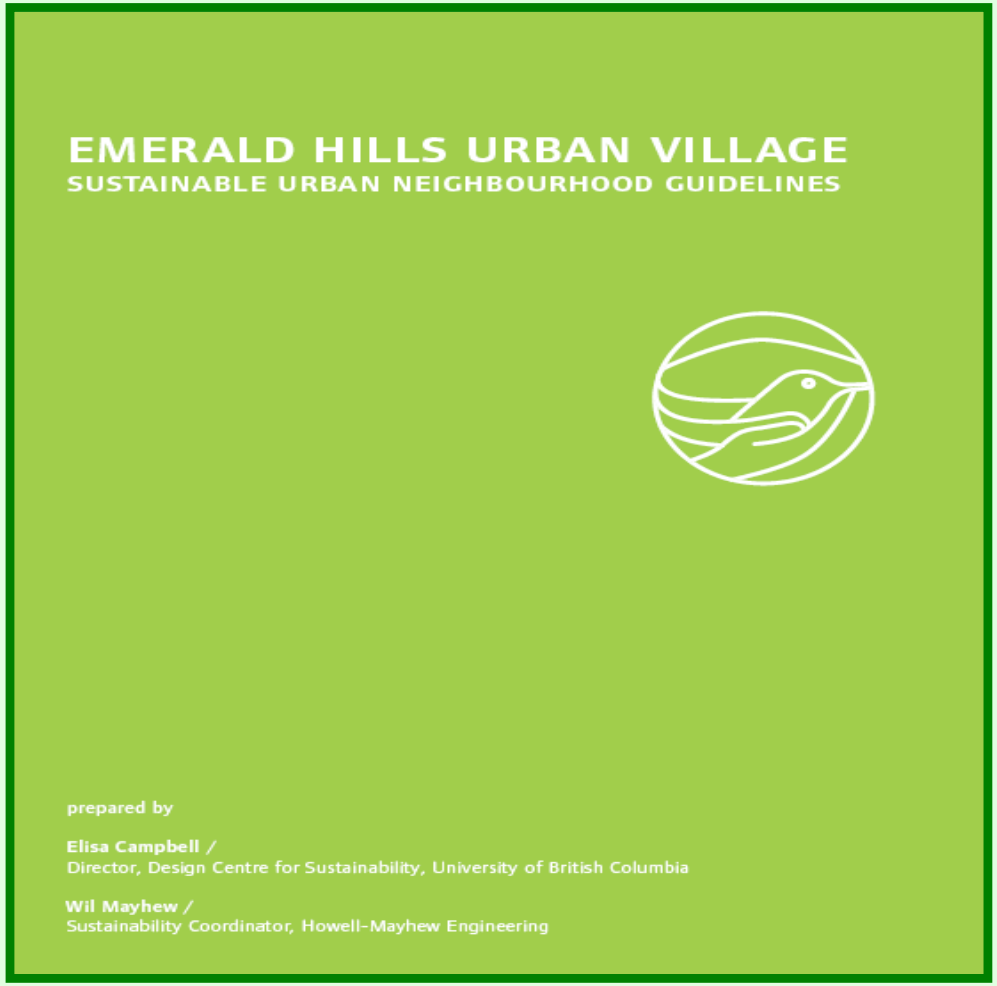
Sustainable Neighbourhoods
Our New Design Assignment

SuN Pilot Project

The Approach

The Application



Testament to Collaboration

Developer Team:

CHRISTENSON DEVELOPMENTS

CAMERON DEVELOPMENT CORPORATION

BEST Communities BY LANDMARK

GENSTAR Bringing Land to Life

Sponsors:

Natural Resources Canada / Ressources naturelles Canada

FCM Federation of Canadian Municipalities / Fédération canadienne des municipalités

Strathcona County

Design Team:

Design Centre for Sustainability, The University of British Columbia

howell-mayhew engineering, inc.

Arndt Tkalcic Architecture

ISL Engineering and Land Services

UMA | AECOM

B U N T & ASSOCIATES Transportation Planners & Engineers

AL-TERRA ENGINEERING

SuN LIVING

Developing Neighbourhoods with a One Planet Footprint

What is SuN LIVING?

- SuN LIVING is a planning and design approach that facilitates sustainable neighbourhood development.

- It is about doing the right things, and then doing the right things right.

SuN LIVING Preface - Sample

How is SuN LIVING used?

SuN LIVING offers an **approach** for translating broader concepts of sustainable development and sustainable living into planning and design decisions at the neighbourhood scale. By providing a common language, an inclusive approach, and an understanding of planning and designing for a one planet footprint, **SuN LIVING** facilitates sustainable neighbourhood development.

SuN LIVING is represented as a five-step **framework** that starts with high-level sustainable neighbourhood concepts and systematically unpacks them into detailed issue areas, goals, indicators, targets, strategies and actions.

The application of this decision-making framework to a real-world sustainable neighbourhood project requires a detailed **work plan**, which is presented in this how-to book. The work plan expands the five framework steps with specific tasks for each step and proposed activities for each task. It translates sustainable development concepts into a physical plan and course of action that guide a project through detailed design and construction.

Who is SuN LIVING for?

SuN LIVING has been applied to a real-world project called Emerald Hills Urban Village, Strathcona County, Alberta. Although **SuN LIVING** is oriented to developers and municipal staff as key user groups, there is a range of other users that can benefit from this approach. The users and how they applied **SuN LIVING** to the project are identified below.

AUDIENCE	USERS	APPLICATIONS
Public Sector	Elected officials Policy makers Department heads Senior researchers Municipal staff	• As a resource for senior officials wanting to better understand the implications of committing to sustainable development. • As a reference when integrating sustainable development philosophy and guidelines into policy documents. • As a methodology for establishing processes and tools to serve as a platform for the development of sustainable community programs. • As a process and framework that leads to a set of guidelines through which to evaluate development applications.
Private Sector	Developers Consultants Associations Educators	• To assess the implications of adopting a sustainable development business model and to commit to moving forward. • To increase understanding of the sustainable development processes compared to traditional ones. • To establish a project management path for delivering sustainable neighbourhood developments. • As the basis for a terms of reference when engaging consultants. • To generate a work plan for the planning, design and implementation of a sustainable neighbourhood project. • To develop the planning and design decisions required to successfully implement a sustainable neighbourhood development plan. • To develop the basis for a program to foster sustainable living. • As the basis for changing development so sustainable neighbourhoods become the norm.

SuN LIVING Preface - Sample

What are the benefits of applying SuN LIVING?

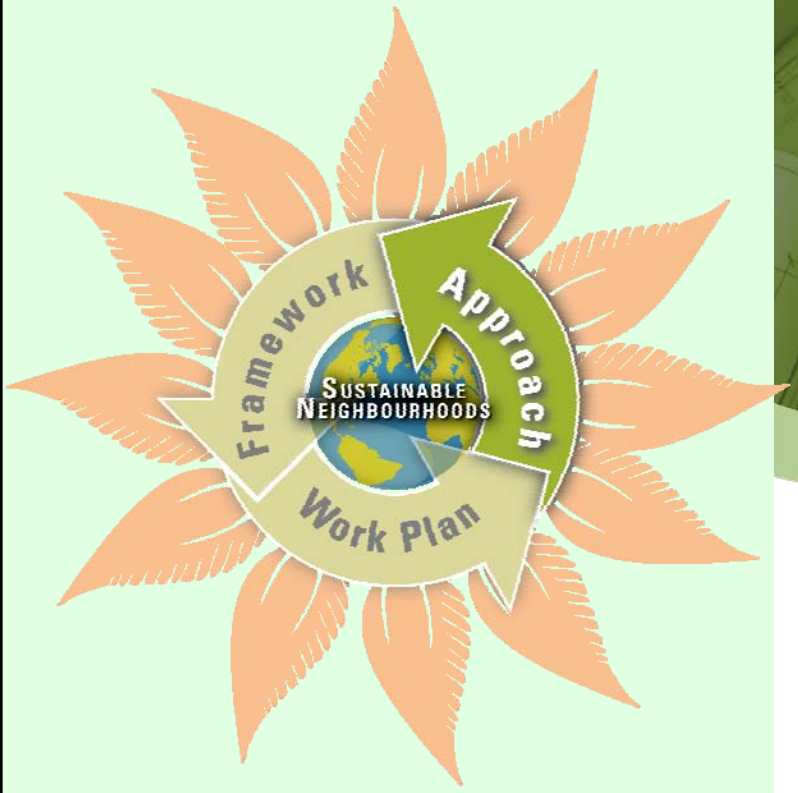
Based on feedback from those directly involved with the Emerald Hills Urban Village project, the benefits of applying **SuN LIVING** are exciting and numerous.

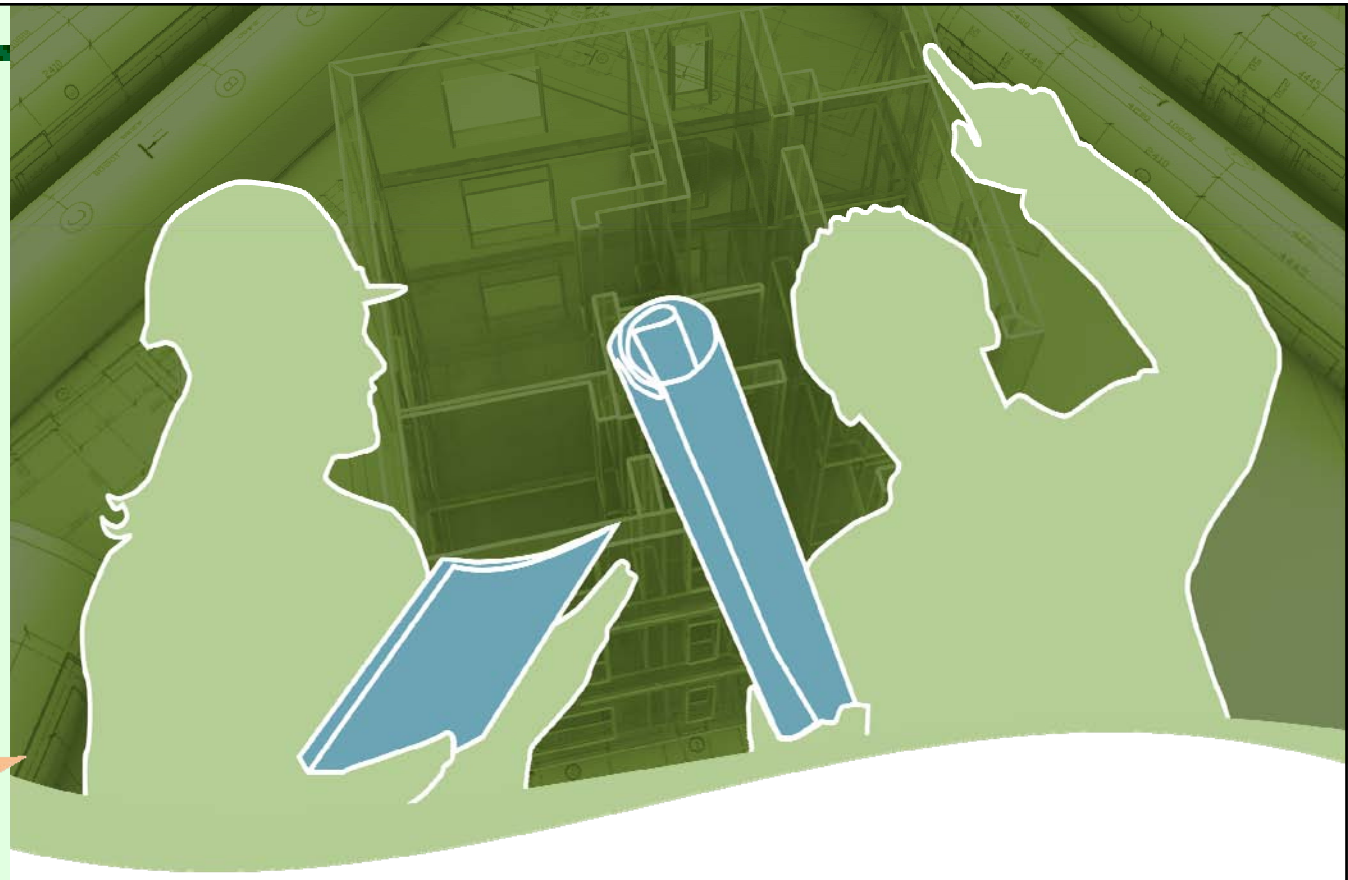
STAKEHOLDER	BENEFITS OF APPLYING SuN LIVING
Municipality	• Integrates with traditional development approval processes. • Links intentions and policies to development and implementation. • Generates metric and measurable outcomes for assessing performance. • Builds public/private relationships based on understanding and trust.
Developer	• Provides a single, inclusive approach that integrates with traditional processes. • Can be adapted to a wide range of sustainable development initiatives. • Optimizes projects based on potential rather than a standard set of solutions. • Generates a sound business case with feasible sustainable solutions. • Takes development beyond urban form to considerations for Earth-friendly living.
Consultant	• Integrates with traditional planning and design processes. • Engages key stakeholders and consultants from the onset to ensure their ultimate buy-in. • Immerses the development and design teams in holistic planning and integrated design. • Approaches sustainable neighbourhood development in a systematic and achievable way. • Provides a methodology for raising essential questions and finding the answers. • Facilitates collaboration and directs research towards optimal and synergistic alternatives.
Future Residents	• Helps view neighbourhood development through a sustainable lifestyle lens. • Creates neighbourhoods with a sense of inclusion and belonging. • Empowers residents with opportunities to contribute to their local and global communities. • Fosters sustainable living by linking well-being and quality of life to urban designs.

What are the keys to success?

Stakeholders and team members who were directly involved in the Emerald Hills Urban Village project agree that the successful application of **SuN LIVING** was facilitated by the following essential elements:

- commitment at all levels to moving towards achieving sustainable neighbourhood development;
- project champions within each key stakeholder group;
- a cooperative and collaborative relationship between the municipality and the development team;
- integration with current planning practices;
- generation of a sound business case;
- a sustainability coordinator with a passion for the project and the ability to gain the trust and confidence of the stakeholders, and who is empowered to act as a representative for the entire project team; and
- a sustainability consultant to facilitate and guide the application of **SuN LIVING**.



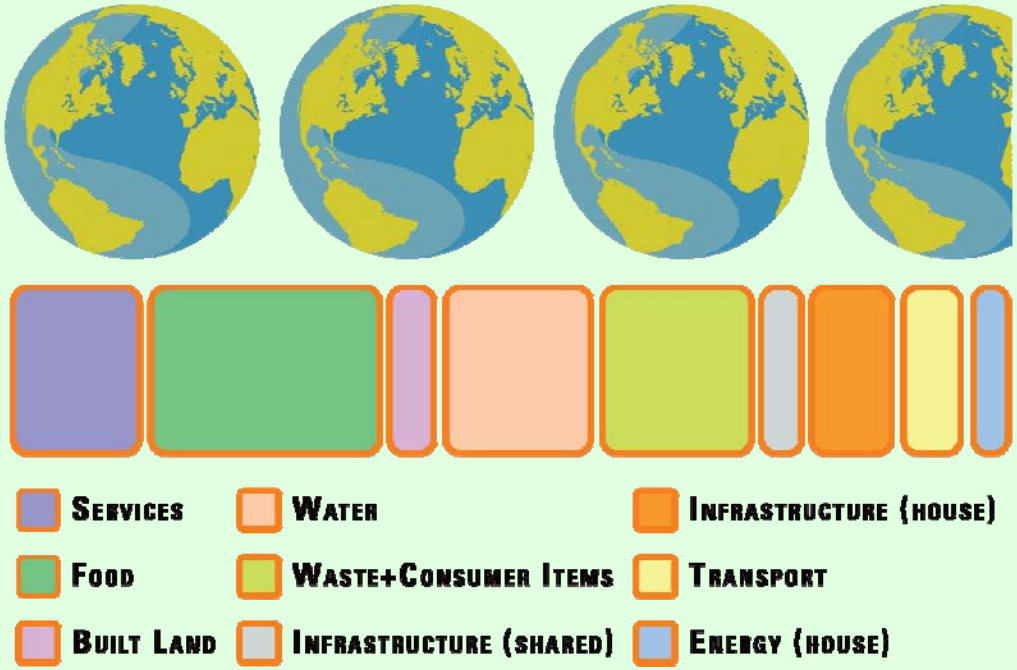


THE APPROACH

Our First Challenge:

To develop and live in a sustainable manner

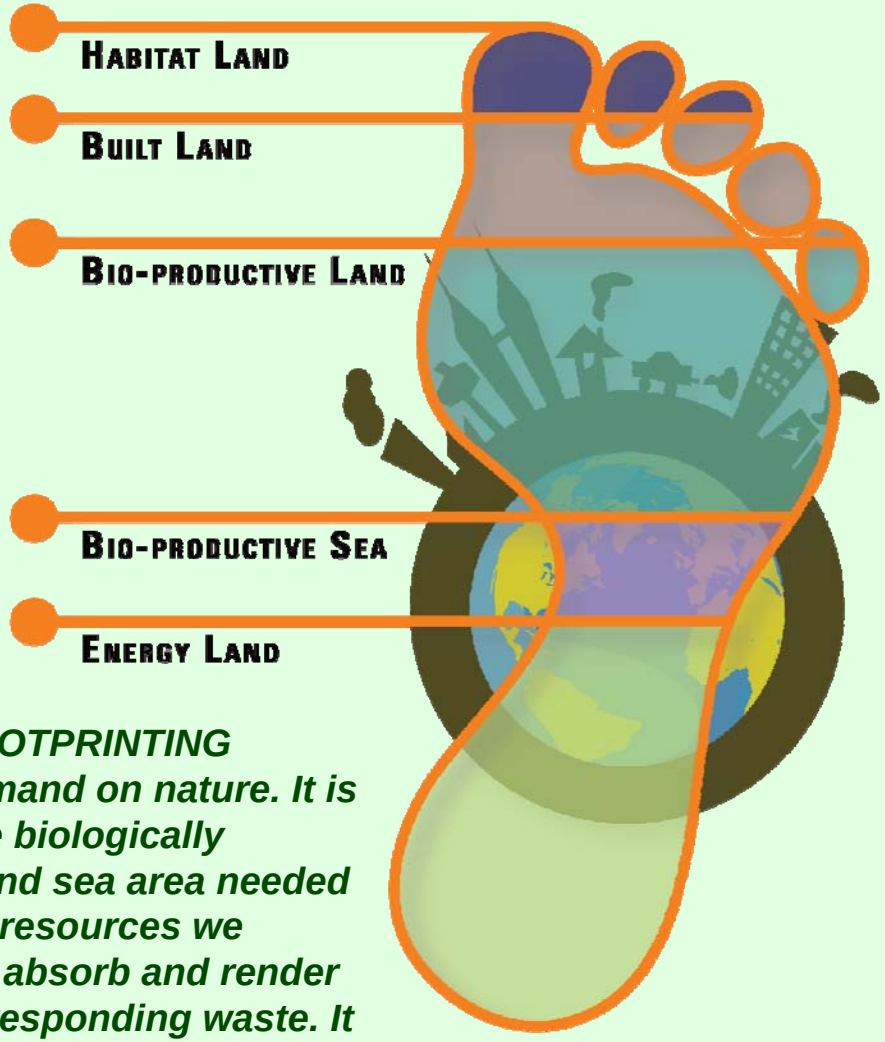
Our Impact



Key Needs:

Imagine development that meets the conditions of well-being for all of Earth's ecosystems, both natural and human, such that all life can flourish indefinitely.

Sustainable Development

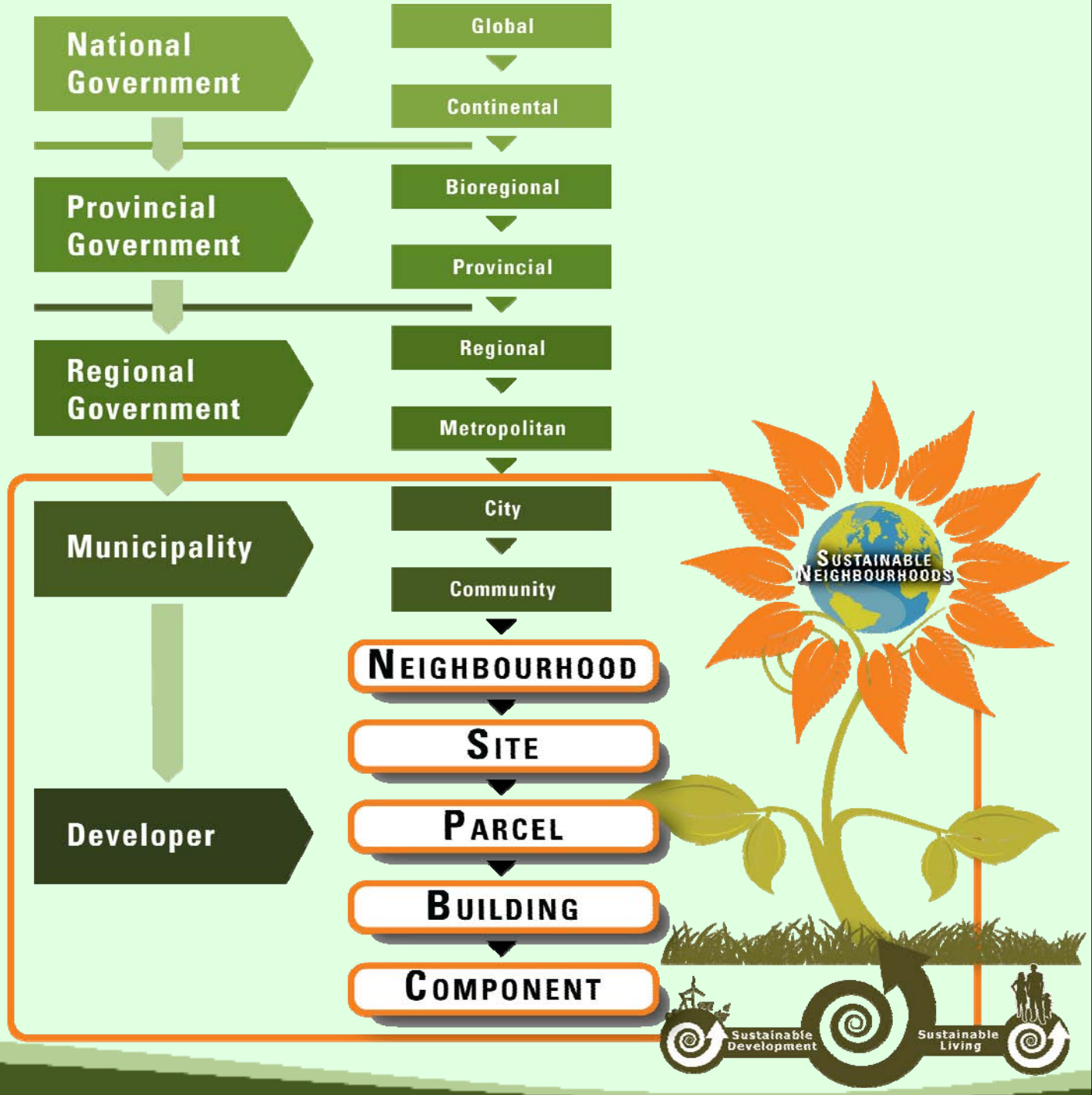


***ECOLOGICAL FOOTPRINTING** measures our demand on nature. It is an estimate of the biologically productive land and sea area needed to regenerate the resources we consumes and to absorb and render harmless the corresponding waste. It is an estimate of how many planets it would take to support humanity if everybody lived a given lifestyle.*

Imagine the possibility of enjoying a high quality life while minimizing our ecological impact and living within our fair share of the Earth's resources.

The Approach:

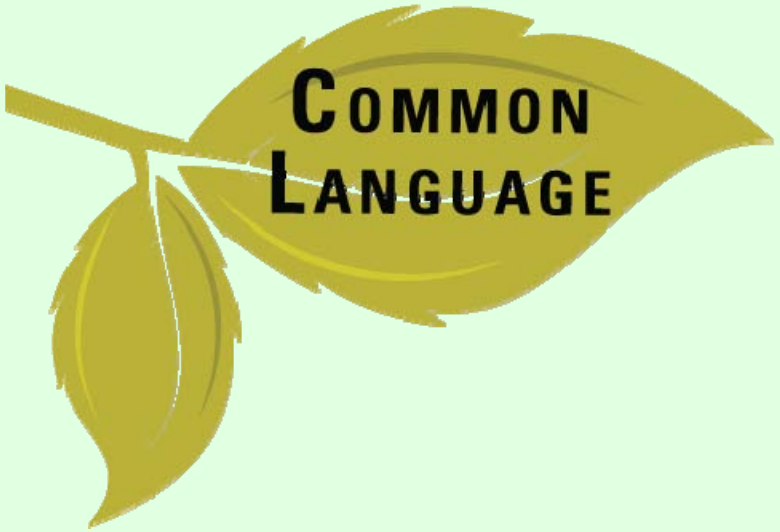
Sustainable Neighbourhood Development



Our Second Challenge:

To plan and design in a sustainable manner

Key Need:



Key Need:

Common Language

Scientific Laws

This level refers to the "rules of the game" – natural laws that determine how systems function. Examples include the laws of thermodynamics.

Sustainability Principles

This level defines the "success outcome" we wish to achieve. Principles must be rigorous enough to allow us to achieve a sustainable future.

Strategic Guidelines

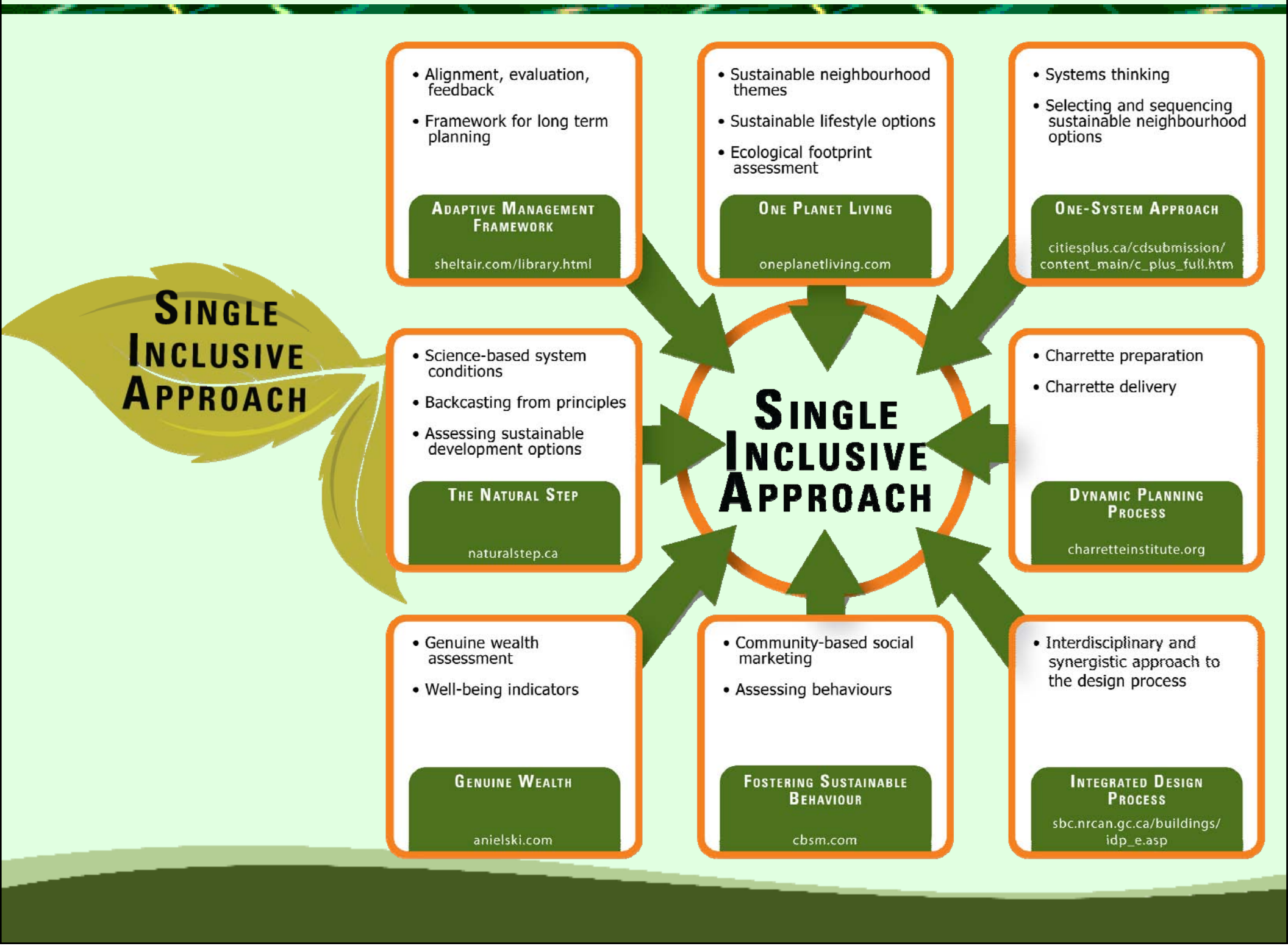
This level refers to " process characteristics". Guidelines are generally neutral with respect to sustainability. Examples include stakeholder engagement and return on investment.

Actions

This level describes "practical measures" for achieving the desired outcome. Actions must adhere to all sustainability principles. Note that concepts such as efficiency, zero carbon, natural habitat, and culture refer to categories of actions.

Tools

This level refers to "support tools" that assist in planning and designing, selecting and assessing actions, and measuring progress. Examples include opportunities and constraints reports, workshops and charrettes, site and scenario models, and indicators and targets.


SINGLE INCLUSIVE APPROACH
• Alignment, evaluation, feedback
• Framework for long term planning
ADAPTIVE MANAGEMENT FRAMEWORK
sheltair.com/library.html
• Sustainable neighbourhood themes
• Sustainable lifestyle options
• Ecological footprint assessment
ONE PLANET LIVING
oneplanetliving.com
• Systems thinking
• Selecting and sequencing sustainable neighbourhood options
ONE-SYSTEM APPROACH
citiesplus.ca/cdsubmission/content_main/c_plus_full.htm
• Science-based system conditions
• Backcasting from principles
• Assessing sustainable development options
THE NATURAL STEP
naturalstep.ca
SINGLE INCLUSIVE APPROACH
• Charrette preparation
• Charrette delivery
DYNAMIC PLANNING PROCESS
charretteinstitute.org
• Genuine wealth assessment
• Well-being indicators
GENUINE WEALTH
anielski.com
• Community-based social marketing
• Assessing behaviours
FOSTERING SUSTAINABLE BEHAVIOUR
cbsm.com
• Interdisciplinary and synergistic approach to the design process
INTEGRATED DESIGN PROCESS
sbc.nrcan.gc.ca/buildings/idp_e.asp

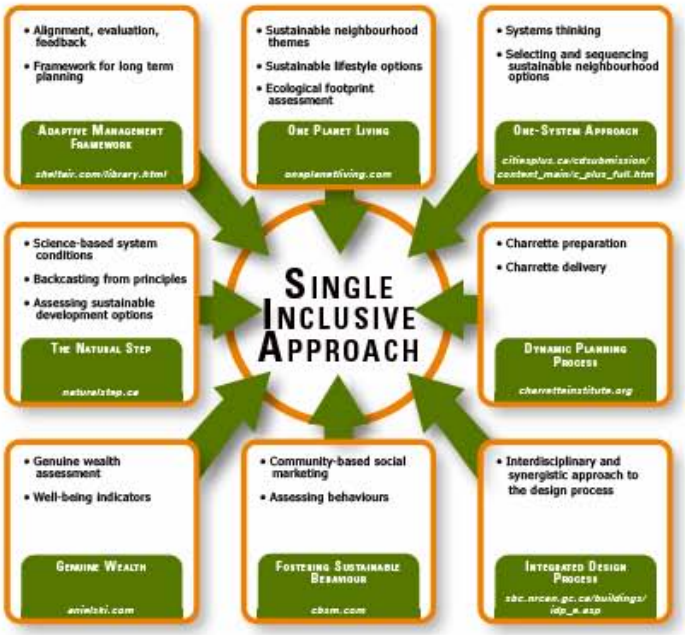
The Approach:

SuN LIVING

SuN LIVING Approach - Sample

Key Need: A Single, Inclusive Approach

A comprehensive strategic model is required to guide the transition to a sustainable future and facilitate a clearer understanding of how to balance social, environmental and economic parameters. A number of established, pragmatic and interrelated sustainable development approaches have been identified as having the elements essential to a single, inclusive approach. These elements are presented in the figure below.

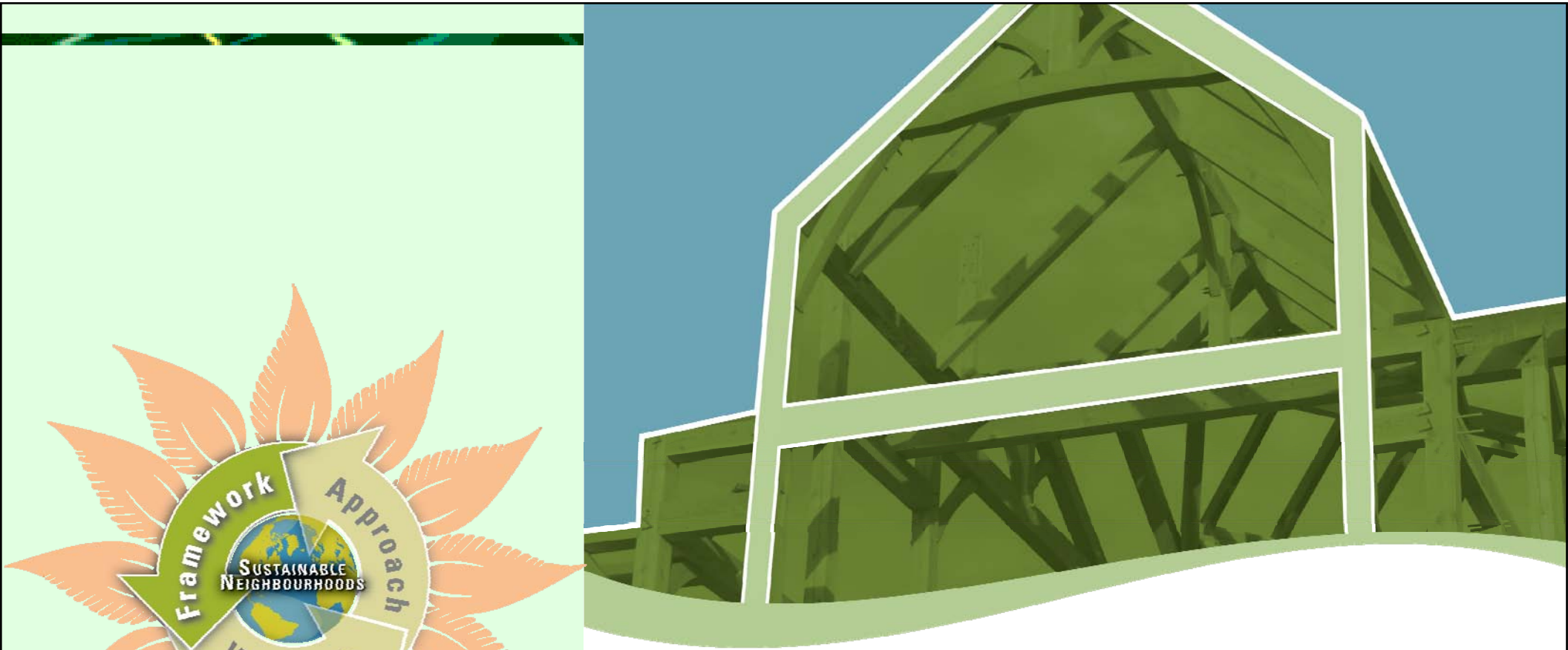


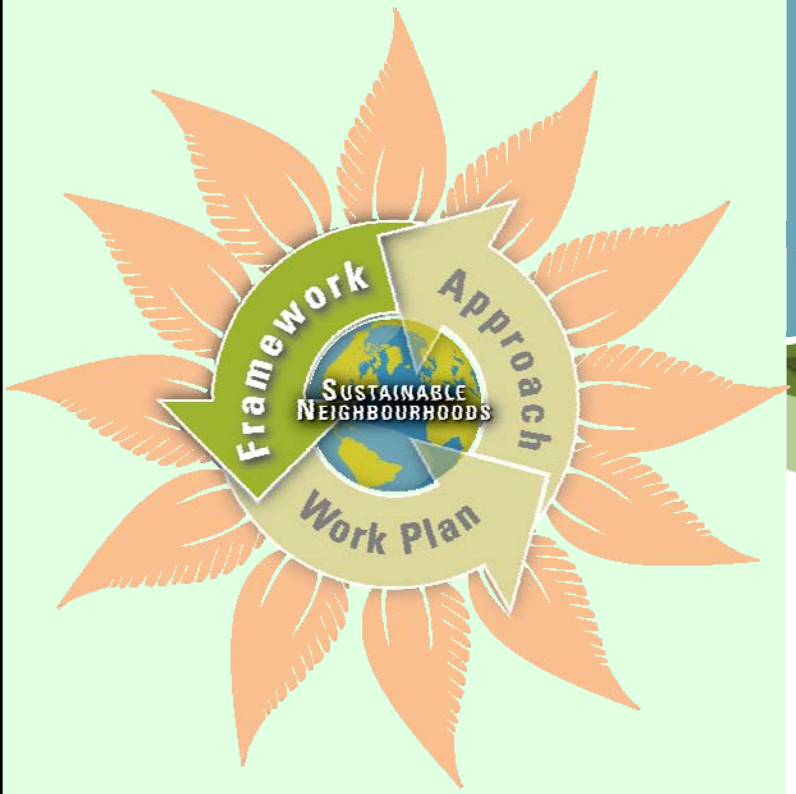
THE APPROACH

SuN LIVING: Neighbourhoods with a One Planet Footprint

SuN LIVING supports the development of neighbourhoods with a one planet footprint by offering a single, inclusive development approach framed around a common language. Application of the **SuN LIVING** approach results in sustainable neighbourhood development that:

- systematically applies both sustainable neighbourhood principles and a sustainable living lens to all decision-making throughout planning, design and implementation;
- provides planning and design decisions that balance local impacts on economic prosperity, social responsibility, environmental stewardship and cultural vitality within a global context;
- creates opportunities that enable residents to live within the Earth's capacity while making sustainable living easy, attractive and affordable;
- fosters sustainable living so all residents achieve a high quality of life without sacrificing a modern, urban and mobile lifestyle; and
- gets us on the path to neighbourhoods with a one planet footprint.

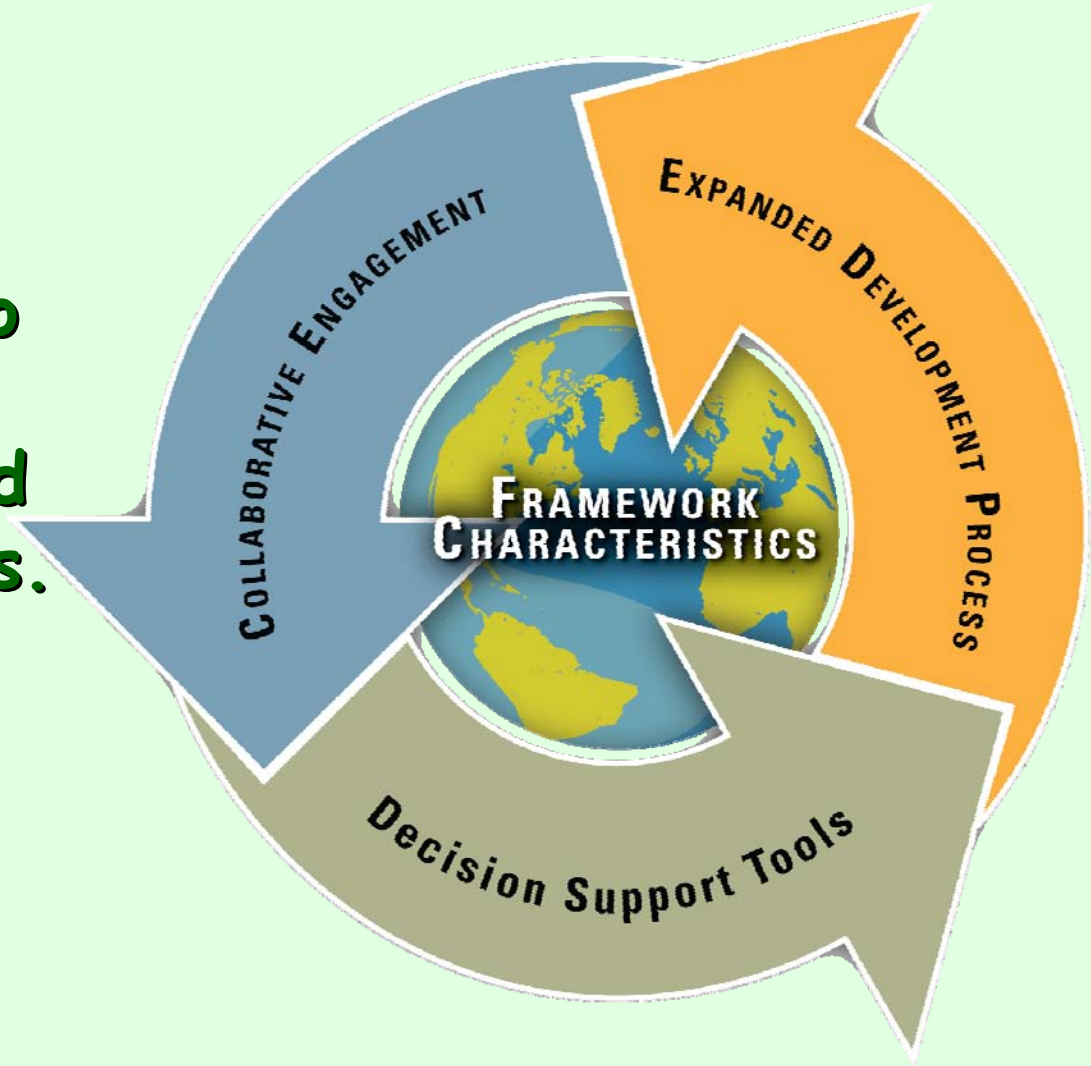




THE FRAMEWORK

SuN LIVING Framework

Links broader principles to detailed actions allowing intentions to be translated into on-the-ground results.



STEP: 1 COMMIT

A commitment to sustainable neighbourhood development is established.

- Mission
- Principles
- Themes

STEP: 2 INITIATE

Key pieces needed to plan, design and implement a sustainable neighbourhood are put in place.

- Vision

STEP: 3 EXPLORE

Opportunities and constraints are investigated, and project goals and performance targets are established.

- Issue Areas
- Goals
- Indicators
- Targets

STEP: 4 SYNTHESIZE

Alternative designs are synthesized into a preferred concept plan and course of action.

- Strategies
- Actions

STEP: 5 IMPLEMENT

The SuNLIVING Implementation Manual is prepared and passed forward.

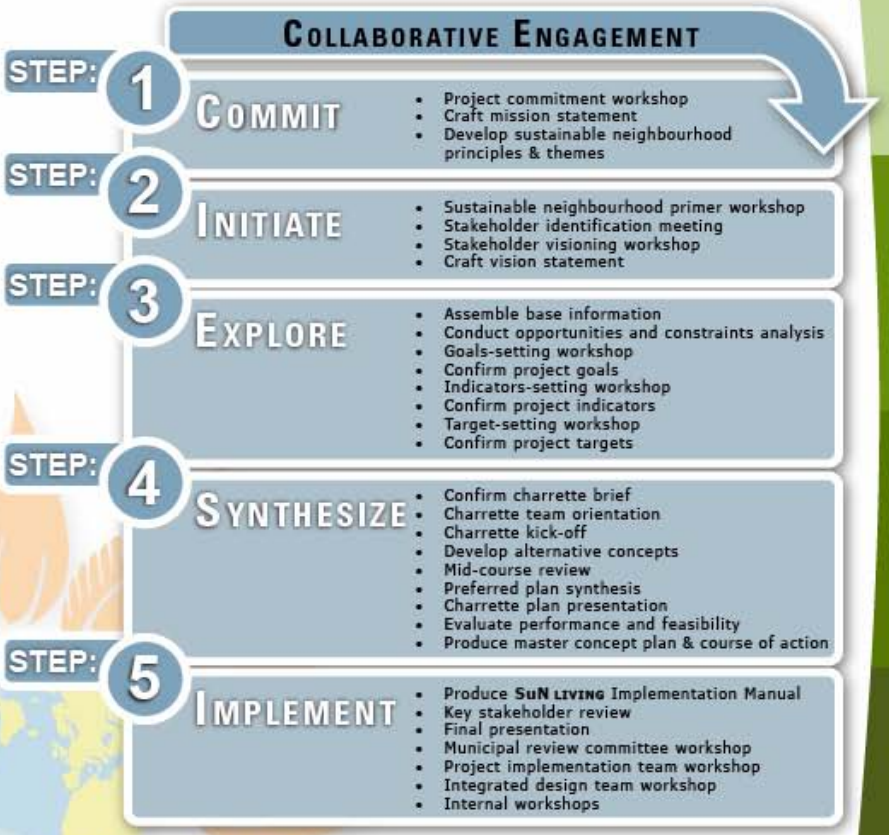
- Guidelines

DECISION SUPPORT TOOLS

SuN LIVING Framework - Sample

Collaborative Engagement

The first key characteristic of the **SuN LIVING** framework is collaborative engagement. Collaboration is at the heart of this approach, engaging diverse groups of individuals at every step of the project. Collaborative engagement allows for all unique viewpoints and skills at the table to filter into the planning and design process. Stakeholders agree to cooperate wherever possible to achieve synergies and system solutions thereby supporting the best outcome. The figure on the facing page indicates the activities in each **SuN LIVING** step where stakeholders come together to collaborate in achieving specific tasks.



SuN LIVING Framework - Sample

Decision Support Tools

The third key characteristic of the **SuN LIVING** framework is a suite of decision support tools. These tools are techniques and devices to help decision makers understand, compare, and evaluate the anticipated value or benefit of particular design choices. A robust, well integrated toolkit is crucial for connecting issues of liveability and quality of life to issues of sustainable development and urban design. Embedded in **SuN LIVING** are a collection of tools that fall into the following categories[1].

Engagement Tools

These tools involve project participants directly and collaboratively in the decision-making process and figure prominently throughout all steps.

Framing Tools

These tools logically and clearly organize sustainable neighbourhood considerations. They become more prominent once principles and themes have been established.

Informing Tools

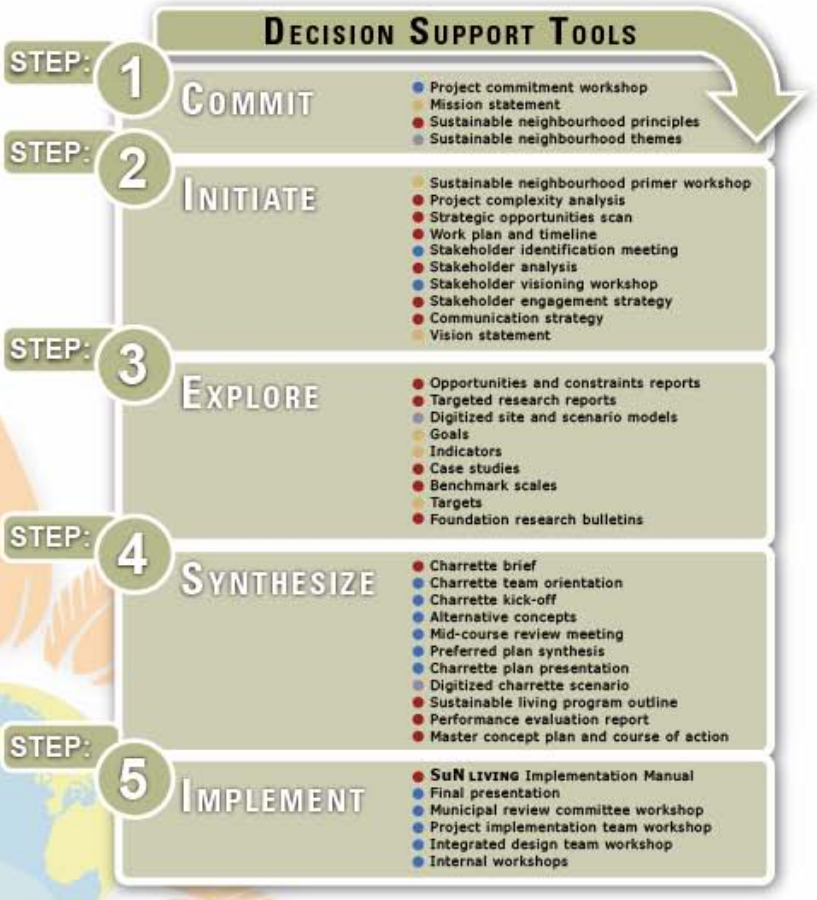
These tools educate decision makers about sustainable neighbourhood issues. They play a more important role as project issue areas, goals, and targets are defined.

Modeling Tools

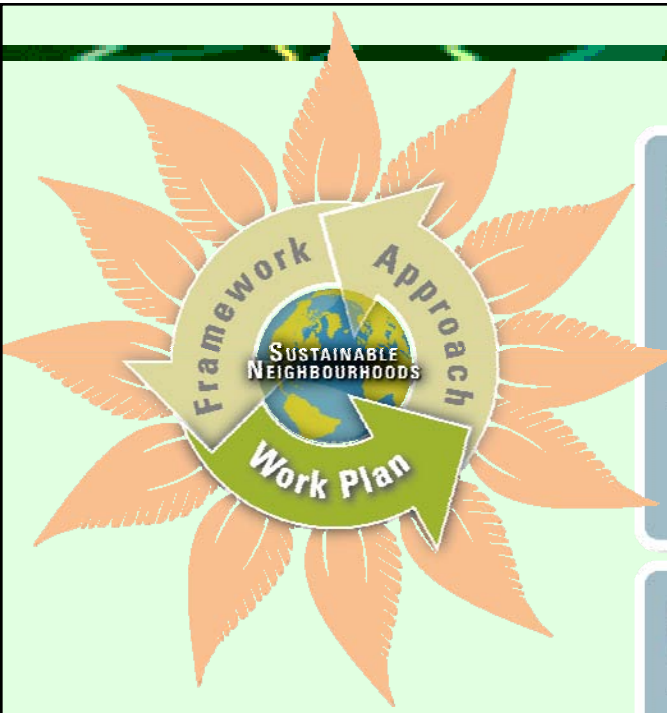
These tools reveal the performance of alternative designs against sustainable goals and targets. They figure prominently when performance assessment and strategy evaluation are required.

The tools selected in each category will vary for a specific project. The palette of tools associated with each framwork step is shown on the facing page.

1 *Decision Support Tools in a Sustainable Urban Neighbourhood (SuN) Pilot Project*, Ronald Kellett et al., 2007.



THE WORK PLAN



TASKS AND ACTIVITIES

STEP 1: COMMIT

TASK 1: Establish project commitment
- Assemble core team
- Engage sustainability consultant
- Select sustainability coordinator
- Deliver project commitment workshop

TASK 2: Frame project commitment
- Craft mission statement
- Develop sustainable neighbourhood principles
- Generate sustainable neighbourhood themes

STEP 2: INITIATE

TASK 3: Clarify project potential
- Assemble project team
- Determine municipal buy-in
- Identify municipal approval process hierarchy
- Deliver sustainable neighbourhood primer workshop
- Conduct project complexity analysis
- Conduct strategic opportunities scan

TASK 4: Develop process and engagement strategies
- Prepare work plan and timeline
- Conduct stakeholder identification and analysis
- Prepare stakeholder engagement strategy

TASK 5: Develop communication strategy
- Engage a communications group
- Develop a communications brief

TASK 6: Establish project vision
- Deliver stakeholder visioning workshop
- Craft vision statement

STEP 3: EXPLORE

TASK 7: Determine Issue areas
- Assemble base site information
- Conduct opportunities and constraints analysis
- Conduct targeted research
- Initiate foundation research bulletins

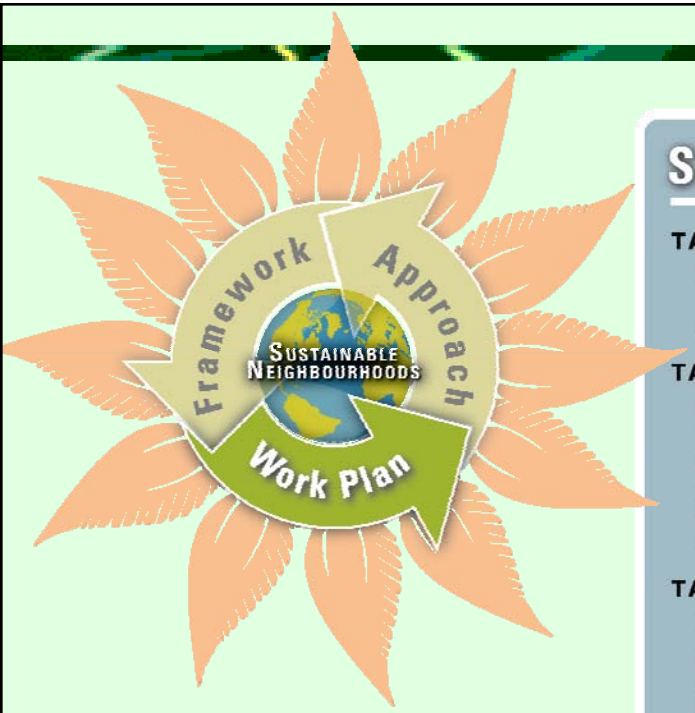
TASK 8: Develop Project models
- Generate digitized site model
- Determine number and type of scenarios
- Prepare digitized scenario models

TASK 9: Establish goals
- Identify preliminary goals
- Deliver goal-setting workshop
- Confirm project goals

TASK 10: Establish indicators
- Identify preliminary indicators
- Deliver indicator-setting workshop
- Confirm project indicators

TASK 11: Establish targets
- Identify relevant case studies
- Assess scenario performance for each indicator
- Prepare benchmarking scales
- Identify preliminary targets
- Deliver target-setting workshop
- Confirm project targets

TASK 12: Generate strategies and actions
- Identify potential strategies and actions
- Finalize foundation research bulletins



TASKS AND ACTIVITIES

STEP 4: SYNTHESIZE

TASK 13: Prepare charrette brief
- Determine charrette outputs
- Prepare charrette brief
- Confirm charrette brief

TASK 14: Prepare for charrette
- Assign a charrette manager / facilitator
- Assemble the charrette team
- Choreograph the charrette
- Organize charrette logistics
- Prepare and assemble base maps and design materials

TASK 15: Deliver charrette
- Deliver charrette team orientation
- Host public kick-off
- Develop alternative concepts
- Deliver mid-course review
- Conduct preferred plan synthesis
- Host charrette plan presentation

TASK 10: Establish indicators
- Identify preliminary indicators
- Deliver indicator-setting workshop
- Confirm project indicators

TASK 16: Develop master concept & course of action
- Update work plan and timeline
- Update stakeholder analysis and engagement strategy
- Conduct targeted research
- Generate digitized charrette scenario
- Select and sequence strategies and actions
- Outline sustainable living program
- Evaluate performance and feasibility
- Assess compliance with sustainable neighbourhood principles
- Produce master concept plan and course of action
- Confirm master concept plan and course of action
- Rezone development site (if required)

STEP 5: IMPLEMENT

TASK 17: Produce SuN LIVING Implementation Manual
- Prepare template for implementation manual
- Compile implementation manual information
- Conduct final review and refinement

TASK 18: Deliver final presentation
- Host public presentation

TASK 19: Establish implementation teams
- Assemble project implementation team
- Establish municipal sustainable neighbourhood review committee

TASK 20: Pass SuN LIVING Implementation Manual forward
- Deliver municipality review committee workshop
- Deliver project implementation team workshop
- Deliver integrated design team workshop
- Deliver internal workshops as required

The Work Plan Applied

SuN LIVING Work Plan Support Material

- Engagement Tools
- Framing Tools
- Informing Tools
- Modeling Tools
- Additional Support
- EHUV Case Study

SuN LIVING Implementation Manual

SuN LIVING Work Plan - Sample

STEP: 4 SYNTHESIZE

OVERVIEW

This step brings together all of the information collected through targeted research and framed within the decision support framework. This information is synthesized into a preferred plan that optimizes synergies between different aspects of the project. By the end of this step, a master concept plan and course of action have emerged, laying the foundation for the preparation of the *SuN LIVING Implementation Manual.*

TASK 13: PREPARE A CHARRETTE BRIEF

Research information is compiled into a charrette brief that serves as an orientation and instruction manual for the charrette.

TASK 14: PREPARE FOR CHARRETTE

The importance of the charrette choreography cannot be overstated, making this task crucial. The charrette team is formed, the schedule is prepared and all charrette logistics are planned, coordinated and carried out.

TASK 15: DELIVER THE CHARRETTE

Alternative designs are developed and synthesized into a preferred concept plan through a series of feedback loops that engage the stakeholder group.

TASK 16: DEVELOP MASTER CONCEPT AND COURSE OF ACTION

The development of the master concept plan and course of action are carried out in parallel. The charrette plan, strategies and actions are assessed and adjusted until project targets have been optimized.

TASKS AND ACTIVITIES

TASK 13: PREPARE CHARRETTE BRIEF

Determine charrette outputs

The project team generates an initial list of the charrette outputs that will be required to produce the master concept plan and eventually the *SuN LIVING Implementation Manual.* This essential list ensures that there is a common understanding of the scope of the design and that the choreography (flow and timing, participants, schedule, etc.) is appropriate to the desired end product.

Additional Support

NCI Charrette Handbook: 1.1.2 Project Mission and Products;
NCI Charrette Planner Forms Kit: 1.1.2 Charrette Products List

SuN LIVING Work Plan - Sample

Prepare charrette brief

The charrette brief represents a single resource that concisely summarizes all information from the Initiate and Explore steps. It serves as a guide to what needs to be accomplished during the design event. Working with the project team, the sustainability consultant prepares a template of the charrette brief and compiles the information (see Table 2).

TABLE: 2	CHARRETTE BRIEF SUGGESTED CONTENT
Introduction	Describes the project site with its challenges and constraints.
Background	Provides the context within which the sustainable neighbourhood project is operating.
Project area	Describes the development area, indicating opportunities and constraints.
Study area	Describes the surrounding community, in which the project is embedded, and indicates opportunities and constraints posed by the larger scales.
Land Use Budget/Project Program	Clearly identifies the quantity of different land uses, building types required, including other program information such as community amenities, and so on.
Design instructions	Identifies goals and targets to be achieved for each theme, as well as potential strategies and actions.
Outputs list	Describes precisely what documents the charrette team must produce by the end of the charrette.

Confirm charrette brief

The charrette brief is disseminated to the project team and key stakeholders for review and feedback at least three weeks prior to the charrette. The review affords an opportunity to ensure that this group shares a common understanding of the intent and objectives of the charrette, as well as of the specific design instructions that will guide the event and its outputs.

Charrette Brief

NCI Charrette Handbook & NCI Charrette Planners Forms Kit:
1.4.2 Pre-charrette;
Smart Growth on the Ground - ***www.sgog.bc.ca***

Charrette Brief – ***www.emerald-hills.ca***

www.emerald-hills.ca - Sample

SuN LIVING

Developing Neighbourhoods with a One Planet Footprint

After March 7, 2008 to order SuN LIVING directly from the distributor, please call toll-free (North America) 1-800-567-6772, or order online at http://www.newsociety.com/.

Step 1 - Commit

Sustainable Development (PDF) 3.7 MB
Sustainable Principles (PDF) 412
Tools Development (1) (PDF) 6.1
Tools Development (2) (PDF) 3.1

Step 2 - Initiate

Developers Design Workshop (1)
Developers Design Workshop (2)
Developers Design Workshop (3)
Developers Design Workshop (4)
Key Stakeholder Memorandum o
Draft Communication Plan (PDF)

Step 3 - Explore

Opportunities & Constraints Reports
Regulatory Opportunities and Cons
Site Opportunities and Constraints

Targeted Research
Lifestyles Inception Report (PDF) 9
Community Energy System Feasib
Decision Support Tools in a SuN Pi
CBSM Scoping Paper - The Human

Goals to Targets
Goals & Targets Workshop Present
Goals, Indicators and Targets Spre

Foundation Research Bulletins
Research Bulletin - Theme 1 Land
Research Bulletin - Theme 2 Natur
Research Bulletin - Theme 3 Water
Research Bulletin - Theme 4 Carbo
Research Bulletin - Theme 5 Trans
Research Bulletin - Theme 6 Food
Research Bulletin - Theme 7 Mater

Step 5 - Implement

Emerald Hills Urban Village SUN Guidelines
Emerald-Hills-Guidelines-1-introduction (PDF) 1 MB
Emerald-Hills-Guidelines-2-land (PDF) 3.1 MB
Emerald-Hills-Guidelines-3-natural habitat (PDF) 672
Emerald-Hills-Guidelines-4-water (PDF) 945 KB
Emerald-Hills-Guidelines-5-carbon (PDF) 998 KB MB
Emerald-Hills-Guidelines-6-transport (PDF) 1.4 MB
Emerald-Hills-Guidelines-7-food (PDF) 500 KB
Emerald-Hills-Guidelines-8-materials (PDF) 482 KB
Emerald-Hills-Guidelines-9-waste (PDF) 483 KB
Emerald-Hills-Guidelines-10-economy (PDF) 463 KB
Emerald-Hills-Guidelines-11-well-being (PDF) 1.5 MB
Emerald-Hills-Guidelines-12-equity (PDF) 634 KB
Emerald-Hills-Guidelines-13-culture (PDF) 1.2 MB
Emerald-Hills-Guidelines-14-appendices (PDF) 5.5 M

Additional Reference Material

To supplement the Emerald Hlls Urban Village case study m
LIVING, additional reference material regarding the overal

EMERALD HILLS URBAN VILLAGE

SUSTAINABLE URBAN NEIGHBOURHOOD GUIDELINES

SuN Pilot Project Application:

SuN LIVING on-the-Ground

prepared by

Elisa Campbell /
Director, Design Centre for Sustainability, University of British Columbia

Wil Mayhew /
Sustainability Coordinator, Howell-Mayhew Engineering

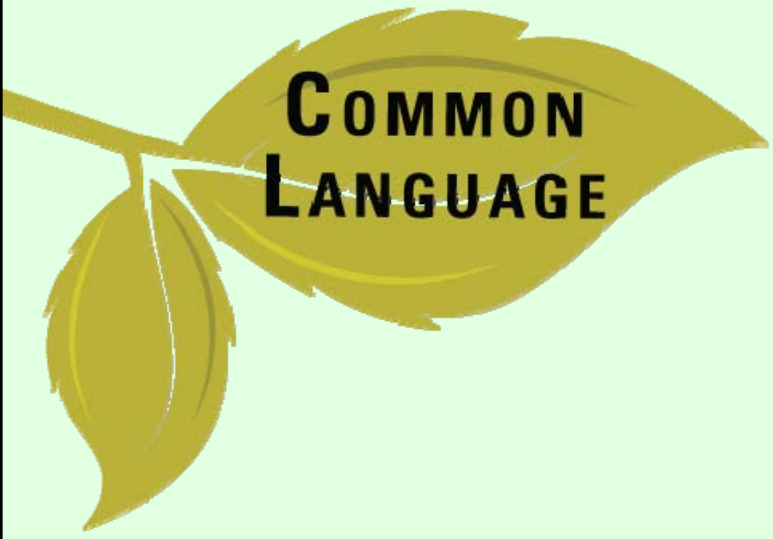
Emerald Hills Urban Village

THE SUSTAINABLE CONDO
using less, enjoying more

- $469 million project
- 20 hectares (50 acres)
- 1600 dwelling units
- 1645 m² (17700 ft²) office
- 1533 m² (16500 ft²) retail
- 18% parking/road (typical 31%)
- Community Energy System
- Minimum LEED/Built Green Gold

BUILT GREEN™

4 Principles



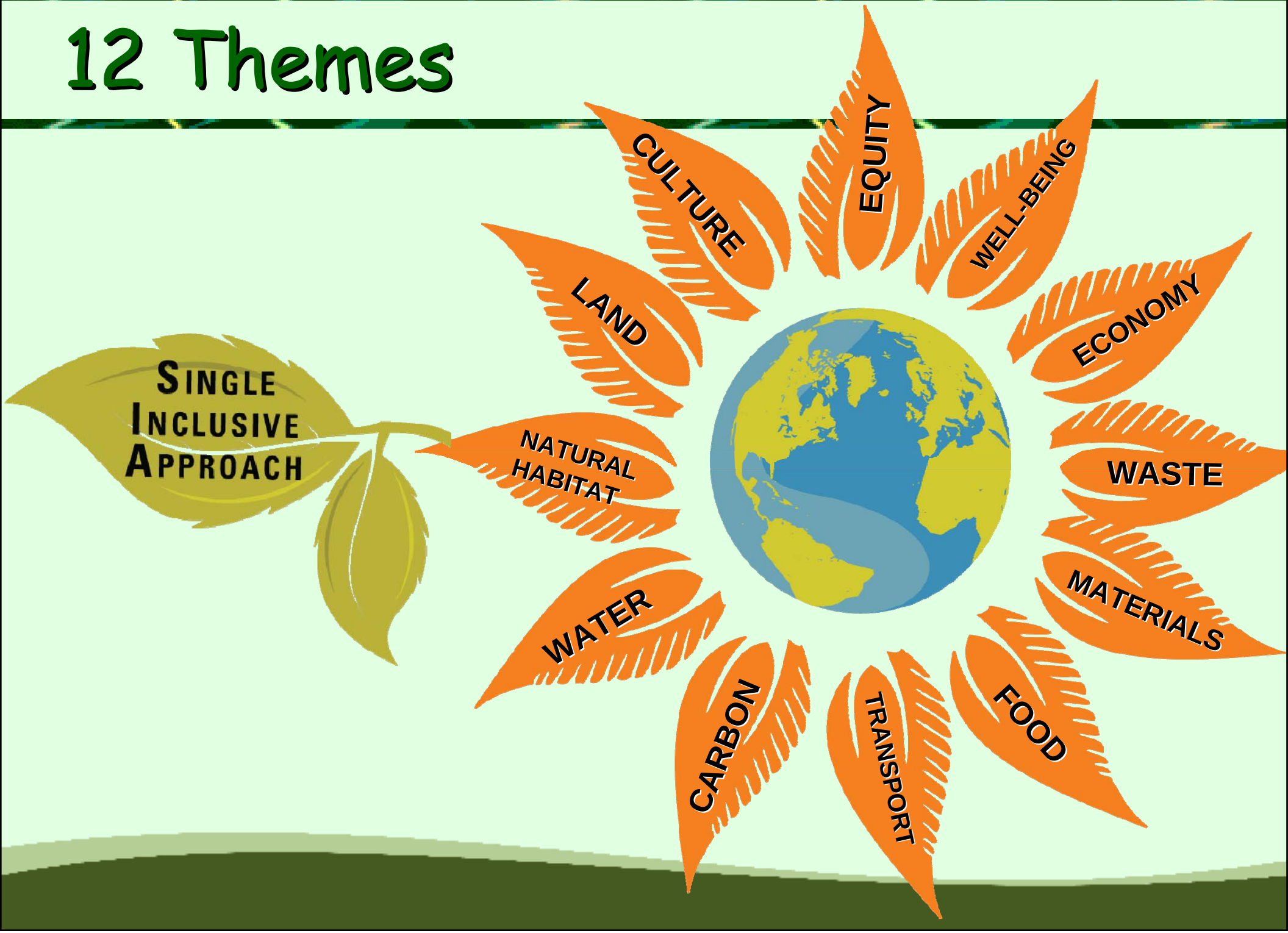
PRINCIPLE #1: Move towards, and ultimately achieve, solutions and activities that preserve, enhance and regenerated nature and live-sustaining ecosystems.

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 curst 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


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

Planning & Design Decisions

- Output of collaborative design charrette
- Reflects collective input of all stakeholders
- Represents project course of action
- Compiled in *SuN LIVING Implementation Manual*

Fostering Sustainable Living

- *Strategies & Initiatives* provide a sustainable living lens for detailed design
  - Planning & design that enables sustainable development must also foster sustainable living
- Forms the basis for *Sustainable Living Program*
- Compiled in *SuN LIVING Implementation Manual*

SuN Guidelines - Sample: Well-Being

The quality of life of a community is described as well-being. This is impacted by concrete aspects such as physical surroundings, and by less measurable aspects such as physical and mental health. Sustainable urban neighbourhoods are designed with the well-being of residents and workers in mind, and foster aesthetic quality, access to goods and services, physical protection and security, and overall health and happiness.

THEME OVERVIEW

WHY IS THIS THEME IMPORTANT?

Well-being describes the quality of life of a population. There are many components to well-being, including both concrete aspects such as access to goods and services, and more qualitative aspects such as health and happiness.

Our physical surroundings influence our well-being by setting the framework in which we interact with other people and the natural world, where we get access to services and jobs, and so on. Issues relating to well-being are profoundly affected by factors ranging from the stress and difficulties of commuting, to the presence or absence of natural areas and greenspace.

Without greenspace and walkable/active transit-oriented neighbourhoods, the health and well-being of citizens is compromised. Greenspace helps limit the impacts of urban sprawl on wildlife as well as on air and water quality. Neighbourhood walkability tends to reduce the prevalence of obesity by making it easier for people to lead active lifestyles. Together, these elements enhance the aesthetic value of the neighbourhood, provide opportunities for recreation, community interaction and make the neighbourhood more people friendly.

WHY IS WELL-BEING IMPORTANT TO EMERALD HILLS URBAN VILLAGE?

Within Strathcona County, citizens have expressed the need to have resources and areas within the neighbourhoods to support and facilitate the well-being of the community.[1] They would like their neighbourhoods to "provide a broad range of services and facilities that allow them the opportunity to lead a healthy lifestyle."[2] The County also believes that it is the municipality that is in the best position to create the necessary infrastructure to support the social well-being of its citizens."[3]

Strathcona County citizens also recognize the necessity of the less concrete aspects of well-being and have expressed the desire to "create a safe, caring and respectful community."[4]

HOW CAN EMERALD HILLS URBAN VILLAGE IMPACT ON THIS THEME?

The well-being of a community is influenced by its design features. People's quality of life, especially their health, has suffered as a result living in car-dependent communities. By incorporating design strategies that are welcoming and safe into the Emerald Hills Urban Village, people will be drawn to spend more time in public spaces and will also use active forms of transportation.

SUMMARY TABLE OF GOALS AND STRATEGIES FOR WELL-BEING

GOAL	CHARRETTE PROCESS STRATEGY
Provide access to sufficient public gathering spaces.	Incorporate a large central public open space as the 'heart' of the Village.
	Integrate structured and unstructured social and recreational amenities throughout the Village.
	Provide strong linkages between the Village and surrounding neighbourhoods.
Design a vibrant public realm that promotes social interaction.	Orient buildings to allow for "eyes on the street".
	Preserve views and sightlines within and through the Village.
	Incorporate spaces and features that are inviting and memorable.

1. Strathcona County Municipal Development Plan. 2006.
2. Ibid.
3. Ibid.
4. Ibid.

SuN Guidelines - Sample: Land

PLANNING & DESIGN DECISIONS

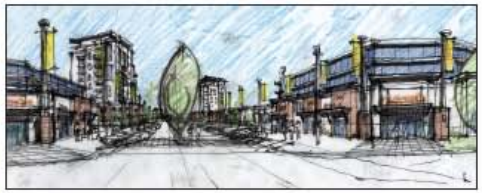
GENERAL INTENT OF THIS STRATEGY / A strong definition is created at the edges of the Village, with buildings facing outwards, in order to ensure appropriate design for an urban village.

A strong edge is provided by lower density residential buildings with small set-backs.

Infilled commercial development creates a strong, mixed use edge.

Apartments create a distinctive edge condition along Eton Blvd.

A finer scale of development facing into the open space provides a strong edge along Cloverbar Road.



Commercial buildings delineate a strong urban edge along Emerald Dr.

GOAL / ACHIEVE COMPACT DEVELOPMENT.

STRATEGY TWO / DESIGN A STRONG PRESENCE AT THE EDGES OF THE VILLAGE.

AREA I: institutional, residential, commercial
- Extended care facility provides a defined outside edge for positive urban design, resident safety, and privacy.
- Residential/commercial building creates a strong, but friendly, edge treatment.
- Edge along Emerald Dr. delineates Village, but has clear openings to draw others in.

AREA II: residential, commercial
- Apartments along Eton Dr. create an edge condition distinctive from the neighbourhood across the street.
- Apartment edges have a pedestrian-friendly public face with windows oriented to the street/greenway.

AREA III: residential, commercial
- Apartments along Eton Dr. create an edge condition distinctive from the neighbourhood across the street.
- Apartment edges have a pedestrian-friendly public face with windows oriented to the street/greenway.

MUNICIPAL RESERVE & PUBLIC UTILITY LOT
- Walkways along the edges of the Municipal Reserve encourage pedestrian movement and interaction with the adjacent buildings.
- Landscaping buffers private spaces adjacent to the public Municipal Reserve.
- Landscaping highlights entrances to the Municipal Reserve along the edges.

AREA IV: residential
- Attached bungalows along Eton Blvd. and Aspen Trail have a density of form to maintain edge strength.
- Attached bungalows and apartment edges have a pedestrian-friendly public face with fenestrations oriented to the street/greenway.

AREA V: residential
- Townhouses along Aspen Trail and Cloverbar Rd. have density of form to maintain edge strength.
- Townhouses at the edge have a public face with fenestrations oriented to the street/greenway.

AREA VI: residential, commercial
- Mixed-use building and opportunities for home occupations or home-based businesses delineate a strong, urban edge along Cloverbar Rd.
- Apartments provide a finer scale of pedestrian-friendly edge development facing central open space.
- Residential apartments have a public face, with windows oriented to the street.

AREA VII: commercial, residential
- Initially, commercial pads provide a mixed-use face along Cloverbar Rd. and Emerald Dr.
- Over time, infill commercial buildings delineate a strong, urban edge.
- Pedestrian-friendly development faces the central open space.

SuN Guidelines - Sample: Carbon

Biomass can be incorporated into the community energy system.

An active solar hot water system serves as a source of heat for the building.

Strathcona County Centre in the Park community energy system power plant.

DETAILED DESIGN TASKS

GENERAL INTENT / This section highlights design tasks flagged during the charrette process as needing to be addressed during the detailed design process. LEED for Neighbourhood Development prerequisites and credits are to be satisfied.

DETAILED DESIGN TASKS

- Provide operable windows in all units to allow for natural ventilation.
- Where appropriate, incorporate high ceilings into individual units.
- Determine the appropriate type of tree and/or other landscaping to be used to achieve the desired effect (for example, in some cases evergreen trees will be more appropriate, and in others, deciduous trees will be preferable).
- Develop a palette of surfaces that are matched to the level of use. For example, where possible minimize the use of asphalt and other hard surfaces.
- Even where landscaping cannot be used to reduce the heat island effect, determine if materials with high albedo are possible.
- Use Community Energy System feasibility study to determine buildings to be connected to system.
- Use alternative fuels feasibility study to determine potential for renewable energy and waste heat sources.
- Develop a phasing plan to integrate renewable energy sources into the community energy system.
- Incorporate measurement and verification components and protocols in all new buildings.
- Specify materials that promote high environmental indoor air quality to reduce ventilation demand
- Specify high efficiency HVAC and DHW equipment.

RELATED LEED-NEIGHBOURHOOD DEVELOPMENT CREDITS

- LEED-ND GCT Credit 10: Heat Island Reduction (Option 1).
- LEED-ND GCT Credit 12: On-Site Energy Generation
- LEED-ND GCT Credit 13: On-Site Renewable Energy Sources
- LEED-ND GCT Credit 14: District Energy & Cooling
- LEED-ND GCT Credit 1: LEED Certified Green Buildings.
- LEED-ND GCT Credit 2: Energy Efficiency in Buildings (Option 1).

See www.usgbc.org for more information.

FOSTERING SUSTAINABLE LIVING

GENERAL INTENT / The detailed design decisions that enable sustainable development at Emerald Hills Urban Village must also foster sustainable living. The Strategies and Initiatives/Activities identified below represent an initial framework and point of departure for generating a Fostering Sustainable Living Program at the Urban Village. They are intended to provide the integrated design team with the sustainable living lens that is to be applied to all detailed design decisions. It is recognized that these lists will evolve and be refined as the detailed design for the Urban Village emerges.

STRATEGIES

- Ensure detailed design of built environment supports adoption of carbon neutral lifestyles.
- Develop program to facilitate purchase of green power from centralized renewable source.
- Promote renewable energy upgrade initiatives.
- Incorporate monitoring and feedback into all buildings.
- Engage all Village citizens in creating a carbon neutral lifestyles program.
- Create partnerships with local NGOs working on carbon issues.
- Promote awareness-builidng and community mapping.
- Leverage green purchasing power to buy carbon smart products.
- Introduce community-based social marketing (CBSM) programs to foster low-carbon lifestyles.

INITIATIVES / ACTIVITIES

- Off-site green power and on-site renewable energy upgrade offered at time of purchase.
- Visual monitoring in Village sustainability centre showing carbon generated on-site.
- Wattson home energy monitoring system.
- Formation of Village Ecoteam with local NGOs.
- Roadmap to a Carbon-Neutral Village created in partnership with NGO.
- Village Green - a community-based energy services company.
- Partner with Carbon Busters - Edmoton-based educational Conservaton Action Program
- Sustainable travel through carbon offsets initiative.
- Low-Carbon Solutions' section in the "Living Smart at the Village" intranet handbook.
- Village / community mapping of carbon-smart products, services and opportunities.
- Carbon-Wise - a CBSM program to foster low-carbon lifestyles.

Offsite green power offered at time of purchase.

Landscaping can be used to provide shading and reduce the heat island effect.

Integrate renewable energy with landscape elements.

SuN Guidelines - Sample: Appendix

PERFORMANCE ASSESSMENT / NATURAL HABITAT

INDICATOR: SIGNIFICANT HABITAT
MEASUREMENT: % DEVELOPMENT AREA WITH NATIVE HABITAT PROTECTED FROM DEVELOPMENT

TARGET PERFORMANCE 10%

MASTER CONCEPT PLAN PERFORMANCE 2%

ASSESSMENT
The major planning and design decision proposed to increase the significant habitat on site is the development of the east-west corridor as a natural corridor, linking open spaces off site to the east and west. The success of the strategy will be dependent upon attention to detail during design development. Specifically, to ensure that a more naturalised condition is maintained, the connectivity of this space should be protected by managing potential conflict with pedestrian crossings and adjacent uses. In addition, the specification of appropriate native plant species is essential.

Habitat area within the site can be also supplemented by native plantings in yards, public landscaping, parking areas and on green roofs, which will support populations of local birds and insects.

INDICATOR: NATURALIZED GREEN SPACE
MEASUREMENT: % OF LAND AREA RESTORED TO HAVING SIGNIFICANT ECOLOGICAL VALUE

TARGET PERFORMANCE 10%

MASTER CONCEPT PLAN PERFORMANCE REQUIRES MORE DETAILED DESIGN IN ORDER TO ESTIMATE.

ASSESSMENT
The master plan incorporates the goal of creating multi-functional green spaces with ecological value. The central green space and connected green corridors serve as public gathering, recreation and food production spaces as well as pedestrian, species and stormwater movement corridors. The large residential building courtyards over underground parking have the opportunity to retain and evaporate significant amounts of stormwater.

However, Master Concept Plan performance towards the target is highly dependent on further design development, and cannot be measured until further details are available. The multi-functionality of the site's green spaces, particularly ecological functions such as habitat and stormwater management, require that spaces be highly connected and well designed; therefore, paved areas and pathways should be carefully considered.

PERFORMANCE ASSESSMENT / WATER

INDICATOR: STORMWATER RUNOFF
MEASUREMENT: EFFECTIVE IMPERVIOUS AREA

TARGET PERFORMANCE 0%

MASTER CONCEPT PLAN PERFORMANCE REQUIRES MORE DETAILED DESIGN IN ORDER TO ESTIMATE.

ASSESSMENT
The master plan stormwater management concept incorporates a natural drainage pattern of small basin areas and swales. The proposed matrix of pervious and impervious surfaces is an appropriate and valuable way to decrease effective impervious area. Actual performance cannot be determined until detailed design is completed, but moving towards the target will depend on a "whole site" overflow system and on a stormwater- oriented planting palette appropriate to the type and scale of development.

INDICATOR: STORMWATER TREATMENT
MEASUREMENT: % RUNOFF FILTERED / TREATED NATURALLY

TARGET PERFORMANCE 100%

MASTER CONCEPT PLAN PERFORMANCE REQUIRES MORE DETAILED DESIGN IN ORDER TO ESTIMATE.

ASSESSMENT
The amount on runoff filtered on site is closely linked to the effective impervious surfaces. Actual performance cannot be determined until detailed design is complete, but in general achievement of the target will depend on a "whole site" overflow system, the incorporation of underground parking into the stormwater management plan, and a stormwater-oriented planting palette. A clear and common infiltration/detention goal and corresponding Best Management Practice implementation should be articulated for each area of the site.

SuN Pilot Project

The Approach

After March 7, 2008 to order directly from the distributor, call toll-free (North America) 1-800-567-6772, or order online at www.newsociety.com

The Application

EMERALD HILLS URBAN VILLAGE
SUSTAINABLE URBAN NEIGHBOURHOOD GUIDELINES

Download at:
www.emerald-hills.ca

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