

INTRODUCTION

**emerald hills urban village
sustainable urban neighbourhoods
sustainable urban neighbourhood process
applying the sun guidelines**

1.0 emerald hills urban village

1.1 the site

Located to the east of Edmonton, the Emerald Hills Urban Village is a development site covering just over 20 hectares (50 acres). It is embedded in the Emeralds Hills Area Structure Plan², a 120 hectare (300 acre) neighbourhood development in the community of Sherwood Park located within the municipality of Strathcona County (see Figure 1). The Urban Village is positioned in the northeast corner of Emerald Hills which is bordered by major transportation arterials – Highway 16 to the north, Clover Bar Road to the east and Sherwood Drive to the west.



figure 1: emerald hills area structure plan

1.2 the sun pilot project

In 2005, the Emerald Hills Urban Village was selected by the Sustainable Buildings and Communities (SBC) group, Natural Resources Canada (NRCan), to be the site of the first Sustainable Urban Neighbourhood (SUN) Pilot Project. To address the challenges posed by this initiative, a unique partnership emerged comprising: the lead developer, Christenson Developments; the municipality, Strathcona County; the federal government, SBC-NRCan; and the Federation of Canadian Municipalities (FCM). This partnership coalesced around a common desire to see the Urban Village become a model of sustainable neighbourhood and infrastructure development.

2. <http://webpub3.strathcona.ab.ca/Strathcona/Departments/Planning+and+Development+Services/Emerald+Hills/Brad2.htm>

2.0 sustainable urban neighbourhoods

True sustainability is synonymous with one planet living. It is about living within our ecological limits. Sustainable neighbourhood development is a key incremental step towards achieving this outcome. A Sustainable Urban Neighbourhood (SUN) refers to a neighbourhood-scale development in which both sustainability principles and a sustainable living lens have been systematically applied to all decision-making throughout planning, design and implementation.

2.1 elements of planning and designing

The planning and design of sustainable urban neighbourhoods requires:

- using decision-support frameworks;
- a high degree of integration;
- attention to multiple geographic scales;
- broader collaboration;
- supportive tools; and,
- linkage between different levels of policies and programs.

Critical to the success of the sustainable neighbourhood development is an integrated, trust based planning process between the regulatory body (municipality) and the private sector. An environment which allows for open collaboration and negotiation is essential to create a plan and the appropriate regulations which will result in innovation and a legacy for the neighbourhood.

2.2 scales of planning and designing

Planning and designing for sustainability involves multiple scales ranging from the global context through to individual activities with responsibilities for each scale falling to various levels of the public and private sectors (see Figure 2). These scales must be considered collectively if we are to achieve a sustainable society. Addressing neighbourhood-scale development is of key importance as this is the scale at which public interests (governments) are transferred to private interests (developers). Recognition of the importance of considering a range of scales throughout the planning and design process is an important characteristic of the creation of sustainable urban neighbourhoods, and one that is woven throughout the Urban Village project.

The focus of the SUN Pilot Project is on designing and constructing an inclusive Urban Village within the Emerald Hills neighbourhood. The Emerald Hills Urban Village is a site scale sustainable development which means it encompasses the Site – Parcel – Building – Activity scales of planning and design. However, decisions are being made in the context of the adjacent neighbourhood-scale developments, including Emerald Hills, and the broader municipality.

As a result, valuable feedback is flowing to the larger community and municipal scales who are tasked with implementing sustainable system solutions and crafting sustainable development policy. In a similar manner, higher scale neighbourhood and municipal planning and design decisions are impacting the sustainable development of the Urban Village site, parcel, building and activity scales.

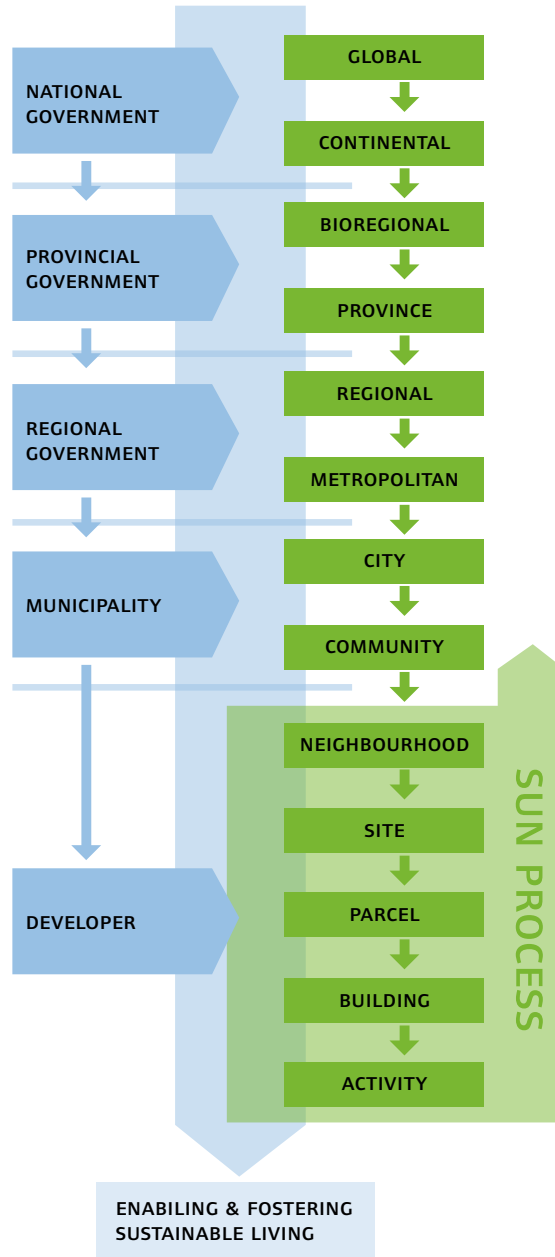


figure 2: scales of planning and designing

2.3 municipal approval process

The planning and design of Emerald Hills Urban Village is subject to the same approval process as any other development within Strathcona County. Strathcona County is making great strides towards integrating sustainable development into their approval process. It begins with their Municipal Development Plan which defines sustainability as follows: “Sustainability for Strathcona County means developing in a manner that meets the needs of the present without compromising the ability of future generations to meet their own needs, while striking a balance between economic growth, social responsibility and environmental health.”³

The table below indicates where the SUN Process and the SUN Guidelines fit into the Municipal Development Approval Process.

scale	sun pilot project	planning documents	implications for the urban village
Province	Alberta	Municipal Government Act	Lays out the processes that define bylaw content, and processes for amending planning bylaws.
Municipality	Strathcona County	Municipal Development Plan (mdp)	Establishes a community vision and provides a broad direction for land development.
Community	Sherwood Park	Area Concept Plan (acp)	Provides the context for development at a multiple neighbourhood level. This bylaw had to be amended for the Urban Village.
Neighbourhood	Emerald Hills	Area Structure Plan (asp)	Provides the context at the specific neighbourhood level. This bylaw had to be amended for the Urban Village.
urban village sun process applied at this point			
Site	Emerald Hills Urban Village	Land Use Bylaw	Land use and development regulations that had to be amended for the Urban Village.
sun guidelines applied at this point			
Parcel	Areas I – VII	Development Permit	Land uses and development must satisfy the SUN Guidelines.
building rating systems applied at this point			
Building	e.g. Area III	Building Permit	SUN Guidelines must work within the building code regulations.
Activities	Emerald Hills Urban Village	Social Sustainability Framework (ssf) ⁴	A program for fostering sustainable living must satisfy the County's SSF.

3. <http://strathcona.ab.ca/Strathcona/Departments/Planning+and+Development+Services/Zoning+and+planning+documents/Municipal+Development+Plan/Municipal+Development+Plan+review/default.htm>

4. <http://strathcona.ab.ca/Strathcona/Departments/Family+and+Community+Services/Social+Sustainability+Framework.htm>

3.0 sustainable urban neighbourhood process

An integral part of the SUN Pilot Project is the Sustainable Urban Neighbourhood (SUN) Process⁵ initially developed by NRCan's Sustainable Buildings & Communities group. It is the sustainable development approach being applied to the Emerald Hills Urban Village.

The SUN Process is a comprehensive approach for generating a design concept and strategic plan for enabling and fostering sustainable living in neighbourhood-scale development. Focusing on assisting the developer committed to creating a sustainable urban neighbourhood, it is a process that optimizes synergies between environmental, economic, social, and cultural parameters.

Developers play a key role in determining the shape of the neighbourhoods and buildings that in turn impact heavily on our quality of life and on the environment that surrounds us. As the number of neighbourhood-scale developments adopting more sustainable development approaches emerge, the importance of enabling and fostering sustainable living becomes more apparent. A planning and design process that integrates design considerations and strategy options to enable more sustainable living is essential. Ecological footprint research demonstrates that more than 50% of a neighbourhood's ecological impact falls outside the built environment and is due to the net lifestyle impact of its residents. Without community buy-in and participation, a neighbourhood development plan – no matter how technically sound or innovative – will have little likelihood of achieving its sustainability goals.

Enabling and fostering sustainable living falls into four streams:

1. **enabling sustainable living** with planning and design choices that create opportunities for residents to live within the capacity of one planet while making sustainable living easy, practical, attractive and affordable.
2. **enabling quality of life** with planning and design decisions that enhance well being and social interaction in the built environment.
3. **fostering sustainable living** by engaging the community to create a program of initiatives and activities that influence popular attitudes and encourage change towards sustainable behaviors.
4. **fostering quality of life** by engaging the community in a range of social programs that will build social sustainability and ensure a healthy, connected, supportive environment for its residents for years to come.

What is unique about the SUN Process is that it provides a more robust, collaborative, and holistic process for identifying and refining a development concept that focuses on sustainable living and the quality of life.

5. Due for release Fall 2007. It will be posted on the Strathcona County Website when available. <http://strathcona.ab.ca/Strathcona/Departments/Planning+and+Development+Services/Sustainable+Development.htm>

3.1 sun methodology and framework

The SUN Process represents a dynamic planning process characterized by an expanded set of development parameters, a collaborative engagement process, and a robust suite of decision-support tools. It is a holistic planning and integrated design methodology comprising three phases: Initiate, Explore and Synthesize. It is structured around a framework that starts with high-level concepts of sustainability, and systematically unbundles them into more detailed goals, targets, and strategies (see Figure 3).

The SUN Framework forms a shared model, and a common language and understanding for those involved in the planning, design and implementation of a sustainable neighbourhood development. The net effect is that the process followed, the considerations explored, and the tools used allow for intentions and policies to be linked to the generation and implementation of sustainability plans.

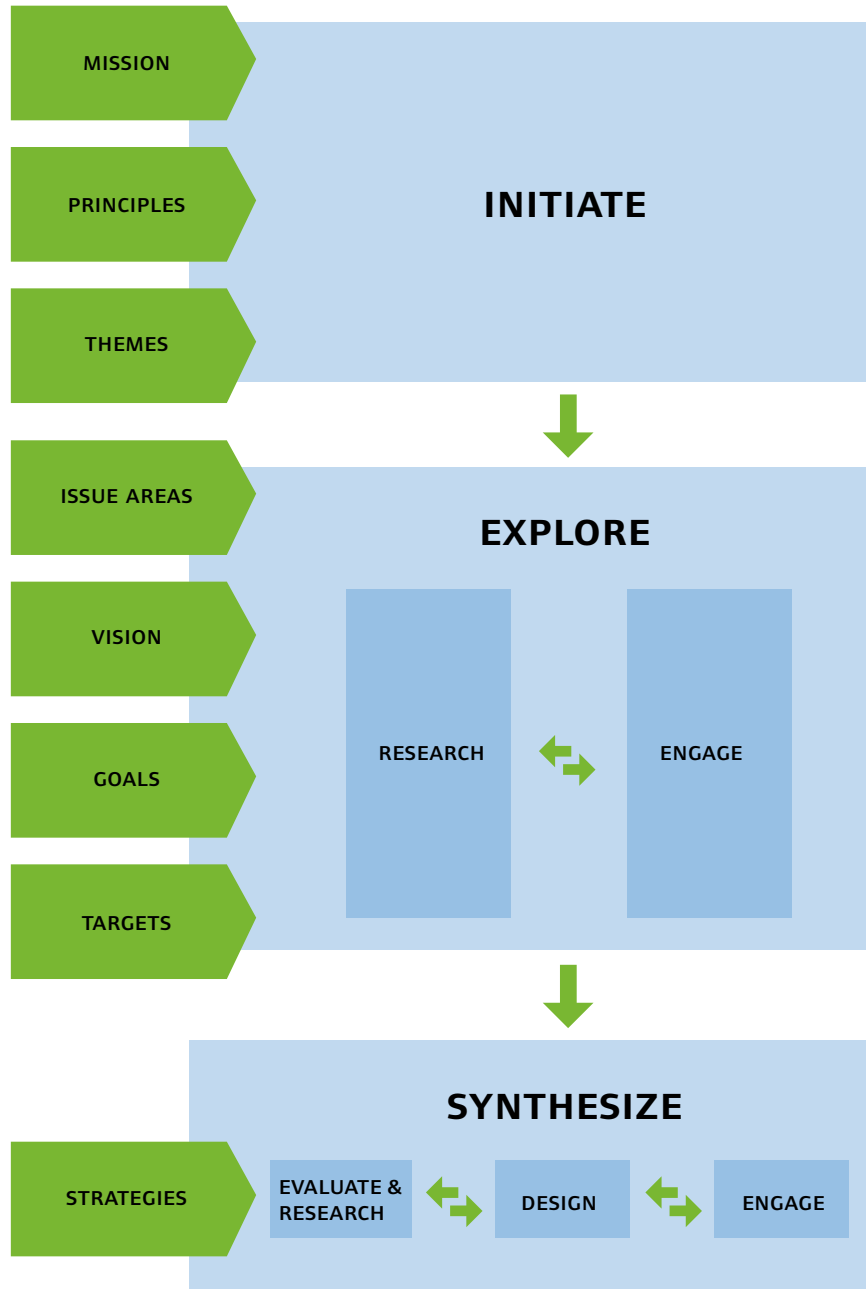


figure 3: the sustainable urban neighbourhood process

3.2 applying the sun process

The focus of the Emerald Hills Urban Village SUN Pilot Project is on designing and constructing an inclusive Urban Village within the Emerald Hills neighbourhood that respects and manifests the four pillars of sustainability – environmental, economic, social, and cultural. To achieve this, both sustainability principles and a sustainable living lens are being systematically applied to all decision-making throughout planning, design, and implementation.

The application of the SUN Process to the Emerald Hills Urban Village project is presented in Figure 4. This graphic depicts the various milestones that were achieved during this collaborative planning and design process. These milestones are described in more detail below. This SUN Guidelines document represents the key milestone, and demonstrates how following a SUN Process results in a set of coherent and urban design related directions.

phase 1: initiate

sun framework elements: mission / principles / themes

For developers considering a more sustainable approach to development, this phase provided the opportunity to investigate sustainable development and the SUN Process in greater detail. In this way, stakeholders were able to determine their level of commitment to sustainable development.

During this phase, the developers and key stakeholders crafted a Mission statement which articulated their commitment to moving towards achieving true sustainability for Emerald Hills Urban Village. A commitment was also made to apply the SUN Process to the Urban Village based on sustainable development principles which define conditions for success, and sustainable development themes which assist in determining issue areas.

milestone #1 / mission statement

“Christenson Developments and its key stakeholders will lead market-oriented land development towards collaborative, replicable models and processes that balance economic viability, environmental health, social equity and cultural vitality. Emerald Hills Urban Village will be a viable, inclusive neighbourhood that demonstrates the feasibility and desirability of adopting sustainable planning, design and implementation practices.”

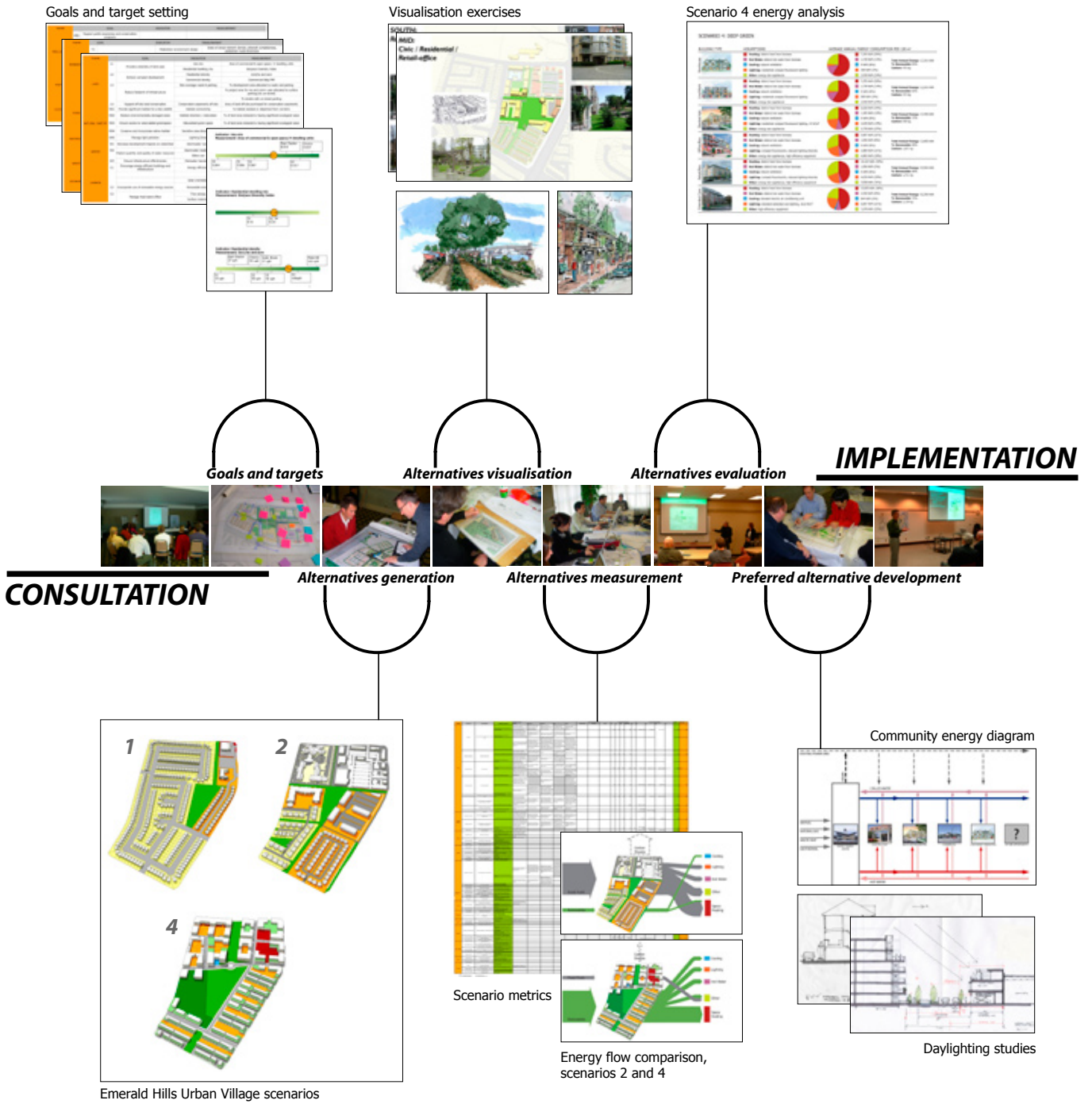


figure 4: applying the sun process to emerald hills urban village

**milestone #2 / 4 principles for guiding sustainable development
+ 12 themes for evaluating sustainable development**

4 PRINCIPLES FOR GUIDING SUSTAINABLE DEVELOPMENT

PRINCIPLE #1

Move towards, and ultimately achieve, solutions and activities that preserve, enhance and regenerate nature and life-sustaining ecosystems.

PRINCIPLE #2

Move towards, and ultimately achieve, solutions and activities that free us from our dependence on substances that are extracted from the earth's crust and accumulate in nature.

PRINCIPLE #3

Move towards, and ultimately achieve, cradle-to-cradle solutions and activities in design, manufacturing and consumption such that substances produced by society do not accumulate in nature.

PRINCIPLE #4

Move towards, and ultimately achieve, social solutions and activities that allow every person to meet basic human needs and achieve their potential in life, now and in the future.

12 THEMES FOR EVALUATING SUSTAINABLE DEVELOPMENT

LAND	CARBON	MATERIALS	WELL-BEING
NATURAL HABITAT	TRANSPORT	WASTE	EQUITY
WATER	FOOD	ECONOMY	CULTURE

phase 2: explore

sun framework elements: vision / issue areas / goals / targets

The unique opportunities and barriers presented by the Emerald Hills Urban Village SUN development were thoroughly explored prior to formulating design solutions. Stakeholders were engaged throughout this phase to provide input and feedback.

During this phase, Urban Village issue areas emerging from an investigation of the twelve themes were researched, and a Foundation Research Bulletin was prepared for each theme. Stakeholders crafted an Emerald Hills Urban Village Vision Statement. Goals describing the ultimate end points, targets defining the level of performance, and alternative strategies for achieving each goal were explored and visualized. Alternative design scenarios were developed, measured and evaluated.

All of this information was then compiled into the Charrette Brief which provided a detailed set of instructions to guide design charrette participants.

milestone #3: foundation research bulletins

The twelve Foundation Research Bulletins can be viewed on-line at:
<http://strathcona.ab.ca/Strathcona/Departments/Planning+and+Development+Services/Emerald+Hills/Brad2.htm>

milestone #4: vision statement

“Emerald Hills Urban Village will be an inspirational neighbourhood benefiting both people and the planet, now and in the future. It will integrate beautifully designed natural, public, private and commercial spaces into a pedestrian friendly, mixed use community for young families, active adults and seniors. It will make sustainable living easy, attractive and affordable by transforming homes, shops and services into opportunities to live, work, play and relax that enhance the health and well-being of both its citizens and the ecosystems upon which they rely.”

milestone #5: goals & targets

The initial set of goals, indicators and targets are presented in the Charrette Brief and can be viewed on-line at:
<http://strathcona.ab.ca/Strathcona/Departments/Planning+and+Development+Services/Emerald+Hills/Brad2.htm>.

The finalized goals and targets are contained within this document.

milestone #6: emerald hills urban village scenarios

Alternative site design scenarios were generated that explored the range of possibilities and showed how each one related to the proposed vision and goals for the project. Each scenario was measured using software modeling tools to determine its performance on a suite of indicators. These scenarios, along with the performance assessment, are included in the appendices of this document.

milestone #6: charrette brief

The Charrette Brief identified what needed to be incorporated into the master concept plan to support the sustainable development principles and themes. It can be viewed on-line at:

<http://strathcona.ab.ca/Strathcona/Departments/Planning+and+Development+Services/Emerald+Hills/Brad2.htm>

phase 3: synthesize

sun framework elements: strategies

One of the most important benefits of true collaboration in neighbourhood planning and design is ending up with a plan that minimizes costly rework and results in a built project. The Urban Village design team was tasked with producing a master concept plan and a set of guidelines prepared to a level that would inform the detailed design and engineering.

During this phase, design alternatives and strategies were evaluated, measured, and synthesized into a preferred design. The Master Concept Plan and SUN Guidelines that emerged represent the Emerald Hills Urban Village vision and goals collectively agreed upon by project stakeholders.

milestone #7: master concept plan

The Emerald Hills Urban Village Master Concept Plan is presented in Figures 5 and 6.

milestone #8: sun guidelines

The SUN Guidelines document brings together in one place the many considerations and decisions that have been part of the creation of the Master Concept Plan for Emerald Hills Urban Village. It embodies what results when the SUN Process is followed and shows how the framework is transformed from a skeleton into a detailed package of decisions and directions that can guide the detailed design.

4.0 applying the sun guidelines

The SUN Guidelines document is divided into fourteen modules:

- an introductory module;
- twelve theme modules, one for each sustainability theme; and,
- an appendix module.

All of the twelve theme modules have been laid out in a consistent manner to facilitate navigation. Each module comprises the following four sections:

theme overview

This section provides a description of the theme, why it is important, and how it applies to Emerald Hills Urban Village. It includes a Summary Table of Goals and Strategies which are described in detail in the subsequent section.

planning & design decisions

This section details the planning and design decisions for each charrette process strategy for each of the seven Areas identified in the Emerald Hills Urban Village Land Use Budget⁶. In addition, it details decisions that apply to the Municipal Reserve and Public Utility Lots, and includes a description of how the strategy applies to the overall development site.

detailed design tasks

This section highlights Detailed Design Tasks identified during the charrette process as needing to be addressed by the integrated design team as they carry out the detailed design. LEED for Neighbourhood Development prerequisites and credits are also presented and must be satisfied.

fostering sustainable living

This section highlights strategies and initiatives for fostering sustainable behavior. This information provides the integrated design team with the sustainable living lens to be applied throughout the detailed design. Decisions made during the detailed design process that enable sustainable living are intended to support the Fostering Sustainable Living Program that will emerge as the project is implemented.

Figures 5 and 6 on the following pages represent the Emerald Hills Urban Village Master Concept Plan referenced in the modules. Additional perspectives and views are shown throughout the SUN Guidelines.

6. <http://strathcona.ab.ca/Strathcona/Departments/Planning+and+Development+Services/Emerald+Hills/Brad2.htm>



figure 5: master concept plan referenced in theme modules.

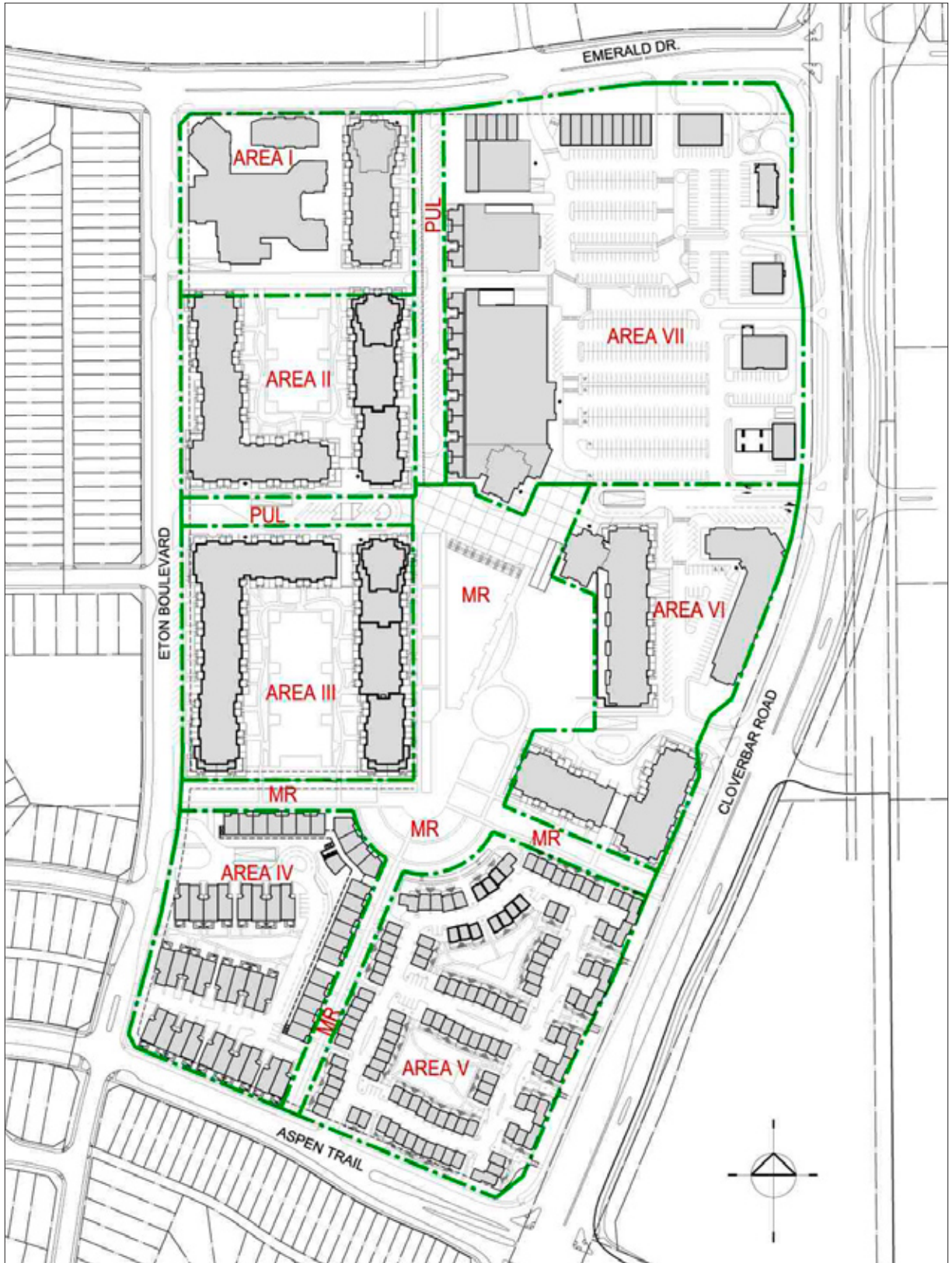


figure 6: master concept plan referenced in theme modules.