# RESEARCH REPORT

## Criteria and Method for Evaluating Subdivision Plans for Livability and Sustainability

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# Criteria and Method for Evaluating Subdivision Plans for Livability and Sustainability

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**November, 2006**

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# 1 Introduction and Purpose of this Study

Many observers have noted that we have much talk about urban sustainability in Canada, but few examples of sustainable development exist on the ground. The reasons for this are complex, but one reason that is often put forward is that we lack a system of criteria to define what a sustainable project would look like, how it would function, and what impacts it would have on key parameters. This limits the ability of sustainability advocates in the community, on council, municipal staff or within the development industry to articulate an alternative to existing development practices and designs or to objectively evaluate proposals being put forward under the rubric of sustainability.

In the absence of a clearly articulated sustainable alternative, the weight of other factors that go into shaping development - including technical standards found in zoning bylaws and development manuals (e.g., roadway design and parking requirements), economic concerns (e.g., financing, market demand, and profitability), professional biases (e.g., towards car-based road designs), and political sensitivities (e.g., citizen opposition to increased density and affordable housing) frequently submerge the desire for innovation.

One way to address this issue would be the development of an evaluation system that could be used by municipal planners, developers, community groups and other stakeholders to assess planning proposals from a sustainability or livability perspective.

> Evaluation shows how a choice has been reached, creates the conditions for active participation, makes pros and cons common knowledge to be accepted or rejected, allows negotiations which are visible and provides a clear decision path which facilitates conscious consent (Bentivegna, 1997).

Interest in planning evaluation is undoubtedly on the rise in Canada and elsewhere. Seasons (2003) identified several reasons for the growing interest in monitoring and evaluation:

- complex social, environmental and economic issues need to be investigated and assessed at the municipal level;
- municipalities under fiscal duress place a greater importance on efficiency and productivity;
- innovative policy and program directions require explanation and justification;
- new decision support systems and management models facilitate greater understanding and transparency in decision-making;
- monitoring and evaluation are essential elements of planning, yet are infrequently and inconsistently implemented.

To explain the inconsistent and infrequent application of monitoring and evaluation by municipalities, Seasons interviewed and researched fourteen Ontario municipalities concerning their relevant programs, practices, plans and views. He identified six factors that contribute to the monitoring and evaluation conundrum:

- lack of resources (time, money, expertise);
- lack of knowledge concerning evaluation methods (quantitative, qualitative, comparative);
- difficulty in finding appropriate indicators (data collection and relevance, types of indicators available);
- unclear causality (linking goals and outcomes, vagueness, influence of non-planning factors);
- political realities (political will and appropriateness); and
- unreceptive organizational culture (staff and management buy-in, learning organizations).

These limitations have tended to encumber local governments and discourage many from developing their own planning evaluation systems. It is not surprising, therefore, to find that a number of publications have recommended the creation of a national planning evaluation system as a way of addressing some of the these local limitations. For example, the CMHC report entitled 'Charting a Federal Course' recommended that CMHC explore the feasibility of instituting "a system of development criteria, in consultation with municipal governments and the public, to assist in the assessment of development plans for sustainability."[1] A national planning evaluation system could gather together experiences from the best local practices and avoid the need for each community to "start from scratch" in its efforts to evaluate development proposals from a sustainability/ livability perspective.

Although a development evaluation system might be useful in all types of development applications, including infill and redevelopment, the most urgent need at this point is for an evaluation system that applies principally to new subdivision projects. The great majority of housing and population growth occurs through subdivision development projects in most urban areas throughout the country. As a result, the design of such developments is a crucial element of urban sustainability and livability.

This study serves as the first phase of a larger project that is intended to create a sustainable subdivision evaluation system (SSES). Such a system would provide a method or model that planning practitioners, developers and other stakeholders

[1] Steven Peck, Ray Tomalty and Anna Hercz (2000) Implementing Sustainable Community Development: Charting a Federal Role for the 21st Century (Ottawa: CMHC).

in communities across Canada could use to assess subdivision plans for their livability and sustainability features. The current report is focused on describing the state of the art in evaluating subdivision plans from a livability and sustainability perspective and making recommendations for proceeding with the next stages of the overall project.

# Introduction et but de l'étude

On parle beaucoup de durabilité urbaine au Canada, mais on déplore qu'il y ait si peu d'exemples concrets de développement durable sur le terrain. Les raisons qui expliquent cet état de fait sont complexes, mais on évoque souvent l'absence de critères pouvant permettre de définir à quoi ressemblerait un aménagement durable, comment il fonctionnerait et quelles répercussions il aurait sur certains paramètres clés. C'est pourquoi il est ardu pour les défenseurs du développement durable dans la collectivité, au sein des conseils de ville, parmi les employés municipaux ou même chez les promoteurs de proposer des solutions de rechange aux concepts et aux pratiques d'aménagement en place ou d'évaluer d'une manière objective les propositions mises de l'avant sous la bannière de la durabilité.

En l'absence d'une solution de remplacement durable clairement articulée, le poids d'autres facteurs à prendre en considération dans un projet d'aménagement, c'est-à-dire les normes techniques qui composent les règlements de zonage et les manuels de développement (p. ex. la conception des voies de circulation et des espaces de stationnement), les préoccupations de nature économique (p. ex. le financement, la demande du marché et la rentabilité), les partis pris des professionnels (notamment à l'égard de la conception de routes axées sur l'utilisation de l'automobile) et les susceptibilités politiques (p. ex. l'opposition des citoyens à l'endroit de la densification des quartiers et de la venue de logements abordables), refroidit bien souvent les ardeurs des partisans de l'innovation.

Pour régler ce problème, il faudrait élaborer un système d'évaluation que pourraient utiliser les urbanistes, les promoteurs, les groupes communautaires et d'autres intervenants afin d'évaluer les propositions d'aménagement dans l'optique de leur durabilité ou de leur habitabilité.

> L'évaluation indique comment un choix a été fait, crée les conditions requises pour faciliter une participation active, explique le pour et le contre pour permettre l'acceptation ou le rejet, permet des négociations visibles et procure un chemin de décision clair qui facilite un consensus éclairé (Bentivegna, 1997).

L'intérêt que suscite l'évaluation des projets d'aménagement est indubitablement en hausse au Canada et ailleurs. Dans son étude, Seasons (2003) a relevé plusieurs raisons expliquant cet intérêt accru à l'égard de la surveillance et de l'évaluation :

- des enjeux sociaux, environnementaux et économiques complexes doivent être étudiés et évalués à l'échelon municipal;
- les municipalités qui doivent composer avec des contraintes financières accordent plus d'importance à l'efficience et à la productivité;

- les orientations innovatrices imprimées aux politiques et aux programmes doivent être expliquées et justifiées;
- de nouveaux systèmes d'aide à la décision et modèles de gestion contribuent à une meilleure compréhension des enjeux et à une plus grande transparence dans la prise de décision;
- la surveillance et l'évaluation sont des éléments essentiels de la planification, mais sont rarement et inégalement mises à contribution.

Pour comprendre pourquoi les municipalités ont rarement et inégalement recours à la surveillance et à l'évaluation, Seasons a rencontré et étudié quatorze municipalités ontariennes pour connaître leurs programmes, pratiques, plans et points de vue pertinents. Selon lui, six facteurs contribuent à cette énigme :

- le manque de ressources (temps, argent, expertise);
- le manque de connaissances sur les méthodes d'évaluation (quantitatives, qualitatives, comparatives);
- la difficulté à trouver des indicateurs appropriés (collecte et pertinence des données, types d'indicateurs disponibles);
- la causalité incertaine (établir des liens entre les buts et les résultats, manque de précision, influence de facteurs non liés à la planification);
- les réalités politiques (volonté et opportunité politiques);
- la culture organisationnelle non réceptive (ralliement des employés et de la direction au projet, organisations apprenantes).

Ces freins ont tendance à gêner les administrations locales et à en décourager beaucoup de mettre en place leur propre système d'évaluation de projets. Il n'est donc pas étonnant de constater qu'un certain nombre de publications ont recommandé la création d'un système national d'évaluation des projets d'aménagement pour mettre un terme à certaines de ces restrictions locales. À titre d'exemple, un rapport de la SCHL portant sur l'aménagement de collectivités durables recommandait que la SCHL examine la faisabilité de créer une série de critères d'aménagement en consultation avec les administrations municipales et le public, afin de contribuer à l'évaluation des plans d'aménagement devant respecter les principes du développement durable[2]. Un système national d'évaluation des projets d'aménagement pourrait rassembler des expériences tirées des meilleures pratiques locales et éviter à chaque collectivité de partir de zéro pour évaluer les propositions d'aménagement dans l'optique de la durabilité ou de l'habitabilité.

Bien qu'un système d'évaluation des aménagements puisse s'avérer utile dans tous les types de demandes d'aménagement, y compris les projets de densification et de réaménagement, le besoin le plus urgent à l'heure actuelle

[2] Steven Peck, Ray Tomalty et Anna Hercz (2000) *Implementing Sustainable Community Development: Charting a Federal Role for the 21st Century* (Ottawa : SCHL).

concerne les systèmes d'évaluation pouvant surtout être utiles dans le cas de nouveaux projets de lotissement. La grande majorité de la croissance touchant les bâtiments résidentiels et la population se produit au moyen de projets de lotissement dans la plupart des zones urbaines, et ce, d'un bout à l'autre du pays. Par conséquent, la conception de ce genre d'aménagement constitue un élément crucial de la durabilité et de l'habitabilité en milieu urbain.

La présente étude constitue un premier pas vers la création d'un système plus étendu d'évaluation de la durabilité des lotissements. Un tel système procurerait une méthode ou un modèle que les professionnels de l'urbanisme, les promoteurs et les autres intervenants du milieu partout au Canada pourraient utiliser pour évaluer les caractéristiques d'habitabilité et de durabilité des plans de lotissement. Ce rapport décrit les règles de l'art de l'évaluation des plans de lotissement au chapitre de l'habitabilité et de la durabilité et a pour but de formuler des recommandations quant aux prochaines étapes qu'il sera nécessaire de franchir pour l'atteinte des grands objectifs fixés.

# 2 Methodology and Scope

This study explores the plausibility and general outline of a system to evaluate subdivision proposals from a sustainability and livability perspective. The study was conducted in four steps as follows:

1. identification of system types
2. scan of current initiatives
3. case studies of selected initiatives
4. preliminary outline of a SSES

### Step 1: Identification of System Types

As a first step in conducting this study, the consulting team surveyed the literature to identify the various types of evaluation systems currently in use that might be helpful in developing a SSES for Canadian municipalities. The literature search covered the range of relevant practices in Canada the US and several other OECD countries.

In scoping this literature review, several criteria were used to determine the range of evaluation initiatives that would be included. Only systems that touched in some way on aspects of sustainability or livability were included in the scan. Sustainability refers to the environmental dimension of development, especially the need to achieve more compact and well-structured urban areas that limit land consumption, auto dependency and environmental impacts. It includes matters such as:

- reducing the use of automobiles and promoting transit;
- conserving energy through site and building design;
- protecting green spaces and habitat and other sensitive ecosystems;
- limiting the amount of land used for development and preserve agricultural land;
- improving air quality;
- reducing stormwater run-off and protect water courses;
- achieving a mix of land uses; and
- using existing infrastructure more efficiently.

Livability refers to the elements of design most closely associated with the quality of life, or impacts on humans. It includes matters such as:

- encouraging active lifestyles;
- offering a choice of transportation options, especially transit, biking and walking;
- preserving built heritage;
- achieving a range of different housing types;
- creating affordable housing;
- providing access to parks, other amenities and services; and
- revitalizing downtowns and other centres within an urban area.

The literature review encompassed both evaluation systems that target the full range of livability/sustainability elements and those that target a subset of those elements.

To avoid missing initiatives that could help influence the creation of a SSES, the scan included a wide range of evaluation systems, including those used to evaluate planning proposals from a sustainability/ livability perspective, guide development to meet specific sustainability/ livability objectives, or measure the impact of development on sustainability/ livability features. Although the scan's main focus was systems that have been applied to planning proposals, especially subdivision plans, other initiatives not specifically developed for this purpose (but capable of providing useful insights relevant to a subdivision scale of evaluation) were included.

The initiatives covered in the scan included those developed by government agencies (federal, state/ provincial, regional, and municipal) as well as those initiated by NGOs and developers. Only those initiatives that included at least some quantified measures of sustainability/livability were covered in the scan.

### Step 2: Scan of Current Initiatives

Once the various types of evaluation initiatives were defined, the consultants moved on to identifying as many initiatives as possible under each evaluation type. Although the focus was Canadian examples, US and other OECD countries were also covered. For each initiative found, enough information was gathered to allow an assessment of whether it would make a good case study in the next step of the research.

The scan proceeded using a "snowball" process. Initiatives that were identified in Step 1 of the study were used as starting points for information seeking. Representatives from the lead agencies identified in the literature review were contacted to see if they were aware of any similar or innovative SSES initiatives in Canada or the US. Further, a letter asking for information about evaluation systems was drafted and sent via e-mail to over 60 contacts in provincial planning organizations, planning schools, consultants, and municipal associations across Canada. Three list serves were also used to disseminate the request for information. Responses were received from the Yukon to Prince Edward Island. This helped identify over 100 evaluation systems at various scales (from building to regional analysis) and stages of development (tools in the research and development stage and those at the implementation phase). This included 79 process-related initiatives and some 50 content-related systems.[3]

[3] Another potential content-related source is the many innovative development projects taking place in Canada and the US. The projects that came to our attention during the scan are presented in a separate Excel file (Developments) attached to this report.

Basic information about each initiative was gathered through Internet research, brief interviews with representatives of the initiating agencies, a perusal of documents associated with the initiatives, or, in some cases, by drawing on the information collected during the literature review in Step 1. The information collected on each initiative included the following:

- title of initiative
- location
- type of initiative
- scale
- stage of implementation of initiative
- basic features of initiative
- initiating agency information
- contact person
- web site
- documentation availability

### Step 3: Case Studies of Selected Initiatives

In this step, detailed case studies were carried out of ten initiatives that have the greatest potential to contribute to a national subdivision evaluation system. Several criteria were used in order to select the ten initiatives from the list of 100 identified in the previous step:

- focus on initiatives that have been fully implemented and for which there is a track record to explore;
- favour Canadian initiatives, but use those of other countries where no similar Canadian example was available;
- draw from a range of initiative types;
- represent a range of community sizes and types;
- have easily availability of documentation;
- are represented by people who are enthusiastic about participating in the study.

The case study proceeded through interviews with representatives of the lead agency and developers whose project proposals were subject to the initiative ( to help assess the impact of the method on decision-making). Each case study also included a full review and analysis of all relevant documentation.

### Step 4: Preliminary Outline of a SSES

In the final step, the consultants carried out a comparative analysis of ten case studies in terms of the potential of each method to contribute to a national model for subdivision evaluation against sustainability/livability criteria.

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These developer-led initiatives may serve as illustrations of what can be accomplished in new subdivisions in a future SES, but are of limited relevance to us at this stage of our research, which is focusing on evaluation systems.

To carry out this task, the consultants identified three general categories of source material that could act as inputs into a SSES:

1. the basic principles or values that the system should adhere to;
2. the process involved in the design and implementation of the system; and
3. the technical content of the evaluation system, i.e., the specific criteria to be used in evaluating a proposed subdivision.

Based on these sources of input, recommendations were made in each category, including a preliminary list of technical criteria.

This report summarizes the finding from each step in the methodology described.

# 3 Identification of System Types

This section provides a review of 11 different methods used in the evaluation of project proposals that are relevant to the development of a Canadian SSES. The review categorizes and briefly describes each practice, with illustrative examples from initiatives using each of the approaches identified. Finally, each practice is assessed for its applicability to a Canadian SSES.

The systems identified through the literature review are grouped into the following categories:

1. Development Impact Studies
2. Environmental Audit/Impact Assessment
3. Assessment Models
4. Certification/Endorsement
5. Scorecards
6. Checklists
7. Point-based Approval
8. Best Practice Manuals
9. Development Guidelines
10. Project Specific Sustainability Guidelines
11. Multi-criteria Analysis

## *3.1 Development Impact Studies*

Summary

A development impact study is a formal undertaking, following accepted procedures, that measures the effects a proposed development or some element of that development might have on the social, economic or ecological environment.

Description

Development impact studies begin with a site analysis and consist of a process of estimating and reporting the physical, market, environmental, social, economic, fiscal and/or traffic effects that residential and nonresidential development could or has had on a specified area (ULI, 1994). Evaluating each of these effects entails the use of a specific methodology and collection of specific data. Current conditions are recorded and, based on the proposed development's features measured against planning standards or service levels, probable impacts are estimated. The use of comprehensive development impact studies seems to be more characteristic of the US planning process, and has increasingly become a required element (as opposed to an optional one) in land use review (ULI, 1994).

The authorized municipal body first screens an application to determine whether further review is necessary (e.g., proximity to natural areas, scale of development). Typically, the municipality defines the process and extent of analysis. Analysis and reports should include both positive and negative impacts, significant, direct and cumulative impacts, and be especially considerate of community values (Edwards, 2000). Typically professional consultants with expertise in one or all of the areas for the study are requested to perform the analysis, prepare the reports, and present the findings.

Much of the discussion critical of impact assessments is related to the definition of key terms, such as "significant effects" or "cumulative effects". In the former case, "attention has focused on the significance of effects and the associated potential significance of undertakings" (Gibson, 2000). The "incorporation of [cumulative impact] considerations has been minimal due to confusion over appropriate spatial and temporal boundaries in impact studies, lack of emphasis by project proponents and government agencies, and the absence of structured methodologies"(Canter and Kamath, 1995).

Edwards (2000) notes the following benefits in using a development impact study:

- promotes communication and conflict resolution among local officials and residents;
- encourages responsive and informed decision-making;
- addresses the range of potential impacts associated with a proposed development;
- facilitates interagency cooperation and efficiency;
- promotes fairness and consistency in the development process; and
- identifies resource needs and constraints.

Illustration

The Township of Lawrence, NJ requires environmental, community and circulation impact assessments for any major subdivision of ten lots or more (ULI,

1994; Lawrence Township, 2003). The environmental impact statement identifies impacts to do with the biophysical element, and include:

- flooding and flood plain impact;
- impact on surface water and groundwater quality;
- impact on the capacity to supply groundwater;
- sewage disposal impacts;
- alteration to existing vegetation and its impact on wildlife and wildlife habitats;
- destruction or disturbance of cultural resources;
- noise level impacts;
- energy utilization; and
- blighting or improving effects on neighborhoods.

The community impact statement collects further data and explanations concerning the population (residential and non-residential), schools (ability to absorb projected school age population), facilities (water and sewers, libraries, seniors centres), services (police, fire, solid waste, street), and fiscal (anticipated municipal, library and school revenue) impacts. The applicant is requested to justify why the development is in the best interest of the community based on the data findings related to the above impacts. Finally, a circulation impact statement is concerned with the transit, pedestrian, bicycle and traffic volume demands.

The Municipality of Saanich has used an Environmental and Social Review (ESR) process since 1992 for rezoning and subdivision. The requirement for a review is at the discretion of the Planning Director or Approving Officer and depends on whether the land is within a certain distance of natural, protected or marine areas; deemed environmentally sensitive; outside of the city's Urban Containment Boundary and involves rezoning or is a proposed subdivision greater than 5 lots; and/or could yield significant social impacts (Saanich, 2002). Regardless of whether an ESR is undertaken or not, with rezoning applications, the justification for the decision must be presented to council. This forms the basis of the review content in conjunction with the city's *Terms of Reference*. In the case where the land is only being subdivided, the Approving Officer outlines the requirements for the review. The process requires the use of an independent consultant who undertakes the review, and upon approval of the final ESR, documents are available for public review.

Application to a Subdivision Evaluation System

Development impact studies may be needed to assess the ability of a proposed development to stay within the parameters established by a SSES. For example, if the evaluation system specifies that new development should not add to traffic congestion along arterials serving the development, a traffic generation study would be required to ensure that the proposed development meets this criterion. Because planning approval processes already typically include several development impact studies, new studies may or may not be required to satisfy

the requirements of the SSES. Obviously, from a developer's point of view, additional study requirements would be seen as further complicating or increasing the cost of the application process at a time when the industry is calling for it's streamlining. A pre-screen mechanism, such as that employed in Development Impact Studies, could be a useful tool to ensure unnecessary studies are not undertaken.

## *3.2 Environmental Audit/Impact Assessment*

Summary

A formal assessment of the anticipated impacts of development on environmental parameters, especially aspects of the biophysical environment could be integrated into an environmental management system.

Description

An environmental assessment is a type of development impact study that is especially relevant to assessing matters related to sustainability. Environmental assessments can be used for two general purposes – to assess the environmental effects of a project on the greater community or to evaluate how a project meets municipal goals and objectives.

The use of EA at the municipal level in Canada is more prevalent than that of the comprehensive DIS. As regulators of land use and development, municipalities need to exercise due diligence with regard to environmental matters and may be held liable if environmental damage results from approved development (DS-Lea, 1995). CMHC has contributed to the use of EA in Canadian municipalities by requiring an environmental site assessment of some insured properties. Furthermore, provincial planning and environmental legislation typically provides municipalities with specific authority to undertake environmental assessments. The word "environment" in these documents is often used to include biophysical, social and economic issues.

Despite these strong supports for EA at the municipal level, researchers have found that the municipal procedures for incorporating environmental considerations into land use planning are under-used, are of an inconsistent quality where they are used, and are usually very narrowly applied to biophysical issues. A review of Perks, *et al's* (1996), *The Integration of Environmental Assessment and Municipal Practice,* enables an appreciation of the various factors at play.

| Strengths and Potential for Change | Weaknesses and Barriers |
|---|---|
| • adequate statutory framework;<br>• adaptive capacity of municipal planning;<br>• improved information and reporting;<br>• environmental impact assessments | • lack of common understanding in environmental assessments;<br>• under-use and improper use of environmental assessments;<br>• narrowness in the environmental |

| | |
|---|---|
| improve planning decisions;<br>• sustainable development practices and policy instruments on the increase;<br>• greater land control; and<br>• improved education for planners and environmentalists. | assessment practice;<br>• lack of municipal capacity; and<br>• shortcomings of the municipal corporate culture. |

Other problems with the use of EA as a component of a SSES have been itemized by Weston (2004):

- the lack of objectivity in the assessments and the fact that it is the developer who, in most systems, either pays for or produces the Environmental Statement;
- the complexity of the material produced in the assessment process;
- the political nature of development decisions and the clash of interests and values typically raised when assessing the significance of environmental impacts; and
- the lack of any real public involvement in the early stages of the EIA process.

Illustrations

The province of Alberta has created *Draft Environmental Guidelines for the Review of Subdivision in Alberta* (1998). The Alberta *Municipal Act* requires that a subdivision application only be approved if the land is suitable for the purpose for which the subdivision is intended (Province of Alberta, 1998). The guidelines acknowledge the environment as a key component in determining this suitability and the guidelines identify groundwater supply, water table conditions and soil percolation, river flooding and erosion hazards, hazards from valley slopes, and lake residential subdivisions as areas for potential assessment. A subdivision application will likely require assessment only if the use of land does not conform to that of a residential subdivision (i.e. lies within a protected area) and/or a zoning change is being questioned or appealed.

The Resort Municipality of Whistler has produced *Terms of Reference* for the incorporation of impact assessments when applicants apply to subdivide land. The applicant may be required to retain independent consultants to conduct one or all of the following studies: an initial review, a design assessment and/or impact statement.

The Initial Review identifies environmental sensitivities, cultural resources, and the physical conditions of the site, as well as the constraints these features pose for the development and how the development may have to be modified to take them into account. The Stage 2 Design Assessment focuses on providing recommendations for subdivision design and includes site testing, taking inventories, and making recommendations for protection and mitigation of

environmentally sensitive areas. Final comment from provincial ministries is sought, and public consultation may be required. Finally, a Stage 3 Impact Statement report may be required if information gaps exist, the proposed mitigation measures are unacceptable, or public concerns persist. The terms of reference for a Stage 3 report are set out by the approving officer (WCEL, 2005).

The former municipality of Ottawa used an EA system to evaluate development proposals. The Official City Plan of the early 1990s directed the creation of *Municipal Environmental Evaluation Process* (MEEP). It was considered the most comprehensive environmental evaluation procedure in the country (PEN, 1992). Modeled after federal and provincial environmental assessments, the process was based on self-assessment and included environmental screening, assessment procedures, and detailed impact reports. The new City of Ottawa (amalgamated with surrounding municipalities in 2001) still assesses environmental impacts of major development proposals, but using a less formal procedure (City of Ottawa, 2005). The current review process includes an assessment of the following parameters:

- noise and vibration
- transportation (including linkages,
- wetland impact
- natural open space impact
- soil engineering (including unstable slopes)
- tree planting and conservation
- archaeological resources impact
- hydro-geological and terrain analysis
- servicing for public communal services in the rural area
- storm-water site management,
- erosion and sediment control
- land use compatibility
- impact assessment of adjacent waste-disposal facilities
- site contamination
- designated substances
- waste reduction

Application to a Subdivision Evaluation System

If confined to an evaluation of biophysical impacts, this tool might have limited usefulness for the purposes of a SSES, especially one based on sustainability and quality of life criteria. However, if examples of a more comprehensive approach can be found, this tool may be of value in setting out the types of impacts to be anticipated from development projects and the detailed procedures for assessing those impacts. A detailed review of the application of EA procedures to development projects may suggest some key indicators and benchmarks that could be incorporated into a SSES. Experience with EA in Canada and elsewhere may help to clarify the role of project proponents (particularly with respect to who should pay for the use of SSES for specific projects) and of any public consultation component within a SSES. Finally, the screening procedures that are common in the use of EA may be of use in streamlining a SSES by eliminating some impact issues from detailed consideration.

## *3.3 Assessment Models*

Summary

Assessment models are software programs that use spatial and/or numeric data to evaluate development proposals against environmental, social and economic considerations to inform decision-making. Software models require place-specific data to reflect local conditions, impact parameters, planning objectives, performance standards, and indicators.

Description

The use of assessment models in land use planning proliferated as advancements in technology and data collection made these systems more user-friendly and practical. The City of Vancouver tested an early expert system[4] assessment model that checked proposed building plan data for compliance with building code by-laws. Users (planners and building professionals) noted the model increased the speed, accuracy, consistency and confidence with which plans could be checked (EB Economics, 1992). There are several types of assessment models in use, ranging from spreadsheet calculations to Geographic Information System (GIS) programs.

Illustrations

The United States Environmental Planning Agency (2000) and Marbek Resource Consultants Canada (2001) summarized the leading computer assessment models used in land use planning. Two are of particular relevance in this scan: Smart Places and INDEX. Both models require GIS software to operate and have relatively high data input requirements to reflect local conditions and to set compliance, constraint or performance targets (EPA, 2000). The models provide spatial and numeric reports or scores to aid evaluating development proposals.

| Assessment Model | Description |
|---|---|
| Smart Places | Simulation and evaluation of land use development and transportation alternatives using indicators of environmental performance. The user modifies numeric targets and spatial restrictions to reflect local planning structure and assist in compliance checking (i.e. land use by-law). |
| INDEX | Measures the characteristics and performance of land use plans and urban designs using environmental performance indicators derived from community goals and policies. Data are tailored to local conditions; user-defined policy constraints can be included |

[4] Expert systems are decision support systems that model human reasoning by coding the experience and judgment of experts and programming a set of procedures and using computers to execute when faced with relevant problems (EPA, 2000).

| | |
|---|---|
| | (i.e. energy efficiency, smart growth). |

The INDEX software has been manipulated for use in particular planning applications such as PLACE3S, which supports community energy planning, and the Smart Growth Index, which incorporates smart growth principles. INDEX uses a variety of indicators and local data to generate assessments of the following parameters (Criterion, 2005):

- population density
- park space availability
- land use mix
- housing proximity to recreation
- residential density
- open space
- diversity of housing type
- pedestrian orientation
- housing proximity to transit
- pedestrian route directness
- jobs/housed workers balance
- vehicle miles traveled
- employment density
- vehicle trips
- employment proximity to transit
- street network density
- street connectivity
- auto travel costs
- energy consumption
- residential water consumption
- criteria air pollutant emissions
- greenhouse gas emissions

A third assessment model, the *South East England Development Agency – Sustainability Checklist* was developed in response to regional planning requirements by an advisory group consisting of local authorities, developers and researchers with the UK company BRE. It is a user-friendly, downloadable tool that carries extensive resources for further information. The model separates assessment into ten issues based on the following sustainability principles:

- outward focus - impact on the wider community
- land use, urban form and design
- transport
- energy
- impact of buildings
- impact of infrastructure
- natural resources
- ecology
- community
- business

Each issue is organized into five sections – the questions, how to answer the questions, range of performance (based on best practices), certainty (likelihood of implementation), and suggested maximum score (weighting social, environmental and economic impacts). Answers are recorded and scored compared to best practices. Performance and standard data were derived from government and scientific research, and if unavailable, data were agreed upon by the committee creating the checklist as well as from data gathered in the test phase (SEEDA, 2004). The checklist also provides links to related government policy, references, case studies and contacts. The model can be used to guide developers from their earliest contact with planning officials.

A fourth tool that may eventually be of interest in the context of this study is the New South Wales (Australia) Building Assessment Index (BASIX). It is an online model used to evaluate residential (single and multifamily) building performance against energy, water and thermal comfort sustainability indices. Driving this initiative is the regional government's setting of water consumption and greenhouse gas emissions reduction targets. All building applicants must complete the assessment in order to receive a permit. The developers of the tool note its possible applicability at larger scales, but have yet to embark on this.

### Application to a Subdivision Evaluation System

Assessment models could play an important role in the development of a SSES as they offer an information system that takes project-specific inputs and assesses likely outcomes against benchmarks or targets. The use of software models increases the efficiency of the planning process, and enhances confidence in resulting decisions. As an online tool available to the public and developers alike, these tools could influence the way a proposal is conceived and discussed in public. However, its use may be limited due to the complicated

nature of the tool and the limited technical capacity found in some communities. Developing the tool can require substantial government support: in Australia and the UK, government provided financial, political and technical support to the creation of the assessment models.

## *3.4 Certification/Endorsement Programs*

### 3.4.1 Summary

A certification or endorsement program provides verification that a product meets specific criteria set out by the certifying/endorsing agency.

### 3.4.2 Description

Certification programs arose from consumer demand for greater confidence in the reliability and quality of product information and the need to simplify complex contextual information to a level that most consumers can understand (EPA 1994). Certification is a method used to ensure a specified quality is met. It is typically a voluntary self-assessment using a questionnaire that identifies criteria to be met along some standard or guideline, and in some cases includes targets. A qualified expert or third party certifier reviews the questionnaire, evaluates the project/product/process and certifies it at a level of achievement.

While certification programs usually apply to the finished subdivision, endorsement programs target planning proposals. They tend to be less quantitative in nature and less stringent than certification programs. They are typically used by NGOs to draw attention to and build public support for positive development proposals.

### 3.4.3 Illustrations

In the development industry, certification programs are most advanced at the building level (as opposed to the neighbourhood or community level). While some certification programs target the building company, the interest here is in those programs that assess and certify the builders' products, i.e., the buildings themselves. The two most widely known building certification names are the Building Research Establishment Environmental Assessment Method (BREEAM) developed in 1990 in the UK, followed by the US Green Building Council Leadership in Energy and Environmental Design (LEED) green building rating program. The BREEAM program was modified for Canadian use by Natural Resources and Environment Canada and published by the Canadian Standards Association in 1995 (ECD, 2002). With the birth of the LEED program out of the US, and the establishment of a Green Building BC- LEED certification tool, the need to harmonize the programs was recognized. In 2003 the Canada Green Building Council was launched and, shortly after, they released LEED for new construction (LEED-NC).

LEED-NC awards points towards the certification of new construction projects within six categories: sustainable site, water efficiency, energy and atmosphere,

material and resource use, indoor environmental quality, and innovation and design. Items addressed within sustainable sites include:

- erosion and sedimentation control;
- site selection;
- development density;
- redevelopment of contaminated sites;
- alternative transportation (public, bicycle, alternative fuel, parking);
- reduced site disturbance (open space, development footprint);
- stormwater management (rate, quantity, treatment);
- heat island effect (non-roof, roof); and
- light pollution reduction.

The US Green Building Council (USGBC) is currently developing a LEED product for neighbourhood development (LEED-ND) in partnership with the Congress for New Urbanism and the Natural Resources Defense Council (NRDC). LEED-ND will incorporate smart growth principles for development, in addition to the building level criteria already tested in LEED (as discussed above). A program developed by NRDC for the Enterprise Foundation in the US, branded as the Green Communities Criteria™ rings of the LEED process, consists of eight sections under which the community criteria fall.

These include an integrated design process (establishment of the multi-disciplinary team and project commitment); location and neighbourhood fabric (near existing development, environmental conservation, services, density, and walkability); site improvements (EIA, BMP erosion and sedimentation in stormwater); water conservation (fixtures, landscaping, and irrigation); energy efficiency (most stringent home energy rating, appliances, fixtures); materials beneficial to the environment (resource input, and permeable/reflective surfaces); healthy living environment (low volatile organic compounds, mold, and ventilation); and operation and maintenance (resident/ owner manual and training). This tool is a useful resource as it provides direction on the intent of the criteria and quantified targets and examples of how they can be achieved. It should also be noted that the Green Communities Criteria™ program is being used to qualify developers for financial assistance to develop affordable housing.

A less widely known certification program is Built Green, which is focused on environmentally friendly building practice for home construction. The Built Green™ program in the State of Washington and the Built Green Communities™ Colorado program were driven by the state Home Builders Associations, in collaboration with government agencies, product developers, and local building experts. The scale of certification has been extended in recent years to the community level. Developments are scored on six categories, including site and location considerations, water and energy efficiency design, conscientious resource and material choice, opportunity for conservation and transportation alternatives, enhanced health and air quality, and community opportunity and

education. The Built Green system does not include criteria for affordability or community economic development.

| Colorado Built Green Communities™ Categories | Washington Built Green™ Program Categories |
|---|---|
| Buildings | Code Regulation |
| Site Selection | Site and Water |
| Transportation | Energy Efficiency |
| Planning and design | Health and Indoor Air Quality |
| Preservation and conservation | Materials |
| Community | Operation and Maintenance |

Developers join the programs on a voluntary basis. Participants are required to take part in a training seminar. The cost of the program includes an annual fee up to $650 US, plus a levy for each lot certified. There is an additional cost associated with third party verification.

As for most certification programs, building and community certification involves a certain amount of self-assessment. The Washington program allows the proponent to self-assess up to a level 3 rating of the 5 levels of certification. A third party certifier is required for higher levels. The Colorado program has certified raters spot check 5% of the development projects. While Built Green community certification is not yet available in Canada, a newly formed Built Green society has been introduced in Alberta for residential units.

Application to a Subdivision Evaluation System

As mentioned above, certification in the development industry has focused on the building level. These certification systems could be useful in the design of a SSES because they include standards for building and some site-related parameters, especially energy efficiency, air quality, lighting, etc. Moreover, certification systems seem to be evolving towards greater inclusion of site and community planning related parameters. As a result, certification systems hold significant promise in the context of the present study.

As certification is usually a voluntary mechanism and often involves a degree of self-assessment, this tool is a bottom-up approach that leaves much of the initiative and control over the certification process in the developer's hands. However, the tool would lend itself to more top-down approaches in some municipalities where private developers are required to build to a certification standard, as is the case for certain types of construction in Vancouver and in Boulder, Colorado.

## *3.5 Scorecards*

Summary

A scorecard provides a systematic method of evaluating the degree to which of plans or development proposals reflect a set of desired community design principles.

Description

A scorecard provides a breakdown of the various dimensions of community design, each with a subset of measures. Grades are given using either points and weights (quantitative), or a descriptive rating scale (qualitative) to determine the likelihood of achieving the community design principle.

In the US, most scorecards have been created by non-governmental organizations promoting smart growth in collaboration with state agencies or federal agencies. Because the tool is created by outside agencies, it is not always part of the approval process, unless adopted for use by a local government. More often, the tool is used as a basis for communication between planners, developers and the wider community to help improve a proposed development from the perspective espoused in the scorecard (e.g., smart growth or quality of life). The use of scorecards can help reduce developer uncertainty about desired design considerations and, in some cases, encourage competitiveness among developers to achieve the highest score.

Illustrations

Several scorecards were identified in this scan. In the US, the Vermont Forum on Sprawl, Ecocity Cleveland and Colorado Healthy Mountain Communities have produced scorecards that rate existing neighbourhood progress in meeting smart growth principles. Three other scorecards are designed to be applied to new development: the New Jersey Futures' Smart Growth Scorecard for Proposed Developments (SGS-PD), the Smart Project Scorecard (SPS) developed in collaboration with the Congress for New Urbanism and the US Environmental Protection Agency, and the State of Maryland's Office of Smart Growth Smart Growth Scorecard. The table below presents the smart growth parameters used to evaluate proposals of the latter three systems. Of the three scorecards below, the New Jersey Futures' SGS-PD is the only one to use quantitative rating to evaluate the new development –applying a system of points and weights to reach a score.

| CNU - Smart Project Scorecard (descriptive rating) | New Jersey Futures – Smart Growth Scorecard for Proposed Development (points and weights) | State of Maryland Office of Smart Growth - Smart Growth Scorecard (descriptive rating) |
|---|---|---|
| Proximity to existing/future development and infrastructure | Near existing development and infrastructure | Location |
| Re-use and redevelopment options | | Service provision & government expenditures |
| Accessibility and mobility choices | Choices for getting around | Transportation |
| Fined-grained block, pedestrian and park network | Walkable, designed for personal interaction | |
| Environmental quality | Protects open space, farmland and critical environmental areas | Environmental protection |
| Site optimization and compactness | | Density and compactness |
| Community context and site design | Respectful of community character | Community Character and Design |
| Mix and balance of uses | Mix of uses | Mixed use |
| Diversity | Range of housing options | Housing diversity |
| | | Economic development |
| Process collaboration and predictability of decisions | | Stakeholder participation |

As can be seen, the scorecards evaluate similar measurements, yet the Maryland example has two measurements geared to fiscal and economic priorities that are not included in the other two scorecards. The State of Maryland has used the scorecard to assess development applications and provide written and verbal support for projects to Planning and Appeal Boards.

In Canada, the City of Markham (Ontario) recently created a scorecard to evaluate development proposals in its Town Centre from a smart growth perspective. The *Markham Centre Performance Measures Document for Sustainability and Smart Growth* is based on eleven guiding principles. The principles were used to produce performance checklists and qualitative performance measures to evaluate incoming proposals for the Town Centre. The performance checklists are used by staff to carry out a preliminary evaluation of proposed developments. Checklists have been produced for five theme areas

(greenlands, transportation, built form, green infrastructure, and public open space). After preliminary evaluation is approved, staff evaluate the proposed project against a series of performance indicators for each theme area and score the project as either bronze, silver or gold. A Citizen's Advisory Committee then meets with the developer and comments on the proposal, after which it is modified and sent to planning committee and council for approval.

Application to a Subdivision Evaluation System

Scorecards are already being used to evaluate subdivision proposals in the US and could be adapted for use in Canada. They include quantitative and qualitative targets that should be reviewed in the design of a Canadian SSES. To date, most scorecards have been related to smart growth design principles so their scope may have to be expanded to incorporate wider issues associated with sustainability and quality of life.

## *3.6 Checklists*

Summary

Checklists use similar measures to those used in scorecards, the difference being that proposals are not e given as a grade as a result of their performance on the checklist.

Description

A checklist itemizes desirable features of community design and responses are of the yes/no variety. A developer or applicant is requested to submit a completed checklist along with other mandatory forms required in the development application submission. Applicants may be requested to provide quantitative or qualitative information justifying the answers given.

Checklists are used by municipalities to make developers aware of a full range of environmental, social and economic issues that need to be considered when submitting development proposals. Some checklist elements may reflect regulatory standards but most are based on planning policies, such as those found in community plans, neighbourhood plans, or design guidelines. They are usually directly integrated into the evaluation process as a tool to initiate dialogue promoting better quality developments.

Illustrations

Two municipalities within the Greater Vancouver Regional District have produced checklists. The City of New Westminster's (2004) *Smart Growth Checklist* and the District of North Vancouver's (2002) *Sustainability Guidelines* are basically identical checklists used in preliminary and subsequent stages of an application's evaluation. Both were created to help implement Official Community Plan goals related to sustainability. Neither is intended to be a prescriptive document (with the exception of a few items such as soil and erosion control measures, CPTED, and noise attenuation).

Both municipalities make it clear that proposals will not pass or fail as a result of a checklist evaluation. The checklist is used as an educational/ discussion tool around municipal sustainability or smart growth goals. Whether this improves a developer's experience in the approval process is yet to be tested (i.e., speed of application processing and affirmative decision to proceed). The City of New Westminster uses the checklist for applications requesting zoning bylaw amendments and within Development Permit Areas, whereas the District of North Vancouver uses it only for zoning amendments. Both municipalities provide reference documents to aid in the completion of the checklist, including municipal policy and programs, and other design-related material.

The District of Central Saanich, BC (2003) produced the *Residential Development Applications Evaluation Guidelines* as a tool for assessing development proposals from an affordable housing perspective. The *Evaluation Guidelines* are focused on four areas (increasing density, tenure type, access to services, and neighbourhood acceptance), and provide a description of developments and designs that are encouraged or discouraged. Two checklists are included with the evaluation guidelines and together they provide a consistent method and rationale for evaluating applications. The first checklist is completed by the applicant with guidance from district staff, and includes:

- description of the project (i.e., location, size, abutting land uses);
- density and zoning (existing, proposed);
- target residential market meeting identified needs (young families, seniors, rental);
- site features (cluster development, site amenities);
- special innovations (design, financing);
- compatibility with neighbourhood (design, parking, landscape and open space, traffic, lighting);
- neighbourhood services (i.e.: within 1km of grocery, school);
- impacts on neighbourhood (i.e. school facilities); and
- public consultation (process and tools used).

The second checklist forms the basis of the staff evaluation. The proposal is checked against specific evaluation factors for the nine sections above. On each factor, the development is assessed as to be encouraged, acceptable, raising issues or concerns, or having special considerations. Definitions are provided for the qualitative evaluation criteria. The *Evaluation Guidelines* are to be used in conjunction with the District's *Design Guidelines for Infill Housing*, and the decision-making process also includes the usual elements of staff reports to council and council discussion prior to approval.

Application to a Subdivision Evaluation System

A checklist could be useful in creating a subdivision evaluation tool as it helps define sustainability and quality of life priorities and allows a developer to be innovative with appropriate justification. It can help ensure that the full range of

issues related to sustainability and quality of life are discussed in the approval process. On the other hand, because the tool is not used to provide a pass/ fail rating, the tool could be seen as having little power or influence and perceived as just another hurdle to get over in the approval process. Primarily checklists seem to be used as a tool to start the dialogue concerning important sustainability and quality of life issues.

## *3.7 Point Based Approval System*

Summary

Point-based approval systems lay out the desired design features and assign points for performance. Development consent is given based on the achievement of a certain score.

Description

Point-based approval systems are devised by municipalities and are directly integrated into the municipal decision making process. They are typically linked to some form of incentive program upon achieving a certain point level. They can be similar to the scorecards and checklists discussed above, but the defining feature is that approval and reward is determined based the level of achievement. Fleissig and Jacobson (2002) note the following incentives that could be linked to a point-based system:

- expedited review time;
- reduced permit fees;
- reduced impact fees for parks, sewer, water, etc.;
- reduced infrastructure costs through city investments;
- tax rebates for creating a reduced-impact project; and/or
- special funding to enhance the design and diversity of the project.

Illustrations

Fleissig and Jacobson (2002) note that Fort Collins, Colorado was the first city to make use of a Point Based Approval System within their Land Development Guidance System. Pioneered in 1977, the system was discontinued after some years of use when the zoning ordinance was thoroughly revised. More recently Austin, Texas has used a point-based approval system as part of its Smart Growth Initiative in 1998. The system used 12 categories and accompanying measurement criteria to evaluate development proposals. A system of assigning points was used to determine the score for a specific criterion and then each criterion was weighted to produce a final score. This score determined what Smart Growth financial incentives would be offered the project proponent. The incentives ranged from an accelerated application process to a 50% - 100% reduction of development fees.

The City developed a Smart Growth Initiative Matrix Application Packet that included the application, matrix and submittal requirements, along with a

definition of the process and key criteria. The evaluation process involved both a preliminary scan and formal review of the development proposal to ensure an open dialogue between interested parties and to help guide the way the development could occur. The system was discontinued in 2003.

Application to a Subdivision Evaluation System

The use of a Point Based Approval System is an effective means of stating the intent and direction of a municipality's planning vision. Investigating the weight that each criterion receives can help place appropriate importance on specific sustainability or livability elements. The system also provides incentives for developers to be innovative in their community design choices. Providing an incentive system could, however, unnecessarily draw on the financial resources available to municipalities.

## *3.8 Best Practice Manuals*

Summary

Best practice manuals provide real world examples of innovative approaches to achieve some facet of environmental, social and/or economic sustainability. Both governmental and nongovernmental organizations produce such documents.

Description

Best practice manuals present methods proven in producing desired results. As experience with and research into new methods of land use planning, urban design, infrastructure provision, demand management, etc. expands, best practice manuals are a practical way to collate diverse information related to specific planning topics. They typically present detailed information and illustrations concerning the performance of specific projects with the aim of allowing replication in a different setting. The documents are often framed in the context of sustainability, livability or smart growth. These documents are often created as reference guides by organizations with significant experience in a stated field.

Illustrations

The BC Ministry of Water, Land and Air Protection prepared a series of *Environmental Best Management Practices for Urban and Rural Land Development*. The series includes Environmental Planning at the Community Level, Site Assessment and Design, Environmentally Sensitive Areas, Special Wildlife and Species at Risk, Aquatic Ecosystems, and Pollution Prevention and Management. The primary purpose behind the series was to develop a "results based approach" by setting environmental objectives during the development of urban and rural lands and providing options on how best to meet them (BCMWLAP, 2004).

The Federation of Canadian Municipalities (FCM) and the National Research Council (NRC) created a *National Guide to Sustainable Municipal Infrastructure:*

*Innovations and Best Practices*. Decision-making, potable water, storm and wastewater, roads and sidewalks, and environmental protocols are the overarching themes for several best practices manuals. The documents clearly define the options available to achieve a stated objective, and provide examples of how municipalities seek to achieve those objectives in specific situations.

In addition, the Federation of Canadian Municipalities annually publishes the *Municipal Governments and Sustainable Communities: A Best Practices Guide*, which presents winners of and entries into the FCM-CH2M HILL Sustainable Community Awards. There are seven areas of innovation: Buildings, Energy, Solid Waste, Sustainable Community Planning, Sustainable Transportation, Wastewater and Water. Although the best practices that are documented depend on a municipality's participation in the awards competition, useful case studies can be taken from this collection.

The Vermont Forum on Sprawl has created the *Growing Smarter - Best Site Planning for Residential, Commercial and Industrial Development*. This best practices manual provides examples on how to meet the smart growth principles with specific on the ground examples in the State of Vermont, as well as the rest of the US.

Additionally, the Canada Mortgage and Housing Corporation's mandate to improve housing quality and affordability has led to the development of an extensive collection of best practices and tools developed under its Healthy Housing and Sustainability Program. *Practices for Sustainable Communities* presents community best practices for air, water, and land use issues and discusses their advantages and disadvantages in terms of sustainability and practicality. Research projects on the sustainable community development in First Nations' communities are documented in best practice publications, as are workbooks for public participation, design charette and planning workshops.

Application to a Subdivision Evaluation System

The examples documented through best practices can be useful when attempting to characterize sustainability, quality of life or smart growth qualities. They can also show what has been achieved under various conditions and in various urban settings. As a result, they could be incorporated into a SSES as possible targets and used to encourage developers and/or municipal departments to pursue alternative development scenarios.

## *3.9 Development Guidelines*

Summary

Development guidelines are established in order to direct the form of development towards sustainability or livability objectives. The level of detail ranges from a descriptive list of features that should be included to detailed quantification of design parameters that will be accepted.

Description

Development guidelines are used to describe preferred development patterns either comprehensively or for a specific dimension of development. Traditionally, they have been used to achieve a desired form and character (from a design perspective). Development guidelines are widespread for certain types of development (e.g. affordable housing), yet more often they are being used to achieve sustainability or livability targets.

Provincial or municipal governments typically create and adopt such guidelines. Some guidelines may be mandated by specific authorities, such as police requirements for *Crime Prevention Through Environmental Design*, or universal accessibility as directed by local government legislation. In large part, these documents offer a point of departure for negotiating higher quality developments among developers, the community and municipal officials.

A typical format for a development guidelines manual includes defining relevant issues, describing the type of development that is being encouraged or required, and providing examples on how to achieve the preferred form of development. The guidelines act as a reference for planners, developers, consultants, public officials, and community members to evaluate incoming proposals. They also provide useful information on specific policies or regulations guiding land development. Some guidelines incorporate a checklist to keep the users on track and ensure that critical components are being incorporated (HUD, 2005: Condon, 2003).

Illustrations

The City of Calgary *Sustainable Suburbs Study* and the BC Headwaters Project *Sustainable Urban Landscapes* present comprehensive development guidelines. The Calgary example was adopted by City Council “as the basis for evaluating plans for new development submitted between August 1995 and 1998” (City of Calgary, 1995). This document created policies and acceptable performance and design guidelines organized around the five major components of sustainable community: mixed-use activity centre, open space, housing, transportation, and environment. Each policy provides an explanation of the intended public benefit. Acceptable performance is described and design guidelines with illustrations are provided.

The BC Headwaters *Sustainable Urban Landscapes* developed guidelines at various scales (region, corridor, and block, parcel). Six overarching principles were defined:

- capitalize on the site;
- connect the flows;
- layer the systems;
- create a centre;
- employ an economy of means; and

- make it home

The design guidelines are intended to meet one or several sustainability parameters (green infrastructure, social infrastructure, movement and cost) within each principle. The document also contains references to standards, targets, and best practices for sustainable landscapes. Of particular interest to subdivision planning are design guidelines at the block scale providing a set of guidelines to better integrate pedestrian flow, natural features, stormwater, and flexibility into the landscape.

The Western Australian *Livable Neighbourhoods Community Design Code* was originally presented as an alternative to conventional development control policies for use by developers. It is currently in its third revision, and it is expected that the new edition will partially replace conventional residential development control policy. The Code is comprehensive, covering nonresidential and other types of development proposals. It is organized into seven main elements: community design, movement network, lot layout, public parkland, urban water management, utilities, and activity centres and employment. Each element has design requirements (prescriptive-based parameters) along with objectives that leave open to the proponent how best to achieve them (performance-based parameters).

The literature scan also revealed a number of issue-specific development guidelines. More often than not, multi-stakeholder committees, comprised of government, not for profit and corporate stakeholders and experts, created issue-specific development guidelines. The four most frequently found guidelines related to energy, water, transit, and affordable housing. Of particular interest are:

- Community energy planning - A planning process designed to engage the community in finding innovative ways to become energy efficient. Several development guidelines incorporate innovative measure to incorporate energy efficiency into site design, as well as provide targets that a community should strive for (NRC, 2004; BC Energy Aware Committee, 2000).
- Low impact development - A stormwater management and land development strategy applied at the parcel and subdivision scale. It emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic predevelopment hydrologic functions (Puget Sound Action Committee, 2005).
- Transit Supportive Guidelines - These incorporate key subdivision design features to encourage the use of public transit with design oriented at street patterns and connectivity. Pedestrian and cycling options are encouraged with streetscape designs and greenway connectivity. Target travel distance times are included with these guidelines (Province of

Ontario, 1992).

- The Affordable Housing Design Advisor lists - These provide over 60 key design criteria organized into ten categories (parking, public open space, private open space, landscaping, building location, building shape, building appearance, building layout, and unit layout). Each category describes why the practice is important and provides illustrations from examples around the world. These guidelines can help incorporate the needs of a specific population sector, ones that might not be met by traditional design standards (US HUD, 2005).
- Alternative Land and Site Development Standards - Research funded through the Affordability and Choice Today (ACT) program reviewed a variety of zoning and engineering standards to determine their impact on housing cost, maintenance, performance, and marketability. The research found that substantial cost savings can be realized with minimum impact on "livability" by reducing standards related to lot size, right-of-way and house-to-house separation, and by eliminating doubletrenching and curbs. Case studies can be found on the following website: http://www.actprogram.com/english/projects.asp

Application to a Subdivision Evaluation System

Development guidelines that have been produced at the subdivision scale or for specific issues could help identify design requirements in a SSES, e.g. design standards that relate to site orientation, street widths, distances to transportation and services.

## *3.10 Project-Specific Sustainability Guidelines*

Summary

A comprehensive document that provides detailed descriptions concerning guidelines for a specific geographic area. Monitoring plans, evaluation and performance targets are typical elements of the guidelines.

Description

Project-specific sustainability guidelines typically incorporate many of the features of the guidelines discussed above, but are geared to a local environment and tend to be more prescriptive in nature. Municipalities seeking innovative solutions to complex urban development challenges (i.e. contaminated land or proximity to natural areas) tend to initiate project specific guidelines. The guidelines are often developed by a steering committee through an extensive public participation process.

Generally, the documents provide a review of the process for reaching an overall vision: a set of guidelines based on guiding principles is established, followed by a series of goals and objectives with associated strategies and actions. Indicators and targets present the desired level of performance and minimum acceptable

development standards are identified. The guidelines may complement or supercede existing engineering standards and development guidelines. Sometimes best practices, precedents and design options are included in the overall system.

### Illustrations

The *Environmentally Sustainable Development Guidelines* for South East False Creek in Vancouver, BC presents goals, objectives and targets based on benchmarks drawn from other communities. However, they lack economic and social targets, as the guidelines are specifically oriented to ecological issues. The guidelines incorporate a description of the Full Cost Accounting method used to establish costs associated with a project.

The Toronto Waterfront Revitalization Corporation *Sustainability Framework* is an example of a public-private initiative supported by all three levels of government. The *Sustainability Framework* integrates sustainability guidelines that include a general sustainability theme, goals, objectives and targets. A checklist has been drafted that supports the decision-making process concerning development proposals.

The Burnaby Mountain Corporation's *UniverCity* is a new community development taking place on and near the campus of Simon Fraser University. The *Development Guidelines* is a comprehensive document that includes details concerning both residential and nonresidential uses and covers design, landscaping, development parcel, green building, signage, and stormwater guidelines. The Corporation's commitment to sustainability is outlined in the sustainability principles section and the document includes technical reports and appendices.

*The Eco-Tech Village* is an initiative of the Town of Milton, Ontario that will help establish sustainable engineering standard options through pilot project development, monitoring and evaluation. The *Sustainable Development Guidelines* provide a list of several infrastructure design options that could be implemented in various combinations to achieve sustainable infrastructure. Infrastructure includes transportation (regional and local roads), stormwater management, water conservation, and park facilities and landscaping. Performance measures and monitoring protocols are included in the document, but the Town acknowledges that further specifications will need to be set out before construction begins.

### Application to a Subdivision Evaluation System

Project-specific development guidelines often include both quantitative and qualitative targets and represent an important repository of ideas and standards for achieving sustainability on specific sites. Although documents are geared to local conditions, this experience and targets could help influence the range of issues and specific targets that are incorporated into a more generic SSES.

## *3.11 Multi-Criteria Analysis*

Summary

A method of evaluating alternative project designs using multiple criteria created from guidelines, objectives or values.

Description

Multi-criteria analysis (MCA) can be used to evaluate several alternative options for a specific site against a set of established criteria. The intent of the comparison is to determine the best or preferred option for development. This tool might be used by a community group offering alternative design options in response to a development proposal or for comparing design options presented in a charette or public RFP process. It helps establish a consistent approach to judging or weighing options, while incorporating individual preferences.

Multi-criteria analysis typically proceeds by scoring the performance of each option in relation to a set of criteria; weights are assigned to each criterion to reflect its importance and a combined score provides the overall assessment (DLTR, 1998). Typically, a performance matrix is created to compare options against one another.

Illustrations

The City of Stratford conducted a MCA in preparation of its Northeast Secondary Plan. Three general guidelines – efficiency, quality and impact – were used to develop 16 evaluation criteria to assess alternative land use options. These criteria are outlined below (CMHC, 2004b).

| Guideline | Criteria |
|---|---|
| Efficiency: To provide for the efficient use of land, infrastructure and services | • developable area (net developable)<br>• developable area (saleable frontage)<br>• roads<br>• minimize city road / servicing costs<br>• transit service<br>• road utilization<br>• future urban growth |
| Quality: To provide for a better living environment for residents and seek a stronger balance between pedestrians and automobiles | • tranquility<br>• pedestrian intersections<br>• connectivity<br>• delight<br>• accessibility to recreational parkland |
| Impact: To minimize potential risk for residents and the natural environment. | • pedestrian and vehicular safety of intersections<br>• safety of pedestrians<br>• noise mitigation<br>• preservation of natural heritage |

Three design alternatives were assessed, the fused grid[5], a conventional suburban design, and a modified fused grid. Each concept was measured according to the above criteria and given a low, medium or high score. The process showed that the modified fused grid met public objectives better than the other two options and the City has adopted this design as the basis for the secondary plan.

The Western Australian Planning Commission's Department of Planning and Infrastructure commissioned two studies to research the outcomes of different subdivision plans using their *Livable Neighbourhoods Code* as the basis of assessment. One study compared four conventional subdivisions to four traditional neighbourhoods using a set of measurable criteria that considered how the built environment affects the three dimensions of sustainability (economic, social, environment) (Mackay, 2001). These criteria include:

- connectivity (number of intersections per square mile);
- permeability (connectivity measurement weighted against the ability for people to move forward);
- accessibility (how much developed land within a 5-10 minute walk);
- street safety (percentage of blind frontage);

[5] *Fused Grid* takes its name from the *fusion* of two traditional approaches to street pattern design: the conventional, curvilinear pattern of crescents and cul-de-sacs of modern suburbia and the traditional grid pattern that evolved in North America with the Industrial Revolution. For further explanation, see reference CMHC, 2004b.

- efficiency of land use (percentage of land readily accessible to the public realm);
- diversity in land use (variety in land use);
- provision of parkland (quality, quantity and function of parkland);
- accessibility of parkland (amount of developed land within two minute walk of parkland);
- number of residents and residential density (population, dwellings);
- number of workers and worker densities (resident and worker populations);
- employment self-sufficiency (number of locally available jobs per household);
- diversity of lot sizes (variety in lot area);
- robustness of built form (adaptability of built environment);
- solar orientation (lot and building orientation); and
- energy use and emissions (greenhouse gas emissions).

Each subdivision was rated according to its performance on the criteria and subsequently ranked according to its overall performance. The study found that, overall, traditional neighbourhoods outperformed conventional ones.

The second study looked at subdivision plans in the state over seven years to assess the degree to which they were complying with the *Liveable Neighbourhoods* policy, (an optional alternative development guideline as discussed above) and to identify trends in suburban design. The intent of the subdivision portion of the study was to use multiple criteria to measure the degree to which subdivision applications were meeting LN policy, not to rank the overall quality of the subdivision design (Planning Group, 2003). To assess the applications, twenty indicators were derived from six of the seven LN policy items (movement network, lot layout, public parkland, urban water management, utilities, activity centres and employment). The first policy item, which deals with community design, did not deal specifically with site-specific criteria and was not included within the subdivision portion of the assessment. The subdivision application assessment indicators include:

- percentage of lot density increase around centres in relation to standard lot size;
- type of centre for walkability assessment;
- percentage of walkable blocks (>620m perimeter);
- walkability (walkable catchment or pedshed);
- evidence of road hierarchy;
- number of commercial lots served by rear laneways;
- percentage of convenient linkages to commercial centres;
- percentage of vehicular access points to 100 lots;
- percentage of pedestrian network links to 100 lots;
- number of connections to a neighbourhood connector per kilometre;
- weighted intersections per kilometre;
- range of lot size;

- lots that may facilitate energy efficiency (N-S or E-W);
- percentage of residential frontage onto public open space;
- percentage of small lots (under 350m2);
- percentage of orthogonal lot configurations;
- percentage of lots with lane access;
- percentage of dwellings within 400m of park;
- parks that are combined with community facilities, schools; and
- urban water management features.

The study found that most applications incorporated some aspect of the *Liveable Neighbourhoods* policy practices. It was also found that larger developments were better able to incorporate the policy than smaller ones. It should be noted that the study only looked at subdivision applications of greater than 50 lots. This study helped inform the revisions to the LN policy in 2005.

Application to a Subdivision Evaluation System

Plan comparison and MCA can provide a systematic method of assessing various options in the subdivision application process. Establishing a set of measurable criteria that is grounded by defined objectives will provide valuable justification when introducing sustainability or quality of life into the decision-making process. This can be extremely useful when introducing innovative design options that need to be compared to conventional examples. Of concern are the assignment of weights and the establishment of threshold levels, to help determine the approval of applications. To enhance confidence in the system, the justification for these aspects of the evaluation should be explicit.

# 4 Scan of Current Initiatives and Case Studies of Selected Initiatives

The last section defined the various types of evaluation methods that could be relevant to the creation of a SSES in Canada. This section summarizes the results of a scan conducted with the aim of identifying a range of initiatives under each evaluation method and reports on a series of case studies chosen from that “universe” of initiatives.

The information collected on each initiative identified in the scan included the following:

- title of initiative
- location
- type of initiative
- scale
- stage of implementation of initiative
- basic features of initiative
- initiating agency information
- contact person

- web site
- documentation availability

The detailed results of the scan are presented in the Appendix A. The table below presents a summary of the initiatives found in the appendix, including the number of initiatives for each type of assessment system, how many of the initiatives were found in Canada, and the number of initiatives of each type that included parameters of a quantitative nature.

**Summary of Initiatives (The "Universe")**

| Type of System | Number of Initiatives | Canadian Content | Quantified Parameters |
|---|---|---|---|
| **Process-related** | | | |
| Development Impact Studies | 4 | 1 | 4 |
| Environmental Audit/ Impact Assessment | 5 | 5 | 5 |
| Assessment Models | 18 | 4 | 17 |
| Certification Programs | 17 | 3 | 17 |
| Scorecards | 14 | 2 | 14 |
| Checklist | 12 | 7 | 8 |
| Point-Based Approval | 6 | 1 | 5 |
| Multi-Criteria Analysis | 3 | 1 | 3 |
| **Content-related** | | | |
| Best Practice Manuals | 11 | 7 | 8 |
| Development Guidelines | 27 | 15 | 22 |
| Project Specific Sustainability Guidelines | 8 | 6 | 5 |

From this universe, ten initiatives were chosen for detailed study based on the following criteria:

- favour Canadian initiatives
- favour initiatives with copious web-based or printed documentation
- favour initiatives that include a quantitative component
- favour initiatives that are comprehensive in nature, with a full range of technical criteria
- favour initiatives that are fully implemented.

The initiatives chosen were:

1. Liveable Neighbourhoods Policy – Western Australia
2. Smart Growth Initiative – Austin, Texas
3. Dockside Triple Bottom Line Request for Proposals – Victoria, BC
4. Built Green of King and Snohomish Counties – Washington State
5. Internet Planning for Community Energy, Environmental, and Economic

Sustainability (I-PLACE3S) – California
6. Performance Measures for Sustainability and Smart Growth in Markham Centre – Markham, Ontario
7. Proposed Development Scorecard – New Jersey
8. Integrated Environmental Review Statement – Ottawa, Ontario
9. Sustainability Checklist – South East England
10. Development Impact Analysis – Wisconsin, USA

## *4.1 Liveable Neighbourhoods Policy – Western Australia*

4.1.1 Summary

| | |
|---|---|
| Title of initiative | Liveable Neighbourhoods Policy Task 1 Review |
| Type of system | Multi-criteria analysis |
| Jurisdiction | State of Western Australia, Australia |
| Lead agency | Western Australia Planning Commission and the Department of Planning and Infrastructure |
| Year initiated | 2003 |
| Purpose of the system | *Liveable Neighbourhoods (LN)* is a planning policy document managed by the State of Western Australia's Planning Commission (WAPC) to help guide structure plan and subdivision application approvals. It is a strategic policy created to help implement the state's strategic planning policy and works both as an operational manual and policy document. The multi-criteria analysis (called Task 1 Review) was developed to review the impact of LN and determine whether LN goals are being met, as well as overall subdivision design trends. |
| Use of the system to date | The multi-criteria analysis assessed 85 subdivision applications and 20 structure plans between the years 1996-2002. |
| Key outcomes | The review has discovered that LN is having positive influence on urban form including lot sizes and connectivity in street networks, and acceptance is growing in approval agencies. The review of LN is focusing on the structure of the document in order to make it concise and easier to follow with clear and consistent policy positions and principles. The number of objectives will be reduced and mandatory requirements will be found separate from suggested practices. |
| Strengths | The LN policy review identified quantifiable criteria to analyze subdivision applications from the point of view of the LN policy. The criteria can provide interesting insight into the content of a SSES. |
| Weaknesses | Unfortunately, the quality of information provided on applications varied greatly, making it difficult to apply the indicators consistently over the entire sample. There were also a few years where limited applications were available for review, and this skewed the ability to provide generalized comments on overall trends over |

| | |
|---|---|
| | the sample period. Finally, the MCA was not appropriate for subdivisions with less than 50 lots, as some of the indicators were more difficult to measure with too few lots. |
| Lessons for a Canadian SSES | Multi-criteria analysis is a good tool for evaluating subdivisions using quantified parameters, but a comprehensive policy guide is necessary to define the performance criteria. In this case, the content that was used to define the criteria was *Liveable Neighbourhoods* and it has been on trial for close to ten years; a similar overarching national policy is not available in Canada. The sentiment of the development industry was that overregulation can stifle innovation and caution should be heeded when using too many prescriptive criteria. |

### 4.1.2 History

*Liveable Neighbourhoods* was created in 1997 by the Western Australia's Planning Commission (WAPC) [6] with the support of the Department of Planning and Infrastructure (DPI), in response to changing social trends and community development patterns. Changing social trends included smaller household sizes, increased part-time work, and housing and transportation affordability issues. Meanwhile urban sprawl was becoming an issue affecting communities and state agencies. The Commission felt it needed to provide stronger links between local planning decisions and the *State Planning Strategy.* The Commission also wanted to provide more certainty for stakeholders in the Western Australia (WA) planning system with respect to the rules governing subdivision, urban design, and development.

LN is an operational policy (also referred to as a design code) that defines the State's goals for local land use planning. It was based upon the *Australian Model Code for Residential Development: A national reference document for residential developments* (AMCORD, 1995) and modified to better reflect Western Australian conditions.

LN defines core elements of land use planning by describing goals and objectives for each element and providing design parameters to meet the goals. LN can be applied to the design of new subdivisions (where two or more lots are

[6] WAPC is one of the agencies with statutory authority in the Department of Planning and Infrastructure's portfolio. It was created by the State Government to integrate land use and transport planning. It operates with the support of the Department for Planning and Infrastructure, which provides professional and technical expertise, administrative support and resources to advise the WAPC and implement its decisions. http://www.wapc.wa.gov.au/

created on greenfield sites) and structure plans. It was also created to guide state and local government planning tools, including subdivision codes, development controls, and local area and structure plans.

LN is currently an alternative policy by which applicants can voluntarily submit subdivision plans. The applicant determines whether to submit a subdivision application using the *Liveable Neighbourhoods* or conventional residential development control.

All subdivision applications require that an official “Form 1a” be completed, along with any supplementary information required by WAPC. An application submitted under LN requires additional information outlined in the LN document, and a checklist was created by DPI to support this. Applications must demonstrate how the proposal meets those elements in the checklist. The WAPC circulates the application to any agency that could be affected by the proposal, and takes the recommendations provided by these agencies into consideration when making its final decision.

The first edition of *Liveable Neighbourhoods* was released in 1997. After a one-year trial period, the policy was assessed and a second edition was created and released for another trial period. A formal review of LN was initiated in 2003, with the WAPC appointing a Steering Committee to oversee the review process. The Committee is comprised of stakeholders representing the WAPC, local governments, government agencies for energy and environment, planners, the housing, property, real estate and development industry, public works and transportation engineers, and the general public. Several consultants were contracted to help with the process.

The first step in the review process (called the Task 1 Review) was designed to review subdivision and structure plans to determine whether LN goals were being met, to identify patterns in subdivision development, and to inform the review of the policy. To accomplish this task, the consultants created 20 indicators to assess 85 subdivisions (out of 630 applications) and ten indicators to review 20 structure plans. The indicators were based on a preliminary set developed by the Department of Planning and Infrastructure in 2001 for the *City of Joondalup’s Precinct Action Plan*, and the LN policy.

The results of this study were used to revise LN and a third edition was released for public consultation in 2004. The Department of Planning and Infrastructure is currently reviewing the structure of the document before revising its content in response to comments and submissions received during the public consultation period. The objective is to create a user-friendly document in “easy to read” format. Ultimately, LN is intended to become the main policy and operational document governing all subdivision and structure planning across the State.

### 4.1.3 General description of the system

LN defines eight land use elements: community design, movement network, lot layout, public parkland, urban water management, utilities, activity centres and employment, and schools. Key themes incorporated into these elements include urban structure, interconnected networks of streets, sense of community and local identity, development to support public transport, variety of lot sizes and housing types, and the integration of key environmental and cultural features. LN addresses several issues, including:

- performance based - flexibility versus rigid certainty;
- security by design - community safety;
- housing density and diversity;
- activity centres and employment opportunities;
- promotion of physical activity;
- walkability and public transport access;
- water use, re-use and management;
- biodiversity and environmental protection;
- sense of place and identity; and
- design for traffic speed variations versus traffic volumes.

The *Task 1 Review* multi-criteria analysis was designed to review subdivision and structure plans to determine whether the LN goals were being met, to identify patterns in subdivision development, and to inform the review of the policy. The *Task 1 Review* multi-criteria analysis assessed subdivision applications submitted by local government and consulting firms. Between the years 1996-2002, 630 applications were submitted and a sample population of 85 subdivisions was chosen for review. The review also looked at 20 structure plans over the same period (structure plans are larger area in focus). This case study focuses on the subdivision aspect of the review.

The following principles were used to select the subdivisions sample:

- choose, in general, larger subdivision (>100 lots) as they enable more performance indicators to be measured;
- determine the number of local government applications in each year and choose a number of local government applications proportional to the activity in the area;
- determine the number of subdivision applications submitted by planning consultant firms for each year and choose applications of consultants doing the majority of work;
- include examples from smaller firms to ensure a range of design responses are assessed; and
- include applications beyond the Perth metropolitan region and Peel Region in most years; except in 2000 and 2001 (when there were few applications over 50 lots outside this region).

As mentioned, the review used a set of indicators by which to assess each subdivision application/ plan manually. Most of the indicators included quantified measurements that needed to be calculated and analyzed using details from the subdivision application/plan.

4.1.4 Topics/Parameters

As noted above, the *Task 1 Review* multi-criteria analysis used 20 indicators to review the subdivision application sample population. The indicators were created by modifying a preliminary set the DPI had defined and by distilling the land use elements and objectives of the LN policy (i.e., movement network, lot layout, public parkland, urban water management, utilities, and community design).

All of the LN objectives were listed and measurable design indicators were proposed. These measures were ranked according to their appropriateness and robustness and twenty final performance indicators were chosen. The table below breaks down the indicators created for the review according to the elements and objectives outlined in the LN code.

**Task 1 Review Performance Indicators for Subdivision Assessment**

| LN Planning Element | LN Objectives | Review Indicators |
|---|---|---|
| Community Design | Facilitate an environmentally sustainable approach and protect natural and cultural assets. | Percentage of lot density increase around centres in relation to standard lot size |
| | | Type of centre for walkability assessment (neighbourhood, town, park or other feature) |
| | | Percentage of walkable blocks (>620m perimeter) |
| Movement Network | Provide levels of safety and convenience for street users. | Walkability (walkable catchment or pedshed) based on catchment model |
| | Provide a managed network of street. | Evidence of road hierarchy (measure of different road type based on increments in street width) |
| | Support frontage development. | Number of commercial lots served by rear laneways |

| | | |
|---|---|---|
| | Provide convenient linkages within movement network. | Percentage of convenient linkages to commercial centres |
| | | Percentage of vehicular access points to 100 lots |
| | Provide a movement network that is efficient. | Number of connections to a neighbourhood connector per kilometre |
| | | Weighted intersections per kilometre |
| Lot Layout | Provide a range of residential lots. | Number of bands in the range of lot size. |
| | Provide lots which are oriented and dimensioned to suit energy efficient housing. | Percentage of lots that may facilitate energy efficiency (N-S or E-W) |
| | Arrange lots to front streets, major streets and parks. | Percentage of residential frontage onto Public Open Space |
| | Provide for smaller lots and lots capable of supporting higher density development. | Percentage of lots under 350m2 |
| | Guide building layout to enable efficient use of site. | Percentage of orthogonal lot configurations |
| | Provide lots which facilitate safe and efficient vehicle access. | Percentage of lots with lane access. |
| Public Parkland | Ensure that public open space is of appropriate quality and quantity. | Percentage of dwellings within 400m of park |
| | Facilitate the provision of land for community facilitates with land cede for POS. | Percentage of parks that are combined with community facilities, schools |
| Urban Water Management | General: Urban Water Management features (park, street design). | Presence or absence |
| Supplementary Indicator | Ease of Site. | Complexity of site development (sliding scale between 1 (no constraints) and 5 (max constraints in shape and conditions) |

(Source: WAPC, 2003)

Parameters were mostly quantitative (17 of 20), with the exception of the type of community centre provided, a presence/absence indicator for urban water

features, and a supplementary indicator rating the complexity of site development on a descriptive scale.

No weighting was applied, as the purpose of the report was to determine which LN policies were being met, not to rank the quality of subdivision design.

### 4.1.5 Linkages

The *Task 1 Review* was linked to the LN policy document. LN, in turn, was designed to be consistent and to integrate with other components of the WA planning system, which includes:

- the State Planning Strategy;
- regional schemes;
- town planning schemes;
- statements of Planning Policy (i.e., settlement patterns and urban growth);
- regional and sub-regional structure plans endorsed by the Commission;
- Residential Codes and development controls;
- statutory matters for consideration in assessment process (e.g., demographics, amenity provision, natural or cultural resources, other agency requirements); and
- current consolidating Planning and Development Bill (DPI, 2005).

There are no official incentives for developers to use LN other than the anticipated streamlining of the approvals process and the associated reduction in approval times: The Department of Planning and Infrastructure expects the integrated and holistic approach characterized by *Liveable Neighbourhoods* will enable issues to be assessed more quickly than the current piecemeal / ad hoc approach towards decision-making.

### 4.1.6 Marketing and communication

The Department of Planning and Infrastructure was responsible for creating a series of communication and marketing strategies to communicate *Liveable Neighbourhoods* and its review by stakeholders. *Liveable Neighbourhoods* has been in a trial version since its inception in 1997. With the release of the first edition, industry, government and community interest groups participated in a public workshop to test the new design elements.

Both the DPI and WAPC web sites include web pages documenting the process and providing access to materials. A set of flyers and brochures were created as outreach tools, and a series of workshops/forums were held both in city and regional areas. Presentations were made at professional conferences (e.g., Planning Institute of Australia) and Academia (e.g., Murdoch University). Public consultation information was communicated through newspaper notices about the public exhibition period and included an outline of LN objectives. The review

has also included individual consultations with key planning consultancies acting on behalf of major developers and professional institutions.

All of the comments and advice garnered through public consultation have been registered, and letters have been sent to those who made submissions advising them of the current status of the LN code. Submissions have been incorporated into the LN draft where warranted. It is felt though that the feedback mechanism could have been better given more resources.

### 4.1.7 Application of the system

*Liveable Neighbourhoods* has been used in various ways, as an assessment tool and policy manual of the WAPC to a design document for developers proposing new subdivision plans. LN can also be applied to urban revitalization and infill projects. The multi-criteria analysis described here was created for the sole purpose of performing a formal review of the LN code and current subdivision trends. Greenfield subdivision applications for projects from 52 to 874 lots were included in the *Task 1 Review* sample.

### 4.1.8 Resources

Considerable resources have gone into creating and reviewing *Liveable Neighbourhoods*. Several research initiatives and supporting materials have been produced to support the uptake of LN. Investment into the development of the policy was seen as a key strategy to integrate sustainability into the development industries' practices and the municipal planning system.

The development industry has found that submitting subdivision applications under LN demands sufficient resources, as the application requires more information and time and hence more money to complete. The code's prescriptive format requires that applicants ensure very specific details are met to obtain approval of their applications. In some instances, developers have found that those assessing applications may unnecessarily bog down the process by vacillating on matters of miniscule and largely unimportant detail, with the result that the application process can take more time.

### 4.1.9 Outcomes

The LN *Task 1 Review* found several indications that the policy is being applied and that its goals are gradually being met. The reviewers conclude that design in accordance with LN policy is evident in the pattern of street layout, park distribution, block configuration and lot layout, and a general trend towards a greater range of public parkland located in visible and accessible areas exists (DPI, 2005). They also found that most applications incorporate elements of LN policy to varying degrees.

There was little evidence that LN policies governing neighbourhood centres, commercial location, and the integration of key environmental and cultural features were being implemented in the sample subdivisions. There was some difficulty applying the indicator set to evaluate applications consisting of less than 100 lots, as the elements that comprise a “livable” neighbourhood would not typically be included in the plan. The reviewers also noted that subdivision plans need to provide better and more consistent detail to evaluate elements such as urban water management and utilities.

The review also found that properly prepared structure plans resulted in better-designed and integrated subdivision applications, but the lack of supporting information supplied by the applicant limits the ability of the structure plan to act as a guide for well-informed decision-making. Quality of design and the provision of appropriate plans and supporting information appear closely linked.

Overall though, the review has discovered that LN is having positive influence on:

- Diversity in lot size, density & range
- Flexible Public Open Space allocations & locations
- Community focused urban structures
- Acceptance by approval agencies
- Trend of adopting LN, especially:
  - Interconnected street networks
  - Park visibility and accessibility
  - Street block layouts
  - Lot layouts

4.1.10 Stakeholder perspectives

The *Task 1 Review* found LN to be an effective policy for stimulating debate among the development industry, shifting developers and planners into a new direction. One developer suggested that industry is more informed about sustainability principles and are now looking at density and mixing uses, and less on simply focusing on profit. However, not everyone agrees that it was LN that triggered the movement towards more sustainable subdivision design: subdivision design and lot sizes were already evolving, market demand for traditional neighbourhood development was increasing, and good ideas were filtering out of urban planning field in the late 1990s.

*Liveable Neighbourhood* can make the application process more complicated. Applications must meet the requirements of a LN checklist and planners checking the applications against the list can lose sight of the bigger picture, focusing too much on details. One interviewee suggested that LN is “turning a creative process into a formulaic Q&A process where one size fits all.” A better process would be one that eschews prescriptive formulas and instead focuses on guiding principles, with firm standards where necessary.

Further feedback from the development industry found the entire planning process becoming more arduous, paralleled by an extensive environmental review process and a better-informed public. It was felt that although *Liveable Neighbourhoods* started out with good ideas, it has now changed into a regulatory document that is stifling the process of innovation.

It was suggested that the policy can be seen as trying to do too much; that it is a comprehensive manual that is both an operational and policy manual, and quite prescriptive. It was felt that the document should be simplified to include the key features and essential elements along with some suggestions to inform design to allow designers to innovate.

The consultant group performing the *Task 1 Review* created a rigorous assessment for LN. They found several difficulties with the available data when assessing the LN objectives. The quality of information provided on applications varied greatly and this made it difficult to apply the indicators consistently over the entire sample. There were also a few years where limited applications were available to review and this skewed the ability to provide generalized comments on the overall trends over the sample period.

Until WAPC forms a formal opinion on the use of indicators, there are no plans at this stage to further develop indicators or monitor and evaluate subdivision proposals. The review found that indicators are not always seen positively, from a political point of view.

4.1.11Relevance to a Canadian SSES

Although LN has had a positive effect in terms of raising the awareness of the development industry around sustainability issues, the review discovered several constraints to achieving LN objectives, mirrored by comments from the development industry. *Liveable Neighbourhoods* is seen by developers as lengthy and repetitive, with too many objectives, and confusion results from ambiguous or unachievable requirements.

The uptake by the development industry has not been widespread, as applying LN remains optional. This discretionary feature is championed by the development industry, yet LN is intended to become the single policy and operational document governing all subdivision across the State, and will be mandatory. There will be a transitional period to allow participants of the planning system to familiarize themselves with the policy.

To address these issues, the LN review is focusing on the structure of the document to make it concise and easier to follow with clear and consistent policy positions and principles. The number of objectives will be reduced and mandatory requirements will be found separate from suggested practices.

Multi-criteria analysis is a good tool for evaluating subdivisions using quantified parameters, but in the present case study, the system was linked to a comprehensive policy guide, which defined the policy objectives. A similar overarching national policy is not available in Canada. Although there are several examples of sustainable communities, best practice guides, and development guidelines that could be used as a starting point to develop indicators. The indicators used in the Australian example also provide a good reference in developing similar indicators.

Authority for subdivision approval resides with the state in Western Australia, and hence favourable state policies can help move the urban sustainability agenda ahead. In Canada, approval power is delegated to senior officials in municipalities by the provincial governments or maintained by the province where no incorporated municipality exists. This suggests that any subdivision evaluation system in Canada – applicable across the thousands of municipalities in Canada, with varying application processes, forms and approving authorities – would be purely voluntary in nature.

Finally, a cautionary note reflecting the overall sentiment of the development industry: an overregulated planning environment can be seen negatively by the development industry; sustainability principles need to be characterized, but overly prescriptive standards for meeting these can stifle the opportunity for innovate design.

### 4.1.12 Sources

Web site
http://www.wapc.wa.gov.au/Initiatives/Liveable+neighbourhoods/106.aspx

Documentation
*Liveable Neighbourhoods Community Design Code* versions. 1, 2, 3(draft) (1997-2004).
*Liveable Neighbourhoods: Street Layout, Design and Traffic Management Guidelines* (2000).
*Task 1 Review* (2003).

Interviews
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## *4.2 Smart Growth Initiative – Austin, Texas*

4.2.1 Summary

| | |
|---|---|
| Initiative Title | Smart Growth Initiative |
| System Type | Point Based Approval System |
| Jurisdiction | City of Austin, Texas |
| Lead Agency | Transportation, Planning, & Sustainability Department |
| Year initiated | 1998 |
| Purpose | A tool designed to assist City Council in analyzing development proposals by providing a quantitative measure (the Smart Growth Matrix) of how well a development project accomplished the City's Smart Growth goals, e.g., where Austin should grow – within the Desired Development Zone (an area encompassing the most highly urbanized areas of the city, with downtown having the highest priority) and away from the Drinking Water Protection Zone (an area including watersheds, endangered species habitat, steep slopes, shallow soils, and an aquifer) and how Austin should grow – through the use of models such as Traditional Neighborhood Development and Transit-Oriented Development. |
| Use of System | In use from 1998-2003 for projects in the Downtown, redevelopment areas, corridors and transit centers, infill, and Traditional Neighborhood District Zones. Most of the approved projects were built in downtown. |
| Key Outcomes | Almost 400 new residences, over 550,000 square feet of retail, restaurant, and office space in the urban core, almost $200 million added to the tax roll. Projects incorporated downtown residences and retail, mixed use, pedestrian-oriented development, and green building. The system was designed to encourage development in the Desired Development Zone, and while it was effective in realizing redevelopment in the urban core, it did not do much to contain sprawl. |
| Strengths | The incentives provided a more level playing field for development in the downtown and for achieving some desired design elements. The performance matrix helped to justify providing incentives. The Initiative was felt to be an improvement over conventional evaluation processes - to be "a fair way to evaluate projects", particularly as it provided "real specific objectives." The system had support from some key stakeholders (e.g. President of the Downtown Austin Neighborhood Association and the developer of two projects under the Initiative. |

| | |
|---|---|
| Weaknesses | While the initiative helped stimulate redevelopment in the central city, it did not do much in terms of containing sprawl. Reasons cited for this included: the lack of planning tools (e.g. urban growth boundaries) to support other efforts; the lack of formal involvement of areas outside the City of Austin (centre city- suburban conflict); and the inability of the City to control infrastructure planning which was vested in federal or other agencies. |
| Lessons for a Canadian SSES | While the Austin Smart Growth Initiative applied primarily to downtown projects, it has possible application for other areas. By changing the matrix to apply to other situations, that is by developing new criteria (e.g. shorter block lengths and grid patterns) the tool could be used in assessing subdivision applications. Providing incentives could help to overcome developer resistance. |

4.2.2 History

In the mid-1990s, Austin's development process was characterized as "fragmented, unpredictable, cumbersome, rooted in distrust and often confrontational" – lacking in flexibility, innovation and resident involvement. Although the City of Austin and the surrounding Central Texas region were experiencing rapid population growth a number of planning concerns had emerged: downtown deterioration, loss of population in the Downtown area, lack of investment and attractive growth, the impact of redevelopment on low income neighbourhoods, protection of the natural environment; and lack of coordinated planning and development, both within the city and with surrounding communities. The emergence of Smart Growth offered an approach for addressing many of these concerns. The Mayor at the time took on the challenge and is seen as the prime catalyst for the development of the system. The availability of funding to offer incentives provided the impetus to get going.

In January 1995, Austin City Council appointed a group of key civic leaders to meet the challenge. This group identified 12 recommendations to serve as broad guidelines for specific action items. A Citizen's Planning Committee was subsequently, established to further develop the recommendations. The 22 member Committee comprised a wide range of interests – staff in various key City departments/agencies, advisory committee members, and business, and citizens with backgrounds/ interests in planning, development, neighbourhoods, transportation, environment, and heritage. Following review and examination of initiatives in other cities and consultation with a broad range of citizens (e.g. from community activists and neighborhood leaders, to development professionals, civic groups, business leaders and ordinary taxpayers), in April 1996 the Committee issued a report *(From Chaos to Common* Ground) that provided a comprehensive strategy and action plan blueprint containing 34 specific strategies to deal with growth in Austin. The report addressed the need for better

communication and planning, with specific proposals to improve the City's outreach efforts to neighborhoods and businesses and to bring accountability to the process.

Next, and to follow up on the work of the Committee, the Mayor and three City Council Members formed a Council Subcommittee to develop a Smart Growth Vision and to prepare practical implementation actions for consideration by the full Council. The Sub-Committee was supported by the Citizen's Planning Committee and a cross-departmental staff support team. In February 1998, City Council launched the Smart Growth Initiative, based in large part on the Committee's recommendations.

Over the years, the Smart Growth Initiative evolved to include a number of activities, projects and processes (described below). However the Initiative ended in June 2003 and the Matrix is no longer being used. There were a number of reasons: the primary advocate (the mayor) left office; implementation resulted in growing resistance amongst a variety of key interests. Community resistance coalesced around two high profile projects: the development of a "big box" national chain store in the downtown raised concerns about the displacement of local, independent businesses and opposition to such developments receiving incentive funding. The "dot-com implosion" resulted in a significant project being left unfinished. This project provided "a constant reminder of the Initiative's failure" and became the "whipping boy or scapegoat" for the Initiative – and when combined with the impact of the "high-tech bust" on the City's budget and the ability to continue providing incentives, effectively brought about the Initiative's demise.

### 4.2.4 General Description of the System

The Smart Growth Initiative was a tool designed to assist City Council in analyzing development proposals within the Desired Development Zone (DDZ). It was designed to provide a quantitative measure of how well a development project accomplished the City's three Smart Growth goals: to determine how and where Austin should grow; to improve quality of life; and to enhance the tax base. The Smart Growth Matrix incorporated measurements (location of development, proximity to mass transit, urban design characteristics, neighbourhood support, employment opportunities, increased tax base and other policy priorities) that reflected the three goals. Smart Growth incentives were used to help offset the higher cost of developing in urban areas.

The Smart Growth Initiative proposed a hierarchy of zones and priority areas within a Desired Development Zone (DDZ). In order of importance, these were:

- Downtown;
- Areas with significant opportunities for redevelopment;
- Appropriate corridors and transit centers as identified in the Corridor and Light Rail Planning process;

- Infill and redevelopment opportunities within the Urban Core as established in the Neighborhood Planning process;
- Traditional Neighborhood District Zones.

The priority area for projects under the Smart Growth Initiative was the Downtown area – it was not used for greenfield developments, although it could be.

Participation in the Smart Growth Initiative was voluntary on the part of developers – they were not required to use the program. Compared to the total number of projects undertaken during the time the Initiative was in effect, very few projects actually participated. Many of the other projects were single-use, sprawl type projects and the system did not prohibit or discourage them.

Once a developer elected to use the system for a particular application, he or she was required to go through both preliminary and formal review of the project based on the Matrix. This process usually entailed an ongoing dialogue between the developer and the City. Incentives available under the Smart Growth Matrix required City Council review and approval. The following illustrates the typical process involved.

**Stage 1 – Self-Score and Preliminary Staff Review**

- The applicant prepared a self-scoring of the project based on the matrix.
- Letter of request from the applicant.
- City staff assembled the project review team.
- City project review team prepared an informal matrix scoring of the project to provide the applicant the opportunity to understand the criteria and discuss the project with the staff.
- Expedited processing of development applications - Projects which scored in the highest two levels on the preliminary staff review could qualify for expedited development application processing. Consultation with the matrix project manager for more information.

**Stage 2 – Formal Review**

- Receipt of Site Plan approval.
- Applicant submitted the **Formal Matrix Application** with support materials to Planning, Environmental & Conservation Services for review.
- City review team scored the project, determined the property tax value of the project, and, with the applicant, determined the incentive package. The formal matrix review had to be completed within 90 days of site plan approval.

**Stage 3 - Contract**

- City staff obtained City Council and any other approvals, then negotiated

and signed a contract with the applicant.

- Based on City Council approval of incentives, a binding contract was negotiated between the developer and the City at this stage.

**Stage 4 - Permits/ Construction**

- City staff posted incentives for fee waivers and reimbursed fees already paid by applicant.
- As construction of the project occurred, City staff monitored the project for contract fulfillment.

As part of the Formal Review Process in Stages 1 and 2, applicants were also required to provide the following information:

- a project summary letter, including (size and type of development proposed, project location, narrative explaining how the project furthers the Smart Growth Initiative and the public benefits proposed, specific design features that produce those benefits, and any pertinent additional information;
- a site plan;
- a list of requested incentives and approximate values for those incentives;
- other support materials, e.g. letters from neighbourhood associations, letters of agreement or support with other agencies or jurisdictions (in fact neighbourhood support was a determining factor in obtaining incentive funding); and
- a business case analysis, including estimated total investment, current assessed value of the site and existing improvements (the business case analysis was handled separately from the Matrix review).

4.2.4 System Topics/ Parameters

The development of the matrix was initiated and developed by Staff, supported by the Mayor, to provide a quantitative measurement or “benchmark” for dealing with requests from developers asking the City to provide amenities to support their projects. The system was ‘cobbled’ together: City advisory committees were asked for input, other system standards were investigated (some applied, but “there was a problem finding any”); some standards reflected the values and concerns of major stakeholders (staff and elected officials). Over time the standards were refined, however there were lots of “grey areas”, particularly where more than one-use was involved and they “didn’t really have a strong measure of success”.

The system used 11 categories and accompanying measurement criteria to evaluate development proposals broken into out under each of the three Smart Growth goals.

| **Goal 1** |
|---|
| ▪ Location within a Smart Growth Zone/ Location Risk<br>▪ Process (presentation and endorsement)<br>▪ Critical Mass (population, employment)<br>▪ Land Use - Land Use Contribution (variety of housing types, retail, entertainment, cultural centre), Land Use Compatibility, and Mixed Use per Building |
| **Goal 2** |
| ▪ Urban Design (façade treatment, compatibility with surrounding area, accessible public outdoor space)<br>▪ Multi-Modal Transportation Elements (Transit Coordination, Building Location on Site, Pedestrian Streetscape, Alternative pedestrian and bicycle access), Bicycle friendly)<br>▪ Parking (structured, driveway)<br>▪ Housing (price)<br>▪ Local Economy (neighbourhood stabilization, local business promotion)<br>▪ Sustainable Building Practices (building construction and Environmental Impact) |
| **Goal 3** |
| ▪ Tax Base Enhancement |

A point system assigning was used to determine the score for a specific criterion and then each criterion was weighted (from a minimum of 1 point to a maximum of 5 points) to produce a final score (Goal 1 comprised 50% of the points, Goal 2, 48% of the points, and Goal 3, 2% of the points). Greatest weight was given to location, process, housing price, and sustainable building practices. The weighting system used was determined by City staff, based largely on their professional judgment, placing the emphasis where they felt it was most needed.

If a development project, as measured by the matrix, significantly advanced the Initiative, financial incentives were available to help offset the higher cost of developing in urban areas. The performance matrix was used to justify providing incentives and to determine the incentives provided. These incentives were available only within the Desired Development Zone (DDZ), with the exception of the Smart Housing program.

| | |
|---|---|
| 0 - 250 points | No additional consideration. |
| 25 - 335 points | 50% of all applicable City of Austin Fees Waived (General Fund and Enterprise). |
| For projects that score in the two highest levels, a business case analysis set a not to exceed (NTE) value for the incentive package. The NTE value was based on the present value of the increase in property tax revenues generated by the project over a 5 or 10-year time period. The amount of the incentive package included up to 100% of applicable City of Austin fees, utility charges | |

| | |
|---|---|
| (at a 5-10 year break even level) and the cost of planned infrastructure accelerated in time for the project. | |
| 336 - 420 points | 5 year Incremental Tax Value NTE (e.g. incentive package not to exceed the net present value of increased property taxes generated over a 5-year period). |
| 421- 705 points | 10 year Incremental Tax Value NTE. |

There were a number of different types of incentives:

| **The Smart Growth Zone Specific Incentives** |
|---|
| The Smart Growth Zone Specific Incentives referred to changes in fees the City charged for zoning, subdivision, and site plan applications, and for water and wastewater capital recovery fees. Within the DDZ these fees were reduced on a sliding scale based on the location of the project. Within the Drinking Water |
| Protection Zone (DWPZ) development application fees were *not* reduced and capital recovery fees were slightly increased. The Zone Specific Incentives were available to all projects within the DDZ. |
| **Revised Water and Wastewater Reimbursement Policies** |
| Major water and wastewater facilities located in the DDZ were reimbursed in a single payment. Within the DWPZ, the reimbursement schedule for water facilities was four years. |
| **Primary Employer Incentives** |
| Primary Employer incentives were intended to guide large employers to build within the Desired Development Zone. A variety of incentives were considered, including fee waivers, new water and sewer lines, transportation improvements and expedited processing of development application. All Primary Employer incentives required City Council review and approval. |
| **SMART Housing Incentives** |
| SMART Housing stands for **S**afe, **M**ixed-Income, **A**ccessible, **R**easonably-Priced, **T**ransit-Oriented Housing, designed to stimulate the construction of affordable and reasonably priced housing. Projects qualified for fee waivers from City development fees and received expedited review for development permits. |

4.2.5 Linkages

Prior to the Smart Growth Initiative, the City had a number of existing programs, but there was a lack of coordination with overall City plans. The Smart Growth Initiative “added an umbrella concept which tied things together”, with the incentives (and matrix) being the “new piece”. The Initiative had links to a number of related policies and programs, including: Neighbourhood Planning; the

Downtown Redevelopment Program; Open Space Preservation, Corridor Planning and Traditional Neighbourhood Development.

4.2.6 Marketing and Communication

The actual launch of the Initiative was not carried out with a concerted marketing and communicating strategy or plan – there was a "little bit of a disconnect" in this area. There were some public information meetings, staff meetings with neighbourhood groups (but more as part of the neighbourhood planning process), and presentations to developers and the Chamber of Commerce – but this was "more ad hoc than part of an overall strategy". Key stakeholders, however, laud City staff for being very supportive, open and accessible when information and clarification was required. The City's web site was used to post information about the Initiative, e.g., a description of the Smart Growth Matrix Criteria; the Smart Growth Matrix; the Smart Growth Zones Map; application forms; submission requirements, links to other related sites, and contact coordinates for City staff. Once a few projects went through, word about the system got out.

4.2.7 Application of the System

While in effect, Matrix incentives helped the City move closer to its goals by encouraging the construction of almost 400 new residences and over 550,000 square feet of retail, restaurant, and office space in Austin's urban core. Smart Growth Matrix projects are summarized below.

| **Project** | **Residences** | **Non-Residential (Sq. Ft.)** | **Approximate Private Investment ($US)** |
|---|---|---|---|
| 524 N. Lamar | - | 35,497 | $8 |
| Carr America Building | - | 445,000 | $93 |
| Nokonah Condominiums | 99 | 7,000 | $50 |
| Plaza Lofts | 55 | 3,000 | $32 |
| Post West Avenue (Phase I) | 239 | @5,000 | $20 |
| Austin Market Place(Phase I) | - | 90,000 | $10 |
| AMLI Block 20 | 220 | 44,000 | Construction |
| Austin City Lofts | 82 | 3,600 | Construction |
| Post West Avenue (Phase 2) | 304 | 8,700 | Site Plan Approved |
| La Vista on Lavaca | 20 | 39,050 | Site Plan Approved |
| The Triangle | 859 | 219,000 | Planning |
| 701 W. 5th Street | 100 | | Construction |
| Convention Center Hotel | 108 | 425,351 | Construction |
| Hampton Inn | - | 127,961 | Open for Business |
| Pedernales Live-Work | 195 | Includes live/work | Planning |

### 4.2.8 Resources

The Smart Growth Initiative was a City program so the development and administrative costs (e.g., staff and web site maintenance) were carried by the City. Applicants were provided with applicable documents to assist them (e.g., the Smart Growth Matrix; Smart Growth Zones Map; Smart Growth Matrix Instructions; and Green Building Rating). The cost of providing financial incentives was the major and significant cost of the Initiative.

From the stakeholder or user perspective, while the process meant the applicant had “to go through the hoops” and was “second guessed by staff with suggestions for improving the project”, the additional cost and time involved was not considered onerous. In fact it was described as “a little bit”. As one developer estimated, the cost of the Initiative to the City was about $5 million and, in his view this was “marginal” in relation to the $45 million invested by him for $300,000 in incentive payments.

### 4.2.9 Outcomes

There has been no formal assessment of the system or measurement of outcomes, other than to compile statistics (see above) on the amount of non-residential square footage planned or constructed, the value of construction, the number of residences built, and the additional revenue generated for the tax roll. Stakeholder experiences have not been documented.

The system was used primarily at the schematic design stage which sometimes, at least, led to changes in the design and siting of buildings, desired uses and amenities. It resulted in the construction of some significant buildings in the downtown area, with projects incorporating livable features such as housing, ground-level retail and pedestrian-oriented space, mixed use, pedestrian-oriented development (street landscaping and wider sidewalks), better connectivity between buildings, and green building.

Projects developed under the Initiative added almost $200 million to the tax roll and are felt to have contributed considerably to reversing the loss of population in the downtown area through the construction of new housing – a trend that has continued. By encouraging development in the downtown area and near transit corridors, sensitive watersheds were better protected. The Initiative is also felt to have encouraged more public participation (neighbourhood consultation was required), streamlined the approval process, energized the whole community, and exposed the development community to new ideas and raised their consciousness about good urban design and planning.

### 4.2.10 Stakeholder Perspectives

While there was some opposition to the Initiative (e.g. from one prominent local environmental group and local activists who were concerned about the impact on local businesses of providing incentives to new large-scale commercial developments), this was not universal. For example, both the Downtown Austin Neighbourhood Association and some major developers supported it. In the view of the two stakeholders interviewed, the incentives provided a more level playing field for development in the Downtown and for achieving some important design objectives. The Initiative was felt to be an improvement over conventional evaluation processes – to be “a fair way to evaluate projects”, particularly as it provided “real specific objectives.” Its loss is regretted by at least one interviewee – “I wish we had it now”.

While the Initiative’s performance matrix helped to justify providing incentives, stakeholders point out that “there were not a lot of benefits to get” – mostly it was fee waivers and expedited plan review and no cash actually changed hands. Apparently, the benefits did not always equal the value the applicant was entitled to. As one developer indicated, he qualified for $600,000 worth of incentives, but actually only received $300,000 worth. On the other hand, the fee waivers helped to off-set some of the development costs (e.g. street closure rentals while construction was on-going).

While the Initiative “helped to turn the corner on redevelopment in the central city” and, in part at least, supported the three Smart Growth goals, “it did not do much in terms of containing sprawl”. Reasons cited for this included: the lack of planning tools (e.g. urban growth boundaries) to support other efforts; the lack of formal involvement of areas outside the City of Austin (centre city- suburban conflict); and the inability of the City to control infrastructure planning which was vested in federal or other agencies.

In assessing the Initiative’s overall success, the view was expressed that while they “lost the label and the unifying concept”, the City is “still using a lot of the other things”. The Initiative had ‘good ideas and was the right thing to do.” It was also noted that “ the most remarkable thing about the Initiative was the moment when the various interests came together to do something (the formative stages) and not the tool itself”.

In developing and sustaining the Austin Smart Growth Initiative, a number of challenges emerged. These included: achieving political agreement, maintaining political support leadership over time; coming up with quantifiable standards (“didn’t want a total judgment call” or political interference); lack of acceptance of the matrix standards and weights (“as time went on various interests wanted to interject different standards and weights); disagreement over how low-income housing should be integrated into neighbourhoods; perceptions of development as a ‘threat” to neighbourhoods, concern about redevelopment causing the loss of “treasured” buildings for the benefit of “rich yuppies”; resentment about how decisions were made and implemented (elected officials were seen by some to

be “arrogant” and to “step on toes”; and securing continuing financial resources to support the incentives program.

With hindsight, what would have helped would have been “better communication of Smart Growth Principles rather than creating the perception that Smart Growth consists only of incentives for developers.” The Initiative was widely perceived in the community as a system of “giveaways” to developers, as “corporate welfare”. Advertising the results, outcomes and benefits of the Initiative would also have helped – there was a “communication breakdown – people thought that the Initiative handed out dollars to developers and this distorted their understanding of the incentives”. There was not a strong media campaign and the Initiative lacked community support – “in retrospect this should have done this differently”. There is support, at least amongst some in the development community and the Downtown Austin Neighbourhood Association for the use of “modest” fee waivers as an incentive, although it was also suggested that developers should be required to pay the fees up-front and then, once a project is completed, to have the fees rebated.

#### 4.2.11 Relevance to a Canadian SSES

While the Austin Smart Growth Initiative applied primarily to Downtown projects, it has possible application for other areas. By changing the matrix to apply to other situations, that is by developing new criteria (e.g. shorter block lengths and grid patterns) the tool could be used in assessing subdivision applications. Providing incentives, it is felt, could help to overcome developer resistance.

Many of the problems or challenges that emerged with the Initiative’s implementation are commonly perceived to exist or occur in Canada, although not necessarily universally or at all times. With more careful implementation, i.e. building community support, identifying the benefits, improving the decision-making process, finding and sustaining political and staff champions and commitment, and integrating the program with other City programs, it is not inconceivable that many of the challenges could possibly be overcome. The development of clear rationales for the standards and weighting system used might also help – in Austin, as the system was used, “various interests (e.g. elected officials, developers, and community members) wanted to inject different standards and weights”. Obtaining the needed financial resources for an incentives program in Canada could be a challenge without senior government commitment.

In many Canadian urban areas there is some form of regional government. While responsibilities of these governments vary across the country, they often provide a forum for dealing with growth and development on a regional basis, bringing both centre cities and suburbs to the same table. This is something Austin lacked, which, as a result, limited the Initiative primarily to that City and prevented it from dealing with sprawl in outlying areas. In Austin, the City had

only limited influence with respect to infrastructure investment as these were frequently dealt with by Federal and other agencies. However, in Canadian cities such infrastructure (e.g. roads and sewers) are most often the responsibility of the city itself and/or its regional government and the possibility exists for coordination at both the planning and implementation stages.

### 4.2.12 Sources

Web site

http://www.ci.austin.tx.us/smartgrowth

Documentation
Citizen's Planning Committee Report – *From Chaos to Common Ground*
The Smart Growth Matrix

Interviews
George Adams
Urban Design Manager
Neighbourhood Planning and Zoning Department
City of Austin
T. 512-974-6370
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Chris Riley
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W. www.nokonah.com and www.thepedernales.com)

## *4.3 Dockside Triple Bottom Line Request for Proposals – Victoria, BC*

4.3.1 Summary

| | |
|---|---|
| Title of initiative | Dockside Triple Bottom Line Request for Proposals (RFP) |
| Type of system | Point-based Approval |
| Jurisdiction | Victoria, BC |
| Lead agency | City of Victoria |
| Year initiated | 2002 |
| Purpose of the system | The Dockside RFP system was created and applied by the City of Victoria in an effort to evaluate potential developers of a large parcel of brownfield land on the city's waterfront. It was designed using a balanced triple bottom line (TBL) approach to rate proposals against environmental, social and economic criteria. |
| Use of the system to date | The RFP has only been used in one instance, to sell the Dockside lands (a 5-hectare long-term industrial site on the Victoria harbour). The developer awarded the contract, the community surrounding the area, and the City have and will continue to work together to see the area developed into a high density, mixed-use sustainable development, unprecedented in the city. |
| Key outcomes | Although the process was lengthy and required extensive resources to accomplish, it ultimately met the City's goal of choosing the best proposal. The process has been recognized by provincial and national professional associations as being exemplary, and this recognition has impacted how other municipalities are choosing to present RFPs. |
| Strengths | By weighing social, environmental and economic criteria equally, the balanced TBL approach enabled conflicting interests to come to consensus. The process was also attuned to local conditions and included extensive public consultation. |
| Weaknesses | The process took four years from start to end and required a great many resources to complete. The evaluation parameters were largely qualitative in nature. Although this can encourage innovation and is especially suited to ensure local context is incorporated, it could be difficult to apply in a national SSES. |
| Lessons for a Canadian SSES | It is important to have committed political champions to support the development of an assessment process. |

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| | Equally weighted criteria were important to ensuring that conflicting interests bought in to the process. |

4.3.2 History

The City of Victoria purchased the Dockside lands from the provincial government in 1989 for $1 plus remediation and servicing costs. The land had been vacant ever since due to failed marketing attempts, uncertainty over the extent of land contamination, and updated land remediation legislation making previous remediation efforts irrelevant. Potential developer prospects were not good, and the City needed to come up with a plan for the sale and development of the land.

In 2001, the City agreed with BC Buildings Corporation (BCBC), a crown corporation providing real estate services in BC, to work together on real estate issues. In 2002, Council requested the development of a *Business Case* for the Dockside Area that would evaluate the opportunities and costs associated with land development (including contamination, remediation, geotechnical, market demand and land use, and economic performance). The Project Team and Steering Committee were established to begin work on creating an evaluation system.

The Project Team began public consultation in 2003, which included the establishment of an Advisory Committee, public workshops and open houses, to ascertain feedback to develop the *Design Guidelines, Vision and Project Principles* for the land. This work helped inform the creation of the draft *Development Concept (DC).* The DC was circulated to city staff, external agencies and the public, and finalized in 2004. It comprised an introduction to the area and its history, and included the publicly reached *Planning Principles*, as well as proposed land use and urban design guidelines.

A Request for Expression of Interest was announced in May of 2004 and shortlist applicants were identified. A draft of the RFP was circulated to the shortlist applicants and City staff to solicit feedback on the criteria and evaluation matrix. The finalized RFP was issued in September of the same year and two projects were selected for public review in October. After reviewing public and staff input, Council announced the successful proponent, Windmill-VanCity Enterprises, in December 2005.

4.3.3 General description of the system

The process was initiated by the City to guide decisions related to the marketing and sale of a parcel of City land that had several environmental, social and economic issues associated with it. The RFP system was designed using a balanced triple bottom line approach to rate proposals against a set of criteria taken from the *Development Concept* and the City's goals for the land. Points

were divided into three criteria (Environment=100, Social=100, Economic=100) and specific parameters were allocated shares of the points to establish their relative weights. The evaluation process was unique in that the Project Team provided a copy of the draft TBL RFP criteria and scoring matrix to the community and shortlisted proponents for feedback. This feedback was incorporated into the final design of the evaluation system.

In submitting applications, proponents had to demonstrate how they would meet the Dockside *Development Concept* by answering a questionnaire, providing a design concept and proposal text, and presenting financial information. Each proposal was scored and had to pass all of the pass/fail requirements and reach at least 50 points in each of the three criteria in order to be considered for public review. Applicants that reached these scoring criteria moved onto public review.

This was a four-phase evaluation process beginning with a Request for Expressions of Interest to establish a shortlist of applicants who would be invited to proceed with the RFP process and then to public consultation and City negotiation.

Phase I

1. Request for Expression of Interest (REOI).

Applicants responded to REOI. A short list of applicants was chosen based on five primary criteria: the financial capacity of the company (which was reviewed by accounting firms, in confidence), experience with contaminated sites and remediation, experience with mixed-use development, have LEED accredited professionals on the team, and no history of legal issues.

Phase II

2. Draft RFP criteria to Council and shortlisted proponents to review.
3. Final draft of RFP to Council for approval of evaluation matrix and to issue RFP..
4. RFP (2 months).
5. Evaluation Stage (1 month). Five staff (Engineer, Director of Planning, Economic Development Planner, Financial Advisor, and Development Services) evaluated the proposals based on the criteria laid out in the RFP evaluation matrix. Subject matter experts on LEED, development pro formas, remediation and costing were consulted on an ‘as needed’ basis. Proposals had to pass all pass/fail requirements and reach a minimum of 50 points in each of the economic, social, environmental TBL criteria. Scores were tallied and specifics about proposals were discussed at five meetings. Two monitors were appointed and provided with a stipend to oversee the meetings. One was a community member appointed by the Neighbourhood Community Associations; the other was hired as a Fairness Auditor. Both were required to submit reports directly to Council detailing any issues that might have been noted in the evaluation process.

Phase III

6. Notify Proponents that will move to Public Presentation.
7. Public Presentation.
8. Council chooses successful proponent based on Evaluation Team recommendation and based on feedback from public presentation. Council directs Project Team to enter into negotiation with the successful proponent.
9. Press Conference.

Phase IV

10. Negotiation between City and Proponent resulting in a Memorandum of Understanding, setting out the general parameters of the agreement for sale and development of Dockside Lands (4 months).
11. Two Public Meetings to obtain feedback on the proposal for consideration during the negotiation phase.
12. Completion of a Master Development Agreement and Sales Contract (4 months).
13. Council approves the above agreements and refers City initiated re-zoning for Dockside Lands to Public Hearing on September 22, 2005.

4.3.4 Topics/Parameters

Four topics were covered in the system: proposed site remediation, proposed land use, urban design, and net present value. These were adapted from the *Development Concept* and fleshed out into several sub-issues. The system broke down parameters that were used to evaluate proposals into three criteria – social, environmental, and economic.

Three pass/ fail scores were included in the 31 parameters. Two were economic, one concerned with no net loss for proposed site remediation and the other required the value of the offer to break even (on costs expended to date on the acquisition, remediation, infrastructure provision and consulting fees for Dockside Lands). The third parameter required the environmental remediation for the site to meet BC regulations.

Of the remaining 28 parameters, social, environmental, and economic criteria were used to evaluate several different aspects the proposal. Social criteria included density, mixed residential, mixed use, architectural character and context, pubic and green space, safety and connectedness. Economic criteria were concerned with financial risk, tax revenue, net present value, operating and maintenance costs, and economic spin-offs and employment. Environmental criteria included pollution, LEED certified buildings, innovation outside LEED, natural resources, microclimate, and alternative transportation. A detailed list of the parameters is detailed in the table below.

**Dockside RFP Topics and Parameters**

| Topic | Sub-issue | Criteria/Parameter | Point Allocation |
|---|---|---|---|
| Proposed Site Remediation | Consistency with Development Concept with regard to remediation and risk management | Environmental (BC Environmental Management Act and Contaminated Site Regulation) | Yes=Pass<br>No=Fail |
| | | Economic (No net loss) | Yes=Pass<br>No=Fail |
| | | Economic (Risk assumed by proponent or city) | 15=proponent assumes all risk<br>0=City assumes all risk |
| Proposed Land Use | Consistency with Development Concept with regard to mix of uses | Social (mixed land use and extent) | 10 = consistent with DC<br>2-7 = somewhat consistent<br>0 = single use or inconsistent with DC |
| | | Social (residential – broad range of ages and stages of life, income brackets, rental/ownership) | 5 = mix of residential units<br>3, 4 = some mix of residential units<br>1,2 = poor mix of residential units<br>0 = no mix of residential units |
| | | Economic (post construction employment – employee/sf floor area) | 5 = creates the most employment sliding scale to 0 |
| | | Environmental (mixed use design mitigates noise and air pollution) | 5 = indicates mitigation measures for both<br>4-1 = partial mitigation<br>0 = no mitigation |
| | Consistency with Development Concept with regard to density/FSR | Social (overall density variance from recommended density in DC) | 10 = density as per DC<br>Reduce marks according to variance to 0 |

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|---|---|---|---|
| | | Social (site specific | 5 = density as per |

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|---|---|---|---|
| | | density variance) | DC<br>Reduce marks according to variance to 0 |
| | | Economic (density in line with infrastructure needs) | 2 = zero impact<br>0 = infrastructure upgrade required |
| Urban Design | Contextual Response | Social (interface, history, architectural lingo, sight lines, etc) | 10 = excellent<br>7 = very good<br>5 = good<br>2 = poor<br>0 = none |
| | | Economic (economic spin-offs) | 5 = positive<br>2 = neutral<br>0 = negative |
| | | Environmental (additional environmental techniques, plans, innovation outside of LEED) | 20 = excellent<br>15 = very good<br>10 = good<br>2 = poor<br>0 = none |
| | Building massing, form and character | Social (massing and transitions) | 10 = excellent<br>7 = very good<br>5 = good<br>2 = poor<br>0 = not at all |
| | | Economic (materials) | 2 = yes<br>0 = no |
| | | Environmental (wind, light shadow, site lines) | 15 = excellent<br>10 = very good<br>5 = good<br>2 = poor<br>0 = not at all |
| | Environmental LEED considerations | Environmental (soil/vapour control) | 10 = yes<br>0 = no |
| | | Environmental (% of space LEED certifiable and to what level) | 20 = platinum<br>15 = gold<br>10 = silver<br>(points may range based on % of proposed buildings to target certain levels) |
| | Circulation | Social (connectedness, sense of place, community) | 10 = excellent<br>7 = very good<br>5 = good |

| | | | |
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| | | | 2 = poor<br>0 = not at all |
| | | Economic (modes sustainable maintenance/service now-long term) | 2 = yes<br>0 = no |
| | | Environmental (alternative modes of transport) | 10 = excellent<br>0 = poor<br>(measure by environmental impact) |
| | Public Realm requirements | Social (focal points/plazas, public pathways, parks/greenspace, boulevard) | Each of the elements can score 4 points<br>4 = excellent<br>3 = very good<br>2 = good<br>1 = poor |
| | | Social (Crime Prevention Through Environmental Design - CPTED) | 10 = yes<br>0 = no |
| | | Economic (operating and maintenance costs, now-long-term; operational/capital costs reasonable; developer's cost) | 4 = no costs<br>0 = all costs |
| | | Environmental (protection/ enhancement of natural resources) | 10 = excellent<br>7 = very good<br>5 = good<br>2 = poor<br>0 = none |
| | Negotiable/Optional Provisions | Social (what is offered meets local need) | 10 = excellent<br>7 = very good<br>5 = good<br>2 = poor<br>0 = none |
| | | Economic (how are operating/maintenance costs proposed to be addressed; reasonable; developer's cost) | 5 = no costs<br>3 = some costs<br>0 = all costs |

| | | | |
|---|---|---|---|
| | | Environmental (benefits proposed) | 5 = positive<br>3 = neutral<br>0 = negative |

| | | | |
|---|---|---|---|
| Net Present Value | Value of Offer | Economic (meet breakeven – net present value of purchase) | Yes = pass<br>No = fail |
| | | Economic (calculated based on Net Present Value (NPV) including NPV for remediation) | 50 = highest offer<br>20 = break even<br>anything in between 20 and 50 calculated on City formula |
| | Tax Revenue projections | Economic (based on build out proposal and average value/use assessment/estimated market value | 10 = highest revenue<br>0 = no revenue |
| | **Subtotals** | **Social category**<br>**Environmental category**<br>**Economic category** | **100**<br>**100**<br>**100** |
| | **Overall Total** | | **300** |

The RFP evaluation parameters were drawn from the concepts laid out by the *Design Guidelines*, *Vision and Planning Principles* and the *Development Concept*. Although the majority of the parameters were qualitative in nature, quantitative targets were provided for massing and density, and expenditures on public art and other economic considerations. For example, massing and height on specific areas of the site should not exceed 10 storeys for a maximum of four buildings.

Quantitative parameters were also drawn from pre-existing programs or policies. This included LEED criteria to assess buildings, remediation requirements from BC environment legislation, the Royal Astronomical Society of Canada Light Pollution Abatement Program, and the City's Crime Prevention design standards and Adaptable Housing Regulations

The City carried out several research projects to inform the RFP process and employed "Subject Matter Experts" to help define more technical aspects of specific parameters or explain how criteria should be integrated into the process (e.g., a remediation expert, LEED-accredited professional).

The criteria were structured to encourage flexibility and innovation in the applicants. The city wanted to provide applicants with the opportunity to use innovation to achieve the principles laid out by the *Development Concept*.

Scores were based on a balanced Triple Bottom Line, awarding 300 points in total with 100 points assigned to each category – environmental, economic, and social. Staff were asked to prioritize areas, as were the public and the shortlist applicants, to determine the appropriate weights.

Potential point ranges for each parameter were determined based on the *Development Concept*, with maximum points for proposals closest to the concept. The point ranges were defined through “gut feel”, and then discussed by various stakeholders, subject matter experts, City staff, project team, etc. The table above shows the potential point ranges for each parameter.

### 4.3.5 Linkages

The *Development Concept* drew from the City’s *Official Community Plan* (OCP), the *Victoria West Neighbourhood Plan*, and the *Victoria Harbour Plan*. There were no complementary plans or measures in place that contributed to the effectiveness of the system. The system had never been used in Victoria, and the lack of any complementary planning tools in the City of Victoria required the Project Team to continually justify the approach and the process.

The background work prepared by the City will streamline the rezoning application when the proponent proceeds to this stage. The City mentions the possibility of using an Amenity Reserve Fund (funded by net revenue obtained from land sale) for optional amenity provisions; the terms of which would be negotiated in the Master Development Agreement and Sales Contract.

In its search for other Triple Bottom Line approaches to RFP review, the Project Team found no similar evaluation examples. TBL is used predominantly in business applications and as a corporate organization model. The team used the idea of a balanced triple bottom line to acknowledge that each criterion (environmental, economic, and social) would have equal weight when defining parameters used to evaluate proposals. The TBL process was been successfully used to select a developer for the Dockside Land. However, it is unknown whether the process will be applied in its entirety for other RFPs, although parts of the process will likely be implemented in similar projects.

### 4.3.6 Marketing and communication

This project included extensive public consultation for which the City was responsible. The City was also responsible for communicating the REOI and RFP process via a media release and creating a webpage for reports and communication material available to the public. Colliers International was hired to market the REOI internationally, although proposals were only submitted from Canadian developers. The City released media pieces announcing the public consultation in the final phase of the evaluation process and the selection of the winning proponent. Two public meetings to announce plans and progress with the development agreement were held.

The RFP system was piloted in a sense, as the draft was circulated to shortlist applicants and Staff for feedback and input. To support the development of the

proposals, the City agreed to meet with proponents to discuss the evaluation criteria. Background information pertaining to the site and research produced by City were hosted on the webpage. A secure data web site and data room was created for shortlist proponents to access.

### 4.3.7 Application of the system

The Dockside RFP was the first time the City of Victoria used a TBL approach in evaluating proposals. Eight applicants across Canada responded to the REOI, and two met the scoring criteria (i.e., pass all requirements and reach 50 points in each criteria) and were approved to proceed to the public consultation stage of the evaluation process. Windmill Developments/ Vancity Enterprises was ultimately the successful proponent. The development will be mixed use and includes industrial, residential, office, retail, senior, and hotel uses.

The idea of using a balanced Triple Bottom Line to evaluate proposals could be applicable in a variety of situations. This system's success was dependent on the process and materials that were developed throughout the project.

### 4.3.8 Resources

Although this project was a four-year process and extensive resources were involved in terms of staff time, research, and public consultation, the benefits far outweigh the costs. The City had repeatedly attempted to sell the land without success. The area will now be developed in a way that integrates the City and the community's requirements.

Responding to the RFP required a huge investment of resources on the part of the private sector proponents, both in time and money. Windmill characterizes their choice to submit a proposal as a big risk financially, fully knowing that they might not be selected. Windmill estimates it committed in the order of $100,000 to prepare the proposal (for research and consultant fees), but this investment was necessary for the level of detail required for an appropriate response. Although the company applauds the initiative by the City, they felt the financial risk associated with the process could deter other applicants.

The City did debrief with the proponents who were shortlisted but who did not ultimately submit a proposal, and none of them cited the complexity or cost of the process as a reason for their withdrawal. The City also committed to providing a stipend of $50,000 to cover out of pocket expenses to any proponent that submitted a proposal but was not successful, to be paid out at completion of the Sales Contract.

### 4.3.9 Outcomes

The Dockside RFP was developed after three years of research and public participation. Each step built on the previous one, and was key to moving the process along. Preliminary research supported the development of a *Business Case* that supported the creation of a *Development Concept* that ultimately informed the RFP evaluation criteria. Paralleled by committee and public participation, the process was deemed fair and effective.

The RFP process realized the City's goals for selling the Dockside lands. This project was exemplary in its use of public participation to create a system to evaluate development proposals. The evaluation system won a PIBC 2005 Award for Innovation in Site Planning and Design and CIP Award for Planning Excellence in the category of Neighbourhood Planning. The method is being reproduced in Port Coquitlam for several different development areas by one of the original Project Team members.

The outcomes "on the ground" cannot be evaluated as the project has not started construction. However, Windmill/ Vancity has some very high expectations for the development. They seek to surpass the RFP LEED requirements. They will also attempt to meet the newest LEED certification module of Neighbourhood Development. The development also seeks to implement onsite energy production and water treatment. From the City's point of view, this will be a flagship project that demonstrates its commitment to sustainability.

The Developer has committed to reporting annually to Council on progress in meeting their commitments. In addition, the City is establishing an annual audit that will attempt to track the implementation of some of the innovative project features, providing an opportunity to revisit the plan where progress is impeded.

4.3.10 Stakeholder perspectives

Victoria's Project Team felt that developing the system was a long process and was met with several roadblocks along the way. Working in a municipal environment required daily justification of the method and process. In the beginning no one was on board; there was no City champion, and the neighbourhood associations were disenchanted with the municipal process. The Balanced Triple Bottom Line approach was the ideal way to take a group of stakeholders divided on basic issues and bring them to consensus.

Windmill Developments considered the system to be an effective, although complex, process for evaluating development proposals and an improvement over conventional approval systems. They noted that the process was unique in terms of the development of the system, as they were allowed to provide feedback concerning the criteria used to evaluate proposal. The feedback they provided helped make the evaluation a truly balanced TBL, along with suggestions on how to better tailor the RFP to smaller developers. Windmill targets their development operations towards sustainability and seeks out

projects that incorporate aspects of sustainability. They have noted that cities have a tendency to shy away from complex procedures for RFPs, as there is a risk that no one would apply. They suggest this system is one that other agencies issuing RFPs could learn from.

Although public participation was integral to designing the RFP, it was not well understood how public feedback would be integrated into the final choice of the successful proponent. The TBL evaluation criteria laid out in great detail the environmental, social and economic criteria and scoring matrix, but a last section named “Presentation to Council and Public” was included in the matrix, yet had no points allocated nor description to what extent this would affect the final decision.

Windmill also felt that the public meeting where the two projects were presented was lengthy and awkward. Feedback forms were provided to the public to solicit their views on the project. Yet, in the end the facilitator of the meeting asked for an informal “show of hands” as to which project was favoured and Windmill felt this was inappropriate.

#### 4.3.11 Relevance to a Canadian SSES

This system is an interesting case of evaluating development proposals attuned to local conditions. The process involved extensive stakeholder participation in order to define community wants, City needs and site constraints.

The system might be difficult to apply at a national scale, due to the location-specific process that was used, but overall lessons can be drawn from the project. The level of detail required to submit an application drew heavily on the developer’s resources, and this would have to be resolved in order to apply at various scales of subdivision evaluation.

A balanced TBL enabled conflicting interests to come to consensus. Weighing social, environmental and economic criteria equally made this possible. Concepts respecting sustainability and livability can be difficult to get across to key stakeholders and the general public, and breaking them into social, environment and economic criteria provides a clearer picture of what is being asked.

Several parameters were qualitative to encourage innovation; those that were quantitative were primarily defined through programs or policies identified by local or provincial organizations. The case study illustrates the strengths and weaknesses of each type of parameter. Scoring qualitative parameters allows for flexibility but leaves the interpretation open for debate. Quantitative parameters are seen as less subjective, but also as prescriptive and inflexible. A national SSES will need to draw on the strengths of each type of parameter and address issues raised with respect to their weaknesses.

4.3.12 Sources

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http://www.city.victoria.bc.ca/cityhall/currentprojects_dockside.shtml

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- Development Concept (2004)
- Expressions of Interest (2004)
- Request For Proposals (2004)

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Interviews
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## *4.4 Built Green of King and Snohomish Counties – Washington State*

4.4.1 Summary

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| Title of initiative | Built Green of King and Snohomish Counties |
| Type of system | Certification program |
| Jurisdiction | King and Snohomish Counties, Washington State, USA |
| Lead agency | Master Builder Association of King and Snohomish Counties |
| Year initiated | 2002 |
| Purpose of the system | Certification is a method used to ensure a specified quality is met in new developments. It may be a self-assessment performed by the developer and reviewed by the certifying agency or it may involve rigorous third party inspection and verification. There are usually several levels of achievement possible, calculated on the basis of points awarded for meeting the various criteria involved. Certifying projects helps builders and developers market their projects and makes a positive impression on consumers who seek homes or office spaces that are environmentally friendly. Programs such as the one reviewed here also have an educational component in that they instruct developers on measures that can be taken to reduce environmental impacts or otherwise improve project design. |
| Use of the system to date | Five communities have been certified, all of which are greenfield developments in King and Snohomish Counties. |
| Key outcomes | The program is fairly young and there is not as yet a lot of experience to draw upon. It was developed largely by progressive developers to reflect current best practices and so far it is difficult to say whether it has worked to ratchet up development practices or simply to consolidate existing practices. |
| Strengths | The program was developed by the state Home Builders Associations, in collaboration with government agencies, product developers, and local building experts. All participants are required to take part in a training seminar. The cost of using the program is considerably lower than some of the other systems (e.g., Audubon Signature Program). Substantively, the program is strong on water management and vegetation. |
| Weaknesses | The Built Green system does not include criteria for socio- |

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| | economic factors such as housing affordability or social inclusion. It is also relatively weak on urban design and transportation issues. There is no third party verification for the community-level certification (only for buildings). Involvement of non-industry partners has been minimal (one representative of the Sierra Club on steering committee, no academics). BG does not have a large-scale marketing campaign |
| Lessons for a Canadian SSES | A system like the BG Communities program could be developed in Canada with the close cooperation of the Canadian Home Builders Association. The Washington BG case shows the importance of third party verification in bolstering confidence in the program, and the need for an effective marketing program in order to build consumer recognition and demand for certification. |

### 4.4.2 History

There are several Built Green (BG) programs located in the western part of the USA. All BG programs began by focusing on home certification, but at least two, that of the State of Colorado and the King and Snohomish Counties in the State of Washington, have proceeded to develop a community-level certification program.[7] The Colorado BG Communities program was not fully implemented and is now dormant, so this case study focuses on the county-level programs in Washington State.

The most advanced of these programs is the one in King and Snohomish Counties. The program was developed by the Master Builders Association (MBA) of King and Snohomish Counties, in partnership with King County, Snohomish County and the City of Seattle. Further funding assistance came from the Fannie Mae Company, Inc., the national mortgage insurer.

In 1999, a steering committee began meeting to develop Built Green. A consulting firm was hired to help develop the draft checklists and explanatory handbooks. The firm drew from a number of pre-existing BG programs, including the Metro Denver Home Builders Association's Built Green program, the first such program in the country, and the programs developed by the Home Builders Association of Kitsap County and the Clark County Home Builders Association.

The first certification handbook and checklist to be prepared was for single family homes. Checklists were then developed for multifamily homes and remodelling/ additions to existing homes. Since 2000, over 5,600 homes have been certified under the Built Green banner in the King and Snohomish Counties.

[7] While Built Green community certification is not yet available in Canada, a newly formed Built Green society has been introduced in Alberta for residential units.

In 2001, the steering committee decided to expand the program to the community level. A 20-member working group was established, which met once or twice a month for over a year. The same consultant was hired to prepare a draft checklist and handbook. The draft documents were used as the basis for two think tank sessions at which stakeholders, including local communities, environmental agencies and NGOs provided comments. The draft checklist and handbook were revised and then finalized in 2002. Since then, five developments have been certified using this system.

The home-level criteria have been updated over the five years of their existence and this has also influenced the community-level system as the latter draws from the former for some criteria. The community-level system will be thoroughly revised and updated in the coming year.

4.4.3 General description of the system

Built Green is a program of the Master Builders Association of King and Snohomish Counties, but exists as a separate non-profit organization. BG has 275 members (104 builders/developers and171 other stakeholders including realtors, architects, utilities, government and NGOs) who pay a yearly membership fee. There is an executive committee or board made up of industry (builders, developers, architects and interior designers) and county government representatives, plus a steering committee with a wider array of representatives, including utilities, financial institutions, vendors, and realtors. Involvement of non-industry partners has been minimal – only one representative of an environmental organization (the Sierra Club) is on the steering committee and there are no transit organizations, housing advocates or academics. The steering committee makes recommendations to the executive committee and director. In cases of disagreement, the director has the final say. A coordinator assists the director in managing the program.

The King and Snohomish Counties BG program has a strong environmental focus. The original mission statement was: “To work in partnership to improve and protect the valuable natural features and environmental resources within King and Snohomish Counties to promote safer, healthier building.”

The BG Communities checklist applies to development projects that are being planned or under development. There is no minimum or maximum size to the project that can apply for certification. Projects must have a large residential component but can also accommodate other land uses. Only developers may apply for community-level certification.

The certification application is initiated by the developer. The applicant enrols their project in the program, receives the appropriate checklist and handbook (i.e., the community-level one) and attends an introductory seminar to understand how the system works (1-3 hours). The checklist is supposed to be

filled out in a preliminary way during site planning in order to maximize the opportunity to incorporate desirable features into the project. BG staff are available by phone to answer questions that arise as the applicant fills out the checklist. After construction begins, the checklist is finalized and signed by the applicant. It is then sent to BG for analysis, along with supporting documentation. The director of BG reviews the checklist and documentation and awards the appropriate Certificate of Merit indicating the rating earned.

For building certification, there are five levels of certification (1-5 Stars), of which the highest two require outside verification (i.e., the applicant must hire a qualified third party to verify the checklist). For community certification, only levels 1-3 are offered and there is no provision for outside verification of the accuracy and completeness of the checklist.

4.4.4 Topics/Parameters

The BG Communities checklist is heavily weighted towards water management and vegetation, but includes urban design, transportation, consumer and builder education, and other concerns. It is divided into three overall categories: Site Selection and Design, Planning and Education, and Construction Operations. The topics covered in each category are summarized below.

Site Selection and Design

- site selection (redevelopment, reduce auto dependency)
- design (site water management, infiltration, stormwater treatment, flow control an conveyance, storage, wastewater treatment, density, vegetation, paved surfaces)
- community enhancement (mixed use, mix of housing types)
- landscaping-Common Areas (canopy, water saving plants, organic fertilizers)
- transportation (transportation management plan, pedestrian-friendly, street connectivity)
- integration and innovation (require BG home certification, solar orientation, low light pollution, other innovations)

Planning and Education

- covenants and builder guidelines (require builders to have shared parking, tree protection, low exterior lighting)
- education (prepare homeowner handbook, interpretive signs, hold educational events)
- operations and maintenance (prepare operations and maintenance plan)

Construction Operations

- erosion and sediment control (
- vegetation management
- pollution prevention
- innovative builder assistance

In total, there are 113 criteria (called “Action Items”) in the checklist and each is associated with a number of points, for a total of 754 potential points (although some criteria are mutually exclusive so the real point potential is somewhat less than this). A 1-Star rating requires 100 points, while 200 points achieves a 2-Star rating, and 350 points earns a 3-Star rating. Several of the 120 criteria are mandatory for receiving any certification, e.g., Properly Dispose of Hazardous Wastes and Do Not Dispose of Topsoil in Lowlands or Wetlands. Applicants must also require that builders in the development achieve BG 1-Star certification for their new homes. For 2- and 3-Star rating, the applicant must also have attended a BG-approved workshop on green building/development practices in the 12-month period prior to certification.

The checklist provides few quantified targets, relying mostly on qualitative statements such as “Require Shared Parking for Mixed Use Developments.” However, a 110-page handbook is provided to applicants that gives greater detail on how to achieve points, including quantitative targets for many criteria. For example, in the parking requirement just mentioned, the handbook spells out that points are awarded based on the percentage of code-required parking designed as shared parking:

- 50% of all available parking = 10 points
- 40% of all available parking = 7 points
- 30% of all available parking = 5 points
- 20% of all available parking = 3 points

The quantitative parameters came from “technical contributors” such as utilities, planning departments of county governments, water authorities, the Sierra Club, and best practices from developer and builder members. The draft list of criteria was reviewed by regulators to ensure nothing in it violated any public requirement. It took about one year to draft and finalize the criteria.

The working group that developed the community-level criteria took a “pragmatic approach” to coming up with quantitative standards – they weighed the potential environmental benefits against the effort and expense that would be required on the part of developers and builders to meet the proposed criteria. The thresholds for the different Star ratings were chosen to provide an “open door” into the system, with the 1-Star rating being quite easy to achieve for any developer and 2- and 3-Star ratings being progressively more difficult.

### 4.4.5 Linkages

The BG certification program benefits from direct incentives from municipal governments, especially King County. For example, the county assigns BG-certified projects to a green team that offer assistance on sustainable development techniques and fast tracks BG-certified proposals. The County also offers fee discounts and cost-sharing on developments that use low impact

development best management practices (e.g., reduce runoff).

After finding that some of the BG criteria might be difficult to implement under existing building and planning codes, King Country launched a demonstration project using three new developments. County staff are working with the three developers to identify problem areas on the BG checklists and, in many cases, issuing variances with little ado. For example, the projects have been allowed to employ narrower ROWs, swales and gutters and to eliminate sidewalks, all counter to existing standards. The demonstration project is being monitored and a report on recommended changes to the County's building and planning codes is expected next year.

### 4.4.6 Marketing and communication

Built Green is a market-driven program. Therefore, consumer education and outreach to developers is critical to its success. However, BG does not have a large-scale marketing campaign. Marketing the BG system (including community-level and building-level aspects) to the public and potential applicants is done through a dedicated web site. The BG program is also advertized on members' web sites and through newspaper ads (paid for by developers) promoting certified developments that mention BG certification. BG usually has a booth at home shows where staff give out printed information and answer questions about the program. Homes and communities that are BG certified sport BG lawn signs and decals.

Currently there is no central, state-level Built Green program in Washington State. County Built Green Programs are however working to establish a network of participating areas. Starting in 2005, a central web site will act as a portal to access information about Built Green programs in Washington State.

Support for developers who use the BG Communities system is available in print and on line. A printed kit is provided to applicants that contains the checklist, handbook, and a full description of the resources available within King and Snohomish Counties to help developers meet the goals set out in the checklist. On the BG web site, developers can find the checklist, enrolment and membership forms, case studies of BG certified developments, links to local plans, building codes, environmental standards, and other resources. As mentioned above, there is a program orientation session for applicants and BG organizes an industry conference/ workshop every year – these are primarily educational in nature. Finally, BG held a design competition in Seattle (which is in King County) to raise BG's profile.

### 4.4.7 Application of the system

To date, only five developments have applied for and received BG community-level certification. All five developments were residential development with some

retail/commercial uses and located on greenfield sites. They all received a 3-Star rating, the maximum rating currently offered by the BG Communities program. This rating achievement does not involve third-party verification.

### 4.4.8 Resources

Developers using the system must pay an annual participation fee of $100 for MBA members, $250 for non-members, and $100 for non-profit developers. To enrol a specific project in the BG program, the developer must pay an additional per lot fee of $10 for MBA members or $50 for non-members. The only other cost to the developer in using the system is the staff time needed to fill out the application and prepare the supporting documentation, which can take anywhere from a day to a week for one person. Typically, the developer assigns the task to a communications specialist within the firm who fills out the application with advice from more specialized staff members (engineers, planners, etc.).

Funds for the development of the BG system came from local governments, utilities, the Master Builder Association, and Fannie Mae. On-going administration of the BG program is carried out by two staff members – a Director and a Coordinator. Salaries are paid by the Master Builder Association from revenue flowing from certification fees, membership fees in the MBA, and sponsorships for the BG program. King County pays for the BG-related conferences that have been held in the area and for most of the costs involved in printing the checklists, handbooks, certificates, lawn signs, and decals.

### 4.4.9 Outcomes

The checklist was designed to be used during the planning phase, but some developers did not use the checklist until after planning was complete and construction was underway. Therefore, it is difficult to say what impact the system has had (if any) on project design in these cases. In other cases, however, the BG Communities program did encourage developers to go beyond their standard practices in attempting to achieve certification, for instance, installing vegetative swales, using narrower road allowances, and preserving trees on the site.

Another direct outcome of the program was encouraging more certification of buildings under the BG banner. When the program started in 2002, 20% of new homes had to be 1-Star level certified under the BG homes program. Since then the percentage has been ratcheted up to 60% but in one case, the developer is requiring builders within the project to certify new homes to the 4-Star level.

### 4.4.10 Stakeholder perspectives

The program is seen as friendly to developers and builders as they were the main drivers behind its creation. Developers find it easy to use and the expenditure of staff time in achieving certification is not significant.

There is some concern that the standards used are too lenient and that the points needed for certification are easily attained with little change in development practices, especially for the lower star ratings. An alternative perspective provided by some developers is that the system was created with the input of developers whose practices were already of a very high standard. From this point of view, the main effect of the BG Communities program is to consolidate these practices, forestall the need for government regulation and prevent a competition-driven decline to lower standards.

Although there is no evidence that the developers certified under this program have “cheated” in any way (they are largely the same developers that helped create the program), the lack of independent verification for community certification undermines the credibility of the program to some extent. Most interviewees agreed that the program should introduce a spot-check or full verification component in its next iteration.

The biggest challenge facing this program is marketing and public awareness of the BG label. Developers report that they are not getting asked if this is a BG community. This may be one reason why participation in the program has been low. Put simply, some developers do not believe that the program costs (fees and staff time) can be justified by increased buyer interest.

The program is fairly young and there is not, as yet, a lot of experience to draw upon. Participation in the program has not been as high as was anticipated, in part due to the costs involved and in part due to the lack of brand awareness among housing buyers.

The program was developed largely by progressive developers to reflect current best practices and so far it is difficult to say whether it has worked to ratchet up development practices or simply to consolidate existing practices.

One of the main strengths of the program is its ease of use for developers. Support for developers applying for accreditation seems adequate, especially the detailed handbook laying out methods to achieve points under the system. The lack of verification for the community-level certification makes the system less expensive and cumbersome for developers using it, but could compromise the credibility of the program in the long run. As a consumer driven program, BG needs to develop a more pro-active marketing and communication component in order to bolster brand recognition.

The BG initiative demonstrates the importance of having supportive local governments on board from the beginning. In the case at hand, local authorities

have participated in the development of the program from a substantive and financial point of view and have subsequently adopted supportive planning and approval policies while minimizing the barriers posed by existing zoning and development standards.

In terms of the topics covered by the program, a positive aspect is its detailed attention to vegetation and water management issues. The main weakness is the lack of attention to urban design variables (such as planning standards), transportation issues, housing affordability and inclusivity.

### 4.4.11 Relevance to a Canadian SSES

A system like the BG Communities program could be developed in Canada with the close cooperation of the Canadian Home Builders Association. The linkage in the Washington case between the community and building-level programs could pose a problem in Canada if no parallel building certification program was in place. The LEED program could serve this function if administrative issues could be worked out. Further, a more balanced system would be needed to cover off all the topics related to sustainability and livability, especially social issues, urban design, and transportation.

The Washington BG case shows the importance of third party verification in bolstering confidence in the program and the need for an effective marketing program to build consumer recognition and demand for certification.

### 4.4.12 Sources

Interviews

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## *4.5 Internet Planning for Community Energy, Environmental, and Economic Sustainability (I-PLACE3S) – California*

4.5.1 Summary

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|---|---|
| Title of initiative | I-PLACE3S – Internet - Planning for Community Energy, Environmental and Economic Sustainability |
| Type of system | Computer Assessment Model |
| Jurisdiction | California |
| Lead agency | California Energy Commission |
| Year initiated | 1992 |
| Purpose of the system | Internet Planning for Community Energy, Environmental, and Economic Sustainability (I-PLACE3S) is a computer based planning process that supports regional and neighbourhood planning initiatives and help make land use decisions. The system was created by planners to meet their information needs, and is also used by citizens, developers and other consultants to evaluate alternative land development options. The I-PLACE3S method assembles demographic, transportation, economic, infrastructure and land use data to estimate how alternative land use scenarios perform compared to the existing land use. |
| Use of the system to date | Used primarily by local governments to support participatory planning, it is seen as an effective means to bring stakeholders with opposing priorities to come to a consensus on land use decisions. The system has been most recently applied at regional scales including growth management and transit-oriented development in San Diego, and regional transportation, growth, economic and land use planning in Sacramento. |
| Key outcomes | One of the most positive impacts of the model is its role in initiating dialogue between stakeholders with divergent perspectives on planning issues. It helps identify the impacts associated with development and educates users about the benefits associated with planning principles associated with sustainability. Although regular use of the model by local planning agents is not yet typical, use of the program is spreading. Developers have requested that their proposals be compared to regionally-defined long-term land use plans and cities have requested alternative scenarios for environmental impact assessments. The tool provides spatial analysis in development proposal review and excellent data storage and IT capacities. |

| | |
|---|---|
| Strengths | I-PLACE3S is a land use planning method that integrates a computer assessment model, planning and design principles, and measurements to determine the best alternative for land use. Public participation to define community goals is central to the I-PLACE3S model. The model is scaleable between regional and neighbourhood levels of analysis. |
| Weaknesses | The model is data heavy, and users need to have a source of data that can be trusted and is capable of being integrated using the I-PLACE3S software. A consistent source of funding for the system's development has been elusive. |
| Lessons for a Canadian SSES | I-PLACE3S was designed to be transferable to other areas and on various scales. The internet functionality enables immense data storage, increases the accessibility of the program to users and the software is in the public domain. |

### 4.5.2 History

Planning for Community Energy, Environmental and Economic Sustainability (PLACE3S) was created in the early 1990's by California, Oregon and Washington State Energy offices. The tool was created to meet the demands of citizen action committees and elected officials who were seeking alternative land use planning tools to counter current patterns in land development.

In 1992, the initial focus was to create a planning tool with evaluation capacities that concentrated on mitigating pollution from transportation, air quality issues, and housing concerns. PLACE3S began as an accounting application using spreadsheets to perform calculations that helped compare data of alternative land use scenarios. As GIS and CAD programs evolved, the PLACE3S tool was transformed using the geographic and spatial capacities of these programs. Finally in 2003, PLACE3S, with the technical services of EcoInteractive[8], was reprogrammed to the Internet to allow for greater user access and greater data storage ability.

The move from desktop to an Internet based software program signaled the inauguration of I-PLACE3S (i.e., I=Internet). The software code is in the public domain and has been applied most recently by the Sacramento Area Council of Governments (SACOG) to define a long-term regional land use plan. Municipal and County members of SACOG are using I-PLACE3S to update their General Plans and have asked SACOG to compare current development applications against the region's plan to determine their sustainability. The program is

[8] EcoInteractive is an Internet service provider (ISP) that provides on-line data management, integrated web GIS, and supports both secure and public users.

constantly being upgraded to include more analytical abilities. The most recent evaluation capacities include transportation and infrastructure models.

### 4.5.3 General description of the system

I-PLACE3S is a planning method designed to support public participation, quantify social, environmental and economic outcomes of land use alternatives, and help communities envision, adopt and implement long-term land use plans along Smart Growth Principles. After community or regional plans have been adopted, I-PLACE3S can be used to assess development and subdivision applications to ensure long-term development goals are met. There are five steps in the I-PLACE3S process:

1. Start-up and identify existing conditions.
2. Establish the business-as-usual alternative.
3. Create and analyze alternatives.
4. Create the preferred alternative.
5. Adopt, implement, monitor and revise.

The process begins by establishing the geographic scope and planning period, and assembling the necessary data to document existing conditions (e.g., demographics, housing stock, infrastructure, environmental conditions). Stakeholders help define a long-term vision and select indicators to evaluate how this vision will be met. Users then project existing conditions over the planning period assuming that relevant policy and market trends remain unchanged for this period. Social, environmental and economic outcomes are measured to establish a baseline to compare alternative land use plans when creating a long-term vision. The baseline scenario defines land use and zoning, the location of protected areas, transportation facilities, as well as environmental and demographic conditions.

After establishing the business-as-usual alternative, the next step in the process is to create and analyze alternative scenarios. Alternative scenarios demonstrate actions or sets of actions that contribute specific outcomes in land use planning. For example, mixing land uses and providing pedestrian amenities near transit can optimize resource efficiencies and produce greater environmental, social and economic outcomes than typical single use suburban development. Using the I-PLACE3S software, stakeholder groups create alternative land use options that improve the expected social, environmental and economic outcomes of the business-as-usual alternative. The alternatives are compared to the business-as-usual baseline scenario.

The process of creating and comparing alternative land use scenarios informs stakeholders about the opportunities and benefits associated with Smart Growth principles versus the typical land development patterns of their communities. It helps stakeholders identify what attributes of the area should be preserved and what can be changed. It is important to discuss the outcomes associated with

every alternative created to finalize a preferred land use scenario for the area. The preferred scenario typically includes all of the best elements of the alternatives and is further adjusted to meet the community vision for the area. The community-preferred alternative is reached through consensus.

Community planning principles reflect resource efficiency and sustainability, and the quantitative measurements of land use, economic, social, and environmental impacts support the decision-making process. After adopting the preferred alternative, I-PLACE3S helps elected officials, transportation and land use planners, and consultants implement and monitor the results.

In the context of this study, the implementation capacity of the I-PLACE3S software is of primary significance. There are many opportunities for various stakeholders to use the I-PLACE3S program to ensure that the community's preferred alternative is being met. Local government staff and decision-makers can evaluate development applications and subdivision plans against the community-preferred alternative to ensure that they are meeting goals. Planners and consultants can use larger-scale regional alternatives to help update local/ general plans or create neighbourhood area or structure plans. Citizen groups can evaluate proposals to see how they are meeting the environmental, social, and economic objectives of the preferred alternative. Developers and consultants can request that their proposals be compared to the community alternative to determine how well the proposal corresponds , and use the assessment to their advantage in the approval process.

A typical process for assessing development or subdivision proposals using I-PLACE3S would input the relevant data of the proposal into the software program as an alternative scenario and then compare it to the community-preferred alternative. Several indicators are available for comparison depending on the type of information or statistics the user wishes to generate (i.e. number of new employees, total dwelling units, jobs, pedestrian friendliness, vehicle miles traveled per household change, change in percent of pedestrian/bike trips, or percent change in transit boarding, etc.).

Three assessment tools are currently available in the I-PLACE3S model – land use, transportation, and return-on-investment. Each tool has data, equations, and indicators by which alternative scenarios are compared. The software program interface looks like any number of GIS applications with similar functionality[9].

New tools in the testing phase include infrastructure costs, fiscal analysis and water demand, and tools in the development stage include a regional travel model, affordable housing, energy modeling, and a regional monitoring database.

[9] To view a demonstration and the user interface, log onto the I-PLACE3S web site (http://www.places.energy.ca.gov/places/).

4.5.4 Topics/Parameters

This is a data-intensive evaluation model and reliable data sources are essential for the evaluation to be relevant. A local government will most likely have spatial data that reflect the current land use, transportation, and infrastructure for the city – data that is used to characterize the existing "baseline" conditions for a community. Other relevant data that can quantify scenarios is shown in the table below.

**PLACE3S Data Options**

| | | |
|---|---|---|
| **Land Use** | • Building Square Footage<br>• Mix of Uses<br>• Number of Stories<br>• Landscape and setback reqts<br>• Parking ratios | • Levels of parking<br>• Square feet per parking space<br>• Average lot size (single family detached<br>• Residential Type (attached or detached) |
| **Neighbourhood Design** | • Siting and layout<br>• Density<br>• Mix<br>• Solar Orientation<br>• Landscaping | • Water features<br>• Building materials<br>• Activity concentration<br>• Micro climatic |
| **Transportation** | • Street networks<br>• Density<br>• Pedestrian, bicycle, and transit facilities | • High occupancy vehicle facilities<br>• Pavement<br>• Parking and siting |
| **Infrastructure** | • Topographical conditions<br>• Length of pipes and wires<br>• Water supply/use<br>• Wastewater collection<br>• Storm drainage | • Street lighting<br>• Traffic signalization<br>• Cost changes result from land use mix and density changes |
| **Energy** | • Onsite Sources<br>• Geothermal/groundwater<br>• Surface water<br>• Wind<br>• Solar thermal/ Photovoltaic<br>• Biomass<br>• District heating/cooling | • Cogeneration<br>• Thermal storage<br>• Fuel cell power<br>• Off-site sources<br>• Electricity<br>• Natural Gas<br>• Transportation fuels |

(Source: CEC, 1996)

When evaluating scenarios using the I-PLACE3S tools (i.e., land use, transportation, return-on-investment), users will select indicators that will calculate the results by which to compare scenarios.

The following table includes more specific information concerning the indicators that are used in the land use, transportation, and return-on-investment assessment tools.

**I-PLACE3S – Assessment Tools and Indicators**

| TOOLS | INDICATORS |
|---|---|
| **Land Use** | • Number of dwelling units & jobs by land use type<br>• Density<br>• Acreage of each land use<br>• Amount of development within walking<br>• Distance of/to transit<br>• Acres of land set aside for environmental resources (vernal pools, wetlands, etc.)<br>• Building square footage for employment sectors (Retail, Office, Industrial, Public) |
| **Transportation** | • Change in vehicle miles traveled/ household<br>• Change in vehicle trips/ household<br>• Change in mode split (percent of all trips that are bike/ pedestrian/ transit)<br>• Change in Light Rail boarding |
| **Return on Investment** | • Return on investment |

Quantitative parameters are drawn from government agencies, theoretical research, professional organizations, universities and consultants, and planning experience. The model can incorporate mandatory policies (e.g., environmental regulation) with its evaluation capacity.

4.5.5 Linkages

When first developed, with the exception of government awareness about possible energy shortages, no policies or plans were in place that directly supported the use of PLACE3S. Individual local or regional governments who decide to use the program will likely have political or legislative motivations for applying the system, and will identify where in the planning process the tool will be integrated.

4.5.6 Marketing and communication

Originally, California, Oregon and Washington Energy Commissions created a resource guide and user's manual for the PLACE3S method. The resource guide documents the method and data requirements for analyzing development applications and provides context through case studies. The user's guide for the desktop application was completed in 2002, but is now obsolete. As user

demand for speedier and more accurate analysis required better IT capacities, it was decided to move to a web-based application.

Now that the model has moved into a web-based application, with public domain software, users will have greater access to the program. EcoInteractive is under contract from state and regional governments to host the software and data, modify the application for new users, and program new modules to increase its functionality. Although access to the software license is free, the services of EcoInteractive come at a cost for data hosting and major modifications. EcoInteractive has created a software demo to introduce users to the program.

The program is a voluntary initiative and hence individual users of the program are responsible for marketing its use and application. The Sacramento Area Council of Governments (SACOG) piloted I-PLACE3S program to create the *Sacramento Region Blueprint – Transportation and Land Use Study*. Sacramento worked with an external agency to increase public participation, hosted public workshops to teach planners how to use the software, and created project information materials around various land use issues. The tool was used at public workshops in 31 neighbourhoods and six counties, and at two regional fora and helped constituents arrive at a consensus on the regional growth management plan.

### 4.5.7 Application of the system

The model has been applied numerous times to both regional and neighbourhood scale projects. Examples of the desktop model's application include neighbourhood analysis for a light rail station area master plan and inner city redevelopment in Oregon. Regionally, San Diego applied the system to growth management and transit-oriented developments and Oregon used it for regional land use and transportation planning.

The Internet model was most recently applied in Sacramento, where it was used at various scales. Although the most recent application of the I-PLACE3S model was to develop a regional plan to 2050, the functionality exists for day-to-day evaluation of development proposals. Future efforts of the Sacramento Area Council of Governments will include targeting local communities to adopt the planning principles defined using the I-PLACE3 software and providing the technical assistance to support their daily use of the program.

### 4.5.8 Resources

Information about the overall costs for developing the I-PLACE3S program is not available, although a tally of available California Energy Commission reports found funding from various agencies to amount to over $1Million US over a 10-year period. The California Energy Commission estimated that a metropolitan planning organization would need about $50,000-100, 000 US in start-up funds

to collect and input the necessary data and define the programming framework that would work for them. This cost is a function of the size of the user study area (i.e., bigger areas require larger data sets), and whether there is a significant amount of customization needed to adapt the software model to local needs.

At present, new tools are developed by various users (i.e., typically planners who are applying the software in conjunction with IT support from EcoInteractive) to assess development applications in ways that best meet their needs. When new assessment tools are developed and integrated into the assessment model, they are available free-of-charge to other users. This can increase the usefulness of the program and reduce costs for future users who also find the tool useful for their own applications.

When deciding whether to keep the software program in-house or use the services of an external IT specialist, the California Energy Commission (CEC) carried out a feasibility study and found that it was in the State's best interest to use an outside vendor. EcoInteractive is this vendor and charges users for its services (i.e., license fees, help desk, security, hardware, etc.). The CEC has covered some ISP costs in the past to support new users to help cover portions of the development of new city projects.

There are also costs associated with training local staff in order to educate them about the intricacies and workings of the I-PLACE3S program. Staff that administer the program and define project parameters must be knowledgeable in GIS and be familiar with planning concepts.

As a plan development tool, I-PLACE3S has been found to cut planning costs once it has been set up for use within the planning area (i.e., region, city). Feedback from local governments demonstrates that fees are manageable, especially when a regional government sets up the initiative and shares the program's outcomes with its member municipalities.

### 4.5.9 Outcomes

One of the most positive impacts of the model is its role in initiating dialogue between stakeholders with divergent perspectives on planning issues. The model supports interactive public meetings using the Internet application, with data presented in real time. Very often, the use of the I-PLACE3S results in a consensus being achieved on key land use issues.

Although regular use of the model by local planning agents is not yet typical, use of the program is spreading. The City of Rancho Cordova in the Sacramento region is using I-PLACE3S for an environmental impact assessment of a 530 acre residential mixed-use subdivision in the Sunrise/ Douglas area of the City. City planners used the Sacramento Area Council of Governments Blueprint Plan to compare a developer's proposal to the regional land use preference embodied

in the Blueprint. The submitted plan was found to be more dense (in an area where higher density would be appropriate) and hence the proposal was supported. The City of Sacramento has used I-PLACE3S to persuade developers to move to mixed-use and higher-density designs, as the model revealed this type of development could be more profitable.

### 4.5.10 Stakeholder perspectives

I-PLACE3S is geared to involving the public in planning processes and to reaching consensual land use decisions. The system allows local governments to produce integrated and detailed plans in less time and with greater buy-in from the public, developers, and other stakeholders.

The Sacramento Area Council of Governments (SACOG) found the tool to be a very effective and fair method to create its regional land use and transportation plan. A recent article about SACOG's regional plan preparation noted eight awards over the last two years. In addition, prior to submitting their plans to local government for review, developers have voluntarily sent plans to SACOG asking that they be checked for compliance with regional priorities.,. As well, in their RFPs for General Plan updates Sacramento region local governments are requesting that the model be used.

Some local government stakeholders have been interested in the program, but find the idea of using an Internet server-based system daunting compared to a familiar GIS desktop (i.e., they are more comfortable paying a license fee for desktop software and having data in the realm of the local government IT department versus paying a service fee for an IT vendor, with the data outside the IT department . With new grants and funding options and an updated user manual (soon available), the CEC expects these fears to subside and users to move to web-accessed tools.

The sustainability concept was difficult to define, especially using quantitative parameters. In the earlier applications of the model, energy measurement was a useful concept to help explain complex issues (e.g., fuel costs for commute, electricity costs of dwelling). New parameters are being developed in the new modules of the software. The system is constantly evolving as agencies identify needs and work to develop a module to help with its evaluation. It will be essential to provide clear and concise explanation of new module parameters.

The original desktop model's user guide was created too late to be of any use as the assessment model moved to an Internet application. The need for on-line instruction for the Internet model is being addressed through the Sacramento Area Council of Governments' creation of information workshops and on-line tutorial explaining key aspects of the model. Funding has recently become available to the CEC to complete a user guide and on-line tutorials.

EcoInteractive has a vested interest in making the tool useable, as it has the contract to host the program and can contract its services to local governments.

Once the model has been defined as per the user data set, land use specifications, and alternative scenario definitions, all users in a specific region work from the same database and assumptions, facilitating a fair and level planning field. In an example from San Diego, citizens used I-PLACE3S to demonstrate that a City-supported development would not bring the same number of jobs to the area as would a use compatible with the designation of the land in the regional plan.

### 4.5.11 Relevance to a Canadian SSES

The I-PLACE3S model is an interesting application as it integrates land use planning and decision-making about specific developments. The model has the capacity to help regional or local governments shape land use plans, but it can also be used on a day-to-day basis to help decision-makers compare development proposals to baseline or alternative land use scenarios. The Internet functionality will increase the accessibility of the program for many users, including Canadians. I-PLACE3S software was designed to be transferable to other areas using geospatial data defined by the client's planning area and on various scales.

The model has intensive data needs and this is probably one of the most difficult challenges in its application in Canadian settings. Urban-related information is typically not as accessible in Canada from senior-government agencies as in the US.

Generally, Canadian planning offices use GIS and CAD formats and these files can be directly uploaded and used in I-PLACE3S programming. The challenge will be to integrate PLACE3S into planning practice and integrate it with planners' existing responsibilities as opposed to adding to them.

There are three facets of the Internet based program that are intriguing. First, the software is in the public domain and hence modules that have been developed that can be applied without having to buy a license. Second, the capacity for data storage is immense. The Sacramento Area Council of Governments regional plan required over a tera-byte of information and EcoInteractive was able to handle this requirement. Third, the Internet provides increased accessibility to many stakeholders and varying degrees of security for different stakeholders, which is important for ensuring data security. Stakeholders can access the program, enter project information, and assess the project against the local government's requirements.

One of the key challenges to implementing the model is the lack of a consistent source of funding – for start-up costs, module development, and ongoing costs.

Although the fee for the ISP was found to be manageable for most users, the start-up fees could be seen as a deterrent for uptake by municipalities. A source of seed funding could cover these costs.

### 4.5.12 Sources

Web sites
http://www.places.energy.ca.gov/places/
http://www.energy.ca.gov/places
http://www.sacregionblueprint.org

Documentation
Sacramento Area Council Of Governments. Sacramento Region Blueprint – Transportation and Land Use Study (2004)
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## *4.6 Performance Measures for Sustainability and Smart Growth in Markham Centre – Markham, Ontario*

4.6.1 Summary

| | |
|---|---|
| System Title | Performance Measures for Sustainability and Smart Growth in Markham Centre |
| System Type | Scorecard system |
| Municipality | Markham, ON |
| Lead agency | Administered by the Development Services Commission with a Citizens Advisory Group (CAG) playing a key, formal role in applying the system to development proposals and making recommendations to municipal council through a staff reporting process. |
| Year initiated | 2003 |
| Purpose of the system | The system is designed to provide the municipality with an objective review of development proposals for Markham Centre, with a formal report to council advising them of the Citizen Advisory Group's comments and recommendations as part of Council's formal deliberations and decision making. The Advisory Group scores all developments proposed for Markham Centre. The process is iterative or of a "continuous improvement" nature in that the Citizen Advisory Group may see the same proposal over time, with the expectation that it will adhere better to the criteria each time it comes back. |
| Use of the system to date | The Citizen Advisory Group was formally recognized and the Performance Measures system was adopted by Council in 2003. To date the Advisory Group has considered a dozen proposals using the scorecard system. |
| Key Outcomes | The scorecard outcomes revealed that it was too costly for developers to meet some of the criteria associated with infrastructure, such as parks, parking, and public infrastructure. Council has developed creative new mechanisms to assure that these elements can be financed adequately. |
| | The system has encouraged some developers to move their proposals from meeting the minimum criteria or standards for sustainability to exceeding them; |
| | There is a perception that there is important "value added" to all developments and, despite the costs of |

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|---|---|
| | going through the process, developers are getting return on their investments and the value in their investment is sustained over time. |
| Strengths | The general consensus is that the system is achieving what it set out to do. The system encourages the submission of high quality proposals and provides a mechanism for improving proposals once submitted. The key to success is that the process and system is applied fairly and evenly to all proposals. It avoids much of the "subjectivity" that marks most conventional approval processes. It also provides a useful approach to engaging the general public in a meaningful way. Councillors are comfortable with the process and have seen demonstrable improvements to the quality of projects. |
| Weaknesses | It is too early to know what elements of the system could be improved. The municipality and the Citizens Advisory Group will be challenged to remain vigilant so that the initial criteria and high standards continue to be applied over the long term. As turnover in the membership of the Citizen Advisory Group occurs, it will be important to develop a strategy for ensuring that the scorecard is applied consistently over time. |
| Lessons for a Canadian SSES | • To be effective, an evaluation system must be endorsed by the municipal council.<br>• A balanced review of proposals by a multi-stakeholder group provides objective, independent, and rational evaluations of proposals and lends community-wide credibility to the process and outcomes.<br>• There must be consistency in the application of the system.<br>• The process and the checklist / criteria should be seen as "living" and not static.<br>• The system needs to be tied to a larger vision, values, and principles that have been endorsed by the community and which reflect broader notions of sustainability. |

4.6.2 History

The scorecard dates back to 1992 when the Town began a visioning process for Markham Centre – a largely undeveloped area identified as a future urban core for the municipality. This process lasted about five years and resulted in the adoption of a Master Plan and Secondary Plan in 1997. After this, there was little

action until 2000, when development proposals for the area began to come forward. The first proposal was for a high-density development, which generally fit the planning requirements but triggered alarm bells in the community. The community reaction suggested that a more formal and comprehensive review mechanism coupled with meaningful public engagement was needed.

In response, the municipality brought together a working group in 2001 to work out a process for assessing development proposals. This multi-stakeholder group included representatives from the development industry, business groups, social organizations (education, youth, police), environmental organizations, citizen and neighbourhood groups, York University, and large corporations with operations in the municipality. A series of meetings and workshops, facilitated by external consultants and by the working group members themselves, were used to debate and develop the materials that would eventually be used in the scorecard. The CAG also hosted a series of public workshops to obtain feedback and identify key measures and performance guidelines. The scorecard (and the questions, indicators, and targets) and review process – called the *Performance Measures Document* - was prepared by an external consultant based on the results of the workshops and meetings. The participants in the working group were formed into the Citizen Advisory Group. The CAG and the *Performance Measures Document* were formally approved by Council in 2003.

The first development proposal went through the scorecard evaluation process in the months before the new system had been formally adopted by Council. Since the adoption of the scorecard system, the CAG has used it to review a dozen projects.

The review process and scorecard will be revised on an ongoing basis as new ways of thinking, new technologies, and new best practice models, emerge. For example, the Citizen Advisory Group recently added someone to represent the "accessibility" community, and an 11$^{th}$ Guiding Development Principle related to maintaining "quality of life" in the surrounding community has been added to the scorecard.

4.6.3 General description of the system

The review process and scorecard are designed to ensure high quality development for Markham Centre. More specifically, the process and scorecard ensures adherence to the vision and principles of the Markham Centre Master and Secondary Plans, creates a level playing field for all developers, and provides a voice for the community through multi-stakeholder representation on the Citizen Advisory Group.

The system is applied to all development and planning proposals within Markham Centre. This means that not only private developments, but subdivision plans,

secondary plans, site plans, official plan amendments and rezoning are subject to the scorecard system.

Each proposal is reviewed by the CAG against the performance measures, and rated either as bronze (meets all minimum standards or measurement targets), silver (exceeds minimum standards for many of the targets), or gold (exceeds minimum standards for most of the targets).

It is common for preliminary proposals to be brought to the CAG for initial feedback and rating. This provides guidance to the developer on how to improve particular aspects of the proposal. The system is also used by planning staff to obtain feedback from the CAG when developing new plans, zoning bylaws or strategies for Markham Centre.

For private sector development proposals (which are more closely related to the topic of the present study) the typical review and evaluation process involves the following:

- Preliminary meeting(s) between proponent and municipal staff. Staff ensure that proposals are in order, ready for circulation and review. Staff work with the developer to make them aware of the performance measures against which the proposal would be evaluated (information and materials – including the municipality's *Performance Measures Document* – about the process and the targets themselves, are provided).
- Staff informs the Citizen Advisory Group in advance, on a monthly basis, about new proposals and materials that will be coming forward.
- CAG meets monthly, to review development proposals. There is usually a presentation from the developer and an initial score (and a rating of bronze, silver, or gold if enough performance measures target are met) based on the performance measures is provided. CAG provides feedback to the developer on how to improve the development proposal.
- There may be more than one presentation/ evaluation of the same proposal as it is refined and improved).
- With each proposal that is brought back to the Citizen Advisory Group; staff provide notes and information on how the developer has addressed the CAG's concerns and has improved the proposal to meet more of the performance measures targets.
- At an appropriate time in the process of meeting with the CAG, there is a full public hearing, as required by law, where public groups and individuals have an opportunity to comment on proposals.
- The CAG provides a final score – bronze, silver, or gold – and a recommendation to Council for approval or rejection. A formal report to

Council includes comments from the CAG and its rating of the proposal.

4.6.4 Topics/Parameters

The scorecard cover five major areas:

- Greenlands (the natural environment)
- Built Form (the built environment)
- Transportation (all modes)
- Green Infrastructure (stormwater & waste management, energy conservation)
- Public Open Space (parks, public and private open spaces, walkways, trails)

The *Performance Measures Document* for Markham Centre provides detailed descriptions of these topic areas along with a list of Questions and Indicators for each. These are generally described as “top of mind” questions that the average citizen would want to ask about new developments. They include a mix of quantitative and qualitative measures. Most of the items are initially answered with a Yes/No, and then there is some consideration of quantity or a target. An example from the “transportation checklist” shows how the rating system works.

Questions/Checklist (yes or no for each):

- Does the design and location of commuter parking facilities allow for future development?
- Are transit stops in reasonable proximity to the proposed development?
- Is the proposed phasing plan appropriate?

Once these questions have been satisfactorily addressed, the proposal is evaluated against the indicators.

Performance Indicator:

- Ridership potential with a 5 minute (a rating of Gold, Silver, or Bronze is applied to the indicator based on how well the development proposal achieves this indicator)

The performance report is used to show Council and others how the development proposal will help the municipality achieve its targets.

Performance Report:

- Target: Transit use for 30% of all traffic downtown.

When the system was being developed it was initially hoped that it would be easy to come up with quantitative targets. However, participants involved in developing the performance measures quickly realized that some of the issues involved were subjective in nature and they were dropped from the scorecard. In

other cases, it was recognized that some of the items (such as air quality or ground water discharge rates) were difficult to measure given limited financial or human resources and technology, or were so complex (such as air quality and ground water discharge) as to be impossible to link directly to a specific development proposal. These topics are addressed primarily through qualitative performance measures for now.

The measures are considered to be targets that development proposals should attempt to meet. A bronze rating on an item, for example, would be considered a minimum standard. The municipality is interested in approval development proposals which are better than “the minimum”. Silver or gold ratings are considered more desirable or ideal.

There is no weighting in the scoring system. In this way, the system consciously avoids emphasizing one item over others. All of the performance measures are equally important, reflecting the notion that sustainability is about balance among community economic, social, and environmental elements.

The municipality used a combination of sources to develop the system, including in-house research by the planning staff on best-practices around the world and the general academic literature on sustainable development, external consultants, workshops for community stakeholders, and the expertise of the participants in the workshops. Most of the individuals who were invited to participate in the workshops became members of the Citizen Advisory Group. A key resource was Patrick Conlin, with whom the municipality consulted extensively. Members of the workshops played a leadership role in facilitating sessions on topics related to their areas of expertise. The consultants who were engaged in the process developed the Questions, the Indicators, and the Targets found in the Performance Measures Document based on the interaction with the workshop members.

### 4.6.5 Linkages

As noted earlier, there is a history and context to the development and implementation of the Performance Measures System that is applied to all developments in Markham Centre. This relates to the development of the initial vision and set of principles from a five-year public process in the 1990s. That process had already established a fairly high set of standards and some unique planning requirements and regulations. The Performance Measures System can be seen as a tool for achieving these standards.

There are no incentives applied to the use of the system. Standard development and permit fees are charged, the same as are charged across the entire municipality.

### 4.6.6 Marketing and communication

The Markham Centre example is somewhat unique in that most of the land in Markham Centre is owned by a relatively small number of developers. This has meant that the marketing effort related to the performances measures review process and scorecard has not required a widespread communications campaign in order to reach developers. However, the Town felt there was a need to do some outreach to the general public. The review process and scorecard was made available in paper format and on the municipality's website and there were several public meetings and information sessions to explain the system to the public.

### 4.6.7 Application of the system

About a dozen development proposals have been through the process. Several have been through the process more than once as the developer refined the proposal in response to feedback from the CAG. In some cases developers brought forward initial, general proposals for early consideration and feedback, so that they would have good advice and direction on which aspects of their development proposal required more details or to obtain general advice about whether or not their development proposal was in keeping with the broad vision and principles for Markham Centre. These early interactions with the CAG were seen to be an important part of the evolution of quality proposals that would be approved later on by the CAG.

The municipal plan for Markham Centre allows for a mix of residential and commercial development. A significant portion of the total acreage in Markham Centre has been presented to the Citizen Advisory Group for rating against the scorecard and feedback. Some projects have been very large. For example, one proposal covered about 10 million square feet. The total development over time will be 50% commercial/retail, and 50% residential (200 townhouses and 3800 mid-rise condos).

### 4.6.8 Resources

The municipality underwrites the costs of the system by providing a support staff person (Administrator) and covering the costs of the monthly meetings, materials, and supplies of the Citizen Advisory Group. This has been important because it means the notes, meeting minutes, and reports to staff and to Council are completed in a timely fashion, and when appropriate, posted to the website. This support is viewed as being critical to the success of the process. It ensures that the volunteer members of the Citizen Advisory Group stay focused on dealing with the issues and the evaluations, rather than dealing with paperwork and administrative work.

From the developer's perspective, the process is a bit more "involved" in terms of demonstrating adherence to the performance measures in the scorecard. Some developers may hire consultants or do extra work to get the information needed to demonstrate compliance. That adds costs. The total amount of time to go through the process is described as being "a little bit longer" that one would expect in a conventional approval process.

In some ways, however, the system is thought to reduce costs for both the developer and the municipality. Because there is a significant effort to ensure that all proposals receive equal treatment, developers are less likely to turn to the Ontario Municipal Board appeals process if they are not satisfied with a decision. This means that in the long run, the system helps both the developers and the municipality to avoid unnecessary legal costs.

### 4.6.9 Outcomes

The system has had a major impact on urban design in Markham Centre. The scorecard encourages developers to bring forward proposals that will score silver or gold and be recommended for approval. In one example, a developer proposed a structure that exceeded the targets set for maximum height restrictions. The Citizen Advisory Group reviewed the proposal and through the scorecard system recommended that the height of the structure be reduced. The developer was able to rework the development plan and come back with a successful application.

Developers also benefit from the system because it protects existing investments by helping to avoid poor or less desirable development on adjacent properties that might undermine their product in the marketplace.

### 4.6.10 Stakeholder perspectives

The system is seen to be effective by the municipality and members of the CAG. The scorecard targets are reasonable and the process is not complex. It provides an important and legitimate vehicle for the community to have meaningful involvement in the development process.

Developers see the process as fair because it applies to all developments in Markham Centre. The system offers advantages over a conventional development approvals process in that it is being applied uniformly to an entire downtown core over a long period of time (a 20 to 25 year build out period). It raises the bar for development activity and to some extent depoliticizes the review and approval process. Citizens have their voice in setting up the system, which then works to reduce the possibility of a group blocking a high-quality development for parochial reasons.

One member of the development community participates as a member of the CAG and was involved in the process of creating the scorecard and review system.[10] As the system unfolded, there were some concerns expressed by the development community that some of the performance measures (targets) were too onerous and the more lengthy process might make it more difficult for them to proceed with their developments in a timely manner.

The general consensus is that the system is achieving what it set out to do. The system encourages the submission of high quality proposals and provides a mechanism for improving proposals once submitted. The key to success is that the process and system is applied fairly and evenly to all proposals.

The public and private resources and time that have been invested in developing and administering the system appear to be justified. There is significant added value to development proposals. The public voice is heard and formally acknowledged by Council. Municipal staff are seen to be more than regulators and gatekeepers; they are "partners" and collaborators with the development community to ensure that there is a "win-win" for all parties involved.

It is too early to know what elements of the system could be improved. The municipality and the Citizens Advisory Group will be challenged to remain vigilant so that the initial criteria and high standards continue to be applied over the long term. As turnover in the membership of the Citizen Advisory Group occurs, it will be important to develop a strategy for ensuring that the scorecard is applied consistently over time.

There is potential for transferability to other scales. For example, the municipality is now in the process of reviewing its policy for intensification of the Highway 7 corridor outside of Markham Centre. The municipality intends to apply the same principles and tools developed for Markham Centre to any proposals arising there. There is also talk of developing a "smaller version" of the scorecard, with perhaps a narrower range of scorecard items, to apply similar rigour and objectiveness to evaluating development proposals in other parts of the municipality.

#### 4.6.11 Relevance to a Canadian SSES

There are several important lessons that emerge from the Markham Centre experience that are relevant to a more general Canadian Subdivision Evaluation system:

- To be effective, an evaluation system must be endorsed by municipal council. If the final decision-makers are not willing to take the

[10] It is important to note that the development community representative on the Advisory Committee is not appointed by nor necessarily is there "on behalf of" the "development community".

recommendations stemming from the evaluation seriously, then there is no point using the system.

- A balanced review of proposals by a multi-stakeholder group provides objective, independent, and rational evaluations of proposals and lends community-wide credibility to the process and outcomes. This group requires initial and ongoing “training”, and administrative support to do its work effectively.
- There must be consistency in the application of the system. If it is voluntary on the part of developers or if staff have the discretion not to apply the system to a given development, the result may be uneven achievement of urban design objectives, an increase in political pressures, differential costs borne by different developers, etc.
- The process and the checklist/ criteria should be seen as “living” and not static. The system can be refined over time as municipalities gain experience. The principles, questions, goals, and targets may be added to, pared down, or enhanced, to reflect emerging or changing issues, technologies, and community priorities.
- The system needs to be tied to a larger vision, values, and principles that have been endorsed by the community and which reflect broader notions of sustainability.

The approach taken by the authors of the Markham Centre Performance Measures system is well suited to applicability in other jurisdictions because it incorporates all aspects of the planning and development process. It begins with a community vision and master plan for sustainability. It features a process and a scorecard that bridges staff review, public participation, and approval by council.

In terms of its applicability to evaluating subdivision proposals, simply adding a scorecard and Citizens’ Advisory Group evaluation component to the existing approval process would likely produce unwieldy results. It may be preferable for municipalities to develop a new subdivision approval process that incorporates elements of the Markham Centre experience.

4.6.12 Sources

Documents

Performance Measures Document: The Markham Centre Vision for Sustainability and Smart Growth

Interviews

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## *4.7 Proposed Development Scorecard – New Jersey*

4.7.1 Summary

| | |
|---|---|
| Title of initiative | Proposed Development Scorecard |
| Type of system | Scorecard |
| Jurisdiction | State of New Jersey, USA |
| Lead agency | New Jersey Futures (NJF) |
| Year initiated | 2002 |
| Purpose of the system | The Proposed Development Scorecard was developed as an educational tool for a variety of stakeholders. Smart growth principles are defined using measures, such as number of land uses, density targets and distances to transit. This allows users to speak in tangible terms about what constitutes a smart growth development. |
| Use of the system to date | The system was distributed to 566 municipalities in New Jersey. No specific data are available as to the number of times it has been used to score proposed developments. NJF also uses it to score proposals for its Smart Growth Awards program. |
| Key outcomes | The scorecard has helped educate the public about smart growth. It provides a simple example of a scorecard using points and weights to score new development projects, giving grades to express how well these meet the organization's smart growth principles. |
| Strengths | As an educational tool it provides the public with definable parameters and has provided a tangible description of what is meant by smart growth principles. |
| Weaknesses | There have been instances where the scorecard has been misinterpreted by community groups and modified to meet a specific stakeholder's needs. This might necessitate a public response from the agency if inappropriately used. Unless tied to some type of incentive or agency support, it is hard to see how the system would be widely used by the development industry or planners. |
| Lessons for a Canadian SSES | Although a scorecard is a good method to determine how well a proposed development meets a defined objective, the tool can be misinterpreted or misused by stakeholders. It is critical to ensure that the appropriate educational support accompanies the system designed for a Canadian SSES. Agency support is key to defining the purpose of the tool. |

### 4.7.2 History

New Jersey Futures is a State not-for-profit organization that conducts policy and research work on community development and land use issues. Established in 1987, it is the State's oldest and largest organization that advocates for smart growth.

Increasing public inquiries concerning what constitutes a smart growth development prompted the organization to start thinking about how it could efficiently and effectively communicate what smart growth meant in real terms.

Although the agency identified the need for a scorecard in 2000, it was the receipt of a grant from a private foundation in 2002 that triggered the creation of the tool. The organization researched several existing scorecards, including the Vermont Forum on Sprawl's on-line survey for new development. A draft scorecard was circulated for comments to an informal network of smart growth advocates, including colleague organizations, land use planners, and the organization's own trustees. The result was the Proposed Development Scorecard, which has been available as a free download from the organization's web site since 2002.

### 4.7.3 General description of the system

The scorecard was designed to help users identify the positive and negative consequences associated with new development proposals. It provides users a framework to discuss these effects based on smart growth principles. The tool can be applied to all types of development proposals, but it is primarily intended for application to larger scale proposals.

The scorecard was created for use by citizens, local planners, and developers. The use of the scorecard is typically initiated by someone concerned by a new development proposal (e.g., a member of the public), but has also been used by developers who wish to see how their development stands up to the scoring mechanism, or planners wishing to assess proposals. Users typically apply the scorecard to assess preliminary site plans prior to approvals, but the tool has been used to assess projects after they have been developed as well. Citizen users sometimes contact the proponent of the development or the local planning authority to help answer the questions.

Scorecard users answer 25 questions concerning the proposed development. With every question a range of targets or yes/no answers are provided. Each answer is allocated a number of points, and the user must multiply the points associated with the answer by the weight assigned to that question to calculate a score for that criterion. The user then tallies the scores and comes to a total score out of a potential 100 points. The total scores are awarded a grade

(A,B,C,D,F), where A is for projects that score between 90 and 100 points and F is given to proposals scoring under 59 points.

4.7.4 Topics/Parameters

The 25 criteria are divided into seven topics used to define developments that meet smart growth principles.

| | |
|---|---|
| ▪ Locate near existing development and infrastructure:<br>• distance to existing roads, water and sewer<br>• located in a State designated area<br>• proximity to neighbourhood services<br>• requirement for new public services (fire, police, school)<br><br>▪ Protect open space, farmland and critical environmental areas:<br>• avoid environmentally important/sensitive areas<br>• development suitability<br>• brownfield development<br>• avoid agricultural land<br>• energy efficiency<br>• building materials<br><br>▪ Protect open space, farmland and critical environmental areas:<br>• avoid environmentally important/sensitive areas<br>• development suitability<br>• brownfield development<br>• avoid agricultural land<br>• energy efficiency<br>• building materials | ▪ Increase the range of housing options:<br>• mix of housing types<br>• wide range of pricing options<br>• contribution to affordable housing<br><br>▪ Create or enhance a vibrant mix of uses (residential, retail, office):<br>• number of uses<br>• contribution to uses in existing neighbourhood<br>• adds to the diversity of the area<br><br>▪ Create or enhance choices for getting around:<br>• type of transportation options<br>• distance to transportation options<br>• adds to diversity of uses in area<br><br>▪ Walkable and designed for personal interaction:<br>• density of area<br>• parking structure design<br>• density of area greater than average<br><br>▪ Respect community character, design and historic features:<br>• use of historic buildings<br>• community desired architecture<br>• contribute to public streetscape<br>• contribute community spaces |

The system uses a balanced mix of quantitative and qualitative criteria to assess proposals. Qualitative parameters typically request yes/no answers to questions regarding smart growth features. For example, if a project adds to the diversity of land uses in the area it receives three points, whereas no points are awarded for those that do not. Graded targets are used when evaluating quantitative parameters, with the points awarded keyed to the level achieved. For example, if a proposal has more than four land uses, it receives three points, for three uses it receives two points. The points associated with each answer were determined by staff (based on standards found in other smart growth scorecards, industry practices and State defined planning priorities) and circulated to committees and partner organizations for feedback.

### 4.7.5 Linkages

NJF uses the scorecard to rate developments for its Smart Growth Awards program. This program was created by the organization to recognize developers, architects, planners, and civil servants for development projects or adopted plans that meet five out of seven of the organization's smart growth principles. Nominations are solicited using their web site and award winners are selected by a Selection Committee comprised of their Trustees and respected members of the planning and development community. Awards are distributed at an annual award ceremony.

The scorecard integrates New Jersey State Plan information into the criteria used to score a development. For example, developments in specific State Plan "planning areas", "designated centres", and "areas in need of redevelopment" receive points, whereas developments that are not in these areas do not. The scorecard also refers to the New Jersey Energy Code and ecologically sensitive planning areas.

### 4.7.6 Marketing and communication

NJF has a communication director who is responsible for marketing the organization's programs and managing public relations. Initial promotion of the scorecard included a mail-out to New Jersey's 566 municipalities and planning boards. This was sent out with an accompanying letter that explained the system and indicated the organization's willingness to make a presentation to the community.

Part of the organization's mandate is to educate the public about land use issues and smart growth. They do this by hosting workshops or seminars about smart growth and have used the scorecard to frame these discussions.

A web page was created on the organization's web site and the scorecard is available as a free download. No other supplemental material was created to support users of the system.

### 4.7.7 Application of the system

No detailed data is available concerning the scorecard's use and application, although the organization uses it for their own purposes to rate developments for its Smart Growth Awards program, as noted above.

NJF has found some instances where the scorecard is misused. For example, in one instance a community group used the scorecard to demonstrate that a proposed development was not illustrative of 'smart growth'. Unfortunately, the group had not rated the development using all of the sections of the scorecard or had misinterpreted the criteria, and the development was improperly scored. NJF wrote a generic response stating the scorecard was misapplied, as the proposed development was indeed an example of smart growth. This demonstrates the need to apply the entire scorecard when rating proposals, as category weights and criteria work together to come to an overall score for smart growth.

### 4.7.8 Resources

The scorecard cost approximately 500 hours of staff time to research, coordinate, and create (i.e., one full time staff for three months and approximately two weeks of other staff support). Original design, printing and mail-out costs were US $1,500, $3000 and $400 respectively. Web page creation and maintenance has been minimal. Most of the funding for the project was provided by grants from private foundations.

The costs associated with applying the system are minor. The time that the scorecard takes to complete is depends on how aware one is of the State regulations and issues that are addressed. Developers can work through it in about an hour, as they are usually familiar with the issues raised. Citizen groups and others may take more time to complete the scorecard and may need the developer's help to answer some questions.

### 4.7.9 Outcomes

The organization created the scorecard to define smart growth using measurable criteria. This tool has helped inform the public about the parameters of smart growth and has enabled them to speak about the concept with more fluency, e.g., at public meetings concerning development proposals. NJF feels that it is difficult to assess whether the scorecard is having any specific impact on urban design.

### 4.7.10 Stakeholder perspectives

NJF is relatively satisfied with the scorecard at present, although the organization would update it, if resources were available, to include references to new State regulations and to achieve better State plan integration. One smart growth principle the organization did not include in the scorecard was public process/ communication concerning new developments. At the time they were creating the scorecard, it was difficult to determine how the scorecard could best represent this. This would be one of the principles they would re-think when updating it.

NJF also feels that creating an interactive scorecard, whereby users would input information onto their web sites, would also help with their monitoring and reporting abilities (e.g., the types and numbers of developments that are being scored). The interactive tool could also link smart growth criteria to relevant State regulations and other design or industry standard types of information.

Some developers feel that the scorecard does little to provide actual support for a proposed development. A developer might use the scorecard to demonstrate how the proposal fits the definition of smart growth, but this has little effect on whether a proposal will be approved or not. Scoring well on the scorecard does not mean that the group using the scorecard (or NJF) endorses the development; this is one aspect of the scorecard that some developers find ineffective. Such an advocacy role would encourage a developer to use the system and further demonstrate developer and agency commitment to smart growth. According to NJF, however, this is not the intent of the scorecard, as it was created as an educational tool to frame the issues and define smart growth. Thus, the organization does not advocate on behalf of a specific development project that might have scored well using the scorecard. The organization recognizes, however, that a third party might legitimately use the tool as the basis for an endorsement or certification program.

In general, the scorecard is relatively easy to use and serves to educate the public about the parameters of smart growth. There was some concern that some criteria on the scorecard may not adequately consider the context of a proposal (i.e., existing land uses, areas with higher densities than the scorecard target). There is also concern that some smart growth features were overlooked in the scorecard (e.g., brownfield sites receive points, but greyfields are not included in the rating scheme). There is also some concern about the scorecard not being specific enough in order to deal with issues related to building construction and that a more specific checklist at the building level could be integrated.

One developer interviewed feels that judgment is critical to assessing proposed development and difficult to integrate into a scorecard. With respect to the scoring mechanism, the industry thinks that a gradient or scale of possible achievement levels is a more effective method of rating proposals as opposed to

a binary “yes/no”, as it enables a greater range of possibilities when scoring a proposed development.

4.7.11 Relevance to a Canadian SSES

The NJF system presents one possibility for a SSES in Canada, i.e., a scorecard that is administered by public interest groups to assess development proposals using specific (and often quantitative) criteria. Besides being capable of evaluating new developments from a smart growth perspective, the tool helps educate the public about smart growth principles and provides real measures as to what each principle means. The parameters provide a good springboard from which to model a Canadian system.

The weakness of the NJF system appears to be the lack of “muscle” behind the scorecard, i.e., projects are scored but not necessarily endorsed by NJF or any other group. This is appropriate for a tool that is used to build public awareness, but not entirely effective if the goal is to push for smarter growth on the ground in a context where many smart growth projects are controversial in nature.

Although a scorecard is an excellent way to determine how well a proposed development meets a defined objective, the tool can be misinterpreted or misused by stakeholders. The agency that develops the tool needs to be clear as to the purpose and proper use of the tool.

4.7.12 Sources

Documentation
*Proposed Development Scorecard* (2002)

Interviews
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## *4.8 Integrated Environmental Review Statement – Ottawa, Ontario*

4.8.1 Summary

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| Title of initiative | Integrated Environmental Review Statement (IERS) |
| Type of system | Environmental Assessment |
| Jurisdiction | Ottawa, Ontario |
| Lead agency | Department of Environmental Management, City of Ottawa |
| Year initiated | 2003 |
| Purpose of the system | The IERS is a document that serves to integrate and summarize all of the relevant environmental studies for development application review. It is hoped the statement will "demonstrate how all the studies in support of the application influence the design of the development with respect to effects on the environment and compliance with the appropriate policies." The Statement should be used as the mechanism to summarize all studies that relate to the application; it can thus include the findings from social, infrastructure, cultural, and other studies. |
| Use of the system to date | An integrated environmental review statement must be submitted for all subdivision, major site plans and rezoning applications. Although initiated in 2003, the statement is having limited uptake. |
| Key outcomes | Although the IERS is ensuring that development in the city has limited environmental impacts, it probably is not affecting the location of new development. |
| Strengths | The requirements of the IERS and development application review process are embedded in the City's Official Plan. The IERS requires that all studies and information pertaining to development applications are summarized and submitted using this vehicle. This makes the information pertaining to an application readily accessible and the assessment procedure more succinct. |
| Weaknesses | There are some discrepancies in the quality of the various supporting studies submitted to the City with development applications. The Department of Environmental Management is also finding that there is limited uptake and they need to provide better direction about its application. The IERS focuses on particular development applications, but ignores the cumulative impacts of all new development. |

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| Lessons for a Canadian SSES | The IERS Is a useful tool for integrating the numerous environmental studies required in association with subdivision applications and providing a summary document that will support the decision-making process. Also, developers have come together to find efficiencies (e.g., in hiring consultants to conduct the necessary studies) in areas where multiple development interests exist. |

### 4.8.2 History

The former municipality of Ottawa's *Official Plan* of the early 1990s called for the creation of the Municipal Environmental Evaluation Process. The resulting process was considered at the time the most comprehensive environmental evaluation procedure at the municipal level in the country. Modeled after federal and provincial environmental assessment procedures, the process included proposal screening (using the Municipal Environmental Evaluation Checklist) to see whether a detailed evaluation was necessary. If the initial screening revealed significant potential impacts, then a detailed assessment procedure was followed, with a Municipal Environmental Evaluation Report produced by the proponent and reviewed by staff.

After the City of Ottawa was amalgamated with surrounding municipalities in 2001, subdivision applications still required that environmental impacts were assessed, but using a less formal procedure. The new City's recent long range planning process resulted in a new Official Plan (called *Ottawa 20/20*), adopted in 2003. This document directs the city's growth and development over the next 20 years and provides direction concerning the reporting requirements for new development applications.

One of the new requirements for subdivisions, major site plans and major rezoning applications is the submission of an Integrated Environmental Review Statement (IERS). This statement integrates information from all relevant studies performed regarding the application in question. Prior to the requirement of the IERS, information pertaining to development applications were collected by various organizations and not well integrated in the decision-making process; this new requirement is anticipated to organize this information better and consequently lead to better-informed decision-making.

### 4.8.3 General description of the system

The purpose of the IERS is to indicate whether a proposed development will have significant environmental impacts, and if so whether those impacts can be mitigated. The Integrated Environmental Review Statement brings together information from technical studies with respect to the application and its

compliance with City policies. An IERS must be prepared for all subdivisions, major site plans and rezoning applications. It must include:

- an overview of the results of technical studies and other relevant environmental background material;
- graphic illustrations, such as an air photo, summarizing the spatial features and functions (e.g. natural vegetation, watercourses, significant slopes or landform features, recharge/infiltration areas) as identified in the individual studies;
- a summary of the potential environmental concerns raised, the scope of environmental interactions between studies, mitigation measures, and monitoring arrangements, as recommended in the technical studies;
- a statement as to how the recommendations of the supporting studies and the "design with nature" approach advocated in the official plan have influenced the design of the development; and
- confirmation that the statement has been reviewed and concurred with by consultants involved in the technical studies.

Typically, a developer would hire consultants to carry out the required technical studies and produce an IERS. The application is submitted to City staff and circulated to City departments, external stakeholders, and community groups that have asked to be contacted, such as organizations in a geographic area (e.g., Conservation Authorities) or with a specific focus (e.g., forest, wetlands). The City has sought external peer review when special problems or issues are identified in the IERS.

Once all feedback has been received concerning the application, the planner assigned to the application prepares a "Delegated Authority Report" with the conditions for acceptance or refusal of the application, which is submitted to the applicant and the Ward Councilor. If there is any disagreement among the parties concerning the report recommendations, a report must be submitted to the Planning and Development Committee (comprised of nine city councilors) for a decision.

### 4.8.4 Topics/Parameters

Ottawa's *Official Plan* includes an entire section on the review of development applications. The section identifies ten topics and associated policies that must be considered when submitting any development applications to the City, and these include:

1. Site-Specific Policies and Secondary Policy Plans
2. Adjacent to Land use Designations
3. Walking, Cycling, Transit, Roads and Parking Lots
4. Water and Wastewater Servicing
5. Housing

6. Cultural Heritage Resources
7. Environmental Protection
8. Protection of Health and Safety
9. Energy Conservation Through Design
10. Greenspace Requirements.

Policies also identify specific targets and standards that will be used in the assessment process. The IERS process falls under 'Environmental Protection' and focuses extensively on the biophysical aspects of development, and a number of technical studies are usually required, as reflected in the table below.

Environmental considerations and studies in development application review:

| **Biophysical Protection Topic** | **Studies/Information Required** |
|---|---|
| 1. Protection of vegetation cover | Identify tree retention and planting regimes for all subdivision and site plans |
| 2. Protection of endangered species | Demonstrate no impact on the natural features or on the ecological function on lands adjacent to significant portions of the habitat of endangered and threatened species |
| | Proposal on or adjacent to fish habitat - demonstrate no negative impact on fish habitat - if there is impact - review by Department of Fisheries and Oceans |
| 3. Erosion prevention and protection of surface water | Erosion and sediment control plan required on all development proposals (relies on Best Management Practices for standards) |
| | Determine appropriate setback from rivers, lakes and streams for development proposals adjacent to these (relies on Best Management Practices for standards). |
| | Hydrogeology/terrain analysis for subdivisions |
| 4. Protection of groundwater resources | Groundwater resources areas (to be defined in future studies) – impact assessment. |
| | Wellhead Protection Study as designated in Official Plan |
| 5. Stormwater plan | Site management plan for all subdivision and zoning amendment applications (relies on Best Management Practices for standards) |
| 6. Landform features | Assessment of Geomorphic, Geological and Landform feature (either designated in Official |

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| | Plan or in other studies) |
| 7. Adjacent to or within significant environmental areas. | An Environmental Impact Statement is required when:<br>• significant wetland south and east of the Canadian Shield (within 30-120 metres)<br>• Natural Environment Area (within 30 metres)<br>• wetlands, forest or field greater than 0.8 ha in the urban area<br>• adjacent to Urban Natural Feature<br>• pit and quarry operations landfill and waste operations |

Developers are required to retain professional consultants to carry out the studies. The City (and Conservation Authority where appropriate) must approve the terms of reference for relevant studies in advance of any action being taken. Applicants must also provide details of how they plan to mitigate environmental impacts identified in the studies.

Some of the studies require consultants to refer to limits or standards defined in the *Official Plan* policy or set out in Best Management Practices defined by authoritative organizations, such as the Department of Fisheries and Oceans' requirements for setback to high water lines, or in other policy sections of the document (e.g., watershed plans). Standards include such items as a 400 metre maximum distance to public transit from all buildings in a new subdivision and 4 ha/1,000 inhabitants of greenspace. Targets are also included to orient buildings south for more energy efficient design and maintain a 30% tree canopy. By referring to these documents, the City recommends that developers follow the guidance when describing new development parameters. Both the standards and targets are referred to in the *Official Plan*, where they are either explicitly laid out or the suggested source material is referenced.

4.8.5 Linkages

The IERS is the tool used to summarize the relevant biophysical studies and information required in land development applications, and is addressed in Subsection 4.7 of the *Official Plan*. Apart from environmental issues, nine other topics are considered in Section 4-Review of Development Applications of the *Official Plan*, as noted above. Studies submitted in relation to the other topics in the Development Application Review should be included and summarized in the IERS.

There are many references within each of the above topics to other sections of the *Official Plan* that should be referred to when submitting an application, such as Designations and Land Uses (Section 3) and the City's Strategic Direction (Section 2). The Official Plan identifies specific growth areas (Section 2.2.3)

where new subdivision development is targeted. The City is developing a monitoring program that will include indicators and targets (when feasible) to assess the performance of specific policy items outlined in the Plan, details of which will be included in an annual Report Card.

Currently, there are several plans, policies and strategies being created that will help further define the environmental requirements of new applications. A greenspace master plan is in development and will list standards that new development will have to abide by (e.g., 4 ha/1,000 people of park space). Infrastructure and stormwater policy work is underway, and an urban forest strategy is in development.

The Province has also created the Biodiversity Statement and Significant Woodland and Wetland designations that support the protection of specific areas in Ottawa. The National Capital Commission established a greenbelt that encircles a significant portion of the municipally built up area and includes both natural areas and prime agricultural land.

### 4.8.6 Marketing and communication

Most of the information pertaining to the development application review process is housed on the City's web site, either within the *Official Plan* or within the Planning and Building Department's development review process web pages. The subdivision application form is available free to download and includes a reference table that identifies which studies are required and which policies of the Official Plan to refer to for further explanation. A manual was created to help guide applicants and is available in print form. Although the former regional authority created the manual in 1998, prior to the City's amalgamation, it is still used. The manual is currently under revision. The new guidebook will be a comprehensive guidebook that helps applicants through all types of development application processes, including subdivision applications.

### 4.8.7 Application of the system

The City does not have specific data on the number of times an IERS had been submitted.

Prior to the requirement of the IERS, relevant studies and assessments for development applications were submitted in an unsystematic manner and poorly integrated; the new process will help better organize this information.

The municipality requires the equivalent of two full-time employees to support the environmental review of applications. Ottawa also compensates the Conservation Authority for its input into the application review process. In instances where subject matter requires specialized knowledge, the City will retain an independent consultant to review the assessments. For example,

Environmental Impact Statements have standardized requirements to assess topics such as the effect on wildlife populations or the extent of contamination from historical land uses.

Developer costs include consultant fees, meeting time, and costs associated with financial investments (i.e., interest on bank loans). The costs involved with the IERS depend on the size and complexity of a specific proposal. Greenfield projects are much easier to assess whereas already developed areas can take much longer. Developer costs can vary from half a million dollars to $3 million and the process takes approximately one year to complete. Sometimes efficiencies can be achieved in areas where several development interests are found. Developers come together in a committee and hire a primary consultant to facilitate the group's assessment processes. Other consultants are hired to perform specific studies and the terms of reference for these studies are agreed upon by all interests, circulated to City departments, revised and approved by the City.

### 4.8.8 Outcomes

The IERS is not having a significant impact on the quality or environmental sensitivity of new development. As an evaluation tool for the decision-making process, it is used inconsistently and the lead agency needs to provide better direction on how and when to apply it. The agency notes that when the tool is applied as it is intended, there are several benefits. In some instances the assessment process has identified environmentally significant areas that the City had not previously noted. In these cases, it is quite possible that development will not be allowed to proceed even though the area may not have been identified as significant in any plan.

Although the IERS ensures that development in the city has limited environmental impacts, it probably is not affecting the location of development. The City's *Official Plan* identifies specific growth areas and land uses over its area; this in general defines development patterns.

### 4.8.9 Stakeholder perspectives

The City feels that the process is effective for identifying impacts associated with proposed development, but there is room for improvement. For example, the IERS process does not specifically look at socio-economic issues, although other aspects of the development review process are hoped to touch on these.

In some instances an environmental assessment has identified a significant natural feature or ecosystem function that the City has not included in the *Official Plan*. Although this demonstrates that the process is working, the City receives objections from environmental groups concerning whether environmental features are appropriately protected and whether the degree of mitigation is

sufficient. There is also disagreement as to what comprises a “significant” woodland or wetland, and therefore what is worthy of protection from development. Property owners in rural areas may be dissatisfied when newly protected areas are identified on private land.

The City feels the costs of completing an IERS and the associated studies compare to a conventional plan evaluation process and has not received any complaints from developers concerning the costs associated with the necessary studies. There have been questions raised as to whether the City should provide more leadership in the environmental assessment process. Assessments submitted to the City range in quality and some believe that the City should be responsible for hiring consultants for all applications and providing specific direction for the various studies.

Developers do not see the application process as excessively arduous, but it can extend approval times when studies are required for every concern that arises in a development area. There are some questions about the rationale for requiring extensive environmental studies in areas that have already been identified as growth areas (i.e., areas where development is encouraged and collector or arterial roads are already in place).

4.8.10 Relevance to a Canadian SSES

Although it may be more demanding than elsewhere in Canada, Ottawa’s subdivision evaluation process is similar to the processes used in other municipalities. Significant environmental features are identified in the development area, the potential impacts of the proposed development are anticipated and mitigation measures proposed. The Ottawa case study is instructive in that it lays out a comprehensive list of studies related to environmental concerns and illustrates how such studies can be framed by the municipality and carried out by the proponent. Although, the Ottawa IERS process focuses quite narrowly on the biophysical environment, it does provide a mechanism to integrate social, transportation and other studies into the assessment procedure.

Most of the policies laid out in Section 4 of the *Official Plan* include standards and criteria by which applications will be assessed. The City does a good job stating which criteria will be used in the assessment process via the *Official Plan* and these are taken from reliable sources. There are relatively few quantitative criteria used as targets and those that are defined are not exceptionally demanding of the proponent when developing proposals.

Approval is delegated to City staff and relies on the professional judgement of planners and their interpretation of the various studies’ results. Professional judgement in the assessment process concerns the appropriateness of a development application in the context of a specific area. Defining the balance

between using benchmarks and standards and professional judgment will be important to the decision-making process of a SSES.

4.8.12 Sources

Web site
http://www.ottawa.ca/city_services/planningzoning/2020/op/vol_1/toc_en.shtml

Documentation
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City of Ottawa, *Official Plan*, Section 4: Review of Development Applications, Sub-section 4.7 Environmental Protection (Adopted by Council in May 2003)

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## *4.9 Sustainability Checklist – South East England*

4.9.1 Summary

| | |
|---|---|
| Title of initiative | Sustainability Checklist |
| Type of system | Computer Assessment Model |
| Jurisdiction | South East England |
| Lead agency | South East England Development Agency |
| Year initiated | 2003 |
| Purpose of the system | The agency supports regional economic enterprises, and develops its own land holdings to strategically initiate growth in the area. Core to this role is the need for the agency to demonstrate sustainable practice and lead by example. This computer assessment model was designed to educate the development industry about sustainable practices in land development and for the agency to evaluate its own development practices. |
| Use of the system to date | The system is available free by download from the Internet or on a CD-ROM. It has been used to evaluate over 100 development projects ranging from estates to urban villages and regeneration projects, and smaller subdivision and site-specific projects. |
| Key outcomes | This system has been successful in raising the awareness of the development industry concerning best practices in sustainable community design, and has proven useful for SEEDA's internal purposes. |
| Strengths | The tool provides tangible criteria on what constitutes a sustainable development project. The program has integrated the experience of well-respected external agencies for best management practices, benchmarks and targets. The software is easy to use and available on multiple platforms. |
| Weaknesses | Generally, local planning offices have not applied the system to review development proposals, as they have been unsure as to how to best integrate the system into their existing processes. There has been little marketing of the program to the development industry, hence its uptake has been negligible. No monitoring of the results of the program exists, but this could be included to see if the tool is working towards more sustainable development. |
| Lessons for a Canadian SSES | The checklist format and database of good and best practices can be modified to reflect local conditions in Canada; several examples of best practice guides are available in Canada. Integrating regulations and |

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| | prioritizing national sustainability objectives are important to legitimizing the tool. The accessibility of an Internet site that hosts the evaluation software and information concerning the program is an excellent means for increasing the distribution of the program. Monitoring functionality should be included when defining the software program and the server capacities of the Internet site. The case study emphasizes the importance of a marketing and communication strategy to increase the uptake of the program. Most of the weaknesses associated with the process are being addressed in the current revision of the tool – this experience would be useful if a Canadian equivalent were to be created. |

4.9.2 History

The South East England Development Agency is one of eight regional development agencies established in 1998. Regional agencies are non-departmental public bodies funded by government through the Department of Trade and Industry. They have five statutory purposes that focus on employment, economic development and regeneration, and sustainable development.

The *Sustainability Checklist* was developed by the South East England Development Agency (SEEDA) in 2003 after the national government's *Sustainable Community Plan* recognized the South East region as a primary target for growth and development. The 2002 plan forecasted the need for 200,000 new dwellings in the region by 2016 and mandated SEEDA to adopt sustainability as one of its operating principles.

In order to fulfill its mandate, SEEDA established a contractual agreement with the Building Research Establishment (BRE), a UK based independent research and consultancy organization that focuses on the sustainable built environment. The agreement was to adapt BRE's recently published *Sustainability Checklist for Development (2002)* to reflect South East England planning realities. This reference manual provides general direction and design parameters for sustainable development, and is based on BRE's extensive research and experience with building and development applications.

An advisory group was formed at the end of 2002 and the SEEDA *Checklist* was launched in the summer of 2003 and immediately available for public use via downloadable software on a newly created Web site. Anecdotal evidence suggests that the software has been applied to over 100 proposals, and the web site has recorded over 1,000 downloads of the software.

The *Checklist* was created to guide and assess development projects on SEEDA's sites. The Agency also encourages Local Authorities to use the

*Checklist* in this capacity, as well as when assessing development applications in the planning process. Developers and consultants could also use the tool to demonstrate the sustainability of proposals.

A pilot project was initiated in the summer of 2003 to gather feedback on the system's use. Unfortunately, none of the eight developers identified for the pilot project ended up using the evaluation tool due to project-specific problems (e.g., loss of financing, timing). To increase awareness of the tool, SEEDA hosted workshops in March of 2004, in collaboration with six Sustainable Business Partnerships[11] across the region, to introduce the *Checklist* to multiple stakeholders in the construction industry. These workshops provided the feedback that was originally intended to come from the pilot project. Currently, the *Checklist* is being revised to incorporate the feedback received at the workshops.

4.9.3 General description of the system

The *Sustainability Checklist* is pre-dominantly a voluntary system that can be initiated by either an authority (i.e., local government, planning authority) wishing to assess an application or by a developer evaluating how their project is meeting sustainability practices. The *Checklist* was developed primarily as an educational and awareness-building tool to inform users about sustainability practices for real estate development. The system encourages stakeholders to think about the social, environmental and economic impacts of a proposed development.

The *Checklist* provides a series of positive measures (good or best practices) a developer could consider to make a project more sustainable. The system applies to greenfield, brownfield, and revitalization projects that are greater than ten dwellings in size. Subsets of the checklist have been identified to support the assessment of smaller developments. Typically, the checklist has been used to evaluate both mixed-use and residential developments.

The typical process for reviewing a development project is as follows:

1. Open the software program.
2. Categorize development project (i.e., identify size of development).
3. Select one of ten topics to analyze.
4. Answer questions within topic subcategories (explanation is given on how to answer each of the parameters within a subcategory and score them).
5. Note the range of performance that the development is meeting (subcategories are rated according to good and best practice standards).

[11] Sustainable Business Partnerships were created by the regional government to improve communication between the business community and environmental service providers, and to enhance the services of environmental organizations. http://www.go-se.gov.uk

6. Identify the certainty (0-1) by which the method used to meet the standards will be implemented, where full certainty equals 1.
7. After completing the Checklist a bar graph is created to demonstrate the proposal's environmental, social and economic score in each topic. This graph also includes the maximum score attainable in each category by meeting best practices and consequently provides insight into how the proposal could be more sustainable.
8. Revisit issues and re-consider options to better meet sustainability objectives.

As the tool is voluntary, it has been used at various stages of the planning process. To take advantage of the opportunities for sustainable development revealed by using the *Checklist*, the tool is best applied early in the development of an application. SEEDA instructs developers that are submitting proposals for SEEDA sites that the tool will be used to evaluate proposals and encourages applicants to use it when developing proposals.

4.9.4 Topics/Parameters

There are ten topics covered in the checklist. The first topic "Outward Focus – Impact on the wider community" is strategic in nature as it requests the user to reflect on the impacts of the location of the development within its geographic context. The nine subsequent topics are specific to the development itself regardless of its location.

Each topic has several subcategories within it and each subcategory is linked to a set of parameters that help assess the sustainability of the development project. There are close to 150 parameters in the assessment model.

**SEEDA Sustainability Checklist Topics and Parameters**

| **Topics** | **Subcategory** |
|---|---|
| Outward focus- Impact on the wider community | • water<br>• transport<br>• energy<br>• ecology<br>• community<br>• developer |
| Land use, urban form and design | • site criteria<br>• re-using site<br>• design process<br>• form of development<br>• open space landscaping<br>• density<br>• mix of use<br>• design aspect |

| | |
|---|---|
| Transport | • general policy<br>• public transport provision<br>• parking<br>• facilities for pedestrians and cyclists<br>• provision of local employment<br>• proximity of local facilities<br>• traffic management |
| Energy | • community wide energy production<br>• street lighting and light pollution<br>• site design<br>• energy infrastructure |
| Impact of Buildings | • BREEAM/EcoHomes rating for all buildings |
| Impact of Infrastructure | • roads, footways, civil structures and telecommunication<br>• impact of construction process |
| Natural resources | • use of locally reclaimed/green material<br>• air and water quality<br>• water conservation<br>• sustainable drainage<br>• refuse composting<br>• noise pollution |
| Ecology | • conservation<br>• enhancement of existing ecological value<br>• planting |
| Community | • community identity and participation<br>• measures taken to reduce the opportunity for crime<br>• social equity and poverty<br>• community management |
| Business | • enhanced business opportunities<br>• employment and training |

The *Checklist* identifies the good practice (GP) and best practice (BP) range for each criterion. Good and best practice ranges are presented in both quantitative and qualitative ways. A quantitative range might be expressed as the proportion of the development meeting the practice (e.g., GP - >60% of the development infrastructure is permeable, BP - >80% of the development infrastructure is permeable). A qualitative range might entail questions to establish to what degree a criterion has been met (e.g., yes, light pollution considered, partially considered, or wholly taken into account).

Quantitative parameters are sometimes presented as targets and at other times as benchmarks. The *Checklist* does not explicitly state in every case whether a parameter is a target or benchmark. Targets are used when the data is supported by expert research and the practice is attainable; benchmarks are used to reflect what would happen with a 'typical' development. The *Checklist*

recognizes that not all development is typical and hence the values should be corrected for local conditions. For example, the standards for housing density in dwelling per hectare are: Good Practice: 41-59 DPH; Best Practice: >= 60 DPH. Recognizing that density is affected by the size and scale of the surrounding areas and also by proximity to public transport, these factors should be taken into account when applying the parameters.

Parameters were drawn from various sources, the principal source being the Building Research Establishment (BRE), as it is considered the industry leader on sustainable practice in the built environment and manages the country's EcoHomes program, a certification program to establish the environmental performance of new and existing buildings. Other sources of data included local government or health, transportation and infrastructure organizations that have expertise in good or best practices.

The parameters in the original version of the *Checklist* were weighted by BRE based on experience in the field and government priorities (e.g., water and energy). Senior staff in the South East Region is currently revising the *Checklist* and assigning weights more suited to regional priorities. These weights will be incorporated into the next version. The new edition will also incorporate England's newly revised *Building Code* that will have sustainability parameters built in.

4.9.5 Linkages

The primary policy document that triggered the development of the *Checklist* was the Office of the Deputy Prime Minister's Sustainable Community Plan, published in 2002. As noted above, this plan targeted the South East Region as a strategic sustainable growth area.

The national government's funding policies for regional development agencies (i.e., SEEDA) also contributed to the impetus behind the *Checklist*. Development agencies receive funding from the central government through Public Service Agreements; central to these agreements is the issue of sustainability. SEEDA uses the *Checklist* as a way of demonstrating that sustainability is being addressed.

Several regional policies and strategies have guided the *Checklist*'s creation. This includes economic, transportation, and housing strategies along with guidance on waste management and energy efficiency. The *Sustainability Checklist* integrates references to local government planning instruments and complementary regional policies within the assessment model. Each topic includes a link to "Signposts" and "Related regional policies". This provides access to planning information for specific areas and includes reference to local plans, structure plans, design briefs or supplementary guidance.

Regional Centres of Excellence are currently being formed to generate learning, networking and mentoring opportunities for the development industry and the *Checklist* will be an integral feature informing the sustainability agenda within the centre.

The Office of the Deputy Prime Minister (OPDM) is currently creating a new code for sustainable buildings. The second edition of the *Checklist* is being sponsored by OPDM, looking to mesh the two initiatives.

There are no formal incentives or disincentives associated with the program, but the system does provide developers with a means of demonstrating the sustainability of their developments and can attract support for the proposal during the planning approval process.

### 4.9.6 Marketing and communication

Although SEEDA was responsible for creating the *Checklist* with the goal of raising awareness of sustainability issues and educating the development industry in the region, a targeted marketing campaign was not pursued until one year after the tool's launch. The initial communication strategy included the creation of a web site and the downloadable tool. The tool has been accessible to a greater audience via the web, unfortunately evidence of regional use of the tool is lacking. A pilot project was planned to include eight development companies and two local authorities. Unfortunately the pilot phase was derailed, as none of the companies involved ended up pursuing their development proposals to fruition.

After acknowledging the pilot project's failure, SEEDA hosted a series of integrated workshops around the region. These were announced via successive press releases and through networking opportunities provided by the Sustainable Business Partnerships. The workshops provided users the opportunity to learn how to use the tool and to provide feedback related to the tool. This feedback will be incorporated into the next edition of the tool.

### 4.9.7 Application of the system

The tool was created as an educational vehicle available for free from a publicly accessible web site. Although there has not been any formal tracking of the use of the system, SEEDA estimates, through anecdotal evidence, that the tool had been applied to over 100 projects covering all types of development scenarios, of various scales and land uses. SEEDA also estimates approximately 1,000 hits on the web site suggesting the tool has informed the design of at least this many users. Again, these results demonstrate only the use of the tool, not where the tool has been applied.

Local planning authorities have not used the first edition in any formal capacity, but the future version will meet the needs of local governments so that it can be better integrated into their planning approval process.

4.9.8 Resources

To date, SEEDA has invested 80,000 pounds in the development of the assessment program. This has included the development of the evaluation system and web site, and hiring a project manager.

For developers, the use of the system will clearly add to the time and resources needed to evaluate and modify proposals; there are over 150 parameters by which to assess a development project. It is felt, however, that an informed user, who considers the parameters of the *Checklist in* the early stages of developing a proposal, will have moderately less costs associated with its application. It is also felt that the tool could reduce approval delays if confidence in it builds.

4.9.9 Outcomes

The goal of using the tool to raise the awareness and educate the development industry on sustainability issues has met with ample success; most feedback has identified the system as an important accomplishment. Prior to the tool's creation, sustainability was not part of the daily practice of the development industry in the region. The tool has encouraged more sustainable development projects in South East England. Unfortunately, there has been no measurement in terms of how the tool has influenced specific project outcomes. It is uncertain whether using the *Checklist* has influenced the location of new development (i.e., greenfield versus the already urbanized area).

4.9.10 Stakeholder perspectives

The Sustainability Checklist is considered easy to use, apart from some minor glitches in the first edition of the software. The *Checklist*'s purpose as an educational tool is being met; although SEEDA and the development industry admit that a good understanding of sustainability principles is necessary to assess an application. The SEEDA *Checklist* compares favourably to other evaluation tools in the UK.

Some consultants have noted that the bar graph as a scoring mechanism is an important visual of the system. The graph represents how the proposal scored on the *Checklist* and compares it to best practice standards. Developers who see how their proposals compare to best practice can be motivated to modify their proposals to reach best practice, as they become sensitive to not having the 'best' proposal.

There is some concern with respect to a proposal scoring poorly in sub-categories that do not apply to the proposal. For example, there are some instances where a sub-category simply may not reflect the site context of a proposal (i.e., brownfield reclamation), but the software scores this negatively, as opposed to providing a 'not-applicable' option and scoring accordingly. This is being remedied in the new edition of the *Checklist*.

Developers report that planning authorities increasingly require that sustainability principles be incorporated in project design to meet Local Agenda 21 objectives. It is felt that if the *Checklist* – if applied routinely by planning authorities throughout the region – could provide a consistent framework for this purpose. The *Checklist* is also used to assess proposals for land development on SEEDA sites, and developers felt that use of the assessment procedure should have been better publicized in order for developers to produce proposals more in line with the requirements.

The planners that have used the tool consider it an improvement over the conventional process for analyzing a proposal against sustainability criteria. Planning authorities view the *Checklist* as an objective tool. However, there is some concern among local officials about how the *Checklist* integrates into the larger planning environment. This concern has largely resulted from a lack of direction from SEEDA about how to integrate the system into their practice. The current revision of the system will further identify good and best practice standards that are agreed upon through a consensus of local government authorities and will complement the model's evaluation properties.

Overall, the system has been deemed a success in educating the development industry about sustainability issues and informing the design of projects. Problems identified with the first version of the *Sustainability Checklist* are being resolved in the next version, which is half way through the revision process. The creation of the first edition was difficult in terms of defining the concept of sustainability and coming to a balance between different criteria. It was also a difficult task to assign targets and benchmarks, as some data could be applicable in one instance, but not as well in another. However, if benchmarking or standards are not included, it is difficult to ascertain what a proposal should be working toward. Although using the system is voluntary, the tool can help developers justify aspects of development proposals based on sustainability criteria.

Two primary modifications will be made to the assessment model in its next edition. The next version will offer local planners more support for integrating the system into the planning process and how to apply the tool to proponent applications. The next edition will also be able to generate more robust reports on the projects being evaluated. The current output is a coloured bar chart that indicates whether the proposal is working towards sustainability or working away from it. The graph does not explain in specific detail how and where an

application is performing. The new edition will enable the users to see exactly how the development is performing on specific issues.

Finally, SEEDA suggests that including a monitoring function in the software program could help track the results of the program. This would entail the development of a database and server capabilities to retain the relevant information. SEEDA was uncertain as to whether this functionality will be included in the current revision.

### 4.9.11 Relevance to a Canadian SSES

This assessment model has good potential to inform the process for a SSES in Canada. The program is easy to use and does not require specialized knowledge. The checklist format and database of good and best practices can be modified easily to reflect local conditions, and several examples of best practice guides are available in Canada. The accessibility of an Internet site that hosts the evaluation software and information concerning the program is an excellent means for increasing the distribution of the program. The importance of a marketing and communication strategy to increase the uptake of the program, cannot be emphasized enough.

BRE's extensive knowledge and experience with sustainable development and building practices is captured in the evaluation system's parameters. The parameters used in the evaluation system can provide a source of content for the Canadian system. Canadian agencies that work in this field, such as the Canadian Green Building Council green building expertise, the National Research Council's community energy planning research, and CMHC's or FCM's sustainable community work, can be consulted to adapt the parameters and to incorporate their extensive knowledge. Weighting the parameters to reflect national priorities for sustainability should be an exercise informed by regional and local governments.

The SEEDA *Checklist* links each topic to local government and regional policy documents. This functionality would be well suited to the Canadian context, linking topics to provincial policy or national regulations. Learning from the revision of the SEEDA *Checklist*, a Canadian system could include a monitoring function where data entered into the program can be accessed to create reports and evaluate the outcomes of the overall project.

### 4,9.12 Sources

Web site
http://www.sustainability-checklist.co.uk

Documentation

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GOSE, SEEDA, SEERA, *A Core Report Part of the Integrated Regional Framework 2004*: *Better Quality of Life in the South East*.

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Interviews

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## *4.10 Development Impact Analysis – Wisconsin, USA*

4.10.1 Summary

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|---|---|
| Title of initiative | A Community Guide to Development Impact Analysis (DIA) |
| Type of system | Development Impact Studies |
| Jurisdiction | State of Wisconsin, USA |
| Lead agency | College of Agricultural and Life Sciences, University of Wisconsin–Madison |
| Year initiated | 1999 |
| Purpose of the system | The Community Guide to Development Impact Analysis is an easy to use step-by-step guide created for local governments, planning agencies, developers and community members to help assess the impacts of proposed developments on a local community. |
| Use of the system to date | The tool has been applied in an academic environment at the University of Wisconsin (UW) Madison to evaluate proposed developments in three cities. |
| Key outcomes | The tool has had excellent exposure as a result of its accessibility via the Internet. There have been varying degrees of change on the urban landscape and in the planning process for the three cities that have used the impact analysis to evaluate development proposals. In one instance, a community moved towards a denser mixed-use development due to the results of the analyses. Conversely, another City saw less dense development than those prescribed in its land use plan. |
| Strengths | This manual is an excellent 'how-to' tool and describes development impacts in a way that can reach a large audience. The tool is an effective means of getting a general grasp of the impact a development could have on municipal finances, traffic, the local environment, and community. The format is easy to use and accessible on an Internet site. |
| Weaknesses | The analysis is done at one point in time, but the model does not do a good job of capturing cumulative impacts. This is the inevitable result of the simplification that results when the goal is to produce a tool that can be distributed to and used by a wide audience. Requiring DIA may be seen as heavy handed by some developers and local political representatives. The tool did not have a targeted marketing or communication strategy, which could explain its limited uptake by local governments and |

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|---|---|
| | planning professionals. |
| Lessons for a Canadian SSES | A DIA system could be form part of a SSES if it is considered desirable to include impact criteria in the system (i.e., not just design criteria). The Wisconsin case study suggests that a two-phase system, including a screening phase and a full assessment phase, would ensure an efficient use of resources and reduce approval times. In most provinces, municipalities have the authority to require developers to undertake impact studies, or pay to have them undertaken. However, municipalities would have to review impact studies carried out by developers to ensure that scientific standards are maintained. |

4.10.2 History

The Wisconsin Land Use Research Program (WLURP) was established in October 1997 with funding from the University of Wisconsin (UW) Agriculture and Natural Resource Consortium and by a grant from the Wisconsin Food System Partnership (which, in turn, is funded by the W.K. Kellogg Foundation) and is administered by the College of Agricultural and Life Sciences, UW-Madison. Overall, the program focuses on applied research to inform land use decision-making

One component of the program involved the development of the *Community Guide to Development Impact Analysis.* This guide took approximately two years to create, using the Urban Land Institute's *Development Impact Assessment Workbook* (1994) as its point of departure. The ULI Workbook is a comprehensive resource that helps define a general methodology for impact assessments in the United States; it identifies various data sources and standards that can be applied to impact evaluation. The *CGDIA* uses the methodology set out in the Urban Land Institute's workbook, while modifying it to reflect the planning environment, local data, and standards found in the State of Wisconsin. The *Guide* was used to assess three development scenarios for a parcel of land in the City of Verona and the results were used to polish the tool.

This tool provides a mechanism for community stakeholders (e.g., planners, developers, elected officials) to examine the multiple, long-term impacts of a development proposal, including fiscal, social, environmental, and traffic factors. To date, there have been approximately three instances where the *Guide* was used to assess the impact of new development.

The Land Information and Computer Graphics Facility at UW converted the *Guide* into a downloadable web resource in 2000. Also in 2002, UW incorporated the document into a software program *Assessing the Impact of Development* (2002) as a series of modifiable spreadsheets.

4.10.3 General description of the system

Development impact analysis enables stakeholders to identify the various consequences that proposed developments or projects could have on an existing area. The *Community Guide to Development Impact Analysis* outlines several motivations for undertaking a development impact study:

- provide an opportunity for communities to gain advance understanding of the potential impacts of a particular development;
- enable communities to plan to efficiently meet new service demands and avoid potential environmental or social costs that may accompany the development;
- promote communication and conflict resolution among local officials and residents as issues are identified and brought to the table;
- facilitate interagency cooperation and efficiency as various departments bring their knowledge to the table;
- encourage responsive and informed decision-making consistent with long-term goals of the community; and
- promote fairness and consistency in the development process when a systematic process is applied to all development proposals.

The *Guide* can be used in many planning scenarios and at various scales, including comparing multiple development scenarios for a parcel of land, as well as individual subdivision or development proposals. Typically, a local planner with knowledge of the local planning environment would initiate the process in consultation with various stakeholders who might be affected by the development. Stakeholders might include the developer or applicant, local community members, special interest organizations, and other municipal and regional departments or agencies.

There are generally two phases in a development impact analysis: a pre-impact screening phase and the full impact analysis. The screening phase involves reviewing the proposal for consistency with community regulations and land use plans, establishing the level of detail required in a full analysis and identifying any resource limitations (i.e., time, money, expertise). A full impact analysis looks at the fiscal, traffic, socio-economic, and environmental impacts associated with a development. Each topic has its own methodology and data needs (these are outlined in 4.10.4). A generalized development impact analysis process involves the following:

Screening

1. Review the proposal/project for consistency with the community's zoning code and land-use plan (comprehensive plan, neighbourhood community plan, etc.).
2. If the proposal is not consistent, clarify community needs and values about the site and its future use.

3. Consider the following factors: time and resource constraints of those embarking on the analysis and the magnitude of the development proposal; once these are identified, decide on the level of detail and the extent of the impact analysis.

Impact Analysis

4. Develop an information gathering strategy (what information, how to get the data, collect the data, integrate the data in a communicable format).
5. Examine each of the impact categories that will be addressed (further outlined in the tables below). Ensure both positive and negative impacts are examined.
6. Gauge the overall effects of the proposed development on the community by analyzing the data, and asking the appropriate experts and community members for their opinions.

The *Guide* includes a series of worksheets for each of the four topics (fiscal, traffic, socio-economic, and environmental) that help the evaluator perform the necessary calculations and organize the information. There are also extensive data sets of planning standards and local conditions provided to help with these calculations. Once an evaluation is completed, the end product should be a written report describing the current conditions of the area under evaluation, details of the proposed development and how the two impact one another, both positively and negatively.

There are several steps involved in the evaluation, and these differ with each of the topics under review. The discussion and tables below speak to both the process and the parameters that are evaluated in the Guide.

4.10.4 Topics/Parameters

Much of an impact analysis includes looking at how a development impacts the *status quo*. As a result, a set of data that benchmarks the current parameters of the area under analysis is necessary to evaluate how the development will add to, or detract, from this. Several sources of data were collected to create the *CGDIA* and reflect Wisconsin conditions. Sources included local agency department statistics, municipal codes, regional planning commission statistics, and institutional research. As noted above, there are four topics covered in the *CGDIA*: fiscal, environmental, socio-economic, and transportation. Each topic has a specific process for evaluating the impacts of development, along with specific data needs and criteria used.

**A Fiscal Impact Analysis** (FIA) estimates the impact of a development or a land use change on the costs and revenues of the government serving the proposed development. FIA uses land use, population and employment projections, along with budgetary information for municipal service provision, to establish the costs or revenues associated with development. The *Guide* includes the process for

calculating fiscal impacts (but is of too great detail to further explore in the context of this study).

To allocate costs, development impact analyses most frequently use the per capita average costing method. This is a simple method that uses current cost data of capital investment and estimated resident or employer numbers for the proposed development. Some drawbacks to the method are that the average cost does not take into account excess or deficient capacity to deliver services[12], and it assumes that average costs of municipal services will remain stable in the future.

Revenue analysis should take into account any payments a municipality receives from external agencies or special categories for development (e.g., tax exemption for charitable initiatives). Property assessments for determining tax rates are estimated, as these are difficult to ascertain prior to the completion of construction. It should be noted that incorporated municipalities (cities, villages, townships), counties, school districts, and vocational school districts rely upon real estate tax. These groups do not have any requirements to coordinate their decision-making and this may further complicate the evaluation, as the costs of decisions are not necessarily borne by the decision-makers.

**A Traffic Impact Analysis** (TIA) evaluates the effects that a particular development will have on traffic in the community. The following table outlines the process and parameters for determining the traffic impact of a new development.

**Traffic Impact Analysis (TIA) Process and Parameters**

| **Process** | **Input Parameters** | **Assessment Criteria** |
|---|---|---|
| 1.Establish a background<br>• Description of proposed development (information on demographics and development data)<br>• Define peak hours and whether weekends are included.<br>• Description of study area (existing street network, pedestrian environment, transit)<br>• Location of proposed access points<br>2. Establish base traffic conditions<br>• Description of road network and intersections adjacent to site and at access points | Base traffic conditions<br><br>Using new population statistics:<br><br>Average daily trip rates<br>Peak hour conditions | Trip generation rates<br>Pass-by percentages<br>Capture rate<br>Future traffic conditions<br><br>The International Transportation Engineers (ITE) |

[12] An alternative method is the marginal costing method, which does take excess and deficient capacity into consideration, although it is infrequently used because requires several assumptions about future conditions.

| | | |
|---|---|---|
| • Counts during peak-impact hours<br>3. Calculate site traffic generation<br>• Trip generation rates used and the source of these rates<br>• Traffic generated during peak impact hours (# of inbound and outbound trips generated by the new development)<br>4. Define site traffic distribution<br>• Method used to distribute traffic<br>• Table showing estimated traffic movements by direction<br>• Discussion of method used for traffic assignment and assumptions for assignment of traffic to network<br>5. Calculate non-site traffic projections<br>• Definition of design year—opening of proposed development<br>• Identification of development in study area whose traffic is to be included in calculations<br>• Adjustments of off-site through traffic volumes<br>• Assembling of off-site traffic forecast for design year<br>6. Traffic assignments<br>• Assignment of peak-period traffic to intersections and access points<br>• Figures for existing peak impact traffic hours, site traffic and total traffic<br>• Recommended access design improvements<br>7. Review of site plan<br>• Street layout<br>• Parking layout<br>• Loading dock locations and access, including design truck used<br>• Recommended changes<br>8. Conditions of future traffic conditions<br>• Other developments in area | | recommend that developments where 100 or more new inbound or outbound trips take place during the peak hours should be subject to a full TIA (i.e.,150 single-family homes, 220 multi-family units, 55,000 square feet of general office space or a 15,500 square foot shopping center). |

This format of traffic impact is noted as being simplistic and should only be used to get a general idea of the traffic implications and to determine if a comprehensive traffic analysis is necessary. The model does not fully appreciate the linkages that the traffic impact of a proposed development will have on adjacent areas and does not look at the role of public transportation, alternative

transportation, or the pedestrian environment. The analysis relies on a threshold set by the ITE to determine whether a comprehensive review is necessary.

**The Socio-Economic Impact Analysis** examines how a proposed development will change the lives of current and future residents of a community. Of the four impact processes, this analysis is the only one that uses qualitative parameters, in addition to quantitative calculations, to determine impacts. There are two phases, strongly dependent on public participation, to gain a better understanding of the wants and needs of the surrounding community. The analysis looks at community values and needs, changes in housing affordability and community structure, community economic development opportunities or costs, aesthetics, and other quality of life parameters identified by the community. The process and parameters are outlined in the table below.

**Socio-Economic Impact Analysis (S-EIA) Process and Parameters**

| **Process**<br>**This table needs reorganization** | **Input Parameters** | **Assessment Criteria** |
|---|---|---|
| **Phase I. Defining the scope**<br>1. Identify community needs (i.e., survey the community, interview community leaders).<br>2. Familiarize with specific characteristics of the proposed project (type, size, location, socio-economic characteristics of the community).<br><br>**Phase II. Identifying and evaluating development impacts**<br>a) Quantify changes<br>• Demographic<br>• Housing Market (affordability, supply and demand)<br>• Retail market impact (how well the market will respond, future business expansion and recruitment)<br>• Employment and Income<br>• Public service provision<br><br>b) Gather community perceptions about the development (using focus groups, interviews, hearings, meetings, workshops, polls, and charrettes).<br>Aesthetic preference (design review, geographical information | Demographics<br>• Number of new permanent or seasonal residents.<br>• Density and distribution of people and any changes in the composition of the population (age, gender, ethnicity, wealth, income, occupational characteristics, educational level, health status).<br><br>Residential<br>• Existing and projected housing needs (typical rents and mortgage payments as per income levels)<br>• Diversity of housing patterns (single-family, multi-family)<br><br>Commercial<br>• Number, type and location of retail businesses (vacancy levels, store turnover, | Quantitative<br>Public service – local, regional, national planning standards (open space and parks; culture and recreation; education; health care; elderly, disabled, and preschool-age children; police and fire; and administrative support).<br><br>Design<br>• Site plan (natural resources, parking)<br>• Landscaping (species)<br><br>Qualitative<br>• Preferences, opinions, needs<br>• Aesthetics (i.e., massing, visual appropriateness |

| | | |
|---|---|---|
| technology, visual preference surveys).<br><br>Social well-being and Quality of Life (influence on neighborhood cohesion or cultural differences)<br>Profile the attitudes of the residents living and working in the community and each of the distinguishable social groups. | retail mix, new business incubation, concentration of retail, household demand-consumer data or median store sales per square foot)<br><br>Employment<br>• Changes in employment levels (temporary and employment generation)<br>• Change in income level | )<br>• Quality of life |

(Source: Edwards, 2000)

Although critically important in the planning milieu, the socio-economic impact analysis is probably the least performed analysis due to its qualitative nature and the lengthy process involved (to capture public opinion).

**An Environmental Impact Analysis** (EIA) looks at the bio-physical elements of the local area that are impacted by a proposed development, such as soils, natural areas, wildlife, topography, air, and water. Cultural elements can be included such as archeologically and historically significant features. Transportation alternatives and innovation in site and construction design can be considered during an EIA (i.e., stormwater and waste management strategies). The following table provides an overview of the *Guide*'s EIA process and the parameters that are used.

**Environmental Impact Analysis (EIA) Process and Parameters**

| **Process** | **Assessment Parameters** |
|---|---|
| 1. Define the scope<br>• Size and nature of development<br>• Location of proposed development<br>• Character of natural environment being impacted<br>• Spill over effects of environmental impacts<br>2. Inventory community natural resources (as per parameters), their quality and current use<br>3. Compile and review existing community environmental management standards and | • Natural resources management and guidelines<br>• Environmental compliance with regulations<br>• Subsurface conditions (soils, groundwater)<br>• Hydrology (drainage, storm-water, water quality, supply)<br>• Landforms (topography, floodplains, related water quality)<br>• Wildlife and vegetation (vegetation, endangered species, parklands, conservation areas, ecologically critical areas) |

| | |
|---|---|
| guidelines<br>4. Assess the extent and significance of environmental impacts resulting from the proposed development<br>5. Evaluate the potential cumulative impacts associated with the proposed development (various methods include spatial analysis, networks and systems diagrams, modeling, trend analysis) | • Land Use (existing zoning, land use, proposed community long-range plans, productive farmland or timberland)<br>• Natural Hazards (seismic, flood)<br>• Cultural Resources (history, architecture sensitive, archaeological sensitivity)<br>• Utilities/services (energy, solid waste disposal, water supply, sewer system and drainage)<br>• Transportation (public transit system, traffic circulation, parking)<br>• Hazardous Materials (underground storage tanks, site contamination, hazardous products)<br>• Other (ambient air, ambient noise, controversy) |

(Source: Edwards, 2000)

It is important to note that the development features assessed in a DIA can have significant cumulative impacts. These are both difficult to identify and measure. In some cases, it may be necessary to hire consultants who specialize in carrying out environmental assessment to determine the extent of the potential impacts.

Of the four impact analysis categories, the fiscal, traffic, and environmental analyses use quantitative parameters drawn from standards, policies or research to compare expected impacts from the proposed development with current trends. The socio-economic analysis incorporates both quantitative and qualitative criteria to evaluate the impacts of a proposed development. Qualitative data concerning community perceptions of development impacts are collected through opinion surveys, workshops, public meetings, interviews, etc.

Criteria used to evaluate the impacts of new development are taken from standards and thresholds provided by professional organization research (e.g., the American Planning Association, International Association of Fire Chiefs, National Research and Park Association, and International Transportation Engineers). For example, the National Research and Park Association recommends open space standards to reflect the following: 0.25-0.5 acres per 1,000 population of mini-parks, 1-2 acres per 1,000 population of Neighborhood Park, and 5-8 acres per 1,000 population of Community Park.

### 4.10.5 Linkages

Development Impact Analysis is not formally required in the State of Wisconsin. Some municipalities have provisions in their local ordinances requiring a

developer or applicant to pay for any studies the local municipality may require to inform a decision. In some cases, a municipality may require a development impact analysis.

Wisconsin, however, does require the adoption of comprehensive plans via the State's so called *Smart Growth Law* (although the law does not specifically refer to smart growth)). This requires all cities, towns, and villages to adopt a comprehensive plan that includes ten elements (issues and opportunities, housing, transportation, utilities and community facilities, agriculture, natural and cultural resources, economic development, land-use, intergovernmental cooperation, implementation). Development Impact Analysis can be used to help develop and implement local comprehensive plans. Municipalities are encouraged to use DIA through the *Wisconsin Comprehensive Planning Grant Program.* This program provides money to local governments that prioritize smart growth principles in their planning and plan implementation.

Wisconsin State statutes regulate various issues touched on by a DIA, such as recreational land and parks acquisition, shoreline and wetlands protection, site erosion, and stormwater management.

Finally, State law also requires that every city and village with a population of at least 12,500 adopt a *Traditional Neighborhood Developments (TND)* bylaw similar to a model drafted by the State. Using the design principles laid out in the code, a DIA can be used to compare a proposed development to this design ordinance (although no information is available as to whether this is being carried out).

#### 4.10.6 Marketing and communication

There was no formal marketing or communication plan created for the *Community Guide to Development Impact Analysis*. The *Guide* was created with the intention of being easy to use and accessible as an evaluation tool; it provides several references to further resources, if needed, and is itself a 'how-to' manual. Although initially only in print form, the *Guide* is now housed on the UW-Madison "Planning Resource Centre" Web site.

#### 4.10.7 Application of the system

The *Guide* has been applied by UW extension agents and students in the context of course work in the City of Verona, the City of Stevens Point, and the City of Lodi in Wisconsin. All of the development proposals were for greenfield subdivisions with a variety of land uses.

The City of Verona helped test the fiscal impact analysis part of the *Guide* in its draft form. Three development scenarios were analyzed for a three-phase Planned Unit Development (PUD): single-family, mixed-use, and multi-family

development. The analysis found the mixed-use, high-density multi-family development to have the most positive fiscal impacts. The PUD is now under development as one of the densest neighbourhoods in Verona.

The City of Stevens-Point analyzed two density scenarios for 160 acres of land in an area experiencing strong development pressure: 1.5-units/ acre and 3-units/ acre. The analysis found that higher densities would strain the school system, increase traffic congestion, encourage building on less stable soils, and potentially have a negative fiscal impact using the per capita method (although when the marginal costing method was applied the fiscal impacts were much higher than the lower density scenario). About 40 acres of the site have since been developed at the 1.5-units/acre density.

Finally, a UW extension agent approached the City of Lodi to participate in a DIA for two developments: a 21.46 acre project with 36 single-family homes and 20 duplexes proposed, and a 12.59 acre project with 64 senior condominiums and a community center for the residents. The impact statement found concerns with stormwater management and the City used this to modify the development proposals using smaller road standards. The analysis also guided the City in terms of density limits

Use of the *Guide*'s impact analysis system has been limited to these university-supported exercises.

### 4.10.8 Resources

The cost of creating the *Guide* was covered by a grant from the Wisconsin Food System Partnership (which, in turn, is funded by the W.K. Kellogg Foundation) and University funding. The development of the resource required a full-time research assistant for one year, with support from various staff members. Other budget information concerning the printing costs and other administrative costs is not available.

Access to the *Guide* is free through the Internet. Information about resources required to carry out a DIA using the *Guide* is not readily available. The costs associated with the three exercises cited above were lower than they would otherwise be because of the use of student labour in the context of course work. As this system requires additional studies not typically required in the development approval process, there will be additional costs associated with its use. Some expert assistance will be required as some of the aspects covered in the evaluation require specialized knowledge. A local government using the *Guide* will need to gather data to inform the analysis – in some cases, municipalities may bear these costs or they may transfer the costs to the developer/ applicant.

Although there are additional costs associated with using the *Guide*, they may be offset by a more rapid decision-making process and by taking opportunity the *Guide* offers to identify and mitigate negative consequences associated with the proposal.

### 4.10.9 Outcomes

There have been varying degrees of change on the urban landscape and in the planning process for the three cities that used the impact analysis to evaluate development proposals: the City of Verona's analysis moved that community towards a denser mixed-use development; the City of Lodi saw less dense development than those prescribed in its land use plan; and the City of Stevens-Point maintained the *status quo* by approving low-density single-family subdivisions.

### 4.10.10 Stakeholder perspectives

Stakeholders have mixed feelings about the *Guide*'s approach to Development Impact Analysis. Although most city contacts feel the system is effective and fair, there is disagreement on its potential for widespread use. The City of Lodi found the Guide very useful and would like to see this type of analysis performed on future development proposals, whereas other municipalities see this as an academic exercise that would have little effect on the decisions made by Council. The reality in Wisconsin is that Impact Analysis is not required by law and, hence, can be seen as another burden in an already highly regulated land development process.

Students who used the *Guide* to evaluate development proposals had the most difficulty with the fiscal impact analysis and the methods for determining cumulative impacts over time.

### 4.10.11 Relevance to a Canadian SSES

A DIA system could form part of a SSES if it were desirable to include impact criteria in the system (i.e., not just design criteria). The Wisconsin case study suggests that a two phase system, including a screening phase and a full assessment phase, would ensure an efficient use of resources and reduce approval times. In most provinces, municipalities have the authority to require developers to undertake impact studies, or pay to have them undertaken. However, municipalities would have to review impact studies carried out by developers in order to ensure that scientific standards are maintained.

The tool does have its weaknesses. The analysis is done at one point in time, and the model does not do a good job of capturing cumulative impacts. This is the inevitable result of the simplification that results when the goal is to produce a tool that can be distributed to and used by a wide audience. Moreover, requiring

DIA may be seen as heavy handed by some developers and local political representatives. To address this, the tool will have to engender clearly improved outcomes, in terms of the quality of development, community acceptance, and reduced approval times. Political buy-in can also be enhanced by an effective communication program – something the Wisconsin DIA tool did not benefit from.

The Wisconsin DIA model was designed to be applied at various scales, but its applicability in other locations will depend on the data and references that are gathered to reflect a local area. Adapting the *Guide* to the Canadian context would require considerable data collection and research into the standards by which to gauge impact analysis.

4.10.12 Sources

Web sites

http://www.lic.wisc.edu/shapingdane/facilitation/all_resources/impacts/analysis_background.htm
http://www.pats.wisc.edu/abscomguide.htm

Documentation

Edwards, M. et al. *Community Guide to Development Impact Analysis* (2000)
*Development Impact Analysis*, Ridgestone Valley and Pebble Stone Village, City of Lodi (2000)
Prairie Oaks - *Development Impact Analysis for the City of Verona* (1999)
*Residential Development in the City of Stevens Point: An Analysis of Impacts* (2000)
Ventura, S.J. “Crossing the Divide: A Case Study of the Penetration of Spatial Information Technologies in Middle America” in *Transactions in GIS*, submitted for publication (2006)

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# 5 Preliminary Outline of a Canadian SSES

The work conducted to date has yielded two high-level insights that guide the present report. First, it is clear that there is growing interest in formal systems to evaluate development proposals from sustainability and livability perspectives, not only in Canada and the US, but also in the OECD. This interest appears to be driven by two main factors: the demand by developers for greater clarity and precision as to what municipal officials and the wider community mean when they call for sustainable development and projects that will contribute to livability; and, the demand by municipal officials and community groups to assess project proposals that claim to, or are expected to, contribute to sustainability or livability. Together, the proliferation of evaluation systems can be seen as a maturation of the sustainable development movement, progressing beyond generalized principles and labels to tools that can assist in implementation of the concept on the ground.

The other important insight is that there is not, at present, a particular system in use at the local level in Canada or abroad that could be adopted wholesale for application in communities across the country. There are a large number of evaluation-type initiatives that could be drawn from in designing a SSES, but nothing is available “off the shelf”. The literature review, scan of existing systems, and the case studies, have, however, helped advance our understanding of the main issues in the design of a SSES and provided a wide selection of potential technical criteria. As a result, this report proceeds on the assumption that the SSES will require a blend of features from existing systems.

Three general categories of source material can be identified as inputs into a SSES. The first category is comprised of the basic principles or values that the system should adhere to. These relate, for example, to the breadth and depth of a SSES, specific community circumstances and goals, potential users, the extent to which such a system is mandatory or voluntary, and so on.

The second category relates to the process involved in the design and implementation of the system, including: the purpose of the system; the range of topics to be covered; the weighting of parameters if a score is to be assessed; the role of the developer, planners, and the community in creating the system; linkage with incentives or other planning instruments; and so on.

The third category of source material relates to the technical content of the evaluation system, i.e., the specific criteria to be used in evaluating a proposed subdivision. Issues include: the appropriate use and mix of quantitative and qualitative parameters; the use of design and performance criteria; the number of criteria; and the targets or thresholds set.

To reflect these different categories, this section is organized into three overall sub-sections: some reflections on the basic principles that a SSES would need to

adhere to; a discussion of the important design features of the system; and some recommendations concerning the actual criteria that could be incorporated into such a system.

## *5.1 Basic Principles*

### 5.1.1 Flexible

One of the key issues that must be addressed in the design of a SSES is the vast diversity of communities that make up urban and rural Canada. Different communities have different capacities, circumstances and characteristics, all of which are relevant to the level of interest a community might have in a SSES and the nature of the issues that a community would like to see addressed by such a system. For example, some municipalities may have little space available for greenfield development and would, therefore, be more focused on development activity in the existing urban area. Some communities may be growing rapidly and highly motivated to ensure developers attend to key sustainability and livability issues, while other communities may be stagnant and less inclined to tamper with or influence incoming development proposals to the point where they are withdrawn or rejected. Local planning processes are also strongly influenced by provincial and territorial legislation, which varies across the country. These issues make it difficult to imagine a single system for application across the country.

A flexible system would allow communities of various types to adopt and adapt the system to their own needs. Thus, some of the design issues of the proposed system could be left to local users to determine. Locally-determined issues may include the minimum size of a subdivision to which the system is applicable, and the area of the municipality in which the system will be applied.

In terms of the technical criteria to be used, flexibility could be built into the system by distinguishing between core and discretionary criteria. Core criteria would be applicable to any community, while discretionary criteria could be chosen by the municipality from a common list, perhaps in consultation with the local development industry, other stakeholders, and the community.

Flexibility could be further enhanced if the set of core criteria were allowed to vary by the type and size of the proposed subdivision. For example, in the case of the Australian example, different criteria are applied for larger and smaller subdivisions.

### 5.1.2 Comprehensive

The mandate of this project was to study the potential for a system of subdivision evaluation from sustainability and livability perspectives. These terms are frequently used in the planning literature but their meaning is rather vague.

"Sustainable communities" is used to highlight development and management strategies that will protect the biophysical environment, promote social equity and inclusion, and promote appropriate economic development. The approach places special emphasis on the importance of reducing resource inputs, minimizing pollution and waste, and combining natural and human-made systems through long-term planning.[13] "Livable communities" is often used interchangeably with sustainable communities but has more of an emphasis on quality of life. This term highlights planning for walkable communities with plenty of recreational opportunities, good quality transit, public spaces, inclusionary housing, safety, and a clean environment.[14]

At the heart of both terms is the notion of good design. The basic assumption is that good design can have an important influence on whether communities fulfil their fundamental vocation: i.e., to create a built environment that is healthy and enriching for those who live there without causing undue environmental stress. We propose therefore, that the SSES be focused on those design features that are clearly linked to the desired outcomes. In our view, based on the review of the literature and the case study examples, a SSES will have; the strongest links with respect to environmental issues (such as land consumption, motor vehicle traffic generation, landscaping, impact on water sources, etc.); slightly weaker, but nonetheless important, links to many social issues (e.g., social equity, inclusion, and sense of community); and weakest links with respect to economic vitality (e.g., diversity of employment base, job growth, availability of good quality jobs).

Given these observations, we propose that the SSES focus primarily on environmental issues, somewhat less on social issues, and more or less exclude economic issues.

### 5.1.3 Voluntary

In principle, a SSES could be mandatory in nature. This applies to two levels of implementation. First, a senior level of government could make a SSES mandatory for municipalities within its jurisdiction. Something akin to this is in effect in several Canadian provinces (e.g., Nova Scotia, Quebec, Ontario, Manitoba, Alberta, and BC), where provincial governments have adopted comprehensive sets of planning policies that lay out the principles and objectives that municipalities (and regional governments/ districts) are required to follow in approving new development. However, in recognition of the importance of preserving municipal autonomy over decisions that shape local development these policies tend to be rather vague and enforcement is weak.

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[13] See Roseland, M. 2005. Toward Sustainable Communities: Resources for Citizens and Their Governments. Gabriola Island, BC: New Society Publishers.
[14] See Wheeler, S., 2004. Planning for sustainability: creating *livable*, equitable, and ecological *communities.* London; New York, NY: Routledge.

A detailed SSES, such as the one being considered in this study, would certainly be considered a major intrusion into municipal decision making – the trend in recent years has been for provincial governments to give local government more, not less autonomy. It is unlikely that there would be any support for such a mandatory system anywhere in Canada. A federally-sponsored system based on mandatory adherence is out of the question given the constitutional division of powers. Thus, municipal adoption of a SSES must be on a strictly voluntary basis. The case studies supported this – all evaluation systems prepared by senior governments (e.g., South East England Sustainability Checklist, Western Australia Liveable Neighbourhoods) were offered to municipalities as voluntary systems.

Secondly, a municipality that has voluntarily adopted a SSES could render its application mandatory by requiring all developments of a certain type, location or size to be subject to it. In effect, this would replace the normal approval process for those developments. The case studies revealed a spectrum of practices in this respect.

At one end of the spectrum, evaluation systems are of a purely voluntary nature; i.e., developers choose to submit their developments to the evaluation system (e.g., the Smart Growth Initiative in Austin, the Sustainability Checklist in South East England, or the Built Green system in Washington State).

In other cases, we found that developers did not choose to participate in the evaluation but, instead, were required to do so as a condition of project approval. In the middle of the spectrum are cases like Docklands in Victoria and the Development Impact Analysis System used in the City of Verona, Wisconsin, where a municipality advertises that it will use the system in assessing proposals on a specific project. In those cases, developers still choose whether or not to engage in the evaluation process by deciding whether to submit a proposal for that project.

Further along the spectrum are cases, such as in Markham Centre, where all development proposals in a target area are submitted to an evaluation, in this case the *Performance Measures for Sustainable and Smart Growth*. At the other end of the spectrum are cases where all development is subject to an evaluation system that is part of the approval process, such as Ottawa's Integrated *Environmental Review Statement*. However, we note that as a system moves towards the mandatory end of the spectrum, it becomes less stringent. In the case of Markham Centre, the evaluation system was advisory in nature only (i.e., was preliminary to and did not replace the normal development approval process). In the Ottawa case, the evaluation system was part of the normal approval process, but it did not dispose of a comprehensive set of technical criteria that were applied routinely to all developments (the system was intended more as a way to integrate the various studies that had to be undertaken as part of the formal development approval process).

Undoubtedly, making the use of a comprehensive SSES, with detailed technical criteria, a mandatory part of the approval process would be highly unpopular with the development industry and this may explain why no initiatives were found of this type. A regulatory approach is seen as problematic because it removes the normal discretion that developers exercise over project design and transfers it to planners. As a result, developers resist such approaches strongly. Moreover, it is debatable whether municipalities in Canada have the legal authority to require developers to meet sustainability and livability criteria that go far beyond what is required in provincial policy statements (described above) as part of the approvals process.

In a voluntary system, carrots, rather than sticks, are often used to encourage the use of detailed evaluation systems with a range of technical criteria. The most developed incentive system found was in Austin, where a voluntary program was combined with a number of municipally-provided financial incentives to promote developer interest in the system (see section on incentives below). In other cases, the incentive to participate in the program was more of a public relations or marketing nature, e.g., the Built Green program in Washington State. In these cases, the incentive is created not through direct financial contributions, but through efforts to enhance public recognition of the assessment program.

It is recommended that a SSES be voluntary in nature and that, where appropriate, incentives be used to encourage developer participation. In specific situations, a SSES can be more tightly tied to a mandatory approval process, as long as developers have an effective choice to develop elsewhere in the municipality where the SSES is not mandatory. It is recommended that a SSES be adopted by municipalities for any of the following modalities:

- as a voluntary program entered into by developers who wish to highlight the positive aspects of their development proposals, not (or weakly) linked to the formal approval process;
- as part of the formal approval process when voluntarily chosen by subdivision applicants, probably linked to incentives that the municipality can offer to encourage participation in the program;
- as a mandatory part of the formal approval process for all subdivision applications within particular planning areas where high quality development is paramount, probably focusing on a community review of preliminary proposals prior to formal application; or,
- as a mandatory part of the formal approval process when municipalities are inviting applications for a specific development project where innovative design is desirable (e.g., a demonstration project to showcase new approaches to subdivision design, or in a culturally or environmentally sensitive area).

### 5.1.4 Accessible

The above observations suggest that the three main stakeholders involved in the local implementation of a SSES would be: municipal planning officials, subdivision developers, and community reviewers (which may include any or all of a Planning Advisory Committee, community organizations and interest groups, the general public, and possibly others). Because the primary purpose of a SSES is to provide municipal planners with a tool to assess incoming proposals, planners would likely have the most direct involvement. However, as the case studies demonstrated, developers and community organizations also have an interest in evaluating projects to determine their level of sustainability or livability. In this respect, avoidance of technical language and jargon helped to make broader participation by others more possible.

Given these findings, we recommend that a SSES be designed primarily for use by municipal planning officials, but with instruction/ direction provided so that the system may be shared with developers and the community. This will not only serve to inform the development community as to the type of projects that are considered desirable, but will provide an entry point for members of the wider community in discussions of planning issues. To promote the wider use of the system, it should be presented in such a way as to be easily understood by non-specialists. The program should be easily available to the general public, e.g., downloadable from the municipality's Web site.

### 5.1.5 Participatory

This principle raises the question as to the role of the various stakeholders in shaping and implementing a local SSES. The case studies showed that stakeholder involvement was essential to the development and success of evaluation systems. Such involvement serves at least three purposes: it helps tailor the system to the needs of key stakeholders and ensures the system functions properly; it builds stakeholder support for and participation in the system; and it disseminates knowledge of the system into the wider community.

Most of the evaluation systems reviewed were created by committees set up by the lead agency with members representing a wide variety of stakeholders, such as: local government officials (planners, public works, transportation engineers); builders and developers; business groups; senior government agencies involved in housing, environment, and development; environmentalists; housing advocates, heritage activists; and the general public. These stakeholders often bring considerable expertise to the table and can contribute substantially to the design of an evaluation system.

Typically, the committees met (in some cases for a year or more) to develop the evaluation system or review a system proposed by the lead agency. In some cases (such as the Dockside Triple Bottom Line and the Markham Centre case

studies), the committee conducted open houses and public workshops to refine the program before submitting it to the adopting authority. In other cases (e.g., New Jersey Smart Growth Scorecard), a more informal process was used that involved circulating a draft to a network of supporters. In some cases (e.g., Washington Built Green and Markham *Performance Measures for Sustainable and Smart Growth*), a consultant was hired to develop the system working with the committee.

It is recommended that in the development and implementation of the national SSES being considered in the present study, two levels of consultation be carried out: one for the development of a national system and another for the local adoption/ adaptation of the system (in keeping with the principle of flexibility, as outlined above). The national consultation would focus on overall system design and the development of core and discretionary indicators. That consultation process should involve organizations such as the Canadian Institute of Planners, Canadian Home Builders Association, Manufactured Housing Association of Canada, Federation of Canadian Municipalities, Canadian Housing and Renewal Association, and others with interests in and responsibility for livability and sustainability issues and outcomes.

Local consultation would focus on the choice of discretionary criteria, the conditions under which the system would be applied (e.g., mandatory in particular areas of the municipality, or voluntarily throughout the municipality), the size and type of projects that are eligible, the administrative arrangements for managing the program, and so on. Here, we would expect that local planners, public works staff, transportation planners, advisory bodies, community organizations, the development industry, etc. would be involved.

### 5.1.6 Prescriptive

One important issue raised by developers in some of the case studies was the prescriptive nature of the evaluation systems. This was perceived in some cases as an infringement on the developer's discretion and good sense in finding solutions that work on a local basis. Developers commented that a less prescriptive system would be welcome, whereby loose guidelines are provided and developers are permitted to meet them in creative ways that satisfy both their clients (e.g., homebuyers) and planning authorities. In this view, municipalities might suggest design solutions, but they should not impose design parameters on developers.

This is a legitimate concern. Design parameters of the type likely to be included in a SSES are created with generic situations in mind that may not correspond well to actual conditions on the ground in real development situations. Local conditions may vary in terms of market preferences, construction practices and architectural styles, the physical setting and ecological systems, or the economic costs involved in meeting design criteria.

However, it has to be recognized that non-prescriptive systems are not ideal from a planning point of view. Loose guidelines create uncertainty in terms of outcomes and involve a fair amount of subjective judgment as to whether a criteria has been met or not. This may have political repercussions if developers feel that they are unfairly treated relative to their competitors. This also defeats one of the main purposes of developing a SSES, i.e., to offer planners an objective system with which to assess proposed development projects.

A feasible alternative to design criteria (setting out specific design features) is performance criteria (setting out desired outcomes). Both can be expressed quantitatively and objectively verified. Developers may say they prefer performance criteria because they fix the goal and leave the means up to the individual developer, but such an approach has its own problems. Most importantly, they are difficult to enforce because they usually relate to future conditions. For example, a design parameter may limit site coverage to a certain percentage of the developable area to ensure adequate ground water recharge, whereas a performance parameter would set the desired recharge rate and leave it up to the developer to achieve through any means at their discretion. Measuring site coverage in a subdivision plan is relatively simple, predicting recharge rates is not. Whether or not a performance criterion is satisfied can be determined objectively, but only post facto. Therefore they are of limited use if the goal is to have an objective system to assess proposed developments ante facto. While some performance criteria may be inevitable in a SSES, they are not ideal from a planning point of view.

The basic principles outlined above have emphasized the importance of developing a SSES that is flexible, voluntary, adapted to user needs, participatory, and accessible. These features, if realized in practice, should ensure that developers have adequate say in setting up a SSES and that they are not subjected involuntarily to technical criteria that are unattainable or unnecessarily constricting. In these circumstances, we believe that a predominantly prescriptive system is justifiable.

## *5.2 Program Design and Implementation Issues*

### 5.2.1 Project size, location and type

The case studies showed that some programs had explicit or implicit minimum project size requirements. The Liveable Neighbourhood program in Western Australia, for instance, was not applied to subdivisions of less than 50 lots, for the stated reason that some indicators become too difficult to measure below this threshold. The initiative was usually applied to subdivisions of greater than 100 lots. The South East England Sustainability Checklist was applied to projects greater than ten dwellings in size. There are no formal size minimums for the King and Snohomish Built Green, but it was understood that they are designed

for projects of a significant size. Below a certain size, it was assumed that green building standards would apply.

A lower limit on the size of a project to be evaluated using the SSES is reasonable given that many criteria (such as a fine grain mix of land uses, pedestrian-oriented design, and the availability of parks and open space) will not apply to individual buildings or very small subdivisions. A minimum of 50 lots could be proposed as a guideline for users of the system, but that may also render a SSES less useful or less practical in rural and small town municipalities where smaller and infrequent subdivision development is more the norm. Indeed, a numerical limit does not need to be set in advance – the appropriateness of applying the program evaluation criteria will vary from site to site and for a different mix of land uses. This is the type of decision that is best taken by planners and developers working at the local level.

In terms of land use, it is clear that a SSES will focus on residential developments, as was the situation in most of the case studies. However, it should be designed with a variety of possible land use mixes in mind: there is no reason to exclude commercial (such as a resort, office, or industrial park) or institutional components of a mixed-use project from the evaluation. In the latter case, some modification of the evaluation criteria might be needed.

Finally, the programs reviewed also varied in the urban context to which they applied. In Western Australian, the Livable Neighbourhoods policy can be applied to new subdivisions in greenfield locations and to urban revitalization and infill projects. Likewise for the South East England Sustainability Checklist. The Austin Smart Growth Initiative was applied mostly to projects in the downtown area. The Built Green program was applied mostly to greenfield areas. The Markham Performance Measures were designed to guide development of the new city centre for the municipality. Given the different range of issues that apply to infill and greenfield settings, we recommend that two sets of endorsement /certification criteria be developed for application in the appropriate setting.

### 5.2.2 Scoring and weighting systems

The case study evaluation systems used a variety of scoring and rating systems, from the simple to the complex. The simplest systems rely on “yes/no” evaluations against a series of desired criteria (e.g., Western Australia). Slightly more complicated are systems that award points for each criterion depending on the level achieved. The maximum points for all criteria are the same (i.e., there is no weighting of the criteria). In the case of Markham, a Gold-Silver-Bronze scoring system was used based on the level of desirable characteristics achieved. A “yes” resulted in a minimum of a Bronze score for that parameter, with a Gold or Silver score for exceeding the minimum requirements. More Gold or Silver ratings led to a Gold or Silver final score and approval.

More complex systems tend to involve weighting of the criteria. Weights are given to each criterion, reflecting the importance of the factor to achieving the goals set out for the system (e.g., sustainability) in the judgement of the system creators. In the New Jersey Proposed Development Scorecard, the 25 criteria are assigned points depending on performance relative to a target and the points given for each criterion is then multiplied by a weight factor in order to arrive at the score for that criteria. Total scores are calculated by adding up the weighted score for each criterion. A similar system was used in the Austin Smart Growth Initiative, Dockside in Victoria, and the Washington Built Green program.

A slightly different form of weighting is used in the case of the South East England Sustainability Checklist. Here, performance on each criterion is compared against best practices from elsewhere in England, and points are awarded accordingly. In this system, the awarded points for each criteria were multiplied by the probability that the claimed standard would be implemented or intended result realized, where full certainty was give a value of 1.

Each of these approaches has its advantages and disadvantages. Checklists are very easy to communicate to developers and the wider public and have an intuitive, simple rationale. However, they are based on the assumption that all criteria are equally important, which is difficult to justify under examination. They also fail to distinguish between measures that are easily achieved at low cost and those that require expensive undertakings by the developer.

Weighting criteria addresses some of the nuances lacking in the simpler systems. It shows users the relative importance of the various criteria and indicates where their efforts should be directed. Moreover, it reflects the relative difficulty of achieving specific objectives. However, weighting criteria adds a further subjective factor in that the importance of the criteria in the bigger sustainability picture has to be estimated. This can leave the system open to criticism from opponents unless the weighting is conducted in a transparent and intellectually defensible manner.

In keeping with the principle of flexibility, it may be that the best approach to this issue would be for a SSES to offer both unweighted and weighted options. A municipality adopting a SSES might prefer to begin with the unweighted approach and then move to a weighted system after building competence among its staff and confidence in the system among stakeholders and the wider public. A national SSES could provide some direction on, and options for how , municipalities could move from a simple scoring to a weighting system if they so choose. Regardless of whether a simple or complex system is chosen, there will always be the issue of choosing the minimum score needed in order to gain community approbation or planning approval. This too could be a matter of municipal discretion, chosen in consultation with local stakeholders.

### 5.2.3 Choice of standards and targets

One issue sometimes raised by stakeholders in the case studies was the legitimacy of the standards used in the technical criteria being used for the evaluation. The targets expressed in the technical criteria used in the various case studies were drawn from a wide variety of sources, some of which could only be called “subjective”. Such sources included the opinions of stakeholders on the advisory committees setting up the system, “pushing the envelope” on existing practices in the local municipality.

In cases where the targets were largely from subjective sources, the evaluation system came under attack as arbitrary. The clearest case of this among the ten case studies was in Austin, where the targets used were “cobbled together” by staff with little support from external sources. As a result, the targets were continuously questioned by those opposed to the use of the system, something that helped undermine political support for the program and may have contributed to its eventual demise.

It is recommended, therefore, that targets used in the technical criteria draw as much as possible on more objective, legitimatized standards, such as best practices determined by researching a wide array of relevant jurisdictions, standards endorsed by authoritative scientists and research organizations, targets found in community plans and other official municipal policy documents based on solid research and community consultation, and state/provincial and national standards.

### 5.2.4 Municipal support

A SSES may result in significant departures from conventional designs and municipal standards. This could result in undue delays in the approval process and an eventual backlash against the system from the development community. If a municipality is to channel development in a more sustainable direction, it must be prepared to support this direction with new approaches to transportation planning, road design, environmental management, park planning, infrastructure provision, long-term operation/maintenance, and so on. Municipal departments involved in application review and approval should be thoroughly aware of and supportive of the principles involved in a SSES.

Indeed, municipal officials should be knowledgeable enough about the system that they can offer technical support to developers using it. Thus, municipal council and staff may require some training in the use and application of the system. It is recommended that one or more (depending on the size of the municipality) specially trained resource people be assigned to assist in guiding applications through the SSES process. It is also recommended that staff training sessions be held for staff in all affected department to promote their awareness and understanding of the SSES, and to ensure that staff promotes the system to

the development community. This would not only facilitate the timely review of development applications but would allow for ongoing education of the development community.

Given that evaluation system criteria will touch on the responsibility of many departments, some type of municipal coordinating body may also be needed to administer and implement the evaluation system.

Prior to implementing the system in any given jurisdiction, care should be taken to ensure that existing practices, standards, and regulations will not obstruct the realization of a SSES. Running one or more test applications with sympathetic developers is recommended before fully launching the system. This is the approach being used in Washington's Built Green project, where a municipality is working with a developer to determine which municipal standards and regulations need to be modified in order to accommodate the system.

### 5.2.5 Link to a community plan

The evaluation systems in several of the case studies were linked to a community plan. For example, in the case of Markham, the scorecard system was designed to ensure adherence to the principles of the Markham Centre Master and Secondary Plans. The South East England Sustainability Checklist was linked to the Deputy Prime Minister's Sustainable Community Plan, a strategic plan for managing growth in the region.

Such a linkage helps demonstrate that the municipality (or region) is fully committed to the evaluation system and can help ensure that conflicts between the evaluation system and other municipal policies and practices are resolved quickly and without undermining the evaluation system. It can also provide a policy basis for local deliberations on how to adapt a SSES to local needs and conditions. Where community plans or zoning bylaws are being updated or revised, a SSES can be used to guide revisions.

### 5.2.6 Incentives

If a SSES is to be voluntary in nature, its implementation will be eased through the use of incentives to encourage municipalities to adopt the system and engender developer interest. The case studies (e.g., Austin) showed that developers tended to favour the use of incentives as a way of "levelling the playing field" and counteracting some of the disadvantages or burdens involved in adopting an evaluation system. This is not to say that offering incentives is never controversial – some stakeholders may object to the idea of providing public resources to large private developers. There is also the danger that the principles being supported may be obscured in the quest to achieve incentives and that the whole evaluation may become identified with the incentive program.

Some potential incentives include:

- Fast-track applications: The case studies suggested that developers are very sensitive to the length of the approval process and would be likely to reject a system that lengthens the process. One potential strategy for implementing a SSES (used in Austin) would be for planning authorities to speed up planning approvals for projects that meet SSES criteria. A faster approvals process can reduce the financial risks and costs associated with project delays and attract developer interest. However, it is not a solution that can be applied in all circumstances: there may be multiple approval processes that apply, each with its own limitations. For example, a community plan or zoning by-law amendment must be approved by Council, include public input, and may be subject to third party appeal to provincial authorities, the courts or, in Ontario, at the Ontario Municipal Board. This means that it can be difficult to guarantee a timeframe for approval.
- Relief of planning fees and development charges: The Austin case study also featured the waiving of planning fees and infrastructure charges for eligible projects. The rationale for providing this is to acknowledge the additional private expense incurred for the public good, particularly where the municipality may receive measurable benefits. In the Washington Built Green program, King County offers fee discounts on developments that use low impact development best management practices (e.g., reduce runoff), which are among the Built Green criteria. Not all municipalities in Canada are permitted by provincial legislation to offer incentives of this type to private developers. The most permissive legislation is in Ontario.
- Technical support: Municipalities could offer to provide enhanced technical support to advise developers on how to address SSES criteria in their project planning activities. In the Washington Built Green program, King County assigned Built Green-certified projects to a green team that offered assistance on sustainable development techniques and fast tracked Built Green-certified proposals.
- Infrastructure funding: Another option is to link participation in the assessment system with government funding for infrastructure required to service the project. The South East England Sustainability Checklist was used to assess whether the development agency was achieving its sustainability goals. The outcome of this assessment helped determine the agency’s access to national government funding programs. In Canada, a SSES could form part of the municipality’s Integrated Community Sustainability Plan, which is required by the federal government as a condition of funding municipal infrastructure under the Gas Tax Agreement (GTA). Developer participation in a project that uses a SSES could benefit from GTA money, for instance by receiving additional transit infrastructure

Incentive packages should be negotiated on a project-by-project basis and worked into a contract that is signed with the developer. The contract can stipulate the key features that that the municipality wishes to see in the design of the project. Failure to follow through on the key features could result in the withdrawal or recovery of incentives. The value of the incentives offered should be justified on the basis of benefits to the community flowing from the design features to be included in the project.

### 5.2.7 Pilot testing

Pilot testing of a SSES by a municipality considering its adoption would be useful. This would provide an opportunity to assess the process from the applicant's perspective, gauge whether the criteria have been set at an appropriate level, and to identify any inconsistencies with municipal standards and practices (or other barriers to using the SSES).

It is recommended that a SSES be pilot tested in a two-step process. The first step would focus on testing the appropriateness of the technical criteria. The draft criteria would be applied against existing projects that are widely recognized as sustainable/livable in different regions of Canada to identify what would have happened if they had been subjected to the evaluation system during their planning phases. The test could also include more conventional projects that would not normally be considered high on the sustainability/ livability scale. The results of this test could be used to adjust the level and weight of the various criteria such that the projects receive the expected relative scoring.

In the second step, a sympathetic developer would be invited to submit an application for a new project under confidential conditions. This test would approximate as close as possible the procedures that will be followed once the program is formally launched. The developer would be provided with the draft program materials and offered the level of support that the municipality expects to be able to offer future applications. The results of this test could be used to further adjust the evaluation criteria and to revise the application procedure and materials. Once the testing and program modifications are complete, the SSES can be rolled out publicly.

### 5.2.8 Monitoring

Few of the case studies included provisions for monitoring of outcomes related to the evaluation system. Most respondents were not able to pinpoint specific changes to the design or location of development proposals that could be attributed to the use of evaluation systems. Without information on tangible benefits of the system in terms of sustainability and livability objectives, it may be difficult to justify the expense involved in operating the program.

Another reason for monitoring outcomes is related to the simple fact that plans often change subtly from their approval to their realization. Undertakings that are made by developers in the heat of negotiations around approvals may prove more difficult to implement in the cold light of the development site. Monitoring of outcomes can help keep track of such changes. Moreover, some of the technical criteria used in the assessment system are likely to be performance indictors whose achievement can only be ascertained after project construction and occupancy. An ongoing monitoring system is one way of tracking project success on this type of technical criteria.

Monitoring is also important from a program review and revision point of view. In the Markham case study, for instance, some informal monitoring and review revealed that some of the chosen criteria were difficult to measure and evaluate, and thus there are plans for revising and updating the checklists at a future date. Monitoring of the system could include items such as:

- the number of applications that have been evaluated using a SSES;
- the duration of the approval process for those applications going through a SSES versus those using the conventional approval system;
- the costs to the municipality of administering a SSES;
- the experience of other stakeholders (especially developers) in using the system, including their costs;
- any suggested improvements to the system.

We recommend, therefore, that once in use, the performance and impact of a SSES should be monitored, reported on, and periodically reviewed. This will ensure that the system is “living” and is seen to be adaptable to changes in the community and community preferences over time.

## *5.3 Choice of Technical Criteria (Parameters) for a SSES*

### 5.3.1 Core and optional parameters

As discussed above, a practical SSES would benefit from having a core set of parameters that are generally of interest to all or most communities (core parameters that are considered applicable in all development scenarios), closely related to key aspects of sustainability and livability of new subdivisions. These core parameters could be supplemented with a longer list of discretionary parameters that could be applied depending on local conditions. Although the SSES may suggest these typical discretionary criteria, the community should have the choice of which such parameters to choose.

### 5.3.2 Design versus performance parameters

As mentioned above, technical criteria are of two types: design parameters and performance parameters. Design parameters tend to be about the subdivision plan itself (e.g., distance to transit stop, buffers along streams, mix of housing

types) while the performance parameters tend to be about the desired outcomes or impacts of the proposed subdivision (e.g., contribution to stormwater flow, impact on local traffic patterns or supply of affordable housing). Both are important because municipalities will want to ensure that subdivisions contribute to the larger vision and objectives for the community, and both design parameters (such as short distances to bus stops) and impact parameters can contribute. Thus, a SSES will likely have both types of parameters. The challenge is to find the appropriate mix of design parameters and performance parameters.

Each type of parameter has its strengths. Design parameters are easier to establish because they are evident from the plan for the proposed development. Developer and planner can negotiate the inclusion or exclusion of the parameter and the plan can be modified accordingly. Design criteria are important, but they are based on assumptions about how physical design can influence outcomes in terms of livability and sustainability (e.g., that higher density will lead to more transit ridership). Such assumptions may be unjustified in certain contexts.

Performance parameters allow system users to focus on desirable outcomes – which is what really counts – instead of design inputs. The disadvantage of performance parameters is clearly in the challenges posed by the need to estimate post-construction/occupation outcomes based on information available at the time application/approval. Impacts on transportation systems, transit ridership, run-off, and species diversity depend on a complex set of factors that are difficult to ascertain in advance without sophisticated modelling.

Any local studies or modelling that may be required to assess the linkage between project design, existing conditions and likely impacts could be costly or technically difficult to execute. The case studies showed that developers were sensitive to the number of reports entailed by systems with significant impact evaluation components and distressed by the lengthening approval process. In the extreme, these expenses can actually undermine other objectives of the SSES, such as the provision of housing at an affordable cost.

For these reasons, we recommend that criteria that require estimation of future performance be kept to a minimum in the proposed SSES – especially at the early stages of local adoption of a SSES. Wherever possible, design parameters should be used rather than impact parameters. As the municipality matures in its understanding and use of the SSES, design parameters can gradually be replaced by performance criteria. To take protection of wildlife habitat as an example, the initial measure might involve a subjective judgement based on expert evaluation of the design features of the plan – the existence of migratory corridors and buffer areas around urbanized zones. This could eventually be replaced by actual measurement of species diversity in or near the project area and modelling impacts of the proposed development. In setting up the SSES, criteria should be chosen with this transition in mind.

To the extent that performance parameters are to be included in a SSES, means should be provided to reduce costs where feasible. The California and Wisconsin systems both employ software models designed to estimate impact or performance of development elements as a means to suggest potential alternative development strategies to improve the overall sustainability of communities. A supporting framework to assist in the assessment of outcomes based on project features should be part of the overall package. This modelling component should be developed by CMHC and made available to municipalities and developers who have an interest in using the system. Obviously, the technical level should not be so high as to render the system usable only to highly trained

### 5.3.3 Qualitative versus quantitative parameters

Some parameters will be easily measured in quantifiable ways – distances, sizes, lengths, heights, number of units, densities, and so on. Others will be more difficult to quantify; for example, protection of wildlife habitat or adherence to community character. For these latter criteria, qualitative judgements could be used *in lieu* of quantitative measures until the municipality develops its capacity for a more sophisticated SSES. At that point, quantitative measures could be developed to replace subjective judgements.

To take a simple example: the extent to which a proposed development will feature interconnected roads can be estimated in a qualitative way by subjectively assessing the road design. As capacity for data analysis increases, a GIS program can calculate road connectively based on block lengths and number of intersections in the development.

### 5.3.4 Jurisdiction, Power and Responsibility

In selecting criteria to be included in the SSES, care should be given to avoid including criteria that are outside the scope of municipal influence or beyond the control of the developer. For example, in defining the objectives that would be encompassed by a sustainable subdivision, preserving agricultural land is beyond the subdivider's jurisdiction and power. It is the province or municipality that can disallow the sale of productive agricultural land – it is not up to the developer to judge the transgression.

### 5.3.5 Number of parameters and categories in a SSES

A wide range of technical criteria were used in the case studies reviewed; over 120 criteria were identified across the relevant case studies.[15] There was considerable overlap of criteria used among the various case studies. More than

[15] Three case studies, Ottawa, Wisconsin and California, did not lend themselves to this type of analysis.

half the criteria identified were included in at least two evaluation systems.

The categories used to organize criteria in the case studies also tended to repeat themselves. The following are the most common:

- Location
- Community/Urban Design/ Social (Range of Housing Options, Respectful of Community Character)
- Land Use
- Building Design and Layout
- Movement Network
- Energy
- Environment/Ecology (Water, Land, Buildings, Environmental Impact of Construction, Pollution, Miscellaneous)
- Economy
- Local Government/ Public Finance
- Process

The categories and criteria used in the various case studies appear in Appendix B.

The number of categories and criteria used in the seven relevant case studies appear in the table below. The table shows that the number of categories varied from a low of three to a high of 11. The number of criteria included in each case study system varied from 20 to 150. In order to make the SSES manageable, we recommend that the core set of parameters be kept relatively small.

**The Number of Categories and Criteria for Seven Case Studies.**

| Case Study | Categories | Criteria |
|---|---|---|
| Markham | 5 | 88 |
| New Jersey | 7 | 26 |
| Built Green Washington State | 3 | 113 |
| Austin, Texas | 11 | 25 |
| Dockside, Victoria, BC | 4 | 31 |
| Western Australia | 6 | 20 |
| South East England | 9 | 150 |

5.3.6 Proposed parameters and indicators for a SSES

One of the purposes of the present report is to make a preliminary proposal concerning which technical criteria might be included in a SSES. The table below provides a starting point for discussion on this topic. The following principles were used to prepare this draft sample of what might be included:

- the categories used are those commonly used in the case studies and generally support broad notions of community sustainability and livability for most communities;
- includes relatively few (6) categories (but with subcategories included);
- includes relatively few (38) parameters;
- favours design over performance parameters, although some design criteria could be converted to performance parameters if modelling becomes available;
- focuses on environmental concerns, and to a lesser extent social – more or less excludes economic issues;
- many of the parameters lend themselves to a "yes/no" responses for ease of responding, but could be the subject of detailed quantification and scoring if the municipality elects to move to a more sophisticated system;
- data for quantitative criteria are easily attainable at low cost;
- the list could be used by municipalities, builders, committees, and community members with relative ease and without requiring too much technical ability or access to specialized data.

**Proposed parameters and indicators for a SSES.**

| **Category/Subcategory/Criterion** | **Indicator** |
|---|---|
| **Location** | |
| • Encourage use of brownfield sites | Amount of development proposed for brownfield site |
| • Infill existing areas | Amount of development within already urbanized area or in districts designated for intensification |
| **Community/Urban Design/Social** | |
| *Range of Housing options* | |
| ▪ Promote housing variety | Number and type of housing units in subdivision |
| ▪ Enhance social equity/affordability | Number of units rented / sold at or below a price threshold |
| *Community Character/Heritage* | |
| ▪ Promote community character/identity | Subdivision design is unique, spatial/ cultural elements bring people together |
| ▪ Create public places | Number, size, and location of public spaces in plan |
| ▪ Promote good architectural design | Fit with community norms |
| **Land Use** | |
| ▪ Encourage mixed land use | Number and type of uses - residential, commercial, institutional, recreational (would need numbers or percents) |
| ▪ Lots designed to protect natural features | Lots are organized to the contour/features of the land |

| | |
|---|---|
| ▪ Ensure appropriate quality, quantity, and design of open space | Proximity to residential areas and community facilities |
| **Building Design and Layout** | |
| ▪ Appropriate density to achieve community goals | Average number of dwellings per acre (hectare) |
| ▪ Encourage inconspicuous vehicle parking facilities | Garages blended into house design, parking at rear of buildings or in underground structures |
| ▪ Encourage 'green building' | Application of green building program |
| **Movement Network** | |
| ▪ Reduce car traffic and speeds | Traffic calming features |
| ▪ Encourage interconnected roads to neighbourhood | Road design, street connectivity |
| ▪ Facilitate use of public transit | Number and location of transit stops relative to homes and other origins and destinations |
| ▪ Encourage pedestrian movement | Number and location of pathways, sidewalks, street connectivity, length of blocks |
| ▪ Provide accessibility for cyclists | Number and location of pathways, bicycle lanes, parking facilities |
| ▪ Connectedness to existing road networks | Number and location of connections |
| ▪ Provide for universal accessibility | Accessibility design features in public realm |
| **Environment/Ecology** | |
| *Water* | |
| ▪ Encourage water recycling | Buildings to be designed for grey water and rain water use |
| ▪ Provide adequate waste water system | Number of residents receiving tertiary treatment |
| ▪ Protect surface and groundwater water resources | Small area of pavement, use of porous materials for surfaces |
| ▪ Reduce stormwater run-off | Retention features on-site |
| *Land* | |
| ▪ Ensure land/soils physically suitable for development | Statement of land and soil type |
| ▪ Erosion prevention plan in place | Plan in place |
| ▪ Protect existing vegetation/natural resources | Design shows minimal disruption for lot clearing, clustering |
| ▪ Manage floodplain to prevent damage | No construction on floodplain, buffers in place |
| ▪ Preserve farmland | Link to community objectives |
| ▪ Preserve wetland | No wetland disrupted |
| ▪ Protect sensitive environmental areas | Design shows construction away from sensitive areas |
| ▪ Protect endangered species | Design shows construction away from sensitive areas |
| ▪ Protect animal habitats | Design shows construction away from sensitive areas |
| *Environmental impact of construction* | |

| | |
|---|---|
| ▪ Infrastructure is low impact | Use of low impact technology and materials |
| ▪ Construction process is low impact | Plan is accompanied by process to minimize disruption, partial clearing in phases to avoid erosion |
| *Energy* | |
| ▪ Lot direction promotes energy efficiency | South exposure with wind breaks |
| ▪ Uses renewable energy | On-site features such as geothermal, wind, methane capture |

# 6 Future Research

In the preceding section, we have generated some recommendations for the design and implementation of a Canadian SSES. These recommendations are made in the expectation that they will serve as a point of departure for the next stages of research in the overall project. In this final section, we consider some of the future research that will need to be done in order to move ahead with the SSES agenda outlined above.

We see the research proceeding in two main steps. The first relates to the institutional issues raised by the prospect of developing a SSES program while the second covers the technical component. In the first stage, the research gathers the information necessary to create an effective participatory mechanism, identify the needs of likely stakeholders, determine institutional capacities to participate in the design and implementation of the program, and explore the tangible measures to ensure the successful roll out of the program.

## *6.1 Research on Institutional Issues*

6.1.1 Assess municipal capacity for adopting a SSES

One of the challenges involved in implementing a SSES is the issue of municipal capacity for adopting and delivering a local program. Municipalities have a wide range of interest in and capacity for implementing a SSES. Larger municipalities may have more human resource capacity to adopt a SSES compared to smaller municipalities. Those with larger and more frequent subdivision applications may have more interest in a SSES. Municipalities also have a wide range of technical capacity for data collection and assessment, while others contract out planning services on an as-needed basis. Further research is required to develop a detailed understanding of the specific human and technical requirements needed to implement a SSES and the extent to which municipalities have an interest in and an ability to adopt and implement the system. A detailed survey of a stratified sample of municipalities (to ensure cross-representation by province / territory and by population size) would be required. The survey would cover a range of major issues, including, but not limited to:

- existing and needed human and technical capacity;
- existing knowledge about sustainability;
- current subdivision review processes;
- current official policy support for the goals of a SSES;
- knowledge gaps;
- presence / absence of planning advisory committees (PACs) and their capacity / interest in adopting a SSES;
- awareness of local barriers to a SSES and readiness to address those barriers; and
- training requirements / interests / delivery mechanisms

### 6.1.2 Assess development community interest and capacity for adopting a SSES

It was clear from our current research that for a SSES to be successfully adopted and implemented, there must be an active role for the development community in its design and use. The holds true for both the development of the national system and the local programs. There is a need to research the level of interest and capacity to participate in a national SSES within the CHBA and its provincial chapters, and within the CMHI and its affiliates, among others. The research could involved key informant interviews and possibly membership surveys, to:

- determine levels of interest;
- seek input on the types of "doable" or realistic indicators;
- identify specific human and technical resources and capacity within their organizations and companies for participating in the development of the national system; and
- canvass local affiliates to determine level of interest and capacity to use a SSES in their development work (e.g., do they have an ability to collect the necessary data for indicators that are required)

### 6.1.3 Identify training and delivery support options

There are a number of existing mechanisms that could be leveraged to make the adoption and use of a SSES possible. Much will depend on the extent to which its use would be highly voluntary and with some scope for modification at the local level. Many organizations provide professional development and training opportunities for their membership. Organizations such as CIP, CHBA, CMHI, the Canadian Urban Institute, and others regularly build in to their annual meetings and other events formal and informal training activities. In some cases, training may lead to certification of the participants.

In the context of a SSES, there is a need to identify the range of possible delivery mechanisms, and the conditions under which these might be used. At one end of the spectrum, basic information about the availability of a SSES tool could be delivered in a short workshop or presentation nested within a larger event. At the other end of the spectrum, a full workshop (which might last one to two days) could cover a wider range of items related to adoption of a SSES in a local context – awareness building, stakeholder buy-in and participation, indicator selection, data collection, review processes, technical advice, and so on. There may be other formats suitable for specific audiences and events. Research is required to develop a range of delivery options. The research would involve consultations with the major professional and municipal organizations across the country (CIP, CHBA, CMHI, FCM, and so on).

### 6.1.4 Determine need for and modalities of federal support

CMHC's primary role in the development of a SSES will be to create and make

available a SSES tool for local adoption. Some consideration should be given, however, to other potential roles for the Corporation if the need is there. For example, should there be a central web site on a SSES managed by CMHC that would update information on the various criteria and indicators, allow users to pose questions and provide answers on the use of the system, or even offer on-line e-training in the use of the system? The needs of local users of a SSES for central services could be explored while conducting the research mentioned in above points. This research item could explore the potential for partnerships between CMHC, other federal agencies (such as Environment Canada), other levels of government and private sector actors to provided central services to local actors adopting the too.

## *6.2 Research on the technical features of the SSES*

6.2.1 Develop a comprehensive set of criteria, indicators and measurement methods

The main technical task is to develop the actual criteria and indicators that will make up a SSES. Those suggested in Section 6 of this report may serve as a preliminary basis for discussion, but further research is needed in order to develop a final set.

It was recommended in Section 6 that the indicators and benchmarks used in the technical criteria be as well-founded and objective as possible. Research is needed to identify accepted standards and benchmarks for the proposed technical criteria. The research should draw on widely recognized best practices, standards endorsed by authoritative scientists and research organizations, targets commonly found in community plans and other official municipal policy documents, and state/provincial and national standards. The range of potential benchmarks should be presented for each technical criterion, along with a commentary about the appropriateness of the various benchmarks under different conditions likely to be encountered in various regions of Canada.

This research should also identify and assess the various measurement methods for each technical criterion and recommend approaches that would yield the most reliable results while minimizing the amount of effort.

The development of criteria and indicators, as well as the establishment of benchmarks, should be done in consultation with the key stakeholders. For this purpose, a review committee should be formed whose members will be selected on the grounds of their familiarity with planning processes and with subdivision evaluation methods. Municipalities and developers/builders should be amply represented on the committee, but it could also include representatives of local citizen groups, national/provincial NGOs (such as the various Smart Growth networks in Canada), academics, and industry associations such as the Canadian Water and Wastewater Association.

### 6.2.2 Develop a guide to facilitate weighting of criteria

In Section 6, we discussed the desirability and options for weighting the technical criteria. Essentially, this is based on the insight that the various design or performance attributes of a subdivision can have different degrees of impact on key objectives. Any SSES should enable the user to understand the importance of each attribute with respect to its influence on environmental or livability impacts. This would be particularly useful when desired attributes produce contradictory environmental impacts: street connectivity vs. asphalt coverage, grass as a CO2 sequestering means and cooling effect vs. energy use for maintenance, and so on. The resources needed to achieve the various design or performance criteria can also vary widely, a fact that should be considered in weighting the various criteria. Research into relative impacts expected from and resources needed to achieve the various technical criteria is therefore an important aspect of the future research agenda for a SSES. This research could be used to develop a guide for local users of the tool in determining the weights to be assigned to each criterion.

### 6.2.3 Identify the most suitable data sources

A pressing issue emerging from our research, discussed in detail earlier, relates to the availability of data (access, price, relevancy, currency) to populate a chosen set of indicators. Once a core set of indicators is agreed upon in principle, further research is required to assess and document the details of the most suitable data sources for each indicator. This research should also report the trade-offs involved in the choice of data source (e.g., less expensive data may be less relevant or less consistent across time or jurisdiction).

In conducting this research, the consultants should take into account CMHC's other data-intensive community planning products, such as the GHG tool (already available) and the infrastructure tool (currently under development) in order to maximize synergy among the tools and ensure that consistent data definitions are used across the board.

### 6.2.4 Investigate the feasibility of computer automation for subdivision evaluation

Depending on the types of indicators and data sources that are chosen for inclusion in a SSES, as well as the type of "scoring" mechanism adopted (yes/no vs. scores vs. weighting vs. core and optional indicators) there may be some potential for a software-driven evaluation. This may form some or all of the evaluation of a given subdivision proposal. A great deal of research would be required to assess the feasibility of such a venture, including software design parameters, and the role of the software in the evaluation process (and by extension, the human element/ interpretation required). This research issue should only be considered once the core of a SSES has been agreed upon (especially the indicators and data sources); the SSES should be designed

around what is needed and will work best as opposed to what will work within a software program. Questions related to the potential usefulness and utility of a software program in a SSES could be included in any consultations and surveys with stakeholders (as noted above in the other research issues identified) to determine if there is sufficient need to warrant further exploration and potential software development.

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