Presentation, including projectable slides (in PowerPoint and PDF format) and mounted boards suitable for public display; and
- The purchase of maps, reports or data that is not available from the City of Surrey, including information from senior government agencies.

The City will make available to the selected consultant:

- Previous City-wide ESA inventories and analysis, including maps, reports and data sheets;
- Ortho-photography in electronic form, including the most recent photography, along with ortho-photography from previous years for comparative purposes;
- Cadastral information and maps in electronic form, along with GIS data in electronic form, as relevant to the project.
- Site-specific or Area-specific environmental reports where available, associated with parks or civic projects, engineering works projects, Neighborhood Community Plan (NCP) projects or other projects;
- Copies of relevant City bylaws, including the Official Community Plan, Secondary Plans, including Council-approved NCPs, Tree Protection Bylaw, Sediment Control Bylaw, Watercourse Protection Bylaw, 10-Year Capital Plans; and
- The City's current Watercourse Classification mapping, including supporting data.

The City will reimburse the Consultant for expenses directly attributed to the project, including:

- travel costs for travel within the City of Surrey for fieldwork, and for travel to and from required meetings, as set out in the project schedule;

- long-distance telephone, fax, courier or mail expenses incurred that are directly attributed to the project;
- the approved purchase of maps, reports, or data from sources outside of the City of Surrey that are necessary to the project; and
- presentation materials and production/publishing costs for reports, maps or presentation boards that are necessary to the project.