

**Implementing Sustainability in BC Communities:  
Exploring the Checklist Approach**

By

Erin Ferguson

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Department of City Planning  
University of Manitoba  
Winnipeg

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## **Abstract**

Sustainability is vital to the success of our cities and settlements. While communities are becoming increasingly conversant with sustainability concepts, uncertainty remains over how to translate these into planning practice. This practicum explores the role of sustainability checklists as one tool for planning and designing more sustainable communities. The inquiry examines the design, implementation and effectiveness of these tools and seeks to understand the motivation and context in which they are developed, the varying approaches and components of checklist tools, and the impact that they are having on planning and development practices. A review of twenty-four sustainability checklists from a selection of BC municipalities, an online survey and key informant interviews were used to inform this study. Nine key findings are identified suggesting that while checklists are helping to communicate sustainability objectives and are encouraging better development, they are not resulting in the large scale shifts to development patterns and urban systems that are required to achieve sustainable outcomes; therefore, checklists need to be integrated with other policies, regulations and tools in order to assist in achieving sustainable settlements.

**Key words:** sustainable urban development, sustainability assessment tools, checklists

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## 1. INTRODUCTION

Cities are complex systems and the sustainability of these systems depends on a web of interwoven elements, connections and considerations. Planners are grappling with what sustainability means for their communities and how to translate sustainability concepts into planning practices. Municipalities are aspiring to be the “greenest” or “most sustainable” (as evidenced in official plans and documents for City of Vancouver, 2009; District of North Vancouver, 2010; Town of Okotoks, AB, 2010). Developers are branding projects as “sustainable” to leverage support for their projects, and community members are becoming more conversant with sustainability ideas, calling for greater transparency and accountability, and are expecting more from municipalities and the development industry. As Shaw and Kidd (1996) profess, “sustainable development has become the new *raison d’être* for many actions” (p.204).

In effort to address these issues, and in recognition that conventional development practices have had negative impacts on the environmental, social and economic health of their communities, local governments are looking for ways to assess the sustainability of projects and plans and to promote sustainable development practices. This research practicum explores the use of one such tool: sustainability checklists. Sustainability checklists integrate and communicate sustainability policies and criteria, provide information to decision makers, evaluate how well a proposed development achieves sustainability objectives and guide and shape future development. Nearly 30 municipalities in British Columbia have adopted sustainability checklists since 2004 and several more tools are currently under development. Despite the proliferation of sustainability checklists in BC, and the amount of hype they have received, they do not appear to have been critically evaluated in practice up to this point.

## ***1.1 Statement of Purpose and Key Questions***

This research practicum explores the role of sustainability checklists in creating sustainable communities. Specifically, it examines the motivation for creating checklists, checklist design, how they are implemented and the effectiveness of sustainability checklists in achieving sustainable settlements. In evaluating these tools, this research looked at different sustainability checklists across BC and was guided by four key questions:

1. How do municipal sustainability checklists fit within the current literature on sustainability assessment tools?

Sustainability assessment is a growing area of planning literature and the aim of this question was to identify frameworks, influences and key components of sustainability assessment tools and the differences between them, and to situate municipal sustainability checklists within the sustainability assessment literature using these findings. Understanding these elements will assist in identifying the potential of these tools and implications of their use.

2. How do they differ between municipalities and what is their relationship to other municipal planning tools?

There appear to be many commonalities between checklist tools but nearly all municipalities have customized sustainability checklists to some extent. The goal of this question is to explore the different approaches to checklists and the relationship of sustainability checklists to other planning legislation, policies and regulations.

3. Are sustainability checklists resulting in more sustainable outcomes? If so, in what ways?

This question examines the impact of sustainability checklists on development practices and approval procedures. It also begins to look at the effectiveness of these tools in achieving more sustainable outcomes through the perceptions of planners and developers.

4. What are the strengths and limitations of using sustainability checklists for creating sustainable communities?

Sustainability checklists are increasingly common tools that municipalities are using to address sustainability objectives. This question looks at the strengths, weaknesses, opportunities and barriers of using these tools which will assist communities that are considering the use of sustainability checklists or refining current tools.

## ***1.2 Significance of the Research***

This project will contribute to the rapidly expanding discussions in planning literature regarding sustainability assessment tools by studying how checklists fit within the broader context of sustainability assessment as well as how planners are applying checklists in planning practice. It will also begin to explore how effective these checklists are in moving community sustainability from higher level goals and principles into development practices.

Planners are looking for ways to encourage development that makes a lasting positive contribution to their communities. In doing this, planners are balancing many competing objectives. Checklists are a way of encouraging more sustainable development practices and making trade-offs transparent to decision makers. Through the identification of strengths and limitations of using sustainability checklists to review development proposals and providing a series of corresponding key findings and recommendations, this project will potentially help planners in their search for tools to create more sustainable cities and regions.

While considerable effort has gone into developing sustainability assessment tools, it is still unclear as to the effectiveness of these tools in transforming development practices and securing a more sustainable future. As Brookes et al. (2001) describe “the acid test in evaluating the success or otherwise...is whether or not its application actually influenced a decision and, more importantly, if it led to a successful (that is sustainable) outcome” (as cited in Eales, Smith, Twigger-Ross, Sheate, Özdemiroglu, Fry, Tomlinson & Foan, 2005, p.121). This practicum advances this inquiry by analyzing checklists and comparing them to sustainable urban design principles, and asking planners and developers to reflect on their experience creating and using sustainability checklists.

### ***1.3 Assumptions and Limitations***

This research is limited to sustainability checklists adopted by local governments in British Columbia. Local governments in Alberta and Ontario and at least one not-for-profit in BC have also implemented sustainability checklists for reviewing development proposals. There are three reasons this research has been limited to municipalities and regional districts in BC. The first is that similar planning legislation applies to these communities keeping the regulatory context consistent. Secondly, the author is familiar with planning legislation, practices, initiatives, and the political climate in BC as the author is currently employed as a planner in this context. Lastly, limiting the geographic scope restricts the number of checklists studied and keeps the project manageable for the purposes of this major degree project.

Municipal sustainability checklists were identified through an internet search of municipal websites, Civic Info BC, BC Climate Action Toolkit (Province of BC, 2011), and through conversations with planning colleagues. While the researcher strove to include all adopted

municipal checklists, this was not an exhaustive exercise and sustainability checklists were inevitably missed. The proliferation of checklist tools was greater than anticipated with several tools arising throughout the course of this study and new tools under development at the time this research concluded. Communities not typically associated with advances in sustainability or those outside the researcher's professional network may have been missed. Although some checklist tools were missed, these tools likely share characteristics common to the checklists included in this study or might present opportunities for further research.

Many of the checklists appear to be quite similar in format, content, scope and the way in which they are implemented. While all sustainability checklists adopted by BC municipalities that were known to the author were reviewed as a part of this research, not every checklist tool was included in each research method. All known checklists were reviewed through a document analysis but green building focused checklists or project specific checklists were not included as part of the electronic survey as the scope and application of these tools was sufficiently different. The sample size of the survey was quite constrained; however, the results of the survey are not meant to be representative of all planners and checklist tools, rather they are meant to provide initial insight into the use of these tools and to advance inquiry. Each participant brings their own experience and viewpoint into the research and different planners within a municipality may have divergent perspectives regarding the same checklist tool.

Key informant interviews were held with planners responsible for developing or implementing the checklists and developers applying and submitting completed checklists as part of their project applications. There is increasingly more variation in checklist approaches in recent years. Interviewing planners and developers for all of the checklists would add valuable insight into this research but the scope and duration of this research limited key informant interviews to those who have had checklists in place for a number of years, those that have

worked with different types and applications of checklists or those who have developed unique approaches.

There are many stakeholders involved in the urban development process including community members, developers, decision-makers and planners. The availability and willingness of participants was a further limitation of this research. Municipal planners are the primary stakeholders involved during this research and were recruited through the author's professional networks and external sourcing through internet research and cold calls. Inevitably, this presents an unbalanced and somewhat biased perspective. Planning consultants and developers were included in the key informant interviews to round out the input of municipal planners and to contribute a more balanced perspective on the effectiveness of checklists in contributing to community sustainability. However, it was challenging to recruit representatives from the development industry to participate in this study despite expressing interest in the results of the study. Therefore the results of this study largely reflect the perspectives of planners.

This proposed major degree focused on one aspect of sustainability – built form. As many authors have pointed out, sustainability is largely determined by socio-economic considerations and individual behaviour (Frame and Vale, 2006; Hough, 1995). Including the perspectives of community members and occupants of buildings designed using checklist processes and performing a post-occupancy evaluation of individual behaviours would be invaluable, however it is beyond the scope of this research.

Lastly, the debate around the definition of sustainable urban development is ongoing in planning literature. This research practicum does not endeavour to contribute to this discussion. This research espouses a very broad view of sustainable urban development. It adopts the view

that cities are complex subsystems of the biosphere and that sustainable urban development describes an integrated, multi-stakeholder process of balancing physical and human systems (including social and economic) within the ecological capacity of a region. Implicit in this research is a belief that at a minimum sustainable urban development is a process presenting a better alternative to conventional practices in that it considers the social, ecological and economic health of the community and tries to promote positive change in urban systems while working towards community resiliency. The concept of sustainable urban development is discussed in greater depth in Section 2.2.1.

#### ***1.4 Ethics***

Participants were not from vulnerable populations and this project posed minimal risk to participants. Interview participants were asked to complete the consent form included in Appendix VII which assured confidentiality and outlined their right to abstain from answering any particular questions and to withdraw from the research at any time. Survey participants were provided with this same information within the recruitment email and on the first page of the electronic survey. Continuation of the survey was taken as informed consent. All names and identifying information have been removed from the data and have been omitted from this document.

#### ***1.5 Organization of the Document***

Chapter 1 introduces the research topic and questions being studied. It provides an overview of the scope of the research and limitations of the study.

Chapter 2 provides a comprehensive review of sustainability assessment including terminology, the emergence of sustainability assessment tools, sustainability assessment frameworks, components related to the design and implementation of checklist tools, and elements of sustainable urban design. It tackles what is meant by sustainability assessment, why these tools have emerged, what they look like, how they are being used, what are they measuring, and how these different aspects affect the sustainability of the outcomes.

Chapter 3 provides contextual information on the municipalities that have adopted checklist tools including geographic location, community profiles and progress towards sustainability, as well as background information on the legislative and policy context in British Columbia. Checklist classifications are also briefly introduced.

Chapter 4 outlines the research methods used in this study: document analysis, online survey and key informant interviews. Each method is introduced along with their associated benefits and limitations.

Chapter 5 presents the results of each of the research methods separately. Key findings from each the methods are then combined into an integrated summary for further consideration in using these tools.

Chapter 6 provides the conclusions of the study, implications of the study results for planning practices, and presents directions for further study. It also relates the findings back to the research questions.



## **2. LITERATURE REVIEW**

In order to develop a comprehensive understanding of the role of sustainability checklists in creating sustainable communities, it is useful to begin at the beginning. The author first considered the history of sustainability assessment and the motivation for developing these tools. Next different frameworks guiding sustainability assessment and the key considerations of assessment tools were studied. From there the author explored sustainability checklists as one type of assessment tool looking at the elements of design and implementation and how these may affect the success of the tool. Lastly, principles of sustainable urban design were identified to provide a basis to study what sustainability checklists are measuring.

### ***2.1 Emergence of Sustainability Assessment Tools***

Previously the three pillars of sustainable development, economic development, social development, and environmental protection, were analyzed more-or-less independently through techniques such as economic studies, social impact analysis and environmental impact analysis. However, these single sector approaches can be too restricted in their focus missing the complexity and interrelationships needed to foster sustainable development (Commission of the European Communities, 2002). Since the 1980's, there have been requests for more integrated approaches to addressing sustainability concerns (Kidd & Fischer, 2007). Local governments are regarded as important players in achieving sustainability and are formulating integrated approaches in response to regulation from senior governments, encouragement from local citizens, and pressures from the development community, in effort to shift development patterns to encourage sustainable built forms and enable sustainable lifestyle choices for citizens.

In the United Kingdom, the national government has introduced regulation requiring local planning authorities to develop and apply integrated approaches, called sustainability appraisals, to local development documents.

*“The purpose of sustainability appraisal (SA) is to promote sustainable development through the integration of social, environmental and economic considerations into the preparation of revisions of Regional Spatial Strategies (RSS) and for new or revised Development Plan Documents (DPDs) and Supplementary Planning Documents (SPDs)” (Office of the Deputy Prime Minister, 2005,p.13).*

Regulation has spurred the development of integrated approaches to sustainability assessment and corresponding tools and techniques. Integrated appraisal in the UK is rooted in environmental impact assessment (EIA) and strategic environmental appraisal (SEA) but it also recognizes the need for wider applicability and public involvement (Kidd & Fischer, 2007). This is evident in the considerable debate over appropriate methodologies balancing the need for in-depth technical information and a broader more integrated approach.

In North America, the rapidly emerging interest in sustainability assessment by local governments is often a response to growth management (Miller, 2004; Seasons, 2003). While a number of states have growth management acts requiring local and regional governments to address economic, social and environmental concerns, the public’s concerns for quality of life and environmental protection has also driven sustainability assessment (Miller, 2004). In British Columbia, there is currently no legislation requiring municipalities to adopt integrated sustainability assessment approaches. However, many municipalities in BC have political constituencies that support sustainability initiatives. For example, the Metro Vancouver area is within a region sometimes referred to as Ecotopia partly “because of the high level of popular support given to protecting the environmental quality as rapid growth occurs” (Miller, 2004, p. 246). Within British Columbia, Smart Growth is another influence in creating sustainability

assessment tools and many of the early sustainability checklist tools were created in response to the Smart Growth movement. In a recent article Chapin (2012) describes historic growth management from 1950 to the present in four waves: the Era of Growth Control (1950 – 1975), the Era of Comprehensive Planning (1975 – 2000), the Era of Smart Growth (1999 – present), and the Era of Sustainable Growth (emerging now). The four waves, and in particular, the transition from the Smart Growth Era into the Sustainable Growth Era provides a useful context to consider and characterize sustainability checklist tools.

Another potential driver for municipalities to adopt approaches to sustainability assessment is the rapid expansion of the green building industry and the participation in green building rating systems. In Greater Vancouver, the number of green buildings grew at an average annual rate of 58% from 2000-2005 (Lighthouse Sustainable Building Centre, 2007). This timeframe corresponds to the emergence of many municipal sustainability assessment tools. Developers are also leveraging green buildings and sustainable urban design in order to gain municipal support for their projects. Some municipalities are not prepared to address this situation and are looking for a means to evaluate the merits and likely impacts of proposed developments and a way to communicate this information. Green buildings and sustainable building assessment are components of sustainable communities and they have gained much media attention and public support. However, assessment systems can be regarded as a technical solution to sustainability, which is largely a socio-political problem (Frame & Vale, 2006).

Shifting the scale of assessment approaches from individual buildings to the neighbourhood begins to address some of the socio-political aspects of sustainability, such as increasing health, social interaction and local employment opportunities through design encouraging active transportation, increased density and diverse housing forms, within a mix of

land uses. One study using ecological footprint calculations compared footprints of individuals of 'typical' UK households with those of individuals living in 'keen' ecovillage households (James & Desai, 2003). Building items accounted for 13.5% of the footprint for 'typical' households and 3.5% of the footprint for 'keen' households while neighbourhood items formed 23.3% and 34.2% of the 'typical' and 'keen' households respectively. Despite the greater potential for addressing sustainability concerns at the neighbourhood level there is a lack of assessment tools at this scale (Frame & Vale, 2006). Some organizations have adopted measures to fill this gap but they are usually demonstration projects with few city-wide initiatives (Frame & Vale, 2006). Within BC, municipalities are adopting sustainability assessment systems at the building, neighbourhood and city-wide level and some are also working on regional sustainability initiatives.

The built environment is only one influence on sustainability. Personal and social factors likely have a greater influence on people's actions and there is agreement that more research combining built environment and behavioural change is needed (Frame & Vale, 2006; Burton, Weich, Blanchard & Prince, 2005). The influence of political processes is another factor in arriving at sustainable outcomes. Keen, Mahanty and Sauvage (2006) conclude that "translating sustainability goals into action depends not just on having good assessment processes; at the end of the day political decisions come into play" (p. 215). The organization's decision-making hierarchy along with external political pressures influence decisions and actions (Keen et al., 2006). Owens and Cowell (2002) go one-step further arguing that appraisal tools are of limited use in addressing sustainability and attention should be redirected towards determining where the power is in the decision-making process and its impact on decisions and outcomes, as this is the heart of the issue (as cited in Eales et al., 2005).

Sustainability is not the only driver in generating integrated assessment approaches. Good governance concerns are an equal and often dominant motivator and they have been central in many parts of the world since the late 1970's (Kidd & Fischer, 2007). Good governance reflects the current values of greater transparency and accountability in decision-making, increased efficiency in the delivery of public services, coordinated public policies, and stakeholder and public engagement in developing public policy (Kidd & Fischer, 2007; Seasons, 2003). As Bentivegna (1997) succinctly summarizes "assessment 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" (as cited in Tomalty et al., 2006, p.1).

Good governance is a primary concern in BC as the newspaper article by David Seymour (2009, December 10) demonstrates. Many BC municipalities have embedded explicitly stated good governance concerns into Official Community Plans and Corporate Strategic Plans. Growing demands for addressing good governance can shift the focus away from promoting sustainable development towards demonstrating transparency and accountability in decision-making and can alter the function and design of sustainability assessment tools.

Together, sustainable development and good governance concerns are largely responsible for the emergence of integrated approaches to sustainability assessment. Both concerns are evident within municipal responses and "can be seen as mutually supportive but in practice this may not necessarily be the case" (Kidd & Fischer, 2007, p. 237). There is no single sustainability assessment tool that responds to all of these influences and addresses all these concerns. More often, what has emerged is a local or regional response to sustainability assessment.

## ***2.2 Sustainability Assessment Frameworks***

Sustainability assessment is a broad term describing a variety of approaches used to review plans, policies and projects so that they better address sustainable development. This section of the literature review begins with a note on terminology before discussing different approaches to sustainability assessment, functions of sustainability assessment tools, and four key dimensions of sustainability assessment tools. Variations identified in each of these areas of study provide a useful discussion on the diversity of sustainability assessment methods and how these factors will ultimately shape the strengths and limitations of using sustainability assessment tools.

### ***2.2.1 Terminology – Sustainability Assessment and Sustainable Urban Development***

Sustainability assessment is a growing area of study in planning literature that offers integrated approaches with tools and techniques for encouraging more sustainable development practices. Terminology varies with integrated approaches referred to as integrated appraisal, sustainability appraisal, strategic impact assessment, and sustainability assessment (Kidd & Fischer, 2007). Although Eales et al. (2005) argue that integrated appraisal is an overarching approach to appraisal, of which sustainability appraisal is one tool, the terminology in the literature is often unclear and many terms share similar histories and characteristics. “Essential features of these assessments are the bringing together of environmental, social, and economic considerations and the balancing of these different substantive concerns in a single appraisal exercise” (Kidd & Fischer, 2007, p. 233). Therefore, sustainability assessment will be the terminology used throughout the remainder of this study to refer to an exercise in planning practice that simultaneously considers environmental, social and economic criteria in reviewing policies, plans or projects to encourage sustainable urban development.

The discussion and debate around the definition of sustainable urban development is ongoing. Ravetz (2001) describes sustainable urban development as “the actions which steer urban development towards the moving goals of environmental sustainability” where urban development is defined as “the evolutionary growth and restructuring of urban systems, both physical and human, in the global context – also a direction, not an end state”(p.35). Persistent concepts in the dialogue around sustainable urban development and sustainable communities are that it is a process integrating economic vitality, ecological integrity and social well-being (Brown, 2006; Saha, 2009; Mapes & Wolch, 2011); that it is a moving target as human and ecological systems are dynamic (Brown, 2001; Ravetz, 2001; Williams, 2007; Tomalty, 2009); that it involves a collaborative, integrated approach (Brown, 2006; Tomalty, 2009); that it requires a recognition of ecological capacity and the need to work within it (Brown, 2006; Jepson & Edwards, 2010); and that context is critical whereby different communities and participants will have different ideas about urban sustainability (Gibson et al., 2005; Maclaren, 2007). As Gunder (2006, p. 211) states “sustainability is a fuzzy concept that everyone purports to understand intuitively but somehow finds it difficult to operationalize into concrete terms” as cited in Saha (2009). Despite different academics, practitioners, communities, organizations and stakeholders often holding diverse ideas of sustainable urban development, and sustainability in general, “the academic literature and practical applications of the concept, nevertheless, point to the emergence of a reasonably coherent set of ideas about how to approach land-use planning in a more sustainable manner” (Tomalty, 2009). Principles of sustainable urban development and design identified in the literature are discussed in Section 2.4.

Building on the ideas above, this research uses an evolving definition of sustainable urban development based on a systems approach where sustainable urban development is seen as a collaborative, integrative, multi-stakeholder process of restructuring physical and human

systems (including social well-being and economic vitality) within the ecological capacity of a region.

### *2.2.2 Approaches to Sustainability Assessment*

Within the above definition, there are different approaches to sustainability assessment. Pope, Annandale and Morrison-Saunders (2004) outline three broad approaches: EIA-driven, objectives-led and principles-based, which they refer to as 'assessment for sustainability'.

EIA-driven sustainability assessment describes a process typically applied after a proposal has been conceptualized to evaluate the environmental, social and economic impacts of a project or policy against baseline conditions in order to identify ways to mitigate any potential negative effects (Pope et. al, 2004). Pope et al. (2004) link EIA-driven sustainability assessment to the sustainability model characterized by three overlapping circles representing environmental, social, and economic sustainability. Criticisms of this approach include that outcomes are only 'not less sustainable' than the baseline which does not mean that the outcome is truly sustainable or even 'good practice', that this approach does not allow for the full consideration of alternative options, that it is a reactive process, and that often each of the three pillars is considered independently emphasizing tradeoffs (Pope et al., 2004; Shaw & Kidd, 1996). Pope et al. (2004) state that EIA-driven approaches place responsibility on the reviewer to identify possible mitigations and gains and not the project proponent.

There is disagreement surrounding this interpretation of EIA-driven assessment. Fischer (2003) argues that EIA-driven assessment was introduced "as a pro-active instrument(s) for addressing environmental consequences before practical action" and that "since the early stages of its development, environmental assessment has usually been perceived as a learning



and negotiation process between multiple actors” (p.156). Formally considering alternatives is also recognized as a critical part of most impact-assessment methodologies (Kidd & Fischer, 2007).

Objectives-led assessment tries to be proactive in that it is used in the development of a policy, plan or project and “reflects a concept of sustainability as a goal, or series of goals, to which society is aspiring” (Pope et al., 2004, pg. 604). This approach recognizes that simply mitigating negative impacts of development is not enough. Sustainability assessment “must encourage positive steps -towards greater community and ecological sustainability, towards a future that is more viable, pleasant and secure” (Pope et. al 2004, p.604). This approach requires a very clear set of environmental, social and economic objectives communicated as early as possible in the development process, ideally, before proponents begin to create different options (Pope et al., 2004; Ding, 2008). A clear set of objectives available at the outset of a project places responsibility on the proponents to find solutions and ensure that projects addresses sustainability considerations instead of those who are reviewing the development proposal. While defining objectives and incorporating them earlier in a project improves the sustainability of a project, this approach is not without challenges. Reliance on objectives that are consistent and compatible with each other or on those that are easy to implement might not describe a truly sustainable outcome (Pope et al., 2004).

Principles-based assessment refers to a set of fundamental sustainable development principles and criteria that must be met by every project or policy. It attempts to determine whether or not a project really is sustainable. This is different than both EIA-driven and objectives-led approaches which largely assess contributions toward sustainability (Pope et al., 2004). Gibson, Hassan, Holtz, Tansey and Whitelaw (2005) argue that this approach emphasizes the interconnections and interdependencies between environmental, social and economic

aspects rather than the trade-offs and conflicts between them. Examples of principles-based sustainability assessment frameworks related to city planning efforts include The Natural Step and the Living Building Challenge. The Natural Step is a science-based approach used in strategic decision making with four central sustainability principles (The Natural Step, 2011). Municipal plans and actions can then be evaluated with reference to these principles. The Living Building Challenge is a rating system that originated with the Cascadia Green Building Council and has grown into the International Living Building Institute (International Living Building Institute [ILBI], 2010). The rating system is comprised of a series of 7 petals or performance areas (site, energy, water, materials, health, equity, beauty) which together have 20 principles or imperatives that are mandatory for a specific type of development such as a new building, renovation, or neighbourhood. Certification is based on the performance of the project not on modeling of anticipated outcomes and is therefore only achieved after the project is built and has been operating for at least one year (ILBI, 2010).

### *2.2.3 Function of Sustainability Assessment Tools*

Sustainability assessment tools differ widely in design and implementation practices, and to a lesser extent, in their function. Many of these variations can be ascribed to differences in the underlying approaches to assessing sustainability described above, as well as to the relative value attributed to sustainability concerns versus good governance concerns.

The following table summarizes some of the stated objectives of sustainability assessment tools found in planning and sustainability assessment literature.

**Table 2.1 Functions of Sustainability Assessment Tools**

Function	Source
identify a series of sustainability objectives and evaluate potential projects/ developments on how well they address these objectives	(Tomalty et al., 2006)
assess the sustainability of different development options	(Ding, 2008; Burton, 2005; Tomalty et al., 2006)
promote greater sustainability at different stages of the development process including design, construction, operations, and monitoring performance	(Frame & Vale, 2006)
create a cost effective process to encourage developers to incorporate sustainability concerns into their developments	(Frame & Vale, 2006)
minimize the negative on-site and off-site impacts from development	(Frame & Vale, 2006; Ding, 2008; Fischer, 2003)
improve the planning process with more transparent and systematic decision-making	(Pope et al., 2004; Rotmas et al., 2000; Frame & Vale, 2006; Tomalty et al., 2006)
generate design guidance	(Burton, 2005; Tomalty et al., 2006)
benchmark projects against one another	(Ding, 2008)
integrate sectoral policies, coordinate policy development and implementation	(Rotmas et al., 2000; Keen et al., 2006; Tomalty et al., 2006)
improve communication between city departments regarding development proposals	(Rotmas et al., 2000, Keen et al., 2006)
monitor the effects of developments on the surrounding community	(Seasons, 2003; Frame & Vale, 2006; Millar, 2004)
assist Council and decision makers in analyzing proposals	(Tomalty et al., 2006)
educate the development community and public on sustainable development practices	(Tomalty et al., 2006)

The approach to sustainability assessment and the incorporation of good governance concerns are reflected in the overall objectives of sustainability assessment tools. These factors have a direct influence on the design and implementation of sustainability assessment tools including the type of indicators selected and the scale of project to which the tool applies, who is responsible for conducting the assessment, and how the results of the assessments are utilized.

#### *2.2.4 Dimensions of Sustainability Assessment Tools*

Using the framework developed by Kidd and Fischer (2007), sustainability assessment methodologies have four key dimensions: quantitative, qualitative, technical and participatory. These four dimensions are not mutually exclusive. Rather, they form two axes: reliance on quantitative or qualitative data, and a technical expert-based or participatory process. Each assessment tool can be categorized according to which quadrant it fits within.

Current sustainability assessment methodologies fall within each of the four quadrants. Most of the programmes reviewed by Miller (2004) involved largely quantitative approaches but had differing levels of participation. Three of the programmes had processes involving primarily experts or staff while two of the programs developed through highly participative processes. All of the programmes focused on the creation of sustainability indicators for use in physical planning which likely contributes to the emphasis on quantitative data. Conversely, during the same time period, the 1990's, appraisal in the UK was expert-based and qualitative, typically with one person assessing impacts based on his or her knowledge and expertise (Kidd & Fischer, 2007). While approaches to sustainability widely vary in their nature, there seems to be increasing momentum towards qualitative participatory approaches (Kidd & Fischer, 2007). This transition reflects the shift in planning theory from modernism and rational planning to

postmodernism and communicative planning, as well as the increased prominence of governance concerns.

### ***Qualitative-Quantitative Continuum***

The quantitative-qualitative dimension refers to the type of data used in the assessment tool and the overall methodological approach. The nature of the sustainability assessment tool as quantitative or qualitative speaks to the availability of indicators, measures and data, the objective(s) of the assessment tool, who is responsible for conducting the assessment, and how the assessment is used in decision-making. There are strong arguments for and against both quantitative and qualitative approaches. From the literature on local government sustainability assessment, it appears that sustainability assessment is best described as a qualitative approach despite incorporating varying degrees of quantitative information.

Sustainability assessment has historical ties to many largely quantitative assessment approaches such as environmental impact analysis and cost-benefit analysis. It also emerged at a time when the prevalent paradigm was rational comprehensive planning. It is argued that a quantitative approach is necessary to improve the sustainability of outcomes as well as to address good governance concerns because it improves the evidence base that informs decision-making (Kidd & Fischer, 2007). Quantitative approaches gain greater importance for assessment tools that have measurement or monitoring functions and that are required to generate the baseline data necessary for these functions. Miller (2004) states that sustainability indicators should be quantifiable in order to demonstrate that progress has been made towards achieving the sustainability objectives. Incomplete scientific knowledge or insufficient quantifiable measures, especially concerning environmental and social issues, are often cited as drawbacks of quantitative approaches and using these quantitative measures and approaches

results in controversy. Frame and Vale (2006) argue that this controversy is actually beneficial, as it will improve sustainability by increasing the profile and debate of sustainability issues.

Another criticism of quantitative approaches is that they often demonstrate correlation between variables which is sometimes erroneously interpreted as one variable causing the observable trend in the other. This assumed causal effect can end up embedded in planning practices despite a lack of further exploration of the observed relationship. The assumed relationship between variables can also fail to recognize the role of context. For example, Neiman and Fernandez (2000) demonstrated that using readily available fiscal, socio-economic and demographic measures to explain growth management decisions could overlook the significant influence of phenomena such as policy makers' viewpoints, controversy in a community, structure of local interest groups, and other institutional characteristics in decision-making. Miller (2004) offers a suggestion for minimizing the burden of having detailed and accurate causal knowledge and the controversy surrounding much quantitative data by including discussions on causal relations accompanying each indicator or measure along with the assessment tool. Lastly, even if the quantitative measures and relationships are known, they have to be practical. As Burton et al. (2005) point out "if measures are too difficult and time-consuming to obtain, then they are unlikely to be used" ( p. 267).

Qualitative methods of sustainability assessment have become increasingly popular as planning has shifted towards more participatory and communicative practices (Kidd & Fischer, 2007; Frame & Vale, 2006; Fischer, 2003) and as good governance concerns have gained prominence (Kidd & Fischer, 2007). Qualitative approaches are offered as useful alternatives to demonstrating causal knowledge because they can draw out discussions of objectives and indicators involving a wider audience. In addition, some criteria, especially environmental and social criteria, are better suited to qualitative approaches. As Ding (2008) states, many

environmental issues are mainly qualitative criteria which cannot be measured and evaluated within existing frameworks that are dominated by market based approaches. Using solely quantitative approaches could prevent the inclusion of important environmental and social criteria as we might not be able to accurately measure their value or function.

Current sustainability assessment tools are often voluntary in nature and aim to encourage sustainable development practices. This function may be more suited to qualitative approaches, which can be less onerous, quicker, and cheaper (Kidd & Fischer, 2007; Frame & Vale, 2006). Incorporating qualitative dimensions in sustainability assessment also allows for broader participation by integrating other forms of information such as indigenous and local knowledge fundamental to sustainability outcomes and highly participatory processes.

Eales et al. (2005) maintain that qualitative assessments performed by multiple people with diverse interests and perspectives can be useful for discussing the impacts of a proposed project but caution that the results of these assessments should not be over analyzed. Two key criticisms of qualitative approaches to sustainability assessment are that they are too general and oversimplified to effectively contribute to advancing sustainable development, and that they often result in a set of outcomes that are difficult to monitor (Kidd & Fischer, 2007 and Frame & Vale, 2006). Another common criticism is that “qualitative assessments are open to accusations of subjectivity” (Eales et al., 2005, p. 115). However, as Guba and Lincoln argue (1989), with a constructivist approach which has strong ties to qualitative methods, “objections that humans are subjective, biased, or unreliable are irrelevant” (p.175). Humans are both the focus of the research and the research instrument. Furthermore, as articulated by Miller (2004), subjectivity is inherent in all sustainability assessments as judgement and values are heavily involved in defining what constitutes sustainable development. Therefore Miller advocates a practical approach which considers alternative futures and selects the most appropriate future

through a political process. In exploring the role of subjectivity in environmental impact analysis, Wilkins (2003) expresses that discourse allows the creation of social values and in this capacity can produce sustainable decisions. He asserts that “subjectivity and predictive inaccuracy are not problems but elements to promote and engage the process itself” (Wilkins, 2003, p. 402). This is consistent with some of Kidd and Fischer’s (2007) observations but Kidd and Fischer are concerned that an over reliance on qualitative approaches to assessment, towards an omission of quantitative approaches and technical expertise, goes against both sustainability and good governance as it ignores the requirement for including consideration of sound evidence in decision making.

Both qualitative and quantitative methods contribute to creating sustainable communities and with most assessment methods it is not a case of either/or. As explained by a quotation of Cole (2005) cited in Frame and Vale (2006, p.302):

*“the emergence and evolution of building environmental assessments responds to a tension between the desire for objective, scientifically rigorous and stringent performance criteria with the desire for practical, transparent, simple to understand criteria that ask the industry to respond to manageable step changes in practice”.*

This appears to be true with not only building environmental assessments but also with broader sustainability assessment, and most of the literature on sustainability assessment advocates for a combination of quantitative and qualitative methods.

### ***Technical/Participatory Debate***

Closely related to quantitative and qualitative dimensions, is whether a sustainability assessment tool is more technical or participatory in nature. There are differing opinions as to what constitutes a technical or participatory sustainability assessment. Kidd and Fischer (2007) refer to technical methodologies as “expert-based” and participatory methodologies as “expert-



facilitated". In the context of this research, technical methodologies will be used to refer to sustainability assessments developed and implemented by one or more sustainability 'experts' with minimal inclusion of a broader stakeholder group or the general public.

Many authors find the current lack of empirical data and evidence in sustainability assessment troubling (Kidd & Fischer, 2007; Frame & Vale, 2006 and Burton et al., 2005). Policy guidance can fail if it relies solely on common assumptions and is not based on reliable and valid empirical research (Burton et al., 2005). One example of this is a study by Holden and Norland (2005) which looked at the level of annual greenhouse gas emissions from households living in different housing forms. The authors found that households living in apartment buildings quite close to the metropolitan core were actually responsible for a greater amount of greenhouse gas emissions annually than households living in slightly less dense neighbourhoods such as townhouses just outside the metropolitan core with good access to rapid transit. These findings contradict assumptions that dense high rise apartment living is the most sustainable lifestyle. The authors identified three challenges to the compact city theory related to this discrepancy in household energy use. The first is that households in high density areas travel more by planes. The second is that households in the core having a lack of private greenspace compared to the inner suburb households resulting in households in the core frequently travelling outside the city to access greenspace and generating a greater amount of travel related emissions which had a significant impact on their overall household emissions profiles. The third is that energy use per square meter has risen in multi-family housing while it has decreased for row houses and single family houses.

A related example is the assumption that high rises are the most energy efficient housing form. A study of the north false creek neighbourhood of Vancouver found that the high rise towers characteristic of the area were very energy inefficient from a heating and cooling

perspective compared to low-rise buildings and even newer single family housing forms (David Ramslie, 2009). That said, high-rises may have an overall positive contribution to urban sustainability by providing the density to make rapid transit and district energy viable and helping to contain urban growth.

Sustainability assessment methodologies are used to assist in decision-making and should incorporate technical input to improve the evidence base used to make decisions (Kidd & Fischer, 2007). Decisions regarding sustainable development require a good understanding of the issues in order to perform an adequate appraisal on how a particular policy or project will further or diminish sustainability objectives. This typically requires many experts with an in-depth knowledge of particular aspects as well as a good sense of the interrelationships between aspects.

One example of a technical sustainability assessment methodology is the 'Integration tool' developed by the National Assembly for Wales as described by Eales et al. (2005). Staff of the assembly developed the tool over a series of seminars. The 'Integration tool' measures the performance of a project against a series of nine objectives using a scale from 'significantly undermines the objective' to 'makes close to an optimal contribution to the objective'. A cross section of staff is responsible for using the tool to evaluate projects. Staff found this approach useful in generating discussion, new ideas and approaches, and identifying gaps and opportunities and integrated thinking (Eales et al., 2005). A study by Keen et al. (2006) had similar findings. They found that sustainability assessments methodologies created and implemented by a group of practitioners from across an organization was useful in "breaking down the 'silos' created by institutional divides within local governments" (p. 202), promotes collective learning and coordinated action, and was a source of innovation to further sustainability objectives.

Participatory methodologies also vary widely in planning and sustainability assessment literature. Stakeholder and public involvement is included at different stages of the sustainability assessment process and to varying degrees. Some authors use the term broadly describing a multidisciplinary group within an organization responsible for creating and implementing a sustainability assessment as participatory while other authors reserve the term for processes involving external stakeholders and members of the public throughout both the design and implementation of the assessment tool. There is considerable debate in sustainability assessment literature as to whether technical or participatory assessment methodologies best promote sustainability objectives. In practice most tools are a blend of both approaches but are differentiated by their position along this continuum.

Participatory approaches to sustainability assessment are favoured in planning literature reflecting a shift towards communicative and consensus-based planning practices and aligning with both governance and broader sustainability criteria. Efforts to include broad stakeholder engagement is evident in all stages of planning processes, albeit to varying degrees, in order to strengthen policy development through the inclusion of multiple perspectives, including the voices of those that have previously been excluded from the conversation, educating stakeholders on the issues, and building support for projects, policies and programs. Current governance concerns also emphasise the involvement of stakeholders in public decision making to promote transparency, demonstrate accountability, and achieve buy-in from local communities.

Participatory approaches to sustainability incorporate multiple perspectives and expertise through the involvement of stakeholders and community members, and because of this, are positioned to better address sustainability concerns. In sustainability literature, public participation is sometimes denoted as the 4th pillar of sustainability in addition to economic,

social, and environmental considerations. On a pragmatic level, participatory approaches involving stakeholders are necessary to achieve sustainable development because of the current partnership approach to service delivery. In addition, most sustainability assessment tools are voluntary aiming to educate on and promote sustainability objectives; therefore, sustainability assessment tools may be more suited to participatory processes (Frame & Vale, 2006; Tomalty et al., 2006)

The four dimensions of sustainability assessment and the general position of sustainability assessment between rational and communicative planning theory, are at the core of the debate concerning appropriate approaches. Balancing the need for demonstrating evidence based decision making and the need for broad stakeholder engagement is one of the foremost challenge in developing sustainability assessment tools.

### ***2.3 Sustainability Checklists***

Sustainability assessment tools take many forms. One tool commonly used in British Columbia is the sustainability checklist. Local governments typically use sustainability checklists to evaluate the degree to which a particular plan or proposal addresses a series of sustainability objectives. Local governments have different capacities, characteristics and priorities which shape assessment tools (Tomalty et al., 2006) and as sustainability is closely tied to local and regional contexts, variation in assessment tools is expected in order to achieve sustainable outcomes. In addition to regional differences, different levels of decision-making require different tools (Ealses et al., 2005). Reviewing a citywide strategic plan will likely require a different tool than evaluating a proposed apartment complex. All of these factors contribute to

the multiple versions of sustainability checklists and influence elements of checklist design and implementation including:

- the scale and type of development subject to the checklist
- how it ties into the development approvals process
- how it relates to other policies and programmes
- whether the tool is voluntary or mandatory in nature
- the evaluation framework; and
- who is involved in design and use of the checklist.

The variation amongst municipal sustainability checklists can be described in relation to these elements and the sustainability criteria against which projects are evaluated, discussed in section 2.4 of this research practicum.

### *2.3.1 Scope*

The use of sustainability checklists varies according to the size, type and location of projects and plans and the development approvals stage that it is applied to.

There is a need to shift sustainability assessment tools such as checklists away from the current building scale focus to the neighbourhood, community or regional scale as broader scale characteristics have the greatest influence on the sustainability of a community (Ding, 2008; Frame & Vale, 2006). This shift also moves the discussion from largely technical environmental and building aspects to become a socio-political discussion and it is the socio-political issues that are at the root of sustainability (Frame & Vale, 2006; Rybczynski, 2009). Despite the importance of neighbourhood level considerations, there has been a lack of sustainability assessment tools to evaluate them. However, this is changing as evidenced with the prevalence of sustainability

checklists and the recent availability of the LEED-ND rating system. One of the challenges in accounting for neighbourhood level aspects of sustainable design is that many aspects (transportation, energy supply and distribution, water system, social services, housing etc) are controlled by different groups or agencies (Frame & Vale, 2006). This added complexity can affect the design, content and implementation of the checklist including how it relates to the development approvals process. Neighbourhood, city and regional plans speak broadly to these considerations but often lack the specifics needed to effectively implement changes.

Sustainability checklists can be flexible tools that apply to a wide range of projects and fit into many stages of the development process but the same checklist may not be applicable to all development projects or land use plans. In order to best address sustainability criteria, the use of sustainability checklists may be limited to developments of a certain size, type, area of the community or the type of development approval being sought. Broader urban structure considerations such as the amount of parks and openspace, block size and pattern, and a mix of uses are fundamental to sustainability but are ineffective measures for projects below a certain size (Tomalty et al., 2006). For example, evaluating one proposed single-family home in an existing suburb or one multi-family residential building in the downtown, in relation to block pattern and street layout is likely not appropriate. For this reason, many assessment tools have a development size threshold to which the tool applies such as minimum number of lots or dwellings (Tomalty et al., 2006). Below a certain size, green building standards may provide a more appropriate framework to evaluate the project (Tomalty et al., 2006).

Checklists are sometimes used to guide the development of a specific area of a municipality. They can be used to guide the formation of neighbourhood plans or development concepts, or to evaluate development to ensure that it meets the goals of the neighbourhood plan or approved development concept.

Lastly, sustainability checklists may be restricted to the type of development approval sought for the proposed project. Checklists may be a mandatory part of the development approvals process where municipalities are inviting applications for land which they own. In the situation where municipalities have greater discretionary powers, such as with Official Community Plan amendments, rezoning or subdivision applications, checklists are often used as a condition of approval. In other circumstances such as development permit or building permit approval, the requirement to complete checklists may be voluntary. Sustainability checklists of an entirely voluntary nature are generally used to indicate potential for improvement to the development community (Tomalty et al., 2006; Frame & Vale, 2006) or are used by developers to highlight positive aspects of their development and to build a positive reputation in a community.

As sustainability checklists move from the voluntary end of the spectrum towards the mandatory end, they tend to become more flexible (Tomalty et al., 2006). This avoids overly prescriptive details and allows the applicant more latitude in developing a design response that addresses the issues and opportunities of a particular site and is less likely to result in strong push back from the development industry. One consideration in moving towards a checklist framework with greater flexibility is whether or not to differentiate the importance of fundamental aspects or criteria of sustainability to ensure that aspects that will have the greatest impact get attention. An example of this is the LEED-ND rating system. In LEED-ND, specific aspects are mandatory criteria that must be addressed in order to qualify for the program while others are a list of weighted options that applicants can select as they see fit.

Regardless of whether a sustainability checklist is mandatory or voluntary, or somewhere in between, it is often linked with incentives. Incentives range from fast tracking development applications, to relief of planning fees and development cost charges, technical

support, density bonuses, infrastructure funding, and project recognition or awards (Tomalty et al., 2006; Frame & Vale, 2006). Incentives are a key consideration of sustainability evaluation systems at present although there is some reluctance from municipalities to grant incentives. Providing financial incentives can reduce revenues collected from development and many municipalities are already cash strapped with limited means of generating revenue to pay for an often growing number of services. Optics is also a significant factor. Municipalities don't want to be seen as giving public resources to private developers (Tomalty et al., 2006) or in the case of expediting the approvals process, as granting preferential treatment or seemingly indicating that all development applications aren't already handled as expediently as possible.

### *2.3.2 Vertical and Horizontal Integration*

Integration is inherent in addressing sustainability but it poses significant challenges in developing approaches to sustainability assessment (Eales et al., 2005; Keen et al., 2006; Frame & Vale, 2006). Integration of sustainability assessment tools is discussed in terms of vertical and horizontal integration. Both can determine the effectiveness of sustainability checklists.

Vertical integration refers to the relationship between sustainability checklists and both broader, higher level policies and narrower, focused policies and regulations within an organization, between different levels of government and between local governments and private industry or not-for-profit initiatives. In order to be effective, the objectives of the sustainability assessment tool must be consistent and compatible with those at higher and lower levels of decision making (Pope et al., 2004). Frame and Vale (2006) advocate for a strong link between high-level vision statements expressing the desired outcome and the checklist containing the design and development criteria to help achieve the outcome and monitor its



success. Often checklists accomplish this to some degree by linking to Community Plans or other high level policy documents such as Integrated Community Sustainability Plans, and Strategic Plans. In a study by Keen et al. (2006) that looked at creating and implementing an approach to sustainability assessment within a local government, workshop participants felt that requiring sustainability assessments at a few key points in the decision-making process would be the best way to achieve adequate vertical integration. These decision points would then act as triggers for the assessment rather than simply the scope or nature of the proposal.

Vertical integration extends beyond the policies of any one local government. In the European Union there is a lot of emphasis placed on vertical integration between different levels of government (Shaw & Kidd, 1996). Collaboration between different levels of government to develop planning policies is required in Washington State under the Growth Management Act (Miller, 2004). Cities and counties work together on the Benchmark Task Force learning about and developing sustainability indicators resulting in coordinated policy (Miller, 2004).

Integrating checklists with policies of other levels of government appears to be less of a focus for municipal sustainability checklists in British Columbia. Many municipalities in British Columbia are creating checklists largely independent of regional or provincial mandates although the checklists themselves may be consistent with or supportive of regional or provincial policy. However, municipalities in BC are required by legislation to provide a regional context statement as part of their official community plan indicating how the official community plan supports the goals of the regional growth strategy.

Horizontal integration relates to the integration of environmental, social, and economic considerations and describes the relationship between sectoral policies of an organization at the same level of decision making. A high degree of horizontal integration is fundamental to

achieving sustainable settlements by bringing environmental, social and economic policies together within a single framework (Rotmas & Vellinga, 2000). Sustainability checklists can create this coherence or they can work against it depending on the design and implementation of the checklist. If the person(s) completing and reviewing the checklist has a sustainability background, they will be able to see the opportunities and connections across the various sections in the checklists. If different sections of the checklist are completed by different people according to their specialization, these opportunities may be missed. Achieving a balance between environmental, social and economic considerations is a primary consideration in many sustainability assessment tools. Some checklists build in balancing of these considerations into the checklist design and implementation process. For example, some checklists mandate a minimum score for each of the three aspects of sustainability (environmental, social, and economic) or that all three must advance towards sustainability for a project to be approved through a triple bottom line analysis. Others have a person well versed in sustainability as the one responsible for overseeing and reviewing the checklist with part of their review intended to achieve a balance.

Many sustainability assessment tools, including checklists, are characterized by poor horizontal integration (Frame & Vale, 2006). Reducing sustainability to a list of items evaluated independently of one another misses opportunities for the interconnections necessary for sustainability. As stated by Shaw and Kidd (1996) in creating sustainable development there is a “need to consider the concept in totality and not compartmentalize the elements of sustainability for the sake of expediency” (p.238).

Horizontal and vertical integration are important for obtaining buy-in within organizations. Tying a sustainability checklist to higher level policy such as an Official Community Plan or Strategic Plan takes it out of the realm and responsibility of a single

department to become the responsibility of the organization as a whole. Municipal sustainability checklists touch on issues overseen by planning, engineering, building, parks, arts and culture, and finance departments. Because sustainability demands attention and consideration of so many factors, getting other departments and expertise involved is necessary to achieve sustainable outcomes. Not only is integration important in the design and implementation of sustainability assessment, but it is also necessary to incorporate information resulting from the sustainability assessment approaches into decision-making at different stages in the planning process (Eales et al., 2005).

### *2.3.3 Evaluation Frameworks*

Sustainability checklists use a range of evaluation systems. At the most basic level sustainability checklists are done in the form of a written statement addressing a range of issues either specified by an organization or not. Another popular form of evaluation is a series of sustainability criteria followed yes/no responses supplemented with additional qualitative or quantitative information. Other checklists rely on a points system whereby points are awarded according to how well a specified sustainability criterion has been met or the presence or absence of specific sustainability features. Expanding on the points based systems, some sustainability checklists apply weightings to points based criteria reflecting preferences or perceived importance of one criteria over another. Lastly, some checklists are integrated into indices indicating overall sustainability or liveability.

In the statement, yes/no, and basic points systems formats, there is no explicit weighting of criteria. For example, an applicant has no indication from the checklist whether providing a mix of uses is more desirable than providing active transportation infrastructure or installing energy efficient windows. According to the checklist, these would be evaluated

equally as to whether or not it met the specified criteria and/or how well they address the specific criteria. This does not necessarily mean that certain elements are not considered more desirable than others or that no prioritization is occurring once the checklist is reviewed by the municipality. Only that this preference isn't explicitly stated. A municipality may have a specific priority that favours one criterion over another but this isn't communicated through the checklist itself. An advantage to not assigning weights to criteria is that it allows a development to work with and utilize the criteria most relevant to a specific site as conditions vary widely across municipalities. It also allows the municipality to negotiate or emphasize particular criteria within the checklist system without with the result of the checklist evaluation.

BC is a large province with diverse landscapes, economies and socio-political contexts.

Weightings may allow regional differences to be expressed through checklist tools and helps to guide the developer to incorporate design solutions that will have a greater benefit to the sustainability their project proposal (Tomalty, et al., 2006). Where weightings are included, the weightings should be transparent and reflect community input (Frame & Vale, 2006). This appears to be a weakness of many sustainability assessment tools with many tools lacking a consensus-based approach or sufficient method of determining weightings (Ding, 2008).

Weightings can steer applicants towards creating projects that achieve a greater level of sustainability by encouraging applicants to incorporate criteria that have a more positive or higher sustainability value than others. In the absence of weightings or direct guidance from municipal planners, the applicant may choose to incorporate the easiest or most cost-effective criteria and these may not be the most effective criteria for increasing the sustainability of the project.

A series of weighted criteria can be combined into a broad series of indices. Examples of this are liveability and sustainability grades. Creating indices helps communicate and report on the sustainability of a project, plan or community. Receiving an 'A' or 'D' for a project's sustainability has immediate impact and imagery; however, indices can result in the loss of transparency. Unless all criteria are moving towards sustainability, the negative aspects and tradeoffs may be buried and not subject to the same level of scrutiny or study that leads to informed decision making and the improvement of the overall sustainability of a project.

#### *2.3.4 Monitoring Outcomes*

As stated by Pope et al. (2004) sustainability assessment tools need to consider the distance from the target as well as the direction to the target. Evaluation frameworks assist with measuring the direction to the target but it is important to have a sense of how sustainable the outcome is. This requires planners to monitor the outcomes, yet monitoring is an often overlooked part of the planning process and few sustainability tools are designed with monitoring in mind (Seasons, 2003; Shaw & Kidd, 1996; Frame & Vale, 2006). When exploring reasons for monitoring receiving so little attention through interviews with planning staff, Seasons (2003) found that:

- with limited resources staff time was focused on the review and facilitation of development proposals and monitoring was not a priority
- most monitoring activities included a focus on quantitative data collection but that this was less informative than qualitative information
- too much time was spent on data collection in monitoring and evaluation activities and not enough on policy formation
- it is difficult to establish whether an observed outcome is directly related to a specific plan (causality)
- policies tend to be vaguely worded which allows for flexibility in interpretation but can hinder monitoring efforts
- results are more often a reflection of political will to implement policies rather than the effectiveness of the policy itself

- successful monitoring and evaluation programs depend on the willingness and culture of the organization

Interest in monitoring and evaluation outcomes appears to be re-emerging. Many Canadian communities are working on integrated community sustainability plans of which monitoring and evaluation are a key component. According to Seasons (2003) a renewed interest monitoring also coincides with concerns for efficiency, effectiveness and accessibility in municipal government.

## ***2.4 Sustainable Design Principles***

Sections 2.2 and 2.3 dealt with the framework and format of sustainability assessment tools while this section deals with the content. Common to all sustainability assessment tools is a comparison of a proposed development or project to a set of principles, criteria or desired elements believed to contribute towards sustainable and liveable communities. This section explores the fundamental question to sustainability assessment: What are the key features of sustainable urban development?

### ***2.4.1 Features of Sustainable Settlements***

Architects and planners have begun looking more specifically at what sustainability means for growth and development in urban areas (Wheeler, 2003). This has led to a focus on physical planning and urban form in North America as planners and designers react to the current situation in our cities and towns: automobile dependency due to separation of uses and the design of circulation systems for the car, non renewable resource consumption, degraded environmental quality, waste generation, loss of farmland, social inequities, and placelessness. Changing the built form and design of cities and buildings is viewed as a way to address many of

these issues. As summarized by Tomalty et al. (2006), at the heart of sustainable communities and liveability is the concept of good design.

Good design is a subjective term dependant on people's individual perceptions which are influenced by numerous factors; however, there is considerable agreement on a number of features and broad principles necessary to move our communities towards a sustainable future. A summary of urban design features and principles expressed by twelve contemporary organizations and authors interested in this topic is found in Appendix I. Table 2 looks at the degree of consensus for the identified features among the authors and organizations reviewed. This exploration as to what constitutes good or sustainable urban design revealed that it is often characterized by resource efficiency, connectivity, diversity, sense of place, compact form, protection and integration of natural systems, transportation choice and human comfort (Table 2). Farr (2008) integrates many of these concepts in his definition of sustainable urbanism as: "walkable and transit-served urbanism integrated with high-performance buildings and high-performance infrastructure" (p. 42).

**Table 2.2 Elements of Sustainable Design**

Elements	Themes	Degree of Consensus <sup>1</sup>
Resource Efficiency	Smarter infrastructure, economy of means, conservation of resources such as energy and water, pollution and waste reduction, integrated design, green building, redevelopment of existing areas	High
Connectivity	Permeability, mobility, interconnected street system, small block pattern, connections to surrounding environments	High
Diversity of uses, forms and housing types	Mixed use and variety at all scales, within neighbourhoods, blocks, buildings, mixed housing types, prices and tenures, complete communities	High
Resiliency of settlements	Ability to adapt, self-sufficiency, longevity, design for	High

	change	
Sense of Place	Distinctiveness, heritage, character, uniqueness, identity, architectural style, materials	Moderate
Compact Form	Concentration, intensification, 5 min walk, higher residential densities	High
Respecting Natural Systems	Biotic support, open space, greening, biodiversity, ecological value, resource protection, biophilia, working with the natural landscape	High
Healthy economy	Jobs close to home, balanced equitable economy	Low
Transportation Choice	Walkability, multi-modal transportation is available, access to public transit, TOD	High
Regional Context	Protect and enhance agricultural lands, good connection and relationship with rural communities and hinterland, consideration of regional ecosystems and resources	Moderate
Public Involvement	Stakeholder involvement, democracy, engaged citizens, local autonomy	Moderate
Human Comfort	Comfort, human scale, legibility, aesthetically pleasing, safe and secure, cleanliness/ maintenance, social interaction/ inclusion, visibility	High

<sup>1</sup> Low = 3 or less sources listed this element, Moderate = 4 to 7 sources listed this element, High = 8 or more sources listed this element

Diversity, which includes a mix of land uses, mix of building forms and diverse housing choice in terms of style, price and tenure, was the only element mentioned by all 12 publications. Diversity is the cornerstone of sustainability. It builds resiliency and fosters inclusiveness and vibrancy in communities. Connectivity is another of the most commonly referred to requirements of sustainable communities. Connectivity is used to describe the number of routes within vehicular, bicycle and pedestrian networks. Newer suburban developments are often described as having poor connectivity with only one or two ways in or



out of a development. Older settlement patterns with shorter blocks and an interconnected system of roads, laneways and pathways are described as having good connectivity or permeability, especially for pedestrians and cyclists. As the meta-analysis conducted by Ewing and Cervero (2010) concludes, destination accessibility and mixed land uses are the most important influences in reducing automobile use, even over density. A third commonly referenced principle is incorporating natural systems but this ranged from working with the landscape and respecting natural ecosystems to providing urban greenery. These three principles set the foundation for sustainable urban development enabling the other design principles such as resource efficiency, resiliency, employment opportunities, compact form, and transportation choice. However, it is the attention to human comfort and use that make a place work and encourages sustainable behaviours. As an example, an area can have a high mix of land uses and relatively good connectivity but without attention given to pedestrian scale and comfort people may elect to drive because the walking experience is not enjoyable.

While there are many similarities in the sustainable urban design principles among the authors and organization examined, there are also key differences. Regional context and public involvement were mentioned as elements of good design but were not consistently mentioned across the publications examined. This is consistent with a review of 11 publications on sustainable design principles (Carmona, Heath, OC & Tiesdell, 2003). Both of these criteria are featured prominently in Hough's (1995) "basis for an alternative design language" (p. 25). For Hough, connectivity is not a description of mobility but is the idea that everything is connected to everything else necessitating a holistic approach to sustainable urbanism and consideration of development within the larger context of the watershed and regional ecosystems (Hough, 1995). Perhaps the greatest divergence between the rest of the principles listed in Table 2 and Hough's principles is the requirement of ecological design to transform individual behaviour.

While the other authors principles aim to influence individual behaviour by enabling sustainable travel patterns and providing more sustainable options through urban form, Hough explicitly states this requirement through the principles of “environmental education begins at home” and “making visible the processes that sustain life”. Hough believes concentrating on people’s experience and interaction with their home and neighbourhoods is critical in creating a sustainable future for our cities. Part of this is being able to see and experience the interrelationships between human use and natural and built environments. Urban hydrological systems provide a good example of these concepts. Often the stormwater and local waterways are buried underground concealing the fact that what goes into our storm drains is directly deposited into local waterways and can adversely affect water quality and aquatic habitat. This can result in a disconnect between citizens and the natural environment and a pattern of behaviours reflective of this separation.

Many of the differences between sustainable design criteria can be attributed to the author’s area of practice or study resulting in varied emphasis on social, environmental or economic factors. The literature is unclear as to which aspects of sustainability (environmental, social or economic) are most successfully addressed with design criteria. Based on a review of numerous sustainable subdivision evaluation systems, Tomalty et al. (2006) suggest that criteria related to environmental issues will have the strongest link to design features followed by social issues and economic issues which will have the weakest link. Therefore, they propose that sustainable subdivision evaluation systems should focus on issues in that order: environmental, social, and economic.

In contrast to these findings, Youngentob and Hostetler (2005) found that a New Urbanist development style, which shares many of the elements of sustainable design (Wheeler, 2003), had less success in encouraging environmentally sensitive behaviour than in creating a

sense of community. This study looked at attitudes and behaviours of residents in three different urban forms: traditional, post WWII, and neo-traditional. It did not include a review of performance measures such as amount of stormwater generated or jobs to housing ratios. However, attitudes and behaviours largely determine sustainability and this study found that new urbanism had little success in influencing environmental attitudes and behaviours.

## ***2.5 Conclusion***

Sustainability assessment is a growing area of study and refers to an exercise in planning practice that simultaneously considers environmental, social and economic criteria in reviewing policies, plans or projects to encourage sustainable urban development. A number of influences in planning practice have precipitated sustainability assessment tools including growth management, smart growth, eco-cities, public and political will, good governance concerns, sustainable community planning, momentum of third party green building certification systems, and 'sustainable community' branding of new developments.

Each of these factors influences how sustainability checklists are designed and ultimately what impact they will have. It appears that sustainability assessment is moving away from its roots in Environmental Impact Analysis or baseline-led frameworks towards objectives-led assessment. It is anticipated that municipal sustainability checklists, which are quite recent examples of sustainability assessment tools, will follow objectives-led approaches. It is also anticipated that municipal checklists will adopt primarily expert -qualitative approaches as is currently the situation with that most sustainability assessment tools currently utilized. Where municipal sustainability checklists fit within the literature on sustainability assessment has bearing on its strength as a tool in moving communities towards sustainable urban development

and can be ascertained through a review of checklist tools and supporting documentation.

Strengths of objectives-led assessment approaches include a focus on achieving specific objectives and outcomes; this can introduce more flexibility and facilitate innovative solutions while focusing on moving in a positive direction. It also restores a visionary role to urban planning which is important in working towards sustainable communities by describing what type of community is desirable and then how to get there (Frame & Vale, 2006; Tomalty, 2009).

Potential drawbacks of objectives-led approaches include the question on whether or not achieving specific objectives actually translates into a sustainable urban development.

Sustainability checklists are one type of sustainability assessment tool that has been gaining popularity in British Columbia. They can be described as a tool for assessing or evaluating how well a proposed project or development application aligns with a series of sustainability goals, objectives or criteria. Sustainability checklists can be characterized according to a number of components:

- *scope - size, area, and type of development it applies to;*
- *voluntary or mandatory in nature;*
- *horizontal and vertical integration - how well each pillar of sustainability is addressed (environmental integrity, economic vitality, social well-being), who was involved in the design and whether or not it was a collaborative, multi-stakeholder process, and the relationship between the checklist and other policies, regulations and tools;*
- *evaluation system - how is sustainability assessed such as the presence or absence of features, points based systems, or integrated indices;*
- *sustainability criteria - what is being measured and their relationship to principles of sustainable urban design;*
- *and whether or not checklists are used in monitoring development outcomes.*

These components determine the design, implementation and effectiveness of these tools and can be initially explored through a review of checklist documents and further through conversations with planners involved in the development and use of these tools. Familiarity with each of the components, along with an awareness of the use of the checklist within the context of a particular organization, develops an understanding of how these tools will function, outlines key challenges and concerns, and predicts potential strengths, limitations and the overall effectiveness of sustainability checklists in creating more sustainable communities.

### **3. COMMUNITY CONTEXT**

Twenty-two municipalities in British Columbia were identified as having sustainability checklists however this is not an exhaustive list. Municipalities were identified through the researcher's personal knowledge of checklist initiatives, an internet search, and through discussions with planning colleagues. When this research topic was first considered in 2007 about six municipalities in British Columbia were using sustainability checklists in the review of development proposals; now close to thirty municipalities have adopted this tool. Municipalities that are included in this research study are indicated with black dot in the centre of the icons in Figure 3.1.

#### ***3.1 Geographic Location***

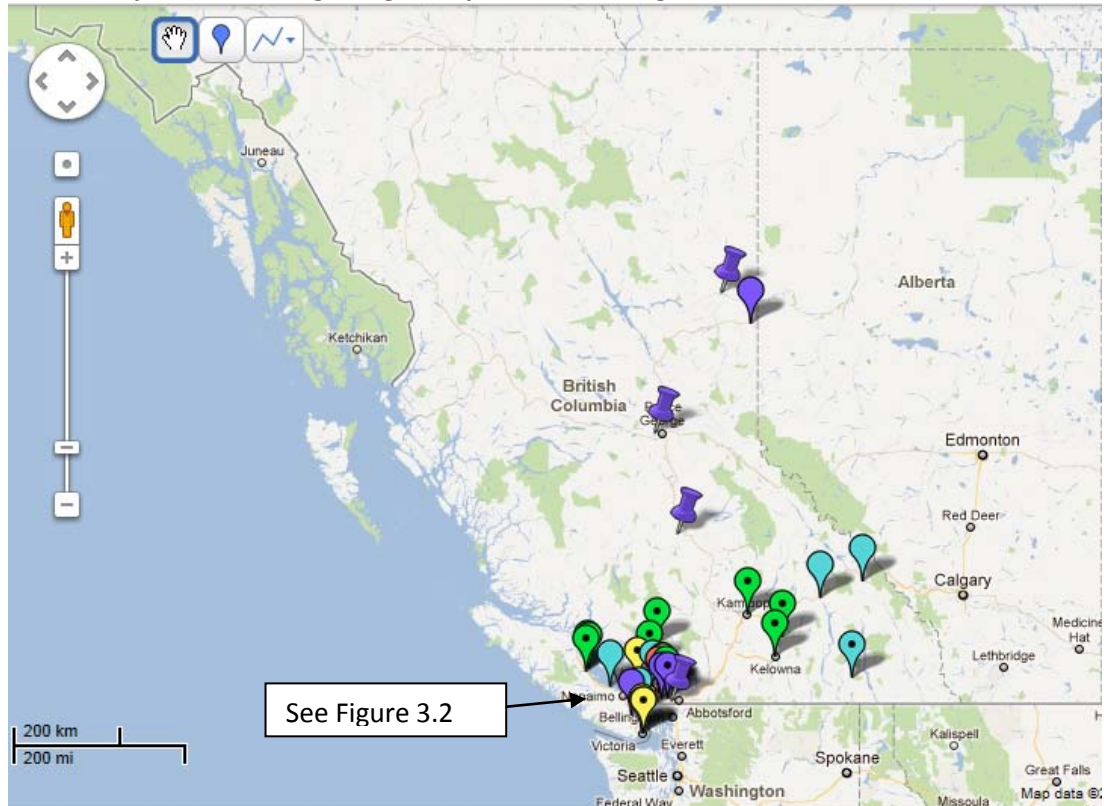
Municipalities included in this study were primarily located in south western or south central BC. Checklists are found in communities that have diverse climates, population sizes, and economies representing resort towns and vacation destinations, coastal communities, resource towns, agricultural regions and metropolitan areas and include villages, towns, mid-sized cities, and highly urbanized centres.

Sustainability checklists often emerge in regions around the same time period (Figures 3.1 and 3.2). The first municipality to adopt a checklist was New Westminster in 2004. Shortly after, several municipalities in the surrounding areas adopted checklists including municipalities in the Capital Region, Sunshine Coast and Lower Mainland. From there municipalities on central Vancouver Island and in the Okanagan developed their own versions of checklists in 2007-2008 and those in the Kootenay region had checklists in place in 2009-2010. Several communities in Northern and Central BC have either recently adopted sustainability checklists or are considering

the adoption of these tools (City of Fort St. John, 2010; City of Prince George, 2011; City of Williams Lake, 2012).

**Figure 3.1 Location of Municipalities that have Sustainability Checklists.**

**Credit: Map Created Using Google Maps. © 2012 Google**



- Prior to 2005
- 2005 – 2006
- 2007 – 2008
- 2009 – 2010
- 2011 or later

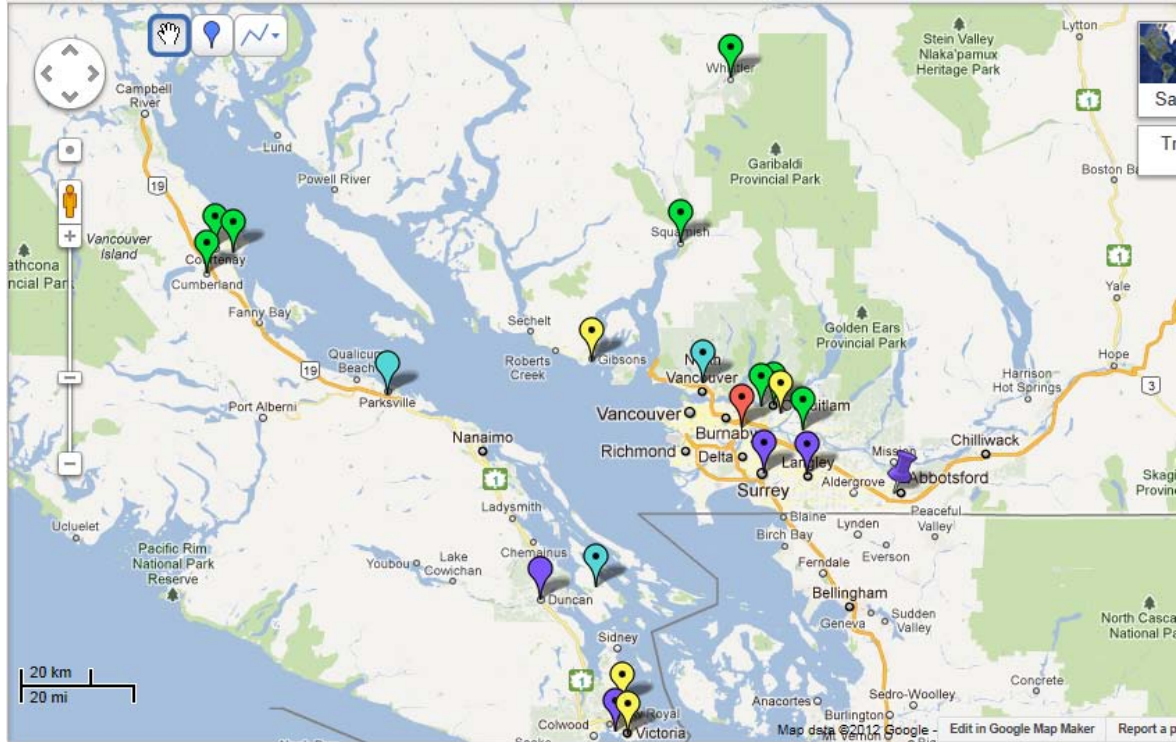


Municipality currently developing or considering sustainability checklist

- Indicates checklist included in this study

**Figure 3.2 Municipalities in Southwestern BC that have Sustainability Checklists.**

**Credit: Map Created Using Google Maps. © 2012 Google**



- Prior to 2005
- 2005 – 2006
- 2007 – 2008
- 2009 – 2010
- 2011 or later



Municipality currently developing or considering sustainability checklist

- Indicates checklist included in this study

### **3.2 Checklist Type**

The municipal sustainability checklists included in this research can be classified into one of five broad groups: statement style checklists; checkbox forms; scorecards or points-based evaluation systems; green building; and project-specific. Statement style checklists consist of a number of sustainability topics followed by series of specific criteria or items. Checkbox forms are typically grouped into topic areas followed by a series of questions with yes/no responses followed by a written explanation. Scorecard style tools have a series of objectives or items with a potential point value attached. Green building tools are typically checklist or scorecard styles



but they have a narrower scope. Lastly, project specific checklists do not apply city-wide and are used in a specific application such as land sales or neighbourhood plan creation or implementation. A detailed discussion of the different styles of checklists is included in Section 5.1. The adoption of particular styles of sustainability checklists do not appear to be related to population size or geographic region.

### ***3.3 Community Profiles***

Population, households, growth rates, the number and type of dwelling units, and modal split for travel to work provide contextual information for each of the municipalities. Populations range from 3,400 to more than 468,000 and most of the municipalities, with the exception of those in the Capital Region or Sunshine Coast, had growth rates exceeding that of the Province as a whole. Municipalities have been grouped by geographic location for ease of discussion.

#### **Coastal Communities**

Coastal communities include municipalities on the south coast of BC excluding the lower mainland and represent a broad range of checklist styles. Growth in Courtenay and Comox outpaced the provincial growth rate in both census periods while the growth rate in the Capital Region municipalities of Saanich, Victoria, and Esquimalt were significantly below the provincial growth rate for the 2006 – 2011 census period (Table 3.1). The Comox Valley municipalities (Courtenay, Comox, Cumberland) have all also expanded their land base in the past 10 years. Courtenay and Comox have annexed additional land within both census periods (Table 3.2). Annexation and subsequent development is often associated with urban sprawl, but it is not indicative of this growth pattern. Annexed land may not be developed and could be acquired for a variety of purposes such as parkland, resource lands or utilities, to extend services and replace

failing rural infrastructure, or for greater development control in the fringe areas. However, enlarging the land size of a municipality raises concerns relating to inefficient land use, increased servicing costs, development pressure and potential, and loss of rural lands which are typically associated with sprawl.

**Table 3.1 Population Characteristics of Coastal Communities.**

Source: Statistics Canada

Municipality	Checklist Style	Population			Growth (% Change)	
		2011	2006	2001	2006 - 2011	2001-2006
Comox	B	13,627	12,136	11,391	10.0	6.5
Courtenay	A	24,099	21,940	19,166	9.4	14.5
Cumberland	A	3,398	2,762	2,633	23.0	4.9
Saanich	A	109,752	108,265	103,654	1.4	4.4
Esquimalt	E	16,209	16,840	16,127	-3.7	4.4
Victoria	D	80,017	78,057	74,125	2.5	5.3
Gibsons	B	4,437	4,182	3,906	6.1	7.1
Salt Spring Island	B	10,234	9,640	9,279	6.2	3.9
British Columbia		4,400,057	4,113,487	3,907,738	7.0	5.3

**Table 3.2 Land Size and Population Density of Coastal Communities.**

Source: Statistics Canada and BC Stats

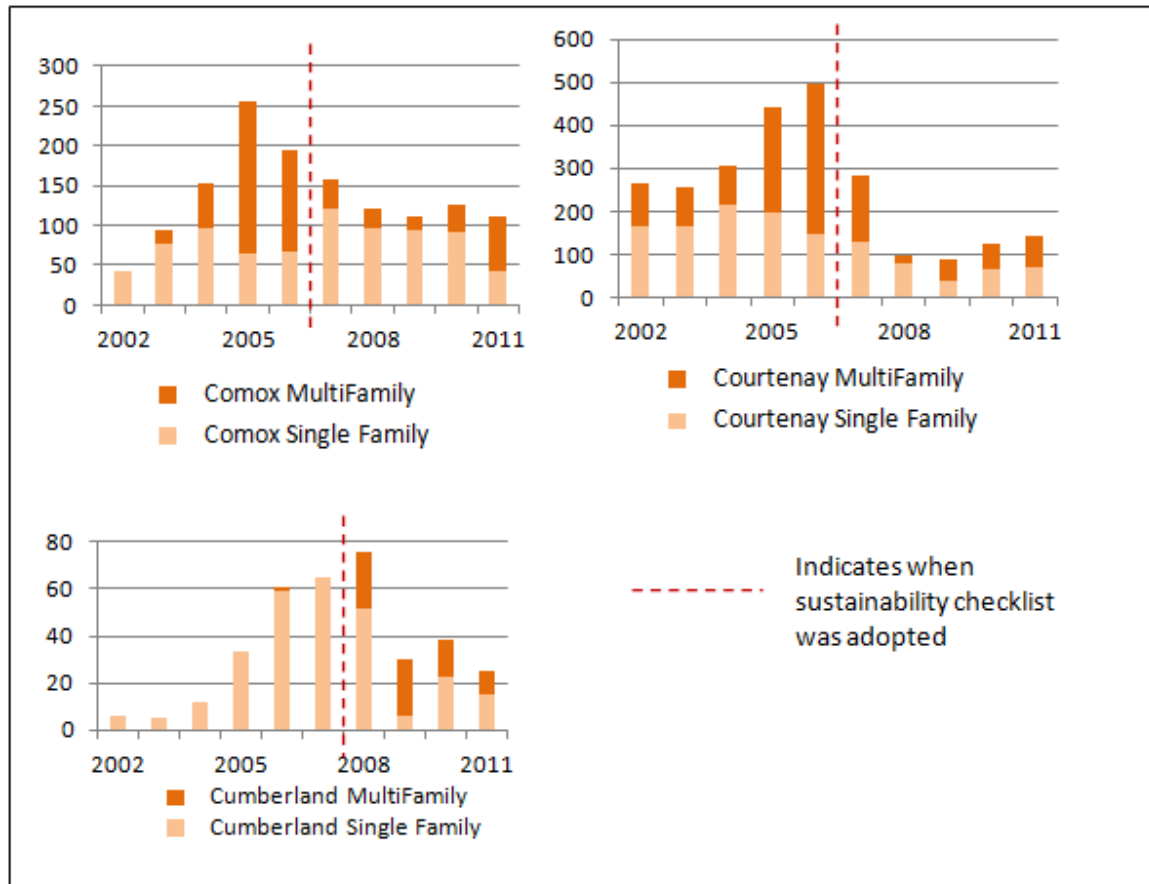
Municipality	Land Area	Population Density	Boundary Change	
	2011 Area sq. Km	per sq. Km in 2011	2006 - 2011	2001 - 2006
Comox	16.74	814 (3.3 *)	Yes	Yes
Courtenay	29.38	820 (3.3*)	Yes	Yes
Cumberland	29.00	117 (0.5*)	No	Yes
Saanich	103.78	1,058 (4.3*)	No	No
Esquimalt	7.08	2,290 (9.3*)	No	No
Victoria	19.47	4,109 (16.6*)	No	No
Gibsons	4.33	1,033 (4.2*)	No	No
Salt Spring Island	180.00	57 (0.2*)	No	No
British Columbia	922,509.29	5	No	No

\* Indicates gross density of persons per acre

The following series of graphs( Figures 3.3 and 3.4) illustrate the total number of residential building permits issued in each year of the two census periods and the proportion of permits that are issued units for single family compared with multi-family.

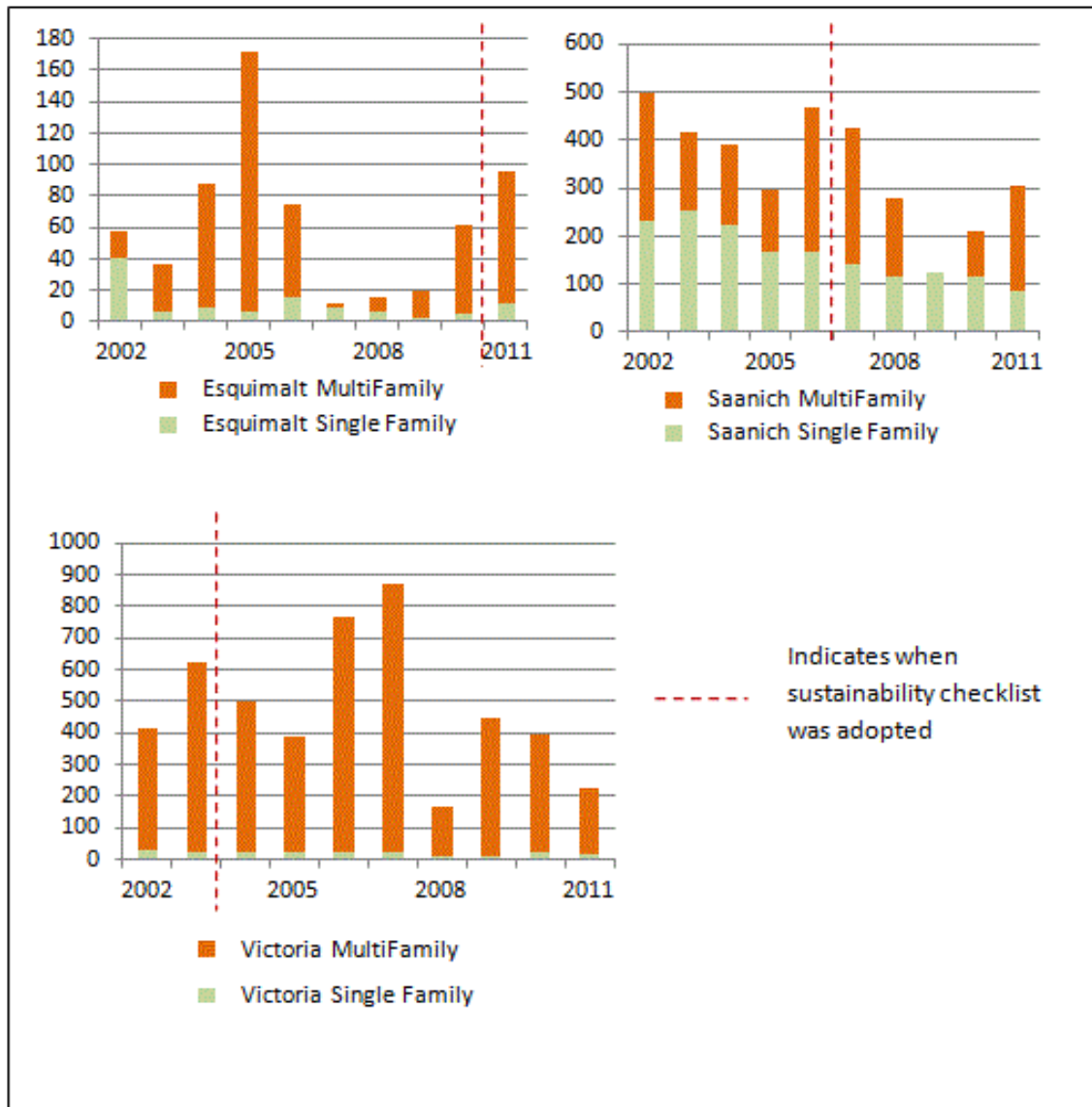
**Figure 3.3 Comox Valley Residential Building Permits (Total Number of Units).**

Source: BC Stats.



**Figure 3.4 Capital Region Residential Building Permits (Total Number of Units).**

Source: BC Stats.

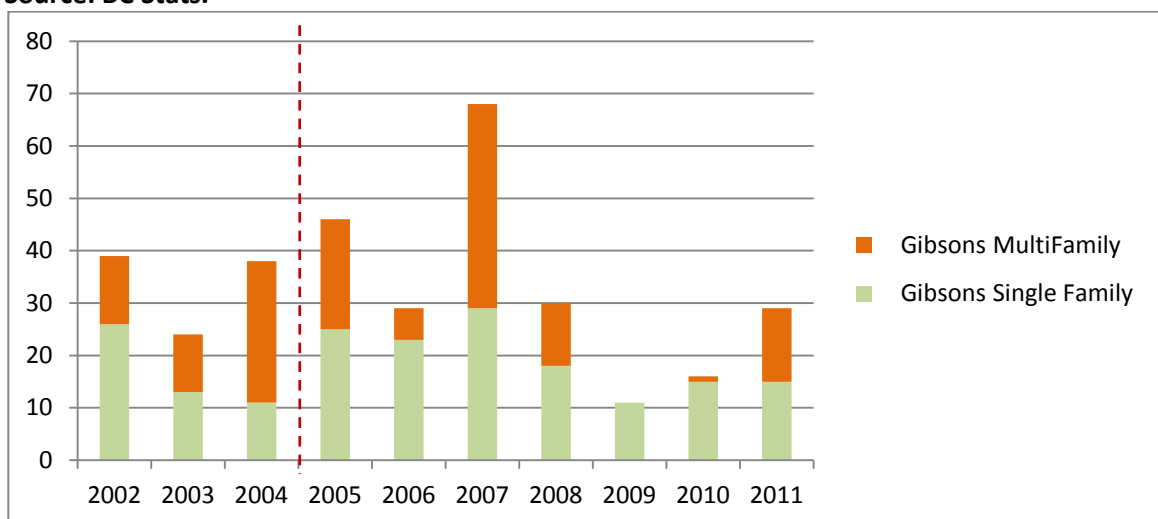


In the Comox Valley communities and Gibsons, a larger proportion of building permits have been single family units than multi-family units while the reverse is generally true for the Capital Region communities. Residential building permit data was not available for Salt Spring Island. This is also reflected in the percentage of dwelling units that are detached single family dwellings in each of these communities; Courtenay 53%; Comox 67%; Cumberland 80%;

Esquimalt 25%; Gibsons 56%; Saanich, 50%; Victoria 16%; and Saltspring 86% (Statistics Canada, 2006).

In terms of transportation, in 2006 more than half of all persons in each of the coastal municipalities with the exception of Victoria, got to work as the driver of a passenger vehicle (Statistics Canada, 2006). This ranged from a high of around 75% for the Comox Valley municipalities to a low of 47% in Victoria. In each of the coastal communities more people got to work via an active mode of transportation than by public transit with the exception of Saanich which had an equal number of people commuting by bus as those walking or cycling. Public transit ridership was especially low in the Comox Valley with less than 2% of people getting to work using this mode yet in Gibsons over 10% get to work via public transit. Modal split was consistent between the 2001 and 2006 Census periods with most municipalities seeing a 2 – 3% decrease in the number of people driving to work and a corresponding increase in either public transit or active transportation modes.

**Figure 3.5 Town of Gibsons Residential Building Permits (Total Number of Units).**  
**Source: BC Stats.**



## Lower Mainland

Squamish and Whistler have been grouped with the Metro Vancouver municipalities as part of the lower mainland geographic area. With the exception of Port Coquitlam, Langley and Whistler, the growth rate in the lower mainland communities was much higher than the provincial growth rate between 2006 and 2011 (Table 3). Surrey and Port Moody experienced a significantly higher growth rate in between 2001 and 2006 but the remainder of the lower mainland municipalities were either on par with the provincial growth rate or significantly lower as was the case of Coquitlam, Port Coquitlam, Langley and District of North Vancouver. All five checklist types were represented in the lower mainland communities.

**Table 3.3 Population Characteristics of Lower Mainland Communities.**

**Source: Statistics Canada**

Municipality	Checklist Style	Population			% Growth	
		2011	2006	2001	2006 - 2011	2001-2006
Coquitlam	D	126,456	114,565	112,890	10.4	1.5
Port Moody	B	32,975	27,512	23,816	19.9	15.5
Surrey	B	468,251	394,976	347,820	18.6	13.6
Pitt Meadows	B	17,736	15,623	14,670	13.5	6.5
Port Coquitlam	C	56,342	52,687	51,257	6.9	2.8
New Westminster	C	65,976	58,549	54,656	12.7	7.1
Langley, City	B	25,081	23,606	23,643	6.2	-0.2
Squamish	A	17,158	14,949	14,247	14.8	4.9
Whistler	E	9,824	9,248	8,896	6.2	4
North Vancouver, DM	E	84,412	82,562	82,310	2.2	0.3
British Columbia		4,400,057	4,113,487	3,907,738	7.0	5.3

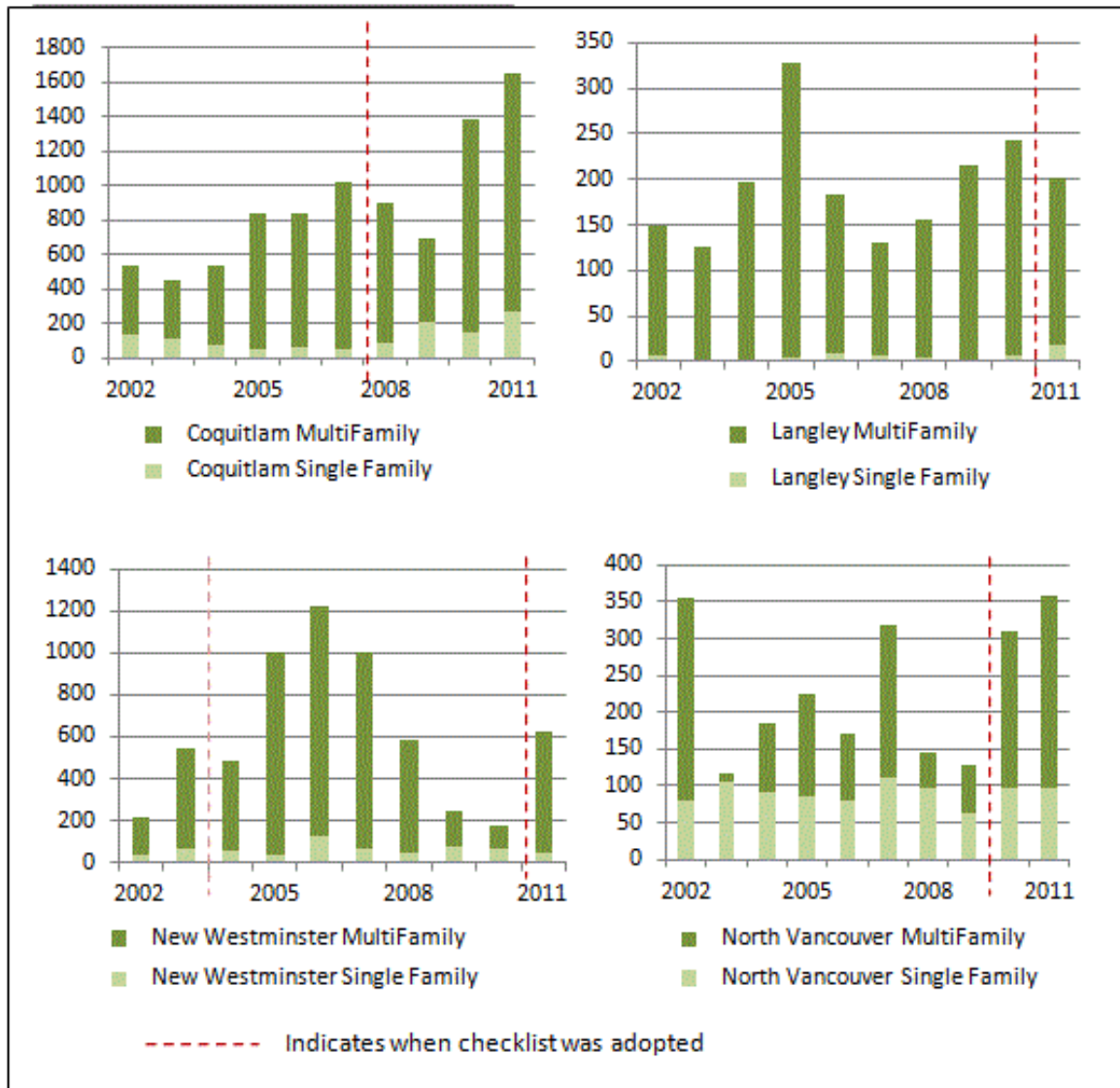
**Table 3.4 Land Size and Population Density of Lower Mainland Communities.****Source: Statistics Canada and BC Stats.**

<b>Municipality</b>	<b>Land Area</b>	<b>Population</b>	<b>Boundary Change</b>	
	<b>2011 sq. Km</b>	<b>density per sq. km</b>	<b>2006 - 2011</b>	<b>2001-2006</b>
Coquitlam	122.2989	1,034 (4.2*)	No	No
Port Moody	25.89	1,274(5.2*)	No	No
Surrey	316.41	1,480(6*)	No	Yes
Pitt Meadows	86.51	205(0.8*)	No	No
Port Coquitlam	29.17	1,931(7.8*)	No	No
New Westminster	15.63	4,222(17.1*)	No	No
Langley	10.22	2,455(9.9*)	No	No
Squamish	104.88	164(0.7*)	No	No
Whistler	240.4	41(0.2*)	No	No
District of North Vancouver	160.76	525(2.2*)	No	No
British Columbia	922,509.29	5	No	No

\* Indicates gross density of persons per acre

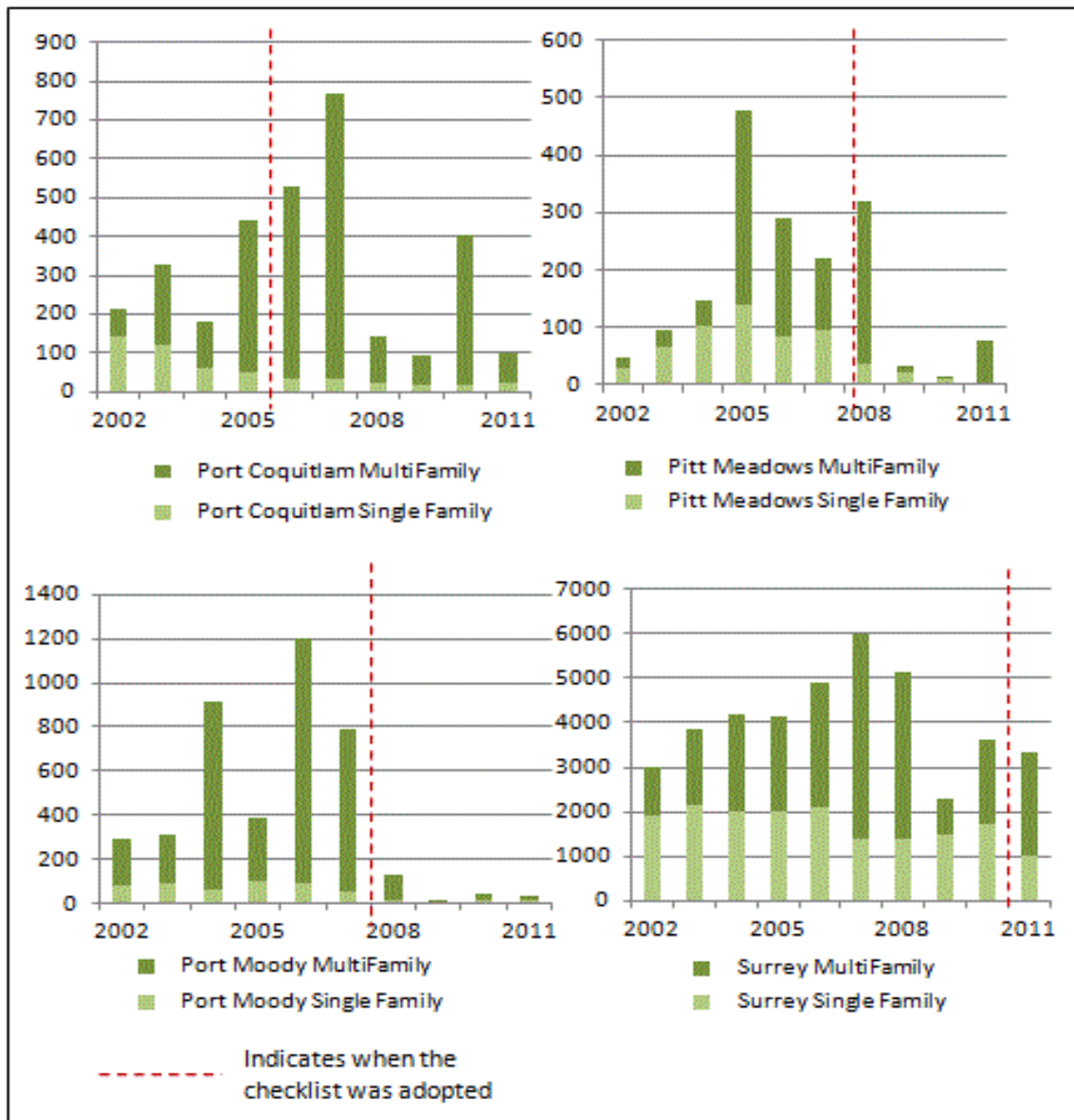
New Westminster is an older, urbanized municipality built on the grid system. It has the highest gross density of any of the municipalities included in this research study at 42 persons per hectare. This translates into about 17 persons per acre but as this is gross density it includes parks, industrial areas and natural features. At the other end of the scale, Whistler has the lowest density of any of the communities included in this study. However, again this is gross density and Whistler village likely has a much higher density than is shown in Table 3.4. Surrey was the only municipality in the lower mainland to increase their land area in either of the two census periods.

**Figure 3.6a Lower Mainland Residential Building Permits (Total Number of Units).**  
Source: BC Stats.

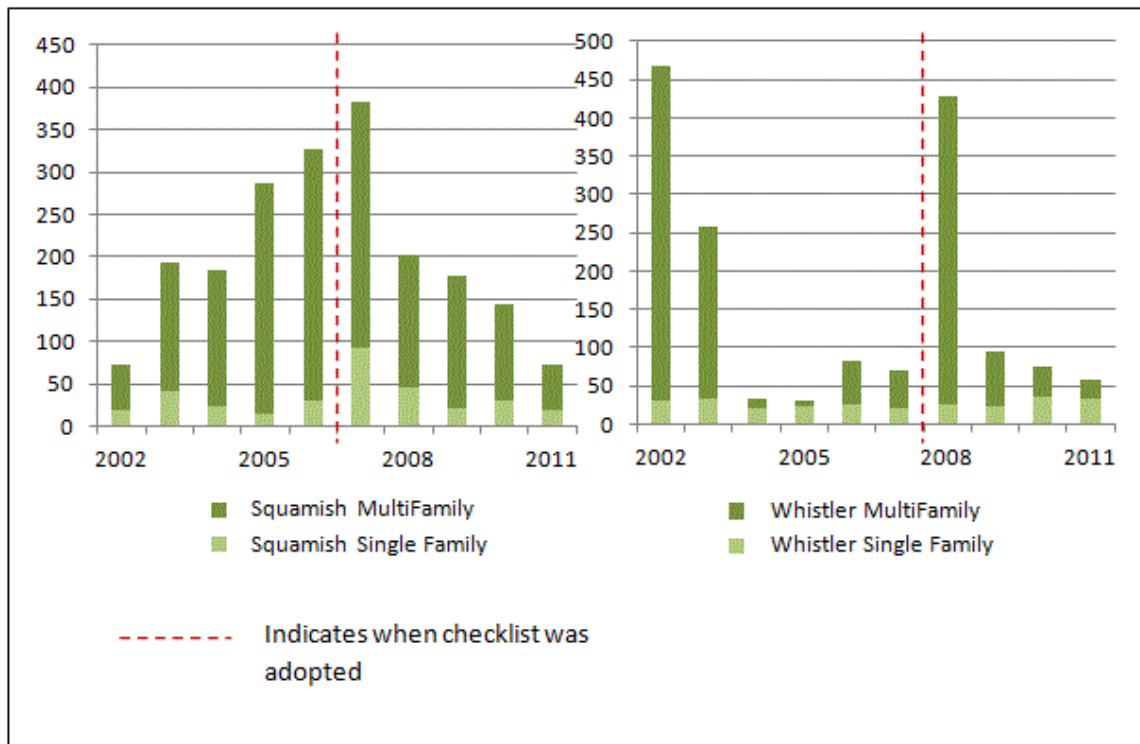




**Figure 3.6b Lower Mainland Residential Building Permits (Total Number of Units).**  
Source: BC Stats.



**Figure 3.6c Lower Mainland Residential Building Permits (Total Number of Units).**  
Source: BC Stats.



More permits for multi-family residential units than for single family units have been issued each year over the last 10 years in all of the lower mainland municipalities with the exception of the District of North Vancouver, Surrey and Pitt Meadows. According to the 2006 Census, in the District of North Vancouver, Pitt Meadows and Squamish more than half of all dwelling units are detached single family residences. The District of North Vancouver and Pitt Meadows also had the highest levels of home ownership (82% and 81%). Conversely, in New Westminister, City of Langley, and Whistler multi-family dwellings made up a much higher percentage of the total dwelling units than single family dwellings (82%, 74%, and 75%). New Westminister, City of Langley, and Whistler also had the highest percentage of renters at 46%, 39% and 45% respectively. The proportion of people commuting to work as the driver dropped between 3% - 8% for lower mainland communities between 2001 and 2006 although the percentage of drivers versus other modes remained high at around 74% to 79% in 2006 with the

exception of New Westminster (60%) and Whistler (54%). Unlike the coastal communities, public transportation was typically higher than active transportation modes for most of the lower mainland communities.

### Interior Communities

Kamloops, Kelowna, Vernon and Nelson have been grouped together as Interior Communities. Kelowna experienced a higher rate of growth than the provincial growth rate for both census periods. Nelson had a slight population decline between 2001 and 2006 but had more than a 10% growth in population between 2006 and 2011. Kamloops and Vernon were consistently just above or just below provincial growth rates.

Interior communities had either scorecard or checkbox tools. Kamloops and Kelowna have scorecard style checklists but have different applications of the tool. Kamloops' sustainability checklist only applies to one area of the community – the North Shore neighbourhood and is integrated with the North Shore Neighbourhood Plan. Kelowna began with the more typical Smart Growth Checklist in 2007 but changed to a scorecard style in 2010, with different scorecards for each type of development approval requested. Vernon and Nelson both have versions of the checkbox format with a series of yes/no questions and descriptions.

**Table 3.5 Population Characteristics of Interior Communities.**

**Source: Statistics Canada**

Municipality	Checklist type	Population			% Growth	
		2011	2006	2001	2006 - 2011	2001-2006
Kamloops	C	85,678	80,376	77,281	6.6	4
Kelowna	C	117,312	106,707	96,288	9.6	10.8
Nelson	B	10,230	9,258	9,318	10.5	-0.6
Vernon	B	38,150	35,944	33,542	6	7.2
British Columbia		4,400,057	4,113,487	3,907,738	7.0	5.3

**Table 3.6 Land Size and Population Density of Interior Communities.**

Source: Statistics Canada and BC Stats.

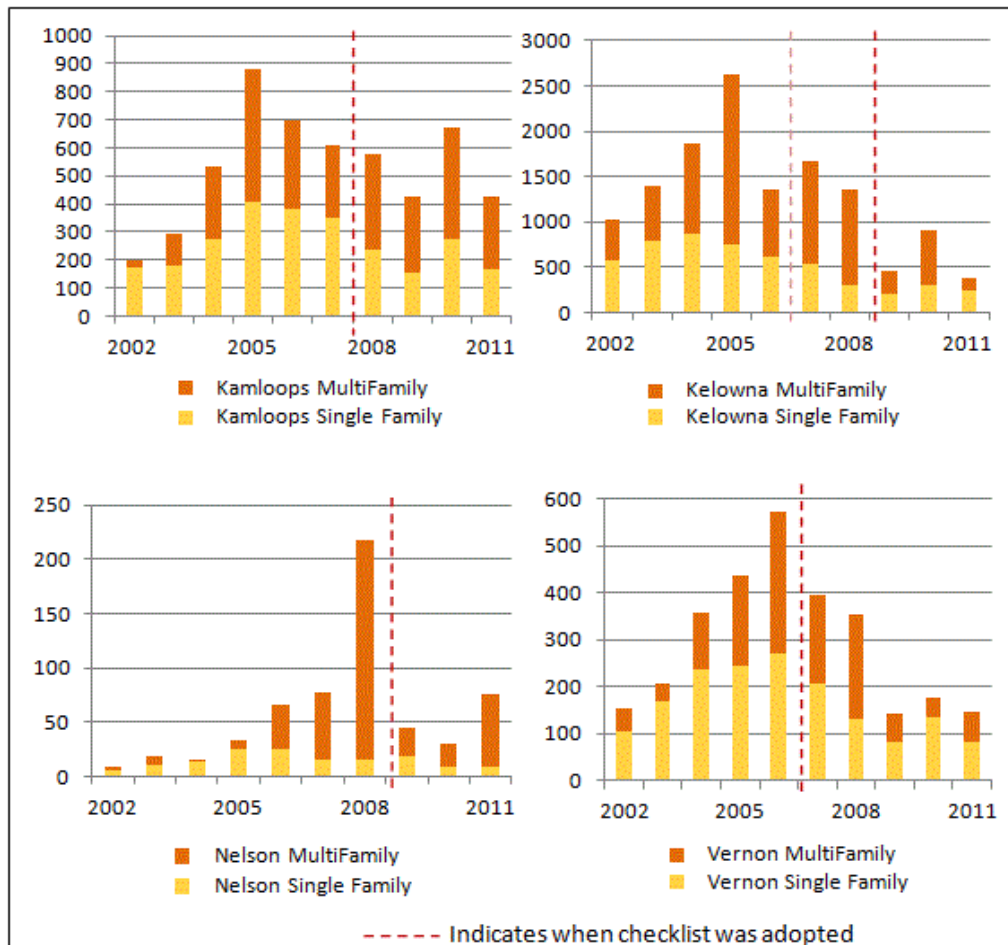
Municipality	Land Area 2011 sq. Km	Population Density per sq. Km in 2011	Boundary Change	
			2006 - 2011	2001-2006
Kamloops	299.23	286 (1.1*)	No	No
Kelowna	211.82	554 (2.2*)	Yes	Yes
Nelson	11.93	858(3.5*)	No	Yes
Vernon	95.76	398 (1.6*)	Yes	Yes
British Columbia	922,509.29	5	No	No

\* Indicates gross density of persons per acre

Kelowna and Vernon expanded their boundaries between both census periods while Nelson had a significant boundary change between 2001 and 2006. In general, the interior communities had a lower gross density than the coastal or lower mainland communities.

**Figure 3.7 Interior Residential Building Permits (Total Number of Units).**

Source: BC Stats.



Similarly to the other municipalities in this study, the interior communities experienced an increased number of permits in 2005 and 2006. Nelson had a greater number of multi-family permits than single family units from 2006 until the present time. Detached single family homes comprise over half of the housing stock in all four municipalities according the 2006 Census ranging from 51% to 58%. The percentage of rented dwellings ranged from 27% in Kamloops to 37% in Nelson. However, with the exception of Vernon, the interior municipalities have been issuing more multifamily permits than single family permits for most of the past 4 years.

Municipal statistics such as these help to describe a community but they are crude measures portraying a quick snapshot of some the sustainability issues and progress evident in a community. The preceding statistics indicate that progress is being made through increases to density with more multi-family homes permits issued and a slightly smaller percentage of people driving to work. However, 7 of the 22 communities studied have increased the size of their land base in at least one of the previous two Census periods, and in some communities single family dwellings remains the predominant housing form.

### ***3.4 Sustainability Legislation, Policy, Regulation and Initiatives***

In British Columbia municipalities are governed by the Local Government Act. In 2008 the Act was amended through Bill 27 which introduced changes assisting municipalities in addressing climate change and greenhouse gas reductions, energy and water savings, promoting compact development, and providing alternative transportation options. Local governments are now required to include greenhouse gas emission reduction targets, and policies and actions to achieve those targets, as part of their Official Community Plans. Prior to becoming a mandatory requirement through Bill 27, many municipalities were already taking action on this by voluntarily signing the BC Climate Action Charter. The BC Climate Action Charter commits a municipality to:

- 1) Becoming carbon neutral in their corporate operations by 2012;
- 2) Measuring and tracking community wide emissions ;
- 3) Developing compact, complete communities (Rutherford, 2009).

As of 2011, nearly all local governments have signed onto the Charter including all of the municipalities included in this research study. Most municipalities signed on shortly after it was introduced in 2007. In addition to requiring the inclusion of GHG reduction targets and policies, local governments are now also required to exempt small unit housing, defined as self-contained dwelling units with an area of 29 square meters or less, from Development Cost Charges.

The “Green Communities” Bill has also provided new opportunities for municipalities to encourage sustainable settlement patterns including the following:

- Expanded development permit powers now allow Development Permit Areas to be established for the purposes of greenhouse gas emission reductions, energy conservation or water conservation;
- The ability to waive or reduce Development Cost Charges for low impact or small lot development and affordable housing;
- Ability to vary off street parking requirements based on the transportation needs of a building or land use and greater flexibility in the collection of collecting cash-in-lieu for required off-street parking; and
- Use of the cash-in-lieu parking funds to provide infrastructure for alternative transportation options.

Changes to the Local Government Act have been accompanied by changes to the British Columbia Building Code (BCBC). Since 2008 the BCBC has required higher energy and water efficiency standards for all building types. Many communities have also chosen to adopt the solar hot water ready building code regulations including Kelowna, New Westminster, Pitt Meadows, Port Coquitlam, Port Moody, District of North Vancouver, Esquimalt, and Whistler. The “greening” of the BCBC is expected to continue to “reduce the environmental footprint of buildings over their lifespan” (Building and Safety Policy Branch, 2008) through potential

changes around the use of greywater systems, adaptive reuse of buildings, lighting sensors and greater energy efficiency.

In addition to changes to the Local Government Act and the BC Building Code, municipalities are responding to the push towards more compact, complete and sustainable communities through their own policies, regulations and initiatives. City of Surrey has adopted a Sustainability Charter committing the City to base all decisions on environmental, social and economic principles (City of Surrey, 2008). As described in the Charter, “the Sustainability Charter will be the City’s overarching policy document, which will guide the actions of the City. In the absence of other specific policies, general policy direction will be taken from the Charter”. Contained in the Charter is a vision of Surrey as sustainable city, which is supported by a series of goals and an action framework for addressing specific sustainability issues (City of Surrey, 2008). Other municipalities have embarked on a similar path through the creation of Integrated Community Sustainability Plans (ICSP). An ICSP is a “strategic business plan for the community that identifies short- medium- and long-term actions for implementation, tracks and monitors progress, and is reviewed on an annual basis. It is a big picture, holistic plan that provides guidance for the development or alignment of all municipal plans, policies and decisions (i.e. municipal development plan, transportation plan, energy plan, purchasing policy, capital planning, etc.), under one integrated decision-making framework” (Baxter & Purcell, 2007). As ICSPs are eligible to be funded provincially under the Federal Gas Tax Agreement and through the Federation of Canadian Municipalities Green Municipal Fund, many municipalities are choosing to combine ICSPs with Official Community Plans. Even in the absence of ICSPs, recently updated Official Community Plans usually have sustainability as a key and integrating focus.

Communities are guided by high level sustainability policy documents but they are also working to change urban systems to create resilient and sustainable communities. Examples

include comprehensive and innovative neighbourhood plans, active transportation plans, comprehensive rain water management strategies, public arts programs, economic development plans and affordable housing strategies. They are also working on sustainability issues at a very issue specific level through initiatives such as anti-idling bylaws, living wage policies, curbside organic waste collection and establishing community gardens. Sustainability checklists are part of the momentum towards sustainable communities and it can be used to integrate many of these different pieces within the context of development approvals and to track progress towards sustainability objectives.



## **4. RESEARCH METHODS**

The aim of this study is to identify how sustainability checklists are being used to shape development in BC communities focusing on the design and implementation of checklists, how these tools compare to current thinking regarding both sustainability assessment and sustainable urban design, and how effective checklists are in shifting current development practices towards more sustainable alternatives.

Municipal sustainability checklists were identified and analyzed by comparing checklists with elements identified in the literature review and with each other through a document analysis and online survey. Key informant interviews provided more detailed information on the design and use of the checklists as well as broader perspectives on the role of these tools in encouraging sustainable development practices. The methodology is described in detail in the sections below.

### ***4.1 Document Analysis***

A document analysis of twenty-four sustainability checklists (Appendix II) identified through an internet search and through discussions with municipal planning staff was conducted in order to gain an understanding of the various types and applications of municipal sustainability checklists and how they compare to the sustainability assessment literature. The document analysis followed the general approach outlined in Bryman (2004): gathering the checklist documents, generating categories and rules to guide the collection of data, testing the draft data collection schedule and revision, collecting data from the documents and then analyzing the results.

The researcher identified more than 30 topics within three broad areas of interest: 1) the design and format of the checklist documents, 2) the implementation process and use of the

checklist, 3) comparison of the principles of sustainable urban design to the checklist content. Topics were generated through the literature review on elements of sustainability assessment tools and principles of sustainable urban design. A copy of the analysis form and the rules governing data collection are contained in Appendix III.

The analysis form was designed to be quick and easy to use and captured many qualitative ideas and themes. In the case of this research practicum, the document analysis included both qualitative and quantitative content analysis as described by Bryman (2004) and Zeisel (2006). While Bryman's recommended characteristics of content analysis were considered in the design of the analysis form, they were not strictly adhered to:

***Discrete dimensions:*** have separate dimensions/topics with no conceptual overlap

***Mutually exclusive categories:*** no overlap between categories

***Exhaustive:*** for each dimension all possible categories should be available to coder

***Clear instructions:*** coder should have little discretion in how to allocate codes (Bryman 2004, p.194 – 195).

One analysis form was completed for each of the sustainability checklists. Data collected through the analysis form was largely thematic. The analysis form did not include an exhaustive code list and did not have mutually exclusive categories. Some degree of overlap was present within the principles of sustainable urban design. For example, one checklist may have described proximity to a mix of commercial, park, institutional and residential space in terms of compact development, others as increasing transportation options and connectivity, and others as diversity. Similarly, regarding the social, economic and environmental aspects of sustainability, one municipality may have attributed an indicator as part of social sustainability while another municipality may have attributed this same indicator to environmental sustainability.

All document analysis was conducted by the researcher. Collected data and observations were used to inform the development of survey and interview questions in addition to providing a basis for comparison of checklist documents. Specific topics were later explicitly coded to provide quantitative information.

Content analysis is considered to be a transparent research method because the coding scheme is clearly laid out and data is collected in a consistent and systematic manner (Bryman, 2004). However, there can be concerns regarding the reliability and consistency of the data (Bryman, 2004). Problems can arise when data isn't coded consistently between different people or when it isn't consistently coded by one person over time. In the case of this research practicum, one researcher coded the data for all checklists in a short amount of time. This ensured that the document analysis forms were filled out in a consistent and systematic manner. However, one disadvantage with having only one researcher working with the documents is that the coding scheme might not be as comprehensible to others wishing to replicate the study.

Another concern with content analysis is researchers inferring a code rather than it being apparent in the document being studied. This increases the potential for an erroneous assumption to be made. Not all of the topics or categories were readily apparent in the checklist documents which led to situations where some of the data was inferred. While not ideal, any inferences that were made were further explored through the survey or key informant interviews.

Another benefit of conducting a document analysis is the ability to monitor changes over time (Bryman, 2004). This is of particular benefit to studying municipal sustainability

checklists in British Columbia as municipalities that have had checklists in place for a number of years are starting to significantly alter their checklist tools.

## **4.2 Survey**

Building on the document analysis, an online survey was developed to gain a better understanding of the design and use of checklist tools and their effectiveness in transforming development practices. The document analysis included different applications of sustainability checklist tools such as plan implementation, land sales and green building checklists while the survey was conducted with reference to only those tools used in the development approvals process, the most common application of sustainability checklists. This allowed the researcher to construct a survey tool that had more relevance to the participants and allowed for a reasonable comparison of survey results.

Surveys are used to “discover regularities among groups of people by comparing answers to the same set of questions” (Zeisel, 2006, p. 257). They are typically distributed to a large number of people. In the case of this research practicum, the survey method was chosen as an inexpensive and efficient way to get input from planners in municipalities that are located in different areas of the province. Although the survey had a small sample, survey results are not used in a representative manner.

While surveys allow the researcher to compare answers from different respondents, it is difficult to gain a thorough insight through the collected responses. The information gleaned from the data is limited by the questions that are asked. Potential concerns with surveys include ambiguity in the wording of questions, an inability to expand upon the answers provided, inadvertently influencing responses through the question order or by asking leading questions,

an inability to control who is answering the survey questions, respondent fatigue, and low response rates (Bryman, 2004; Zeisel, 2006).

In the case of this research practicum, the researcher recognized the drawbacks of the survey method and tried to mitigate some of these concerns through the design of the online survey and by combining the survey method with the document analysis and key informant interviews.

The online survey was selected over surveys distributed by post or administered through the telephone as it allowed respondents to complete the survey at their convenience and to share the survey link with other planning staff. The survey was developed and hosted with Survey Gizmo, a web based survey software program. The survey was sent to planners in 17 municipalities in British Columbia via a link in a covering email explaining the research and inviting participation. 24 planners from 15 municipalities responded for a total of 18 completed responses and 6 partially completed responses. Planners were selected for participation based on their employment within a municipality that had adopted a checklist tool and their involvement in the design of the sustainability checklist or their use of the tool in the review of development applications. This information was gathered through the researcher's professional network and an internet search of municipal websites. In many cases, the planner receiving the survey referred it to other planning staff for completion based on their involvement with the sustainability checklist.

The survey took approximately 25 minutes to complete and had a total of 45 questions in five broad sections: background, design of the sustainability checklist, sustainability criteria, checklist implementation, and effectiveness of the checklist tool. Questions were primarily closed-ended with a combination of yes/no, likert rating scale, and checklist style questions

although several questions had the option of open ended responses inviting further comments.

A copy of the survey is provided in Appendix IV.

### ***4.3 Key Informant Interviews***

Key informant interviews compliment the document analysis and survey methods by providing an opportunity to explore topics in greater depth, for new topics to arise and to understand the perspective of the interviewee. As stated by Robson (2003), interviews “have the potential of providing rich and highly illuminating material” (p. 273).

The key informants interviewed for this research belong to one of three groups: planners working in local government, planners working as consultants, and developers. Interviewees were selected based on their involvement with particular types or application of checklists. Unlike the survey, which only involved those municipalities that use checklists in the review of development applications, the interviews provided an opportunity to explore different applications of the tool such as sustainability checklists used for land sales or plan implementation, those focused on green building, or those that have undergone substantial revisions changing from one checklist format to another.

The main research subjects in this practicum are planners. In order to better assess the influence sustainability checklists are having on development practices and to provide a more balanced perspective on the use of these tools, the researcher sought the input of developers identified as having completed sustainability checklists as part of their development proposal. The interview guides for planners and developers can be viewed in Appendix VI. A copy of the consent form is included in Appendix VII.

Interviews can be categorized into one of three types: unstructured, structured and semi-structured. Unstructured interviews can be described as having no predefined set of

questions. They often involve only a single broad topic with prompts that the interviewer may refer to during the course of conversation allowing the interviewee to direct the research with the focus on the interviewee's point of view (Bryman, 2004). Structured interviews are designed to maximize the reliability of the data and the interviewer adheres to a clearly specified set of research questions which reflect the researcher's concerns (Bryman, 2004). Semi-structured interviews lie somewhere between the two extremes. In semi-structured interviews, the researcher has a list of questions or particular topics that they wish to cover but there is a great deal of flexibility in the way that questions are asked and in the way the interviewee can respond (Bryan, 2004).

Key informant interviews were conducted either face-to-face or via telephone. Semi-structured interviews were selected to provide a list of topics to be explored in each of the interviews but to allow flexibility in responses. The emphasis in these interviews was gaining further insight on the use of sustainability checklist tools from the interviewee's perspective and not on comparability of the results. The researcher prepared an interview guide with a list of general topics and associated probes used to gain more specificity. The interview guide was adjusted prior to the interview depending on the experience of interviewee and it was also modified during the course of the interviews.

#### ***4.4 Analysis***

The document analysis was performed in two stages. In the first stage qualitative information was collected from each checklist using the analysis form included as Appendix III. In the second stage, topic areas were further coded to allow for a more detailed comparison and quantitative reporting of data. This information was recorded in a series of tables. However, the emphasis of the document analysis remained on collecting qualitative information which was

used to compare the different checklists and in the development of the survey and interview questions.

The online survey data was collected using the Survey Gizmo software. A summary report was generated by the software including response counts, charts and summary statistics for each of the closed-ended questions. Responses to open-ended questions were also included in bulleted form. A copy of the survey summary report generated by the Survey Gizmo software is included as Appendix V. As it was a small sample size, summary statistics such as mean, median and standard deviation were not included in the results. While the automatically generated report provides a useful summary, the survey data was also exported into a spreadsheet to allow for greater flexibility in analysis.

Each of the key informant interviews was digitally recorded and transcribed. Many respondents explored similar themes and responses of particular interest or those that highlight key concepts were included in the research findings. While 11 general themes were identified and coded within the transcripts, these were taken as literal codes and no further coding exercise was undertaken.

The results obtained through the document analysis, online survey and key informant interviews are discussed in Chapter Five and combined with contextual information described in Chapter Three into a series of nine key findings.



## 5. RESULTS

Results from the document analysis, online survey, and interviews are first presented separately and are later integrated into a series of key findings. Key findings present considerations for those wishing to pursue the use of these tools.

A document analysis was done for each of the sustainability checklists identified as part of this research practicum. The document analysis was performed to build an understanding of the types of sustainability checklists that are in use, how they compare to each other and to the literature on sustainability checklist tools, and to inform the development of the online survey and interview guide.

The online survey was used to build on the results of the document analysis and to collect initial feedback from municipal planners on the design, use, and effectiveness of sustainability checklist tools. The survey was not sent to municipalities with green building checklists or project specific checklists because of the different context and use of these tools. However, green building and project specific checklists are represented in both the document analysis and interviews.

While the document analysis and survey provide a useful foundation for comparing the checklists and provide some initial insight into how these factors will ultimately influence the outcomes of the sustainability checklists tools, this only begins to tell the story. Interviews were held with municipal planners, planning consultants and developers to gain a deeper understanding of why municipalities are choosing to develop checklists, how the checklists fit with other sustainability policies and planning tools, their impacts on development, and the benefits and limitations of using this tool. Interviews with key informants rounded out the

research findings and offered perspectives from individuals involved in the design and/or use of different checklist styles.

## ***5.1 Document Analysis***

A review of the twenty-four sustainability checklists provided an overview of these assessment tools including the function of checklists, the different checklist styles and formats used in BC, how long they have been in use, the type of development they apply to, what aspects of sustainability they are measuring, and the level of horizontal and vertical integration they exhibit. The document analysis was informed by the framework, approaches and components of sustainability assessment systems identified in the literature review.

### ***5.1.1 Function of Sustainability Checklists***

Assisting Council and staff in assessing development proposals and ensuring that they meet the sustainability objectives of the community was the most commonly stated purpose in the checklist information and supporting documents. Encouraging property owners and the development community to create more sustainable projects, providing guidance on how they can incorporate sustainability objectives into their proposed projects, and increasing knowledge and awareness of sustainability concepts were also frequently stated objectives. Less frequently mentioned functions of the sustainability checklist tool include:

- informing the public on how sustainable development goals will be met
- demonstrating to Council that the applicants have considered the impact that their proposed development will have on sustainability goals
- facilitating cooperation between the applicant and the local government to achieve sustainable development and develop a mutual understanding
- ensuring consistent treatment of development applications through a transparent process

- reducing the negative impacts of development
- documenting and monitoring how developments are incorporating sustainable design and green building technologies
- providing staff with a means to communicate sustainability objectives and assist in negotiating applications

### *5.1.2 Types of Sustainability Checklists*

As discussed in Chapter 3, the twenty-four sustainability checklists involved in the document analysis can be grouped into five broad types:

- 1) Sustainability statements;
- 2) Checkbox forms;
- 3) Scorecards;
- 4) Green building; and
- 5) Project specific.

Each of the five broad types varies by format, evaluation system, and/or the scope of the tool.

There is also considerable variation within each type of sustainability checklist. The five types are described below.

#### **Sustainability Statements**

Sustainability statements have a list of criteria or items related to a series of sustainability topics. Applicants then use the items in preparing a written response to each topic area. The items are generally high level and are used to encourage further consideration of the topic. For example, under the topic of “Community Character and Liveability” items or indicators may include: provides high quality architectural design, accessibility to parks and open space or contributes to the supply of affordable housing. There is variability on the specificity of the statements or indicators. For example, one sustainability statement document includes general indicators or items like how the project will enhance ecosystem function under the topic

heading of “Natural Environment”. Whereas another sustainability statement tool includes Ecological Protection and Enhancement as the topic under the broad heading of Environmental Sustainability, but then list a series of related items that are more specific such as “plants trees to enhance the urban forest”, or “create corridors for wildlife movement”. There is no evaluation system included with sustainability statements. Instead the focus appears to be demonstrating that the applicant is aware of sustainable features and has considered them in their proposed project. Of the five broad types of checklist tools, sustainability statements appear to be the most flexible. Potential benefits of this style of tool is that it may better stimulate discussion on sustainability objectives and through this discussion identify ways of addressing each objective that both the municipality and the applicant are comfortable with and that make sense for a particular development site. Potential drawbacks of using sustainability statement tools are that they provide little guidance to applicants or staff. Therefore the success in integrating sustainability concepts relies on the knowledge base of individual staff members and applicants, and the communication between them. It may also take more time for the applicant to prepare and for staff to review. As the indicators are quite broad, flexible and qualitative in nature, this style of tool has limited capacity to be used for comparison, monitoring or benchmarking purposes. Four of the twenty-four checklists reviewed were classified as sustainability statements, all of which were adopted prior to 2008.

### **Checkbox Forms**

Checkbox forms include each topic area as headings followed by a series of typically yes or no questions with space to explain each response. The questions or indicators tend to be a mix of higher level questions, similar to sustainability statements, and more directed questions. For example, the checklist might ask if the project contributes to the supply of affordable housing and then ask applicants to supply the number of units and percentage of total units that

are non-market housing or rental housing. Newer checkbox forms tend to include a greater number of quantitative measures, performance based indicators, and targets. In one of the older checkbox forms the applicant may be asked to comment on the energy efficiency of their proposed house, and under a newer checkbox tool, be asked if the building achieves an EnerGuide 80 rating. Checkbox forms do not include an overall project score or rating but do record the presence or absence of features. However, some tools do provide a qualitative staff rating or assessment such as meets or exceeds expectations, or poor, satisfactory, good, and exemplary. One benefit of the checkbox form is that it provides more direction to staff and applicants. Another potential benefit is that they facilitate monitoring of development practices by recording the presence or absence of specific features through yes/no questions or identifying amounts and trends through the statistical and quantitative information provided. Potential concerns with this tool are that it may be too prescriptive to be relevant to different types of development or site conditions, that it can inhibit creative solutions, and that it produces a lengthy document in which it is difficult to assess how a potential project is addressing the sustainability of a community. Ten of the twenty-four sustainability checklists reviewed as part of this research were classified as checkbox forms. The first sustainability checklist adopted in 2004, the Smart Growth Checklist, was a checkbox form and was copied nearly verbatim by several other municipalities. Recently adopted checklists continue to use the checkbox style tool but have increasingly diverse formats and content.

### **Scorecards**

Scorecard style tools are again divided into a series of sub-topics each followed by a series of related questions or parameters. Like checkbox tools, the sustainability criteria or items are a mix of broader higher level considerations and specific items, performance based measures, or targets. However, all of the scorecard tools include a numerical evaluation system

where each item is assigned a point value. Scorecard style checklists vary in that some are simply total scores; others include further weightings or triple bottom line analysis. Scoring is either done by the applicant or by staff and some tools have both applicants' and staff assigning points before arriving at a final score. None of the checklists set a pass/fail threshold although oftentimes achieving a specific score or rating will be linked to the eligibility to receive an incentive. Primary benefits of scorecards are that they provide a barometer which allows staff, Council or members of the public to quickly see how well a development is meeting the community's sustainability objectives and they facilitate the monitoring of development trends and achievements. It also provides a mechanism for communicating Council and community priorities by assigning those features which are considered to be more important higher point values. Potential concerns regarding scorecard tools include those of the checkbox tools related to prescriptive measures. Additionally, there may be concerns with how points are allocated and how scoring is done. Larger point values might be allocated for things not relevant to a particular development therefore the score could be artificially low or the points might not reflect the overall impact that a particular feature has on sustainability. Scoring is a subjective exercise and can be quite complex. Consistency between how different applicants score their projects, between different staff members and between staff and applicants are all potential concerns for the comparable usefulness of the scorecard. Five of the twenty-four sustainability checklists studied were classified as being scorecards. One of these scorecard tools was adopted in 2006; the other four scorecard tools were adopted in 2008 or later.

### **Green Building Tools**

The fourth classification of sustainability checklist tools is green building tools. Green building tools incorporate various aspects of the previous three types of sustainability checklists, but typically represent checkbox or scorecard formats. The differentiation between green

building checklists and the three previously discussed styles is what it is they are measuring. Green building tools reduce the checklist scope by only including building and site related criteria rather than broader scale criteria such as land use and urban structure. Reducing the scope of the tool can make it more relevant to an application at a specific stage thereby avoiding the situation where the sustainability checklist is asking about land use in one item and the percentage of dual flush toilets in another. Potential concerns with the green building tool relate to jurisdiction and the limited ability to require more than the building code for most development approvals. There may also be difficulty in assessing whether or not features have been included as they are “in the walls” or “in the ground”. More broadly, restricting the tool to building or site level criteria may diminish the capacity of the tool in achieving more sustainable development patterns. Three of the twenty-four sustainability checklists were classified as green building style tools, all of which were adopted in 2008 or later.

### **Project Specific Tools**

The final group of sustainability checklist tools are the project specific tools. Project specific tools are created for one specific purpose or project rather than a broader use in the review of development applications across the municipality. Two project specific tools are included as a part of this research. One utilized the tool in the evaluation of proponents’ development proposals in the sale of land owned by the municipality. The other will be used in plan implementation and identifies a series of checkpoints in the approval process and post occupancy to ensure that the development is meeting a series of parameters and targets outlined in the neighbourhood plan and development concept. Both of the project specific checklists are used in connection to compact, mixed use development on former industrial sites.

The five categories of sustainability checklists provide a useful way to discuss the different checklist formats but there are variations within these five styles and in some cases a combination of styles is used. For example, in one municipality the applicant completes a written sustainability statement and staff fills out a checklist based on that statement. In three other municipalities, applicants first complete a checkbox form and later fill out a green building style checklist tool. Two of the municipalities included in this study began with sustainability statement tools and have recently replaced them with scorecards.

### *5.1.3 Types of Development that Sustainability Checklists Are Applied To*

The review of municipal sustainability checklists confirmed that the scope of the checklists varies substantially including the type of land use, location, and the development approval sought (Table 5.1). Most of the sustainability checklists apply to the entire municipality for all land uses (single family and multi-family residential, mixed-use, commercial, industrial, and institutional) dependant on the development approval sought: official community plan amendment, rezoning, development permit, development variance permit, subdivision or building permit. For example, an applicant may apply to build a single family residence. Whether or not he or she must complete the checklist might depend on if the property requires rezoning, subdivision or a significant variance to the zoning bylaw. If none of these situations apply, in most municipalities the applicant will not be required to complete a sustainability checklist. In some municipalities the sustainability checklist is only applied to certain types of development. For example, in New Westminster single family residential development and multi-family residential development with fewer than four units are not required to complete checklists. In Kelowna, the sustainability checklist only applies to multi-family residential or commercial development. On Salt Spring Island, the checklist applies only to residential development including single family. But in most municipalities, the sustainability checklist is applied based on



the development approval sought rather than the type of development or land use. Typically checklists only apply to new development although at least one municipality is considering including renovation projects.

As shown in Table 5.1, sustainability checklists nearly always apply to rezoning applications. This is expected as rezoning is discretionary and provides the greatest opportunity to require and achieve sustainability features. Development permit approvals represent a much more limited opportunity to require the sustainability criteria found in checklists yet the majority of sustainability checklists also apply to applications for development permit. This means that all multi-family residential, commercial and industrial development will likely require sustainability checklists in processing applications. In addition to applications for rezoning and development permit, approximately half of the municipalities studied in this research also require sustainability checklists for development variance permits, OCP amendments, and subdivisions. Very few municipalities require sustainability checklist as part of building permit applications. The type of development approval which triggers the checklist has a significant impact, not only on the design of the checklist, but on the influence that this tool has in creating sustainable developments as is discussed in Section 5.3.

**Table 5.1 Development Approval Stage to which the Sustainability Checklist Applies**

Municipality	OCP Amendment	Rezoning	DP	DVP	BP	Subdivision	Other
Comox							local area plan, municipal infrastructure
Coquitlam							local area plan, development agreement, occupancy
Courtenay							
Cumberland							
District of North Vancouver							DP and BP are voluntary
Esquimalt							
Gibsons							
Kamloops							temporary commercial or industrial use
Kelowna Revised Version		multi-family , commercial	multi-family , commercial				
Kelowna Original Version							
Langley							
Nelson						preliminary layout	

Table 5.1 continued

	OCP	Rezoning	DP	DVP	BP	Subdivision	Other
New Westminster Revised		not residential < 4 units		major DVP only			special DP
New Westminster Original							
Pitt Meadows							
Port Coquitlam							
Port Moody							
Saanich		5 + SF lots, multi-family, commercial, industrial	6 + SF lots, multi-family, commercial, industrial				
Salt Spring		residential	residential	residential	residential		includes additions, renovations, accessory structures
Surrey						3 or more lots	land use contract
Squamish							
Vernon							
Victoria							project specific sale of City owned land
Whistler		detached & duplex	detached & duplex		detached & duplex		other development types use third party certification
<b>Total (24)</b>	<b>13</b>	<b>23</b>	<b>22</b>	<b>10</b>	<b>2</b>	<b>11</b>	<b>6</b>

OCP= Official Community Plan Amendment

BP = Building Permit

DP = Development Permit

DVP= Development Variance Permit

While most checklists have been and continue to be applied to development across the municipality, three of the sustainability checklists studied only applied to certain areas of the municipality. In both Kamloops and Coquitlam, the checklists were used in conjunction with specific neighbourhood plans. For both cities, only development occurring within the neighbourhood plan area was subject to the sustainability checklist. In Victoria, the checklist was used to evaluate different development options for a specific project involving the sale of land owned by the municipality.

#### 5.1.4 Sustainability Checklist Criteria

Sustainability criteria (items in the checklists used to assess projects) were compared to principles of sustainable urban design identified through the literature review (see Section 2.3). Criteria were categorized according to which principle of sustainability urban design they related to. Many of the checklist criteria can be categorized into more than one principle reflecting the interconnectedness and interdependencies inherent in discussions concerning community sustainability. Where there was overlap, the criteria were categorized according to the principle of sustainable design to which they most closely relate. Two of the green building style checklists were not included in this analysis as they were intended for a much more specific scale or utilized third party rating systems. Table 5.2 provides the results of this analysis.

**Table 5.2 Categorization of Sustainability Checklist Criteria According to Principles of Sustainable Urban Design**

Principles of Sustainable Urban Design	# of Criteria	Subtheme <i>Note: subthemes listed in order from those with the greatest number of related criteria to those with least</i>
Resource Efficiency	229	<ul style="list-style-type: none"> <li>- energy efficiency</li> <li>- reduced water consumption</li> <li>- green certification systems</li> <li>- recycled or environmentally friendly materials</li> <li>- decreases construction waste</li> <li>- reduces household or business waste</li> </ul>

		<ul style="list-style-type: none"> <li>- use of previously developed land/brownfield</li> <li>- longevity of building materials</li> <li>- reduced operations and maintenance costs</li> <li>- environmental education and awareness</li> <li>- involvement of green building professionals</li> <li>- use of locally available materials</li> </ul>
Connectivity	27	<ul style="list-style-type: none"> <li>- fine grained development, interconnected street network</li> <li>- connections within site and to destinations</li> </ul>
Diversity	120	<ul style="list-style-type: none"> <li>- provides a variety of housing options</li> <li>- mixed use development or adds new use</li> <li>- provides affordable housing options</li> <li>- barrier free housing</li> <li>- provides supportive housing options</li> <li>- located in an area that contains a mix of uses</li> </ul>
Resiliency	73	<ul style="list-style-type: none"> <li>- renewable energy</li> <li>- passive design</li> <li>- onsite waste management</li> <li>- natural hazards mitigation</li> <li>- resilient/alternative infrastructure</li> <li>- food security</li> <li>- flexibility and adaptability of building design</li> <li>- harvest rainwater</li> </ul>
Sense of Place	68	<ul style="list-style-type: none"> <li>- heritage</li> <li>- character and identity</li> <li>- public art</li> <li>- connection to natural setting</li> <li>- high quality architectural elements</li> </ul>
Compact Form	34	<ul style="list-style-type: none"> <li>- increased density or intensity of use</li> <li>- infill development</li> <li>- located in designated growth areas</li> </ul>
Respect for Natural Systems	153	<ul style="list-style-type: none"> <li>- improved rainwater management</li> <li>- conservation and preservation of natural systems</li> <li>- provides or protects wildlife habitat</li> <li>- minimize or eliminate pollution</li> <li>- works with natural site condition</li> <li>- retain and enhance the urban forest</li> <li>- environmental behaviour &amp; stewardship</li> <li>- reduces heat island effect</li> </ul>
Economic Health	84	<ul style="list-style-type: none"> <li>- provides jobs during and after construction</li> <li>- diversity of local economy and economic development</li> <li>- fiscal responsibility</li> <li>- protects and provides more employment lands</li> <li>- provides training opportunities</li> <li>- green business plan</li> </ul>
Transportation Choice	113	<ul style="list-style-type: none"> <li>- provides pedestrian &amp; cycling infrastructure</li> <li>- provides opportunities for alternative modes of transportation (transit, car share, TOD etc)</li> <li>- increased walkability &amp; shorter trip lengths</li> <li>- prioritizes pedestrian and cycling access</li> </ul>

		- creating multi-modal streets
Regional Context*	6	- supports regional growth strategy
Public Involvement	16	- public involvement in the planning and design process
Human Comfort	188	<ul style="list-style-type: none"> <li>- enhances the public realm and streetscape</li> <li>- provides community gathering spaces, events and activities</li> <li>- safety and security</li> <li>- provides amenities</li> <li>- legible urban structure &amp; human scale design</li> <li>- provides green space and open space</li> <li>- healthy indoor environments</li> <li>- universal design and accessibility of public places</li> <li>- mitigates noise</li> </ul>
Other	23	<ul style="list-style-type: none"> <li>- incorporation of innovative sustainability features</li> <li>- supports the goals of OCP</li> <li>- sustainability feature conflicts with existing regulation</li> </ul>

\* Many of the criteria related to the regional context such as protecting regional ecosystems and agricultural land were covered in other sections, namely resiliency

The largest number of sustainability criteria related to resource efficiency. This was followed by human comfort, respect for natural systems, diversity and transportation choice. Connectivity, compact form, public involvement and regional context had the fewest number of sustainability criteria. Regional context was largely absent from the sustainability checklists including the subthemes of improving the rural/urban interface and regional coordination although some aspects such as protecting land in the Agricultural Land Reserve were covered by other principles such as resiliency. Taking a step back and considering the principles in the context of the three pillar approach, there is more sustainability criteria related to environmental sustainability indicators than to social sustainability indicators. Economic sustainability is a distant third. However, many of the sustainability criteria benefit more than one pillar. The emphasis of environmental criteria was observed in the individual checklists with few exceptions as well as to sustainability checklists as a whole.

Another way of studying the sustainability criteria is according to spatial scale. As can be seen in the table above, many of the more frequently observed sustainability criteria apply

predominantly at the building or site level versus at a broader scale such as the neighbourhood. Through the document analysis it was determined that approximately 60% of the criteria were related to the building or site level while approximately 39% related more to the neighbourhood scale. The other 1% represents criteria that didn't necessarily apply to either scale or could apply equally to both such as including an innovative sustainability feature.

Lastly, sustainability checklists had more qualitative criteria than quantitative criteria for each of the checklists studied. Sustainability statement tools had exclusively qualitative criteria. Checkbox formats were also predominantly qualitative but often incorporated quantitative criteria or criteria that lend themselves to quantitative responses. The sustainability checklist styles that tended to have the most quantitative information were scorecards, the plan implementation checklist, and one of checkbox tools designed with monitoring in mind.

#### *5.1.5 Integration of Sustainability Checklists with Other Policies and Regulations*

Sustainability checklists are often linked to a municipality's Official Community Plan (OCP) and other policies and regulations. Several of the municipalities identified in this research practicum had Official Community Plans which included the development of a sustainability checklist as an action item. Many checklist documents are also embedded within the OCP document. Within the checklist document, often the introductory section of the checklist will establish the policy framework and connect the checklist to broader sustainability objectives, the OCP, or the Strategic Plan. In some circumstances each sustainability topic or category begins by citing relevant OCP policy. References to the OCP and other policies and regulations are also occasionally attached to individual sustainability criteria or included within a resources section at the end of the checklist document.

Part of the document analysis involved looking at the vertical integration of the checklist tools to see whether or not links between the checklist and both broader policy and more specific regulations were apparent within the checklist and corresponding documents. Sustainability checklists were classified as demonstrating strong vertical integration if was clearly linked with both higher and lower level policies. For example, the OCP policy contained a direct reference to the sustainability checklist, the checklist directly references the OCP, and the checklist criteria directly references specific council adopted policies or regulations such as zoning regulations, development permit area guidelines, or specific bylaws or initiatives such as pesticide bans, eco feebates etcetera. Sustainability checklists which appear to be moderately integrated appear to have some connection to higher and/or lower level policies but they not clearly linked or are only linked in one direction. For example the OCP might not reference the checklist but the checklist does refer to the OCP in the introductory section. Or the checklist may contain several references to other regulations or policies within the sustainability criteria but not clearly link the checklist to any Council adopted policy within the introductory section. Sustainability checklists that appeared to be completely independent documents and contained little to no reference to higher or lower level policies in regulations, other than perhaps in the resource section at the end, were classified as having weak vertical integration. The following is a summary of the vertical integration demonstrated by the sustainability checklists studied:

- 8 of the municipal sustainability checklists appear to have strong vertical integration tying into higher level policies such as the OCP, Sustainability Plans or Strategic Plans and lower level specific policies/regulations such as green roofs policy, transportation requirements, stormwater management, sediment and erosion control, wildlife proof waste bins etc.
- Of the 8 that appeared to have stronger vertical integration, 3 were developed in connection to Local Area or Neighbourhood Plans and 3 others were linked to specific comprehensive sustainability strategies or green building policies.



- 12 of the sustainability checklists appear to have a moderate connection with higher and lower level policies.
- 4 of the sustainability checklists appear to have little or no connection with higher or lower level policies. This does not mean that no connection exists only that the connection it is not readily apparent to the user.

While in most cases the sustainability checklists are linked in some manner to the OCP or other council adopted policy, in some cases checklists are linked less to the OCP and regulations of a particular municipality and are instead derived from other planning frameworks such as Smart Growth, LEED-ND or a green building certification program.

#### *5.1.6 Summary of the Results from the Document Analysis*

The checkbox format is the most commonly utilized style of sustainability checklist but there is an increasing diversity of approaches. There appears to be a trend towards the use of scorecards and in reducing the scope of the checklist tools by creating separate checklists for different types of land uses or at different approval stages. There does not appear to be a correlation between the style of the sustainability checklist and the size of the municipality and despite many checklists appearing in a region around the same time, no regional approaches have emerged. The lack of a regional approach was also reflected in the survey where only 3 respondents indicated that the checklist was intended to be consistent with neighbouring jurisdictions (section 5.2). Instead nearly all municipalities appear to have customized the sustainability checklist tool to some extent although a couple of the earlier checklists were adopted near verbatim from other jurisdictions.

Sustainability checklists typically apply to applications for rezoning and development permits for multi-family, commercial and industrial developments. Several checklists also apply

to single family dwellings either through the rezoning process or with green building checklists. Approximately half of sustainability checklists apply to subdivision approvals.

Most of the sustainability checklist documents appear to be integrated with other municipal policies and regulations but this observation does not consider how they are used in practice. Integration with other policies and tools was further explored in the online survey. Checklist criteria include elements of environmental, social and economic sustainability; however, there is an emphasis on environmental criteria and criteria which are at the building or site specific level. The most commonly included criteria are related to the principles of resource efficiency and water and energy conservation account for approximately half of the criteria related to resource efficiency.

The document analysis provides an overview of the checklist tools but to develop an understanding of how they are used in practice, and how effective these tools are in encouraging sustainable development, an online survey was sent to planners in many of the checklist municipalities. The survey results are reported next.

## ***5.2 Survey Responses***

The survey included 45 questions in five categories: background, design of the sustainability checklist, sustainability criteria, implementation, and effectiveness of the checklist tool. The survey was sent to planners in 17 BC municipalities. Twenty-four planners from 15 municipalities responded for a total of 18 complete responses and 6 partially completed responses. The following subsections present the main survey findings. Survey questions are included in Appendix IV. The full survey results are found in Appendix V.

### ***5.2.1 Background***

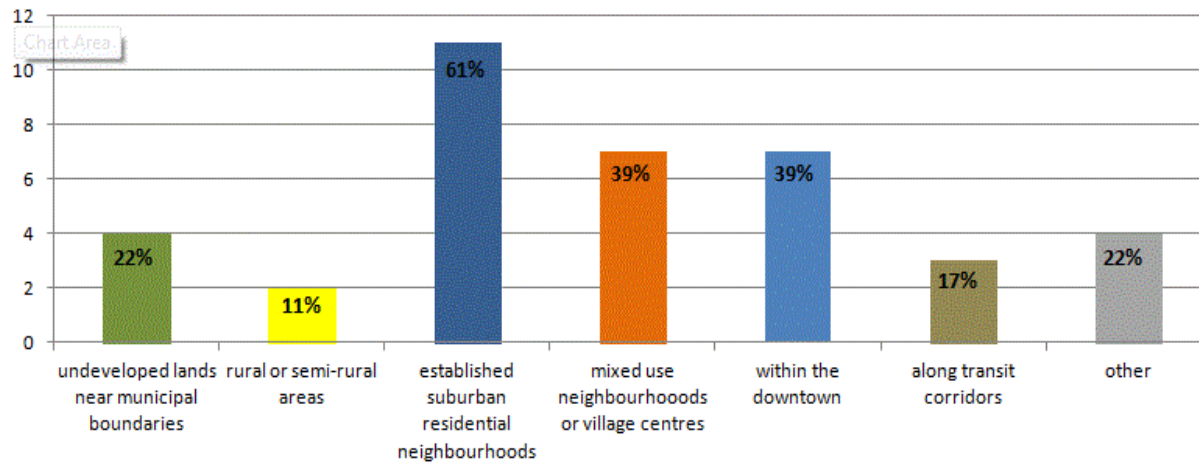
Municipalities had populations ranging from 3,100 to 475,000. Approximately half of the municipalities have Official Community Plans which were adopted in the past 5 years and most (75%) have also adopted local area plans or neighbourhood plans. When asked where the majority of residential growth has occurred, the most frequently chosen responses were in established suburban residential neighbourhoods, within the downtown, and in mixed use neighbourhoods or village centres (Figure 5.1). Those that chose “other” mentioned brownfield sites or referred to a combination of the listed options.

The development of the checklist tool from the initial idea until it was implemented generally took less than 2 years. Approximately half of the 20 respondents indicated that the checklist tool has been recently revised or that updates to the checklist are planned. Respondents were asked to indicate how they were involved with the checklist tool; 63% indicated that they use the checklist to discuss development proposals with applicants, 50% indicated that they were involved in the design of the checklist/assessment tool and 42% indicated that they use the checklist to make decisions or recommendations to decision-makers

regarding development proposals. Only 13% of respondents used the checklist to evaluate or monitor development patterns.

**Figure 5.1 Where Most Residential Growth Has Occurred Over the Past 5 Years**

**Credit: Erin Ferguson. Source: Question #5 (Appendix V).**



### 5.2.2 Checklist Design

Responses to the survey question “the purpose of the checklist/evaluation tool is to...” were consistent with the results of the document analysis. Overall, the greatest number of participants strongly agreed with “educate the development industry...”, and the greatest number of participants that either disagreed or strongly disagreed with a stated purpose was to “making the development review process more efficient”. Of those respondents who indicated “other”, the common theme was communicating standards, requirements and sustainability concerns to applicants ahead of project submission.

In most circumstances, respondents indicated that the checklist was designed primarily by land use planning staff with some involvement from staff in building, engineering and parks departments, members of Council and the development industry (Table 5.3). Neighbourhood associations, social agencies, and environmental organizations had the least involvement in the development of the checklist tool. Of those that responded “other”, most indicated the

involvement of Council Committees and one respondent indicated that the checklist was developed with the assistance of Smart Growth on the Ground, a local organization dedicated to assisting BC municipalities in the preparation of sustainable development plans and policies. Only three respondents (18%) indicated that the checklist was intended to be consistent with neighbouring jurisdictions.

**Table 5.3 Groups involved in checklist design and their level of involvement**  
**Credit: Survey Gizmo. Source: Question #11 (Appendix V).**

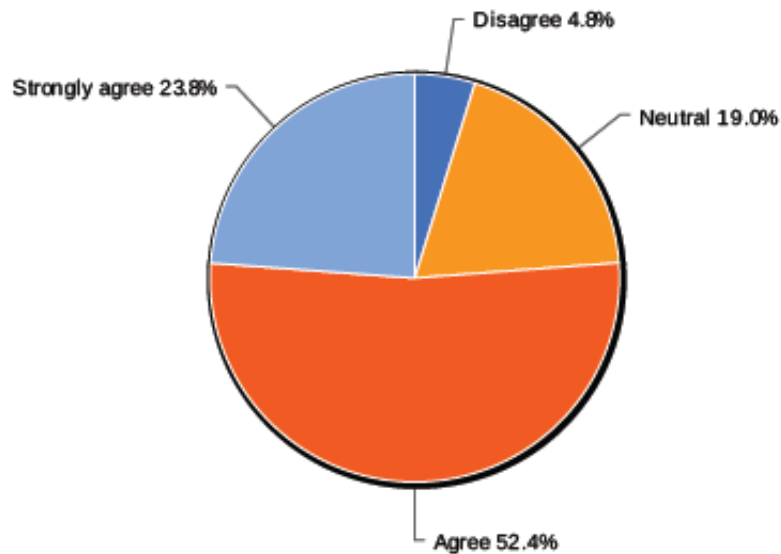
	Very involved	Some involvement	Little involvement	No involvement	Don't know	Total
Land Use Planning	81.0% 17	9.5% 2	0.0% 0	0.0% 0	9.5% 2	100% 21
Engineering/ Transportation	5.0% 1	40.0% 8	20.0% 4	15.0% 3	20.0% 4	100% 20
Parks	10.5% 2	31.6% 6	21.1% 4	15.8% 3	21.1% 4	100% 19
Building	5.0% 1	45.0% 9	20.0% 4	10.0% 2	20.0% 4	100% 20
Development Industry	5.0% 1	30.0% 6	25.0% 5	15.0% 3	25.0% 5	100% 20
Members of the Public	5.0% 1	10.0% 2	35.0% 7	30.0% 6	20.0% 4	100% 20
Members of Council	10.0% 2	30.0% 6	35.0% 7	15.0% 3	10.0% 2	100% 20
Sustainability or Green Building Consultants	5.0% 1	15.0% 3	30.0% 6	25.0% 5	25.0% 5	100% 20
Neighbourhood Associations	0.0% 0	10.0% 2	10.0% 2	60.0% 12	20.0% 4	100% 20
Environmental Organizations	0.0% 0	15.0% 3	15.0% 3	40.0% 8	30.0% 6	100% 20
Social Agencies	0.0% 0	5.0% 1	10.0% 2	60.0% 12	25.0% 5	100% 20

### 5.2.3 Sustainability Checklist Criteria

The majority of respondents felt that the content of the sustainability checklist reflects the policies and goals of the Official Community Plan (strongly agree = 27%, agree = 59%) and an even greater number agreed that the checklist reflects Smart Growth principles (strongly agree = 27%, agree = 68%). Many also felt that the checklist incorporates criteria from green building rating systems (strongly agree = 23%, agree = 64%) with fewer indicating that the checklist

reflects principles of New Urbanism (strongly agree = 9%, agree = 46%). Most respondents also felt that many of the checklist criteria or sustainability indicators are directly related to Council adopted policies (Figure 5.2).

**Figure 5.2. Many of the checklist criteria are directly related to Council adopted policies.**  
Credit: Survey Gizmo. Source: Question #20 (Appendix V).



Participants were also asked to indicate whether or not the checklist adequately addressed a series of principles of sustainable urban design. Table 5.4 provides a summary of these results. Overall, the majority of respondents agreed that all principles of sustainable urban design were adequately addressed with the exceptions of resiliency and adaptability, regional context and public involvement. Preservation of natural systems, resource efficiency, multi-modal transportation, and a mix of land uses were the principles that the greatest number of respondents felt were adequately addressed in the checklists. This is largely consistent with the findings of the document analysis. Respondents also felt that the checklists provide a balance between building or site level criteria and neighbourhood or regional level sustainability criteria (strongly agree 14%, agree 57%, disagree 10%, neutral 19%).

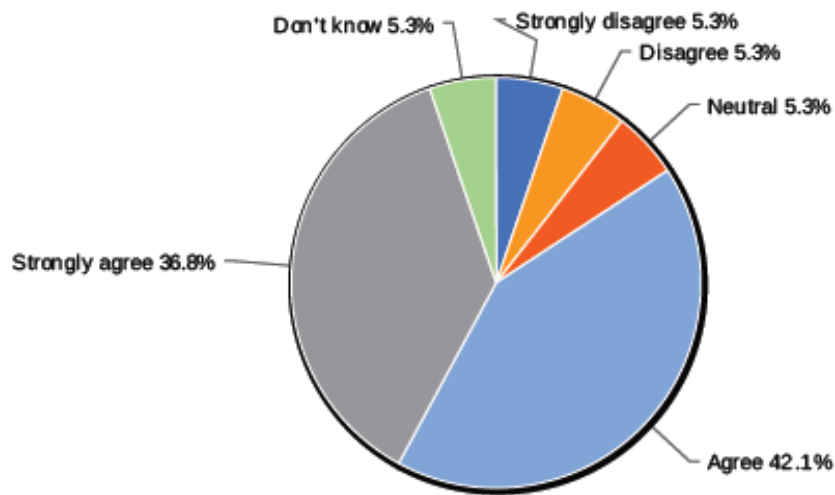
**Table 5.4. The checklist adequately addresses principles of sustainable urban design**  
**Credit: Survey Gizmo. Source: Question # 19 (Appendix V).**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know	Total
Interconnected and fine grained urban structure	0.0% 0	22.7% 5	18.2% 4	45.5% 10	9.1% 2	4.5% 1	100% 22
Compact form and increased density	0.0% 0	9.1% 2	18.2% 4	54.5% 12	18.2% 4	0.0% 0	100% 22
Multi modal transportation systems	0.0% 0	4.5% 1	13.6% 3	68.2% 15	13.6% 3	0.0% 0	100% 22
Employment opportunities	4.5% 1	13.6% 3	13.6% 3	59.1% 13	9.1% 2	0.0% 0	100% 22
Mix of land uses	0.0% 0	4.8% 1	9.5% 2	71.4% 15	14.3% 3	0.0% 0	100% 21
Diverse housing choices (type, tenure, cost)	0.0% 0	4.5% 1	18.2% 4	59.1% 13	13.6% 3	4.5% 1	100% 22
Preservation of natural systems	0.0% 0	9.1% 2	0.0% 0	68.2% 15	22.7% 5	0.0% 0	100% 22
Resource efficiency (energy, water, waste, materials)	0.0% 0	13.6% 3	0.0% 0	59.1% 13	27.3% 6	0.0% 0	100% 22
Resiliency and adaptability	4.5% 1	18.2% 4	45.5% 10	22.7% 5	4.5% 1	4.5% 1	100% 22
Sense of place	0.0% 0	22.7% 5	22.7% 5	45.5% 10	9.1% 2	0.0% 0	100% 22
Human comfort (beautification, safety, cleanliness, human scale)	0.0% 0	27.3% 6	18.2% 4	54.5% 12	0.0% 0	0.0% 0	100% 22
Regional context	4.8% 1	23.8% 5	33.3% 7	38.1% 8	0.0% 0	0.0% 0	100% 21
Public involvement	9.1% 2	36.4% 8	31.8% 7	22.7% 5	0.0% 0	0.0% 0	100% 22

#### 5.2.4 Checklist Implementation

Respondents indicated that sustainability checklists are an important part of pre-application discussions with applicants (Figure 5.3). Consistent with the document analysis, nearly all respondents indicated that sustainability checklists are used in the review of rezoning and development permit applications. Fewer respondents used checklists in the review of development variance permit and subdivision applications.

**Figure 5.3. Checklists are a key part of pre-application discussion with developers and their consultants. Credit: Survey Gizmo. Source: Question #23 (Appendix V).**



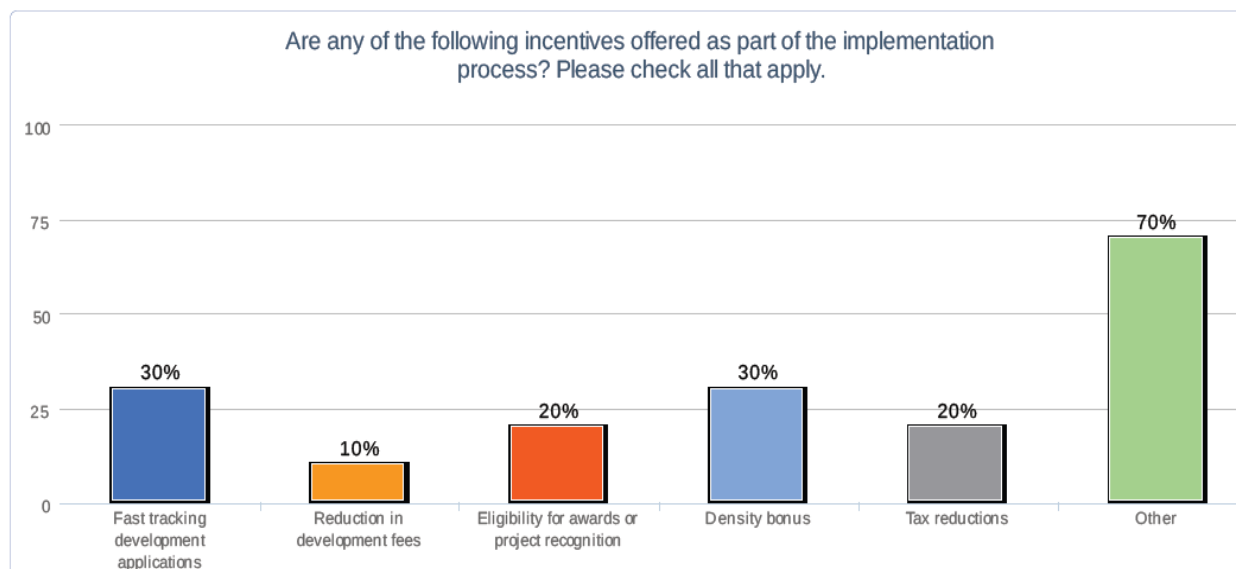
When asked about the implementation process, the majority of respondents (74%) indicated that there was no set minimum number of criteria that applicants are required to achieve, and that the distribution of criteria was not important (68%). However, certain criteria were considered to be more important than others (Yes = 63%, No = 37%). Several respondents stated that specific items are required or that applicants were required to achieve a minimum score. Two respondents indicated that introducing a minimum requirement was being considered as part of updates to the checklist. In responding to the question “are certain criteria considered more important than others in reviewing the checklist”, respondents provided the following explanations: criteria are part of a weighted evaluation system indicating the significance of the item, importance depends on the site and location, and that some items are required with others negotiable or not relevant. A couple of respondents indicated that specific criteria were considered to be more important such as those related to green building or stormwater management. Of the respondents who felt that the distribution of criteria was important, several mentioned that it is intended that applications address criteria in each of the



categories in some capacity and others that this was incorporated into a scoring system or weighted to reflect a triple bottom line approach.

Less than half of respondents indicated that incentives are available to applicants as part of the sustainability checklist implementation process. This question appeared to be poorly worded. The most frequently selected response was “other” (Figure 5.4) but when looking at the associated written responses, participants indicated that incentives were not currently available. Two participants indicated that incentives were specific to the project and not universally available and another indicated that incentives are available for projects with specific environmental or social benefits but that these were offered separately from the checklist process through other mechanisms. During the course of the survey, one respondent also indicated that because the completed checklist is included as a report to Council, it provided incentive to address many of the criteria. Most of respondents (84%) indicated that checklist results are included as part of reports to Council or approving authority.

**Figure 5.4 Incentives offered as part of sustainability checklist process.**  
**Credit: Survey Gizmo. Source: Question #28 (Appendix V).**

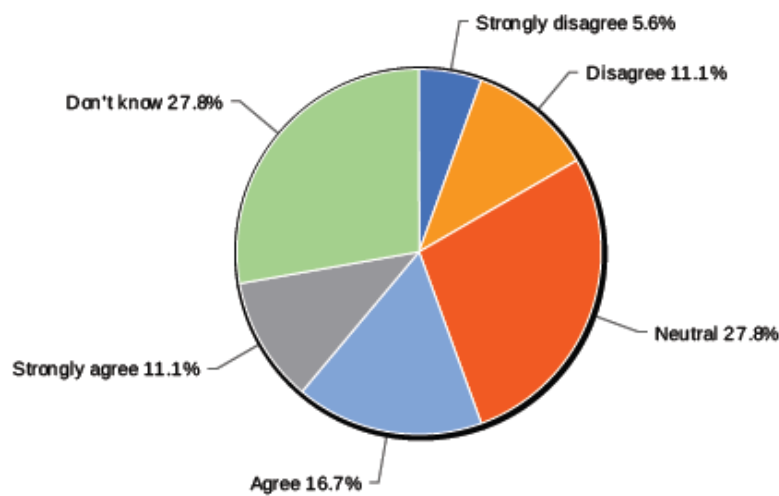


### 5.2.5 Effectiveness of Sustainability Checklist Tools

Overall, responses in this section of the survey were mixed indicating that checklists are not as effective as some had anticipated. The high number of “don’t know” responses may reflect the fact that many of the municipal sustainability checklists have only been adopted in the last two years therefore not enough projects have gone through the checklist process to be able to comment on the effectiveness of the tool.

Responses to the statement “I feel that the checklist/assessment tool has been successful in creating development that is more sustainable than conventional development practices” were varied (Figure 5.5). When responses to this question were compared with the type of checklist tool (Table 5.5), it appears that the statement style of checklist may be slightly less effective than others; however, this represents a slight variation and doesn’t account for other potential factors.

**Figure 5.5. I feel that the checklist/assessment tool has been successful in creating development that is more sustainable than conventional development practices.**  
Credit: Survey Gizmo. Source: Question #29 (Appendix V).

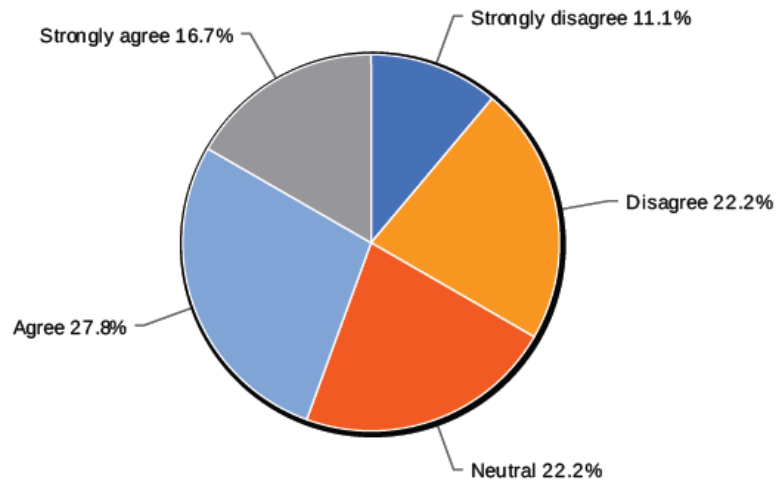


**Table 5.5. Comparison of the type of checklist tool and responses to the statement that ‘the checklist has been successful in creating development that is more sustainable than conventional development’.**

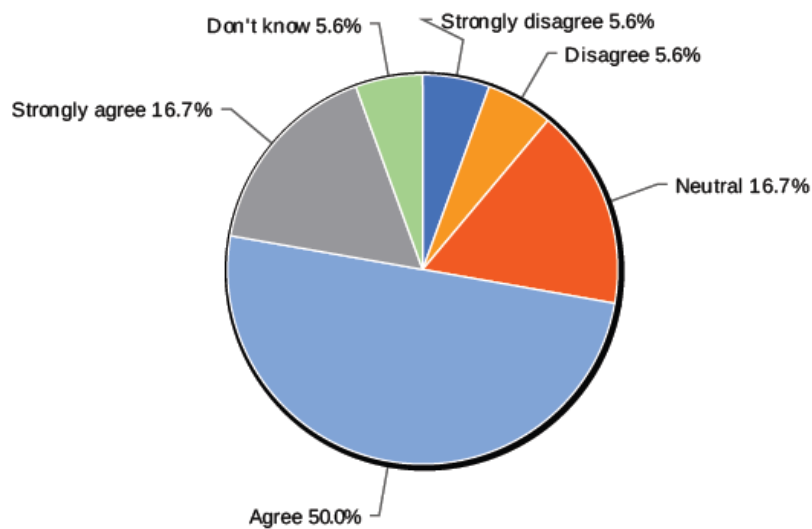
Count of Responses Type of Checklist	Successful in creating development that is more sustainable					Don't know	Grand Total
	1	2	3	4	5		
A – Statement		2	2	2			6
B – Checkbox			2		1	4	7
C - Scorecard	1		1	1	1	1	5
<b>Grand Total</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>18</b>
1 = strongly disagree, 2= disagree, 3 = neutral, 4 = agree, 5 = strongly agree							

The next few questions asked respondents about the effectiveness of the checklist as an assessment tool, its effectiveness for specific uses, and its effectiveness for achieving specific outcomes. Respondents were asked whether or not they felt that each aspect of sustainability (environmental, social, and economic) was being adequately addressed in the checklist and if some were being better addressed than others. More respondents agreed that all aspects were adequately addressed than disagreed (Figure 5.6) but the majority of respondents felt that some aspects are better addressed than others (Figure 5.7). This is consistent with the findings of the document analysis which revealed that most checklists addressed each of the principles of sustainable design to some degree but that there was a much stronger emphasis on certain principles. This allows greater flexibility in design responses enabling site adaptive design however without separate programs or policies in place to monitor outcomes on a neighbourhood or city wide level, some aspects of sustainability may be consistently missed.

**Figure 5.6** I feel that each aspect of sustainability (environmental, social, cultural, economic) is being adequately addressed through the checklist/evaluation tool. Credit: Survey Gizmo. Source: Question #30 (Appendix V).

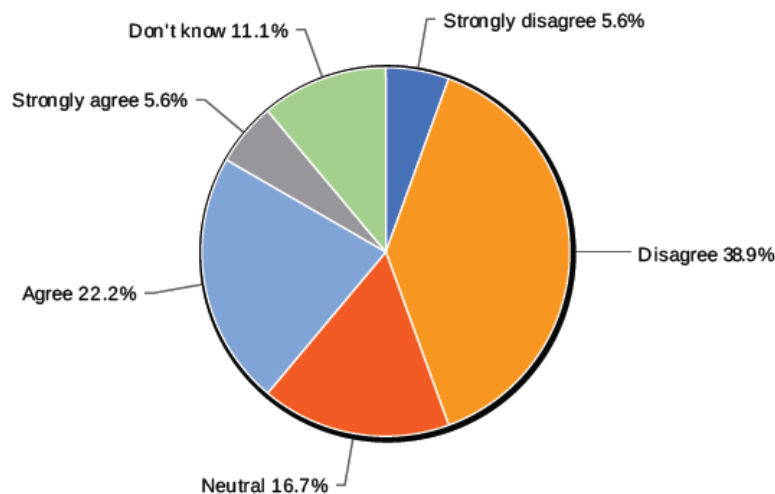


**Figure 5.7** I feel that some aspects of sustainability (environmental, social, cultural, economic) are being better addressed than others. Credit: Survey Gizmo. Source: Question #31 (Appendix V).



Many respondents disagreed that information gathered through the checklist was useful for monitoring development patterns and trends (Figure 5.8). When asked about the outcomes of the checklist, the same number of respondents disagreed (28%) that the use of the checklist has led to a more sustainable urban form as those that agreed and those that didn't know. Over one quarter of respondents disagreed that the checklist tool has led to innovative sustainable development practices, while another 28% agreed that it has led to innovative development practices and 39% didn't know.

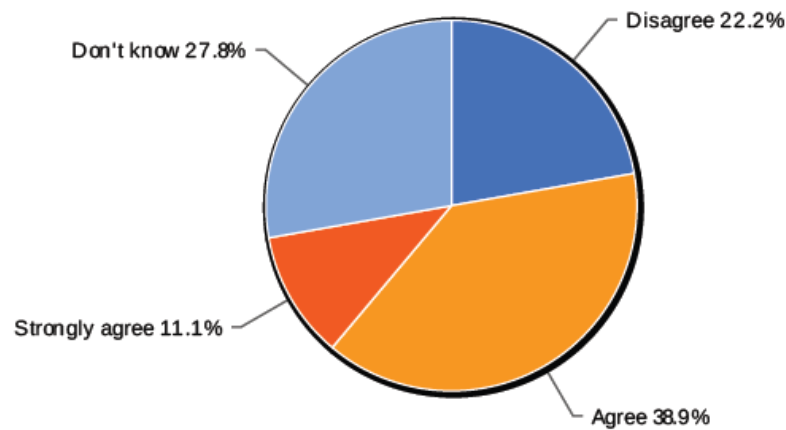
**Figure 5.8 Information gathered through the checklist is useful for monitoring development patterns and trends. Credit: Survey Gizmo. Source: Question #35 (Appendix V).**



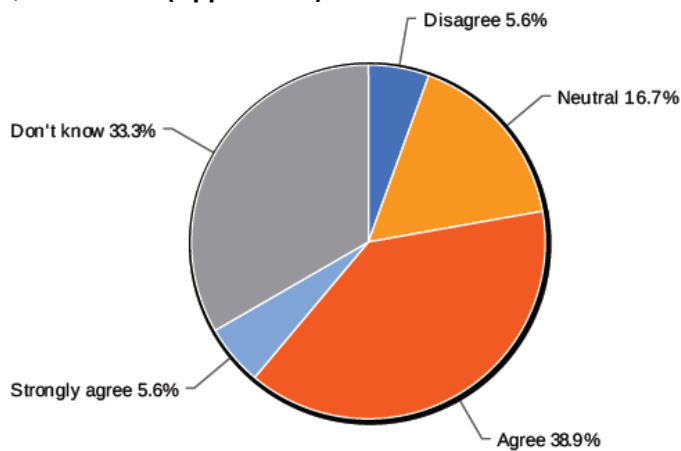
This section of the survey also asked questions related to interactions with the applicants through the use of checklist tools. When asked if applicants are supportive of the checklist most respondents were neutral (39%), but more disagreed (22%) than agreed (17%) and 22% didn't know. As stated earlier, most respondents agreed that checklists are an important part of pre-application discussion with developers but fewer respondents (50%) felt that projects were often amended to include sustainability elements as result of the review and discussion of the submitted checklist (Figure 5.9). Few respondents disagreed that education,

knowledge and awareness around sustainable development practices has increased as a result of the checklist/assessment tool, but many were unsure (Figure 5.10).

**Figure 5.9 Proposed projects are often adjusted or amended to include sustainability elements as a result of the review and discussion of the sustainability checklist. Credit Survey Gizmo. Source: Question #36 (Appendix V).**



**Figure 5.10 Education, knowledge, and awareness around sustainable development practices has increased as a result of the checklist/assessment tool. Credit: Survey Gizmo. Source: Question #34 (Appendix V).**



In addition to asking whether or not education and awareness around sustainable development practices has increased, respondents were asked about the influence of the sustainability checklist in decision making. Only 18% of respondents agreed or strongly agreed

that the checklist has been an influential part of Council’s decision-making despite most respondents indicating that checklist results are included as reports to Council or the approving authority. When asked if development proposals that addressed very few of the checklist criteria were denied development approvals, 28% disagreed, 22% agreed, 28% were neutral and 22% didn’t know. This was compared with responses to the statement “development proposals that address most of the sustainability criteria generally receive development approvals” where only 12% disagreed, 39% agreed, 28% were neutral, and 22% didn’t know.

The final few questions of the survey asked respondents about their overall impressions of the use of sustainability checklists as a tool for encouraging more sustainable development practices. The results included a mix of responses. Only 33% of respondents felt that the checklist was successful in achieving the intended objectives (Figure 5.11) but many respondents offered suggestions to improve the use of the tool. Suggestions are categorized into the following themes:

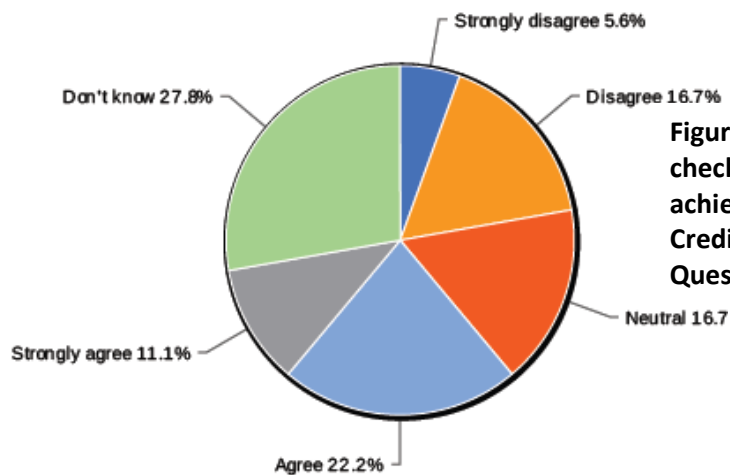
- Ensuring checklist criteria are closely tied to existing policy and regulations and regularly updated to reflect new policy and regulations
- Making the checklist tool more user friendly by simplifying and streamlining the criteria, such as clearly indicating which criteria are not relevant based on type, scale or location of project and removing redundancies
- Assigning a weighted value to criteria to reflect the importance of achieving specific criteria
- Use of the checklist for monitoring, and benchmarking and making refinements to the checklist and policy development based on this
- Providing more “teeth” to the checklist and enforcing through other planning tools such as bylaws, policies, covenants, bonding
- Including more quantitative information and/or developing a scoring system to better guide decision making and for use in monitoring
- Developing additional criteria to fill in current gaps in checklist content

- Inclusion of targets reflecting Official Community Plan and Regional Growth Strategy goals
- Replacement of checklist with development of more effective policy and regulations
- Offering incentives for developments that rank highly or achieve specific objectives

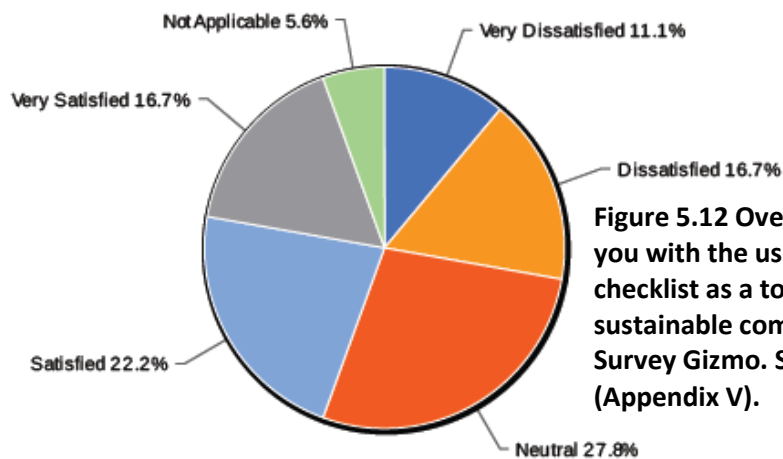
The most common themes were ensuring that the checklist is closely tied to existing policies and legislation, making it more user-friendly, and including a weighting system to reflect the importance of specific criteria. When asked if the sustainability checklist has resulted in any unforeseen outcomes, the majority of respondents (75%) said no. Of those that indicated yes, one respondent indicated that occasionally a good development that has not addressed all criteria may be delayed through the development process. Another mentioned that the checklist encouraged the applicant to indicate features that are not actually incorporated into the project as there is no mechanism to secure features at the development approval stage, and another commented that applicants have argued that the inclusion of sustainability features will dramatically add to the cost of construction and ultimately housing costs.

In the concluding questions, participants were asked how satisfied they were with the use of the sustainability checklist as a tool for creating more sustainable communities. Figure 5.12 has a breakdown of the responses. Overall, it appears that planners had mixed feelings on the use of the sustainability checklist tool with just 7 of the 18 respondents indicating that they were satisfied or very satisfied with the use of this tool for creating sustainable communities.





**Figure 5.11** In general, I feel that the checklist has been successful in achieving the intended objectives. Credit: Survey Gizmo. Source: Question #41 (Appendix V).



**Figure 5.12** Overall, how satisfied are you with the use of the sustainability checklist as a tool for creating more sustainable communities. Credit: Survey Gizmo. Source: Question #44 (Appendix V).

### 5.2.6 Summary of the Survey Results

Findings from the online survey were generally consistent with the document analysis. According to respondents, the main function of sustainability checklist tools is to educate the development industry and property owners on sustainable development practices and to integrate and implement municipal policies and regulations related to sustainable development. Approximately half of respondents agreed that education, knowledge and awareness of sustainability issues has increased as a result of the checklists and another third didn't know but the majority of respondents indicated that sustainability criteria were closely related to Council

adopted policy. Assisting members of Council in decision-making was the third most popular response yet only 18% of respondents felt that sustainability checklists were an influential part of Council's decision-making. Overall, only one third of respondents felt that sustainability checklists have been successful in achieving the intended objectives while 23% disagreed and 28% indicated that they didn't know.

Sustainability checklists were predominantly created by land use planners with some input from staff in building, engineering and parks departments. Despite many regions adopting checklists around the same time as was discussed in Chapter 3, only three respondents indicated that sustainability checklists were meant to be consistent with neighbouring jurisdictions.

In terms of how they compare to principles of sustainable urban design, findings from the survey were consistent with those of the document analysis with the greatest number of respondents indicating that the preservation of natural systems, resource efficiency and a mix of land uses were adequately addressed.

Despite evidence that most sustainability checklist tools are checkbox forms and have no weighting system, many respondents indicated that they consider certain criteria more important than others. Very few respondents indicated that there was a specific threshold that had to be met or that the distribution across different sustainability topics mattered.

Participants offered many suggestions for improving the checklist tools. Although a strong majority of participants indicated that the checklist criteria does reflect Official Community Plan goals and are directly related to Council adopted policy, one of the most frequent recommendations was to ensure that the checklist is closely tied to existing policy and regulations and that the checklist is regularly updated. Others expressed that they would like to be able to enforce checklist compliance through other planning tools. One respondent

recommended replacing sustainability checklists entirely with the development of new regulations and policy.

Another common suggestion for improving the checklist was to include a weighting or scoring system to provide a quick reference for Council and members of the public on the merits and shortfalls of a proposed project and to better reflect Council priorities and identify criteria that will have the most impact on the sustainability of a project. Other suggestions include simplifying the checklist tool, and including more quantitative information and targets which would allow the checklist to be used for monitoring, benchmarking and evaluating plan implementation.

Overall, participants expressed varying levels of support for the sustainability checklists as tools for encouraging more sustainable urban development practices. Some indicated that the checklists were quite limited in their ability to influence development practices and others felt that the use of the checklists was successful in creating urban developments which are more sustainable than conventional practices within their communities. Checklists appear to be shaping development proposals towards development that reflects Official Community Plan policies and Smart Growth principles with some measure of success. Nearly 80% of participants indicated that sustainability checklists were an important part of pre-application discussions with developers and half of respondents agreed that proposed projects are often adjusted or amended to include sustainability elements as a result of the review and discussion of the sustainability checklist. However, the survey results indicate that the effectiveness of the sustainability checklists is still relatively unknown. Approximately half of participants either disagreed or didn't know if the checklist has been successful in achieving the intended objectives and less than 40% were satisfied sustainability checklists as a tool for creating more sustainable communities.

The online survey was an initial step towards gaining a better understanding of the design and application of municipal sustainability checklist tools. These results do not provide a full picture or explain why a particular finding was observed. Gaining a better understanding of these findings and of the strengths and limitations of using sustainability checklist tools was the aim of the next phase of the research which involved interviews with planners and developers.

### ***5.3 Key Informant Perceptions of Sustainability Checklists***

The key informants interviewed are involved with sustainability checklists in a variety of ways. Some have been involved in the design of the checklists, others have used the checklists to review development proposals and others have filled out the checklists as part of their development application submissions. Each key informant brought their own perspective as to the use of sustainability checklists and the role of checklists in transforming development practices. The interview guides are included in Appendix VI.

Key informants discussed many different aspects related to the design, use and effectiveness of sustainability checklist tools. Key themes which emerged in the interviews include the following:

- Motivation for developing a checklist tool
- Checklist tools can change the development review process
- Need for simple, concise and relevant tools
- There are gaps in what is being measured
- Scoring and evaluation systems can have significant impacts on project outcomes
- Impacts that checklists are having on development practices
- Lack of jurisdiction and difficulties in ensuring compliance and follow-through
- Ability of checklists to influence in decision-making
- Necessity of an integrated approach and connecting checklists with other planning tools

- The role of the checklist in monitoring development patterns and practices
- Sustainability checklists are not necessarily resulting in sustainable developments

Table 5.6 summarizes these key themes and each of the key themes is discussed in detail in the sub-sections that follow. Similarly to the survey results, key informants expressed diverse and often opposing opinions regarding the design, use and effectiveness of these tools.

**Table 5.6 A Summary of Themes and Perceptions of Sustainability Checklist Tools from Key Informant Interviews**

Theme	Perceptions
Motivation for Developing a Checklist Tool	<ul style="list-style-type: none"> <li>• Response to an increased awareness around sustainability and what it means for a community</li> <li>• Lack of tools available or gaps in policy or legislation</li> <li>• Informing decision making and bringing sustainability issues into the decision-making process</li> <li>• Assists in communicating sustainability objectives to Council</li> <li>• Way to easily communicate sustainability objectives to development industry</li> <li>• Council initiative and/or other communities have them</li> </ul>
Checklist Tools Can Change the Development Review Process	<ul style="list-style-type: none"> <li>• Addresses some of the development industry's concerns such as knowing information and requirements upfront, consistency and fairness</li> <li>• Provides consistency among planning staff in review of development applications</li> <li>• Lengthens the amount of time needed to prepare and review applications</li> <li>• Assists in negotiating applications for developers and staff</li> <li>• Doesn't have any impact on the application review process, negotiations, or ability to say no</li> <li>• Doesn't change the review process just pulls everything into one document</li> <li>• Increases knowledge of staff and developers and provides clarity around sustainability concepts</li> <li>• Can assist in changing the culture of an organization</li> </ul>
Need for Simple, Concise and Relevant Tools	<ul style="list-style-type: none"> <li>• Many checklists have too many items making them unwieldy to work with</li> <li>• Too simplified in approach and content to be useful, every development site and circumstance is unique</li> <li>• They are a mixed bag of items ranging from broad policy statements to performance targets or specific features</li> <li>• Not all items are relevant to all types of development or all stages in the approval process</li> <li>• Often items are redundant with other policy, regulations or building code</li> <li>• Useful way to integrate different policies, goals and regulations related to sustainability</li> <li>• Three pillars of sustainability typically addressed</li> </ul>
There are Gaps in What is Being Measured	<ul style="list-style-type: none"> <li>• Overemphasis on environmental sustainability</li> <li>• Need to better address economic sustainability and social</li> </ul>

	<p>sustainability</p> <ul style="list-style-type: none"> <li>• Need to take the time to review and monitor to see whether or not checklists are working or if they require adjustment</li> <li>• Not really addressing whether or not it is sustainable development</li> </ul>
Scoring and Evaluation Systems Can Have Significant Impacts on Project Outcomes	<ul style="list-style-type: none"> <li>• Method of scoring or evaluation needed to provide a summary/indication of how well a proposed development addresses sustainability objectives</li> <li>• Useful for communicating priorities</li> <li>• Point allocation is too subjective</li> <li>• Sites are unique and not all items apply to a site therefore it can result in an artificially low score</li> <li>• Hinders creativity and can add unnecessary cost</li> <li>• Forces municipalities to carefully consider what they mean by different items and to be clear and consistent</li> <li>• Can be very misleading especially with self-scoring</li> <li>• Higher score doesn't necessarily mean better or more sustainable development</li> <li>• Points don't reflect cost of an item or magnitude of impact that it has on the sustainability of a project</li> </ul>
The Impact Checklists are Having on Development Practices	<ul style="list-style-type: none"> <li>• Generally successful in creating better development</li> <li>• Culture of organization and role of the planner can influence the outcomes</li> <li>• Adds significant time, resources and cost to a project</li> <li>• Can inadvertently alter a project or waste resources</li> <li>• Success depends on the developer</li> <li>• Ineffective and has little to no impact on development practices</li> </ul>
Lack of Jurisdiction and Difficulties Ensuring Compliance and Follow-through	<ul style="list-style-type: none"> <li>• Many checklist items are outside the jurisdiction of municipalities</li> <li>• Limited means of ensuring compliance and follow-through of checklist items</li> <li>• Little political support for offering incentives as part of checklist tools</li> <li>• Importance of using regulatory mechanisms and incentives to ensure compliance</li> <li>• Can be effective in absence of further regulatory mechanisms or incentives depending on the design of the tool and how it is used</li> </ul>
Influence of Checklists in Decision Making	<ul style="list-style-type: none"> <li>• Have minimal influence in decision-making as it depends on the politics of a situation</li> <li>• Should be used to inform a decision not to make a decision</li> <li>• Development decisions are complex, checklists are just one factor</li> <li>• Depends on the decision being made and how much discretion there is</li> <li>• Too influential for a tool which presents a simplified idea of sustainability</li> </ul>
Integration with other Planning Tools	<ul style="list-style-type: none"> <li>• Useful as a means of integrating different sustainability policies, objectives and goals</li> <li>• Checklist items need to be strongly tied with other guiding policy such as OCP or Strategic Plan</li> <li>• Needs to evolve alongside policy, legislation, and regulation so that it is always one step ahead</li> <li>• Should be developed as part of an integrated team to be</li> </ul>

	<p>relevant and effective</p> <ul style="list-style-type: none"> <li>• Just one tool, needs to be part of a coordinated approach including growth management policies, strong neighbourhood planning, land market influences etc</li> </ul>
Role of the Checklist in Monitoring Development Patterns and Practices	<ul style="list-style-type: none"> <li>• Potentially useful but not used in this manner at this point in time</li> <li>• Current checklist tool developed with monitoring in mind</li> <li>• Too qualitative to be useful for monitoring</li> <li>• Monitoring is fundamental to ensuring the tool is relevant and effective and is a key piece of the planning process</li> <li>• Not enough time to dedicate to monitoring</li> </ul>
Challenges in Achieving Sustainable Outcomes	<ul style="list-style-type: none"> <li>• Progressing towards sustainability and part of this process but results in incremental change</li> <li>• Focus on the site level and green building can result in a good development in the wrong location</li> <li>• Need to be integrated with other plans, policies, tools to get at some of the bigger issues such as the land market, urban systems and service delivery</li> <li>• Often working against the land market</li> <li>• Much of what we see is the result of a political decision</li> <li>• Culture of the organization and relationship with private sector</li> <li>• Typically checklists are applied after the design concept has been drafted</li> </ul>

### 5.3.1 Motivation for Developing Sustainability Checklists

Key informants offered many potential reasons for the wider adoption of sustainability checklist tools over the last few years. Many of the suggested reasons echo the findings of the literature related to the emergence of sustainability assessment tools, and the stated purpose of these tools identified through the document analysis and survey. As one participant explained:

*I think the increase in popularity is because local governments, both staff and Council, and well the community to some degree but particularly staff, are rolling up their sleeves to promote sustainability as a principle and as a policy set or perspective on development in their communities. They understand that changes are afoot, that they need to prepare for them, and morally that they need to pursue sustainable directions etcetera. Developers are the ones that drive, make, and pay for all of the change in a community most of the time, so they want to push the development community to do the best that they can.*

Another participant described:

*With the ever increasing interest in sustainable development municipalities are looking for ways to evaluate area plans and development applications and developing and using sustainability checklists seem to cover a fairly broad range of factors, it allows for more consideration of social and cultural impacts as well as the physical site plan and building design. I guess it is a way for individual municipalities to create their own approach to triple bottom line evaluation.*

Other participants described a gap in planning legislation or local policy as potential reasons for the development of checklist tools.

*...municipalities are very limited, I mean certainly Vancouver can do a lot more, they have their own Charter, and building code, but under the Local Government Act there are not a lot of tools that you can play with for requiring sustainability features or requiring green building stuff.*

Interview participants offered other potential motivations for the adoption of sustainability checklist tools including a way for both municipalities and developers to think through what sustainability means, integrating different sustainability policies and regulations, its utility as a tool for comparing developments and measuring changes over time, and the fact that other municipalities were adopting these tools.

Several of the key informants mentioned that sustainability checklists were largely developed at Council's request or were a way to address some of Council's concerns. As one participant described:

*...because now in BC, somewhere between 1 and 4 councillors, or 1 in all of them, are green. They self identify as promoting green or promoting sustainability. They ask these questions so staff, in a logical way, want to do the work in advance so that projects don't get delayed by making sure that they have the answers to the questions.*

In other cases, checklists were created by staff in response to assertions from the developer that projects were "green", "bright green" or "sustainable" as illustrated in the excerpt below.



*The checklist was really driven by the developer's claim that it would be a sustainable development. So we said "ok, what do you mean by that?" and the checklist was a way of getting at that.... the checklist was then enshrined in the neighbourhood plan which was part of the OCP. So they [developer] are bound to their commitment by the checklist and it kicks in for various things at various phases of development, some in development permit, some at building permit, and even some post occupancy.*

### **5.3.2 Checklist Tools Can Change the Development Review Process**

Several of the key informants spoke about the presence of the sustainability checklist improving the development application review process. Checklists were viewed as a way to address some of the common concerns that developers have such as knowing municipal requirements before they begin planning and designing their development and knowing that all applications are being treated consistently and fairly. As one participant explained,

*...from the developers' side, they always say three things when they come in for a development, and UDI [Urban Development Institute] has been quite clear and persistent on this is. 1) tell us up front. So before you even buy a piece of land in this municipality, you know what you are going to be measured on; 2) make sure that it is a level playing field, that everyone gets treated the same way through the process; and 3) they are known goalposts.*

Not only can sustainability checklists assist developers in preparing applications and negotiating proposals, many key informants felt that sustainability checklists had the potential to assist planning staff in their review of development applications in terms of consistency among staff, increasing knowledge and capacity, and communicating to Council how each application aligns with the sustainability objectives of the OCP and other policies.

*It helps to standardize things. Whereas before one planner might have had a more environmental inclination so they may have worked at negotiating more with the developer on providing more environmental or sustainability features. Now this is more of a benchmark. It provides a bit more guidance*

*so it might help level this out amongst planners, especially as there are probably about 20 development planners processing active applications.*

Participants also shared examples where the sustainability checklists have helped to develop a shared understanding and interpretation of sustainability policy amongst planning staff and both broadened and deepened the knowledge base.

*One of the best things staff said is, we are finally having a discussion amongst, and I think in that case we had 3 planners and a manager, we actually now have consistency on how we assess applications, and more importantly, we have discussions about what this stuff means whereas before we didn't.*

On a pragmatic level, some key informants mentioned that it was a way of pulling together information that was required in the review of applications, such as whether or not the application met the many different applicable policies and regulations, and in preparing reports to Council for each of the applications. Other key informants felt that checklists changed the review process in a negative way by adding another layer of requirements into an already lengthy list, and adding additional time to the approvals process without changing a project in a meaningful way.

### *5.3.3 Scoring and Evaluation Systems Can Have Significant Impacts on Project Outcomes*

Key informants offered many thoughts and ideas related to the style and format of checklists. Five broad styles of sustainability checklists were identified through the document analysis (see section 5.1.2). Key informants spoke about the different considerations that led to the selection of a specific style and about the merits and pitfalls of the different styles. These comments were consistent with the findings of the document analysis.

The presence or absence of a points-based evaluation system was the focus of many of the conversations on checklist styles and formats. In some cases it was seen as a necessity to

provide a meaningful way to gauge the sustainability of applications, in others it was seen as undesirable and fraught with subjectivity and unintended consequences. The excerpts below are taken from four different key informant interviews and help to illustrate these viewpoints.

*Our Council particularly wanted quantification in redoing the checklist. They wanted numbers and scores so it is not this qualitative, vague and non-committal thing. They also value some things more than others...you will see some municipalities do this yes/no thing so every item has equal weight, that is not what our Council wanted. There is the cut of what goes into the checklist to begin with and then once it is there, what gets weighted more than others to reflect our community values and other priorities...the consistency of scoring, that is going to be a tough one. What constitutes 3 out of 5? I don't think we will ever achieve 100% consistency....there is always going to be this greyness there but that is where this back and forth dialogue happens with the applicant and the staff. We have had cases where the applicant is undervaluing their item based on our thinking and we mark them up.*

*I have had a fair number of debates with municipalities that chose not to do a percentage. I said you are really doing a disservice to your Council in particular but also to your community because they don't know. They have to read through the whole thing and figure it out and look at it themselves...I have not been in huge debates on whether it should be a 2 or a 3 weighting or a 20% or 50%, you could spend all of that time but understand that it is a general tool. I have also had the debates that if it is a general tool, then you can't come out with a specific number. I said, you have to give me a barometer from 0 to 100...tell me what it is and where it falls within that. It is a professional obligation.*

*I think the scoring point system is confusing and the devil lies in those points. Because you can get a point for something you have to do anyways or by virtue of where they develop and you don't have to do anything....The point system is where you live and die as a developer so the point systems have to be carefully used. If you are going to use a point system you are going to do one of 3 things: you are going to have a minimum score, or have a rating such as gold, platinum etc. or staff can use them as a short hand Report to Council. But the problem with the point system is it gets a bit dicey and you often see things where you know, a percentage of units within 400m of a transit stop gives you 3 to 5 points. So ok, how do we have that fight? Is it 3, 4 or 5? I am going to put down 5 because I am the developer and there is simply no way with this topography that you could build with more than that. So if you are going to do points, you have to do them really well. You have to take them seriously.*

*It doesn't allow us to tell our story. I know that is up to us but I think everyone should have to tell their story about what they are doing. I don't*

*think we should be relying on ticking off a 1, 2, or 3 or whatever. Because maybe after that, they will never think about sustainability again. All they did was care about how they scored on the checklist and they are done. So say you did the checklist and got 80% and you really didn't have to do much, you didn't have to put your brain in gear, you just got yourself 80% and went well, that is pretty good. You might never feel inclined to go any further whatsoever in terms of sustainability. But if you were encouraged and had information on the sections of it that said here are the things that you could consider doing, you might give some thought to each and every one of those things, and you might do way more than you might have done than if you just had a little checklist saying what to do and you were following it.*

As the document analysis and survey results demonstrate, many sustainability checklists do not include scoring systems and instead have an emphasis on information gathering, sharing, or plan monitoring. In discussing the different formats, one of the key informants observed:

*The simple checklist is the easiest but it is also the most, "ok, well what do you mean" as well as "ok, but that is not what we should be doing here". Because it is so simplified. The question ones, "tell us what you are doing to support non-auto-oriented transit to reduce transportation emissions" are the most open-ended, most flexible and require the most thinking but are also the most exposed for greenwash. So you get things like "what are we doing? Well we are located uphill from a transit stop so you get to walk downhill to transit"....so that ends up on your desk as a planning inspector and you go "oh, come on!" And now we have a touchy point in the relationship over a foolish answer.*

#### **5.3.4 The Need for Simple, Concise and Relevant Tools**

The need for simple, concise and relevant tools was one of the most common themes in both the survey results and in the key informant interviews. Oftentimes sustainability checklists contain sustainability criteria at very different levels from broad policy statements to performance targets that apply to different stages of the development process. This can make checklists cumbersome to work with for both staff and applicants, and can make them problematic to enforce. As one respondent explained:

*My biggest complaint with checklists is that they are a dog's breakfast of stages in the development process. Often the same checklist will cover something you would only really deal with at an OCP amendment level and*

*then two points down they are dealing with something at the building permit level...they range from land use to lighting fixtures. So you end up in that fight with staff when you are across the table trying to negotiate a rezoning or local area plan and they are wanting you to commit and even put up bonds sometimes to deliver a building permit stage level of detail. When in fact as a developer, you might never even build buildings. You might be a land developer that takes all of the risk and stress and process of bringing land online and then you sell it to builders. Then how do you encumber the land with those permits and covenants and stuff like that.*

This sentiment was shared by several of the key informants who spoke about the frustration that they have heard or experienced regarding some of the sustainability checklist tools.

However, another key informant seemed less concerned with the mix of development stages explaining that it is recognized that not all of the details will be sorted out at the time of application and often it is about demonstrating commitment through notations on the plans and drawings.

*The beauty of this is that it goes through a few iterations. We do a preliminary report to Council and design panel for information, a project will go through more than once. So there will be some unknowns early on but we can highlight shortcomings so Council can say we want to see this or more, and there can be kind of pushback, and the score is a moving target, until the final project.*

Other concerns that key informants had with sustainability checklist tools include that checklists have too many criteria, that they include criteria that are covered by other planning policy or regulations, that many criteria do not apply to a particular type of development or a specific development site, or that they are too prescriptive. In talking about redundancies, one participant provided the following example:

*The checklist may have an item that deals with bicycle parking and bike lanes, and then there is actually a transportation policy that sets out where bike lanes are required and the zoning parking bylaw will require x number of bicycle parking stalls. So there can be those kind of trip-ups. This often happens because the sustainability checklist is trying to be comprehensive and show that it is covering all of the sustainability bases when in fact many of those are already advancing in other sustainability policies and regulations.*

Some of the key informants discussed ways in which they were trying to address the issues created by mixing development stages and types of development within one sustainability checklist through changes to the design of the tool. Either by clearly identifying in the checklist which criteria apply to which stage, or by creating separate checklists for each stage of the development approvals process. For example, applications for rezoning would require a different checklist than applications for development permit or applications for building permit. This was the approach taken by one of the municipalities that has recently adopted a separate scorecard for each type of development approval. However, while this addresses some of the concern regarding streamlining and scope issues, key informants still expressed concerns regarding the inclusion of items that are not relevant due to the type of land use, location of the site, or site conditions. Similarly, other municipalities have also tried to address this by dividing the checklist into two parts. The first part covers larger scale sustainability concerns such as site location, connectivity and density which are typically addressed at the OCP or rezoning stage and the second stage deals more with building level criteria.

One municipality has taken a slightly different approach. They have created separate checklists for different types of development: multi-family, mixed-use, commercial, industrial and institutional. This eliminates the situation where someone is applying for a commercial development permit and the sustainability checklist asks how the applicant is contributing to affordable housing. In describing the basic principle behind this approach, the key informant stated “what is the best you can do on this site”. Items that didn’t apply due to specific site conditions were removed from that applicant’s scorecard. Therefore applicants do not end up in a situation where their score is artificially low because they didn’t build mixed use in an single family only zone, or didn’t preserve a heritage structure or environmentally sensitive area

because there wasn't one on that site to begin with. In addition, criteria that were covered by other policies and mechanisms were removed. As one key informant described:

*If it is already in the building code, then take it out of the checklist, it is a given. If there are other city requirements then it is a given. Don't give people credit for what is already demanded of them. If it is in the OCP and it says you should have multi-family housing there, and you are coming in proposing multi-family housing, you don't get points for that... If you are maximizing the allowable density on that site, well then you do get points for that. We started from the OCP with the assumption that if there is a problem with the OCP, then let's deal with that, this is not a band-aid for the OCP. So let's get rid of all of the - ok, so you are located near transit. The OCP should be governing that. Do not load the checklist up with that sort of stuff or you will be at 150 items. And it becomes unwieldy and unworkable. Developers hate it, Council hates it having to go through it all and it wastes planners' time.... we have a great quote from one of our developers at UDI who said "we are so glad that you are redoing this, every time I do a Smart Growth development checklist it is 30 minutes of my life that I will never get back." He is absolutely right. So this was welcomed by a lot of developers, the fact that we were improving it. They may not agree with the scoring but the fact is that it is a more relevant document for everybody.*

#### *5.3.5 Gaps in the Information Being Gathered and Assessed*

Sustainability checklists cover a broad range of sustainability features but as was demonstrated in the survey and document analysis, some aspects are addressed better than others. During the course of the interviews, key informants were asked to consider where municipalities were making the most headway or gains in terms of sustainable development. Participants consistently identified environmental aspects such as mixed use buildings, onsite storm water management and green building as areas where progress has been made which is consistent with the results of the survey and document analysis. Key informants also identified social considerations such as urban agriculture, heritage preservation, and public art as areas where municipalities were advancing. Very few key informants identified economic considerations. As one key informant described:

*There might be more presence of mixed use projects. There is certainly a better understanding of transportation, cycling and pedestrian ways from those kind of checklists, definitely there has been more work done with green building checklists...I think that water-wise landscaping, community gardens, some of those things have been winners out of this in terms of how progress has been made. Rain gardens, more passive ecological storm water management has come out of that and these are typical things asked for, maybe farmers markets...let's see what else, some social stuff. I think accessibility, maybe public art, a few of those have come up. Very little on economic development. That is one of the new things we are working on now. How to draw forward on the more green sustainable, economic agenda post recession and frankly, just looking into the future for so many towns that have been struggling and are nearly dying...I think that is something that has not been very well integrated into checklists, that lacks sophistication.*

Interestingly, throughout the interview process environmental features or green development was used interchangeably with the term sustainability and when the interviewees were asked to describe sustainability initiatives, the first examples provided were nearly always related to environmental aspects. A few participants commented on this emphasis on the environment and a lack of other considerations. As one participant stated:

*A lot of municipalities and governments think that when we talk about sustainability it is only about environmental and economic.... we often don't include social components but I think in that trend, Canadian municipalities are really getting a lot better, and I think we are halfway there so making sure we integrate that piece.*

Another explained:

*When people talk about sustainability in our community all they think about is environmental. There is no concern whatsoever about the feasibility of a development or who it is supposed to be serving and who can afford to buy it. It is like that doesn't even come up on anyone's radar screen and that is a frustration.*

A third questioned the focus on environment and on the utility of checklists:

*What most people focus on in these checklists is the environmental and saying we are trying to do a better job with storm water management, with energy conservation, which is good, but because you are doing a better job with the environment, ie. We don't do what we used to do....such as take*



*streams, culvert them and build on them. Ok, so we don't do that anymore, but does that make it a sustainable development?*

Several key informants were concerned about the lack of economic considerations including both economic development and fiscal responsibility as demonstrated by the comments above and below. In discussing economic considerations, one of the key informants focused on the missing link between sustainability assessment and fiscal responsibility including growing infrastructure deficits and inadequate or poorly structured development cost charges.

*It doesn't have to be, but it could and should be part of the tools that we use to answer, can we afford to accept this development? That is the part people forget. The developer puts in the services then the City takes them and owns them. They have to maintain and replace them.*

Another key informant discussed the situation where sustainability checklists, in part, were contributing to the erosion of employment lands through their use in the justification of replacing industrial lands with mixed-use, residential development. Several of the key informants also mentioned the need to consider the regional context in the use and development of sustainability checklists.

In deciding which sustainability criteria were incorporated into checklist tools, key informants discussed a number of factors including grant and funding requirements, priorities of Council, community characteristics, staff knowledge, acceptance of the development industry, utility for monitoring, links to other regulations, and popularity or "it" topics. As one participant summarized:

*Often what is there is a list of things that are the topics of green development but that the Local Government Act doesn't give them the power to require...the other is whatever happened to be top of mind for the Council, staff or committee members and/or the local developers and their headspace, knowledge base or willingness. If they hated something, and it was in then it got taken out and/or amended. So there is the old classic saying that you never, ever want to see laws or sausage being made*

*because it's a really ugly, bloody mess. Same thing goes with sustainability checklists as they are a policy like tool.*

### 5.3.6 Impact of Sustainability Checklists on Development Practices

Key informants offered many diverse perspectives on the impact that sustainability checklists are having on development. Some felt checklists were helping to create better development, others thought that they were ineffective, and others discussed negative impacts that the checklists had on development projects.

One participant felt that they were changing both the quality of development but also the process in general.

*Oftentimes there are developers in our midst who will try and give you a development at the -30 % for the sake of explanation, and I am going to hopefully wear you out by zero. Because if I take 6 months and I really keep squawking to the mayor, and I keep squawking back to you and after the 6<sup>th</sup> meeting of me sitting with my arms crossed looking at you, you are going to give up aren't you? Right? You are going to give up at zero. I am not going to give you all of that stuff. What this checklist says is that you start at zero [meeting the current regulations]. Don't try the -30's because, we gave preference to the good applications. If you got 80% or 60% on the checklist, you got through to Council faster. If you gave us -30, and more importantly, if you didn't even give us a complete application, we are not even accepting it...so that is another thing that came out of that checklist.*

Another participant felt that sustainability checklists did create more sustainable development but that their effectiveness depended on a community's sophistication and experience working with sustainability concepts.

*The short answer is yes, they [checklists] are better than not having one because they raise the issues.... In a community when they first show up, it is a hot topic and developers want to please whoever they can, as long as it doesn't cost them much, in order to get their approvals, zoning etc. So it helped codify and organize all of the sometimes abstract or first principles of sustainability into a fairly simple set of things that a very pragmatic development team can deal with. So, what these did is they caused developers to learn, think through and learn or even to hire consultants to*

*help them grapple with a sustainability strategy and figure out how to do it. So as a result, projects were almost always greener or better. Maybe not deep green, maybe not exemplary but better than they might have otherwise been. In the same vein, the developers learn the language, the glossary, they came to understand it better. It also depoliticized some of it, it made the staff more focused and clear about what they were meaning and got political buy-in for the checklists. They got support for it and so felt empowered to ask for things and to ask for more information about things and encourage direction. So as such, they absolutely have delivered better, greener development over the course of their life over the last ten years. Today, we are in a slightly different environment in the cities and communities where these developed early. That is that anybody who has done sustainable development, in fact anybody who is doing much development in a major centre at all, is already swimming around in the sustainability goop....developers are significantly more sophisticated in dealing with sustainability issues...As such, these checklists, where they are a bit weak maybe or have less rigour, or where they maybe aren't going to change very much, they are seen as an annoyance and as such, aren't actually very good for the sustainability agenda.*

Other key informants felt that sustainability checklists had little impact in creating development that was more sustainable either because there were other mechanisms in place or that it really depended on the developer and whether or not they saw value in any of the checklist criteria. As one participant explained:

*Checklists are not used city wide, there aren't sustainability checklists for most of the other planning going on but there are elements of this. There are policies, procedures, bylaws, guidelines and regulations to deal with this stuff like streamside protection, urban design, and reducing greenhouse gas emissions but not every development has to go through a sustainability checklist like this. That doesn't mean that because those sustainability checklists don't exist that those other developments wouldn't rate as high using the same checklist criteria.*

*...there are some developers that are progressive and would do these things anyways...to some developers we could have said here is this piece of land, we aren't imposing any zoning or any environmental requirements or anything. And you know what? They would probably do a really good job. But there are others, and it wouldn't matter how many tools and regulations are in place, they wouldn't do a good job. They would still find loopholes and ways to do bad things, architecturally, environmentally, or anything else. So it really depends on the developer.*

Some key informants were also concerned that checklists stifle creativity, lead to poor design solutions, add unnecessary costs, and have unintended consequences. One key informant described a scenario where checklist criteria are too prescriptive and could potentially lead to poor development practices or unnecessary costs using an example of storm water management criteria.

*It says minimize the use of curbs and impervious surfaces...well that is really not the point. Curbs channel water and in an environment that has snow you need curbs to guide the snow plow. So curbs aren't bad in and of themselves and impervious surfaces are not bad in and of themselves. What you are trying to do is manage stormwater runoff and remove pollutants so it is percolated back into the soil where the soil structure is such that it is valuable, where it is appropriate to do so...the development that I am working on now, I have bedrock close to the surface on a pretty steep slope...I have to be very careful where I do percolate runoff because it could cause a landslide. So simple checklist statements when you look deep inside, you kind of scratch your head. You know what they are trying to get at. So as long as staff are willing to work with you, you can usually accomplish a lot more but if you aren't deep into it and you talk to your geotechnical engineer who says no, you need to get this stuff in a pipe and take it somewhere safe, you can get into the situation where the developer has to bring in a geotech person at \$150 an hour to have a conversation with the local government, or if they are going to be a stickler about it...spend \$5000 to write a geotechnical report to get to Council. So the developer scratches his head and says what are we trying to do here....we should have spent that \$5000 on public art or accessibility advances or affordable housing.*

Another key informant gave the example of green roofs in describing some of the issues with scorecard formats:

*It is not like we want to put our heads in the sand.... We are going to talk about the numbers, tour them [green roofs], and see if there is a business case and whether or not it is the right thing to do in our area because we absolutely need to get educated. The funny thing is without any education whatsoever, or understanding of what we are doing, City staff blithely threw in you get 5 points if you have a green roof. That is before we even know if a green roof is appropriate here.*

A common sentiment among developers was that sustainability checklists are too prescriptive, missing the opportunities or constraints that a particular development site might present. Not

only might adhering to checklists misguide development, they can also impede progress towards sustainability which requires risk and innovation. As one key informant stated “some developers know how to work the system and can address these checklists with one hand tied behind their backs and half asleep. They are reluctant to put any more effort into it”. This is consistent with the survey findings where less than a third of respondents indicated that the checklist tool has led to innovative sustainable development practices or a practice new to a community despite many checklists providing specific criteria related to innovation.

#### *5.3.7 Lack of Jurisdiction and Difficulties in Ensuring Compliance and Follow-through*

Directly related to the impact of sustainability checklists on development practices, the key informants discussed issues around jurisdiction and concluded that there are limited means of ensuring compliance or follow-through with checklist items. As discussed in the document analysis (section 5.1.3), most sustainability checklists apply to applications for rezoning or for development permit. However, many checklist criteria apply to the building design level. The result is a mismatch of approval stage and the type of information requested, where the information requested will not be worked out until the building permit stage. Once an application has advanced to the building permit stage and meets the requirements of the zoning bylaw and building code, there is no Council decision and little opportunity to encourage or require sustainability features unless there is another mechanism in place, such as a covenant or development permit on title, triggered through an earlier approval. Even with a development permit there is very limited means of addressing sustainability features unless the municipality has set up a development permit for energy and water conservation, or greenhouse gas reduction or as these features relate to the form and character of the proposed building.

This issue of a lack of ability to enforce sustainability checklists was raised by many of the key informants as a significant limitation. It was also brought up as one of the key challenges by participants in the online survey. Some key informants expressed that because there was little ability to enforce compliance, sustainability checklists were being utilized by developers in a misleading or deceptive way. As one key informant described:

*Some of the questions were leading and almost encouraged the applicant to embellish their proposal because they thought it would be advantageous when going to Council but there was no way, no metrics, and no way to ensure it. Based on that it was really difficult for us to argue – there was so little that was objective and so much that came at a later date like the types of energy systems, will there be opening windows, how much construction labour employment and at the time of zoning and DP these questions are not appropriate....whether or not they intended to do them, they were giving themselves the points...based on experience, we know who the developers are who are taking advantage of self-scoring but who won't actually do it...we get a lot of kick back when we ask for things so to put us in a position with a checklist and for us to be saying "really is this going to happen" it is hard for us to prove without any certainty that it wouldn't happen or that they don't meet that criteria.*

Another key informant spoke of the disconnect that sometimes occurs when a planning consulting firm is hired at the rezoning or development permit stage to address the sustainability checklist by drafting a sustainability strategy, but then they are no longer involved in the project past the initial approval when the architect or designer takes over the detailed building design and project coordination. Features that were included in the applicants' plans at the early stages are then forgotten or do not get implemented later in the development process.

Some key informants felt that sustainability checklists should be kept at the policy level and address broader considerations such as land use, density and urban form versus using it as more of a regulatory tool asking for specifics and ensuring compliance. As one key informant explained,

*the checklist was approved by Council, as a matter of policy, not regulation, policy. ...So once you set the policy, it can't be attacked. Or it minimizes the*

*ability of developers to attack it. But it is a policy so they [Council] are not bound by it. Was it used? Yes. Did they agree with it? [hand gesture half and half] It was one of many things that factored into our decision making process....it doesn't fetter the decision of staff or Council in any subsequent stuff that is done. Like a DP or whatever is done that comes afterwards. It still has to meet it but the point is your checklists should generally be consistent with those things. The developer could certainly be like I scored very high on the checklist which has design guidelines and now you have me stuck over in a heritage designation on what the chimney looks like. So they could use that both ways. So it is not supposed to be the fine grained stuff. If you have that type of fine grained stuff in there, you better explain why, codified, meaning you have some regulatory authority standing behind it. That it is that important, that it has to be there...but that is not really the purpose of a policy document that is a regulatory tool and we have enough regulatory tools in planning...that is trying to do too much with the assessment tool.*

Other municipalities are using the checklist tools in conjunction with other mechanisms such as covenants, incentives, or other policies and bylaws to ensure follow-through. For example, one municipality uses a combination of regulatory tools and incentives in rezoning and subdivision applications. Applicants must sign a covenant indicating that they will at least meet the baseline energy performance requirement prior to the bylaw being adopted. Subdivision applications also require a covenant to be signed before the approving officer signs the subdivision plan. The covenant is then enforced at the building permit stage through the energy performance commitment and an energy modelling report from a certified energy advisor indicating that the building design meets the performance commitment. At this point the applicants must also supply completed green building checklists so the municipality can determine if they are going to meet the Gold level of the LEED or Built Green rating systems. Applicants are also required to submit a performance bond that is returned when it is confirmed that they have generally met their commitments. In addition to these regulatory mechanisms, the strategy offers incentives in the form of increases to the allowable floorspace based on the level of energy performance indicated in the modelling report. Incentives range from an additional 0.02 to 0.08 FSR for multi-family, commercial, industrial and institutional buildings

and an additional 2 – 8% of the maximum total floorspace allowed on a specific site for single family. If the application is for a development permit or building permit compliance is voluntary unless applicants wish to pursue the incentives in which case compliance becomes mandatory. When asked if this strategy is working or if anyone has refused to participate the key informant responded:

*I don't think that we have had anybody come and say that they weren't going to do something even if it is only voluntary. The floorspace incentive is of value to developers and we are probably going to see more and more of its uptake because of it. That floorspace incentive is probably, or at least it could be, more valuable than the cost of improvement.*

The same key informant also indicated that they have had a couple of single family project applicants voluntarily comply in order to receive the incentive. Few municipalities are offering incentives connected to sustainability checklists. Of the municipalities that are offering incentives or considering incentives, density bonusing was the most common. When asked if a municipality had further explored incentives, one key informant explained:

*We did look at other incentives, you know that were tax based or reducing DCC charges, but our Council at the time wasn't interested in reducing our municipal revenues through those mechanisms. So we said well that really just leaves us with floorspace incentive... We set it so that it was a bit of an incentive but it wasn't going to go back to the development of monster houses that we saw several years ago.*

Another municipality also utilized density bonuses in conjunction with a weighted sustainability checklist to incentivize the development of higher density residential buildings within their downtown.

Other key informants indicated that while potentially useful in ensuring compliance, incentives and regulatory tools were considered but that these received little support from Council. In the case of tax incentives or development cost charge reductions, municipalities didn't want to reduce revenues. Density bonusing was also often considered but some key



informants felt it wouldn't be viable in their municipalities or that it might be considered in relation to providing affordable housing, heritage conservation, or a community amenity such as daycare facilities or public art, rather than in connection to a checklist score or for sustainable building practices.

The inclusion of points can be an incentive in and of themselves. During one land sales process, proponents were awarded points commensurate with the LEED-certification level they were pursuing in addition to other factors. As one key informant explained:

*LEED silver was the minimum standard, if you got gold we gave you 20 more, if you got platinum, you got even 20 more, so as the successful proponent said, "for the first time ever, you gave us incentive to do the right thing".*

In absence of large scale incentives or regulatory mechanisms, one key informant indicated that there was still quite a lot of opportunity to encourage and gain compliance through the use of sustainability checklists either by staff persuasion to include more features and to provide specifics, by designating some inexpensive big impact items as required to communicate their importance, or through moral suasion.

*just at that first stage, let's say half of the items are unknowns, of the items that are known about, they will submit and maybe half of those items will be self-evident. It is there on the plan. And the other half is - ok we need this in writing; we need this in the notes on the landscape plan. We need this in your sustainability rationale. Some developers choose to do a sustainability rationale which is great because you have something on paper, and you have something to point to. Where they don't do that, we're saying we want something close to that or they will be vague... So there is this back and forth, ok we are missing this or we are missing this, and there is also the dialogue of ok we did this quick initial score, or even the requirements. Things that we say clearly, you have to do, they may not have done. So there is that back and forth so they will send it in again and there may still be gaps. And that is all just at the preliminary stage. ...So yah, even though it is frustrating how long that back and forth takes, that is where the rubber meets the road. That is where the digging your heels in with developer on no, no, these are required programmable thermostats they cost \$25 dollars each, that is where you are having the impact on the finished product. And if you take the time to do that and sort of say you are coming out with a low*

*score, you might want to revisit that, or we need specifics on this -that is time well invested.*

As a specific example, the key informant said:

*When we say required we actually do have a bit of a hook there. We can state in our Council report that they have failed to achieve required items 5, 6, and 7. We can draw attention to that and there is nothing stopping us from doing that. And that, in some cases I have found, that this is enough and that they will back down....So I guess there is a lot to work with, in that grey area. In the greyness there is room to be assertive and to use moral suasion. Push for specificity, get this on the plans, give us a number, you're building the paper trail. There is room for creativity and influence on the part of the planner and that is exciting! It is exciting for this as a document to facilitate that.*

Other key informants acknowledged that while sustainability checklists when used with incentives and regulatory mechanisms may have some influence, legislation is the most effective means of addressing sustainable development. As one key informant stated:

*To really encourage developers to do a good job you have to legislate stuff and it has to be in the regulations and so on. The checklist has no enforcement effect unless the things that are on the checklist are things that you have some legislative authority to enforce to happen.*

#### *5.3.8 Influence in Decision Making*

Participants also had divergent views on whether or not sustainability checklists were influential in the decisions of Council or the approving authority. Key informants talked about sustainability checklists as one more tool used to inform decisions but that Council's weren't making decisions solely based on information obtained through sustainability checklists or checklist scores nor was this likely to be an appropriate use of the tool.

Several key informants felt that checklists were influencing Council's decisions especially where the checklists were at a higher policy level and directly tied to other Council adopted

policy. Where the sustainability checklist review offers a concise, high level synopsis of a development, Council is provided with more information on which to base their decision and it was ensures that sustainability issues are brought into the conversation. But as one key informant said,

*From the Council perspective, this is one tool. A very useful tool for them to use in making decisions but they still have to take into account their legal advice, their capital plan, they have to take all of these into consideration while they are doing it, but it is a very concise tool that helps them to understand that. They are not bound by it...you are not going to hide behind it but it will assist you in making a decision.*

Many key informants agreed that sustainability checklists had the ability to provide Council with information that might not otherwise be available to them. However, a few key informants questioned how much sustainability checklist results were able to influence decisions as there are many factors at play and a lot of it comes down to the politics of a situation. As one key informant stated:

*[Municipality X] has a checklist but I don't know how seriously they look at it. They have made some decisions that run completely contrary to their checklist. It is all political. People came out to the public hearing and screamed and yelled and said they didn't want something that if you look at the sustainability checklist on it, it looked like a great development. But people didn't want the density or change in their neighbourhood or their views blocked or whatever. Council turned it down and said, nah, we are not going to support it....it is used when they want to use it but not when they don't want to.*

Some key informants were concerned that sustainability checklists can be used in a misleading way or to justify a decision. If checklist tools and information gleaned from them are used out of context, it can be used to make decisions contrary to the overall aim of encouraging sustainable development. As an example, one key informant described the situation where a sustainability checklist was used in part to justify a political decision to build a number of high

density residential buildings located on the outskirts of the community along major highway transportation corridors, on land previously zoned for warehousing.

*They talk about complete, compact communities that are walkable, so they go, what could be better than putting some higher density residential right next to all of this big box retail so people can walk to where they shop. And it is like, well ok, only if they buy all of their stuff at Costco! It is out in the middle of nowhere. There are no schools around; it is not connected to the rest of the community. In other words, they took this micro area and look at it and say it meets all of these sustainability criteria but then you pull back and say this shouldn't go in this location.*

Other key informants felt that too much weight was given to sustainability checklists and that too much was expected out of these tools. They talked about situations where the checklist was seen as a means of making the decision on development rather than simply one more way of gathering information to factor into decision making.

*I think it was Council's intent that they would be able to sort of set a threshold where anything above they should support and anything below they shouldn't support...they really did see it as being a magic pill in that regard, where there was a tough decision to be made, this would somehow save the day and make that decision.*

One key informant was also concerned that checklists might be used to make decisions based on the overall sustainability checklist score by comparing that final score to the final score of other developments. This use of the checklist could then lead to a situation where one development scored quite a bit higher than another, and the lower scoring application could be seen as not doing enough to integrate sustainability concerns and consequently be refused. Yet the context, site conditions, and the development response of the two applications might be very different. This might then result in the situation where a good development was rejected simply based on a subjective number without looking into further into the merits of the project and whether or not it made sense for a particular site.

### 5.3.9 The Checklist as Part of an Integrated Approach

The need for an integrated approach in terms of who is involved in creating and implementing the checklist, and how it relates to other policy, was discussed by nearly all of the key informants. Several key informants talked about the value of having interdepartmental working groups involved in creating the sustainability checklist. Not only to get buy-in and improve the sustainability checklist, but also because it leads to further discussion of sustainability concepts and issues. For example, one key informant described the situation where the design and use of the checklist led them to rethink what they meant by affordable housing and housing diversity, its importance in relation to other sustainability features, and what specifically they were asking for in negotiating projects with developers. Another key informant said that the process of creating the sustainability checklist led to discussions with staff and Council on what sustainability means, how it was conceptualized such as three pillar, four pillar or eco-centric models and what the biggest priorities were for their community. As summarized by one participant, “So the opportunity when you do this integrated stuff, they touch on all these other little things, but they really start changing the cultural fabric of an organization”. In contrast, another participant explained,

*It wasn't a working group thing, one individual was tasked with it and referred it out for comment but it wasn't really seen as a priority for a lot of people due to workload so I don't think there was a lot of good feedback given...It was developed by our policy branch and our branch, current planning, didn't really endorse it. It was a real challenge...it didn't seem to be providing a lot of value so we really struggled with it and for that reason it kind of fell to the side.*

Many of the sustainability criteria are components of individual buildings so working with building inspectors was seen as a critical aspect. Several key informants reported that this could be a challenge as building and planning are often in separate departments.

In addition to the need for involving staff in different departments and members of Council, several key informants spoke of the importance of including developers input in order to refine the checklist and to make it more meaningful, or even as an opportunity for the municipality and the development industry to sit down together and discuss how to achieve more sustainable communities. As one participant said, “get it out there, take the time to meet with staff and developers because that is the formative phase of a project and you don’t get a second chance, and the payoffs are going to be long term energy savings and that”.

Another prominent theme of the key informant interviews was the relationship of sustainability checklists to other planning tools, policy and regulations. One benefit of sustainability checklist tools that was mentioned by most of the key informants is that the checklist is a concise, easy to read summary of the intent of the Official Community Plan and current priorities. From the planner’s perspective, several key informants said it helps to integrate various policies and regulations and to communicate them to applicants. From the developer’s perspective, key informants said sustainability checklists help to add certainty to their projects by having information on what the municipality will be asking for available at the outset rather than leaving it all up to the negotiation process when much of the initial design work is already underway. However, one key informant felt that checklist items were too prescriptive and that checklists do not add value to the development process and may in fact be detrimental.

The importance of integrating and aligning sustainability checklists with other policies and regulations was a commonly mentioned theme. For example one key informant explained:

*You need to pull the guts out of something to make that function work. So it needs triple bottom line criteria, the source is the triple bottom line criteria that have to come from somewhere, they need to come from an existing and approved document and what you are trying to achieve.*

Other key informants raised the issue that the broader considerations such as land use and urban structure were already addressed in the Official Community Plan or Neighbourhood Plan and that these larger scale considerations weren't very applicable to individual projects. Therefore, checklists should be more focused on building or site level criteria. Some key informants agreed that building or site level criteria were important but that it is often inappropriate to ask for this information at the planning approvals stage.

Key informants also discussed the integration of checklists with reference to more specific policies and regulations. For example, one municipality is integrating the green building checklist as part of an overall green building strategy including policies for private and public buildings, green building commitments, covenants, density incentives, changes to the zoning bylaw and adoption of development permit areas for energy and water conservation and the reduction of greenhouse gas emissions. Another key informant raised a concern that when sustainability checklists weren't well integrated and in alignment with other municipal policies and regulations, they can cause trip ups and add uncertainty, time and cost to a project.

When asked about the relationship between sustainability checklists and planning legislation and regulation, or third party certification systems, key informants said that the checklist tools need to be reviewed and modified in order to stay ahead of the evolving legislation and to keep pace with third party systems. Key informants talked about changes to the legislation such as the Local Government Act and the BC Building Code as being the most effective means of ensuring sustainability features are incorporated. However, they did not see sustainability checklists as becoming obsolete with changes to the legislation as legislation evolves at a much slower pace, and as is the case with the building code, provides a minimum standard. Advances in sustainable development practices and concepts are advancing quite quickly. Respondents discussed an ongoing role for sustainability checklists as continuing to

advance the sustainability agenda providing that checklists were kept current. As one key informant described:

*A checklist that is not continuously pushing the edge for political or resource reasons and is not being updated standards-wise the way say LEED is, will fall behind very, very quickly in this industry because sustainability was pretty embryonic when these checklists got started. Today, all of the techniques and technologies and knowledge base in the industry is exploding and we can go much further, much farther and much faster now and these checklists are lagging behind in many cases.*

None of the key informants foresaw third party certification systems taking the place of municipal sustainability checklists and presented various reasons for this including the cost and onerous documentation requirements of some of the certification systems, greenwashing by inferior certification systems, and the inability to address municipal priorities through certification tools. In discussing LEED, three key informants offered the following comments:

*I have watched a developer friend of mine who is doing a multi-unit deal, and they could have built 30% more residential units that could have been affordable housing for people if they hadn't had to go through this LEED thing. Their experience so far is that the lion share of money and time has been spent on paperwork and assessment versus actually doing something that was a sustainability feature.*

*To do a LEED certification for a new building is pretty much \$100,000. When you take a building that isn't that big, that is pretty significant. I have talked to some colleagues who say the cost of certification is equal to the cost of all the other consultants who did substantial work on the project. It is just how long it takes to pull all of that paperwork together and to prove everything beyond a reasonable doubt to a guy in Colorado, who has no idea what is going on...it took like 60 days of GIS technician time to draw all of the maps to prove building doors were within 500m of a farmers market. The building hadn't even been fully designed yet and you had to know where all of the doors would be and produce a GIS map for every single doorway to prove it. And that was just one point!*

*By the time you factor in LEED costs and community amenity contributions, some estimate that it adds up to \$100 per square foot for a residential unit.*

Another key informant discussed the use of third party certification systems and suggested that they may switch from using third party certification systems as the foundation



for their checklist tool to creating their own municipal checklist in order to be able to better address items that are important to their municipality.

Another key informant explained why, in their view, substituting third party certification systems for the review of applications was unacceptable.

*I have some real concerns with the third party certification stuff. There are some consultants out there, architects, engineers, planners that derive essentially all of their work from a few developers, and I wouldn't say they are doing anything illegal, but I think sometimes they are signing off on stuff that I wouldn't agree with what they are saying...it is fine having the third parties taking an initial stab at some of this stuff, but it ultimately has to be agreed to and signed off by the municipality. If all you do is say, ok, it is done and we are going to accept that at face value – I think that is wrong. Because I know a lot of these guys and how they think and operate and they don't think they are doing anything wrong. However, they are not going to do anything to upset their client...That is part of your role if you are a municipal planner or engineer - within reason, to review and make sure that a good job is being done and the public interest is being met.*

#### **5.3.10 Review and Revision of Checklist Tools and Their Role in Monitoring Development Patterns and Practices**

Another key theme that was discussed in the interviews was the need to review and revise the sustainability checklists and the use of these tools in monitoring development patterns, trends and progress towards sustainable outcomes. This was considered important for keeping the sustainability checklists relevant and in alignment with changing policy and shifting priorities, to continue to push for better development, to monitor trends and adjust policy, and to ascertain whether or not the checklist was assisting in achieving more sustainable outcomes. As one participant described,

*Even in the first month we recognized that there are a few things that we didn't get right. But this is a one year pilot, so we said ok, let's start the list of things to fix. And that fits our tradition...the lesson that we would have is*

*to get it [checklist] in place, get it going, it is raising the dialogue, it is raising the bar, keep perfecting it – you are going to have to keep changing it based on the building code and the conditions within the municipality. For example, maybe we will get to the point where we have full childcare coverage across the city or we have an oversupply so we will take that off...it is very much a living document.*

While a couple of key informants mentioned that the checklists were designed specifically with monitoring in mind, most said that it might be useful in monitoring trends and successes but that it was not a priority at this point in time. In discussing the potential for the checklist to be used to assist in plan implementation review or in monitoring development trends, one key informant provided the following explanation:

*You mean after it is built? They rarely do that. These things typically lose steam after these developments proceed and there is not a lot of this. There should be more but there is not a lot of post development analysis that goes on to see how well things have worked out. There are just sort of general observations and if things go horribly wrong you hear about them. But not a lot of monitoring goes on because typically municipalities are under resourced and they just don't have the time to be monitoring a lot of this stuff. Once a development is finished you move on with the next.*

Other key informants explained that doing a review and monitoring the outcomes is a fundamental part of the sustainability checklist process and is necessary in working towards creating sustainable communities. As one participant stated:

*You are going to collect the data, and significantly, hopefully change the form of development, the quality of development that you are getting, but the third piece is that you actually need to review it. Is it working or is it not?...Did we actually do what we said we would do? Did we actually achieve what we wanted to?*

### **5.3.11 Challenges in Achieving Sustainable Outcomes**

Key informants discussed numerous challenges in achieving sustainable urban development. Three of the most frequently discussed challenges relate to the culture of the

organization, that development is a part of a political process, and that checklists are often working against the land market.

The culture of an organization can have a significant role in the success, or otherwise, of the sustainability checklist and in achieving sustainable development in general. Municipalities with a strong culture of sustainability evidenced by the plans, policies and programs in place were more likely to report success with the checklist tool. If there is support for the sustainability checklist from the management team, there is likely to be more active engagement with the checklist tool. The checklist then presents the opportunity to further discuss sustainability issues amongst staff in planning and in other departments. In absence of support from the management team, it is up to the will and support of individual planners. Planners are more likely to push for more sustainability features or items to be addressed if there is the support from senior staff and Council and an expectation that applicants need to consider the checklist items and be able to demonstrate that they are working to align the proposed project with sustainability objectives. Several key informants spoke about difficulties presented by a lack of support or buy-in from other departments. For example, many of the checklist items relate to green building practices and rely on the willingness and ability of the building department and building inspectors to check for specific items. Another example that key informants provided is the situation where an applicant addresses a checklist item but the item doesn't meet an engineering standard and is therefore rejected.

The effective use of checklists also requires the support of Council. This was discussed not only in terms of considering development applications but also in the creation of an overall sustainability strategy or mandate. A strong commitment to sustainability was demonstrated by several of the municipalities reviewed as part of this research as evidenced by corporate green

building requirements, support for sustainability-driven policies and actions, and willingness to offer incentives to the private sector in connection to sustainable development practices.

Key informants also discussed the role of the land market in driving or hindering many sustainability objectives. Higher land costs encourage higher density development and increased unit sales prices making the inclusion of some sustainability features more feasible. It also necessitates a greater number of residents residing in higher density housing forms due to cost and availability, and a greater acceptance of these housing forms. To paraphrase one key informant, in many areas of the province single detached housing is the preferred housing form and it is readily available so it is all people are willing to accept. The key informant provided the example of where a municipality can incentivize multi-residential development within their downtown to the extent of pre-zoning everything, providing density bonuses and tax incentives and waiving parking requirements, and yet there will be no uptake.

#### *5.3.12 Summary of Findings from the Key Informant Interviews*

Key informants offered diverse perspectives on the role of sustainability checklists in encouraging sustainable development practices. Some key informants felt that sustainability checklists generally lead to development that is more sustainable than conventional practices; others felt that this is sometimes the case; others felt that checklists had little or no effect on the sustainability of projects; and others felt that checklists actually impede progress towards sustainability.

Potential motivations for the increased use of sustainability checklist tools included an increased awareness around sustainability issues, communication of sustainability issues and objectives, gaps in provincial legislation or local policy, assisting Council in decision-making, and

the use of checklist tools in other communities. In terms of what led to the particular format and content of checklists, key informants discussed Council priorities, official community plan or neighbourhood plan policies, related regulations, grants and funding requirements, municipal context, knowledge base of staff, popular or “it” features, opposition of the local development industry. Another factor influencing the chosen format was whether the emphasis was primarily on education and gathering and distributing information; reviewing, monitoring and analyzing development trends; plan implementation; or assessing and evaluating development proposals.

Most key informants indicated that they thought sustainability checklists were successful in creating development that was more sustainable than would otherwise be the case. This was attributed to raising the issues related to community sustainability, having discussions, and requiring developers to consider and respond to these items. Green buildings, energy efficiency, reduced water consumption, onsite stormwater management, increased mixed use development, alternative transportation measures, and public art were identified as areas where municipalities have typically made progress. Some key informants also felt that awareness around walkability, urban agriculture, affordable housing, and smart growth planning has increased although it is not necessarily reflected in current development patterns. In achieving success, key informants discussed the importance of incentives and regulatory mechanisms and in the assertiveness of individual planners. In addition to having some measure of success in creating more sustainable development, half of the key informants offered examples where sustainability checklists were improving the development review process by providing requirements to developers upfront, providing consistency in the review of applications, the use of the checklist as a negotiating tool, integrating different policies, regulations and information, and providing a quick synopsis on the merits and shortfalls of a project. The other half of key informants either didn’t think that sustainability checklists were

useful in improving the development review process or didn't provide comments on this subject. Several key informants discussed the importance of regularly reviewing and adapting sustainability checklists to ensure that they continue to encourage better development practices and remain a useful and relevant tool.

Three key informants felt that sustainability checklists were having little success in creating a more sustainable development than would otherwise be the case. Explanations provided by the interviewees include: it depends upon willingness of developer to address the issues as there is no jurisdiction for many checklist items, and often no means of ensuring compliance with completed checklists; the politics of the situation largely determine decision-making where there is discretion; the local land market largely determines the type of development; and that checklist tools aren't meaningful because they are too qualitative to provide any useful direction, are things developers would have to do anyways, or are things that are asked at inappropriate times in the process.

Some key informants felt that sustainability checklists could at times be detrimental to sustainable urban development and provided examples where checklists could stifle creativity, result in development that was inappropriate to site conditions or neighbourhood context, result in a good development in the wrong location, be used to justify a bad development or to mislead decision-makers, add unnecessary costs to projects which are then passed onto the inhabitants, or use funds that could have been spent in a more meaningful and beneficial way. These concerns generally related to situations where key informants felt too much emphasis was placed on the checklist results without considering the broader context of sustainability.

Overall, there was recognition amongst the key informants that sustainability checklists can encourage better development practices and can help to make a more informed decision,

but that using the checklists was not a substitute for informed decision-making. Interview participants acknowledged that planning is a subjective exercise, that sustainability is a complex concept, and that decisions often come down to the politics of the situation.

The key informant interviews added insight into findings of the document analysis and survey and raised new topics and perspectives not previously considered. Findings from all three research methods have been integrated into a series of key findings presented in the following section.

## ***5.4 Key Findings***

Municipalities continue to adopt sustainability checklists yet there has been little evaluation of these tools. Results from each of the three research methods are discussed in detail in the previous sections including a description of the design and implementation practice of current tools, strengths and limitations of sustainability checklists, and comments on the effectiveness of these tools. The following is an integrated summary of the key findings constructed from the literature review, document analysis, survey, and key informant interviews. These findings describe potential considerations in the adoption or refinement of sustainability checklist tools.

### ***Key Finding 1. There are many different approaches to sustainability checklists***

Five broad types of sustainability checklists were identified in the document analysis based on the format of the checklist, the evaluation system employed, and significant differences in scope (Section 5.1). While this categorization is a useful way to discuss different approaches to sustainability assessment tools, each checklist tool varies in terms of: checklist criteria and how they relate to principles of sustainable urban design; the measures used such as high level policy objectives, prescriptive or performance measures; whether they are measuring

outcomes or inputs; what stage of the development approvals process that they apply to; and how well they are integrated with other planning tools. Each of these aspects has bearing on the outcomes of the assessment as discussed in the findings of each of the three research methods.

There appears to be a movement towards scorecard style evaluation systems, the inclusion of more quantitative information and measures, staff rating rather than applicant rating, and increasing specificity in individual checklist items and in what checklists are applied to. Recently, some municipalities have adopted separate checklists for different stages in the development process or for different types of development or land uses. Other municipalities have chosen use a combination of checklist approaches that apply to different stages of development process. For example the use of a broader tool that includes built form concepts such as density, active transportation networks, mixed land use, and connectivity early in the approvals stage with a more detailed green building related checklist at the building permit stage. Interestingly, despite the fact that many municipalities within a region appear to have developed checklists around the same point in time, no regional approaches appear to have emerged.

One of the objectives of this research practicum was to look at how municipal sustainability checklists fit within the sustainability assessment literature and how this may influence the outcomes. The sustainability checklists reviewed in this research more closely reflected objectives-led approaches as was described in Section 2.2 although some characteristics of EIA-driven approaches were observed. Checklists aimed to be proactive in articulating to applicants the criteria as early in the process as possible and in assessing the extent to which a project proposal address the criteria and contributes to the community's sustainability goals. As demonstrated by the survey, sustainability checklists were a key part of pre-application discussions with applicants and were closely tied to Council adopted policies,



procedures and in many cases reference specific sustainability objectives. However, none of the sustainability checklists reviewed represents an 'ideal' objectives-led approach. Often sustainability criteria in the checklists were not clearly linked to sustainability objectives or a particular vision or outcome. As was also indicated in the survey, the sustainability checklists were largely developed by planning staff with minimal input from other departments or external stakeholders. In terms of reviewing the checklists, in all cases this was done by individual development planners working on the corresponding development application. As noted above, there appears to be an increasing trend towards quantification with more criteria based on quantitative measures and new approaches including points-based evaluation systems. However, at this point in time, most of the checklists do not include a scoring system and rely almost exclusively on qualitative information. Twenty-three of the twenty-four checklists fall within the technical expert – qualitative quadrant outlined in Section 2.2; the other falls within the participatory – qualitative classification.

The success of the sustainability assessment approach depends on the focus of the tool. The two most commonly identified functions of the checklists in both the document analysis and the survey were increasing the education, knowledge, awareness of the development industry and property owners regarding sustainability issues, and assessing how well proposed projects address the sustainability objectives of the community. Most sustainability checklists refer to both of these functions. If the focus is on education and awareness, the most effective tool will be one that raises dialogue and stimulates thinking. Sustainability statement tools are well suited to this function. If the focus is on assessing and communicating how well a project fulfils specific community sustainability objectives, the scorecard is likely a better tool providing that it is closely tied to the objectives and related Council adopted policy. If the focus of the tool is the inclusion of specific sustainability features or development practices, then the checkbox tool is

likely the most effective option. Strengths and limitations of different types of tools are discussed in Sections 2.2, 2.3 and 5.1.

***Key Finding 2. There is an overemphasis on environmental sustainability particularly green building related criteria***

Results from the document analysis, survey, and key informant interviews indicate that there is an emphasis on sustainability checklist criteria related to environmental sustainability and in particular those related to green building. An emphasis on environmental concerns to the detriment of social or economic concerns is consistent with the literature review findings and is a common concern related to sustainable urban development (Saha, 2009; Brown, 2006; Garde, 2009). As Ritchie and Thomas (2009, p. 4) state “it could be said that environment is the easiest aspect because it is much simpler to assess if, for example, CO<sub>2</sub> emissions have been reduced rather than whether a scheme will successfully lead to economic regeneration”. Other possible explanations for the focus on environmental sustainability include:

- the increasing support for the model of sustainability conceptualized as three concentric rings with social well-being and economic vitality embedded within ecological integrity;
- that environmental concerns were largely absent in planning and design considerations until relatively recently in planning practice therefore checklists emphasize environmental aspects in response to this deficiency;
- the attention and momentum of the green building industry; and
- recent changes to planning legislation regarding the required greenhouse gas emission targets and actions.

It may also reflect a gap in the planning tools that are available. There are already planning tools and accepted practices for influencing urban design, form and character of buildings, economic revitalization, heritage conservation, and affordable housing. However, there are few tools available to require green building features and for shaping detailed building design as the

legislation does not allow for this in most circumstances. Another possible cause for the emphasis on green building is that often sustainable checklists are used to review projects at the individual building scale and many other sustainability concerns cannot be addressed at this scale such as road networks and block patterns, ecosystem functioning, economic vitality, land use patterns and social capacity. Regardless of the explanation for the overemphasis on environmental aspects, sustainable urban development is about more than environmental concerns and is about more than individual building design. As was outlined in the literature review the emphasis on environmental criteria and buildings results in technical solutions to what is fundamentally a socio-political issue (Frame & Vale, 2007).

While environmental considerations are overemphasized many key aspects of sustainable communities are underrepresented or absent in some of the sustainability checklists. The document analysis revealed that economic criteria had the least representation. Where it was included, it was often simply the number of jobs created by the project either during or post construction. Very little was mentioned regarding fiscal responsibility yet one key informant saw the rapidly increasing infrastructure deficit, inefficient development patterns and insufficient development cost charges as one of the biggest threats to the sustainability of communities. Other key informants also expressed concern with the underrepresentation of economic considerations citing economic development and the loss of tax revenues related to the dying economies of many communities as the next biggest challenge in the sustainability movement.

It is clear that sustainability checklists give more attention to environmental concerns; however, it isn't clear as to whether or not this is perceived to be problematic or worrisome. According to the survey nearly 70% of respondents felt that some aspects of sustainability (environmental, economic, and social) were better addressed than others, but 45% of respondents felt that each aspect of sustainability was adequately addressed with 33% disagreeing. During the interview process, the majority of key informants identified gaps in what

the checklist tools are measuring, or in what applicants were choosing to incorporate into their projects, and felt that this is a potential limitation of checklist tools.

**Key Finding 3. *Need to ask for the appropriate information at the appropriate time***

As previously quoted on page 113, one key informant succinctly describes “my biggest complaint with checklists is that they are a dog’s breakfast of stages in the development process...they range from land use to lighting fixtures”. This frustration was echoed by key informants throughout the interview process. The issue of mixing of stages was also evident in survey responses where nearly the same number of respondents felt that the content of sustainability checklists reflects Smart Growth Principles as those that felt that the checklist incorporates criteria from green building rating systems. The majority of survey respondents also indicated that they felt that sustainability checklists provide a balance of neighbourhood or regional level and building or site level criteria however these responses don’t indicate whether or not this is a positive or negative aspect. Interviews with key informants seem to indicate the latter.

The mix of criteria applicable to different stages in the checklist process can make it lengthy, difficult to use, frustrating to complete, and hard to implement. At a specific stage of the development process many of the criteria will appear to be impractical or irrelevant for applicants and can have a significant negative impact on projects. Key informants raised potential problems related to this mix of criteria and development stages including the lack of “teeth” to ensure compliance, lack of jurisdiction for some criteria in absence of rezoning, encumbering land with covenants for building permit related items, and wasting resources on negotiating and preparing items at zoning stage that don’t apply until building permit stage or that will likely change by the time an application for building permit is made. Related to this was the concern that there is a desire to make checklists more fully comprehensive in order to

communicate sustainability objectives and best practices. This concern to be all encompassing can result in overlaps, conflicts and redundancies with other policies and regulations. Several survey respondents suggested making the checklist tool more user friendly by simplifying and streamlining the checklist criteria by clearly indicating which criteria are not relevant based on the type, scale or location of a project, and removing items that are already required by other municipal policy or regulation. It appears that several municipalities have been trying to address issues related to mixing development types and approval stages through changes to the design of newer checklist tools.

**Key Finding 4. *Scoring systems should be used carefully***

There is an increasing use of scorecard style sustainability checklists with four of the five scorecard tools having been adopted by municipalities in 2008 or later. Some of the key informants suggested that the presence of an overall score or method of gauging how well the application meets the sustainability objectives is fundamental to the success and utility of the tool. Adding a weighting system to indicate the priorities of sustainability criteria was also one of the more commonly suggested improvements to the checklist tool offered by survey participants.

The majority of survey respondents indicated that certain criteria are considered more important than others in reviewing development applications yet only one third had scoring systems in place. While the absence of scoring might promote a greater flexibility in project development, this approach provides less direction and transparency. Scoring and weighting systems can be useful to encourage applicants to address priority items such as those that have a larger impact on sustainability or those that may be more difficult or costly to achieve. Key informants noted that in absence of a scoring or weighting system, applicants will often select lower cost items or the easiest options and these might not be the most effective.

Developers found scorecards to be problematic as they can have unintended consequences on a development such as artificially low scores. Artificially low scores occur where points are impossible to achieve given site conditions or zoning constraints. Developers were also concerned that scoring can be too subjective - for example what qualifies as a 2 or a 3 rating, that scoring can stifle creativity, and that scorecards are too simplified and can lead to development practices that are inappropriate for a particular site. Several key informants also suggested that not enough thought has gone into the point values for scoring systems yet this has major consequences for a project. This concern is consistent with the findings of the literature review. Eales et al. (2005) cautioned that it is important to ensure that any use of scoring and weighting is done on a rational and consistent basis, and that it involves the right stakeholders at the right time, or the assessment might be open to accusations of arbitrariness. Frame and Vale (2006) and Ding (2008) also discussed the importance of creating transparent weightings through a consultation process. Very few stakeholders were involved in the design or implementation of the majority of municipal sustainability checklists as was demonstrated in the survey results.

Concerns were also raised where scoring has led to situations where applicants were embellishing their sustainability checklist and selling Council on a more robust sustainability package than they were actually intending to implement in order to gain approval for their project. This embellishment was a particular concern in relation to applicants self-scoring in conjunction with the mismatch of sustainability criteria and development approvals stages where there was no mechanism in place to ensure compliance.

**Key Finding 5. *Checklists are decision-aiding rather than decision-making***

*“they [sustainability checklists] don’t make your decision easier necessarily, but it gives you more information to make a more informed decision”  
(Key Informant)*

As was discovered in the document analysis, none of the checklists are used to evaluate an application in terms of passing or failing. Instead checklists are primarily used to gather and share information and to determine how well a proposal aligns with sustainability objectives. The survey results support this view with less than a third of the respondents indicating that there was a minimum threshold that had to be met in an application review and even fewer respondents (22%) agreeing that applications that address very few of the criteria in the sustainability checklists generally do not receive discretionary approvals. In general, both survey participants and key informants indicated that sustainability checklists had minimal influence in decision-making. Many of the key informants saw the checklists as one more tool to factor into the decision-making process and therefore lent power to planning staff to request and to push for more sustainable development features. However, as it is a policy tool it is meant to guide decision-making not replace it and Councils are not bound the outcome of checklist. As one key informant described:

*“your council may weigh the options [of locating a gas station near an estuary] and say we know the economic and social benefits, and we don’t have a gas station within 5 miles, but we have said that we don’t want it beside an estuary. Simply because of the risk of spill. We are weighing the environmental stuff over all of the social and economic stuff, fine. It doesn’t mean you have to change your checklist, is just means they had basic information and they made an informed decision”.*

Problems related to scoring and compliance become more of a factor when there is an expectation that the checklist will be used to make a decision on whether or not an application should receive planning or Council support.

**Key Finding 6. Sustainability checklists are raising the bar on development practices but are not pushing the envelope**

*“As a result, projects were almost always greener or better. Maybe not deep green, maybe not exemplary but better than they might have otherwise been”  
(Key Informant)*

Sustainability checklists are generating development that better addresses sustainability concerns than might otherwise happen in their absence. Sustainability checklists are raising the dialogue around issues of sustainability with nearly 80% of survey respondents agreeing that sustainability checklists are a key part of pre-application discussions with developers and their consultants. However, the nature of this discussion may be quite different depending on the checklist style as well as the individuals involved. Broader statement style tools might stimulate thinking on sustainability objectives and different approaches to the issues while more prescriptive tools may lead to discussions that focus more on the feasibility of specific aspects. In addition to providing opportunities for dialogue, and for sharing knowledge and information, approximately half of survey respondents indicated that proposed projects are often adjusted or amended to include sustainability elements as a result of the review and discussion of sustainability checklists. Another quarter of respondents didn't know if projects were being amended as a result of sustainability checklists.

The impact that sustainability checklists are having on development practices was one of the main areas of inquiry in the interviews. Developers and planners provided examples of where a specific sustainability item or feature was incorporated into the project design because of the checklist. For the most part, key informants suggested that the checklists were encouraging and resulting in better development practices but that this is still considered to be incremental change.

Not all key informants shared this perspective. One key informant explained that in areas of the municipality where the checklist doesn't currently apply, development projects would likely still score quite highly on a sustainability checklist because development is already guided by detailed neighbourhood plans, amenity and environmental policies, and regulations. Others felt that without a way to enforce or incentivize compliance, addressing sustainability



objectives really depended on the willingness of the developer to implement sustainability features. Not surprisingly, those municipalities that offer incentives tied to the checklist are reporting more satisfaction with the use of checklists as a means of creating more sustainable urban development. This success might not only reflect the incentive itself but indicate how strongly each of these municipalities views sustainability as a strategic direction. If a municipality is willing to provide an incentive, it is likely that there are other sustainability policies and programs in place.

Developers largely agreed that sustainability checklists were resulting in more consideration of sustainability features. Without tools such as sustainability checklists many of these items wouldn't be addressed. Presently there is little motivation without a demonstrated economic benefit such as reduced construction costs or increased saleability especially for those who do not position themselves as 'green', 'eco-conscious' or 'sustainable' companies . Sustainability checklists may require these firms to extend beyond their comfort zone and there are few regulatory or legislative requirements instigating this push. Others in the development industry see incorporating sustainability concerns as business as usual. However, some developers explained that there are many tradeoffs in development. The inclusion of some items can come at the expense of other items. Typically this was expressed as gains in environmental or social items at the expense of affordability. Some developers indicated that the presence of the checklist was useful in providing direction in developing and negotiating projects because checklists represent known goal posts. Others felt checklists, particularly scorecard or checkbox tools, were too prescriptive resulting in unnecessary costs, hampering creativity, promoting complacency, and simply getting in the way of creating a development that makes the most sense for a particular site.

Sustainability checklists are not resulting in innovative practices. Less than a third of survey respondents agreed that checklist use has led to innovative sustainable development practices or practices new to a community. Two key informants felt that checklists stagnated progress towards sustainable development with one key informant stating that the checklist in one municipality could be met by most developers without any challenge and with minimal effort. Another potential reason that checklists are not resulting in innovation or large scale change, is that municipalities are often risk adverse. There are developers at the forefront of sustainable urban development that might be seeking to implement new ideas or technology but that are encountering reluctance from a municipality. Where new solutions might be accepted, they are sometimes required to be accompanied by a proven back-up system or technology which may result in overdesigned systems.

Lastly, sustainability checklists may be failing to push the envelope because checklists are not keeping up with the rate of change concerning sustainability concepts, technologies or the conditions within the municipality. The commitment to monitor, review and adapt checklists to keep pace with sustainability advances and evolving legislation, policy and regulations was one theme expressed in the interviews. Survey respondents also recommended regular review and updates as a way to improve checklists. More than half of survey respondents indicated that the sustainability checklist had been recently revised or that updates are currently planned. However, this does not indicate whether or not the revisions are in response to changing conditions or that the current tool is proving ineffective. It does indicate that municipalities see value or potential value in the use of sustainability checklists as they are willing to invest additional time and resources in adapting these tools.

**Key Finding 7. *The effectiveness of these tools appears to be largely unknown***

Sustainability checklists are helping to raise the bar of development practices with some measure of success, but the overall effectiveness of these tools remains largely unknown.

Survey respondents and key informants had mixed opinions on the effectiveness of sustainability checklists in creating sustainable urban developments. Key informant responses are summarized in section 5.3.6 with participants providing examples of situations where sustainability checklists have led to development that is more sustainable than conventional development while others discussed reasons why these tools are ineffective.

Survey respondents were asked about the effectiveness of the sustainability checklists in the last section of the online survey. Only 28% of respondents agreed that the checklist tool has been successful in creating development that is more sustainable than conventional development practices, while 16% disagreed and the remainder either didn't know or were neutral.

A high percentage of "don't know" responses were recorded throughout the effectiveness section of the survey, typically between 20% and 40%. Many checklist tools were adopted within the last couple of years. The effectiveness of these newer checklists may have been difficult for planners to assess at this point in time as the development process can take several months to years with some approved developments never getting built. Due to the recession, many communities were also experiencing a decline in the number of development applications. In other cases the planner responding to the survey was new to the municipality therefore they did not have a sense of how well these tools were working. However, many other sustainability checklists have been in place for more than five years, several of which have undergone significant redesigns or are currently being updated.

As discussed in Sections 5.1 and 5.2 the most commonly stated functions of sustainability checklists are increasing knowledge and education of sustainable development practices, integrating and implementing municipal policies and regulations related to sustainable development, and informing decision-making. Approximately half of respondents agreed that proposed projects were amended as a result of the checklists and that education, knowledge and awareness around sustainable development practices has increased as a result of the checklist while another quarter to a third of respondents didn't know. Three quarters of respondents agreed that many of the checklist criteria were directly related to Council adopted policies or regulations and nearly 80% agreed that the content of sustainability checklists reflects the policies and goals of the official community plan. However, when asked if the checklist has been successful in achieving the intended objectives, only 33% agreed, 23% disagreed, while 28% didn't know and 17% were neutral.

The discrepancy between the higher reported success of specific aspects (education and awareness, assessment, inclusion of sustainability features etc.) and the lower reported success of the tool overall, has many potential explanations. One possible explanation is that planners have higher expectations for the checklist tool than the checklist is capable of delivering. While planners are reporting some measure of success in creating more sustainable urban development, the advance is incremental. It is also typically at the site level. The checklist does not appear to cause enough of a change or big shifts in development practices towards sustainable urban development. As previously discussed, key informants referred to the 'lack of teeth' of the checklist documents identifying issues related to jurisdiction, incentives and regulation. Another potential explanation is that while municipalities are seeing some change, it is not the kind of change that is needed to transition communities towards sustainability which is discussed in further detail below. Another potential explanation of the discrepancy between

reported success of specific aspects and the overall support for the tool could be related to the sustainability checklists having little influence in informing Council's decision making. Only 28% of survey respondents agreed that the checklist has been an influential part of Council's decision making while 34% disagreed.

One key informant offered an interesting perspective on the effectiveness of sustainability checklist tools suggesting that it was a temporal issue. Checklists have a high profile when they are first adopted drawing attention to sustainability issues. Once the municipality and developers have been working with these concepts for some time, checklists may have little influence as everyone is well versed in the issues and in many cases have advanced beyond the concepts and features included in the sustainability checklists. Checklists that are not regularly reviewed and updated can quickly become irrelevant.

The results of the survey and key informant interviews indicate that the effectiveness of sustainability checklists is unknown. In addition to keeping the sustainability checklist relevant, the unknown effectiveness of these tools suggests an opportunity for review and monitoring. Throughout this research, monitoring and reviewing development practices emerged as a common theme and was identified as a potential improvement to sustainability checklist tools. As one key informant summarized, *"it is about closing the loop - you are going to do your nice lovely little policy – great. You are going to collect the data, and significantly, hopefully change the form of development, you know, the quality of development that you are getting, but the third piece is that you actually need to review it. Is it working or is it not?"* Several of the newer sustainability checklists appear to be moving in this direction through the inclusion of more quantitative information and at least two of the newer sustainability checklists appear to be designed with monitoring in mind. These findings are consistent with the literature review findings which identified the need for greater importance to be attached to review and

monitoring as local governments need to do more than just move in the direction towards sustainability. Local governments also need to measure the distance from the target – a sustainable community.

**Key Finding 8. *The use of sustainability checklists may be encouraging better development but this use is not resulting in sustainable outcomes***

*“even a significant improvement based on an unsustainable status quo will still be unsustainable” (Karol & Brunner, 2009, p. 625)*

As discussed above, sustainability checklists are having some success in encouraging better development practices. However, in most cases they are not achieving sustainable outcomes either at the site level or at a broader neighbourhood or community level. Through the survey, only 40% of respondents indicated that they were satisfied with the use of sustainability checklists as a tool for creating more sustainable communities, while 29% indicated that they were dissatisfied, and 28% indicated that they were neutral.

Sustainability objectives often cover the three pillars (environmental, social, and economic) but as this research has revealed, within most of the checklist documents there is a focus on environmental criteria and specifically green building. Focusing on green building can miss important opportunities to discuss social and economic issues. A comprehensive site analysis including social spaces, historic uses, circulation patterns, microclimates, natural features, topography and drainage, and the subsequent discussion of the site analysis between planners and developers may prove of greater benefit in working towards sustainability at the site level. *“Each site has a unique set of physical, biological, and cultural attributes and some of these attributes substantially limit the site’s suitability for certain uses. If the site’s existing conditions are poorly understood, the site’s development can result in detrimental environmental, social and economic impacts” (LaGro, 2008, p.21).* An overreliance on criteria included in any sustainability checklist without knowing and understanding the site context will

not achieve a sustainable outcome as was discussed by key informants during the interview process.

Development tends to occur at the site level in urbanized areas through a continual process of development and redevelopment of buildings and land but there are limits to achieving sustainable outcomes even when an inclusive site analysis is conducted. *“The appropriate scale for sustainable solutions is something larger than individual buildings – it could be the block, the neighbourhood, the city or the region”* (Ritchie & Thomas, 2009, p.3). However, many sustainability checklists focus on items addressed at the site level. The need for tools to address the broader neighbourhood level and to move beyond physical form was one theme that emerged through the literature review on sustainability assessment tools. Addressing sustainability at the neighbourhood to regional level introduces sustainability into people’s everyday lives. Built form considerations such as: a fine grained interconnected urban structure, increased density, mix of land uses, good quality public spaces, connections to destinations, and connection to the natural environment all influence people’s patterns of behaviour including where they choose to live, where they choose to go, how they choose to get there, and what they chose to do. Survey participants indicated that principles of urban design related to built form such as a mix of land uses, multi modal transportation systems, compact form and increased density were adequately addressed in sustainability checklists. All three were in the top four most frequently selected yet are more effectively addressed at the neighbourhood level than the site level. An interconnected and fine grained urban structure was further down the list with just over half of respondents indicating that this was adequately addressed in sustainability checklists. When asked about the effectiveness of sustainability checklists, about 28% of respondents agreed that the use of the checklist has led to a more sustainable urban form or morphology. Interestingly, despite agreement in the literature that sustainability is best

addressed at a broader scale such as the neighbourhood, only about half of sustainability checklists apply to subdivisions and only three were tied to neighbourhood plans. Despite the opportunity to integrate sustainability checklists with detailed neighbourhood planning initiatives either as a basis for plan formation or as a way to summarize plan objectives and/or to track plan implementation, none of the interview participants that offered comments on this subject saw value in this potential function. Two of the interview participants mentioned that sustainability checklists were used in areas where neighbourhood or detailed area plans did not exist and felt that detailed neighbourhood planning had more capacity to address sustainable urban development.

Survey responses and the document analysis suggest that most of the principles of sustainable urban design identified in Section 2.4 were adequately addressed in sustainability checklists, but that checklists are missing some ‘big’ ones. Compact form, public involvement, and regional context had the fewest number of related sustainability criteria in the document analysis and survey results indicated that resiliency and adaptability, regional context, and public involvement were the least adequately addressed sustainable urban design principles. If we view communities as complex, dynamic systems and sustainable urban development as a transformative process rather than an absolute end state, resiliency, regional context and public involvement are essential to achieving sustainable outcomes.

One of the common criticisms of sustainability assessment is that it can lead to a ‘good’ or ‘green’ development, but the development could be located in the ‘wrong’ location missing a fundamental aspect of sustainability. The following excerpt from one of the key informant interviews demonstrates this point.

*To stand back for a moment, and this is amongst the many problems that I have with these sustainability checklists, even if this development scores*



*high on the checklist, and it will, that still doesn't answer the question, was this a good thing to do?...this was a site that was designated in the OCP for continued industrial use, it was purchased for industrial use - to be used for a new generation of industrial uses. But after they [developer] purchased the site, they felt it was too valuable a site for industrial use. They brought it to Council for initial consideration of a mixed use village. Staff opposed it saying that it was an inappropriate use of the site. Not only was it counter to the OCP which they still felt made sense, they said they still felt industrial was the right use of the site given that it is cut off from the rest of the community, its industrial history, that it is surrounded by industrial use, given the amount of jobs that will come out of there, the tax base, its proximity to the waterfront so some of it could perhaps support marine based industry – taking it out of industrial is not the right thing to do. The regional district agreed and was vehemently opposed to it coming out of industrial use, so was the Port Authority. So everybody agreed and was opposed to the change in use saying it was the wrong thing to do however, Council of the day disagreed and said, “No, we want this here. We want to open up the waterfront. We want our Newport Village, our Granville Island, call it what you want, we want that down there. We know there are issues, staff figure out a way to address those issues”. So then everything switched and it was no longer a debate about whether it should be used for mixed use rather than industrial, it became about how do we make the best mixed use development possible.*

Another common example is where newer, and sometimes award winning, developments are branded as sustainable because they contain a mix of uses and density, have employment opportunities and contain community hubs with aim of creating a more social, neighbourhood feel. In short, they meet many of the smart growth principles. However, oftentimes these represent greenfield or leapfrog development with poor connectivity to the remainder of the municipality as is described in the article by Mapes and Wolch (2011).

Comparing the research findings with community context information included in Chapter 3, it appears that while some progress is being made towards sustainable urban development, a more widespread shift is needed. Some municipalities continue to add suburban single family detached housing forms and continue to expand their municipal boundaries; two attributes associated with sprawl. Others are seeing an increase in the prevalence of multi-family housing and increased population density. Most of the municipalities included in this

study have fairly low population densities on a city-wide average, too low to support walkable, urban lifestyles including supporting neighbourhood commercial uses and transit options. However, gross density is of limited use, and it is not to say that there are not areas in each of these municipalities that meet density thresholds and demonstrate characteristics consistent with walkability. However, survey respondents indicated that the most common type of residential development within the last 5 years has been in established suburban residential neighbourhoods (61%). This was followed by mixed use neighbourhoods or village centres (39%), or within downtowns (39%), yet more than 20% of respondents indicated that the majority of growth is occurring in undeveloped lands near municipal boundaries and 11% indicated that it is occurring in rural or semi-rural areas. This suggests that there is further opportunity to direct growth in creating sustainable urban development and indicates opportunities to integrate checklists with other policy and regulatory mechanisms used to shape development patterns such as: urban containment boundaries, detailed neighbourhood plans, greenhouse gas reduction targets and actions, or integrated sustainability community planning initiatives.

**Key Finding 9. Sustainable outcomes depend on creative, integrated solutions**

*“Our built environment suffers enough at present from people who were too sure of their solutions and those who thought in silo based terms and over-planned and thus, over-constrained development” (Ritchie & Thomas, 2009, p.3).*

Cities are a series of complex, interconnected systems. While sustainability checklists contain many objectives related to principles of sustainable urban design, checklists especially when applied at the site level, do not get to the heart of issues around sustainable communities. What seems to be missing in the design of many municipalities is the overall vision or plan. As Hodge and Gordon (2008) state, “the key point is to develop a strong urban design concept and

then prepare tools to implement it. Mixing and matching guidelines and codes from various cities rarely leads to good results” (p.342). Changes to the way we deal with land use, transportation, energy, water, food and waste are needed to move us towards sustainable and resilient communities. This goes beyond any single development and requires an integrated and creative approach to the way we plan our communities.

As discussed in the literature review, sustainability assessment emerged in response to single sector approaches which miss the complexities that are inherent in sustainability. Sustainability checklists may be in danger of repeating this same mistake by reducing sustainability concepts down to a series of features and checkboxes when the problem is systems based. To quote Albert Einstein, “we can’t solve problems by using the same kind of thinking we used when we created them”.

Sustainability checklists may form part of the solution. Checklists signal the desire for change and begin to work through what sustainability means for communities. Checklists can then help to communicate sustainability issues and objectives to citizens and landowners in an easily digestible format. Several key informants spoke about the need to closely tie checklist items to the goals and policies of Official Community Plans or Strategic plans and felt that checklists can help to implement and communicate these goals. Others felt that robust Neighbourhood Plans can achieve many of the same things as the checklists but in a more comprehensive and effective manner.

The importance of integrated solutions was discussed by many of the key informants and also emerged through the document analysis, surveys, and literature review. Sustainability checklists that were considered to be more successful typically had a more integrated approach in terms of who was involved in the design and implementation of checklist, the use of checklists

in connection with other planning tools, and a municipal commitment to sustainability evidenced by sustainability plans, policies and incentives. One of the key informant interview questions explored the idea of connecting sustainability checklists to current planning initiatives, namely greenhouse gas emission reduction targets which are a mandatory part of Official Community Plans; new development permit powers related to greenhouse gas reduction, energy efficiency and water conservation; and eco-centric comprehensive neighbourhood plans. Connecting checklists to greenhouse gas reduction targets would be a stretch for most checklist tools at present. However, one of the checklists studied as part of this research was using the checklist to achieve energy efficiency performance measures. Linking the energy performance to a corresponding reduction in greenhouse gas emissions would assist municipalities in tracking community emission reductions and provide important feedback to use in policy development. Checklists could also be applied as part of Integrated Community Sustainability Plans. Very few municipalities appear to have developed development permit guidelines related to reducing greenhouse gas emissions, yet many of the criteria found in checklists can be covered through this tool. Finally, there is potential for sustainability checklists to be used either in the formation of neighbourhood plans or in implementing neighbourhood plans. Conversely, a few planners noted that checklists tend to be applied in areas that do not have detailed neighbourhood or area plans in place. However, three of the checklists included as part of this research were connected to neighbourhood plans or project design concepts.

Not surprisingly, planners reported more success with sustainability checklists where checklists had better vertical integration and in municipalities that appeared to have a strong culture of sustainability. However, a reliance on sustainability checklists falls short as checklists do not necessarily result in sustainable outcomes for the myriad of reasons discussed previously. Achieving sustainable outcomes requires multiple solutions involving multiple players

Sustainability checklist tools were created almost exclusively by land use planners although this wasn't the case for every checklist reviewed (Section 5.2). Sustainability and urban development are complicated processes with many stakeholders. Municipalities need to align planning initiatives, finance and budgeting decisions, engineering standards and services, and parks provision. Sustainability checklists also need to be combined with other policies within the realm of planning, engineering, municipal finance and parks to get at factors that shape development beyond the scope of a single project or site such as the land market and urban systems. Developers can then tap into this existing framework to realize a sustainable urban development.

Perhaps one of the greatest benefits that checklists can provide is getting the various stakeholders together to conceptualize sustainability and to build an understanding and awareness of both current conditions and potential solutions. These discussions lay the foundation for what development solutions are possible; where they might be appropriate within a municipality; and identify priorities for advancing the sustainability agenda. The checklist could then be used as a way to carry this discussion forward at time of application or with those who weren't involved in the initial stages.

Municipalities also need to look beyond their own borders and work with other local governments and agencies. Many of the urban systems and environmental, social and economic conditions apply at a regional scale. Regional influences are necessary for achieving sustainability but can also impede progress. For example, a municipality might be working towards constraining sprawling development and concentrating development within the downtown. In order to achieve this, they might have supportive land use strategies such as density bonusing, restructuring development cost charges so developments in fringe areas pay more and in downtown pays less, tax incentives and creative zoning parameters. However, if the

adjacent local governments are not in sync, the strategy may be ineffective. Developers may elect to locate in the adjacent municipality and further outside the regional core due to a perceived development friendly attitude with lower development costs and standards. Similarly, a municipality can encourage energy efficient structures but if the energy source is not renewable, flexible, efficient and resilient, then the system will fall short of being considered sustainable.

As discussed in the planning literature and by some key informants, municipalities will also need to involve the private sector and citizens in this process. Referring to section 2.2.2, this is considered as fundamental to sustainable urban development. Whether it is through the development of a city-wide strategic plan, a comprehensive neighbourhood plan, delivery of a service, or even the development of a sustainability checklist, a sustainable outcome will rely on the ideas, expertise, and resources of many stakeholders. To paraphrase one key informant, there is a growing shortage of public funding required to address many of these items but there is no shortage of private capital. The public and private sectors increasingly need to work together to find creative and profitable solutions to bridge this gap. It is more than finding and investing in new technologies; it is about rethinking the problem as often the most robust solutions require the least resources (Ritchie & Thomas, 2009).

Finally, sustainable outcomes require a willingness and openness to experiment with tools such as sustainability checklists, “but understand that these tools don’t always work... understand that it may not work the first time, or that it may not work perfectly the first time, so don’t expect it to” (Key Informant). As noted by Saha (2009), at some point the discussion has to move to action. For some municipalities, sustainability checklists are part of the first steps towards creating sustainable urban development.

## 6. CONCLUSION

Sustainability checklists can play a role in moving us towards more sustainable communities. Checklists have resulted in development practices that are better than conventional practices and they signal the desire to change and direction that communities are moving, and that alone is not without value. Are they a perfect tool? Not yet. They are often messy, awkward tools which only scratch the surface of sustainable urban design. However, the research findings suggest that there is room to make sustainability checklists more effective tools through refinement and adjustment. Planners are reporting varying levels of success with these tools in attaining more sustainable urban development, with some planners quite satisfied with the results they are seeing. Others are disillusioned with these tools finding checklists to be ineffective at best or a red herring in the search for tools for advancing community sustainability.

Is the use of sustainability checklists transforming communities in a sufficiently rapid manner to move us towards sustainable outcomes? No, not fast enough and not on its own. But checklists are often part of the tools laying the groundwork for change which needs to come at a systems level and which is largely beyond the reach of a single development site. Communities need to rethink the structure of settlements and the urban systems that sustain us. Sustainability checklists can be part of that process. As expressed by Tomalty (2009), “sustainable community planning asks a simple question -what kind of community do we really want and how should we realize it?” Creating or refining a sustainability checklist as part of a collaborative process presents an opportunity to address this question and through these conversations can facilitate a shift in values and priorities for those at the table.

Sustainability checklists might represent an initial step forward into implementing sustainability concepts, ideas and theories but a more comprehensive approach is needed. It is clear from this research that sustainability checklists alone are not going to achieve sustainable communities. Sustainability checklists are showing more promise where they are integrated within a suite of tools meant to restructure urban development and where they receive strong support from planning staff and municipal Councils. Connecting checklists to other planning initiatives such as climate change targets and actions, integrated community sustainability plans, and neighbourhood plans, or as part of an overall sustainability strategy with green building policies, affordable housing policies, urban agriculture strategies, restricted development cost charges, urban containment boundaries etcetera, will likely have more of an impact. Perhaps the use of sustainability checklists will diminish as more robust plans and strategies take shape, or their role will transition into more of a checkpoint and monitoring tool as urban systems change and as planning practices, policies, regulation and legislation evolve.

## ***6.1 Responding to the Research Questions***

### **1. Where do municipal sustainability checklists fit within the current literature on sustainability assessment tools?**

The sustainability checklists reviewed as part of this research practicum most closely resemble objectives-led assessment frameworks with technical qualitative approaches as discussed in Section 2.2. However, some sustainability checklists shared characteristics of EIA-driven approaches in that they were often reactive in their application, had compartmentalized criteria and included criteria focused on reducing negative impacts of development. Newer versions of the checklists appear to be moving towards the inclusion of performance targets



describing end state goals. None of the checklists studied represent a strictly principles-based approach.

Planners' and developers' experiences using these tools are consistent with findings of the literature review regarding potential challenges and implications for development. In general, most tools were qualitative in nature, relied on assumptions between inputs and outcomes, focused on the building and site level, and were not produced through an integrated process. In terms of what they were measuring, most of the sustainability checklist tools addressed each of the sustainable urban design principles identified through the literature review to some extent although the focus in the checklists did not necessarily correspond to the emphasis in the literature. Environmental considerations and especially green building/resource efficiency were the most prevalent and regional context, public participation, and connectivity were the least. Good governance concerns were mentioned as benefits of the tool, but did not have the same emphasis as in the literature.

Sustainability checklists are continuing to evolve with a trend towards more specific tools that apply at different stages of the development review process and the inclusion of targets as well as indicators. However, consistent with findings of the literature review, sustainability checklist tools are designed to minimize unsustainable development practices, or create development that is more sustainable than the status quo rather than the creation of sustainable urban development (Pope et al., 2004; Karol & Brunner, 2009; Mapes & Wolch, 2011).

## **2. How do sustainability checklists differ between municipalities and what is their relationship to other municipal planning tools?**

Sustainability checklists varied by format, scope, the types of measures, and whether or not they were connected to other planning tools. Five general types of sustainability checklists were identified through the document analysis (Section 5.1). Checklist style tools were the most popular but there is an increasing diversity in approaches and unique applications of these tools. Nearly all of the sustainability checklists reviewed applied to both rezoning and development permit applications with fewer applying to subdivision, development variance permit or building permit application. Information from the document analysis, survey and key informant interviews indicated a growing interest in creating different tools for different land uses, and for the inclusion of more quantitative measures, including scoring systems and targets suggesting an increased interest in using these tools in plan implementation or monitoring.

Sustainability checklists exhibit differing levels of integration. Results of the document analysis, survey and key informant interviews reveal that some of the municipal sustainability checklists appear to be very well integrated with both higher level policy and specific regulation and others appear as standalone documents. Very few municipalities are connecting sustainability checklists with other tools to ensure follow-through with checklist items. The rate of change that is occurring in communities can make it difficult to keep the tools relevant and study participants indicated that more effort to review and adapt the tools was necessary in order to stay ahead of changes to municipal conditions, policy, regulation and legislation. While third party certification tools continue to be developed, participants didn't see the likelihood that sustainability checklists may be replaced with third party certification tools.

### **3. Are sustainability checklists resulting in more sustainable outcomes? If so, in what ways?**

Findings from the survey and the key informant interviews suggest that the effectiveness of sustainability checklists in transforming development practices and achieving

sustainable outcomes is still largely unknown. Sustainability checklists appear to have been successful in creating developments that are better or more sustainable than conventional development practices however these appear to have been incremental gains rather than large shifts in development practices. Participants indicated that some aspects of sustainability are being better addressed in the checklists than others. At present, there appears to be a focus on environmental sustainability, specifically green building related items. Overall, most participants indicated that sustainability checklists were not very effective in influencing Council's decision making which is discussed in Section 5.2.5 and 5.3.4.

The reported success of these tools appears to vary with the culture of the municipality, assertiveness and support of individual planners, the willingness of the developer, and the intent and format of the checklist tools as discussed in Section 5.3. Sustainability checklist tools typically apply to building or site level development yet sustainability considerations are often best addressed at the neighbourhood, city or regional level. Unless sustainability checklists are strongly integrated with comprehensive urban systems planning at the neighbourhood level or broader and aligned with municipal and regional strategies, policies, standards and regulations, they are unlikely to result in sustainable outcomes.

#### **4. What are the strengths and limitations of using sustainability checklists as tools for creating sustainable communities?**

The literature review and research findings outline a number of strengths and limitations for using sustainability checklist as tools for creating more sustainable communities. Strengths of sustainability checklists include:

- improving the development process with greater consistency, transparency and accountability;

- encouraging municipalities to think through sustainability concepts and how these concepts can be applied in their community ;
- raising the dialogue around sustainability issues;
- summarizing and integrating sustainability objectives, policies and regulations and communicating this to applicants for development approvals;
- flexibility as a policy tool versus a regulatory tool;
- inclusion of specific sustainability features; and
- better consideration of sustainability in decision-making leading to a more informed decision.

In many cases, the checklists have resulted in projects being modified to better align with sustainability objectives.

While sustainability checklists have encouraged better development, they typically fall short of achieving sustainable outcomes. Limitations to using sustainability checklists to create sustainable urban developments include:

- lack of authority to address many sustainability items at the time of development application under the current legislation;
- unwillingness of many municipalities to offer incentives or invoke regulatory tools to ensure that projects address sustainability objectives and features;
- a reliance on prescriptive criteria which can hinder the creativity, innovation and site adaptive design needed to achieve the best development possible in a given location; and
- the scale of development as sustainability is often better addressed at a broader geographic area than an individual building or site yet most checklists are applied at the site level because they are project-driven.

The culture of the municipality can also indicate the success of the tool such as whether or not it is seen as an effective tool and is used by staff, how much effort and knowledge is put into creating a useful tool and then in negotiating checklist items with developers, and whether or

not it is part of an overall suite of tools, goals, policies and regulations aimed at advancing the sustainability agenda.

## ***6.2 Implications for Planning Practice***

This practicum explores the role of sustainability checklists in encouraging sustainable urban development within municipalities in British Columbia. Results of this research indicate that sustainability checklists are being utilized as one tool for applying sustainability ideas and concepts to development practices with varying degrees of success. Section 5.4 outlines a series of nine key findings to assist planners wishing to create or refine sustainability checklist tools, and more generally, to assist planners searching for tools to encourage sustainable urban development.

Findings of this research indicate that the design of the sustainability checklist tools, the manner in which they are implemented, the culture of the organization and the role of the planner in working with these tools will influence the outcomes. Within many of the sustainability checklists there is room to be creative and assertive in pushing for better development practices. However, sustainability checklists typically only begin to address elements of sustainable design. Checklists can be developed or used with a limited understanding of how items may apply to a particular region or site, so in working with checklists planners need to be flexible and encourage discussions on whether or not checklist items are appropriate for a specific location and be open to variation and innovations. As this research suggests, one of the most valuable roles that checklists might fulfil is in the conversations they create. Taking the time to discuss sustainability checklists with individuals

within the organization and within the development industry can be a constructive use of the tool which extends beyond the sustainability of any one development project.

While the findings of this study suggest that sustainability checklists can create better development practices, the findings also suggest that checklists need to be integrated with other policies, regulations and tools in order to assist in achieving sustainable settlements. Reliance on sustainability checklists likely misses some of the key underlying sustainability principles and systems as it is typically applied at the site or building level once a proposal has been developed. An analogy for homeowners might be spending money on cosmetic upgrades while ignoring a crack in the foundation or faulty wiring. A more effective approach might begin with a better understanding of baseline conditions and from that envisioning what a sustainable future will look like in order to direct growth and to make changes to urban systems that the development industry can then respond to. In short, a more proactive approach to building and designing sustainable communities that developers could then tap into versus a more reactive approach trying to drive change at the other end. Some municipalities are accomplishing this through detailed sustainability focused neighbourhood planning initiatives combined with urban containment policies.

Finally the research findings suggest the potential for sustainability checklists to have greater role in monitoring and tracking development practices to ensure they are meeting sustainability objectives, to see where gains are being made, identifying where gaps in policy exist, and to feed into broader scale municipal target-based initiatives such as climate change action planning and integrated community sustainability plans thereby facilitating more effective and informed decisions.

### ***6.3 Areas for Further Study***

This practicum was limited to a review of sustainability checklists within BC and primarily included the perspectives of planners as it was difficult to obtain perspectives of developers within this study. This research could be expanded beyond BC to see if the findings still apply or to identify different applications of sustainability checklist tools. Research findings would also benefit from greater engagement of the development industry on the use of sustainability checklist tools and how it is impacting development practices and this is a topic area that could be further explored.

Municipalities have undertaken many different approaches in the design and use of sustainability checklists and new checklists continue to be developed. An opportunity for future exploration might include a more in-depth case study of interesting formats that have emerged such as:

- Comox's checklist with a combination of checklist styles where planners fill out a checkbox style format based on an applicant's written sustainability statement and using a separate checklist for subdivision applications;

If the responsibility for completing the checklist lies with the planner it may encourage more discussion presenting an opportunity to build capacity for both the planner and applicant.

Subdivision applications appear to be a missed opportunity for sustainability checklists in many municipalities. Subdivision creates the urban structure and has a large impact on the sustainability of a community. Exploring checklists pertaining to subdivisions represents a further research opportunity.

- New Westminster's scorecard where many overlapping policies have been removed and the checklist is based on the type of land use;
- Surrey's checklist which is designed with monitoring in mind and Surrey's intention to develop a checklist to be used in the preparation of neighbourhood plans; and
- Salt Spring Island's checklist tool which has a strong educative focus.

Concentrating research on only a few checklists and ones that have interesting or unique approaches might present new findings and bring greater insight into their design, use and effectiveness.

This research concludes that the effectiveness of sustainability tools remains largely unknown. Many sustainability checklists have been in place for less than two years so there is ample opportunity to study the effectiveness of these tools. Possible areas of inquiry might include examining the 'best' developments under a few of the different checklist tools to see what features have been included and whether or not they can be considered as sustainable urban development. Further exploration around the effectiveness of these tools could also include post occupancy analysis looking at whether or not there is a difference in individual attitudes or behaviours in developments which scored quite well on the checklist and those that didn't. Another potential inquiry might involve looking at several checklists for a particular type of development such as residential or commercial over a specific time period in order to identify trends in development practices.

The final research recommendation is to further examine the role of sustainability checklists in relation to other plans, policies, programs and initiatives. It appears that sustainability checklists are continuing to materialize often with a slightly different format and



focus than some of the earlier versions of these tools. At the same time, target-based planning initiatives such as climate change action planning and integrated community sustainability plans are continuing to be developed alongside a renewed interest in plan implementation and monitoring suggesting a potential new role for sustainability checklist tools. Municipalities also appear to be giving more attention to developing detailed neighbourhood plans and concepts often with more emphasis on urban design. There may be more opportunity to use sustainability checklists either to assist in developing the neighbourhood plans or in ensuring new development adheres to the plan. Lastly, changes to planning legislation in BC have recently provided new opportunities to address some of the things typically found in checklists. The role of sustainability checklists moving forward is an important area of study in considering the impact of these tools on development practices and in achieving sustainable communities.

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## Appendices

### Appendix I - Sustainable Design According to Contemporary Authors and Organizations

Elements of Sustainable Design	Public Places Urban Spaces (Carmona et al, 2003)	UBC Design Centre for Sustainability (2006)	Smart Growth (2010)	Hough (1995)
<b>Resource Efficiency</b>	Resource efficiency and conservation, economy of means, pollution reduction, integrated planning	Lighter, greener, cheaper, smarter infrastructure	Utilize smarter and cheaper infrastructure and green buildings, encourage growth in existing communities	Economy of means, maximum benefits available from a minimal use of resources, making visible the processes that sustain life
<b>Connectivity</b>	Permeability	Interconnected street system		
<b>Diversity</b>	Mixed use, variety, choice	Mixed use corridors accessible to all, different housing types	Mixed land uses in each neighborhood, diverse housing opportunities	Diversity of natural landscapes, human made landscapes, lifestyles
<b>Resiliency</b>	Resiliency, ability to adapt, flexibility			Change is necessary part of sustainability, making the most of opportunities, working towards resiliency
<b>Human Comfort (visually attractive, safe, promotes social interaction)</b>	easy contact, legibility, aesthetics, security, human scale, just city, places for people		Inclusive communities	
<b>Sense of Place</b>	Distinctiveness, heritage, sense of character, regional identity		Foster unique neighbourhood identity	
<b>Compact Form and Density</b>	Concentration, compact development, intensification	high density commercial/residential corridors, density to support services, 5 minute walk	Well designed compact neighbourhoods with daily activities in close proximity, infill	
<b>Respect for Natural Systems</b>	Biotic support (air & water), open space, greening, biodiversity, cleanliness	integrating natural systems, connect people & nature	Preserve open spaces, natural beauty, and environmentally sensitive areas	Environmental education begins at home, human settlement as part of natural systems

<b>Economic Health</b>		Good and plentiful jobs close to home		
<b>Transportation Choice</b>		5 minute walking distance	Provide a variety of transportation choice	
<b>Regional Context</b>		Better design of edges, nodes and corridors to create sustainable region	Protect and enhance agricultural lands	Everything is connected, connection to rural landscapes and regional ecosystems
<b>Public Involvement</b>	Stakeholder involvement, democracy, participation, local autonomy		Nurture engaged citizens	



Elements of Sustainable Design	New Urbanism (2011)	Congress for New Urbanism (2001)	Urban Design Compendium (2009)
<b>Resource Efficiency</b>	Increased density with greater use of resources, energy efficiency	Energy conservation and production of renewable energy, economies of scale, green building strategies, reuse pre-existing or infill sites, and buildings	Use site's intrinsic resources, design for energy and resource efficiency
<b>Connectivity</b>	interconnected street grid network to disperse traffic and ease walking	Street connectivity and hierarchy, block pattern and streets shall be compact and well connected	Make connections, places should be easy to get to and physically and visually integrated with surroundings
<b>Diversity</b>	Mixed use within neighbourhoods, blocks, and buildings, mixed housing with range of types, sizes, prices	Balance of jobs, shopping, schools, recreation, civic uses, housing , food production and natural places at the neighbourhood scale with broad range of housing types, sizes and price ranges	Mixed uses and forms, meet a variety of demands from a variety of users
<b>Resiliency</b>		Places that promote longevity, Design and financing must recognize long life and permanence rather than transience, adaptive reuse of structures and urban form	Manage the investment, economically viable, Design for change in use, lifestyle and demographics
<b>Human Comfort (visually attractive, safe, promotes social interaction)</b>	Good quality architecture and urban design to create high quality of life (aesthetics, human comfort, human scale, civic uses)	Buildings, neighbourhoods, towns and regions maximize social interaction, cultural activity, create thermally comfortable public spaces, streets as defined public spaces, minimize noise pollution	Places for people that are safe, comfortable, varied, attractive opportunities to meet people
<b>Sense of Place</b>	Creating a sense of place	Architectural design shall derive from local, time-honoured building typologies and be designed to be enduring part of public realm	Enrich the qualities of existing urban places
<b>Compact Form and Density</b>	Increased density, buildings, residences and shops closer together, most things within 10 min walk	Neighbourhoods and towns as compact as possible with a range of densities compatible with existing places, utilizing underused lands for development	
<b>Respect for Natural Systems</b>	Respect for ecology and value of natural systems	Protect watersheds, sensitive habitats, easily accessible natural places, work with natural site conditions, human	Work with landscape

		settlements part of natural ecosystem	
<b>Economic Health</b>			
<b>Transportation Choice</b>	Walkability, pedestrian friendly street design (narrow streets, porches, tree-lined streets etc), network of high quality trains, active transportation	Mixed uses within easy walking distance or easy access to transit, Design of streets to encourage shared pedestrian, bicycles and vehicular use	Allow people to get around by foot, bicycle, public transport and car in that order
<b>Regional Context</b>		Protect agricultural lands, preserve local traditional foods and food culture, Preserve relationship between urban areas and agricultural and natural lands	
<b>Public Involvement</b>			

<b>Elements of Sustainable Design</b>	<b>Sustainable Urban Design (Ritchie and Randall, 2009)</b>	<b>Urban Design with Nature (Farr, 2008)</b>	<b>Urban Design for Sustainability (EU Expert Group, 2004)</b>
<b>Resource Efficiency</b>	Buildings that require fewer resources and meeting demand for resources in sustainable ways, Treating waste as resources	High performance buildings and high performance infrastructure, Integrated design	Using land in the most efficient way possible, use state of the art resource saving technologies including green building and renewable energy
<b>Connectivity</b>	Pattern of routes is open-ended to provide choice of paths, Small blocks close to urban centre provide pedestrian permeability	Connectedness: integrating transportation and land use, providing sidewalks and short blocks, narrow streets	High quality, well planned public infrastructure including network of streets and public spaces
<b>Diversity</b>	Variety of shops and service, Wide range of different housing opportunities (size, affordability, tenure)	Completeness, diversity of uses, variety of building types to meet neighbourhood needs, Diversity of dwelling types to meet housing needs over lifetimes and variety of economic circumstances	Promotes mixed land use for easy and equitable access to services, amenities, green areas, and work places, Design for affordable housing
<b>Resiliency</b>	Consideration of long-term management and maintenance, self-sufficiency	daily and lifelong utility	Adaptability in the long-term development of built space
<b>Human Comfort (visually attractive, safe, promotes social interaction)</b>	Places for people, aesthetics and comfort, socially mixed and inclusive communities, visual richness	Neighbourhoods with defined centre and edge and built form that encourages sociability through sidewalks, porches, streets and spaces supporting variety of organizations and activities	Creates beautiful, distinctive, secure, healthy, vibrant and high quality places for people, places promoting a strong sense of community pride, social equity, and cohesion, Minimize adverse effects of density such as noise and pollution
<b>Sense of Place</b>			Places that foster identity, Respects and builds upon the existing cultural heritage
<b>Compact Form and Density</b>	Well-designed density enabling mix of land uses and support for active and public transportation options	Compactness and density to support transit and variety of local services	Compactness of the city at a human scale, Sufficient density and intensity of activity to make transit service viable and efficient
<b>Respect for Natural Systems</b>	Landscape in the city improving climate, health, biodiversity	Biophilia, interdependence between humans and other living systems, Commitment to existence of nonhuman	Development considers resource conservation, biodiversity, and public health and recreational needs, Has green

		species in habitats close to human settlements, Dependence on free ecological services, Ability to see and experience natural systems and resource flows	structure to optimize ecological quality of the urban areas, Access to biodiversity connecting humans with nature
<b>Economy Health</b>			Supports vibrant, balanced, inclusive and equitable economy
<b>Transportation Choice</b>	Variety of spaces and uses easily reached by walking, cycling or good quality public transport, routes shared by cars, buses, cyclists and pedestrians	Walkable and transit served urbanism, opportunities to walk, ride, bike and use wheelchair around neighbourhood and meet daily needs	Development and Infrastructure supporting public transit, pedestrian and cycling networks to promote accessibility
<b>Regional Context</b>	Holistic and integrated approach to urban regions, recognition of interdependence of town and country		Looks at cities and smaller settlements in relationship to their hinterland and to one another, Treats the urban rural landscape of the city region as an integrated whole
<b>Public Involvement</b>	Engaging local communities in discussion and commitment to change plans and designs to reflect people's views		A process where all involved (government, citizens, community groups, academia) work together to achieve sustainable urban design

## Appendix II – Inventory of Sustainability Checklists

Municipality	Name of Assessment Tool	Year of Adoption	Classification	Notes
City of Courtenay	Sustainability Evaluation Checklist	2007	A - Statement	
District of Squamish	Smart Growth Evaluation Framework	2007	A - Statement	
Village of Cumberland	Sustainability Evaluation Statement	2007	A - Statement	
District of Saanich	Sustainability Statement	2006	A - Statement	
Town of Comox	Sustainability Statement and Sustainability Checklist	2007	B - Checklist (staff rating)	Applicant prepares statement not checklist, staff completes checklist. Not yes/no but meets sustainability expectations or exceeds sustainability expectations
City of Vernon	Smart Growth Development Checklist	2007	B - Checklist (typically yes/no)	working on new scorecard format
City of Langley	Sustainable Community Development Checklist	2011	B - Checklist (typically yes/no)	
City of Surrey	Sustainable Development Checklist	2011	B - Checklist (typically yes/no)	Not yes/no. No evaluation system but specific information required, often quantitative data useful for monitoring
City of Nelson	Sustainability Checklist	2009	B - Checklist (typically yes/no)	
Salt Spring Island	Sustainability Checklist for Single Family Dwellings	2009	B - Checklist (typically yes/no)	Only single family, lots of explanation and resources included
City of Kelowna	Sustainability Checklist	2007	B - Checklist (typically yes/no)	
Town of Gibsons	Smart Development Checklist	2005	B - Checklist (typically yes/no)	
City of New Westminster	Smart Growth Development Checklist	2004	B - Checklist (typically yes/no)	
City of Pitt Meadows	Smart Growth Checklist	2008	B - Checklist (typically yes/no)	
City of Port Moody	Checklist for Sustainable Community Development	2008	C - Scorecard	staff assigned numerical weighting

City of New Westminster	Sustainability Report Card	2011	C - Scorecard	
City of Kelowna	Sustainability Checklists for Commercial or Multi-Unit Developments	2009	C - Scorecard	
City of Kamloops	North Shore Neighbourhood Plan Development Checklist	2008	C - Scorecard	Specific to one neighbourhood and linked to incentives
City of Port Coquitlam	Sustainability Checklist	2006	C - Scorecard	not only scored but also weighted
City of Coquitlam	Waterfront Village Centre Sustainability Checklist	2008	E - Plan Implementation	List of targets related to criteria and linked to development checkpoint
City of Victoria	Triple Bottom Line Evaluation Criteria	2004	D - Project Specific	Was used to select development proposal for lands owned by City
Township of Esquimalt	Green Building Checklist	2011	E - Green Building Checklist	yes/no format
District of North Vancouver	Green Building Checklist	2010	E - Green Building Checklist	yes/no format and incentives package
Resort Municipality of Whistler	Whistler Green Project Checklist	2008	E - Green Building Checklist	performance based criteria and points-based evaluation system

## Appendix III – Document Analysis Form

### Sustainability Checklist #

BACKGROUND	
<b>Corresponding documentation (Report to Council, press release, secondary documentation or reference):</b>	This space is used to indicate whether or not supporting materials were used to assist in filling out the document analysis form
DESIGN & IMPLEMENTATION	
<b>Date of Adoption:</b>	Date the sustainability checklist was authorized by Council
<b>Who was involved in the creation of checklist:</b>	For example, development planning staff, policy planning staff, engineering staff, parks staff, Council, Council Advisory Committees, Sustainability Consultants, Private Sector/Development Industry, Members of the Public etc
<b>Scope (type of development/development approval it applies to):</b>	Does the checklist apply to the following types of development: single family residential, multi-family residential, commercial, industrial, institutional Does the checklist apply to the following development approvals: OCP amendment, rezoning, develop permit, develop variance permit, subdivision, building permit, other
<b>Who fills out checklist:</b>	Is the checklist completed by the applicant, staff, both?
<b>Who reviews checklist:</b>	Is it reviewed by planning staff, advisory committees, staff in other departments, Council?
<b>Stated Purpose:</b>	What is the purpose of the checklist as stated in the Checklist document and/or supporting materials
<b>Are Broad Sustainability Objectives Included:</b>	Does the checklist document include broad sustainability objectives or goals that the checklist is working towards? If so, include them here.
<b>Where does it fit within development process:</b>	At what stage is the checklist submitted? Is the checklist available prior to submission of the formal application? Is it part of pre-application discussions with developers?
<b>Horizontal Integration:</b>	Do the checklist criteria address all three pillars of sustainability (economic, social, environmental)? Does there appear to be an emphasis on one area? Was it an integrated staff effort? Does it appear to be primarily related to planning considerations?
<b>Vertical Integration:</b>	Does the checklist reference higher and lower level policies and regulations? Is the checklist itself referenced in the OCP?
<b>Reference to other policies or tools:</b>	Which specific policies or regulations does it reference?
<b>Specific Sustainability Framework Mentioned (LEED, Smart Growth, New Urbanism):</b>	Does the checklist specifically mention that it follows or incorporates a particular sustainability framework such as smart growth, LEED, New Urbanism?
<b>Voluntary or Mandatory:</b>	Is completion of the checklist voluntary or mandatory part of the application submissions?

<b>Format:</b>	Describe the general format of the checklist ie. Are the criteria in the form of bulleted indicators, statements, yes/no questions, quantitative information? Is there a reference section? Are there introductory statements for each section?
<b>Sections:</b>	How many sections are there and what are there headings?
<b>Questions:</b>	How many questions are there in total? How many in each section?
<b>Evaluation System:</b>	Is there an evaluation system embedded in the checklist such as pass/fail, scoring system, triple bottom line
<b>Qualitative or quantitative:</b>	How many qualitative and quantitative questions are there?
<b># of criteria at the building/site level compared to neighbourhood /regional level:</b>	How many questions are at the building or site level versus at a larger scale such as the block, neighbourhood or region?
<b>How is this information communicated to decision-makers:</b>	Is a copy of the completed checklist provided to Council or the approving authority? Is a summary provided? Is it only a staff exercise?
<b>Is it conducive to monitoring or benchmarking :</b>	Is one of the stated goals to use the data collected through the checklist for monitoring the presence or absence of certain features or trends in development practices? Is the question/criteria format conducive to monitoring functions?
<b>Are Incentives Offered:</b>	Does the document refer to possible incentives offered for developments which address most of the criteria?
<b>CONTENT (Principles of Sustainable Urban Design)</b>	
<b>Resource Efficiency</b>	This space is used to record specific criteria related to the principle of resource efficiency such as energy efficiency, reduced potable water consumption, and waste reduction
<b>Connectivity</b>	This space is used to record specific criteria related to the principle of connectivity such as interconnected streets, shorter block lengths, laneways, direct pathways to different uses
<b>Diversity (use, housing type)</b>	This space is used to record specific criteria related to the principle of diversity including a mix of uses and a variety of housing types, tenures, unit sizes
<b>Resiliency</b>	This space is used to record specific criteria related to the principle of resiliency such as passive design, renewable energy, food security, natural hazard mitigation, onsite waste management, flexibility and adaptability of structures
<b>Sense of Place</b>	This space is used to record specific criteria related to the principle of sense of place such as character and identity, heritage, social gathering spaces, specific architectural or landscaping styles,
<b>Compact Form</b>	This space is used to record specific criteria related to the principle of compact form such as density and infill development
<b>Respecting Natural Systems</b>	This space is used to record specific criteria related to the principle of respecting natural systems such as preserving and enhancing environmentally sensitive areas, rainwater management, providing habitat



<b>Economic Health</b>	This space is used to record specific criteria related to employment opportunities, economic diversity, fiscal responsibility
<b>Transportation choice</b>	This space is used to record specific criteria related to the principle of transportation choice such as multi-modal streets, walkability, cycling infrastructure, public transportation
<b>Regional context</b>	This space is used to record specific criteria related to the principle of regional context such as designated growth areas, protection of farmland, use of local materials
<b>Public involvement</b>	This space is used to record specific criteria related to the principle of public involvement
<b>Human Comfort</b>	This space is used to record specific criteria related to the principle of human comfort such as design aesthetics, healthy indoor spaces, safety, cleanliness, legibility, human scale/ proportion, weather protection and creating positive microclimates, greenspace
<b>Other</b>	This space is used to record specific criteria that are not captured in one of the qualities above

**Initial Observations:**

{this space can be used to record interesting observations as they apply to a particular checklist}

# Exploring the Role of Municipal Sustainability Checklists in Creating Sustainable Communities

## Survey Overview

Hello,

I am currently working towards completing my major degree project for a Masters of City Planning degree at the University of Manitoba. My major degree project focuses on the design and use of sustainability checklists as a tool for encouraging more sustainable development practices. The following survey is a key element of this research. I am sending this survey to planners in those local governments in BC that have utilized sustainability checklists in the review of development proposals. During this research, I am using the term 'sustainability checklists' quite loosely to refer to a range of assessment frameworks including sustainability statements, checklists and scorecards.

This survey addresses aspects of the design, implementation and effectiveness of sustainability checklists through four main sections and will take approximately 35 minutes to complete. Please note that you can save your responses and continue the survey at any time by clicking on the "save and continue survey later" text at the top of each page. You will need to provide an email address to re-access the survey.

Submission of your survey responses indicates your consent to participate in this research. If you are at all uncomfortable with any of the questions presented, please move to the next question. If you choose to withdraw from this research at any time, there will be no negative consequences but please contact me directly so that I have a record of your withdrawal. Please note that, consistent with University of Manitoba protocol, precautions will be taken to ensure that you will not be personally identified as a result of participation in this survey and that all data will be kept in a secure location and destroyed once the final project is completed.

I very much appreciate your assistance with this research. If you have any questions, concerns, or would like more information, please feel free to contact me at [umferg26@cc.umanitoba.ca](mailto:umferg26@cc.umanitoba.ca). Your input is very important to the value of this research and will be instrumental in assessing the utility of these tools in creating more sustainable communities. Once the survey is closed, a summary report will be available. Please contact me if you wish to receive a copy of this summary. This research is under the direction of Dr. David van Vliet. His contact information is provided below.

The survey will close on November 14, 2011. Thank you for taking the time to complete this survey.

Sincerely,

Erin Ferguson  
Master of City Planning Candidate  
University of Manitoba  
Email: [umferg26@cc.umanitoba.ca](mailto:umferg26@cc.umanitoba.ca)

Dr. David van Vliet, Advisor, M.EVDS, PhD, MCIP  
Department of City Planning – Associate Professor  
University of Manitoba  
Email: [vanvliet@cc.umanitoba.ca](mailto:vanvliet@cc.umanitoba.ca)  
Phone: 204.474.7176

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## Background

**The following section will assist in the comparison of checklist tools by providing contextual information. Please note that you can save your responses and return to the survey at any time by clicking on the "save and continue survey later" text at the top of this page.**

1. Name of Municipality: \*

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2. Current Population:

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3. When was the current Official Community Plan adopted?

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4. In addition to the Official Community Plan, have Local Area Plans or Neighbourhood Plans been adopted by Council?

☐ Yes

☐ No

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5. Over the past 5 years, where has the majority of residential growth occurred?

- ☐ undeveloped lands near municipal boundaries
- ☐ rural or semi-rural areas
- ☐ established suburban residential neighbourhoods
- ☐ mixed use neighbourhoods or village centres
- ☐ within the downtown
- ☐ along arterial roads or transit corridors
- ☐ other

---

6. In what year was the sustainability checklist/assessment tool adopted?

- ☐ Prior to 2000
- ☐ 2000-2003
- ☐ 2004-2007
- ☐ 2008-2011
- ☐ Don't know

---

7. How are you involved with the sustainability checklist/assessment tool? Please check all that apply.

- ☐ I was involved in the design of the checklist/assessment tool
- ☐ I use the checklist/assessment tool to discuss development proposals with applicants
- ☐ I use the checklist/assessment tool to make decisions or recommendations to decision-makers regarding development proposals
- ☐ I use the checklist to evaluate or monitor development patterns
- ☐ Other

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## Design of the Sustainability Checklist

**This section asks about the design of the checklist tool including the purpose and goals, and a little bit about the process. Please note that you can save your responses and return to the survey at any time by clicking on the "save and continue survey later" text at the top of this page.**

8. The purpose of the checklist/evaluation tool is to:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
Integrate and implement municipal policies and regulations related to sustainable development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess the sustainability of different development options	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase transparency in the development review process by articulating the planning departments' expectations for desirable developments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make the development review process more efficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Educate the development industry and property owners on sustainable development practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ensure that all developments are working towards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

sustainable outcomes						
Assist members of Council in decision-making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase accountability to citizens by demonstrating the environmental, social, economic benefits of specific projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide a way to benchmark and monitor development practices and/or community plans over time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide guidance on urban design and built form	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Is there another purpose of the checklist/assessment tool not mentioned in the above list?

10. Please indicate which groups were involved in the design of the checklist and their level of involvement.

	Very involved	Some involvement	Little involvement	No involvement	Don't know
Land Use Planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engineering/Transportation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Building	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development Industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Members of the Public	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Members of Council	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sustainability or Green Building Consultants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighbourhood Associations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental Organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social Agencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

11. Were other groups involved? Please explain.

---

12. How long did it take to develop the checklist/assessment tool from initial idea until it was in use?

- ☐ Less than 1 year
- ☐ 1-2 years
- ☐ 3-4 years
- ☐ 5 years or more
- ☐ Don't know

---

13. Is the checklist intended to be consistent with checklists in neighbouring jurisdictions?

- ☐ Yes
- ☐ No

# Sustainability Criteria

**This section of the survey looks at the content of the checklists - the indicators or questions that form the basis of the sustainability assessment. Please note that you can save your responses and return to the survey at any time by clicking on the "save and continue survey later" text at the top of this page.**

14. The content of the sustainability checklist reflects the policies and goals of the Official Community Plan.

Strongly disagree

Disagree

Neutral

Agree

Strongly agree

Don't know

☐

☐

☐

☐

☐

☐

15. The checklist/assessment tool reflects Smart Growth principles.

Strongly disagree

Disagree

Neutral

Agree

Strongly agree

Don't know

☐

☐

☐

☐

☐

☐

16. The checklist/assessment tool reflects New Urbanism principles.

Strongly disagree

Disagree

Neutral

Agree

Strongly agree

Don't know

☐

☐

☐

☐

☐

☐

17. The checklist/assessment tool incorporates criteria from green building rating systems such as LEED for new construction, Built Green, Living Building Challenge.

Strongly disagree

Disagree

Neutral

Agree

Strongly agree

Don't know

☐

☐

☐

☐

☐

☐

18. The checklist adequately addresses the following principles of sustainable urban design:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
Interconnected and fine grained urban	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



structure						
Compact form and increased density	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multi modal transportation systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employment opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mix of land uses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diverse housing choices (type, tenure, cost)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preservation of natural systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resource efficiency (energy, water, waste, materials)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resiliency and adaptability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sense of place	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human comfort (beautification, safety, cleanliness, human scale)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regional context	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public involvement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Many of the checklist criteria or sustainability indicators are directly related to Council adopted policies.

Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree ☐ Don't know ☐

20. The checklist provides a balance between building or site level criteria and neighbourhood or regional level sustainability criteria

Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree ☐ Don't know ☐

# Checklist Implementation

**This section covers aspects of the implementation process. Please note that you can save your responses and return to the survey at any time by clicking on the "save and continue survey later" text at the top of this page**

21. The checklist is used in the review of which of the following development approvals?

- ☐ OCP amendment
- ☐ Rezoning
- ☐ Subdivision
- ☐ Development permit
- ☐ Development variance Permit
- ☐ Other

---

22. Checklists are a key part of pre-application discussions with developers and their consultants.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

Please explain how the sustainability of a proposed development is assessed using the checklist.

---

23. Number of criteria

Is there a minimum number of criteria that have to be met?

- ☐ Yes
- ☐ No

If yes, please explain

#### 24. Priorities

Are certain criteria considered more important than others in reviewing the checklist?

- ☐ Yes
- ☐ No

If yes, please explain.

---

#### 25. Distribution

Is the distribution of criteria important in reviewing the checklist? For example, does the applicant have to address a specific number of criteria in each category or section of the checklist.

- ☐ Yes
- ☐ No

If yes, please explain.

---

#### 26. Are checklist results included as part of reports to Council or approving authority?

- ☐ Yes
- ☐ No

---

#### 27. Are any of the following incentives offered as part of the implementation process? Please check all that apply.

- ☐ Fast tracking development applications
- ☐ Reduction in development fees
- ☐ Eligibility for awards or project recognition

- ☐ Infrastructure funding
- ☐ Density bonus
- ☐ Tax reductions
- ☐ Other

---

## Effectiveness of the Checklist or Assessment Tool

**Now that aspects of checklist design and implementation have been addressed, this section begins to look at the effectiveness of the checklist tool in creating more sustainable urban development. As before, you can save your responses and return to the checklist at any time by clicking on the "save and continue survey later" text at the top of this page.**

28. I feel that the checklist/assessment tool has been successful in creating development that is more sustainable than conventional development practices

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

29. I feel that each aspect of sustainability (environmental, social, cultural, economic) is being adequately addressed through the checklist/evaluation tool

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

30. I feel that some aspects of sustainability (environmental, social, cultural, economic) are being better addressed than others

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

31. The checklist/assessment tool has been an influential part of Council's decision-making

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

32. Applicants are generally supportive of the checklist/assessment tool

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

33. Education, knowledge and awareness around sustainable development practices has increased as a result of the checklist/assessment tool

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

34. Information gathered through the checklist is useful for monitoring development patterns and trends

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

35. Proposed projects are often adjusted or amended to include sustainability elements as a result of the review and discussion of the sustainability checklist

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

36. The use of the checklist has led to a more sustainable urban form or morphology

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

37. The checklist/assessment tool has led to innovative sustainable development practices or implemented a practice which is new in this community

Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

38. Development proposals that address very few of the sustainability criteria in

the checklist/assessment tool are generally not granted variances, rezoning or OCP amendments

Strongly  
disagree

☐

Disagree

☐

Neutral

☐

Agree

☐

Strongly  
agree

☐

Don't know

☐

---

39. Development proposals that address many or most of the sustainability criteria in the checklist/assessment tool generally receive variances, rezoning, or OCP amendments

Strongly  
disagree

☐

Disagree

☐

Neutral

☐

Agree

☐

Strongly  
agree

☐

Don't know

☐

---

40. In general, I feel that the checklist has been successful in achieving the intended objectives

Strongly  
disagree

☐

Disagree

☐

Neutral

☐

Agree

☐

Strongly  
agree

☐

Don't know

☐

---

41. What improvements or changes would you make to the current checklist/assessment tool?

---

42. Unforeseen Outcomes

Has the sustainability checklist/assessment tool resulted in any unforeseen outcomes?

☐ Yes

☐ No

If yes, please explain.

---

43. Overall, how satisfied are you with the use of the sustainability checklist as a tool for creating more sustainable communities?

Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Not Applicable
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

## Wrap-up

44. Do you have any further comments?

---

45. Information obtained through this survey may require clarification or lead to follow-up questions. If you are willing to participate in further discussion, please provide your name and contact information in the space below. This information will be kept confidential and will not be published as part of this major degree project.

Name:

Phone Number:

Email:

---

## Thank You!

Thank you for taking the time to fill out this survey. Your response is very important to this research. A summary report of the survey results will be available once the survey closes. If you wish to receive a copy of this report, please contact me at [umferg26@cc.umanitoba.ca](mailto:umferg26@cc.umanitoba.ca) before January 31, 2012.

Sincerely,

Erin Ferguson

The following screen captures have been included to demonstrate the look and feel of the online survey.

[View As...](#)
[Customize](#)

## Exploring the Role of Municipal Sustainability Checklists in Creating Sustainable Communities

The following section will assist in the comparison of checklist tools by providing contextual information. Please note that you can save your responses and return to the survey at any time by clicking on the "save and continue survey later" text at the top of this page. To move between pages of the survey use the "back" and "next" buttons at the bottom of the survey page. Do not use the Internet explorer arrows to navigate between pages as this may result in a loss of information.

### Background

1. Name of Municipality:
2. Current Population:
3. When was the current Official Community Plan adopted?
4. In addition to the Official Community Plan, have Local Area Plans or Neighbourhood Plans been adopted by Council?
  - ☐ Yes
  - ☐ No
5. Over the past 5 years, where has the majority of residential growth occurred?
  - ☐ undeveloped lands near municipal boundaries
  - ☐ rural or semi-rural areas
  - ☐ established suburban residential neighbourhoods
  - ☐ mixed use neighbourhoods or village centres
  - ☐ within the downtown
  - ☐ along transit corridors
  - ☐ other
6. In what year was the sustainability checklist/assessment tool adopted?
  - ☐ Prior to 2000
  - ☐ 2000-2003
  - ☐ 2004-2007
  - ☐ 2008-2011
  - ☐ Don't know
7. Has the checklist been recently revised or are updates planned?
8. How are you involved with the sustainability checklist/assessment tool? Please check all that apply.
  - ☐ I was involved in the design of the checklist/assessment tool
  - ☐ I use the checklist/assessment tool to discuss development proposals with applicants
  - ☐ I use the checklist/assessment tool to make decisions or recommendations to decision-makers regarding development proposals
  - ☐ I use the checklist to evaluate or monitor development patterns
  - ☐ Other

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[Next](#)

10%



## Exploring the Role of Municipal Sustainability Checklists in Creating Sustainable Communities

This section asks about the design of the checklist tool including the purpose and goals, and a little about the process. Please note that you can save your responses and return to the survey at any time by clicking on the "Save and continue survey later" link at the top of this page. To move between pages of the survey use the "Next" and "Prev" buttons at the bottom of the survey page.

### Design of the Sustainability Checklist

8. The purpose of the checklist/tool used here is to:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know
Integrate and implement municipal policies and regulations related to sustainable development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess the sustainability of different development options	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase transparency in the development review process by articulating the planning department's expectations for sustainable developments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make the development review process more efficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Balance the development industry and property owners on sustainable development practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ensure that all developments are working towards sustainable outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enable members of Council to decision-making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase accountability to citizens by demonstrating the environmental, social, economic benefits of specific projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide a way to benchmark and monitor development practices and/or community plans over time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide guidance on urban design and built form	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. How useful the purpose of the checklist/tool can control had not mentioned in the above list?

10. Please indicate which groups were involved in the design of the checklist and their level of involvement.

	Very involved	Some involvement	Little involvement	No involvement	Don't know
Land Use Planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engineering/Transportation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Police	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Building	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development Industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Members of the Public	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Members of Council	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sustainability or Green Building Consultants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighbourhood Associations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental Organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social Operators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Were other groups involved? Please explain.

12. How long did it take to develop the checklist/tool can control had been filled later with it was known?

- ☐ Less than 1 year  
☐ 1-2 years  
☐ 3-4 years  
☐ 5 years or more  
☐ Don't know

13. Is the checklist/tool intended to be used by all staff with checklist to help improve performance?

- ☐ Yes  
☐ No

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20%

## Summary Report Including Complete and Partially Complete Responses

Survey: Municipal Sustainability Checklists

### 2. Current Population:

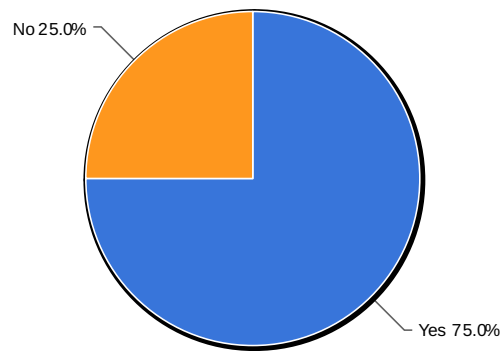
Note: Some questions have been removed from this report to ensure confidentiality

Count	Response
1	10000
1	109000
2	110000
1	113000
1	13000
1	13444
1	16500
3	24000
1	3100
1	35000
1	38900
1	4200
2	475000
1	57000
1	58000
2	60000
1	66000
1	85000
1	9258

### 3. When was the current Official Community Plan adopted?

Count	Response
1	1996, updated Nov 1, 2010
3	1998
1	20 July 2011
1	2002
2	2004
5	2005
1	2006
5	2008
2	2011
1	January 25, 2011
1	July 2010
1	June 2011

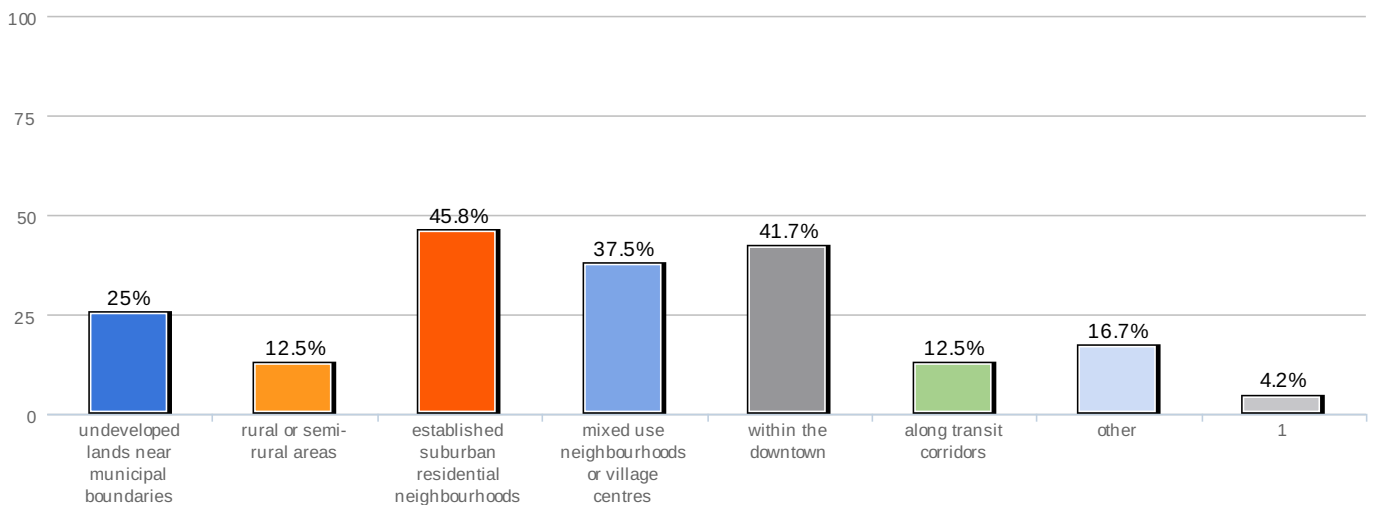
In addition to the Official Community Plan, have Local Area Plans or Neighbourhood Plans been adopted by Council?



#### 4. In addition to the Official Community Plan, have Local Area Plans or Neighbourhood Plans been adopted by Council?

Value	Count	Percent %	Statistics	
Yes	18	75%	Total Responses	24
No	6	25%		

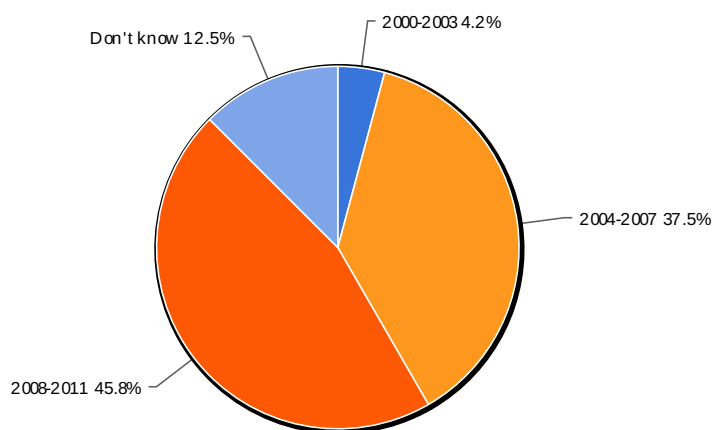
Over the past 5 years, where has the majority of residential growth occurred?



#### 5. Over the past 5 years, where has the majority of residential growth occurred?

Value	Count	Percent %	Statistics	
undeveloped lands near municipal boundaries	6	25%	Total Responses	24
rural or semi-rural areas	3	12.5%	Sum	1.0
established suburban residential neighbourhoods	11	45.8%	Average	1.0
mixed use neighbourhoods or village centres	9	37.5%	Max	1.0
within the downtown	10	41.7%		
along transit corridors	3	12.5%		
other	4	16.7%		
1	1	4.2%		

In what year was the sustainability checklist/assessment tool adopted?



6. In what year was the sustainability checklist/assessment tool adopted?

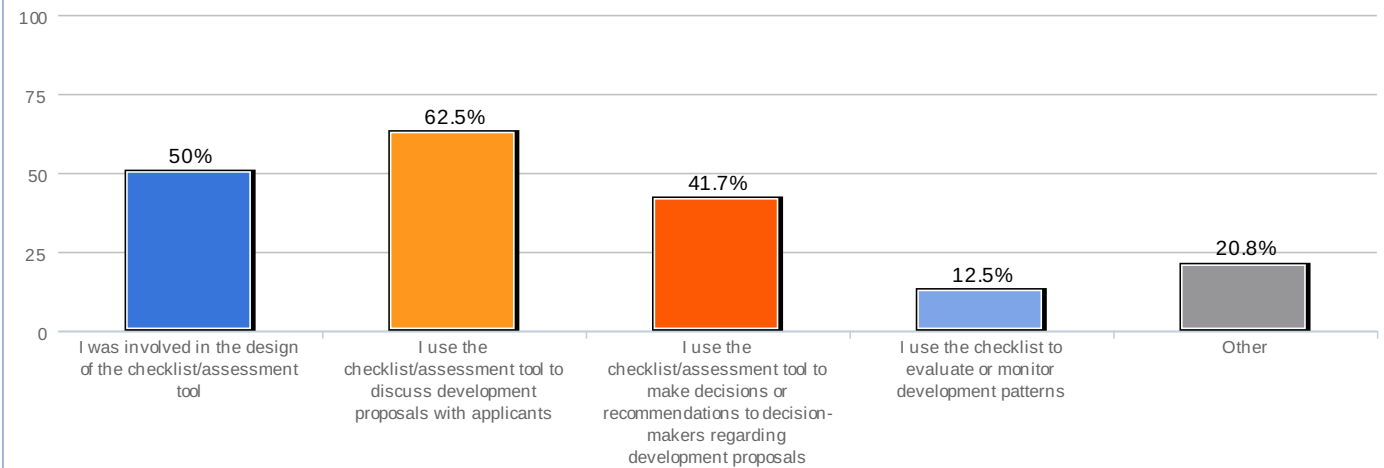
Value	Count	Percent %
2000-2003	1	4.2%
2004-2007	9	37.5%
2008-2011	11	45.8%
Don't know	3	12.5%
Prior to 2000	0	0%

Statistics	
Total Responses	24
Sum	42,124.0
Average	2,005.9
StdDev	2.35
Max	2,008.0

7. Has the checklists been recently revised or are updates planned?

Count	Response
1	Not completed. It is in a pilot stage.
1	Not yet - recently adopted OCP could add information to the checklist that is now adopted policy
1	The checklist/scorecard was revised and is being reconsidered.
1	Working on a revision jointly with neighbouring jurisdictions
3	Yes
1	don't know as don't work there any longer
1	largely abandoned, but somewhat incorporated into an overarching checklist in 2009
4	no
1	planned updates
1	revised June 2011
1	update needed
1	updates are planned
2	updates planned

How are you involved with the sustainability checklist/assessment tool? Please check all that apply.



8. How are you involved with the sustainability checklist/assessment tool? Please check all that apply.

Value	Count	Percent %	Statistics	
I was involved in the design of the checklist/assessment tool	12	50%	Total Responses	24
I use the checklist/assessment tool to discuss development proposals with applicants	15	62.5%		
I use the checklist/assessment tool to make decisions or recommendations to decision-makers regarding development proposals	10	41.7%		
I use the checklist to evaluate or monitor development patterns	3	12.5%		
Other	5	20.8%		

9. The purpose of the checklist/evaluation tool is to:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know	Responses
Integrate and implement municipal policies and regulations related to sustainable development	0.0% 0	0.0% 0	4.3% 1	47.8% 11	47.8% 11	0.0% 0	23
Assess the sustainability of different development options	4.3% 1	8.7% 2	17.4% 4	34.8% 8	34.8% 8	0.0% 0	23
Increase transparency in the development review process by articulating the planning departments' expectations for desirable developments	0.0% 0	4.3% 1	17.4% 4	52.2% 12	26.1% 6	0.0% 0	23
Make the development review process more efficient	0.0% 0	30.4% 7	30.4% 7	17.4% 4	21.7% 5	0.0% 0	23
Educate the development industry and property owners on sustainable development practices	0.0% 0	4.3% 1	0.0% 0	39.1% 9	56.5% 13	0.0% 0	23
Ensure that all developments are working towards sustainable outcomes	0.0% 0	0.0% 0	21.7% 5	39.1% 9	39.1% 9	0.0% 0	23
Assist members of Council in decision-making	0.0% 0	13.0% 3	4.3% 1	43.5% 10	39.1% 9	0.0% 0	23
Increase accountability to citizens by demonstrating the environmental, social, economic benefits of specific projects	4.3% 1	0.0% 0	17.4% 4	47.8% 11	30.4% 7	0.0% 0	23
Provide a way to benchmark and monitor development practices and/or community plans over time	0.0% 0	18.2% 4	22.7% 5	45.5% 10	13.6% 3	0.0% 0	22
Provide guidance on urban design and built form	0.0% 0	21.7% 5	21.7% 5	39.1% 9	17.4% 4	0.0% 0	23

11. Please indicate which groups were involved in the design of the checklist and their level of

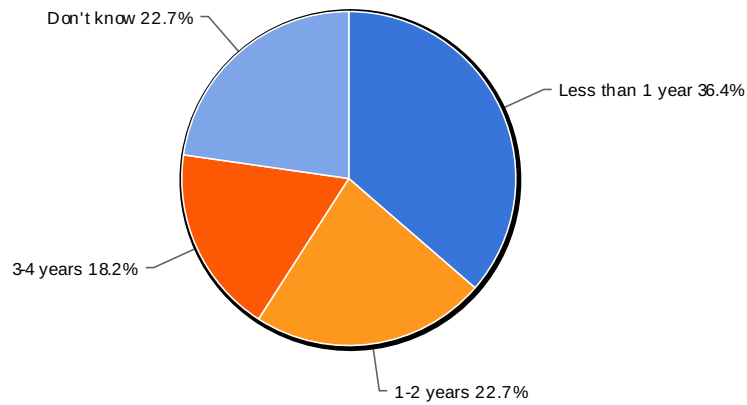
## involvement.

	Very involved	Some involvement	Little involvement	No involvement	Don't know	Responses
<b>Land Use Planning</b>	<b>81.0%</b> 17	<b>9.5%</b> 2	<b>0.0%</b> 0	<b>0.0%</b> 0	<b>9.5%</b> 2	21
<b>Engineering/ Transportation</b>	<b>5.0%</b> 1	<b>40.0%</b> 8	<b>20.0%</b> 4	<b>15.0%</b> 3	<b>20.0%</b> 4	20
<b>Parks</b>	<b>10.5%</b> 2	<b>31.6%</b> 6	<b>21.1%</b> 4	<b>15.8%</b> 3	<b>21.1%</b> 4	19
<b>Building</b>	<b>5.0%</b> 1	<b>45.0%</b> 9	<b>20.0%</b> 4	<b>10.0%</b> 2	<b>20.0%</b> 4	20
<b>Development Industry</b>	<b>5.0%</b> 1	<b>30.0%</b> 6	<b>25.0%</b> 5	<b>15.0%</b> 3	<b>25.0%</b> 5	20
<b>Members of the Public</b>	<b>5.0%</b> 1	<b>10.0%</b> 2	<b>35.0%</b> 7	<b>30.0%</b> 6	<b>20.0%</b> 4	20
<b>Members of Council</b>	<b>10.0%</b> 2	<b>30.0%</b> 6	<b>35.0%</b> 7	<b>15.0%</b> 3	<b>10.0%</b> 2	20
<b>Sustainability or Green Building Consultants</b>	<b>5.0%</b> 1	<b>15.0%</b> 3	<b>30.0%</b> 6	<b>25.0%</b> 5	<b>25.0%</b> 5	20
<b>Neighbourhood Associations</b>	<b>0.0%</b> 0	<b>10.0%</b> 2	<b>10.0%</b> 2	<b>60.0%</b> 12	<b>20.0%</b> 4	20
<b>Environmental Organizations</b>	<b>0.0%</b> 0	<b>15.0%</b> 3	<b>15.0%</b> 3	<b>40.0%</b> 8	<b>30.0%</b> 6	20
<b>Social Agencies</b>	<b>0.0%</b> 0	<b>5.0%</b> 1	<b>10.0%</b> 2	<b>60.0%</b> 12	<b>25.0%</b> 5	20

## 12. Were other groups involved? Please explain.

Count	Response
1	- All statutory and committee groups to Council
1	Don't know. I was not the primary creator of the 'checklist'
1	I was not with the City at the time the checklist was developed.
1	Not fully aware, even the above responses are just my best guess.
1	The list was developed by the Planning Department
1	City Committees: (Development Advisory Committee, Agricultural Advisory Committee, Environmental Advisory Committee, Heritage Advisory Committee)
1	Consulted with Standing Citizen Committees of Council - Environment, Social Services, Accessibility, Seniors, Heritage, Economic Development, City Design Panel and Advisory Planning Commission.
1	Not here during adoption, but fairly sure that main participants were Planning staff and council, and that the tool was not created with wide public participation.
1	The original sustainability framework was developed with assistance from Smart Growth on the ground.

How long did it take to develop the checklist/assessment tool from initial idea until it was in use?

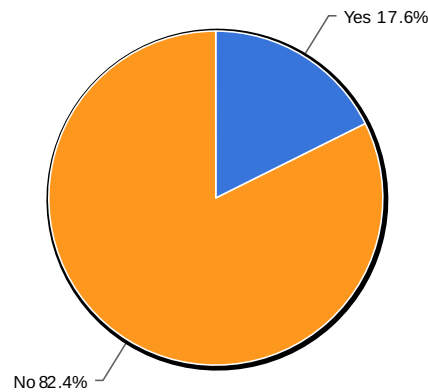


### 13. How long did it take to develop the checklist/assessment tool from initial idea until it was in use?

Value	Count	Percent %
Less than 1 year	8	36.4%
1-2 years	5	22.7%
3-4 years	4	18.2%
Don't know	5	22.7%
5 years or more	0	0%

Statistics	
Total Responses	22
Sum	17.0
Average	1.9
StdDev	0.99
Max	3.0

Is the checklist intended to be consistent with checklists in neighbouring jurisdictions?

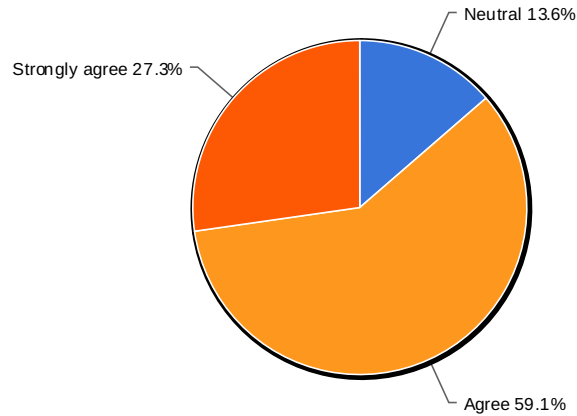


### 14. Is the checklist intended to be consistent with checklists in neighbouring jurisdictions?

Value	Count	Percent %
Yes	3	17.6%
No	14	82.4%

Statistics	
Total Responses	17

The content of the sustainability checklist reflects the policies and goals of the Official Community Plan.

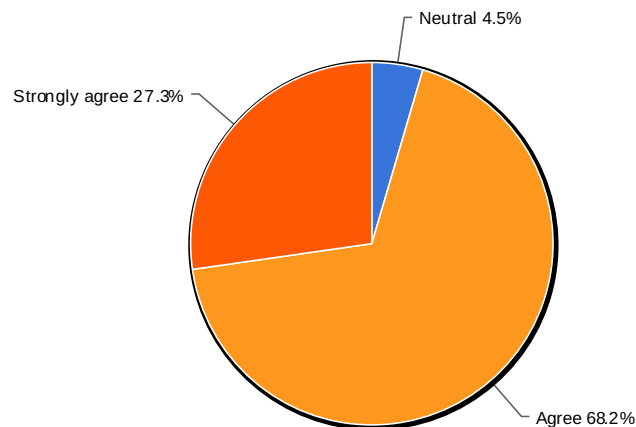


### 15. The content of the sustainability checklist reflects the policies and goals of the Official Community Plan.

Value	Count	Percent %
Neutral	3	13.6%
Agree	13	59.1%
Strongly agree	6	27.3%
Strongly disagree	0	0%
Disagree	0	0%
Don't know	0	0%

Statistics	
Total Responses	22
Sum	91.0
Average	4.1
StdDev	0.62
Max	5.0

The checklist/assessment tool reflects Smart Growth principles.



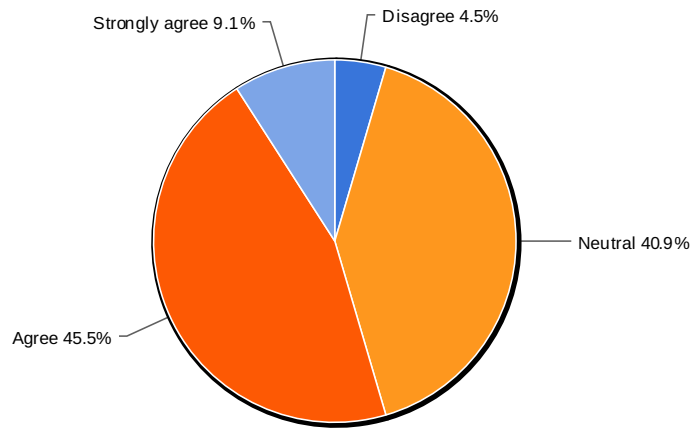
### 16. The checklist/assessment tool reflects Smart Growth principles.

Value	Count	Percent %
Neutral	1	4.5%
Agree	15	68.2%
Strongly agree	6	27.3%
Strongly disagree	0	0%
Disagree	0	0%
Don't know	0	0%

Statistics	
Total Responses	22
Sum	93.0
Average	4.2
StdDev	0.52
Max	5.0



The checklist/assessment tool reflects New Urbanism principles.

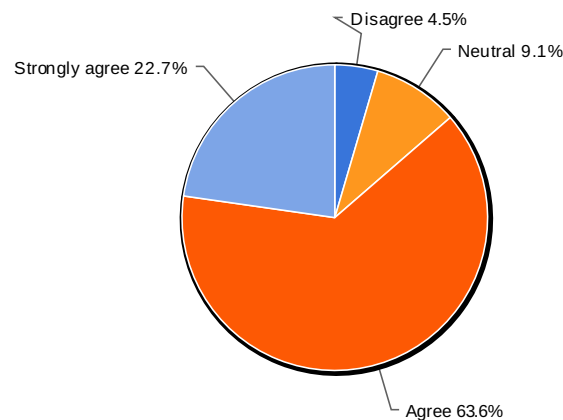


#### 17. The checklist/assessment tool reflects New Urbanism principles.

Value	Count	Percent %
Disagree	1	4.5%
Neutral	9	40.9%
Agree	10	45.5%
Strongly agree	2	9.1%
Strongly disagree	0	0%
Don't know	0	0%

Statistics	
Total Responses	22
Sum	79.0
Average	3.6
StdDev	0.72
Max	5.0

The checklist/assessment tool incorporates criteria from green building rating systems such as LEED for new construction, Built Green, Living Building Challenge.



#### 18. The checklist/assessment tool incorporates criteria from green building rating systems such as LEED for new construction, Built Green, Living Building Challenge.

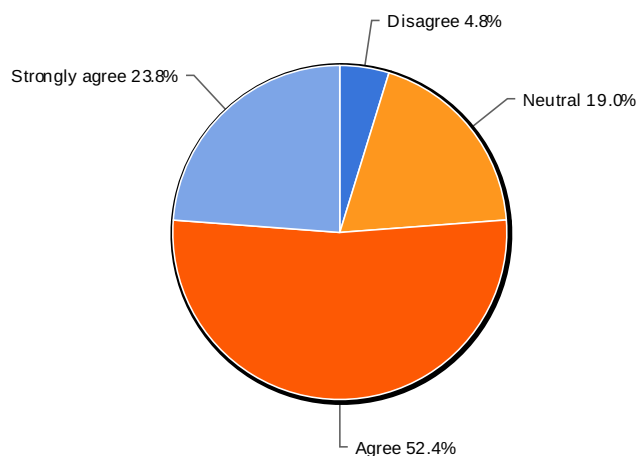
Value	Count	Percent %
Disagree	1	4.5%
Neutral	2	9.1%
Agree	14	63.6%
Strongly agree	5	22.7%
Strongly disagree	0	0%
Don't know	0	0%

Statistics	
Total Responses	22
Sum	89.0
Average	4.0
StdDev	0.71
Max	5.0

**19. The checklist adequately addresses the following principles of sustainable urban design:**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Don't know	Responses
Interconnected and fine grained urban structure	0.0% 0	22.7% 5	18.2% 4	45.5% 10	9.1% 2	4.5% 1	22
Compact form and increased density	0.0% 0	9.1% 2	18.2% 4	54.5% 12	18.2% 4	0.0% 0	22
Multi modal transportation systems	0.0% 0	4.5% 1	13.6% 3	68.2% 15	13.6% 3	0.0% 0	22
Employment opportunities	4.5% 1	13.6% 3	13.6% 3	59.1% 13	9.1% 2	0.0% 0	22
Mix of land uses	0.0% 0	4.8% 1	9.5% 2	71.4% 15	14.3% 3	0.0% 0	21
Diverse housing choices (type, tenure, cost)	0.0% 0	4.5% 1	18.2% 4	59.1% 13	13.6% 3	4.5% 1	22
Preservation of natural systems	0.0% 0	9.1% 2	0.0% 0	68.2% 15	22.7% 5	0.0% 0	22
Resource efficiency (energy, water, waste, materials)	0.0% 0	13.6% 3	0.0% 0	59.1% 13	27.3% 6	0.0% 0	22
Resiliency and adaptability	4.5% 1	18.2% 4	45.5% 10	22.7% 5	4.5% 1	4.5% 1	22
Sense of place	0.0% 0	22.7% 5	22.7% 5	45.5% 10	9.1% 2	0.0% 0	22
Human comfort (beautification, safety, cleanliness, human scale)	0.0% 0	27.3% 6	18.2% 4	54.5% 12	0.0% 0	0.0% 0	22
Regional context	4.8% 1	23.8% 5	33.3% 7	38.1% 8	0.0% 0	0.0% 0	21
Public involvement	9.1% 2	36.4% 8	31.8% 7	22.7% 5	0.0% 0	0.0% 0	22

Many of the checklist criteria or sustainability indicators are directly related to Council adopted policies.

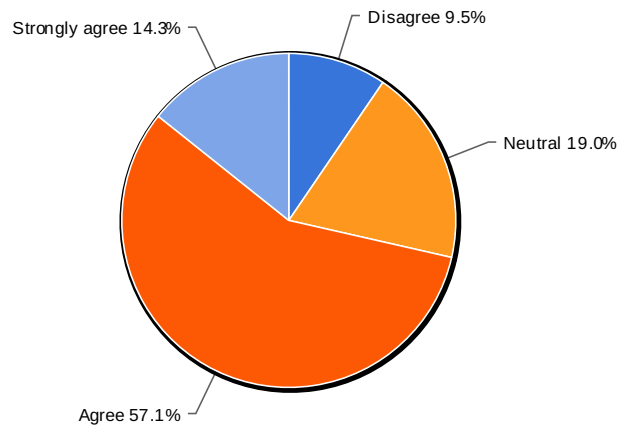


**20. Many of the checklist criteria or sustainability indicators are directly related to Council adopted policies.**

Value	Count	Percent %
Disagree	1	4.8%
Neutral	4	19%
Agree	11	52.4%
Strongly agree	5	23.8%
Strongly disagree	0	0%
Don't know	0	0%

Statistics	
Total Responses	21
Sum	83.0
Average	4.0
StdDev	0.79
Max	5.0

The checklist provides a balance between building or site level criteria and neighbourhood or regional level sustainability criteria

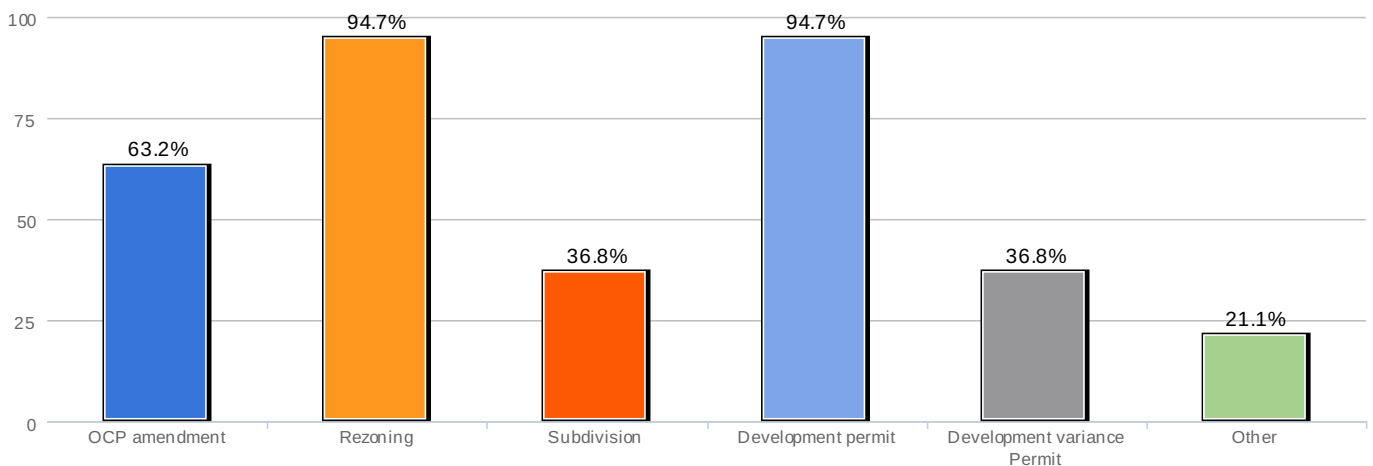


## 21. The checklist provides a balance between building or site level criteria and neighbourhood or regional level sustainability criteria

Value	Count	Percent %
Disagree	2	9.5%
Neutral	4	19%
Agree	12	57.1%
Strongly agree	3	14.3%
Strongly disagree	0	0%
Don't know	0	0%

Statistics	
Total Responses	21
Sum	79.0
Average	3.8
StdDev	0.81
Max	5.0

The checklist is used in the review of which of the following development approvals?

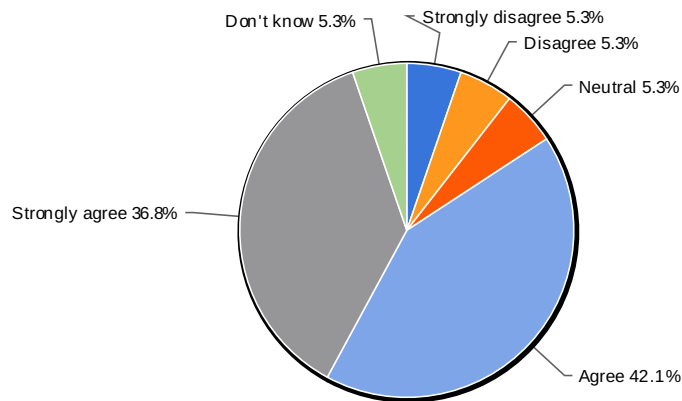


## 22. The checklist is used in the review of which of the following development approvals?

Value	Count	Percent %
OCP amendment	12	63.2%
Rezoning	18	94.7%
Subdivision	7	36.8%
Development permit	18	94.7%
Development variance Permit	7	36.8%
Other	4	21.1%

Statistics	
Total Responses	19

Checklists are a key part of pre-application discussions with developers and their consultants.

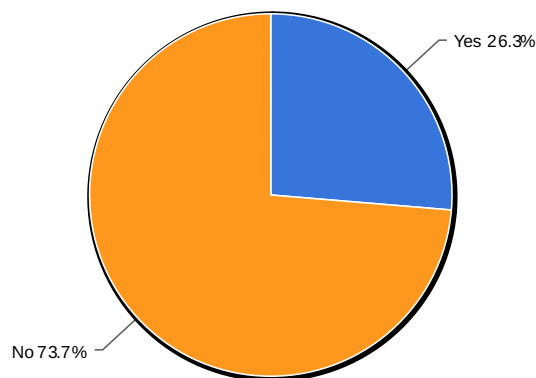


### 23. Checklists are a key part of pre-application discussions with developers and their consultants.

Value	Count	Percent %
Strongly disagree	1	5.3%
Disagree	1	5.3%
Neutral	1	5.3%
Agree	8	42.1%
Strongly agree	7	36.8%
Don't know	1	5.3%

Statistics	
Total Responses	19
Sum	73.0
Average	4.1
StdDev	1.08
Max	5.0

Is there a minimum number of criteria that have to be met?



### 24. Is there a minimum number of criteria that have to be met?

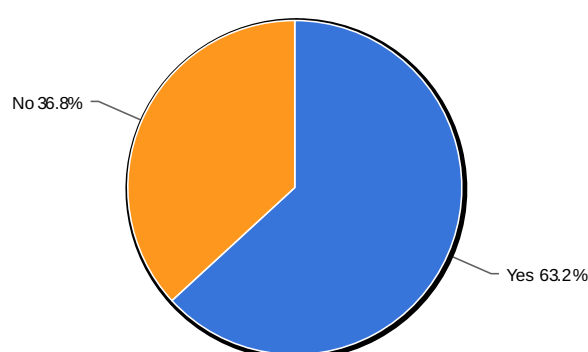
Value	Count	Percent %
Yes	5	26.3%
No	14	73.7%

Statistics	
Total Responses	19

24. If yes, please explain

1	Results are simply reported to Council.
1	There are items that must be done.
1	There are about 10 Environmental items that are required. These are the 'quick-win' cheap yet impactful items. we can require them of rezonings. For DPs, DVPs "requiring" takes the form of strong moral suasion.
1	Not currently a minimum requirement, but have made revisions that would introduce a points based system. This option will be considered further.
1	Minimum scores need to be met to be considered as having satisfied the requirements of the checklist.
1	Each parcel of land and development application is unique and the applicability of the check-list varies accordingly.
1	We have yet to set a minimum score. That was one of the intents of the trial period but has never materialized on account of the Checklist not really performing well in the trial.

Are certain criteria considered more important than others in reviewing the checklist?



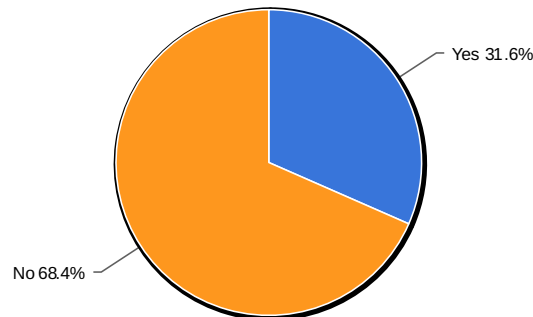
## 25. Are certain criteria considered more important than others in reviewing the checklist?

Value	Count	Percent %	Statistics	
Yes	12	63.2%	Total Responses	19
No	7	36.8%		

## 25. If yes, please explain.

Count	Response
1	Each item is weighted in its scoring.
1	More relevant to environmental building performance than sustainable development decisions.
1	Site and projects will vary ,so would the weight of the criteria
1	stormwater managment and Built Green energy efficiency
1	Some components are non-negotiable (ie: Bear-smart garbage cans). Others may or may not be relevant (ie: geotechnical report, Flood construction level covenant).
1	Criteria are weighted according to importance within the 1/3 social, economic and environmental balance.
1	each item has a point value, from 1 from to 8. High point value items reflect Council's top priorities.
1	Location specific criteria, based on OCP adopted Development Permit Areas and key Neighbourhood Plan areas have been chosen as significant criteria in the checklist.
1	This is an aspect that we will be changing so that we can weight different items depending on their significance.
1	The checklist is used as an initial contact point in relation to third party green building certification on equivalent be a requirement for planning department support and justification of infill rezoning at political and public level
1	The checklist is more like a scorecard in that it has weighted scoring which implies greater significance for some items over others.

Is the distribution of criteria important in reviewing the checklist? For example, does the applicant have to address a specific number of criteria in each category or section of the checklist.



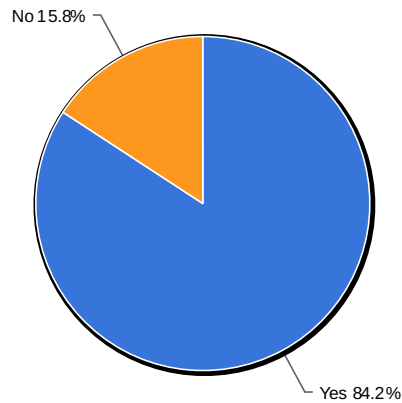
**26. Is the distribution of criteria important in reviewing the checklist? For example, does the applicant have to address a specific number of criteria in each category or section of the checklist.**

Value	Count	Percent %	Statistics	
Yes	6	31.6%	Total Responses	19
No	13	68.4%		

26. If yes, please explain.

Count	Response
1	It is intended that the applicant address all criteria in all three categories.
1	Scoring within each of the 3 areas of economic, environmental and social are recorded.
1	There are minimum requirements in each of the sections of the checklist which need to be met.
1	Checklist has 4 pillars - social, cultural, economic and environmental. Even though there may be more criteria in the environmental section than the economic section, for example, performance in each of the pillar areas is reported equally as a score out of 25.
1	No, it's a menu of choices. Checklist result is three scores, not one overall score. Environ, Social, Econ each get a % score. Flexibility to focus on whichever of these 3 areas, and whichever subtopics within each of the 3 (ie Heritage vs. Housing).
1	The applicant must address each of the items on the checklist in some fashion, but the aspect of "distribution of criteria" is difficult to evaluate. If you are referencing a triple bottom line, then yes in theory but not so much in practice.

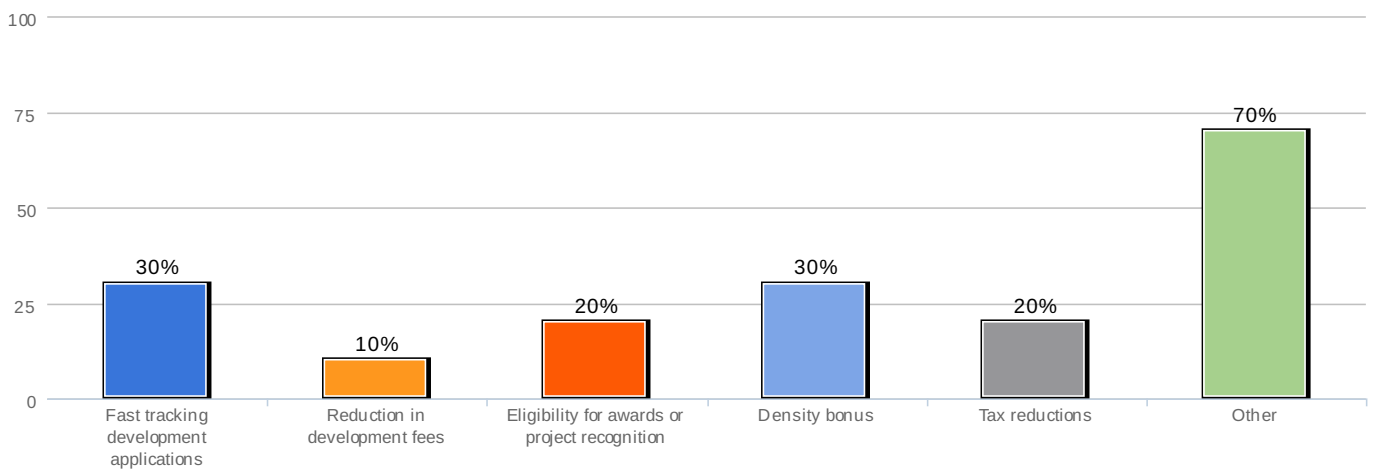
Are checklist results included as part of reports to Council or approving authority?



## 27. Are checklist results included as part of reports to Council or approving authority?

Value	Count	Percent %	Statistics	
Yes	16	84.2%	Total Responses	19
No	3	15.8%		

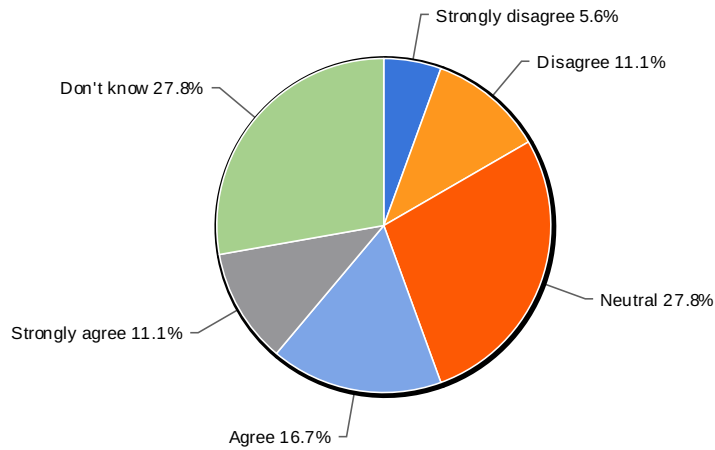
Are any of the following incentives offered as part of the implementation process? Please check all that apply.



## 28. Are any of the following incentives offered as part of the implementation process? Please check all that apply.

Value	Count	Percent %	Statistics	
Fast tracking development applications	3	30%	Total Responses	10
Reduction in development fees	1	10%		
Eligibility for awards or project recognition	2	20%		
Density bonus	3	30%		
Tax reductions	2	20%		
Other	7	70%		
Infrastructure funding	0	0%		

I feel that the checklist/assessment tool has been successful in creating development that is more sustainable than conventional development practices

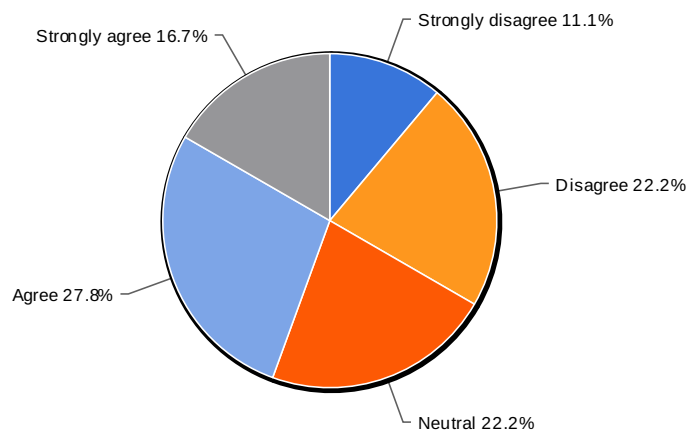


**29. I feel that the checklist/assessment tool has been successful in creating development that is more sustainable than conventional development practices**

Value	Count	Percent %
Strongly disagree	1	5.6%
Disagree	2	11.1%
Neutral	5	27.8%
Agree	3	16.7%
Strongly agree	2	11.1%
Don't know	5	27.8%

Statistics	
Total Responses	18
Sum	42.0
Average	3.2
StdDev	1.12
Max	5.0

I feel that each aspect of sustainability (environmental, social, cultural, economic) is being adequately addressed through the checklist/evaluation tool



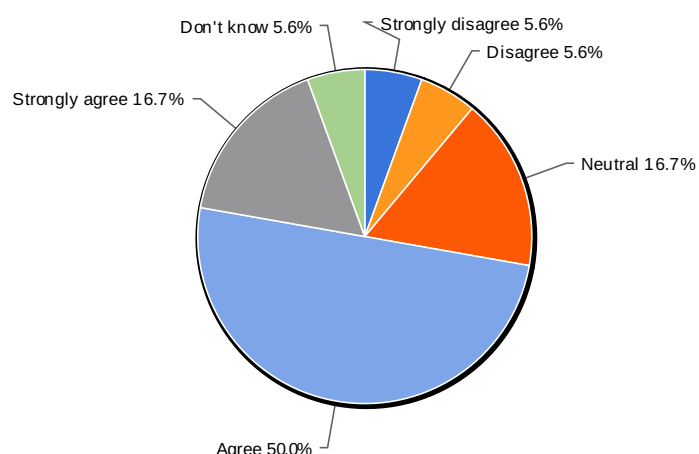
**30. I feel that each aspect of sustainability (environmental, social, cultural, economic) is being adequately addressed through the checklist/evaluation tool**

Value	Count	Percent %
Strongly disagree	2	11.1%
Disagree	4	22.2%
Neutral	4	22.2%
Agree	5	27.8%
Strongly agree	3	16.7%
Don't know	0	0%

Statistics	
Total Responses	18
Sum	57.0
Average	3.2
StdDev	1.26
Max	5.0



I feel that some aspects of sustainability (environmental, social, cultural, economic) are being better addressed than others

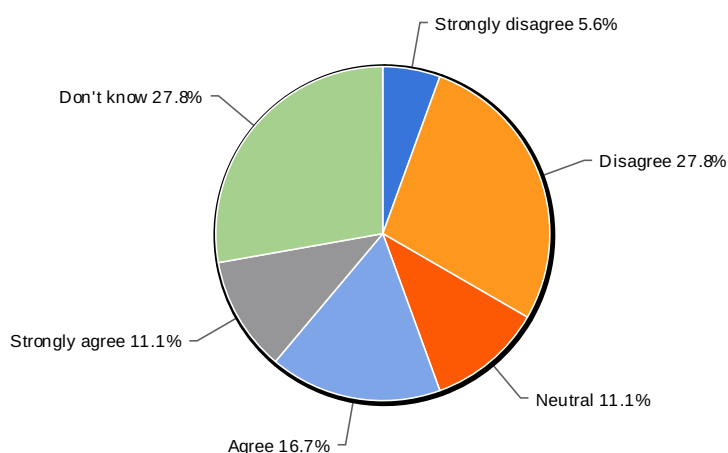


### 31. I feel that some aspects of sustainability (environmental, social, cultural, economic) are being better addressed than others

Value	Count	Percent %
Strongly disagree	1	5.6%
Disagree	1	5.6%
Neutral	3	16.7%
Agree	9	50%
Strongly agree	3	16.7%
Don't know	1	5.6%

Statistics	
Total Responses	18
Sum	63.0
Average	3.7
StdDev	1.02
Max	5.0

The checklist/assessment tool has been an influential part of Council's decision-making

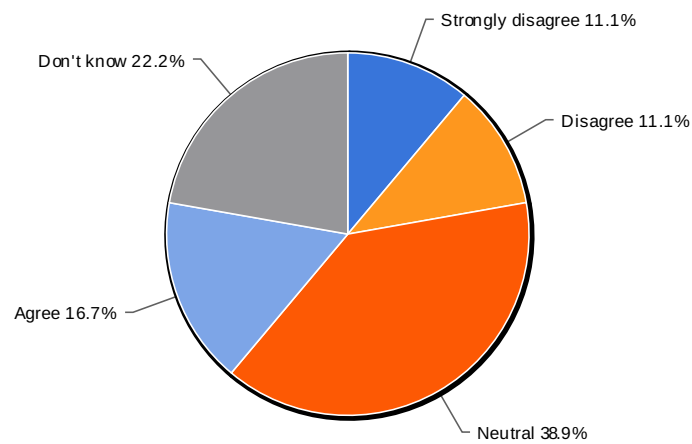


### 32. The checklist/assessment tool has been an influential part of Council's decision-making

Value	Count	Percent %
Strongly disagree	1	5.6%
Disagree	5	27.8%
Neutral	2	11.1%
Agree	3	16.7%
Strongly agree	2	11.1%
Don't know	5	27.8%

Statistics	
Total Responses	18
Sum	39.0
Average	3.0
StdDev	1.24
Max	5.0

Applicants are generally supportive of the checklist/assessment tool

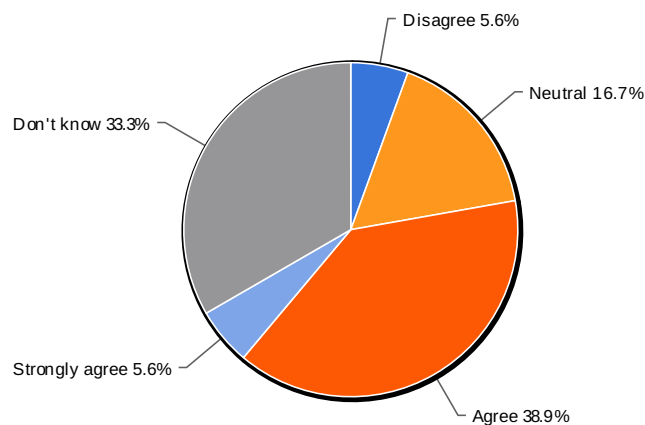


### 33. Applicants are generally supportive of the checklist/assessment tool

Value	Count	Percent %
Strongly disagree	2	11.1%
Disagree	2	11.1%
Neutral	7	38.9%
Agree	3	16.7%
Don't know	4	22.2%
Strongly agree	0	0%

Statistics	
Total Responses	18
Sum	39.0
Average	2.8
StdDev	0.94
Max	4.0

Education, knowledge and awareness around sustainable development practices has increased as a result of the checklist/assessment tool

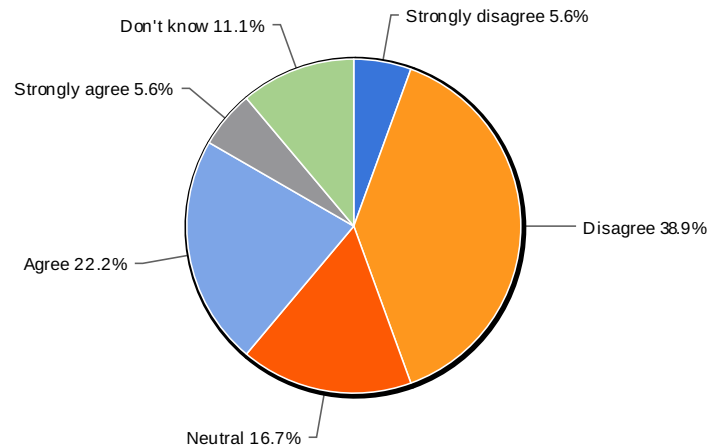


### 34. Education, knowledge and awareness around sustainable development practices has increased as a result of the checklist/assessment tool

Value	Count	Percent %
Disagree	1	5.6%
Neutral	3	16.7%
Agree	7	38.9%
Strongly agree	1	5.6%
Don't know	6	33.3%

Statistics	
Total Responses	18
Sum	44.0
Average	3.7
StdDev	0.75
Max	5.0

Information gathered through the checklist is useful for monitoring development patterns and trends



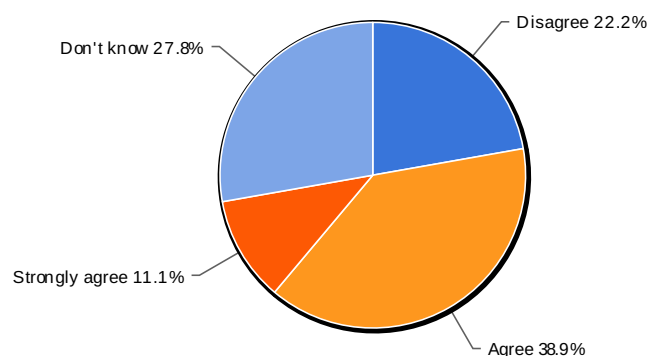
### 35. Information gathered through the checklist is useful for monitoring development patterns and trends

Value	Count	Percent %
Strongly disagree	1	5.6%
Disagree	7	38.9%
Neutral	3	16.7%
Agree	4	22.2%
Strongly agree	1	5.6%
Don't know	2	11.1%

#### Statistics

Total Responses	18
Sum	45.0
Average	2.8
StdDev	1.07
Max	5.0

Proposed projects are often adjusted or amended to include sustainability elements as a result of the review and discussion of the sustainability checklist



### 36. Proposed projects are often adjusted or amended to include sustainability elements as a result of the review and discussion of the sustainability checklist

Value	Count	Percent %
Disagree	4	22.2%
Agree	7	38.9%
Strongly agree	2	11.1%

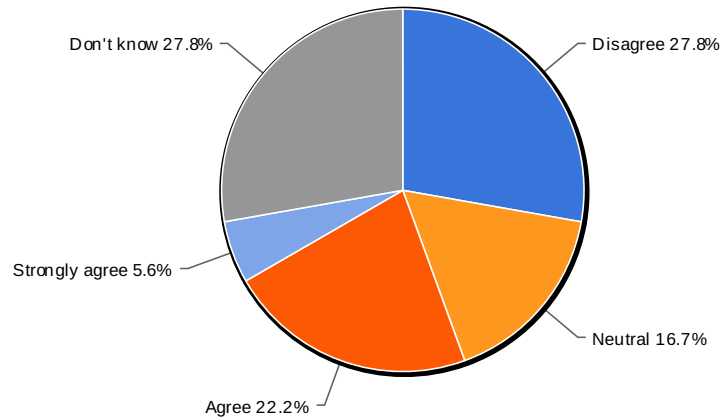
#### Statistics

Total Responses	18
Sum	46.0
Average	3.5

Don't know	5	27.8%
Strongly disagree	0	0%
Neutral	0	0%

StdDev	1.08
Max	5.0

The use of the checklist has led to a more sustainable urban form or morphology

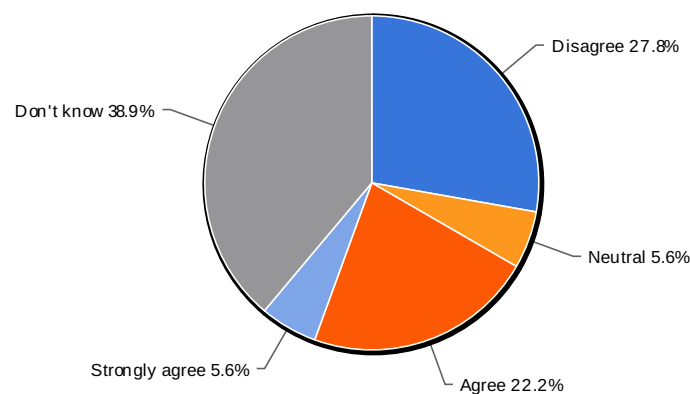


### 37. The use of the checklist has led to a more sustainable urban form or morphology

Value	Count	Percent %
Disagree	5	27.8%
Neutral	3	16.7%
Agree	4	22.2%
Strongly agree	1	5.6%
Don't know	5	27.8%
Strongly disagree	0	0%

Statistics	
Total Responses	18
Sum	40.0
Average	3.1
StdDev	1.00
Max	5.0

The checklist/assessment tool has led to innovative sustainable development practices or implemented a practice which is new in this community



### 38. The checklist/assessment tool has led to innovative sustainable development practices or implemented a practice which is new in this community

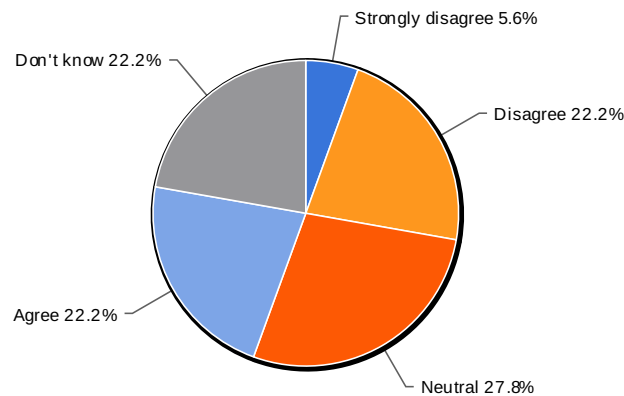
Value	Count	Percent %
Disagree	5	27.8%
Neutral	1	5.6%

Statistics	
Total Responses	18
Sum	34.0

Agree	4	22.2%
Strongly agree	1	5.6%
Don't know	7	38.9%
Strongly disagree	0	0%

Average	3.1
StdDev	1.08
Max	5.0

Development proposals that address very few of the sustainability criteria in the checklist/assessment tool are generally not granted variances, rezoning or OCP amendments

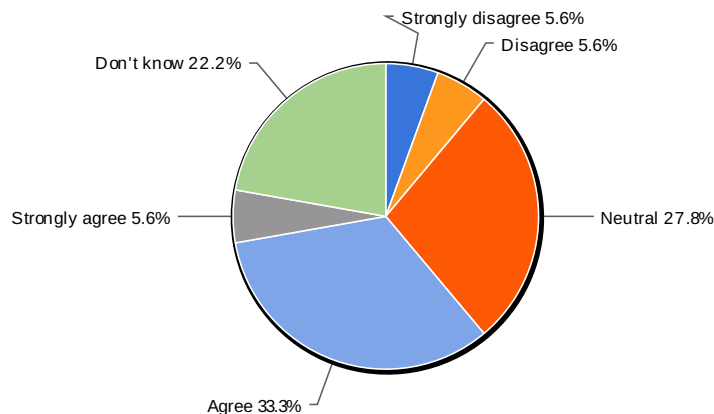


### 39. Development proposals that address very few of the sustainability criteria in the checklist/assessment tool are generally not granted variances, rezoning or OCP amendments

Value	Count	Percent %
Strongly disagree	1	5.6%
Disagree	4	22.2%
Neutral	5	27.8%
Agree	4	22.2%
Don't know	4	22.2%
Strongly agree	0	0%

Statistics	
Total Responses	18
Sum	40.0
Average	2.9
StdDev	0.91
Max	4.0

Development proposals that address many or most of the sustainability criteria in the checklist/assessment tool generally receive variances, rezoning, or OCP amendments



### 40. Development proposals that address many or most of the sustainability criteria in the checklist/assessment tool generally receive variances, rezoning, or OCP amendments

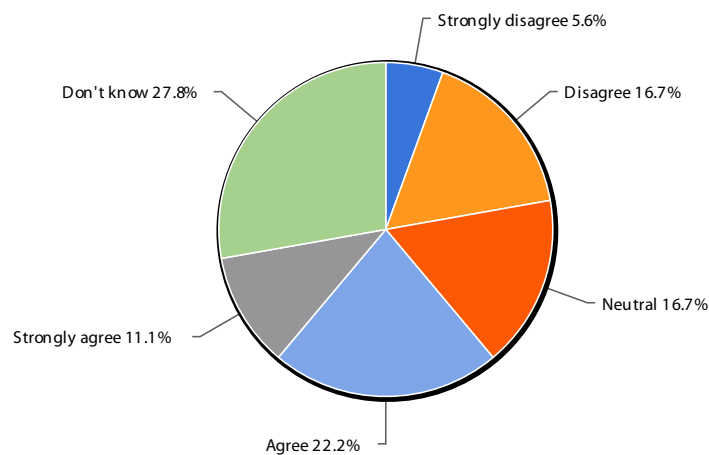
Value	Count	Percent %
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Statistics	
------------	--

Strongly disagree	1	5.6%
Disagree	1	5.6%
Neutral	5	27.8%
Agree	6	33.3%
Strongly agree	1	5.6%
Don't know	4	22.2%

Total Responses	18
Sum	47.0
Average	3.4
StdDev	0.97
Max	5.0

In general, I feel that the checklist has been successful in achieving the intended objectives



#### 41. In general, I feel that the checklist has been successful in achieving the intended objectives

Value	Count	Percent %
Strongly disagree	1	5.6%
Disagree	3	16.7%
Neutral	3	16.7%
Agree	4	22.2%
Strongly agree	2	11.1%
Don't know	5	27.8%

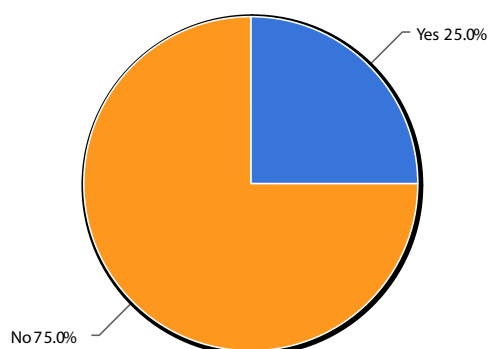
Statistics	
Total Responses	18
Sum	42.0
Average	3.2
StdDev	1.19
Max	5.0

#### 42. What improvements or changes would you make to the current checklist/assessment tool?

Count	Response
1	Less questions overall, a points based system, even closer ties to existing policies.
1	Regular updates to reflect current best practices and new legislation.
1	time for a review and update based on implementation experiences
1	will find out early in 2012
1	After 5 years of use, it should be reviewed for historical success and trends to determine if any amendments are necessary.
1	Too long a list of improvements needed- it's viewed as by developers as a nice "wish list" and can easily be ignored, especially if they appeal to Council on the basis on increased costs which will affect "affordability"
1	Don't know impact yet. Old checklist: not achieving objectives; any innovation would have happened anyway from visionary developers; too qualitative, without numeric score it did not help Council decision making; some education value; applicants felt it was waste of time; was useful for tracking our lack of progress!
1	<ul style="list-style-type: none"> <li>Weighting items as a reflection of the impact of achieving the particular element, i.e., 1 to 3 points depending on the significance;</li> <li>Streamlining the checklist to clarify criteria for very broad items, or to combine very similar items or those that are addressed by virtue of achieving another item;</li> <li>Specifying the project scale/type where criteria are not applicable to assist applicants;</li> <li>Updating for the latest technology and best management practices;</li> <li>Ensuring</li> </ul>

	consistency with the new OCP and Sustainability Plan; □ Provide more effective indicators for the Economic section.
1	needs to be more user friendly; provide incentives to developers for proposals which rank highly (reduced DCC's/density bonus etc.)
1	Replace it: I will be working with my staff to replace the City's checklist with effective policies and regulations.
1	Realistic benchmarking based on project successes within the city. A Checklist for Secondary Land Use Plans / Neighbourhood Concept Plans within the City.
1	<p>found it to be largely ineffective and not meeting the needs of our development planners and thus not being utilized in any meaningful way. The format of the checklist almost encourages applicants to mislead about what they will be doing as there is no assurance (i.e. bonding, restrictive covenant, etc.). Further, for many of the criteria, the rezoning, OCP amendment or DP stage is too early to adequately consider the features that will be incorporated. Ideally, much of this assessment would be conducted at the Building Permit stage.</p> <p>Another major change is that the checklist/scorecard should better reflect physical geography to incent development where we want it and disincent locations that have not been identified for additional development/density. Thus, significant points should be allocated for developments proposed where development has been allocated through the OCP. At present our scorecard does not adequately distinguish.</p>
1	-More closely link the checklist criteria to City policies.-Give certain criteria more weight.
1	More rigorous. For example tie targets from policy documents (the RGS contains targets) to site assessment. Determine minimum requirements from development. Weigh certain elements higher than others. Change the look to make more user friendly. Include parameters around adaptability and economics (none included). Consult well with all relevant City departments and the community. Complement it with an educational component and highlight it more prominently as a decision-helping tool to staff, council and community. Compile the data from the checklist to monitor trends over time.

Has the sustainability checklist/assessment tool resulted in any unforeseen outcomes?



#### 43. Has the sustainability checklist/assessment tool resulted in any unforeseen outcomes?

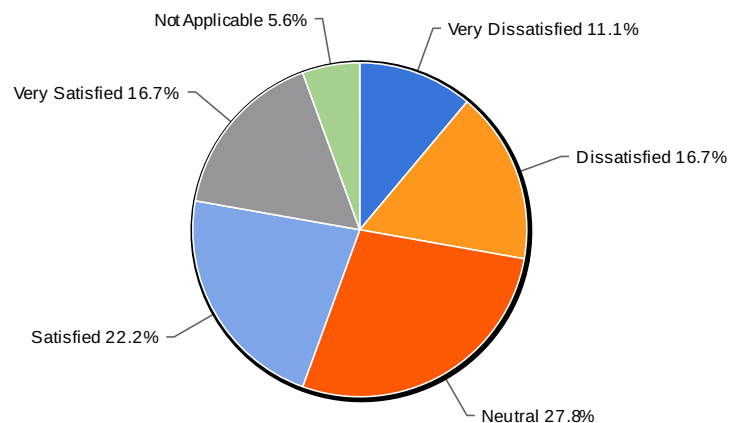
Value	Count	Percent %	Statistics	
Yes	4	25%	Total Responses	16
No	12	75%		

#### 43. If yes, please explain.

Count	Response
1	Will find out in early 2012
1	unsure - I'm still newish

- 1 The checklist is used by the applicant to develop a sustainability statement. The results are all very different. On occasion a good development that has not produced a "full" sustainability statement may be delayed through the process.
- 1 The largest one being that where we are asking for this information is simply not appropriate and leads to misleading results. Applicants have an incentive to indicate features that will never actually be incorporated. There is also a recognition that in terms of locational features, the OCP process has identified where we want development to occur. If we follow the OCP then there is not really a need to have a checklist/scorecard which gets at preferred versus non-preferred location. At least this is my opinion. If this were true, the only checklist/scorecard that would make good sense is at the BP stage and in conjunction with security.
- 1 - complaints from developers / applicants that meeting the requirements of the sustainability initiatives will add dramatically to the cost of construction and thus the cost of product to the public (i.e. Housing costs)

Overall, how satisfied are you with the use of the sustainability checklist as a tool for creating more sustainable communities?



#### 44. Overall, how satisfied are you with the use of the sustainability checklist as a tool for creating more sustainable communities?

Value	Count	Percent %
Very Dissatisfied	2	11.1%
Dissatisfied	3	16.7%
Neutral	5	27.8%
Satisfied	4	22.2%
Very Satisfied	3	16.7%
Not Applicable	1	5.6%

Statistics	
Total Responses	18
Sum	54.0
Average	3.2
StdDev	1.25
Max	5.0



## Appendix VI –Interview Guides

### Interview Guide for Planners

#### General

The intent of this section is to serve as an icebreaker and provide background information on the type of insight and possible perspective the interviewee may be bringing to the interview.

1. How would you describe sustainable urban development/design in your community?
2. What policies and programs are in place to advance sustainable urban development?
3. Why do you feel that checklists have increased in popularity in the last few years?

*Probe: gap in planning legislation, old OCP or lack of detailed LAPs or poor implementation of plan policies, Council initiative, amount of attention that they have received in planning world*

4. What is, or has been, your involvement with the sustainability checklist?

#### Checklist Design and Implementation

5. Tell me about the sustainability checklist.

*Probes: what motivated development checklist? Role of good governance concerns? Why was this particular format chosen? What criteria were chosen? Why? When do the checklists come into play? Before an application has been made, after? How does this affect the outcome? Is there a formal consideration of alternatives?*

6. What are some of the challenges with implementing the sustainability checklist?

*Probes: format (yes/no, rating, weighting etc), knowledge base, access to information, time, expense, reluctance from applicants, conflicting policy, lack of buy-in, inconsistencies between planners use*

7. Have checklists identified policy shortfalls or gaps which have resulted in new policy creation?
8. What do you feel are some of the general sentiments coming out of the development industry regarding these tools?

*Probes: development timelines, access to information, cost, inapplicability of checklist criteria, going above and beyond, innovation, green market share/marketing*

#### Outcomes & Effectiveness of the Checklist

9. In what ways, have development practices changed as a result of implementing the checklist?

*Probes: raising awareness of sustainability issues, improvements in urban form, green building, energy efficiency, storm water management, mixed use, human comfort, greater transparency in development process, integrated design, greater public acceptance for project, Does the developer/consultant identify possible mitigations/gains or does it become the responsibility of the staff members to suggest different options?*

10. Do you feel that some aspects of sustainability are being better addressed than others? Why?

*Probes: building level vs neighbourhood level, urban structure (especially connectivity, diversity, density and working with natural systems) affordable housing, relationship to other policies or programs, infrastructure provision*

11. How effective are checklists in influencing political decision-making? Why or why not?

12. What do you feel are the greatest strengths of this tool, and what has been the greatest success of the checklist?

*Probes: "raising the bar", communications, particular project, integration of policies, What do you feel are the strengths of the tool? Probe: quick, easy to digest summary of the merits of a project, way of building support for new policy for example, Council sees checklists which time and time again fail to address certain aspects therefore gives planners support for developing new policy or requiring certain aspects*

13. What mechanisms are in place to ensure compliance with checklist criteria, targets or proposed features?

*Probe: DP's, BP's, covenants, bonding, tax exemptions, and DCC credit after construction and requiring repayment if they are not provided, housing agreements and development agreements.*

14. What changes or improvements would you make to the current checklist?

15. Are there other tools that you feel are or would be more effective in transforming development practices and creating more sustainable settlements?

*Probe: comprehensive LAPs, New DP powers related to energy and water conservation and greenhouse gas reduction, development agreements, will new tools such as greener BCBC, Bill 27 etc reduce the need for checklist What is the role of LEED-ND in your community?*

## **Wrap-up**

16. Is there anything else you wish to add?

17. Is there anyone else I should be speaking with regarding the sustainability checklist?

## **Interview Guide for Developers**

1. Maybe to begin, can you tell me a bit about your company and the type of development projects that you are working on?
2. What has been your involvement with sustainability checklists tools.
  - *have you been involved in the design/review?*
  - *have you completed them as part of a development application?*
  - *What are the different formats that you have worked with?*
3. What are your feelings about sustainability checklists in general?
  - *what do you like about them?*
  - *What are the strengths/ benefits of using this tool?*
  - *What concerns you? Limitations of the tool?*
4. Have checklists influenced the design of the development proposals or projects that you have been involved with? If so, can you provide an example?
5. Overall, what impacts have sustainability checklists/scorecards had on your development?
6. In general, do you feel that checklists have been effective in creating development that is more sustainable? In what way?
7. What advice do you have for municipalities wishing to pursue sustainability checklist tools?
8. Is there anything else that you would like to add?

## Appendix VII - Informed Consent



UNIVERSITY  
OF MANITOBA

### Faculty of Architecture

City Planning  
201 Russell Building  
84 Curry Place  
Winnipeg MB  
R3T 2N2  
Tel: (204) 474-6578  
Fax: (204) 474-7532

**Research Project Title:** Implementing Sustainability in BC Communities - Exploring the Checklist Approach

**Principal Investigator and Contact Information:**

Erin Ferguson

Email:  
Phone

**Research Supervisor and Contact Information:**

Dr. David van Vliet, M.EVDS, PhD, MCIP  
Associate Professor  
Department of City Planning  
Email:  
Phone:

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

This research is part of a Major Degree Project fulfilling a Master's Degree in City Planning. The purpose of this research is to study the design and implementation of municipal sustainability checklists as a means of transforming development practices and creating more sustainable communities.

This research is being conducted in two phases. The first phase involves a document analysis comparing checklists to literature on sustainability assessment tools and principles of sustainable urban development. Accompanying the document analysis is an online survey covering the design, implementation process, and effectiveness of checklist tools. The second phase involves a series of interviews. The interviews will dig a little deeper and include the perspectives of planners, developers and councilors.

This interview will take approximately 1 hour and cover a range of questions related the design and format of the checklists, the implementation process, outcomes and effectiveness of the tool in creating sustainable urban development, barriers to success, and the relationship with other planning tools. I would like to record our conversation with a digital recorder so that I do not miss anything during the course of our conversation. At the end of this research, I will be writing a report that summarizes the key themes from the interviews. If you would like a copy of this report, or a copy of my final paper including the strengths and limitations of using checklist tools, please contact me at the email address above. Please note that precautions will be taken to ensure that you will not be personally identified in either the summary or final reports and that all data will be kept confidential and stored in a secure location, either in a password protected file or in a locked cabinet. Once this study has been completed, I will destroy all electronic and hardcopy data.

If you are at all uncomfortable with any of the questions presented, please let me know and we can move to the next question. If you choose to withdraw from this research at any time, there will be no negative consequences but please notify me in writing so that I have a record of your withdrawal.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.

This research has been approved by the Joint-Faculty Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 474-7122. A copy of this consent form has been given to you to keep for your records and reference.

Participant's Signature \_\_\_\_\_ Date \_\_\_\_\_

Researcher's Signature \_\_\_\_\_ Date \_\_\_\_\_