

**Green Star Communities:
Review of Existing Tools
Green Star Communities
Green Building Council of
Australia**

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Executive Summary

Introduction

The Green Star Communities Rating Tool (herein referred to as the 'Communities' rating tool) is being developed by the Green Building Council of Australia (GBCA) to assess and promote the creation of sustainable communities. In September 2010, after extensive consultation, the GBCA launched the Green Star Communities National Framework, which provides a shared vision, set of principles and aspirations to help guide and support the development of sustainable communities.

The Research Brief

Aurecon was engaged by the GBCA to undertake a review of existing assessment and rating tools by assessing them against a set of evaluation criteria. The purpose of the review was to determine if the GBCA could utilise an existing tool or suite of tools to achieve its objective of defining best practice standards for sustainable communities or whether there was a need to create a new rating tool (the Communities rating tool).

The Scope of Works

The research project based its work around mapping each existing assessment and rating tool identified in the review as being relevant. Each of these existing tools was assessed against the evaluation criteria developed by the GBCA and the sustainability objectives identified by the Green Star Communities National Framework – specifically against its five key principles.

The five principles of **the Green Star Communities National Framework** are:

Enhanced Liveability

- Sustainable communities are liveable. They are diverse, affordable, inclusive and healthy; they enhance social interaction and ownership, are safe and caring and improve people's well-being.

Economic Prosperity

- Sustainable communities prosper. They encourage opportunities for business diversity, innovation and economic development that support local jobs for people in the region.

Environmental Responsibility

- Sustainable communities respect the environmental systems that support them. They protect and restore the natural environmental values of their bioregions. They are less resource intensive. They promote infrastructure, transport and buildings that reduce their ecological footprint.

Design Excellence

- Sustainable communities are places for people. They are desirable, accessible and adaptable. They have their own distinct character and identity and evolve overtime.

Leadership and Governance

- Sustainable communities require visionary leadership and strong governance that is transparent, accountable and adaptable. They enable active partnerships to build capacity and achieve a shared vision and deliver stakeholder benefit.

The research project used the following key questions to conduct its investigation and analysis:

1. Is there an existing tool that comprehensively addresses the principles contained within the Green Star Communities National Framework and the evaluation criteria developed by the GBCA?
2. If an appropriate tool does exist, how could the GBCA engage with the tool and its owners?
3. If an appropriate tool does not exist, are there other relevant tools that could be used to inform the development of the Communities rating tool?
4. What draft credit names or issues should be included in the Communities rating tool?
5. How well do individual credits in the existing tools address the key principles in the National Framework?
6. How does the industry currently address the key principles and issues within the National Framework as part of their own development projects?

The Methodology

The research undertaken by Aurecon was conducted in four (4) main stages:

1. Assessment Rating Tool Review – a detailed review of existing national and international community development Assessment Rating Tools against 11 evaluation criteria to address the first three research questions;
2. Credit / Issue Assessment – a detailed assessment of individual credits found within the most relevant existing tools against eight evaluation criteria to address the fourth research question;
3. Green Star Communities National Framework Alignment & Analysis – an analysis of the alignment of existing credits to the GSC National Framework to address the fifth research question;
4. Industry Consultation – a consultation with industry representatives to address the sixth research question.

Analysis and Review of Results

In order to undertake the review of existing tools a matrix was developed to capture, analyse and present the findings from the research project. The matrix was used to review over 60 existing tools and conduct an assessment of 240 existing individual credits. A standardised approach to the assessment was applied, as well as a traffic light scoring system in order to clearly communicate and analyse the results of the review. The results of the four stages are summarised below:

1. Assessment Rating Tool Review

A total of 61 existing tools were reviewed and compared against the Green Star Communities National Framework to identify their applicability for use in an Australian context. There was not one single tool that met the evaluation criteria. However there were parts of many tools that are relevant and four tools in particular were considered to be the most applicable to the National Framework and the development of the Communities tool. These were:

- BREEAM for Communities (Building Research Establishment, United Kingdom)
- EnviroDevelopment (Urban Development Institute of Australia, Queensland, Australia)

- LEED for Neighbourhood Developments (United States Green Building Council, United States of America)
- Sustainable Community Rating (VicUrban, Victoria, Australia)

It is recommended that all of the 61 existing tools be considered by the GBCA in the development of the Communities and referenced appropriately.

2. Credit Assessment

Across the four shortlisted existing tools, 240 credits were assessed in detail to identify key credit themes and where there were gaps in the alignment with the National Framework. This detailed analysis was undertaken to allow the GBCA to filter and search for the most applicable credits during its tool development process.

3. National Framework Alignment Analysis

An analysis of the existing tools against the National Framework identified several key gaps. It must be noted that at times the different existing tools used various integrated methods to address key sustainability principles and issues across various categories and individual credits.

The main findings from the credit assessment and framework alignment analysis were:

- both the Environmental Responsibility and Design Excellence principles were well covered in the existing credits;
- Enhancing Liveability and Economic Prosperity were not considered as well, however there are some credits that could be considered during the development of the Communities rating tool;
- None of the existing tools effectively dealt with the principle and issues outlined within the Leadership and Strong Governance section of the National Framework.

4. Industry Consultation

Following the tool review and credit analysis, the main findings were presented to industry representatives at a stakeholder engagement workshop and the following was noted:

- Discussion focussed on how industry currently considers issues within the National Framework, and whether current tools assist projects to address such issues.
- It was found that many developers are currently considering most of the issues contained within the National Framework (in some way) – although developing an adaptable community was seen as an emerging issue.
- Engaging and consulting with the community as well as empowering the community to participate and implementing feedback were seen to be vital to the success of many parts of the framework. Developers also made it clear that for the Communities rating tool to be successful its scope and definition of key terminology would need to be clear and encompassing of a wide variety of design styles and community types.

Findings and Recommendations

The findings and recommendations have been collated in response to the answers from the six key research questions outlined at the start of the project. These are:

There is no suitable existing tool (nationally or internationally) that appropriately considers all of the issues within the Green Star Communities National Framework. Many of the existing tools do not sufficiently address leadership and governance issues, liveability issues and economic issues. Several

of the existing tools have transparency and access issues that restricted the level of assessment that could be undertaken.

Due to that fact that there is currently not a suitable rating tool for the Australian context, four existing tools have been recommended to as guides in the further development of the Communities rating tool. The four existing tools include:

- BREEAM for Communities;
- EnviroDevelopment;
- LEED for Neighbourhood Development; and
- Sustainable Community Rating.

Because of the cross over of many credits (meaning that credits often aligned with more than one part of the framework) it was difficult for Aurecon to recommend a list of draft credits to the GBCA.

Through consultation with industry representatives, the research project found that developers are currently considering many of the issues, but in a variety of different ways. It was clear through discussion that careful definition and scoping of the Communities rating tool would be required for it to be successful.

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1. Introduction

The Green Building Council of Australia (GBCA) has initiated the development of a rating tool that will assess and promote best practice sustainability in Australian community development projects. The Green Star Communities (Communities) tool will rate the sustainable attributes of the planning, design and delivery of community-scale development projects across Australia against five key Principles – Liveability, Economic Prosperity, Environmental Quality, Design Excellence and Leadership & Urban Governance. These Principles are outlined in the GBCA's Communities Framework document.

As part of the tool development process, Aurecon has been contracted to conduct a review of existing rating tools from around the world against a suite of criteria that the GBCA and its stakeholders have identified. This work will assist in determining where opportunities lie for referencing existing tools in the development of the Communities tool. Also the research will help to identify the project stage where sustainability issues are best addressed (i.e. planning, design, delivery and/or operational phases). The GBCA have termed this review the Green Star Communities Research Brief: Review of Existing Tools.

The purpose of this review was to determine if a tool already exists that meets the criteria set by the GBCA (via stakeholder feedback) and if not, recommend existing tools that could be used by the GBCA in its tool development process. If a single tool did exist which met the GBCA evaluation criteria, it was part of the project brief to recommend how the GBCA may engage with this tool and its owners.

The review is part of GBCA's tool development process and will provide input to a tool scoping paper being prepared by GBCA that will help frame the objectives, audience and architecture of the rating tool. The Review of Existing Tools follows two previous research phases commissioned by the GBCA, these being:

- a tool exploration exercise undertaken by Sustainable Built Environments which identified existing assessment tools that address the five previously mentioned principles;
- preparation of information papers that discuss each of the five Communities principles in more detail which was undertaken by Griffith University.

This report presents the outcomes of the Review of Existing Tools conducted by Aurecon. The report:

- outlines the methodology used in the review;
- summarises the previous work undertaken to identify the tools and define the evaluation criteria;
- describes the detailed review process and the outcomes;
- describes the credit assessment process and the outcomes;
- describes the analysis of the credit assessment which identified the level of alignment to the Communities Framework;
- sets out recommendations from the review for further consideration by GBCA.

The seven task methodology used in the Review of Existing Tools is discussed in further detail in Section 2.

2. Review Methodology

2.1 Work Process

This section discusses the review process undertaken by Aurecon with Figure 1 outlining the eight tasks undertaken and each of the following sub-sections describing each task in more detail.

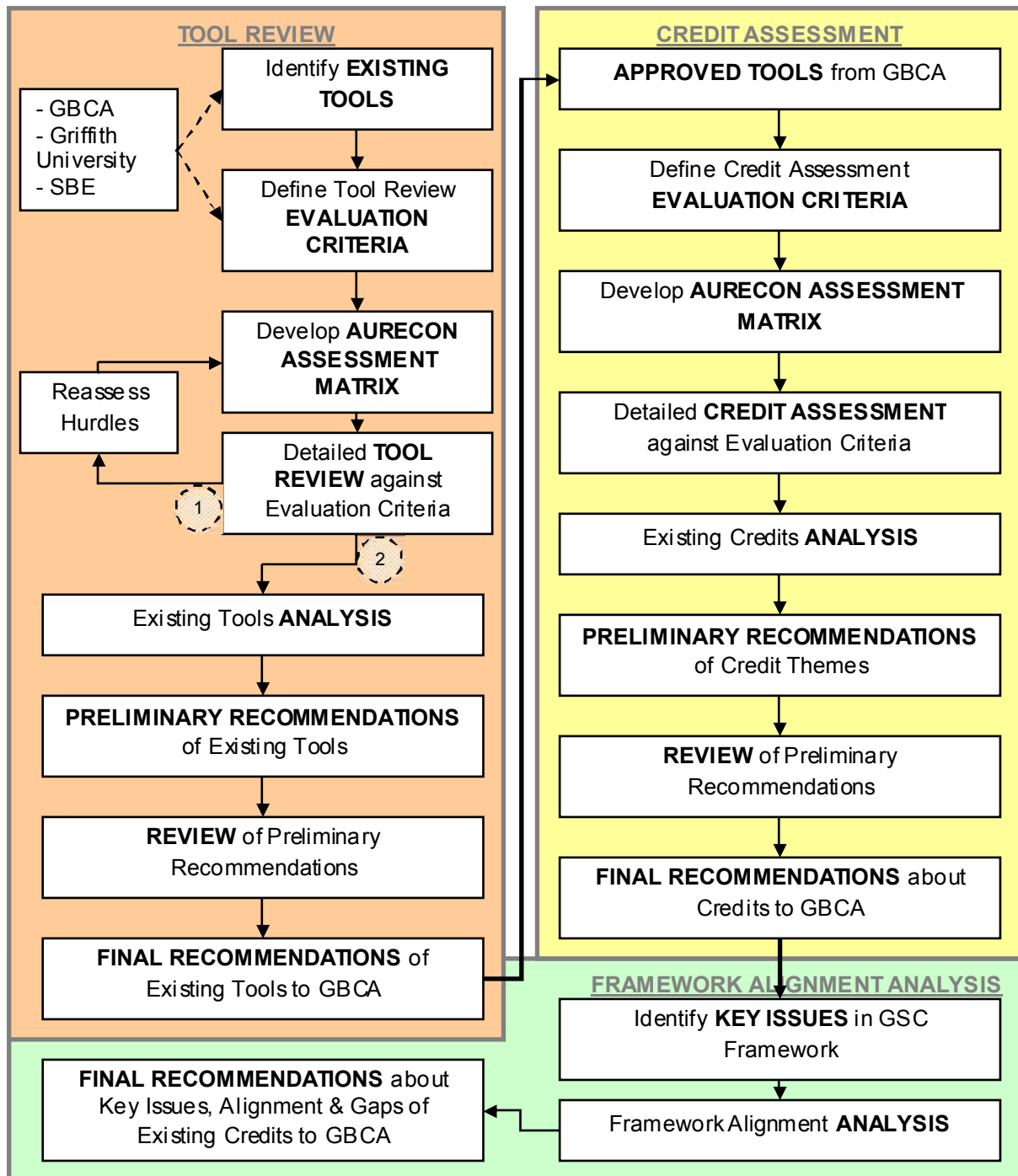


Figure 1 Process Flowchart

Figure 1 presents the process undertaken to complete the Review of Existing Tools and to provide recommendations to the GBCA for the development of the Communities tool. At the completion of each major stage of work the review underwent an internal and external review and approval process. This involved firstly an Aurecon based multidisciplinary Project Control Group (PCG)¹, a peer review, then review and approval by the GBCA. The four stages of work were the Tool Review, Credit Assessment, Framework Alignment Analysis and Recommendations.

Tool Review

The first major stage of the work reviewed existing national and international sustainability assessment tools to identify which ones were the most similar and applicable to the proposed Communities tool. The aim was to identify whether the Communities tool already existed in another tool and if not which tools would be the most relevant to the development of the Communities tool. The tools were reviewed at a high level against evaluation criteria proposed by the GBCA. Figure 2 shows the Tool Review in orange.

Credit Assessment

The second stage of the work was to undertake a detailed assessment of the credits within existing tools that were found to be the most relevant from the Tool Review. This required each credit to be assessed in detail against further evaluation criteria proposed by the GBCA. The aim was to identify whether there were existing credits (i.e. parts of existing tools rather than whole tools) that could be either applied directly to the Communities tool or used as a basis for further development. Figure 2 shows the Credit Assessment in yellow.

Framework Alignment Analysis

The third stage of work was to identify what parts of the Communities Framework were already adequately covered by credits in existing tools. This required identifying parts of the framework where few credits were found to align, meaning that further investigation would be required in order to identify how it might be considered in the Communities tool. The parts of the framework that had many existing credits in alignment did not need further investigation and instead those credits were recommended to be considered by the GBCA for the Communities tool. Figure 2 shows the Framework Alignment Analysis in green.

Recommendations to the GBCA

The final stage was to present the research to industry representatives, the Communities Technical Working Committee and make final recommendations to the GBCA for the development of the Communities tool.

Details on the PCG, main project contributors, abbreviations and definitions of words used within this report are outlined in Appendix A.

¹ The PCG consisted of various experts within Aurecon which review all work, providing comments and recommendations as to how to refine the work already undertaken and how to proceed with the next stage. The PCG was not established to peer review the work but rather to provide further input in a controlled manner to the research. Details on the PCG can be found in Appendix A.

3. Aurecon Assessment Matrix

3.1 Description

In order to easily collate the information for and from the review, the assessment of credits, and the framework alignment analysis the Aurecon Assessment Matrix was developed. This helped to capture and then assess the large amount of information investigated. Within the Aurecon Assessment Matrix there are six sheets (Tool Review sheets – TR-1 & TR-2, Credit Assessment sheets – CA-1 & CA-2, and Framework Alignment Analysis sheets FA-1 & FA-2) as outlined in Figure 2.

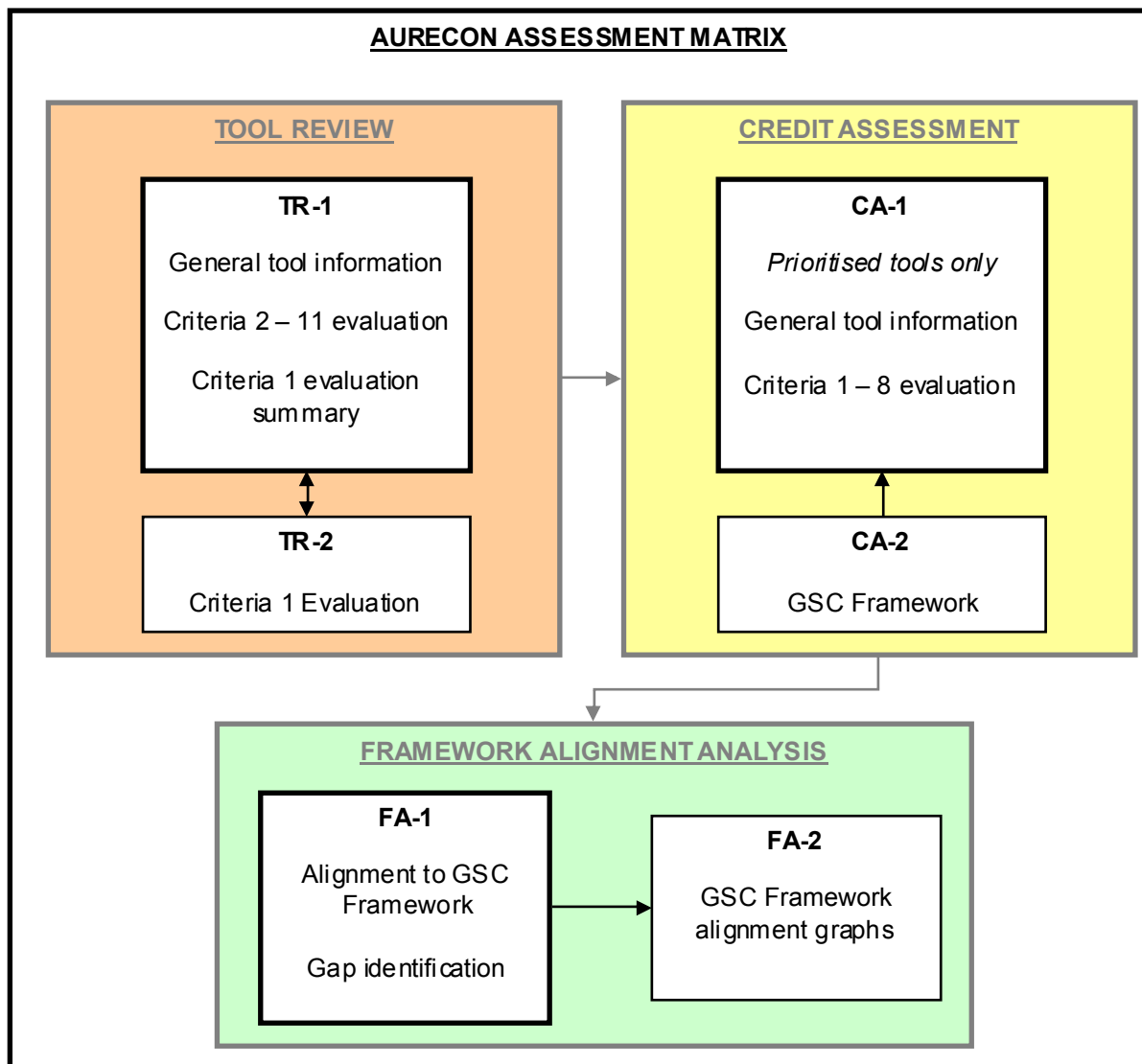


Figure 2 Aurecon Assessment Matrix

The Aurecon Assessment Matrix captures the information gained during the Detailed Tool Review and the Detailed Assessment of Credits as well as the analysis of the Communities Framework alignment of existing credits. The following sections explain the role of the Aurecon Assessment Matrix for each of the three stages – Tool Review, Credit Assessment and Framework Alignment Analysis.

3.2 Tool Review

The Tool Review is spread across two sheets within the Aurecon Assessment Matrix as shown in Figure 2, TR-1 and TR-2. TR-1 contains the general information about the tools or credits, the assessment against the identified evaluation criteria and the analysis of the review/assessment including the final recommendations. Within the Tool Review there were 49 factors assessed across 11 criteria. Because 20 of these factors are associated with Criteria 1 the evaluation of Criteria 1 on these sheets is a summary only (refer to Figure 3). The full evaluation of the other 10 criteria can be found on the TR-1 sheet within the Tool Review.

In this sheet the ‘traffic light’ scoring system was used to identify tools that showed ‘good/high’ (green), ‘medium/average’ (amber) or ‘low/below average’ (red) performance against a factor. This method was not applied to all factors, however because either there was no right or wrong answer or the types of expected answers were too varied for them to be easily rated in three categories. Appendix F outlines the common/standardised answers for the appropriate factors where the traffic light system could be applied. It also identifies those factors where the traffic light system could not be applied. All tools were fully assessed across all the eleven criteria (where the information was available – refer Appendix F). No information on any of these tools has been lost during the analysis of the Aurecon Assessment Matrix and the final recommendation of tools to ensure that a comprehensive assessment and review of tools has been undertaken for the GBCA

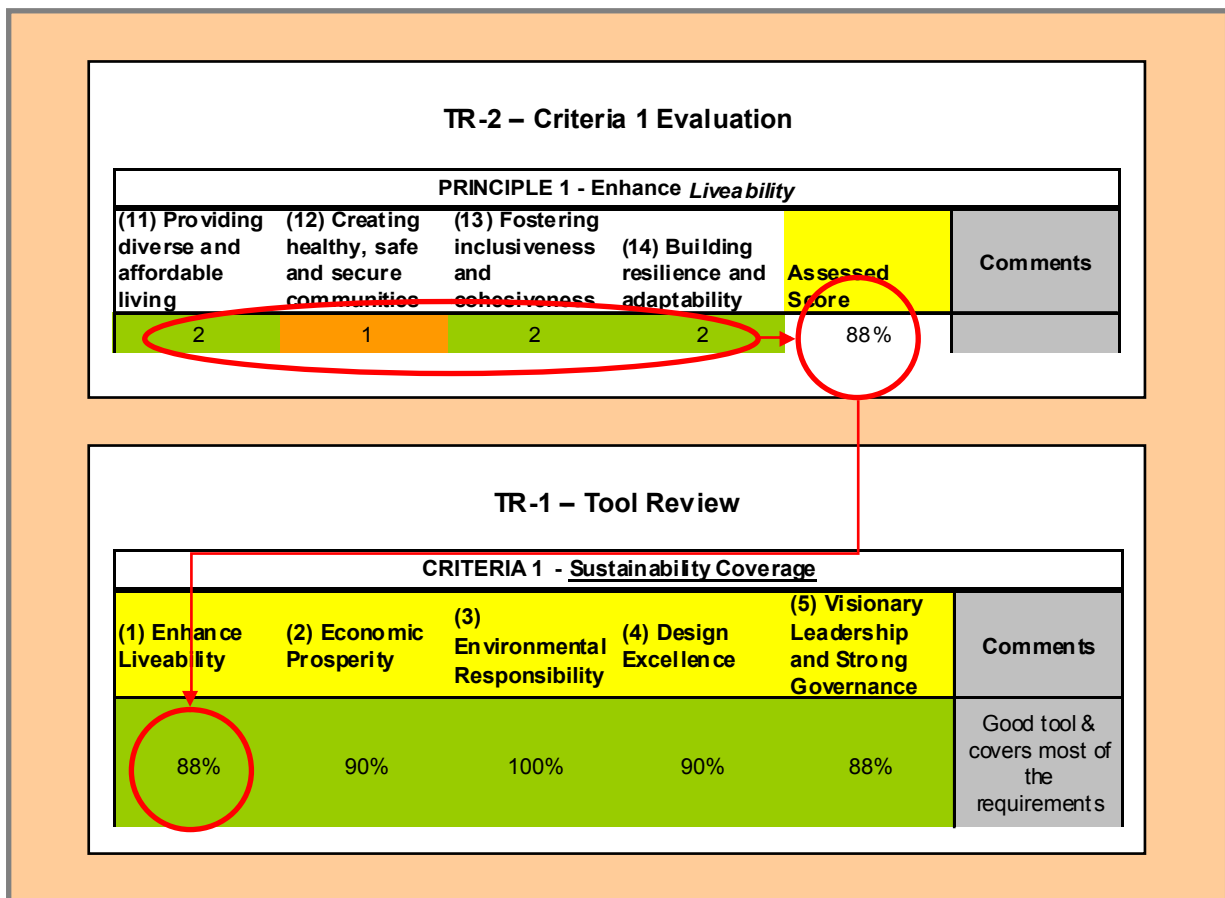


Figure 3 Criteria 1 Evaluation, Tool Review

The second sheet TR-2 contains the assessment against the Communities Framework. The second sheet (TR-2) contains only the Criteria 1 evaluation but because there were 20 factors associated with the five Communities Principles, Criteria 1 was assessed on separate sheets (TR-2). Each factor was scored a 0, 1 or 2 where 0 meant that a tool performed below average and did not cover that aspect of the Communities principle and 2 meant that it performed well and covered the majority of that aspect. Each principle was then scored by giving an averaged percentage which showed how well a tool

covered that Communities Principle. Each principle's score was then automatically included under Criteria 1 within TR-1 (Figure 3).

3.3 Credit Assessment

The process for the Credit Assessment was essentially the same as the Tool Review although there were different evaluation criteria. The first sheet CA-1 contained the credit assessment including general information about the tool and the assessment against the identified evaluation criteria. Unlike the Tool Review, the alignment of the credit against the Communities Framework was not required to be undertaken on a second sheet. CA-2 however included a numbered list of the Communities Framework which CA-1 referenced to using a 'VLOOKUP' function. No input was required in CA-2 as it was a reference sheet only.

It should be noted that following the tool review, only information on applicable tools that were considered useful was filtered from TR-1 to CA-1. CA-1 was set up in the same way to TR-1 using the 'traffic light' scoring system where possible to identify good and below average performance. Common answers can be seen in the Aurecon Assessment Matrix in Appendix F.

In order to easily identify which parts of the Communities Framework that a credit aligned to, the framework was first numbered (see Appendix I). The relevant number of the framework that a credit aligned to was included in CA-1. The VLOOKUP function then associated the number with the relevant section of the Communities Framework from CA-2 which was then automatically included in CA-1 as shown in Figure 4. The level of alignment with that part of the framework was identified where 1 was 'poorly aligns' and 3 was 'highly aligns'.

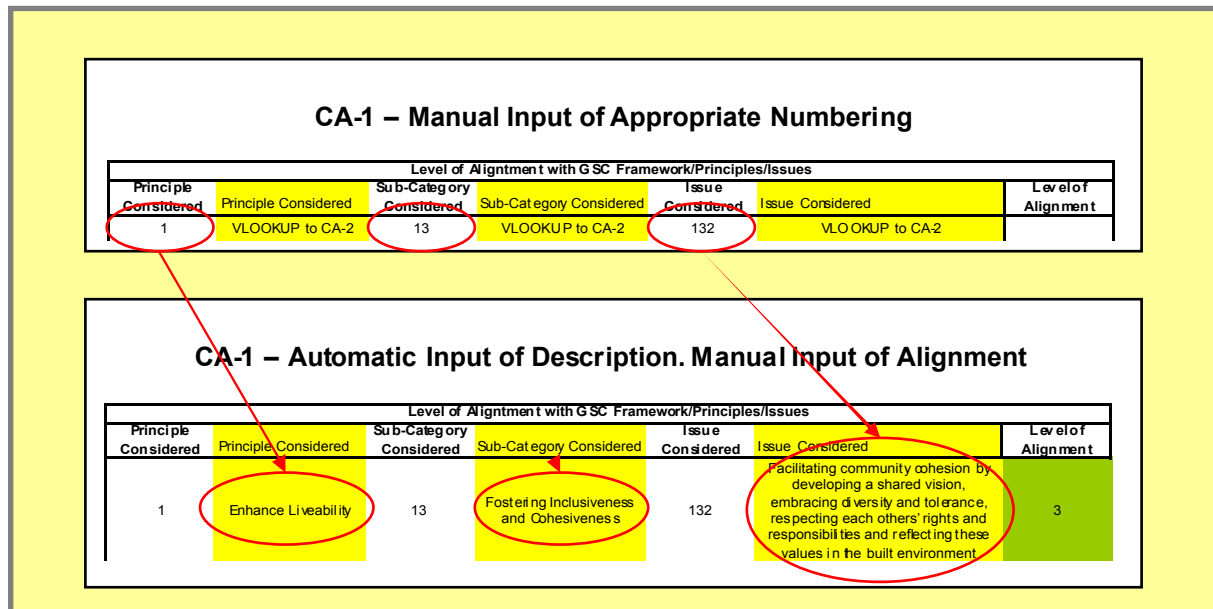


Figure 4 Green Star Communities Framework Identification, Credit Assessment

Appendix I outlines the numbering system applied to the Communities Framework for use in the Aurecon Assessment Matrix. The Principles were already numbered one through five and within each sub-categories and issues identified (Figure 5). A sub-category was the first level beneath the principle (such as 13 – Fostering Inclusiveness and Cohesiveness) and an issue was beneath this (such as 132 – Fostering community cohesion...). The highlighted text shows the identified key issues.

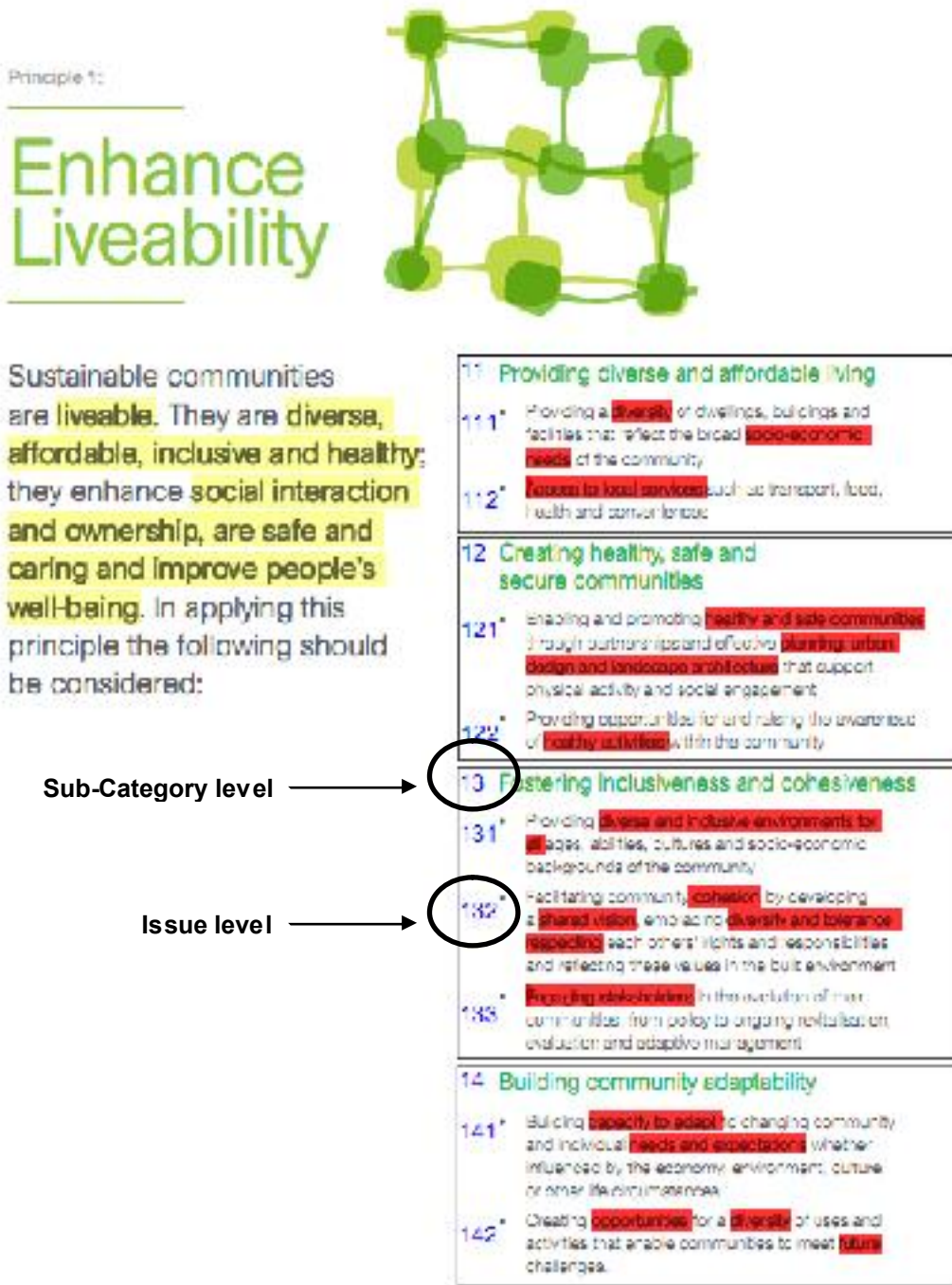


Figure 5 Green Star Communities Framework Numbering and Key Issues

3.4 Framework Alignment Analysis

The final part of the Aurecon Assessment Matrix captured the analysis of the framework alignment. FA-1 captures the counts of alignment for statistical analysis and is a hidden sheet within the spreadsheet. Communities Framework alignment was investigated for the Principle, Sub-Category and Issue levels. FA-2 presents this information graphically for ease of analysis and presentation.

4. Tool Review

4.1 Description

The detailed Tool Review was the first major stage of the Review of Existing Tools for the GBCA. The aim of this part of the work was to first identify whether a tool already existed that would meet the GBCA evaluation criteria and be most applicable to the development of the Communities tool. The main parts of the work were

- identification of tools to be reviewed;
- review the GBCA evaluation criteria;
- review of identified tools against evaluation criteria;
- recommendation of most applicable tools to GBCA.

4.2 Identification of Tools

Sustainable Built Environments has previously identified 57 tools from Australia and overseas that may be relevant to the development of the Green Star Communities (Communities) tool. A high level assessment of 49 of these tools was undertaken using a Tool Exploration Matrix. Each tool was then categorised using the GBCA's nominated criteria and relevant information was also provided². The GBCA recommended that these 49 tools be reviewed in greater depth.

As well as these 49 tools, 19 more were investigated for inclusion in Aurecon's review including:

- 10 tools previously assessed by Aurecon³;
- the eight tools previously excluded by Sustainable Built Environments;
- one tool previously assessed by Laslett & Green⁴.

Firstly, the 68 tools were reviewed to investigate the information available on each tool and to identify how easily a comprehensive review of the tool could be undertaken. From this initial review it was identified that:

- 44 tools could be included in a detailed assessment because adequate information was available to conduct a comprehensive review;
- 17 tools could possibly be included in the detailed assessment, depending on the level of availability of the tool and access to information about the tool ;
- 7 tools could not be included in the detailed assessment because they were considered to be initiatives or programmes, which could not be assessed comparatively against the 11 GBCA evaluation criteria.

The 44 tools assessed in the detailed tool review and the 17 tools for possible assessment are listed in Appendix B.

² This information included basic tool information (name, owner, and websites), where the tool is used, tool description, and what type of tool it is.

³ 16 tools were previously known to Aurecon from previous project work however six of these were already included in the Sustainable Built Environments Tool Exploration Matrix.

⁴ A review of sustainability assessment tools in 2009 by Laslett & Green aimed to aid the adoption of assessment tools by the urban development industry. Eight tools were reviewed – six had been investigated in the Sustainable Built Environments Tool Exploration Matrix. The seventh tool (AHURI) was included in the Aurecon Review of Existing Tools whereas the eighth tool (ISO 14001) was not considered to be appropriate to include as it is an environmental management standard rather than an assessment tool.

4.3 Tool Review Evaluation Criteria

The GBCA provided 11 criteria to evaluate the existing tools. The tools were reviewed by Aurecon to determine what factors (or specific items) should be considered under each criteria, to best enable each tool to be evaluated (see Appendix C). The criteria were:

1. Sustainability Coverage
2. Tool Availability
3. Tool Output
4. Project Scope
5. Credit Type
6. Assessment Process
7. Best Practice Standards
8. Independent Certification
9. Maintainability
10. Tool Effectiveness
11. Training, Education & Awareness

It was recommended that a matrix of the 11 evaluation criteria and associated factors (listed in Appendix C) would be developed as a spreadsheet so that all comments and analysis could be included in one sheet. A traffic light scoring system was proposed with a total score provided at the end to show how well each tool performed in the assessment.

Hurdles were identified as part of the review of the evaluation criteria in order to provide a more comprehensive tool review. A hurdle was identified as a factor which if not sufficiently met by a tool or credit may mean that the tool could be excluded from being assessed in the following stages of work. The 'Community Based Tool' factor (Criteria 4, Project Scope) was identified as being a 'hurdle' in the matrix because if a tool was not community based, it would not satisfy the objectives of the GBCA Communities Framework for a Communities tool.

The PCG review (Appendix D) of the evaluation criteria review process identified:

- that the use of a matrix would be an appropriate way to capture and visualise the detailed tool review and detailed assessment of credits;
- an overall tool scoring system would not be appropriate as it may not capture the assessment effectively and lose information in its interpretation;
- a traffic light system would be appropriate for factors that actually have definite 'below average', 'average', 'good' type answers;
- two extra 'hurdles' were identified – Supporting Documentation and Copyright Issues (both associated with Criteria 2 Tool Availability). These issues were considered to be important as there would be no point continuing with the detailed assessment if there was a lack of information or an inability to use the tool due to copyright issues.

The detailed review of the tools used the factors listed in Appendix E and included the recommendations outlined above from the PCG review.

4.4 Detailed Review of Tools

4.4.1 Process

This section discusses the TR-1 and TR-2 sheets within the Aurecon Assessment Matrix.

Criteria Assessment

The work undertaken in the detailed review of tools followed the process outlined in Figure 1. The 68 tools initially reviewed were compiled along with general information about them in the TR-1 sheet within the Aurecon Assessment Matrix. Sixty one of these tools were then reviewed against the 11 evaluation criteria defined previously.

Where possible, common answers were applied so that the Aurecon Assessment Matrix was standardised and could be easily analysed to determine which tools should be considered in later tasks. As described in Figure 1, the matrix was continually updated and developed as it became apparent what types of answers were required for the different assessment questions. Comments were also included where required for each criterion in order to provide more information and/or a more comprehensive background to the assessment of a tool.

Outcome

In total 61 tools were nominated to be assessed in the Aurecon Assessment Matrix. 39 of these were found to be applicable to community or precinct developments and 14 were not applicable to this type of development. Eight of the tools were not assessed either because there was not enough information (i.e. they were still under development) or they were another version of a tool already assessed. For example LEED for ND and LEED Infrastructure were to be assessed. Ultimately LEED Infrastructure was not assessed as it was not community based and LEED ND had already been assessed.

Reassess Hurdles

The detailed review of tools required the tools to be assessed against each of the 11 evaluation criteria and 49 factors. Once this was completed the initial hurdles were reassessed as it was found that there were other issues that were also quite important.

Initially three factors were identified as being hurdles: Community Based, Supporting Documentation and Copyright Issues. Ultimately it was found that Copyright Issues were a) difficult to determine and b) all tools were assumed to have some sort of intellectual property or copyright that the GBCA would need to consider should they wish to use some part of it.

Two other factors were found to be hurdles in the Aurecon Assessment Matrix: Access and Applicability. Those tools that had issues with access (i.e. there was a cost involved in accessing the tool or the tool was developed internally for a company's private use) were difficult to assess and evaluate using the Aurecon Assessment Matrix. This meant that these tools could not be assessed to the same level of detail as other tools. Similarly tools that were considered not to be applicable to Australia and/or different locations/climates within Australia were also considered a hurdle.

Preliminary Recommendations

From the analysis of the information captured by the Aurecon Assessment Matrix (TR-1) during the detailed review, three sets of information were identified which have been used to recommend which tools should be considered in further work. These were: Hurdles, Sustainability Coverage and General Tool Description Information.

Hurdles

Using the four hurdles (Community Based, Supporting Documentation Access and Applicability) each tool was evaluated to determine whether it should be considered in the development of the

Communities tool. For each answer for these four hurdles a tool was labelled and ranked as being 'Good', having 'Issues' and being 'Below Average'. Four groups of tools were then established depending on how many 'Goods', 'Issues' or 'Below Average's' were identified in the Aurecon Assessment Matrix. These four groups were 'In', 'Potential', 'Unlikely' and 'Out'.

- In – To be considered in future work, 3 or more 'Goods' identified in hurdles
- Potential – Could be considered in future work, 1 or 2 'Goods' identified in hurdles
- Unlikely – Unlikely to be considered in future work because too many issues identified in hurdles
- Out – Not to be considered in future work, 2 or more 'Below Average's' identified in hurdles

Table 1 provides an example of this process for four tools.

In summary, 8 tools were identified as being 'In', 15 were 'Potential', 25 were 'Unlikely' and 13 were 'Out'. Appendix G identifies these tools.

Sustainability Coverage

Criteria 1 was assessed against the 5 principles defined in the Communities Framework document. Each of the 20 associated factors were scored from 0 – 2 where 0 signalled that the tool did not consider the factor, 1 that it somewhat considered the point and a 2 that the tool considered most or all of the points. A percentage was then calculated for each Criteria 1 Principle to show how well a tool covered the principle. These percentages were then used to show which tools should be considered when identifying credits or criteria for that Principle within the Communities Tool (see Figure 3). If a tool scored 75% or more for a Principle it would be automatically considered, for 50% - 75% it could be considered if other tools don't provide enough information and below 50% that it wouldn't be considered. Table 2 and Table 3 provide an example of this analysis – note that the factors for each Principle have not been listed but are numbered as per Appendix E.

A total of 22 'In' and 'Potential' tools have aspects that should be considered when identifying credits for the Communities tool. There are a further 18 tools that have aspects that could also be considered if further information is required when identifying potential Communities credits. Appendix H outlines the tools which cover each Principle well and moderately.

General Tool Description Information

The remaining information captured in the Aurecon Assessment Matrix (Appendix F) has not been used to exclude and/or include tools from being used in the future work in this research. Rather it has been used to inform the GBCA on how other tools work and how they might be applied to the Communities tool. It should be noted that although the final list of tools only recommends the tools that were considered to best meet the Communities assessment criteria, all of the tools have been fully assessed in the Aurecon Assessment Matrix (where appropriate information was available) regardless of whether or not they scored well in relation to the apparent hurdles.

Table 1 Development of Tool Review Groupings

Tool	Aurecon Assessment Matrix Input (Hurdles)				Analysis of Hurdles				Number of...			Grouping
	Access?	Supporting Documentation	Community Based?	Applicable?	Access?	Supporting Documentation	Community Based?	Applicable?	Good	Issues	Below Average	
BREEAM Communities	Cost	Lots	Yes	Yes	Issues	Good	Good	Good	3	1	0	In
CASBEE for UA+B	Free	Moderate	Yes	Maybe	Good	Issues	Good	Issues	2	2	0	Potential
Precinx	Cost	Little	Yes	Not Clear	Issues	Below Average	Good	Below Average	1	1	2	Unlikely
IRM	Not Clear	Little	Yes	No	Below Average	Below Average	Good	Below Average	1	0	3	Out

Table 2 Criteria 1 Assessment

Tool	Enhancing Liveability				Economic Prosperity					Environ. Respons.		Design Excellence					Strong Governance			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
BREEAM Communities	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
CASBEE for UA+B	1	1	1	1	0	0	0	0	0	2	2	2	2	2	2	1	0	1	1	1
Precinx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 3 Criteria 1 Assessment Outcome

Tool	Enhancing Liveability	Economic Prosperity	Environmental Responsibility	Design Excellence	Strong Governance	Should Consider in Communities Tool Development	Could Consider in Communities Tool Development
BREEAM Communities	100%	100%	100%	100%	88%	All principles	None
CASBEE for UA+B	50%	10%	100%	90%	38%	Environmental Responsibility Design Excellence	Enhancing Liveability
Precinx	0%	0%	0%	0%	0%	None	None
IRM	0%	0%	0%	0%	0%	None	None

Reassessment/Cross Check of Recommendations

When the preliminary recommendations were crossed checked to ensure that what was being recommended was an appropriate list of tools, it was clear that by eliminating or including tools based on the four hurdles alone was insufficient because in some cases:

- a) a tool may not have scored well enough against the hurdles to be considered 'In' or 'Potential' but it had a good level of sustainability coverage (Criteria 1);
- b) a tool may have had below average sustainability coverage but because it met most of the hurdles it was considered 'In' or 'Potential';
- c) a tool that was included 'In' or 'Potential' was not actually a tool but rather a guide (i.e. from a local authority), or a framework for comparing statistical information about cities or countries which meant that it would be difficult to include in the Communities tool.

Because of these three issues, the preliminary recommendations were cross checked and re-examined to ensure that the right types of tools with a good level of sustainability coverage were recommended for further assessment. The reassessment of the preliminary recommendations can be found in the Aurecon Assessment Matrix in Appendix F.

Recommendation of Final Tools

From the initial 61 tools assessed in the Aurecon Assessment Matrix, 17 were recommended to be considered in the detailed assessment. Seven tools were definitely 'In' and would be considered further. Three tools could be considered 'In' if more information was available ('*Potentially In*'). Two tools are considered to be '*Back-Up*' tools to be considered if more information on any of the particular principles is needed. Finally, five tools were identified to be '*Guides*' that could be used to help identify credit requirements or be used as a barometer/guide to identifying what types of credits need to be included.

4.4.2 Preliminary Recommendations & Findings

The preliminary findings from the detailed review of the tools were:

- access issues (such as proprietary tools developed for internal use within a company) and minimal supporting documentation made it difficult to complete a detailed review for many tools;
- while many tools were community based, some tools that were not explicitly community based assessed large areas or types of sites. This means they can be used as a community based tool. For example DESAT and DREAM both assess defence bases. While these are not strictly community based tools, defence bases have such diverse and mixed use of spaces and buildings that they could be considered as such;
- for a large majority of tools it was difficult to identify much (if any) information about tool reviews/updates – for many tools it was easy to determine if there were updates (by looking at the tool version) but actually identifying how a tool was reviewed and updated and/or by whom was difficult. Further contact with the developers of tools for this information would be required for additional evaluation of these factors;
- there were varying degrees of sustainability coverage across the tools:
 - Enhancing Liveability – 60% of the tools covered this Principle below average and over 25% covered it well;
 - Economic Prosperity – 60% of the tools covered this Principle below average and 20% covered it well;

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- Environmental Responsibility – 35% of the tools covered this Principle below average and 60% covered it well;
 - Design Excellence – 50% of the tools covered this Principle below average and 25% covered it well;
 - Strong Governance – 60% of the tools covered this Principle below average and 30% covered it well.
- There were varying purposes to the ‘tools’ reviewed such as:
 - environmental assessment tools for buildings/urban areas/precincts etc (i.e. BREEAM Communities);
 - sustainability guidelines (i.e. Manchester Guide to Development);
 - frameworks for ways to assess environmental impacts (i.e. Adaptation Wizard);
 - databases of indicators (i.e. CRISP);
 - frameworks for statistical comparison (i.e. BioCity Health Index).

Following the analysis of the detailed tool review and the Aurecon Assessment Matrix, the list of ‘Ins’ and ‘Potentials’ were modified in order to recommend seven tools that should be considered when identifying potential credits for the Communities tool. Two further tools have been recommended to be considered if further information and/or credits are required when identifying potential Communities credits. Three tools could be considered if further information is available. Finally five tools have been recommended as good guides for the GBCA to develop tools or credit requirements. These sets of tools were identified by comparing the original ‘Ins’ & ‘Potentials’, their sustainability coverage, and access & supporting documentation issues. These tools are considered to be the ones that are most likely to have a high level of sustainability coverage, provide actual credits to consider (preferably with credit requirements and their source), as well as having a good level of supporting documentation and easy access. These tools are as follows.

Table 4 Preliminary Tool Review Recommendations

In	Back-Up	Potentially In	Guides
BREEAM Communities	Estidama Pearl CRS – <i>This tool appears to be based on the LEED and BREEAM tools.</i>	ZEN Precincts	Sustainable Urban Developments
CASBEE for UA+B		Sustainable Checklist	Manchester Guide To Development
EnviroDevelopment	ASPIRE – <i>This tool appears to be a useful community tool but the inputs are self assessed.</i>	PLACE3S	AHURI
Liveable Neighbourhoods		<i>It is unclear how the points are achieved in these tools which will need to be determined before they are assessed further.</i>	BioCity Health Index
LEED for ND			CRISP
Sustainable Community Rating			
Sustainable Sites Initiative			

Appendix H outlines which of these tools should be considered for each Communities principle.

4.5 Tool Review Recommendations to GBCA

Seven tools were recommended to the GBCA to be included in the detailed credit assessment.

- BREEAM Communities
- CASBEE for UA+B
- EnviroDevelopment
- Liveable Neighbourhoods
- LEED for ND
- Sustainable Community Rating
- Sustainable Sites Initiative

This list was reviewed by the GBCA and was approved with the following advice:

- prioritised assessment of the credits within the BREEAM Communities, EnviroDevelopment, LEED ND and Sustainable Community Rating tools;
- a secondary assessment of the CASBEE UA+B, Liveable Neighbourhoods and Sustainable Site Initiatives tools to be undertaken at a later stage if more information is required on any part of the Communities Framework;
- addition of a further tool, the 'One Plant Living Framework', to also be assessed if further information is required;
- the detailed credit assessment evaluation criteria will be based on the attributes identified in the GBCA research brief including:
 - level of alignment;
 - phase of development;
 - qualitative/quantitative;
 - demonstration of credit compliance;
 - referencing of standards & benchmarks;
 - evidence-base of credit;
 - background information/additional guidance/references.

Following the GBCA recommendations information from the four prioritised tools was filtered through to the CA-1(1) sheet within the Aurecon Assessment Matrix. Information on the secondary tools was filtered into CA-1(2).

5. Credit Assessment

5.1 Description

The detailed Credit Assessment was the second major stage of the Review of Existing Tools for the GBCA. The aim of part of the work was to identify whether there were existing credits within the most applicable existing tools (i.e. parts of existing tools rather than whole tools) that could be either applied directly to the Communities tool or used as a basis for further development. The main parts of the work were

- review of Credit Assessment evaluation criteria;
- assessment of credits against evaluation criteria;
- recommendations of most applicable credits to GBCA.

5.2 Credit Assessment Evaluation Criteria

The GBCA provided seven evaluation criteria to use as a basis for the detailed assessment of the existing credits. These have been reviewed by Aurecon to determine which factors need to be considered during the detailed credit assessment. Appendix J outlines the review of the 7 evaluation criteria and proposed factors. During the review an extra evaluation criteria was included which considered the scope of the credit (making a total of 8 detailed credit assessment evaluation criteria).

Similarly to the tool review it was recommended that a matrix of the 8 evaluation criteria and associated factors be developed so that all comments and analysis could be included in one sheet using the traffic light scoring system to visualise the assessment. No hurdles were identified for the detailed credit assessment.

The PCG review of the evaluation criteria (refer Appendix K):

- supported the use of a similar matrix to the Tool Review with the use of the traffic light scoring system and standardised answers;
- supported addition of eighth evaluation criteria in order to provide a complete, well rounded credit assessment;
- identified six additional assessment factors in three criteria.

The detailed review of the tools uses the factors listed in Appendix L including the recommendations outlined above from the PCG review.

5.3 Detailed Assessment of Credits

Taking the four prioritised tools identified in the detailed tool review, a detailed assessment of the credits⁵ present within each tool was carried out. The aim of this stage of the work was to identify which tools had credits that could potentially be included within the Communities tool. Each credit or indicator was assessed to identify the following:

- which part of the Communities Framework it aligned with;
- how well it aligned with the Communities Framework;
- what stage of a projects development it applied to (i.e. design, built, operation);

⁵ Note that the term 'credit(s)' is used throughout this report although some tools used different wording such as indicators and criteria

- whether the credit or indicator is qualitative or quantitative, outcome or process focussed;
- how a project proves compliance with the credit/indicator requirements (i.e. document based, performance measurement, assumed data);
- how a credit or indicator's requirements have been developed (i.e. from standard practice and/or best practice benchmarks);
- whether there is clear evidence-base for the credit, a good explanation of the background, why it should be considered and what research is provided to support the benchmark/requirements and intent;
- what background information, additional guidance and references are provided to support the users including calculators and/or other methodologies.

This section of work discusses the CA-1 and CA-2 sheets within the Aurecon Assessment Matrix.

5.3.1 Criteria Assessment

The work undertaken in the detailed credit assessment followed the process outlined in Figure 1. Information on the four prioritised tools was filtered from TR-1 to CA-1 which included the basic tool information, hurdles and the detailed tool review outcome. The four tools were then assessed against the eight evaluation criteria (Appendix L). The following rules were applied to ensure that the Aurecon Assessment Matrix could provide an in-depth database of information about the credits to the GBCA

- common answers used (where possible) in order to standardise the assessment to allow for ease of analysis and visual assessment;
- comments for each evaluation criteria were included where possible;
- where possible the credit alignment to an issue was included which meant that there were often multiple alignments for a single credit. At times however this was difficult to determine and the credit alignment to the sub-category was used (refer to Appendix I).

5.3.2 Outcome

In total 240 credits were assessed in-depth across the four prioritised tools. However because of multiple alignments for many of these almost 660 entries were made in CA-1. Some basic statistics of the assessment are:

- only nine assessed credits did not align with any parts of the Communities Framework (1%);
- 40% of credits had a high align with the Communities Framework;
- 41% had a medium alignment;
- 18% had a low alignment with the Communities Framework;
- 18% of credits aligned with Principle 1 (Enhance Liveability);
- 14% aligned with Principle 2 (Economic Prosperity);
- 31% considered Environmental Prosperity (Principle 3);
- 31% of credits considered Design Excellence (Principle 4);
- only 6% of all credits were aligned with Strong Governance (Principle 5).

5.4 Credit Assessment Recommendations to GBCA

An initial draft list of credit recommendations was made (refer Appendix M) but because of the large number of credits that were assessed and the cross over of credits between Principles it was difficult to determine a list of draft credits to be considered in the development of the Communities tool. Because of the cross over, it was clear that there were multiple issues that need to be considered across more than one Principle. After discussion with the GBCA however it was confirmed that it was too early for Aurecon to develop this draft list of credits however the aim of the work was to:

- identify key issues to be considered within the Communities Framework
- how these are considered in other community rating tools (i.e. existing credits that align highly with key issues)
- identify if there are gaps within the Communities Framework where existing credits have not been identified
- recommend where the Technical Working Committee can find appropriate information for developing credits (highly aligned existing credits) and where further investigation maybe required (gaps)

6. Framework Alignment Assessment

6.1 Description

The Framework Alignment Assessment was the third major stage of the Review of Existing Tools for the GBCA. The aim of part of the work was identify what parts of the Communities Framework were already adequately covered by credits in existing tools and where there were gaps in the Communities Framework alignment. The main parts of the work were

- identification of key issues considered within the Communities Framework;
- identification of parts of Communities Framework that has high alignment with existing credits;
- identification of gaps in Communities Framework where further investigation into those key issues would be required;
- recommendations of framework alignment gaps and useful existing credits to GBCA.

6.2 Alignment with Communities Framework

By identifying the key issues to consider in the Communities Framework (shown highlighted in Appendix I) it was possible to identify the framework alignment gaps. At a high level when considering all the credits it simple to identify that the credits in the four assessed tools aligned well with the Environmental Responsibility and Design Excellence categories. However there was little consideration of Strong Governance and Economic Prosperity indicating that further investigation of these issues would be needed (Figure 6). Figure 7 outlines the alignment of the existing credits at the sub-category level. Figure 8 and Figure 9 outline existing credits that were found to have a high alignment with the Communities Framework. Further graphs can be viewed in Appendix N.

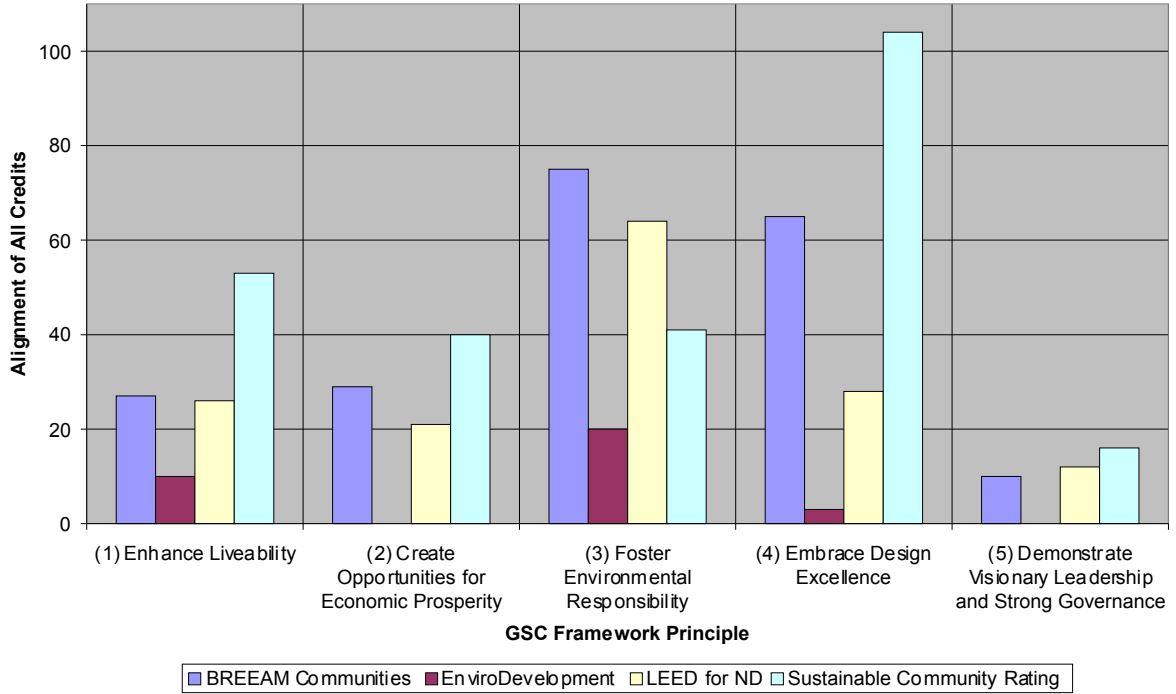


Figure 6 Alignment of All Existing Credits to Communities Framework (Principle Level)

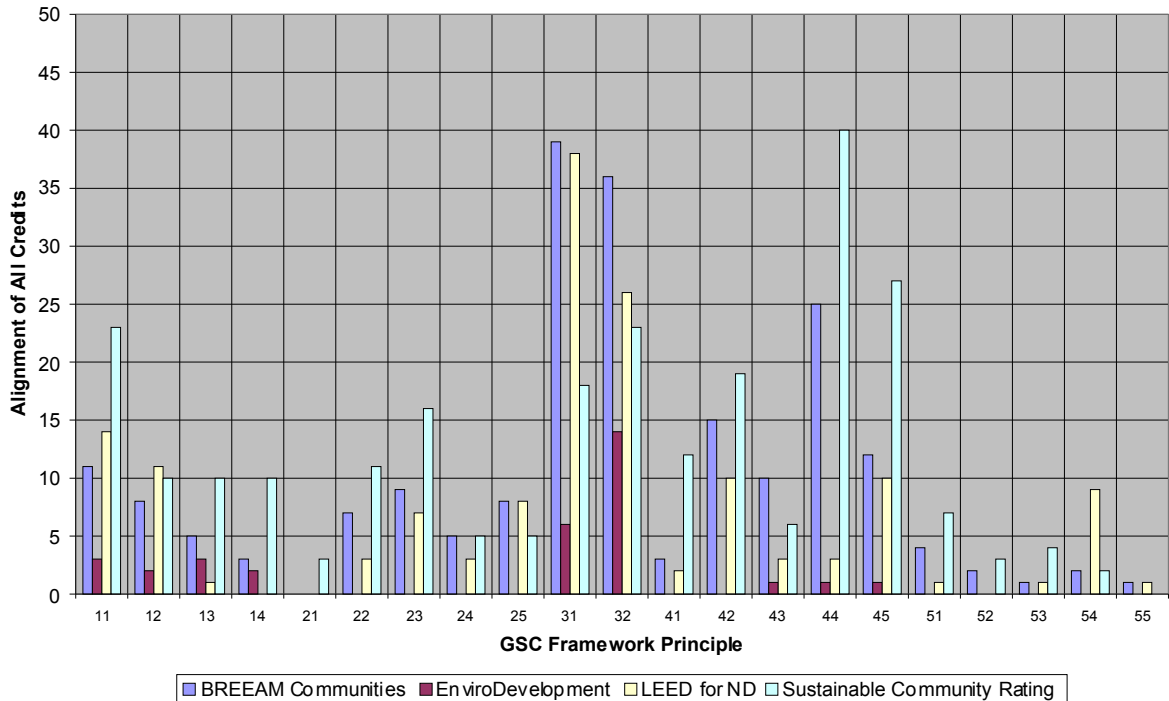


Figure 7 Alignment of All Existing Credits to Communities Framework (Sub-Category Level)

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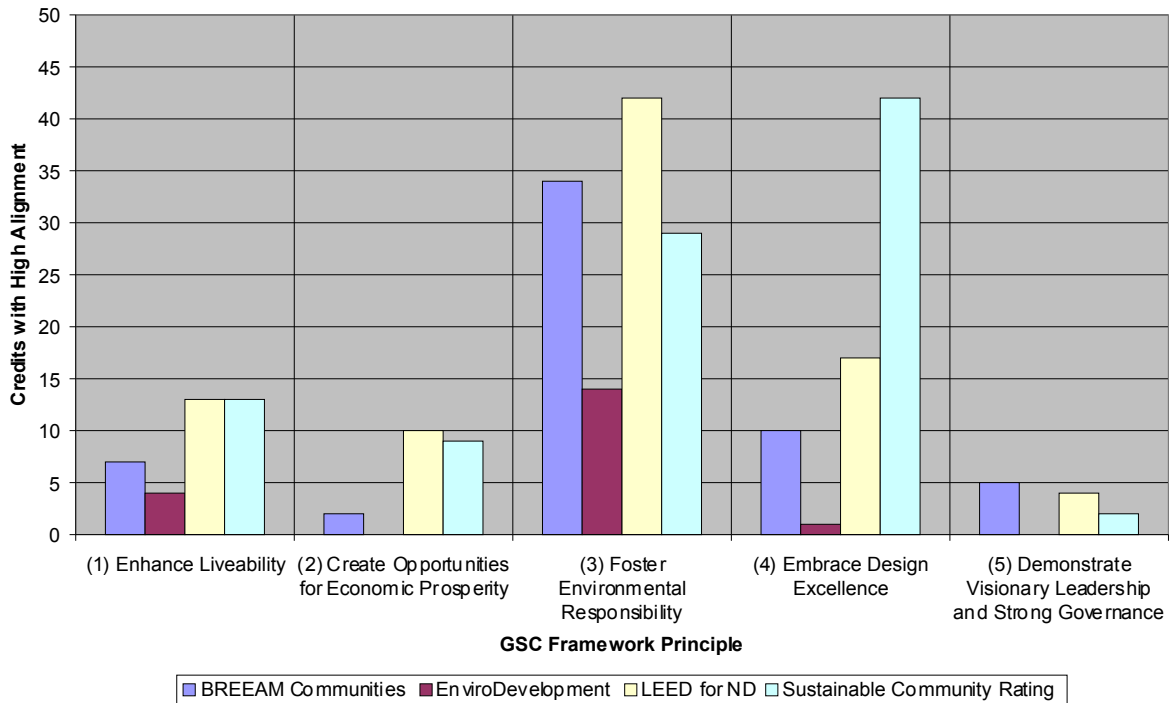


Figure 8 Existing Credits with High Alignment to Communities Framework (Principle Level)

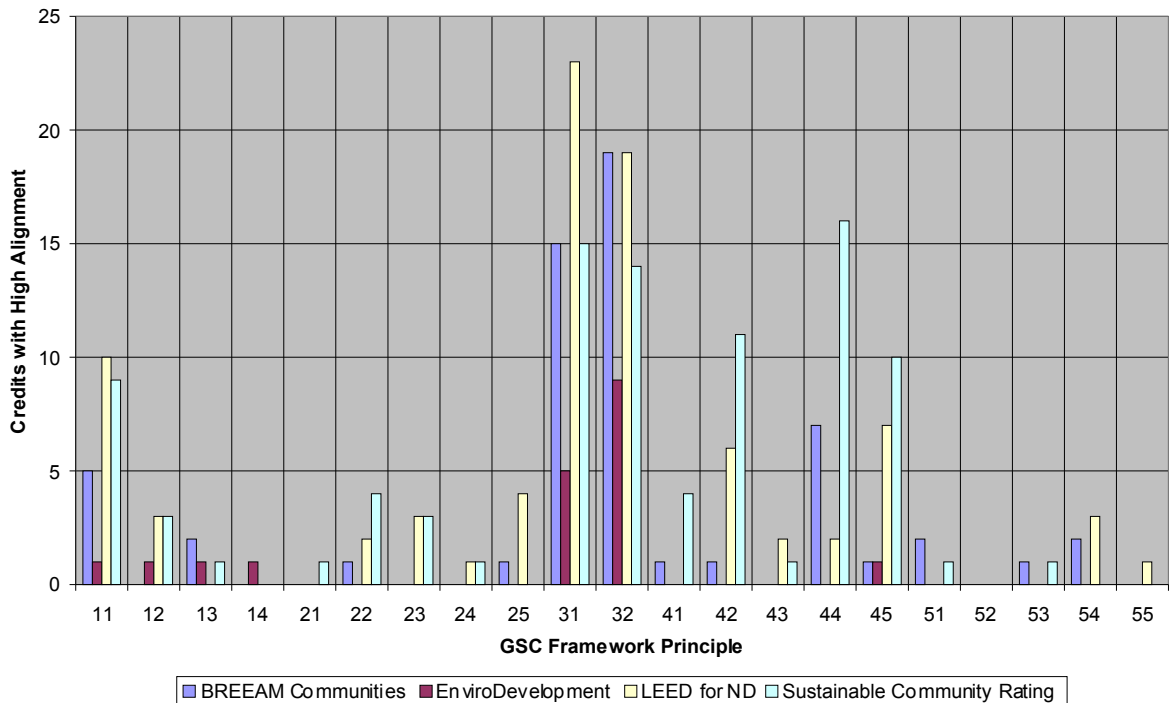


Figure 9 Existing Credits with High Alignment to Communities Framework (Sub-Category Level)

Refer to Appendix I for numbering of Communities sub-categories in Figure 8 and Figure 9.

6.3 Framework Alignment Analysis Recommendations to GBCA

In conclusion, it was difficult to easily recommend a draft list of credits because there were many ways that key issues could be interpreted within the Communities Framework. Similarly because of the large number of credits and the multiple cross over in alignment between Principles it was difficult to determine what should be considered within each Principle. However the following general recommendations are made in relation to the final Communities tool:

- there is a need to define what a community is (i.e. how 'big' is a community?);
- there is also a need to carefully define and scope terminology in the tool as some words can be interpreted differently in an evaluation context (i.e. economics or affordability).

The following tables provide direction on where further information can be found in regard to existing credits that were found to align very well with the Communities Framework. The tables also identify where further investigations will be needed where few tools considered the issues. The numbers in brackets refer to the numbering of the Communities Framework in Appendix I.

Table 5 Communities Framework Alignment and Gaps in Existing Credits (Enhancing Liveability)

Communities Framework Principle	Communities Framework Sub-category	High Alignment of Existing Credits	Further Investigation Needed into....	Existing Tools to Consider
(1) Enhance Liveability <i>Affordable, Caring, Diverse, Healthy, Improve well-being, Inclusive, Ownership, Safe, Social interaction</i>	(11) Providing Diverse and Affordable Living	25	N/A	BREEAM Communities LEED for ND Sustainable Community Rating
	(12) Creating Healthy, Safe and Secure Communities	7	Healthy Activities	BREEAM Communities EnviroDevelopment LEED for ND Sustainable Community Rating
	(13) Fostering Inclusiveness and Cohesiveness	4	Diverse and inclusive environments for all Cohesion Shared vision, Diversity Tolerance Respecting Reflecting these values Engaging stakeholders	BREEAM Communities EnviroDevelopment Sustainable Community Rating
	(14) Building Community Adaptability	1	Capacity to adapt Needs and expectations Future	EnviroDevelopment

Table 6 Communities Framework Alignment and Gaps in Existing Credits (Economic Prosperity)

Communities Framework Principle	Communities Framework Sub-category	High Alignment of Existing Credits	Further Investigation Needed into....	Existing Tools to Consider
(2) Create Opportunities for Economic Prosperity <i>Business diversity, Economic development, Innovation, Local jobs, Opportunities, Prosper</i>	(21) Promoting Education and Learning	1	Access Education	Sustainable Community Rating
	(22) Enhancing Employment Opportunities	7	Employment opportunities Meet the needs Access Encouraging local	Sustainable Community Rating
	(23) Attracting Investment	6	Key infrastructure Enables connectivity Sustainable and ethical investment in local Green infrastructure systems and jobs Implementation	LEED for ND Sustainable Community Rating
	(24) Encouraging Innovation	2	Innovation Initiatives Recognise and reward local excellence New business Enhance competitiveness Innovation	LEED for ND Sustainable Community Rating
	(25) Promoting Efficiency and Effectiveness	5	Lifecycle impact management Resource efficiency Investing Urban management efficiencies	BREEAM Communities LEED for ND

Table 7 Communities Framework Alignment and Gaps in Existing Credits (Environmental Responsibility)

Communities Framework Principle	Communities Framework Sub-category	High Alignment of Existing Credits	Further Investigation Needed into....	Existing Tools to Consider
<p>(3) Foster Environmental Responsibility</p> <p><i>Bio-region, Less resource intensive, Natural environmental values, Promote, Protect, Reduce, Respect the environment, Restore</i></p>	<p>(31) Enhancing Our Natural Environment</p>	<p>58</p>	<p>N/A</p>	<p>BREEAM Communities EnviroDevelopment LEED for ND Sustainable Community Rating</p>
	<p>(32) Reducing Ecological Footprint</p>	<p>61</p>	<p>N/A</p>	<p>BREEAM Communities EnviroDevelopment LEED for ND Sustainable Community Rating</p>

Table 8 Communities Framework Alignment and Gaps in Existing Credits (Design Excellence)

Communities Framework Principle	Communities Framework Sub-category	High Alignment of Existing Credits	Further Investigation Needed into....	Existing Tools to Consider
(4) Embrace Design Excellence <i>Accessible, Adaptable, Character, Desirable, Evolve overtime, Identity, People, Places</i>	(41) Adopting Effective Planning Practices	5	Integrated planning framework Shared design vision Collaboration Planning Density, mixed use, connectivity Protection of valuable land uses Specific design outcomes Clear and measureable	BREEAM Communities Sustainable Community Rating
	(42) Encouraging Integrated Design	18	Sense of Place	BREEAM Communities LEED for ND Sustainable Community Rating
	(43) Maintaining Flexible and Adaptable Approaches	3	Opportunities to retrofit and revitalise Development and planning flexibility and adaptability Continuous improvement Adapting effectively	LEED for ND Sustainable Community Rating
	(44) Creating Desirable Places	25	Responsive Evolve for people	BREEAM Communities LEED for ND Sustainable Community Rating
	(45) Promoting Accessibility	19	N/A	BREEAM Communities EnviroDevelopment LEED for ND Sustainable Community Rating

Table 9 Communities Framework Alignment and Gaps in Existing Credits (Strong Governance)

Communities Framework Principle	Communities Framework Sub-category	High Alignment of Existing Credits	Further Investigation Needed into....	Existing Tools to Consider
(5) Demonstrate Visionary Leadership and Strong Governance <i>Accountable, Active partnerships, Adaptable, Leadership, Shared vision, Stakeholder benefit, Strong governance frameworks, Transparent</i>	(51) Establish Coordinated and Transparent Approaches	3	Coordinated approaches Stakeholder interests Transparent and accountable decision-making Responsibility Accessible to stakeholders	BREEAM Communities Sustainable Community Rating
	(52) Build A Commitment To Implementation	0	Enforceable standards of ownership, accountability and delivery Performance evaluation, feedback and support Continual improvement	None
	(53) Engaging With Stakeholders	2	Shared vision with stakeholders Monitor progress Encouraging ownership and leadership	BREEAM Communities Sustainable Community Rating
	(54) Fostering Sustainable Cultures and Behaviours	5	Raising awareness Enable more sustainable practices Sustainable behaviours and systems Continual improvement	BREEAM Communities LEED for ND
	(55) Encouraging and Rewarding Innovation	1	Open access information sharing Recognising and rewarding	BREEAM Communities LEED for ND

7. Project Assessment Workshop

A workshop on the 4th October 2010 presented the main findings of the existing tool review to industry representatives from GBCA, Stockland, Lend Lease and VicUrban. Following a brief presentation about the existing tool and credit review, the industry representatives were asked how they consider the various parts of the Communities Framework in their developments in order to provide further insight into what should be considered in the Communities Tool. The main notes from this discussion can be found in Appendix O.

In summary the key discussion points and recommendations from the Project Assessment Workshop were

General

- define community;
- scalability;
- types of Impact Assessments that should be considered;
- development of a 'Legacy Document';
- during what stage of a development are credits assessed and a Communities rating awarded?;
- process and/or outcome focus?;
- what IS best practice? (Case studies needed to determine this where gaps have been identified);
- the Communities tool must be a 'live' tool;
- language & terminology used by GS will change language used by developers so care needs to be taken.

Engaging and consulting with the community are important however the ability to both empower the community and implement feedback is just as important and will be vital to the success of a Green Star Community. This will help to deliver diverse, inclusive, cohesive, safe and secure communities provided that planning and management incorporate transparent approaches.

Enhance Liveability

- Providing Diverse & Affordable Living
 - need to consider what is the main driver – diversity or affordability because it is easy to get diverse community but harder to attain affordable community;
- Creating Healthy, Safe & Secure Communities
 - what is being put in place to promote healthy, safe & secure communities (in short & long term) that actively engages and connects a diverse community?;
- Fostering Inclusiveness & Cohesiveness
 - to foster inclusiveness and cohesiveness developers need effective engagement initiatives that engage & consult with diverse community, and result in clear implementation of the shared vision;
- Building Community Adaptability
 - an emerging issue – reported that developers have not traditionally considered this but are slowly beginning to – suggest this is considered for innovation points.

Create Opportunities for Economic Prosperity

- Promoting Education & Learning
 - consider impact assessments, traditional & modern forms of education for all and 'green education/';
- Enhancing Employment Opportunities
 - potentially this credit could be covered by other credits (i.e. diversity of homes, local services, transport etc) but a wide variety of jobs 'on patch' and nearby need to be considered;
- Attracting Investment
 - over-complicating the issue in the Communities Framework but types of investment to consider are rate or return, green, on-going, community, utilities & services investment;
- Encouraging Innovation
 - innovation is very important because it is how developers set themselves apart in the market therefore a Communities rating will be very important. There are many ways to innovate – aesthetics, efficiencies & effectiveness, functions...;
- Promoting Efficiency & Effectiveness
 - considered under innovation.

Foster Environmental Responsibility

- ECO-COND & ECO-4 mandatory again;
- ecological Footprinting either as the only credit for this category OR an innovation credit;
- look at net gain benefits rather than separate water, energy, materials etc credit.

Embrace Design Excellence

- LEED ND considered too prescriptive;
- process orientated not outcome orientated (Communities needs to consider design process with performance measures that are not prescriptive);
- suggest that 424 and 434 are mandatory credits;
- how can design be assessed objectively?;
- can't create new design standards – try to reference to existing guidelines.

Demonstrate Visionary Leadership & Strong Governance

- creating a voice in the community where there wasn't one before through legacy, shared vision, enquiry by design, engagement, consultation, feedback, transparency, implementation, informing & empowering and accountability;
- fundamental to success of other four principles.

The over-arching guidance Aurecon has provided based on the key discussion points are:

- define what the community is;
- definitions & scope are key;
- what stage is it rated?;
- Local Authority requirements;

- collaborate between Category/Principle Sub Committees;
- wider community, city, country interaction.

8. Recommendations to GBCA

8.1 Review of Existing Tools

A total of 61 tools were reviewed to identify how appropriate they were to be considered in the development of the Communities tool. There was a wide variety of tools that were reviewed however only four (BREEAM Communities, EnviroDevelopment, LEED ND and Sustainable Community Ratings) were ultimately recommended to be included in the more detailed assessment of existing credits. The main findings from the Tool Review were:

- access issues made reviewing many tools difficult;
- the definition of a 'community' could be applied in a variety of ways – for example to a defence base;
- information about tool reviews and updates was often difficult to ascertain;
- varying degrees of sustainability coverage across the 61 tools;
- varying purposes of the tools reviewed;
- the four tools that were found to be the most applicable to the Communities tool were BREEAM Communities, EnviroDevelopment, LEED ND and Sustainable Community Ratings.

8.2 Assessment of Existing Credits and Communities Framework Alignment

In the four tools that were included in the credit assessment there were 240 credits assessed in-depth to identify where there are existing credits that could be used as a basis for developing the Communities tool. The main findings from the Credit Assessment were:

- many credits aligned with more than one part of the Communities Framework;
- Enhancing Liveability, Economic Prosperity and Strong Governance were found to be Principles that the four tools did not consider very well (most probably because the tools reviewed were environmentally focused);
- 40% of all credits assessed highly aligned with the Communities Framework;
- specific issues within the Communities Framework were identified that need to be investigated further.

8.3 Findings and Conclusions

There is no tool nationally or internationally that appropriately considers all the issues within the Communities Framework because many tools do not sufficiently address Leadership and Strong Governance, Enhancing Liveability and Economic Prosperity, or have access issues which restricted the level of assessment that could be undertaken. Because there is no tool that can be applied in Australia four of the most relevant tools have been recommended to the GBCA to be used to inform the development of the Green Star Communities tool. These are BREEAM for Communities, EnviroDevelopment, LEED for ND and Sustainable Community Rating.

Because of the cross over of many credits (meaning that credits often aligned with more than one part of the framework) it was difficult for Aurecon to recommend a list of draft credits to the GBCA. However the framework analysis identified that further research is needed into the Leadership and Strong Governance principle because few existing credit considered these issues. Enhancing

Liveability and Economic Prosperity were not considered strongly and some further investigation maybe required. A large majority of existing credits covered the Environmental Prosperity and Design Excellence principles and no further research would be needed.

Through consultation with industry representatives it was found that many of the issues are currently being considered by developers although in a variety of ways. It was clear through discussion that careful definition and scoping of the communities tool would be required for it to be successful.

8.4 Final Recommendations

The final recommendations to the GBCA from Aurecon for the development of the Communities tool are:

- further investigation into parts of the Communities Framework were is was found that existing credits did not align well;
- where sections of the Communities Framework were found to have many existing credits that align well, to use these as the basis of developing Communities credits;
- there is a need to define what a community is (i.e. how 'big' is a community?);
- there is also a need to carefully define and scope terminology in the tool (i.e. affordability and economics can have different meanings in an evaluation context);
- consider at what stage a community development is to be rated and which credits might be considered at different stages;
- consider how local authority requirements differ between regions – particularly around documentation and impact assessment;
- ensure good collaboration between the Technical Working Committee Sub-Committees because many of the Communities Framework issues overlap;
- carefully consider the wider community, city, country interaction – as a community is not a fortress, it interacts far wider than its defined boundaries.



Appendix A
PCG, Abbreviations and Definitions



Appendix A

Project Control Group

The Aurecon Project Control Group (PCG) met at the end of each task to discuss the outcomes of the project and the most recent work completed. The PCG reviewed all of the work, providing comments and recommendations as to how to refine the work already undertaken and how to proceed with the next stage. The project outputs were also peer reviewed internally within Aurecon prior to final release to GBCA. The PCG was not set up to review work but to provide feedback and guidance on the research in a controlled manner.

The PCG is made up of:

- Bruce Penman, Environment Competency Leader (Brisbane), Peer Reviewer
- Mark Roberts, Sustainability Service Leader (Melbourne)
- Matt Coetzee, Community Development and Infrastructure Development Manager (Neutral Bay)
- Phil Hues, Buildings Sciences/Environmental Modelling Service Leader (Perth)
- Jeff Robinson, Buildings Sustainability/ Environmental and Sustainable Development Service Leader (Melbourne)
- Terre Maize, Senior Civil/Environmental Engineer (Wellington)

Project Contributors

The main contributors to the Green Star Communities: Review of Existing Tools were:

- Quentin Jackson, Environmental and Sustainable Development Leader – NZ (Wellington)
- Amun Balram, Building Scientist (Wellington)
- Jessica Bennett, Building Scientist (Wellington)

Abbreviations

GBCA Green Building Council of Australia

Communities Green Star Communities

PCG Project Control Group

The names of some tools have also been abbreviated. These can be found in Appendix B. The following are tools which are referred to regularly in this report.

BREEAM Building Research Establishment Environmental Assessment Method

CASBEE Comprehensive Assessment System for Built Environment Efficiency

CASBEE for UD Comprehensive Assessment System for Built Environment Efficiency for Urban Areas

CASBEE for UA+B Comprehensive Assessment System for Built Environment Efficiency for Urban Areas and Buildings

CRISP Construction and City Related Sustainability Indicators

LEED	Leadership in Energy and Environmental Design
LEED ND	Leadership in Energy and Environmental Design for Neighbourhood Developments
Definitions & Terms	
Back-Up	Tools to be considered as a back-up if further information about a particular principle is required.
Credit	A credit addresses an initiative that improves or has the potential to improve the environmental performance of a project. Points are generally awarded in an assessment tool depending on how well a project meets the requirements of a given credit.
Evaluation Criteria	The GBCA have set out 11 criteria to evaluate both the tools and credits against. These include Sustainability Coverage, Tool Availability, Tool Output, Project Scope, Credit Type, Assessment Process, Best Practice Standards, Independent Certification, Maintainability, Tool Effectiveness and Training, Education & Awareness.
Factors	Each evaluation criteria has a series of factors to assess a tool against. These have been used to evaluate each criteria in more depth and gain more information on the tools in order to appropriately recommend tools and potential credits to the GBCA.
Guides	Tools that were not considered to be particularly useful in identifying credits for the GBCA but may in future be able to provide information for the requirements of the credits or alternatively be used as a barometer or guide to identify what types of credits should be included.
Hurdle	A factor which if not sufficiently met by a tool or credit may mean that the tool could be excluded from being assessed in following stages of work
In	A tool or credit that should definitely be considered in the following stage of work
Potential/Potentially In	A tool or credit that could potentially be considered in the following stage of work – usually if information is able to be provided about it.
Out	A tool or credit that should not be considered in the following stage of work.
Tools	Includes assessment tools, guidelines, indices and/or frameworks.
Traffic Light	A visual scoring system where green means good, red means below average and amber means average.
Unlikely	A tool or credit that is unlikely to be considered in the following stage of work



Appendix B

Assessed Tools



Appendix B

The following lists the tools that were considered for assessment. Please note that the underlined text for each tool is how it is named in this report.

The 43 tool to be assessed are:

A Sustainability Poverty and Infrastructure Routine for Evaluation (ASPIRE)

Arup International & Engineers against Poverty

http://www.engineersagainstpoverity.org/major_initiatives/aspire.cfm

http://www.arup.com/Services/International_development.aspx

<http://www.oasys-software.com/products/sustainability/aspire/>

Adaptation Wizard

UK Climate Impacts Programme

http://www.ukcip.org.uk/index.php?id=147&option=com_content&task=view

AGIC Rating Tool (AGIC)

Australian Green Infrastructure Council

<http://www.agic.net.au/AGICscheme.htm>

AHURI Indicator Suite (AHURI)

Australian Housing and Urban Research Institute

<http://www.ahuri.edu.au/>

<http://www.ahuri.edu.au/publications/projects/p70137>

BCA Green Mark for Districts

Building & Construction Authority, Singapore

http://www.bca.gov.sg/GreenMark/green_mark_buildings.htm

BioCity Health Index

McGregor + Coxall, NSW

<http://biocitystudio.com/>

<http://biocitystudio.com/the-concept/biocity-health-index/>

Building Research Establishment Environmental Assessment Method Communities (BREEAM Communities)

Building Research Establishment, UK

<http://www.breeam.org/>

<http://www.breeam.org/communities>

Building Sustainability Index (BASIX)

NSW Government

<http://www.basix.nsw.gov.au/information/index.jsp>

Comprehensive Assessment System for Built Environment Efficiency for Urban Areas and Buildings (CASBEE for Urban Area + Buildings)

Japan GreenBuild Council, Japan Sustainable Building Consortium

<http://www.ibec.or.jp/CASBEE/english/index.htm>

Comprehensive Assessment System for Built Environment Efficiency for Urban Areas (CASBEE for Urban Area)

Japan GreenBuild Council, Japan Sustainable Building Consortium

<http://www.ibec.or.jp/CASBEE/english/index.htm>

Construction and City Related Sustainability Indicators Framework (CRISP)

EC-funded Thematic Network, 5th Framework Programme

<http://crisp.cstb.fr/>

http://ec.europa.eu/research/environment/print.cfm?file=/comm/research/environment/newsanddoc/artide_1703_en.htm

Driving forces, Pressures, States, Impacts, Responses Framework (DPSIR)

United Nations Environment Program

<http://www.unep.org/>

http://maps.grida.no/go/graphic/the_dpsir_framework

East Lake Planning Tool – Integrated Sustainability Assessment Platform (ELPT)

CSIRO & ACT Planning & Land Authority, ACT

<http://www.csiro.au/science/Integrated-Assessment.html>

http://www.actpla.act.gov.au/topics/significant_projects/planning_studies/eastlake_urban_renewal

EnviroDevelopment

Urban Development Institute of Australia, QLD

<http://www.envirodevelopment.com.au>

East Perth Redevelopment Authority Sustainability Assessment Tool (EPRA SAT)

East Perth Redevelopment Authority & GHD, WA

<http://www.epra.wa.gov.au/>

<http://www.ghd.com/enews/sustainability/oct06/print.htm#project3>

EQUER

Mines Paris Tech, Centre for Energy & Processes

<http://www.cenerg.enscm.fr/english/logiciel/cycle/html/15log.htm>

Estidama Pearl Community Rating System (Estidama Pearl CRS)

Abu Dhabi Urban Planning Council (UPC)

<http://www.estidama.org/>

European Urban Audit (EUA)

EU Initiative

<http://www.urbanaudit.org/>

http://ec.europa.eu/regional_policy/conferences/urbanaudit2008/index_en.htm

Green Globe Precinct Planning and Design Standard (Green Globe)

Green Globe International

<http://www.greenglobe.org/>

<http://www.greenglobeint.com/standards/precinct/>

<http://www.greenglobecertification.com/>

<http://www.earthcheck.org/>

<http://www.ec3global.com/>

Green Plan

City of Guelph, Canada

<http://guelph.ca/living.cfm?smocid=1948>

GreenPrint

Building Research Establishment, UK

<http://www.bre.co.uk/page.jsp?id=1290>

Integrated Resources Management Tool (IRM)

ARUP International

<http://www.arup.com>

<http://www.sustainabilityatwork.org.uk/casestudies/view/36>

LEED for Neighbourhood Development (LEED for ND)

United States Green Building Council

<http://www.usgbc.org>

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148>

<https://www.leedonline.com>

<http://www.gbci.org>

Liveable Neighbourhoods

Department of Planning & Infrastructure, WA

<http://www.planning.wa.gov.au>

Manchester Guide to Development

Manchester City Council, UK

http://www.manchester.gov.uk/info/856/local_development_framework/1528/the_guide_to_development_in_manchester/1

Neighbourhood Sustainability Framework (NSF)

Beacon Pathway, NZ

http://www.beaconpathway.co.nz/neighbourhoods/article/the_neighbourhood_sustainability_framework

PLACE3S

California Energy Commission, Oregon Dept. Energy, Washington State Energy Office, USA

<http://www.places.energy.ca.gov/places/>

<http://www.smartcommunities.ncat.org/articles/place3s.shtml>

<http://www.sacoq.org/services/I-PLACE3S/>

PlanSmart NJ

New Jersey, USA

<http://www.plansmartnj.org/services.html>

Precinx

Landcom, NSW

<http://www.landcom.com.au>

Sustainable Design Scorecard (SDS)

City of Port Phillip, VIC

<http://www.portphillip.vic.gov.au/sds>

Smart Growth Assessment Tool (SGAT)

City of Wanneroo, WA

<http://www.wanneroo.wa.gov.au>

Star Community Index ICLEI

U.S. Green Building Council, Center for American Progress

<http://www.ideiusa.org/star>

Sustainable Tools for Environmental Performance Strategy (STEPS)

Moreland City Council, VIC

<http://www.morelandsteps.com.au/>

Subdivision Energy Analysis Tool (SEAT)

California Energy Commission

<http://www.energy.ca.gov/research/seat/index.html>

Sustainability Checklist

Department of Planning WA

<http://www.planning.wa.gov.au/>

Sustainable Community Rating

VicUrban, VIC

<http://www.vicurban.com.au>

<http://www.sustainablecommunityrating.com>

Sustainable Project Appraisal Routine (SPeAR)

ARUP International

http://www.arup.com/Services/Sustainability_Consulting.aspx

Sustainable Sites Initiative

American Society of Landscape Architects, Lady Bird Johnson Wildflower Center (University of Texas, Austin) and the United States Botanic Garden

<http://www.sustainable sites.org/>

Sustainable Systems Integrated Model (SSIM)

EDAW AECOM

<http://www.aecom.com/What+We+Do/Economics/Sustainability>

Sustainable Urban Landscapes – Site Design Manual for BC Communities (Sustainable Urban Landscapes)

University of British Columbia

<http://www.jtc.sala.ubc.ca/projects/DesignManual.html>

System for Planning in Towns & Cities for Urban Sustainability (SPARTACUS)

EC, 4th Framework Programme

http://www.fhwa.dot.gov/planning/toolbox/spartacus_overview.htm

The Singapore Index on Cities' Biodiversity (CBI)

Convention on Biological Diversity

<http://www.cbd.int/authorities/gettinginvolved/cbi.shtml>

Tool for Urban Sustainability – Neighbourhood Tool (TUSC)

Waitakere City Council, New Zealand

<http://tusc.synergine.com>

<http://www.waitakere.govt.nz>

ZEN Precinct Greenhouse Gas Calculation Tool

Sustainability Victoria

<http://www.resourcesmart.vic.gov.au/zen>

<http://www.sustainability.vic.gov.au>

The 17 tools that maybe assessed depending on availability are:

CCF Earth Awards

Civil Contractors Federation (CCF)

www.civilcontractors.com/EarthAwards

Civil Engineering Environmental Quality Assessment and Awards Scheme (CEEQUAL)

Institution of Civil Engineers (ICE), United Kingdom

<http://www.ceequal.com/>

Defence Estate Sustainability Assessment Tool (DESAT)

SMK, Australian Department of Defence

Defence Related Environmental Assessment Method (DREAM)

Ministry of Defence, United Kingdom

<https://www.dreamassess.com/>

Ecological Footprint Model

South Australian Land Management Corporation

<http://www.lmc.sa.gov.au>

Infrastructure Sustainability Manual

Parson Brinckerhoff

Integrated Model for Urban Sustainability (IMUS)

University of South Australia

http://www.unisa.edu.au/iss/Research/featuredproject/ARC_linkage.asp

<http://www.sapo.org.au/project/project645.html>

LEED for Infrastructure (LEED Infrastructure)

United States Green Building Council

<http://www.usgbc.org>

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148>

<https://www.leedonline.com>

<http://www.gbci.org>

Local Area Envisioning & Sustainability Support system (LESS)

Hassell

<http://www.hassell.com.au/>

National Health Service Environmental Assessment Tool (NEAT)

National Health Service, United Kingdom

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4119943

O'Hare Airport Sustainability Manual (O'Hare ASM)

O'Hare Modernisation Program, United States

<http://www.aci-na.org/sustainability/sustainability-links.html>

http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/OMPSustainabledesignManualCopywrite2003cityofChicago.pdf

Project Sustainability Management (PSM)

International Federation of Consulting Engineers (FIDIC)

<http://www1.fidic.org/resources/sustainability/>

SUE-MoT

Dundee, Glasgow Caledonian, Loughborough & St. Andrews Universities Consortium

<http://www.sue-mot.org/>

Sustainability Management System

Department of Planning WA

<http://www.planning.wa.gov.au/>

Sustainability Modelling Framework (SMF)

South Australian Land Management Corporation

<http://www.lmc.sa.gov.au>

Sustainable Road Manual

Calder Tullarmarine Alliance: VicRoads, Parsons Brinckerhoff, Boulderstone Hornibrook

Urban IT model

City Futures Research Centre, Australian Institute of Landscape Architects

<http://www.fbe.unsw.edu.au/cf/research/cityfuturesprojects/urbanit/>

<http://www.aila.org.au>

The seven tools that will not be assessed are:

Bristol Development Framework (BDF)

Bristol City Council, UK

<http://www.bristol.gov.uk/ccm/navigation/environment-and-planning/planning/local-development-framework/>

Climate Adaptation Tools for Sustainable Settlements (CATSS)

Australian Institute of Landscape Architects

<http://www.aila.org.au/dimate/catss/>

HIA Greensmart

Housing Industry Association

<http://hia.com.au/hia/channel/builder/region/national/classification/greensmart.aspx>

Local Climate Change Visioning Project, Collaborative for Advanced Landscape Planning (LCCVP)

University of British Columbia, Vancouver, Canada

<http://www.calp.forestry.ubc.ca/projects/local-climate-change-visioning-tools-and-process-for-community-decision-making/>

Programme Landscaping for Urban Projects & High Schools (LUSH)

Singapore Building & Construction Authority

<http://www.ura.gov.sg/circulars/text/lushprogramme.htm>

Sustainable City Program of Vancouver (SCPV)

City of Vancouver, Canada

<http://vancouver.ca/sustainability/>

United Nations Environment Programme (UNEP) Yearbook

United Nations

<http://www.unep.org/yearbook/2010/>



Appendix C

Aurecon Review of Tool Review Evaluation Criteria



Appendix C

Table 10 Aurecon Review of Tool Review Evaluation Criteria

Criteria	Proposed Factors
1. Sustainability Coverage	<ul style="list-style-type: none"> i. Livability * ii. Economic Prosperity * iii. Environmental Quality * iv. Place Making * v. Governance *
2. Tool Availability	<ul style="list-style-type: none"> i. What access/availability options are there for the tool? ii. Is it a regulatory tool? iii. How much supporting documentation is there? iv. Are there copyright issues?
3. Tool Output	<ul style="list-style-type: none"> i. What type of output?
4. Project Scope	<ul style="list-style-type: none"> i. What is the 'Scalability'? (size of site) ii. What type of site is assessed? iii. <i>Is it a community based tool? **</i> iv. What is the required skill level of user?
5. Credit Type	<ul style="list-style-type: none"> i. Is it qualitative and/or quantitative based? ii. Is it process or outcome based? iii. What project stage is assessed? iv. What kind of information is assessed? (i.e. Measured/Simulated Data)
6. Assessment Process	<ul style="list-style-type: none"> i. Is the tool a self assessment or independent assessment? ii. Is the tool a single assessment or multiple assessments?
7. Best Practice Standards	<ul style="list-style-type: none"> i. Is there reference to national and/or international standards? ii. What benchmarking is there?
8. Independent Certification	<ul style="list-style-type: none"> i. Considered the same as Criteria 6, Assessment Process
9. Maintainability	<ul style="list-style-type: none"> i. What is the reviewing/updating process? ii. How old is the current version of the tool?
10. Tool Effectiveness	<ul style="list-style-type: none"> i. Is the tool used in Australia? ii. Who are the tool users? iii. How is the tool funded? iv. How applicable is the tool to other locations/climates?
11. Training, Education & Awareness	<ul style="list-style-type: none"> i. What level of skill/training/qualifications is required?

** These factors will be assessed against the issues to be considered that were identified for each Criteria 1 Principle in the Green Star Communities Framework document.*

*** This factor was considered to be a 'hurdle' where a tool was not community based further assessment can not be undertaken as it is not particularly applicable to this review.*



Appendix D

PCG Review of Tool Review Evaluation Criteria



Appendix D

Table 11 PCG Review of Tool Review Evaluation Criteria

Criteria	Proposed Factors
1. Sustainability Coverage	<ul style="list-style-type: none"> i. Livability * ii. Economic Prosperity * iii. Environmental Quality * iv. Place Making * v. Governance *
2. Tool Availability	<ul style="list-style-type: none"> i. What access/availability options are there for the tool? ii. Is it a regulatory tool? iii. <i>How much supporting documentation is there? *</i> iv. <i>Are there copyright issues? *</i>
3. Tool Output	<ul style="list-style-type: none"> i. What type of output?
4. Project Scope	<ul style="list-style-type: none"> i. What is the 'Scalability'? (size of site) ii. What type of site is assessed? iii. <i>Is it a community based tool? *</i> iv. <i>What is the required skill level of user?</i> v. <i>Is it a government based tool?</i>
5. Credit Type	<ul style="list-style-type: none"> i. Is it qualitative and/or quantitative based? ii. Is it process or outcome based? iii. What project stage is assessed? iv. What kind of information is assessed? (i.e. Measured/Simulated Data)
6. Assessment Process	<ul style="list-style-type: none"> i. Is the tool a self assessment or independent assessment? ii. Is the tool a single assessment or multiple assessments?
7. Best Practice Standards	<ul style="list-style-type: none"> i. Is there reference to national and/or international standards? ii. What benchmarking is there?
8. Independent Certification	<ul style="list-style-type: none"> i. <i>Considered same as Criteria 6, Assessment Process</i> ii. Is the project auditable?
9. Maintainability	<ul style="list-style-type: none"> i. <i>What is the reviewing/updating process?</i> ii. How old is the current version of the tool? iii. <i>Is there an update process?</i> iv. <i>What is the update process?</i> v. <i>How often is the tool updated?</i>
10. Tool Effectiveness	<ul style="list-style-type: none"> i. Is the tool used in Australia? ii. Who are the tool users? iii. How is the tool funded? iv. How applicable is the tool to other locations/climates?

Criteria	Proposed Factors
11. Training, Education & Awareness	<ul style="list-style-type: none"> <li data-bbox="571 338 1198 367">i. What level of skill/training/qualifications is required? <li data-bbox="571 383 922 412">ii. Is there training required? <li data-bbox="571 427 922 456">iii. Is there training provided?

** These factors will be assessed against the issues to be considered that were identified for each Criteria 1 Principle in the Green Star Communities Framework document.*

*** This factor was considered to be a 'hurdle' where a tool was not community based further assessment can not be undertaken as it is not particularly applicable to this review.*

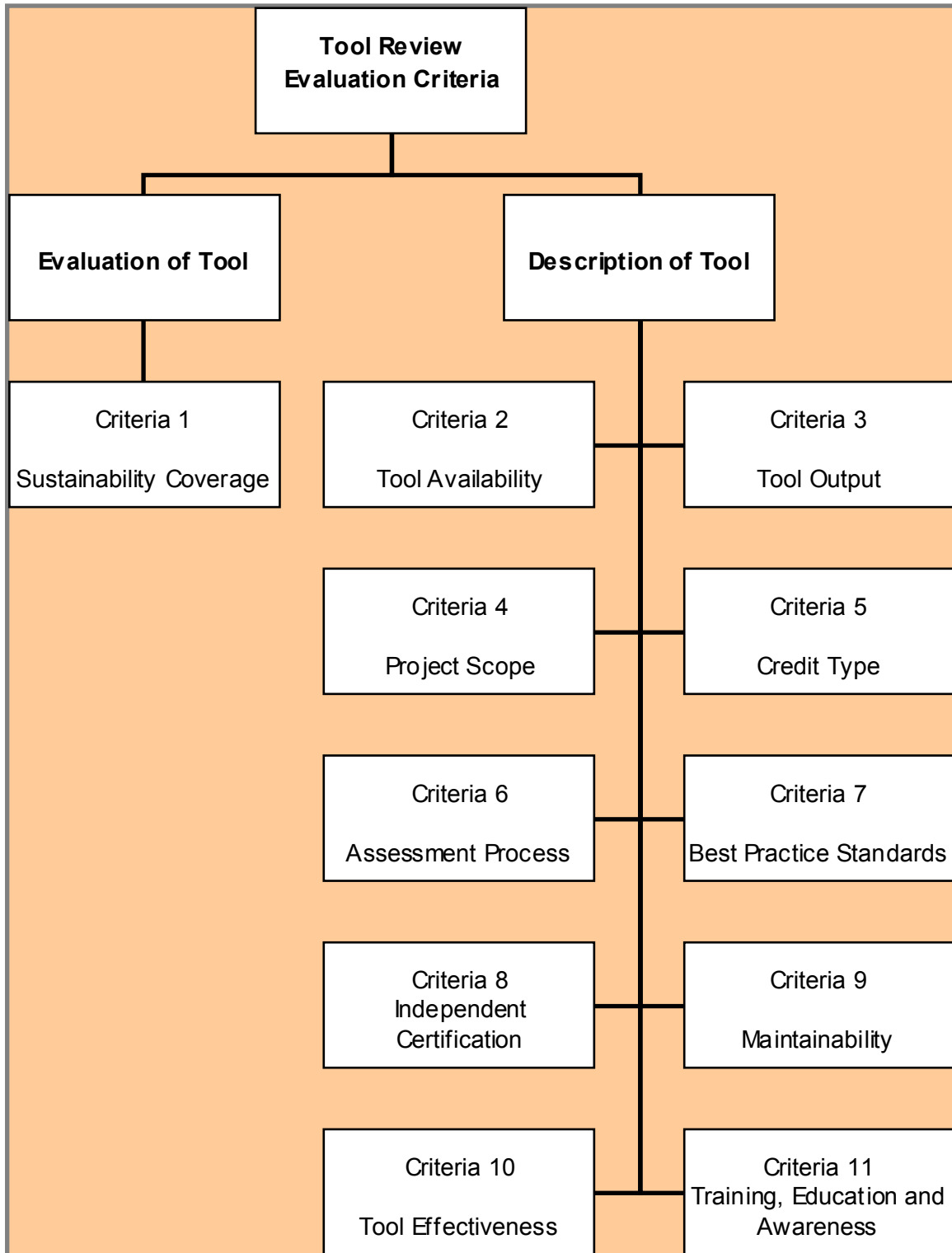


Appendix E

Final Assessment Criteria for Detailed Tool Review



Appendix E



Evaluation of Tool

The evaluation criteria of the tool review provide more in depth information on what the tool actually considers and assesses. This will provide information in later tasks on which tools should be consulted for information on specific credits for the Communities tool. Criterion 1 is the only evaluation criteria included with the evaluation of the tool.

CRITERIA 1 – Sustainability Coverage

As discussed in Appendix 1 these principles will be assessed against the definitions supplied in the Communities Framework document.

Enhancing Liveability

1. Providing diverse and affordable living
2. Creating healthy, safe and secure communities
3. Fostering inclusiveness and cohesiveness
4. Building resilience and adaptability

Economic Prosperity

5. Promoting education and learning
6. Enhancing employment opportunities
7. Attracting investment
8. Encouraging innovation
9. Promoting efficiency and effectiveness

Environmental Responsibility

10. Enhancing our natural environment
11. Reducing ecological footprint

Design Excellence and Visionary Leadership

12. Effective planning
13. Integrated design
14. Adaptable approaches
15. Desirable places
16. Accessible communities

Strong Governance

17. Establish coordinated and transparent approaches
18. Build a commitment to implementation
19. Engaging with stakeholders
20. Fostering sustainable cultures and behaviours

Description of Tool

This section of the assessment will provide an insight into how the tool works, giving a background to the intent, scale, scope, implementation, reporting and approach of the tool. All of the 11 evaluation criteria except Criteria 1 are included within this part of the assessment.

CRITERIA 2 – Tool Availability

Tool availability looks at the administrative context of the tool. How it can be accessed, whether it is a regulatory requirement, what copyright or intellectual property issues there might be and how much supporting documentation is available on the tool, its indicators and development & update processes. The four factors were:

21. Access; and
22. Regulation; and
23. Supporting Documentation; and
24. Copyright Issues.

CRITERIA 3 – Tool Output

Tool output considers what kind of output the tool provides upon completion of an assessment – i.e. a rating, certification, report and so on. The factor was:

25. Output Type.

CRITERIA 4 – Project Scope

Project scope considers how well the tool assesses different types of projects and the types of site that can be assessed. It is also important to identify whether the tool is community and/or government based to determine the boundary and context issues of each tool. The four factors were:

26. Scalability; and
27. Type of Site; and
28. Community Based? ; and
29. Government Based.

CRITERIA 5 – Credit Type

Credit type considers what kind of credits are available in the tool, and the type of information assessed – i.e. qualitative, quantitative, simulated information. Actual measured information assumed information and so on. It also considers the project stages that can be assessed (i.e. design and/or operation). The four factors were:

30. Qualitative or Quantitative? ; and
31. Stages; and
32. Information Assessed; and
33. Process or Outcome?.

CRITERIA 6 – Assessment Process

Assessment process investigates how the tool is applied to a project – whether the assessment is done within the project or by an independent assessor (or both) and whether there are multiple assessments conducted within a project. The two factors were:

34. Assessment Process; and

35. Single or Multiple?.

CRITERIA 7 – Best Practice Standards

Best practice standards consider where credit criteria were referenced from and how minimum requirements were developed. For example are regional/national/international standards used and are benchmarks set by an independent body or are they self set for a project. The two factors were:

36. References; and

37. Benchmarking.

CRITERIA 8 – Independent Certification

Independent certification considers whether or not the assessment process is rigorous and transparent meaning that it could be independently verified or audited by a third party. The factor was:

38. Auditable.

CRITERIA 9 – Maintainability

Maintainability considers what the process is for maintaining the tool, who this is, and how often this is done. The four factors were:

39. Update Process? ; and

40. What is Update Process? ; and

41. Age of the Tool/Version; and

42. Update Occurrence.

CRITERIA 10 – Tool Effectiveness

Tool effectiveness considers whether the tool is currently being in Australia and how well it can be applied to other locations & climates. It also considers who currently uses the tool and who funds its development and maintenance. The four factors were:

43. Used in Australia? ; and

44. Who? ; and

45. Funding; and

46. Applicability.

CRITERIA 11 – Training, Education and Awareness

Training, education and awareness consider who is able to use the tool and the level of skill required. It also asks whether training is mandatory in order to use the tool and whether training (mandatory or voluntary) is actually providing by the tools governing body. The four factors were:

47. Skill Level; and

48. Training Required? ; and

49. Training Provided?.



Appendix F
Aurecon Assessment Matrix



Appendix F

Refer to attached Excel spreadsheet.



Appendix G

Tool Review Groupings



Appendix G

The following 8 tools were 'In'

- BioCity Health Index
- BREEAM Communities
- EnviroDevelopment
- LEED for ND
- Sustainable Urban Landscapes
- TUSC
- BASIX
- AHURI

The following 15 tools were 'Potential'

- Adaptation Wizard
- CASBEE for UA+B
- CASBEE for UA
- CRISP
- Estidama Pearl CRS
- Green Globe
- Green Plan
- Liveable Neighbourhoods
- PLACE3S
- SGAT
- Sustainability Checklist
- ZEN Precinct
- PSM
- O'Hare ASM
- DREAM

The following 25 tools were 'Unlikely'

- AGIC
- ASPIRE
- BCA Green Mark for Districts

- DPSIR
- ELPT
- EPRA SAT
- EQUER
- EUA
- GreenPrint
- LESS
- Manchester Guide to Development
- NSF
- Precinx
- SDS
- STEPS
- SEAT
- SUE-MoT
- Sustainable Community Rating
- Sustainable Sites Initiative
- SSIM
- SPARTACUS
- CBI
- CCF Earth Awards
- DESAT
- CEEQUAL

The following 13 tools were 'Out'

- Ecological Footprint Model
- IMUS
- IRM
- PlanSmart NJ
- STAR Community Index
- Sustainability Management System
- SMF

- SPeAR
- Urban IT Model
- Sustainable Road Manual
- Infrastructure Sustainability Manual
- LEED Infrastructure
- NEAT



Appendix H

Tools to Consider for Criteria 1 Principles



Appendix H

Table 12 Sustainability Coverage of Accessed and Recommended Tools

Green Star Communities Tool Principle	Tools to consider in Green Star Communities Tool Development	Tools that could be considered Green Star Communities Tool Development	
		If More Information Is Provided	If More Information Is Required (Back-Up)
Enhancing Liveability	BREEAM Communities EnviroDevelopment LEED for ND Liveable Neighbourhoods Sustainable Community Rating	PLACE3S Sustainability Checklist	ASPIRE Estidama Pearl CRS
Economic Prosperity	BREEAM Communities LEED for ND Sustainable Community Rating Sustainable Sites Initiative	PLACE3S ZEN Precinct	ASPIRE
Environmental Responsibility	BREEAM Communities CASBEE for UA+B EnviroDevelopment LEED for ND Liveable Neighbourhoods Sustainable Sites Initiative	PLACE3S Sustainability Checklist ZEN Precinct	ASPIRE Estidama Pearl CRS
Design Excellence	BREEAM Communities CASBEE for UA+B EnviroDevelopment LEED for ND Liveable Neighbourhoods	PLACE3S Sustainability Checklist ZEN Precinct	Estidama Pearl CRS
Strong Governance	BREEAM Communities EnviroDevelopment LEED for ND	PLACE3S Sustainability Checklist ZEN Precinct	ASPIRE Estidama Pearl CRS



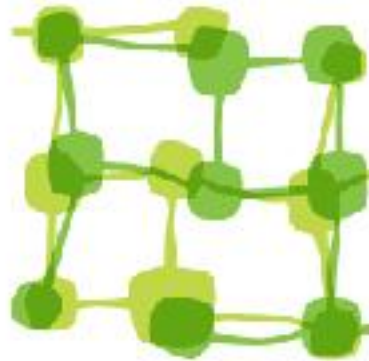
Appendix I
Communities Framework Numbering & Key Issues
for Credit Assessment



Appendix I

Principle 1:

Enhance Liveability



Sustainable communities are **liveable**. They are **diverse, affordable, inclusive and healthy**; they enhance social interaction and **ownership**, are **safe and caring** and **improve people's well-being**. In applying this principle the following should be considered:

<p>11 Providing diverse and affordable living</p> <p>111* Providing a diversity of dwellings, buildings and facilities that reflect the broad public-socio-economic needs of the community</p> <p>112* Access to local services, such as transport, food, health and conveniences</p>
<p>12 Creating healthy, safe and secure communities</p> <p>121* Enabling and promoting healthy and safe communities through partnerships and effective planning, urban design, and landscape and building that support physical activity and social engagement</p> <p>122* Providing opportunities for and raising the awareness of healthy activities within the community</p>
<p>13 Fostering inclusiveness and cohesiveness</p> <p>131* Providing diverse and inclusive environments for all ages, abilities, cultures and socio-economic backgrounds of the community</p> <p>132* Facilitating community cohesion by developing a shared vision, embracing diversity and tolerance, respect for others' rights and responsibilities and reflecting these values in the built environment</p> <p>133* Engaging stakeholders in the evolution of their communities, from policy to ongoing revitalisation, evaluation and adaptive management</p>
<p>14 Building community adaptability</p> <p>141* Building capacity to adapt to changing community and individual needs and expectations whether influenced by the economy, environment, culture or other life circumstances</p> <p>142* Creating opportunities for a diversity of uses and activities that enable communities to meet future challenges</p>

Principle 2:

Create Opportunities for Economic Prosperity



Sustainable communities prosper. They encourage opportunities for business diversity, innovation and economic development that support local jobs for people in the region. In applying this principle the following should be considered:

2*	Promoting education and learning
21*	Providing opportunities for the community to access a variety of education and learning systems
22	Enhancing employment opportunities
221*	Creating diverse employment opportunities that meet the needs of local and regional communities and attracting people to them
222*	Encouraging the production and procurement of local goods and services
23	Attracting investment
231*	Providing key infrastructure that enables community and business growth
232*	Enabling ongoing sustainable and ethical investment in local business opportunities
233*	Establishing a business case, inclusive of externalities for green infrastructure systems and jobs and providing a commitment to implementation
24	Encouraging innovation
241*	Encouraging business and community innovation through initiatives that recognise and reward local excellence
242*	Facilitating new business opportunities to enhance competitiveness and innovation
25	Promoting efficiency and effectiveness
251*	Applying lifecycle management approaches to encourage resource efficiency and reduce lifecycle costs
252*	Investing in infrastructure that creates greater urban management efficiencies

Principle 3:

Foster Environmental Responsibility



Sustainable communities respect the environmental systems that support them. They protect and restore the natural environmental values of their bio-regions. They are less resource intensive. They promote infrastructure, transport and buildings that reduce their ecological footprint. In applying this principle the following should be considered:

- | | |
|-------------|---|
| 31 | Enhancing our natural environment |
| 311* | Protecting, valuing, restoring and enhancing our natural and cultural heritage assets, both water and land-based |
| 312* | Promoting biodiversity through the provision of habitats, space and environments across the community and urban areas |
| 313* | Reducing greenhouse gas emissions, contaminants and other pollutants to land, water and atmosphere |
| 314* | Minimising the risk from extreme natural events and impacts of climate change |
| 32 | Reducing ecological footprint |
| 321* | Promoting environmentally efficient systems for water and wastewater management and reuse; sustainable energy generation and distribution; and waste management and recycling |
| 322* | Encouraging greater resource efficiency within a life cycle context |
| 323* | Refurbishing and retrofitting existing sites and buildings |
| 324* | Providing sustainable transport opportunities and encouraging their use |
| 325* | Promoting food security and sustainable food production |
| 326* | Reducing greenhouse gas emissions through their individual and collective impacts by making resource savings and consumption data explicit within the built environment |

Principle 4:

Embrace Design Excellence



Sustainable communities are places for people. They are desirable, accessible and adaptable. They have their own distinct character and identity and evolve overtime. In applying this principle the following should be considered:

- 41 Adopting effective planning practices**
- 411* Establishing an **integrated planning framework** for delivering a **shared design vision** in **collaboration** with all partners
 - 412* **Planning** for coordinated **density, mixed use, connectivity** and the **protection** of valuable and uses such as agriculture
 - 413* Defining **specific design outcomes** which are **clear** and **measurable**
- 42 Encouraging integrated design**
- 421* Understanding the **context** of a community precinct or site and its **relationship** with neighbouring areas as well as the region as a whole in creating of a **sense of place**
 - 422* **Responding to** and **water and climate** based planning and design **constraints and opportunities**
 - 423* Creating coherent **urban structure and connectivity** between places
 - 424* **Providing effective connectivity** between transport, communication, social and physical infrastructure systems

- 43 Maintaining flexible and adaptable approaches**
- 431* Creating **opportunities to retrofit and revitalize** existing communities, precincts, places and buildings
 - 432* Providing for **development and planning flexibility and adaptability** that supports **continuous improvement** of the built environment
 - 433* **Adapting** effectively to changing climate and other environmental and physical conditions so that people's comfort, health, safety and well-being are enhanced
- 44 Creating desirable places**
- 441* Reinforcing a **sense of place, community identity and local character** within design
 - 442* Creating a sense of **connection with nature**
 - 443* Encouraging a high quality, integrated and **safe public realm** that meets the **needs of the local** community
 - 444* Providing **quality built form and landscapes** that are **responsive** to climate and context
 - 445* **Conserving and celebrating** cultural heritage and architectural assets across landscapes, places and sites
 - 446* Creating **functional, vibrant, stimulating and memorable** places that **invite for people** to live, work and play
- 45 Promoting accessibility**
- 451* **Locating higher density** close to public transport and services to encourage active transport, promote public health and enhance public transport use
 - 452* Encouraging **accessibility, diversity and mixed use** development to reflect **local values** and meet both local and multicultural **needs**



Principle 5:

Demonstrate Visionary Leadership and Strong Governance

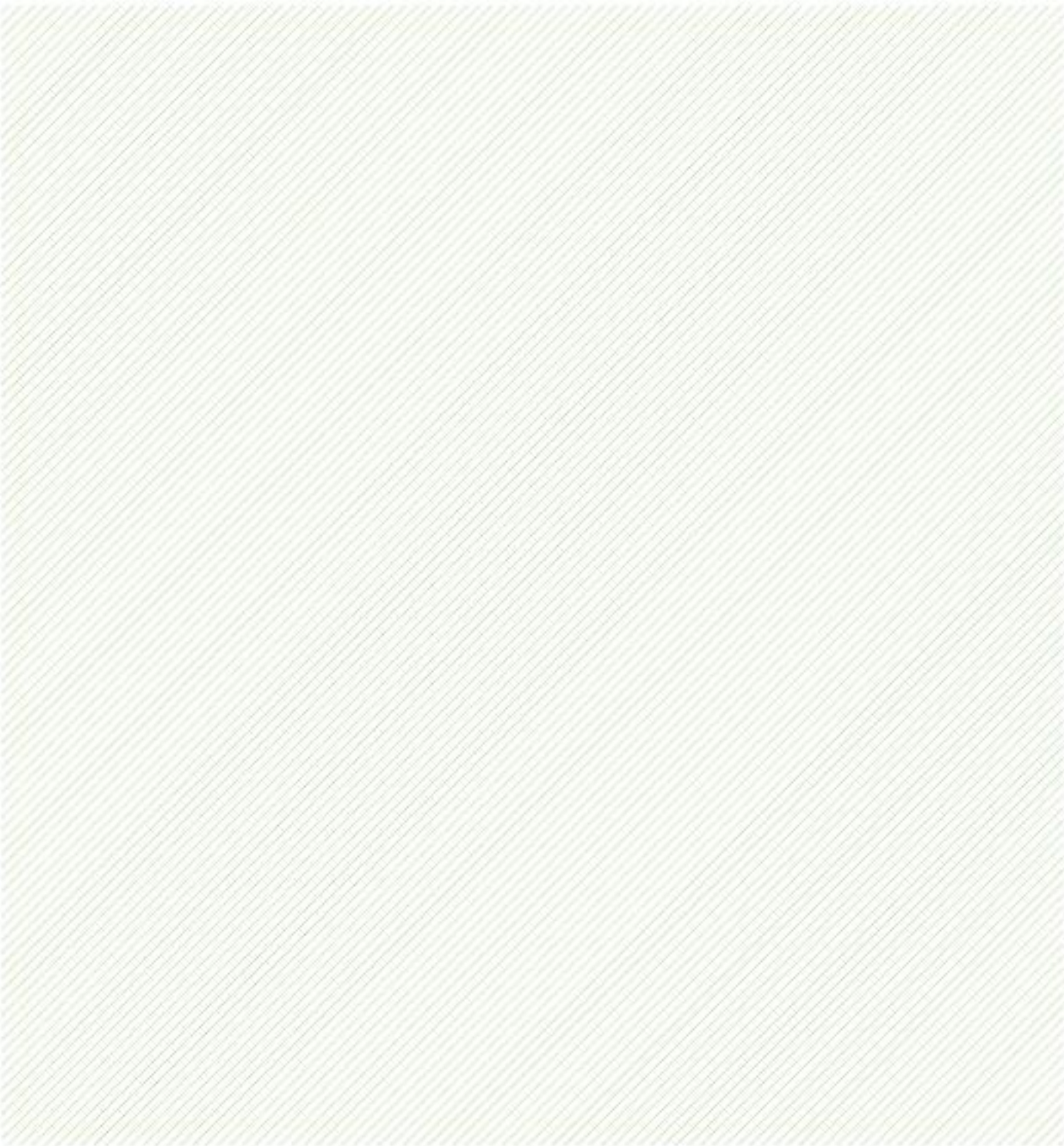
Sustainable communities are characterised by leadership and strong governance frameworks that are transparent, accountable and adaptable. They enable active partnerships to build capacity and achieve a shared vision and deliver stakeholder benefit. In applying this principle the following should be considered:

- 51 Establish coordinated and transparent approaches**
 - 511* Fostering **coordinated approaches** among cross-sectoral **stakeholder interests**
 - 512* Establishing **transparent and accessible decision-making** processes through inclusion and provision of information
 - 513* Establishing practical standards of **responsibility**, resource allocation and programming that is **accessible to stakeholders**
- 52 Build a commitment to implementation**
 - 521* Developing practical, **enforceable standards of ownership, accountability, and policy**
 - 522* Incorporating **performance evaluation, feedback and support** mechanisms that provide opportunities for **continual improvement**
- 53 Engaging with stakeholders**
 - 531* Building a **shared vision with stakeholders** across community, industry and government
 - 532* **Monitor progress** towards this vision by building community capacity, assessing performance and **promoting ownership and leadership** in meeting that vision
- 54 Fostering sustainable cultures and behaviours**
 - 541* **Raising awareness** among stakeholders and providing education and learning opportunities that **enable more sustainable practices**
 - 542* Encouraging **sustainable behaviours and systems** for monitoring environmental risks, sharing information and allowing for **continual improvement** mechanisms
- 55 Encouraging and rewarding innovation**
 - 551* Providing **open access information sharing** to enable innovation to be enhanced
 - 552* **Recognising and rewarding** leadership in innovation and excellence



Appendix J

Aurecon Review of Credit Assessment Evaluation Criteria



Appendix J

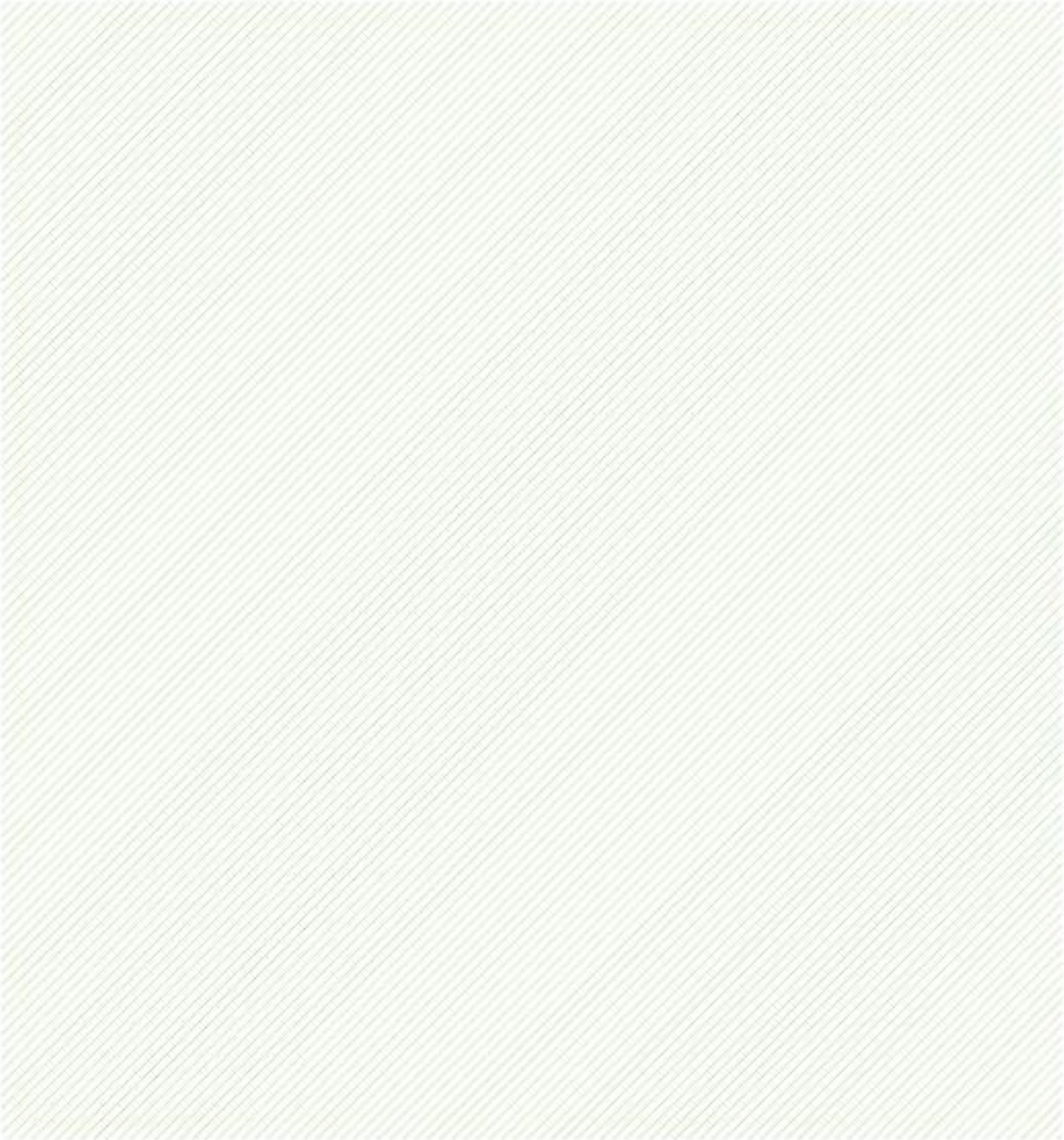
Table 13 Aurecon Recommendations for Credit Assessment Evaluation Criteria

Credit Attribute	Explanation (GBCA Research Brief)	Proposed Assessment Factors
1. Alignment with Communities Framework	Identify the level of alignment with the Green Star Communities framework principles and issues	<ul style="list-style-type: none"> i. Principle Considered ii. Issue Considered iii. Level of Alignment (1, 2 or 3)
2. Phase of Development	Phase of development it applies (e.g. planning, design, construction and/or operation)	<ul style="list-style-type: none"> i. Project Stage Assessed (planning, Design, Construction, Operation)
3. Type of Credit	Whether it is qualitative or quantitative criteria and outcome or process focused	<ul style="list-style-type: none"> i. Qualitative or Quantitative ii. Outcome or Process
4. Credit Compliance	How is compliance of the credit demonstrated (e.g. documentation-based, performance measurement, survey etc)	<ul style="list-style-type: none"> i. Identify documentation requirements
5. Standards & Benchmarks	Whether the credit references standard practice and/or best practice benchmarks	<ul style="list-style-type: none"> i. References (Regional, National or International) ii. Benchmarks (self set or independent) iii. Comment about organisation who set standards/benchmarks like CIBSE or ASHRAE
6. Evidence-base	Is there a clear evidence-base for the credit and what research supports the credits benchmark and intent	<ul style="list-style-type: none"> i. How much research supports credit? (Little, Moderate, Lots) ii. Comment discussing this further
7. Background Information	Is there background information, additional guidance and references provided to support the user, including reference to calculators and other methodologies.	<ul style="list-style-type: none"> i. Background Information (yes/no) ii. Additional Guidance (yes/no) iii. References (yes/no) iv. Other <p>Basically looking that a credit provides similar level of information to current GS credits.</p>
8. Credit Scope	<p>Are there any particular scalability or non-applicable or exclusion issues associated? (i.e. type of site, size etc)</p> <p>A number of current GS credits have a different compliance paths for different types of buildings (i.e. ventilation type is one example)</p>	<ul style="list-style-type: none"> i. Restrictions ii. Type of Site iii. Conditional Requirement iv. Comment about why it is a conditional requirement
<p><i>An additional assessment we have included for more information on the credit</i></p>		



Appendix K

PCG Review of Credit Assessment Evaluation Criteria



Appendix K

Table 14 PCG Recommendations for Credit Assessment Evaluation Criteria

Credit Attribute	Explanation (GBCA Research Brief)	Proposed Assessment Factors
1. Alignment with Communities Framework	Identify the level of alignment with the Green Star Communities framework principles and issues	<ul style="list-style-type: none"> i. Principle Considered ii. Issue Considered iii. Level of Alignment (1, 2 or 3)
2. Phase of Development	Phase of development it applies (e.g. planning, design, construction and/or operation)	<ul style="list-style-type: none"> i. Project Stage Assessed (planning, Design, Construction, Operation) ii. Link to certification – how does the credit link into the overall certification of the development?
3. Type of Credit	Whether it is qualitative or quantitative criteria and outcome or process focused	<ul style="list-style-type: none"> i. Qualitative or Quantitative ii. Outcome or Process iii. Credit Weighting/Points Allocated iv. Weighting Change v. Comment – why does the weighting change?
4. Credit Compliance	How is compliance of the credit demonstrated (e.g. documentation-based, performance measurement, survey etc)	<ul style="list-style-type: none"> i. Identify documentation requirements ii. Stringency of Compliance – how strict is the compliance path; are there multiple methods or just one? iii. Document review – how rigorous are the document requirements, is there independent review?
5. Standards & Benchmarks	Whether the credit references standard practice and/or best practice benchmarks	<ul style="list-style-type: none"> i. References (Regional, National or International) ii. Benchmarks (self set or independent) iii. Comment about organisation who set standards/benchmarks like CIBSE or ASHRAE
6. Evidence-base	Is there a clear evidence-base for the credit and what research supports the credits benchmark and intent	<ul style="list-style-type: none"> i. How much research supports credit? (Little, Moderate, Lots) ii. Comment discussing this further

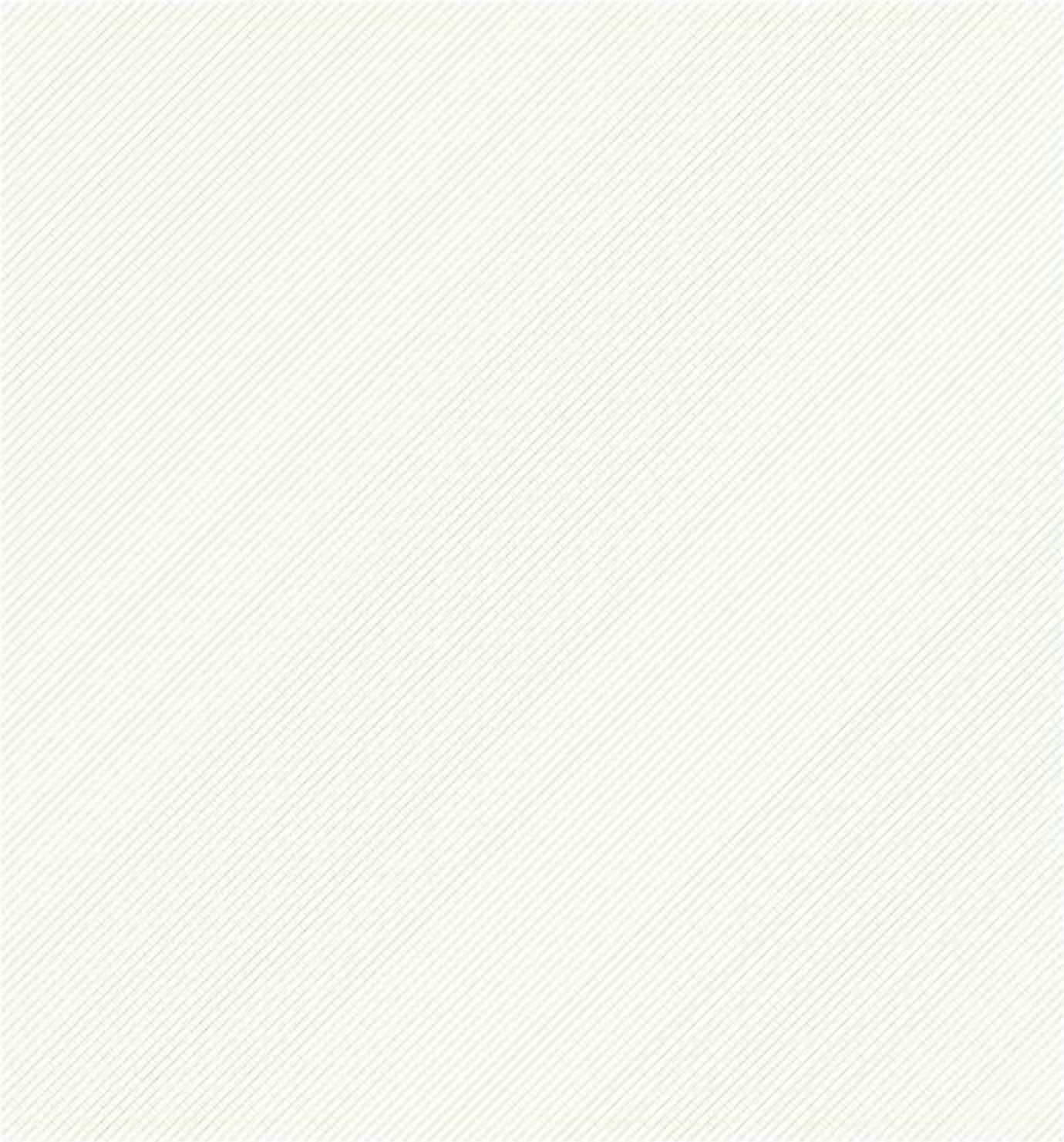
Green Star Communities: Review of Existing Tools

Credit Attribute	Explanation (GBCA Research Brief)	Proposed Assessment Factors
7. Background Information	Is there background information, additional guidance and references provided to support the user, including reference to calculators and other methodologies.	<ul style="list-style-type: none"> i. Background Information (yes/no) ii. Additional Guidance (yes/no) iii. References (yes/no) iv. Other <p>Basically looking that a credit provides similar level of information to current GS credits.</p>
8. Credit Scope <i>An additional assessment we have included for more information on the credit</i>	<p>Are there any particular scalability or non-applicable or exclusion issues associated? (i.e. type of site, size etc)</p> <p>A number of current GS credits have a different compliance paths for different types of buildings (i.e. ventilation type is one example)</p>	<ul style="list-style-type: none"> i. Restrictions ii. Type of Site iii. Conditional Requirement iv. Comment about why it is a conditional requirement

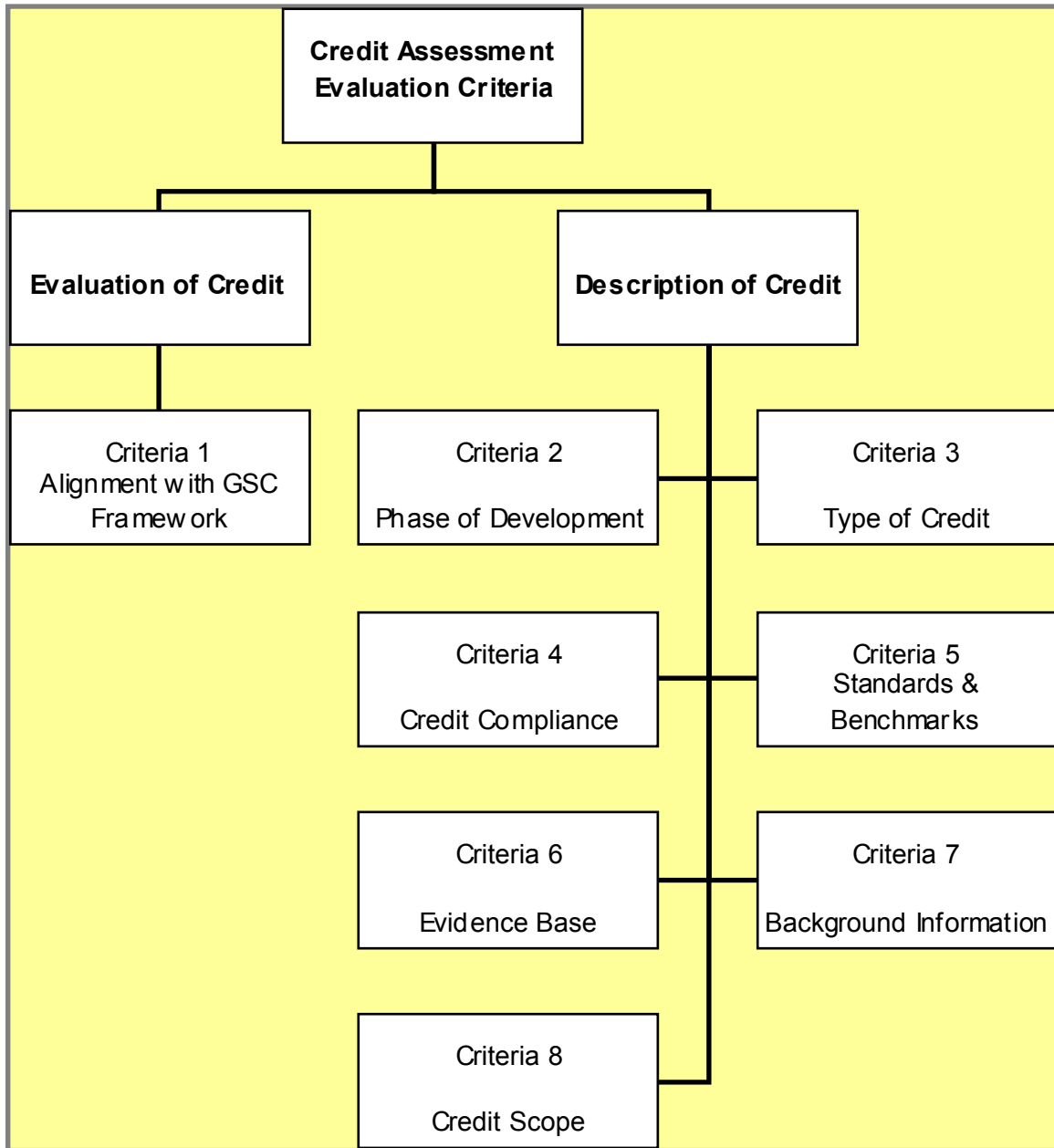


Appendix L

Final Assessment Criteria for Detailed Credit Assessment



Appendix L



Evaluation of Credit

CRITERIA 1 – Alignment with Communities Framework

Identify the level of alignment with the Green Star Communities framework principles and issues

1. Principle Considered?
2. Sub-Category Considered?
3. Issue Considered?

4. Level of Alignment?

Description of Credit

CRITERIA 2 – Phase of Development

Phase of development it applies (e.g. planning, design, construction and/or operation)

5. Project Stage Assessed?

6. Link to certification?

CRITERIA 3 – Type of Credit

Whether it is qualitative or quantitative criteria and outcome or process focussed

7. Qualitative or Quantitative?

8. Outcome or Process?

9. Credit Weighting/Points Allocated?

10. Weighting Change?

11. Comment – why does the weighting change?

CRITERIA 4 – Credit Compliance

How is compliance of the credit demonstrated (e.g. documentation-based, performance measurement, survey etc)

12. Documentation requirements?

13. Stringency of Compliance?

14. Document?

CRITERIA 5 – Standards & Benchmarks

Whether the credit references standard practice and/or best practice benchmarks

15. References?

16. Benchmarks?

17. Comment

CRITERIA 6 – Evidence Base

Is there a clear evidence-base for the credit and what research supports the credits benchmark and intent?

18. How much research supports credit?

19. Comment

CRITERIA 7 – Background Information

Is there background information, additional guidance and references provided to support the user, including reference to calculators and other methodologies? Basically looking that a credit provides similar level of information to current GS credits.

20. Background Information?

21. Additional Guidance?

22. References?

23. Other?

CRITERIA 8 – Credit Scope

An additional assessment we have included for more information on the credit. Are there any particular scalability or non-applicable or exclusion issues associated? (I.e. type of site, size etc).

24. Restrictions?

25. Type of Site?

26. Conditional Requirement?

27. Comment



Appendix M
Preliminary Draft Credit Recommendations



Appendix M

The following list the preliminary draft credit recommendations that were developed prior to the GBCA confirming that this was no longer required from Aurecon.

Table 15 Preliminary Credit Theme Recommendations

Communities Category	Proposed Credit Name	Issues to Consider
Enhance Livability	Community Well-being	Development that encourages community spirit, sustainable local facilities, reduced use of private motor vehicles and accessible and flexible design that welcomes a diversity of people and adapts to their changing needs
	Housing Affordability	Plan for a mix of lots and housing types in response to local needs/demands
	Neighbourhood Pattern and Design	To promote socially equitable and engaging communities by enabling residents from a wide range of economic levels, household sizes, and age groups to live in a community. Consider access to transport, open spaces, schools...
	Place Shaping	To ensure that the development attracts a diverse community reflecting surrounding local demographic trends and priorities
	Smart Location & Linkage	To encourage balanced communities with a diversity of uses and employment opportunities and housing
	Transport	To encourage and enable the use of public transport
	Urban Design Excellence	The urban design incorporates landscape solutions that encourage and improve health and fitness, and reduce the incidence of poor health
Economic Prosperity	Community Well-being	Encourage lifelong learning Optimise local employment and live-work opportunities
	Green Infrastructure & Buildings	Renewable Energy, Energy & Water Efficiency
	Incentives	Rebates on efficient/reduced use of water, energy and waste
	Neighbourhood Pattern and Design	Local connectivity and food production Mixed Use & Density
	Resources	Locally sourced and low environmental impact materials/products

Green Star Communities: Review of Existing Tools

Communities Category	Proposed Credit Name	Issues to Consider
Environmental Responsibility	Buildings	Meeting GS requirements for appropriate building type
	Climate & Energy	Reduction in GHG
	Community Well-being	Respond and consideration of cultural, social, natural and built heritage
	Ecology & Biodiversity	Improve and retain good quality habitat, flora and fauna
	Green Infrastructure & Buildings	Offsetting carbon emissions Reusing existing buildings
	Housing Affordability	Minimise ongoing maintenance/operating costs for affordable housing
	Neighbourhood Pattern and Design	Compact & Accessible
	Place Shaping	Respecting and enhancing existing landscape
	Resources	Reusing existing materials, environmentally responsible material choice Recycle, reuse, and reduce
	Smart Location & Linkage	Avoid use of Greenfield sites, Choose brownfield contaminated sites Protection of wetlands....
	Transport	Locations with Reduced Automobile Dependence
	Urban Design Excellence	Existing social and physical infrastructure of both the site and surrounding areas have been considered in the urban design
	Waste	Reduction in and management of waste through all project phases
	Water	Reduction and reuse
Design Excellence	Community Wellbeing	Consultation, community involvement, inclusive communities
	Green Infrastructure & Building	Adaptive Use
	Housing Affordability	Deliver Accessible and Adaptable Design
	Neighbourhood Pattern & Design	Compact Development
	Place Shaping	Accessibility, CPTED, aesthetically & architecturally attractive
	Smart Linkage & Location	Location & Proximity (wetlands... jobs/education...)
	Urban Design Excellence	Wayfinding Connectivity

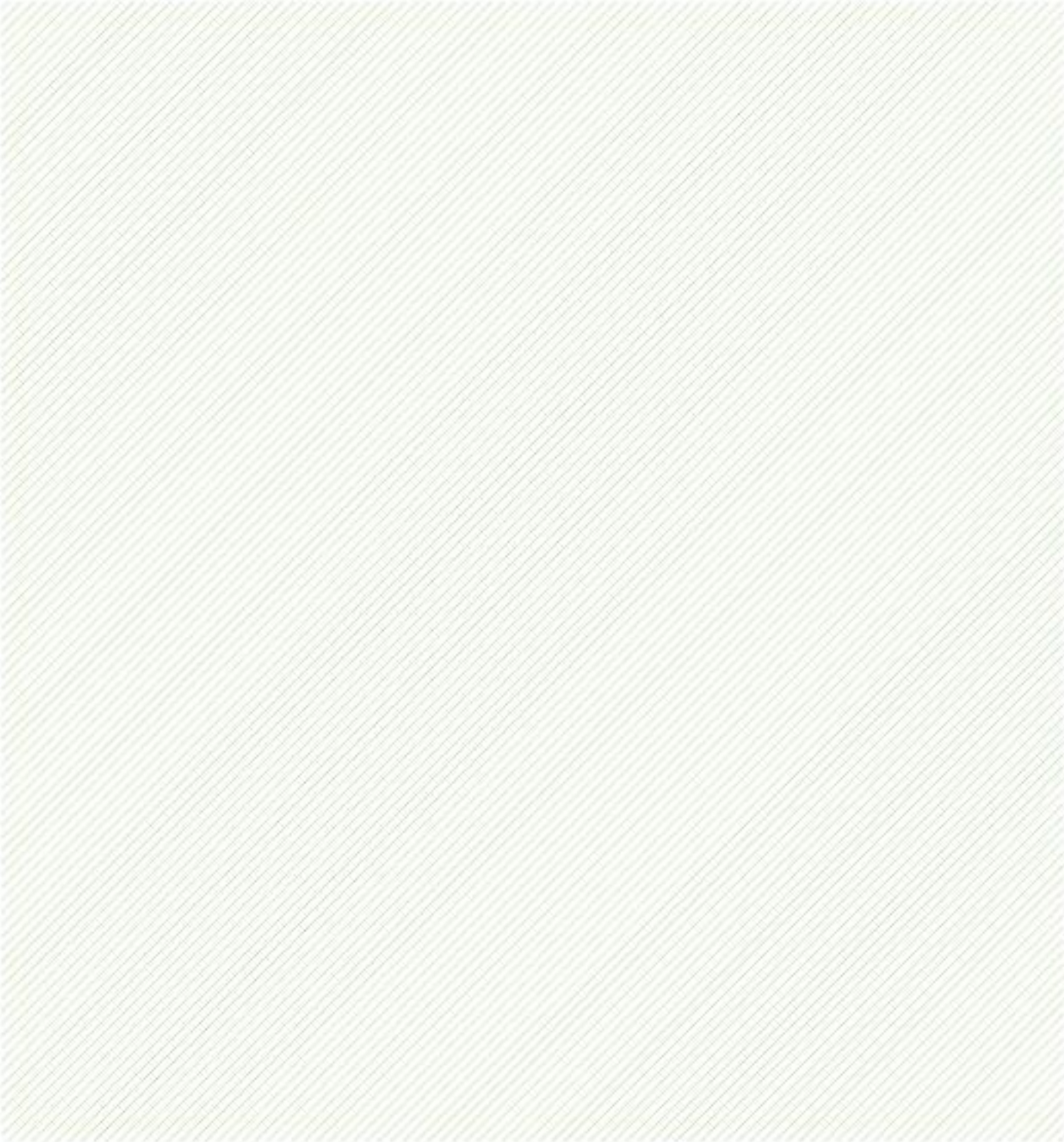
Green Star Communities: Review of Existing Tools

Communities Category	Proposed Credit Name	Issues to Consider
Strong Governance	Community Wellbeing	Consultation with and education of community
	Development Contributions	Council/ Government funding/incentives
	Green Infrastructure & Buildings	Continued improvement of top 4 categories and reporting/evaluation of performance
	Innovation	Innovation



Appendix N

Alignment of Existing Credits to Communities Framework



Appendix N

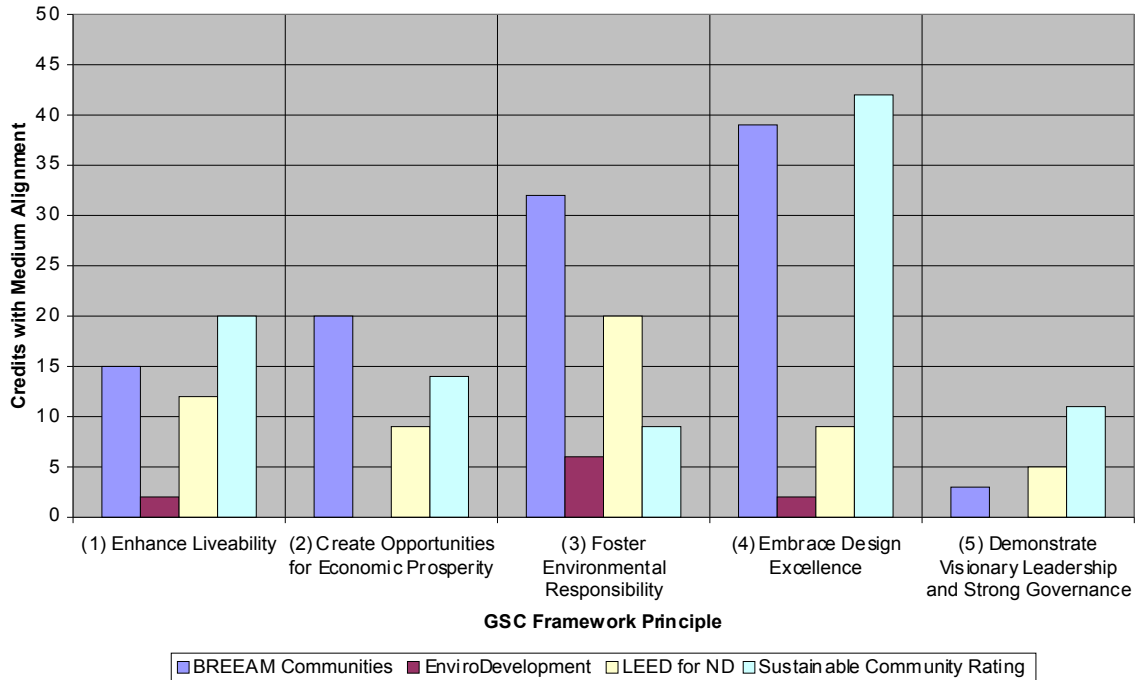


Figure 12 Existing Credits with Medium Alignment to Communities Framework (Principle Level)

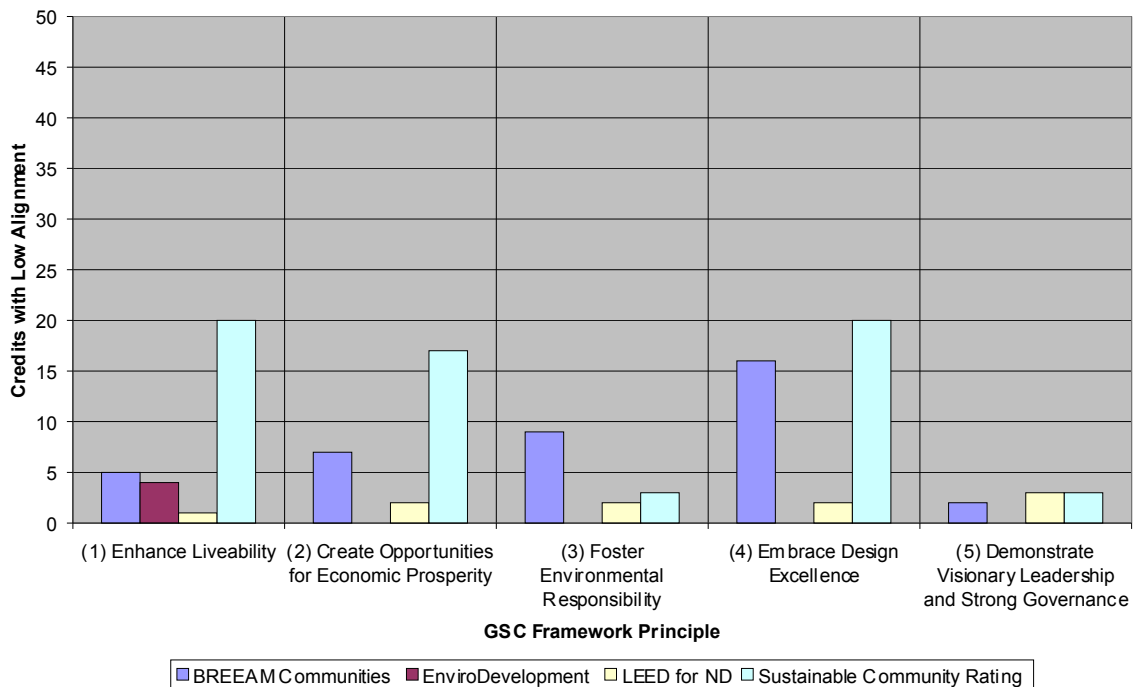


Figure 13 Existing Credits with Low Alignment to Communities Framework (Principle Level)

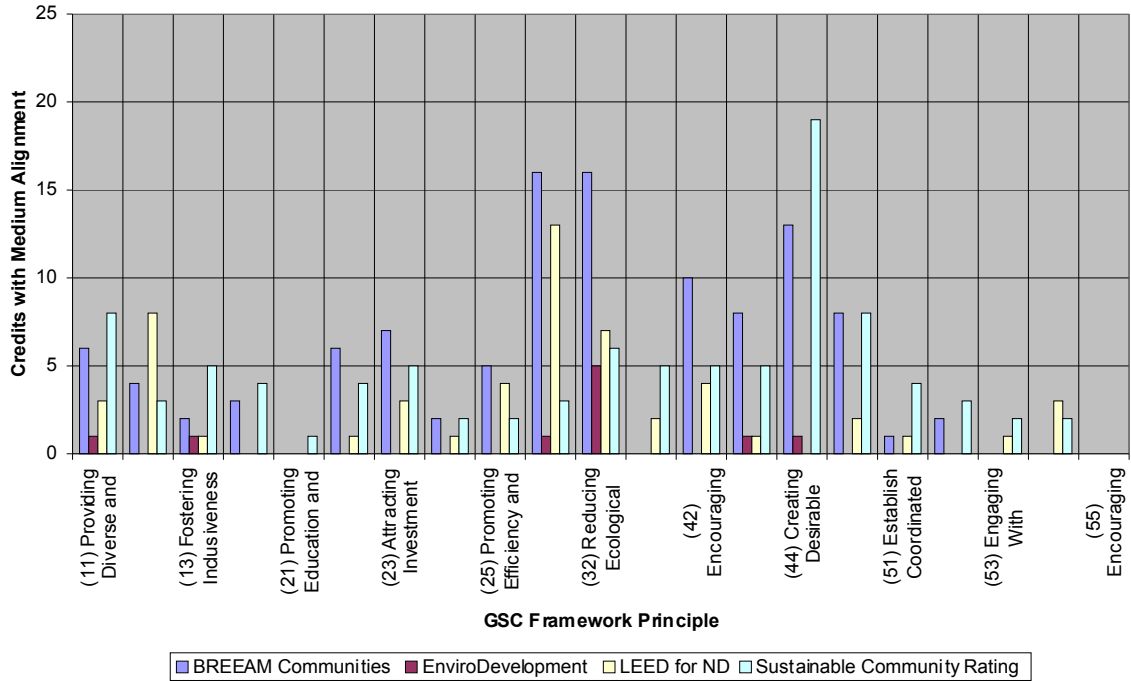


Figure 14 Existing Credits with Medium Alignment to Communities Framework (Sub-Category Level)

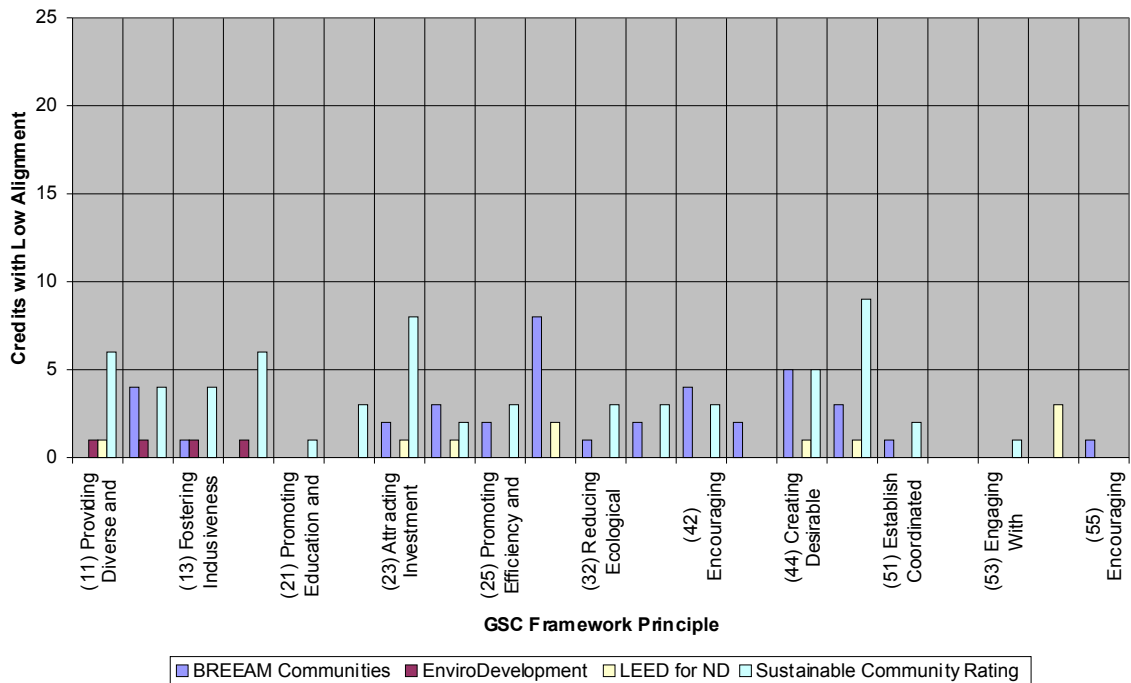


Figure 15 Existing Credits with Low Alignment to Communities Framework (Sub-Category Level)

Refer to Appendix I for numbering of Communities Framework Sub-categories.



Appendix O

Project Assessment Workshop Discussion Notes



Appendix O

General Notes

- Refined thinking required in regards to Communities Framework
- Define what a 'community' is including different scale(s)
- 'Everything up to the building'
- Federal level – 'sustainable neighbourhoods'
- Define terminology – what advice can Aurecon provide (see BREEAM definitions)
- A Community is not a walled environment, must look at the broader scene
- A Smaller project could have a bigger net benefit to the wider environment (and vice versa)
- Credits will have to be a mix of...
 - Mandatory
 - Generic (regardless of location, scale etc)
 - Scale and/or Location specific (see BREEAM)
 - Delivery
- A community is not a fortress – it has economic, social and environmental impacts beyond its defined boundaries
- A key concern is the questions '*How does a community interact and integrate with the wide city/region/built environment?*'
- Many different types of communities and the Communities tool should not favour one type of community over another (see LEED ND)

Studies undertaken to inform urban design form

- Impact Assessments include:
 - Environmental
 - Social
 - Health/Liveability
 - Economic
- Social (including health)
- Traffic
- Environmental Impact
- Demographic
- Economic
- Heritage
- Context
- Flora & Fauna
- Acoustics
- Need to determine mandatory analysis (for council) and additional analysis

Legacy Document

- Commitment & Endorsement Document
- Development Plan
- Appropriate for smaller projects?
- Could it impinge on flexibility? Products often need to be adjusted as new information is available and market changes

When do you get a Green Star Communities Rating?

- Commitment, Planning, Built
- Differences in local government requirements and documentation
- When/what do you submit and how could this feed into Communities?
- Need to use Communities to drive local government interests and requirements
- Credits should measure both process and outcomes
- Staged vs. Final assessment?
- The Communities Framework are the bottom-line principles
- Case studies
- What IS best practice?
- Regular review and update process required
- Needs to be a live tool

- Can't be static
- Continuous improvement
- Scalability of credits
- Stages of when credits (or parts of credits) are assessed

Enhance Liveability

Providing Diverse & Affordable Living

- Affordability – depends on demographic, different definitions of this depending on demographic...
- Diversity – easier to provide
- Easy to get diverse community but harder to attain affordable community
- Need to ensure clear distinction between social housing and affordability
- Many different types of metrics feed into affordability
- What is the main driver – diversity or affordability
- Affordability benchmarks
 - Fixed price (i.e. \$300K)
 - Cheaper than adjacent (i.e. 20% cheaper...)
 - Average distance to average job (i.e. 5km or 5 minutes drive)
 - Ongoing operational costs
- Separate or combined targets?
- Need a holistic understanding of all metrics
- Does diversity lead to affordability?
- Identify gap in demographic 'basket' and reward developers who provide that in an affordable way
- Diversity in...
 - Tenure
 - Dwelling Type
 - People
 - Services
- Affordability...
 - Sales Uptake
 - Percentage cheaper
 - 60/30/10 (Lend Lease, 60% Conventional House & Land, 30% Mixed Use/Medium Density, 10% Apartment/High Density)
- Affordability and Diversity are affected by scale of development
- Access and timing of delivery of services
- Diversity maybe impacted by local zoning

Creating Healthy, Safe & Secure Communities

- Should partnerships be in 122 instead of 121?
- Events and education to promote healthy & safe communities
- Actively engaging and designing
- "3 years post" what is happening to promote healthy, safe and secure communities?
- Long term management structure?
- How do people connect into an existing community
- What is being put in place to support cultural connections?
- Developer
 - 'In & Out' – are there provision of flexible community services?
 - 'Long-term' – Ongoing involvement and management?
- Safe Public Realm
- CPTED
- Connectivity
- Public focal point
- Heritage, character and pride is very important
- Close proximity to existing

- Identify gaps
- Social diversity

Fostering inclusiveness & cohesiveness

- Engagement Initiatives
 - Naming competitions
 - Facilities provided
 - Community information day – community support and backing
 - Shared vision
- Demonstrating that consultation & engagement is above statutory requirements
- Community Engagement Plan
- Providing TIME for feedback in project timeline
- Showing that feedback is taken on board
- Who could determine if a community development consulted, engaged and involved the existing community – beyond the statutory requirements?
 - Planners
 - External party
- How do you...
 - Consult
 - Engage
 - IMPLEMENT

Building community adaptability

- AN EMERGING ISSUE – reported that developers have not traditionally considered this but are slowly beginning to
- Living in place
- Lifetime homes
- Ageing in place
- Adaptability in regards to...
 - Technology
 - Cars
 - Spaces
 - Design
- Hard to determine how adaptability should be considered because who knows what will be required in the future?
- Could this 'credit' be considered for innovation points?

Create Opportunities for Economic Prosperity

Promoting education & learning

- Always needs assessment in some form (at a minimum the impact on existing)
- Department of Education has set numbers per school
- Sustainable living hub (sustainability education)
- Traditional and modern forms of education
- Creating good habits

Enhancing employment opportunities

- Living sustainably has good economic impacts
- Creating 'green jobs'
- Metric (\$/m²)
- Creates direct (construction) and in-direct (on-going) jobs
- Often important to show this to state and/or local government
- 'Business incubator'
 - Serviced local offices
 - Community can use it to start up business
- Apprenticeships and partnerships
- Job creation targets (1 direct and/or in-direct job per household)
- 'A sustainable community generates (or sustains) jobs'

- Often a project specific response/strategy required
- What is 'best practice'
 - Choosing 'green' companies for direct jobs
- Benefits of creating jobs within communities
 - Less traffic
 - Vibrancy of neighbourhood
 - Diversity of jobs (mechanic, accountant etc)
- Market Research
 - What do people want?
 - Do people want local jobs?
 - Do people want access to local jobs (i.e. good public transport to take them to CBD and back)
 - Want local amenities to get them to jobs but not necessarily local jobs
- Zoning, site and contextual issues
- Diversity of jobs
 - Provide lots (with appropriate technologies) that can be used for...
 - Home office
 - 'Backyard tradies' (i.e. mechanics with workshop on half of lot, house on other half)
 - Provide products that allow for home business
- Do jobs have to be 'on patch' or nearby (say 5km)?
- Give choice/ability to work close if wanted (not everyone wants this)
- Has to be appropriate to site/local needs/context
- Diversity of employment options leads to diversity and vibrancy of community
- Land use limitations
- Greater than 1 job per household?
- Reduce use of work related inefficient transport
- Process related credit?
- Potentially this credit could be covered by other credits (i.e. transport)

Attracting investment

- Build buildings to attract investment
- GFA/m² of developable land
- Issues
 - Rate of return
 - Green investment
 - On-going investment
 - Community investment
- How do you attract investment?
- Investment means too many things
- Precinct/Site wide investment needed
- Development IS investing
- Over-complicating the issue in the Communities Framework
- Different opportunities will come out due to development investment
- Investment of utilities (i.e. water recycling)
- Investing in green infrastructure

Encouraging innovation

- What is innovation?
 - Function
 - Aesthetics
 - Efficiency
- Water reductions
 - Encourage investment
 - Innovation
 - Public domain amenity is improved
- Project specific

- Many ways to innovate
- How important IS innovation?
 - VERY
 - It is how developers set themselves apart in the market

Promoting efficiency & effectiveness

- Considered in innovation above

Foster Environmental Responsibility

- Food - a social AND economic issue, does it need to be in his category?
- Taking away from existing productive agricultural land
 - Bad?
 - Rateable?
- Make GS ECO-COND and ECO-4 mandatory again for Communities?
- Net gain benefits
 - What happens when a development is on good land but there is a net gain benefit regardless?
- Ecological foot-printing
 - One credit within Environmental Responsibility?
 - Innovation credit?
- Determine appropriate terminology
 - Footprint
 - Positive
 - Neutral
 - Zero
 - Net...
- Language & terminology used by GS will change language used by developers so care needs to be taken

Enhancing our natural environment

- Make GS ECO-COND and ECO-4 mandatory again for Communities?

Reducing ecological footprint

- Ecological foot-printing
 - One credit within Environmental Responsibility?
 - Innovation credit?

Embrace Design Excellence

- Again take care with language to ensure inclusion of all appropriate disciplines (urbanism, place making etc)
- Are the LEED ND credits ok for this? Too prescriptive?
- Regulatory compliance
- 'Design' is very subjective
- Is there a 'bible' we can reference to?
- What is a sustainable precinct (regarding design)?
 - Pedestrian over car
 - Lush and green
 - Vibrant
 - Multicultural
 - Hierarchy of public and private spaces
 - Walkable
 - Connected
- Credit could be... *Development to address xxx number of principles for xxx points*
 - Too prescriptive still?
- Should these credits be process orientated rather than outcome orientated?
 - Through definition of project specific principles

- A design report should outline the principles considered and how they are implemented
- But how can this approach be assessed?
- The key is coming up with the process of defining design principles and then meeting performance measures that aren't necessarily prescriptive
- High level design principles
- PPS (Principles for Public Spaces)
- Suggest that 424 and 434 are mandatory credits
- Can't create new design standards
- Can't be prescriptive because it WILL take away from design process
- CABE '100 great ideas for spaces'
- Sustainab Sites Initiatives
- One Planet living Framework
- Probably need to assess design qualitatively but remove subjectivity as much as possible some how!

Demonstrate Visionary Leadership & Strong Governance

- Fundamental to success of other principles
- What is in place when developer leaves?
- Legacy
- Shared vision
- Enquiry by design
 - Engagement
 - Consultation
 - Feedback
 - Transparency
- Within reason everything is available
- Understanding of the process
- What is a sustainable procurement?
 - Delivery method?
- Can you measure visionary leadership
- Is the community onside in a proactive way?
 - Inform
 - Consult
 - Empower
- Political aspect of consultation
- Leading by example
- Level of...
 - Transparency
 - Accountability
 - Ad hoc
- Creating a voice in the community where there wasn't one before