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PROMOTING ENERGY EFFICIENCY IN LAND USE PLANNING

Session 4 - Protection of the natural environment and provision of the best returns on investments (ROI)

January 17, 2023

New Nouveau Brunswick

Votre Fonds en fiducie pour l 'Environnement au travail
Your Environmental Trust Fund at Work

AGENDA

+ Welcome and Introductions
+ Presentation: Daniel Savard (RPP), President, DecoDesign Senior Associate, QUEST
+ Q&A / Discussion

Prepared & presented by
Daniel Savard (RPP), President, DecoDesign, Senior Associate, QUEST

Votre Fonds en fiducie pour l 'Environnement au travail
Your Environmental Trust Fund at Work

GOAL WITH THIS TRAINING

“My goal is for you, decision-makers, visionary people and leaders, to become the heroes of the events you have to face. I aim at helping you to adopt the implementation of the energy-efficient measures and sustainability principles and concepts to:

1. Implement projects that respect the environment,
2. Respond to practically all social and energy-efficiency issues your communities have to face, and
3. Reach the healthy revenues that will help you to offer sustainable and energy-efficient development projects, and appropriate services for people who live in your projects. ”

GOAL WITH THIS TRAINING

When you use the sustainable approach we propose, you can

1) Respond to practically all issues your population may have with developments, including energy-efficient measures
2) Integrate projects that will allow you to respond to climate change, offer affordable communities and housing, and
3) Increase your revenues with the development

Session

1	Building sustainable developments by integrating energy-efficiency in projects (1 hour)
2	Create affordable communities (and housing) (1 hour)
3	Integrate grey and green infrastructure (1 hour)
4	Protect the natural environment and provide the best return on your investments (ROI) (1 hour)
5	Practical exercise – Workshop (3 hours)

WHO AM I?

Daniel Savard (President)

- Registered Professional Planner
- Master in Business Administration & Urban Planning
- 35+ years in planning (sustainability) in private, public and NGO's
- Visionary award from Gulf of Maine Council
- Senior Associate with QUEST

Session 4

Protection of the natural environment and provision of the best ROI (Return on investments)

Protection of the natural environment and provision of the best ROI

A sustainable community project integrates the social, environmental and economical elements specific to the site to develop. Two crucial elements to consider deal with the natural site and the appropriate return on investment (ROI).

Session 4 will help us to consider the right energy-efficiency design elements in your project by:

A. **Integrating the natural elements**
    I. **What are the elements to consider when building?**
    II. **What is the green asset of your property?**
B. **Determining the healthy ROI for the project**
C. **Using the appropriate legal instruments**
D. **Integrating all the appropriate elements together**
E. **Looking at the results**

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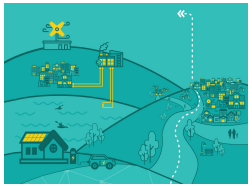
A. Integrate the natural elements
A.I Elements to consider: What is the context?

Start where People / Community are

On Sustainability?



On Energy-efficiency?

On Local Economy?

On Addressing Seniors' Issues?

On Affordable Housing?

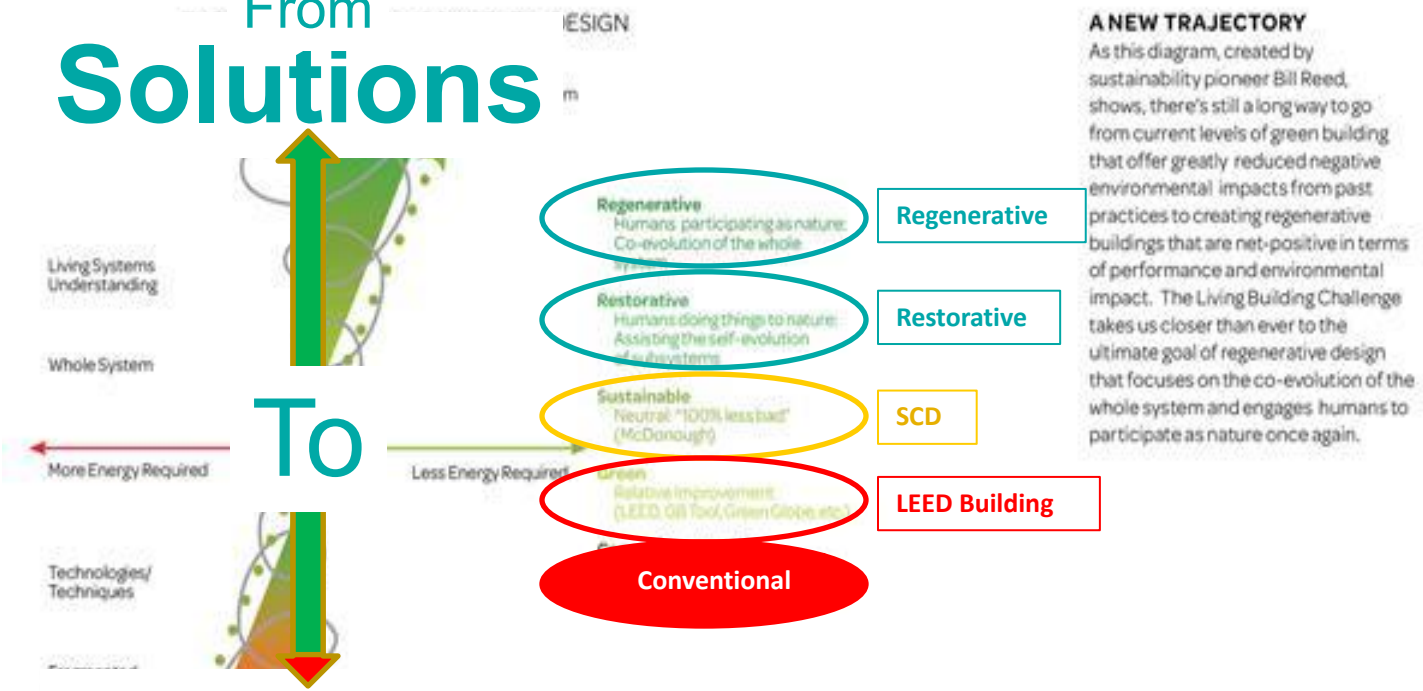
Vs.

On Transportation's Issues?

A. Integrate the natural elements- A.I Elements to consider: Do you know what you are aiming at?

From

Solutions



Problems

From

Source: Adaptation from ECOHOME November-December 2012

A. Integrate the natural elements - A.I Elements to consider: Energy-efficiency through sustainability

Energy-efficiency is embedded into sustainability elements

Q. How to get to Sustainability?

A. Use a sustainable approach

Critical areas	Addressed by SCD & Design
1. Outdoor space	50%+ of property protected (Space efficiency and reduce waste)
2. Building	Create intentional interaction, increase relationships and connections, and address social isolations. (Site and Building efficiency)
3. Transportation	Require walkable & bikeable neighbourhoods, and density of at least 7+ units / acre (Energy and space efficiency)
4. Social participation	Require residents participation in the design of their neighbourhood (All efficiencies)
5. Respect and social inclusion	
6. Civic participation and employment	Depopulation and low investments: Attract knowledge workers, and investments (Community and energy efficiency and reduce waste)
7. Communication and information	Require multiple partnerships and involvement (All efficiencies)
8. Community support & Health services	Integration of all relevant environmental, social and economical elements (All efficiencies)

Source : SCD and cohousing information & adaptation from SHIFT: Nova Scotia's Action Plan for an Aging Population

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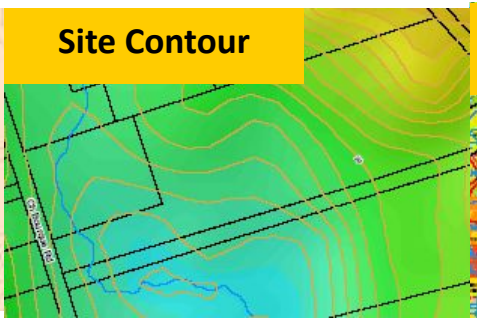
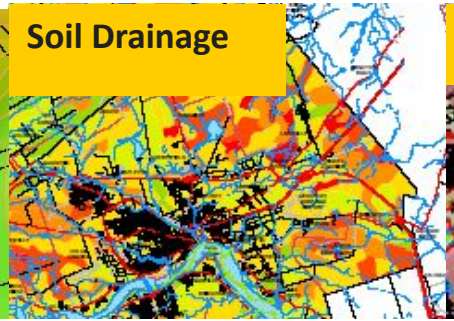
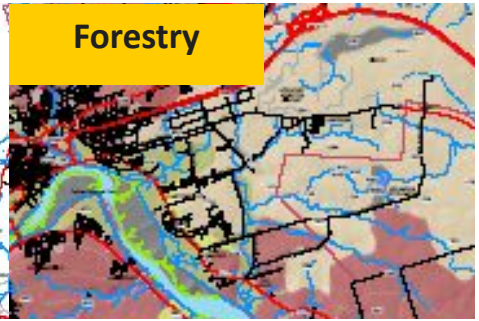
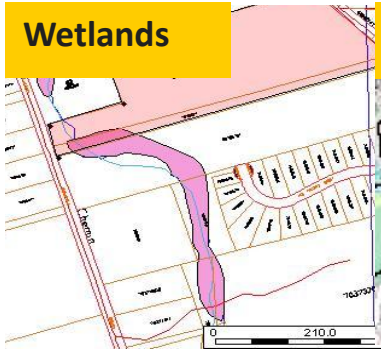
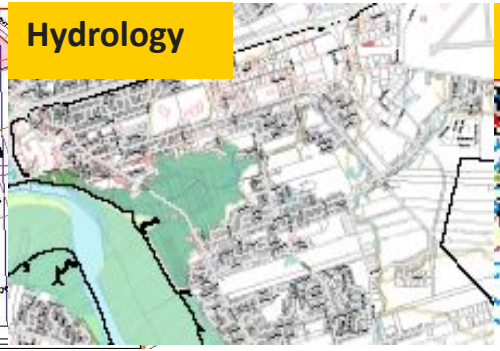
A. Integrate the natural elements - A.II Determine the Green Assets of your site: Environmental issues that apply to your area?









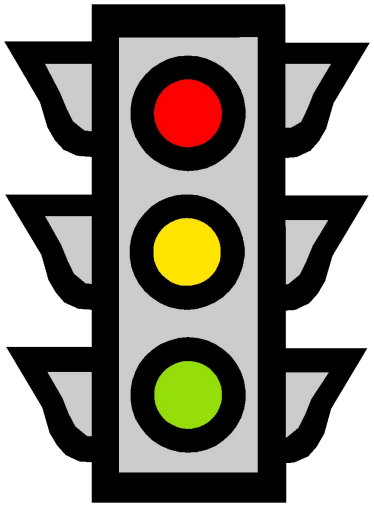


...

A. Integrate the natural elements - A.II Determine the Green Assets of your site: Social and Economy that apply to your area?

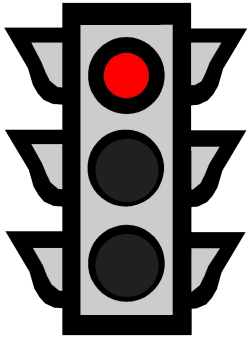
...

Understand impact on property (site)?
Use ‘traffic lights’ analogy



Environmental constraint	Do not build
Significant features	Certain infrastructure permitted
Buildable areas	You may build

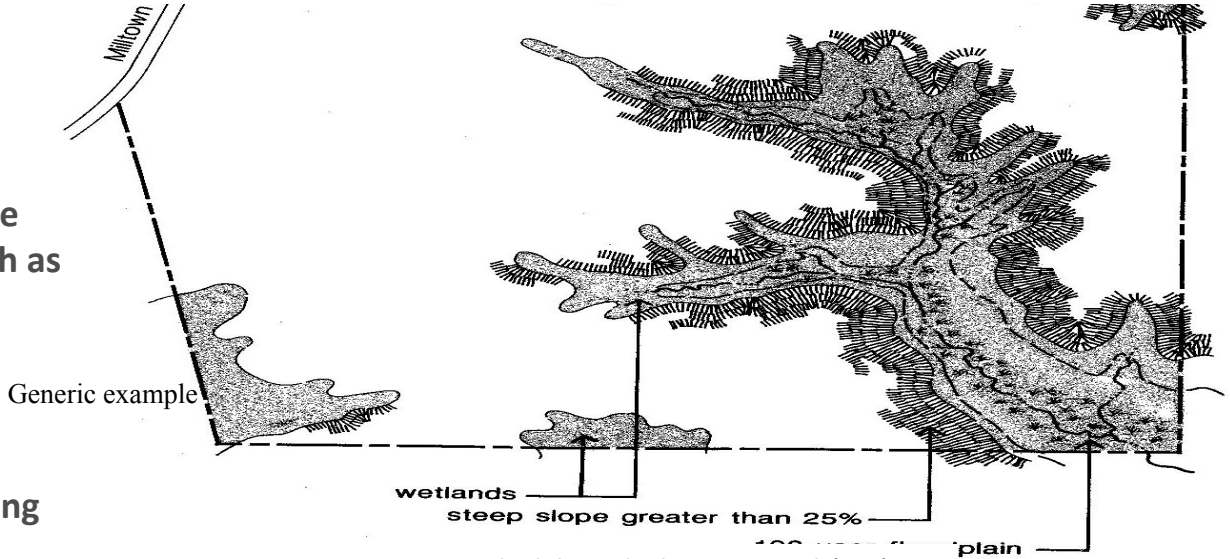
A. Integrate the natural elements - A.II Determine the Green Assets of your site: What apply to your site?



Primary conservation areas (or environmental constraints)

It relates to unbuildable parts of a property such as areas that are:

- Wet
- Flood prone
- Too steep
- Unsuitable for building



Source: Growing greener: Putting conservation into local plans and ordinances, R. Arendt (1999)

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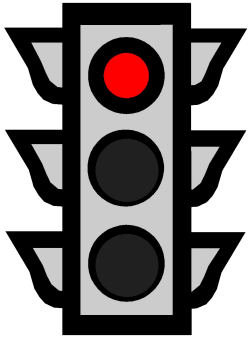
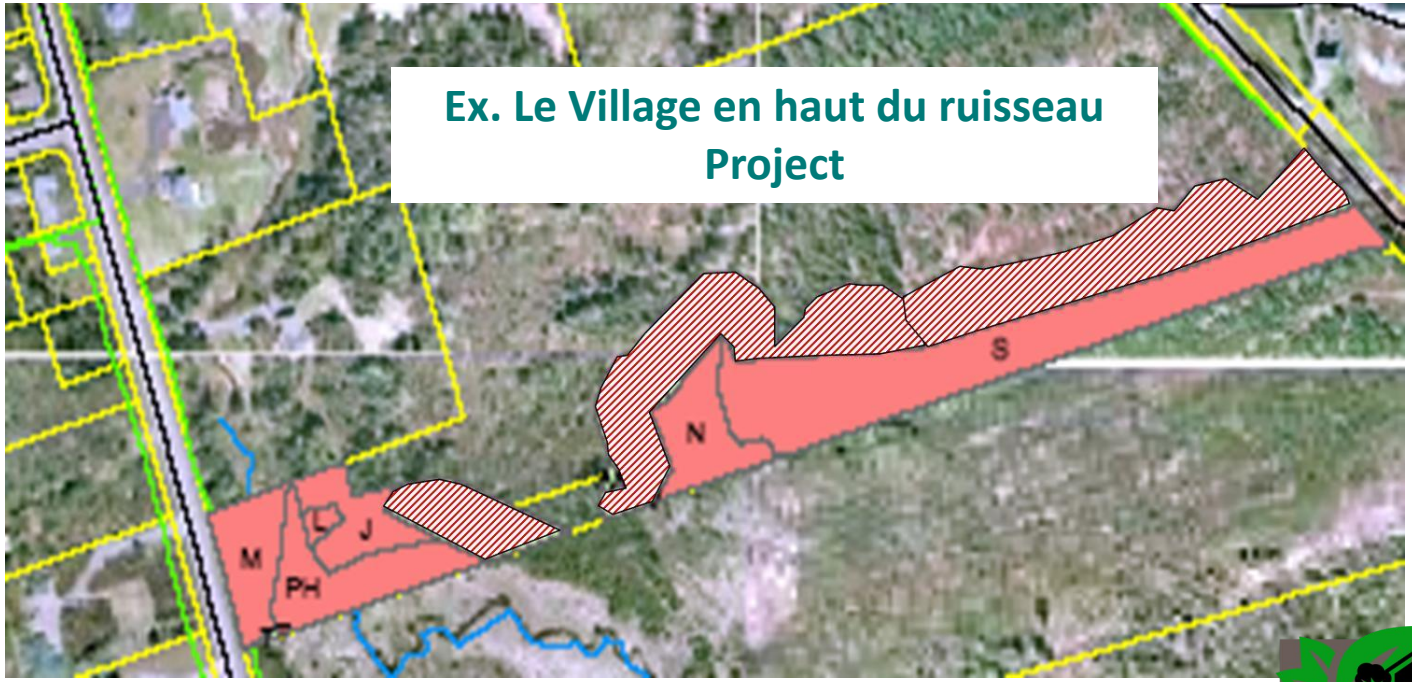


Environmental constraints



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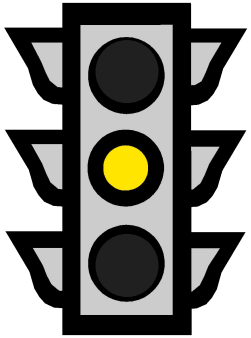
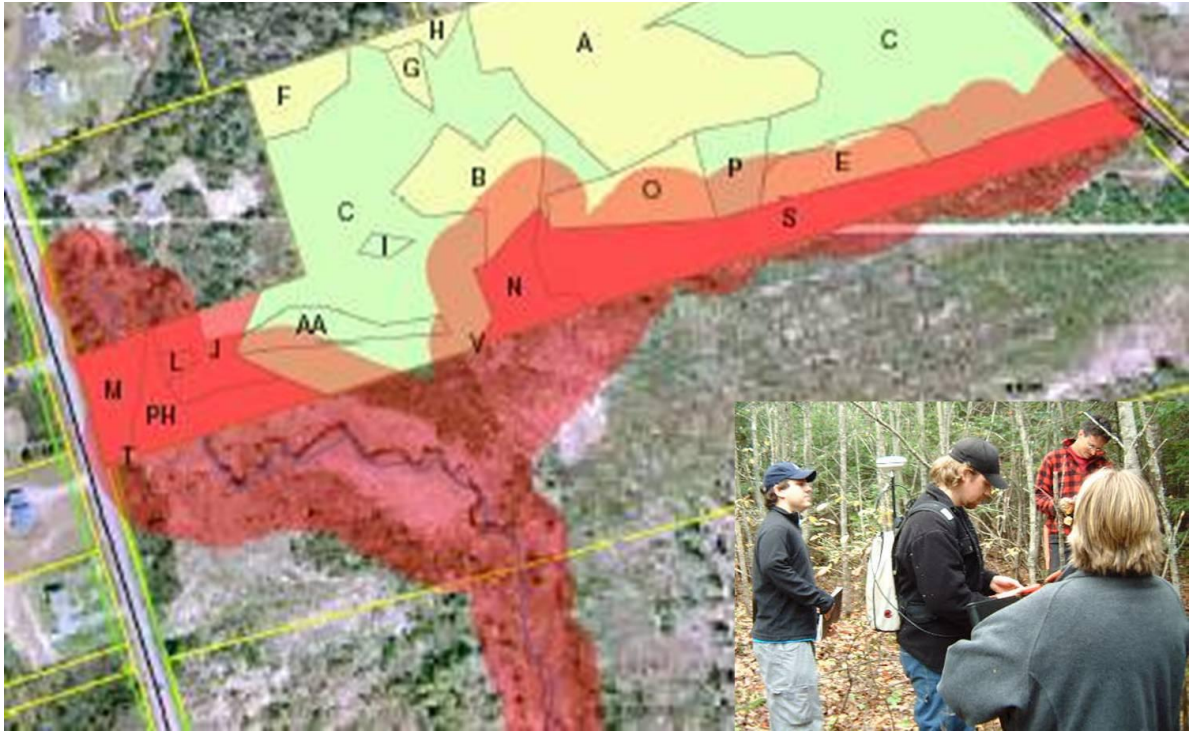


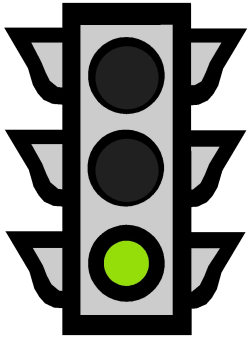
Determine the significant features



Determine the significant features:

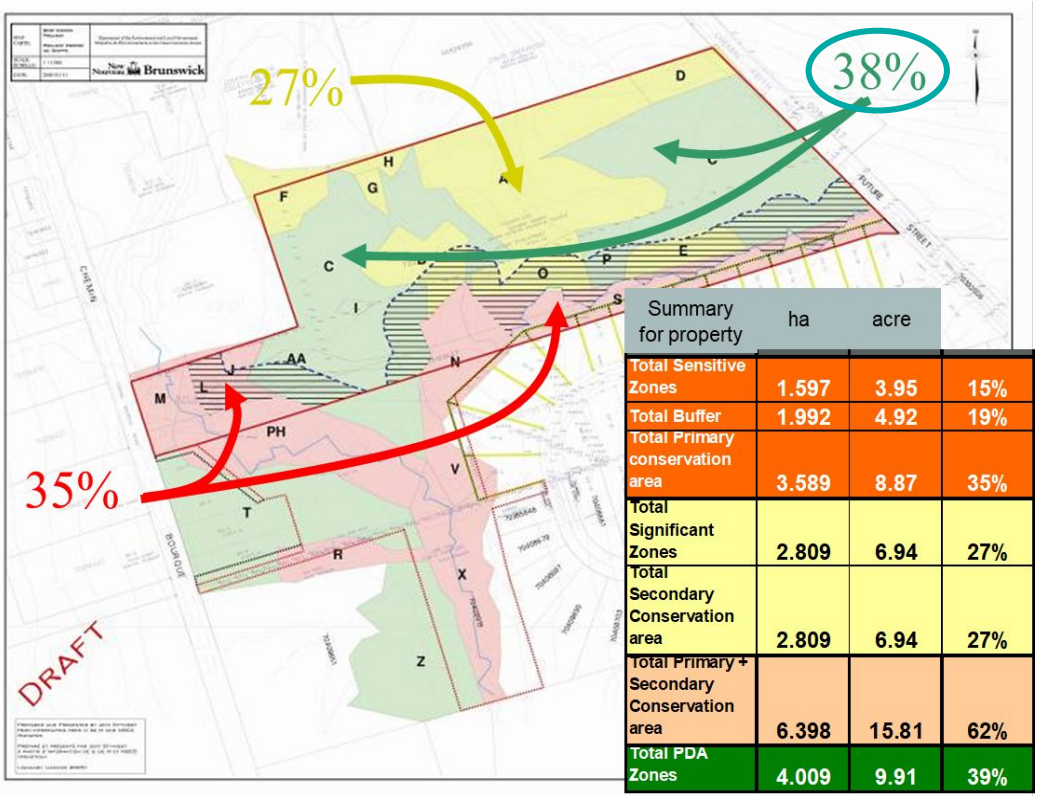
- Nature
- Farmland
- Cultural
- Historical

A. Integrate the natural elements - A.II Determine the Green Assets of your site: What apply to your site?



Determine %

of area to develop on the site



Summary for property	ha	acre	
Total Sensitive Zones	1.597	3.95	15%
Total Buffer	1.992	4.92	19%
Total Primary conservation area	3.589	8.87	35%
Total Significant Zones	2.809	6.94	27%
Total Secondary Conservation area	2.809	6.94	27%
Total Primary + Secondary Conservation area	6.398	15.81	62%
Total PDA Zones	4.009	9.91	39%

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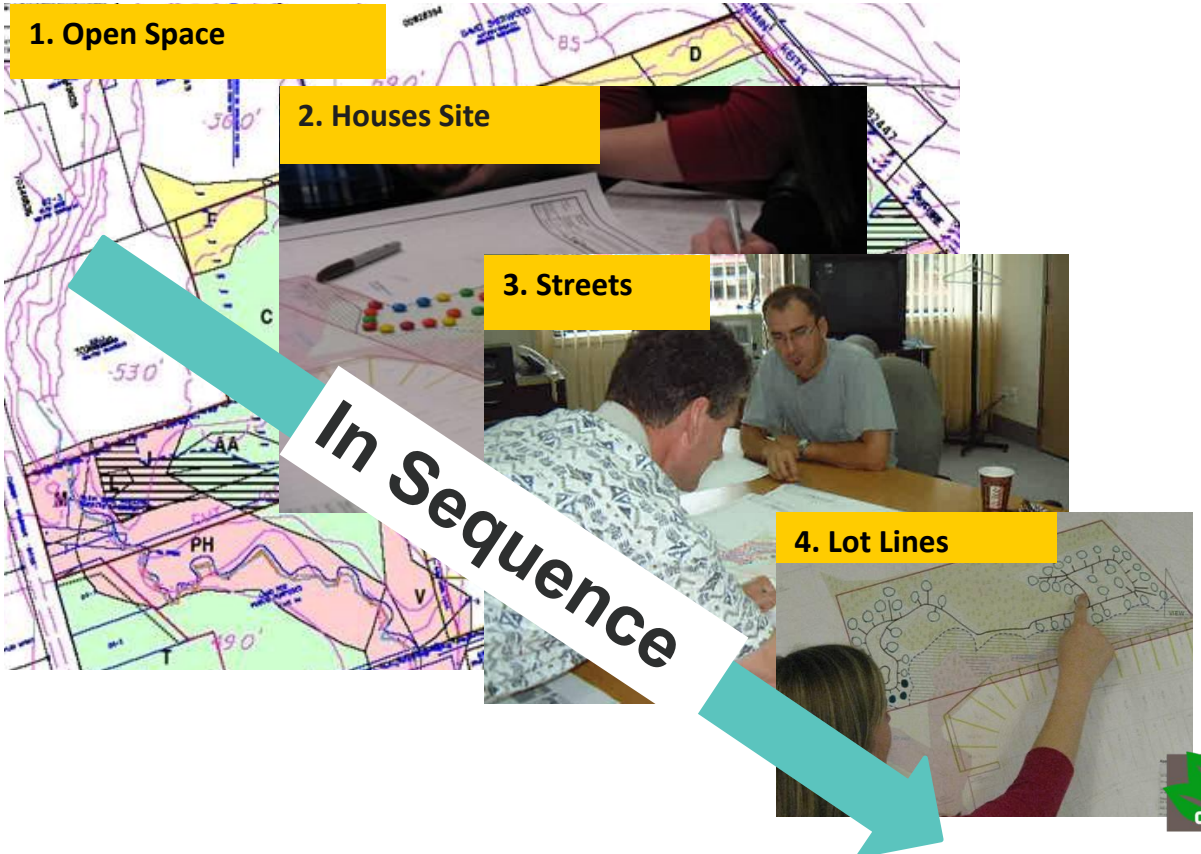
A. Integrate the natural elements - A.II Determine the Green Assets of your site: What apply to your site?

Design your site



B. Determine the ROI of your project
What apply to your area?

Does my community understand Density & $$$?

- Gross density vs. Net density (Session 2)
- Area to develop
- Costs of operations & Infrastructures
- Revenues vs. Costs

B. Determine the ROI of your project
What apply to your site?

LeV Density applied to layout

Municipality to study

Houses/ Acre

6.8

0.66

Protection & Conservation

30 ac. (76%)

14 ac. (35%)

To build on

10 ac. (24%)

26 ac. (65%)

272

Same area but different outcomes

27

Source: Adaptation from Stats from Municipalities to study in NB

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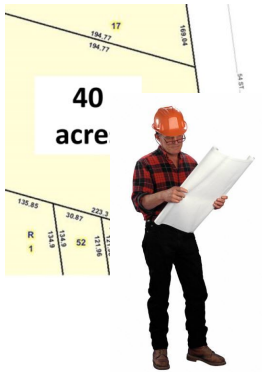
B. Determine the ROI of your project
What apply to your area / site?

In term of returns:
Housing price



Example
$200K

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B. Determine the ROI of your project
What apply to your site?

Net results for Developer/Builder

	LeV Density applied to layout		Municipality to study
	272		 27
	6.8		0.66
Total Sales	$54M		$5M
To build on	10 ac. (24%)		26 ac. (65%)

Less than $1M **- Infrastructures Costs** Over $1M

= Net Sales	$54M	15X More	$4M

Source: Adaptation from Stats from municipalities studied in NB

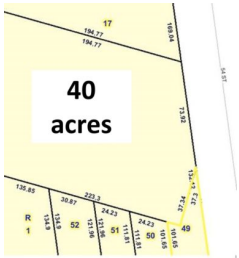
B. Determine the ROI of your project
What apply to your area?

Operation Costs for

Taxes per

but

So, for



What does it mean?

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B. Determine the ROI of your project
What apply to your site?

Net results for

	LeV Density		Municipality to study
	272		 27
	6.8		0.66
Taxes Gross Revenues ($1,39/$100)	$756K		$74K
To build on	10 ac. (24%)		26 ac. (65%)
	$93K	**- Operation Costs**	$122K
= Net Revenues	**$663K**	**Difference $710K**	**-$48K**

Source: Adaptation from Stats from municipalities studied in NB

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B. Determine the ROI of your project
What apply to your area / site?

Bottomline:
"More extensive infrastructure is more expensive infrastructure"

Operation Costs

$1

Revenues

6.8

$8.08

$7 benefits in the municipality's coffers

0.66

61¢

$1

39 ¢ to find to breakeven

Source: Adaptation from Stats from municipalities studied in NB

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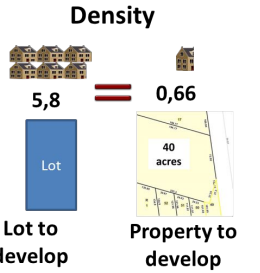
B. Determine the ROI of your project
What apply to your area?

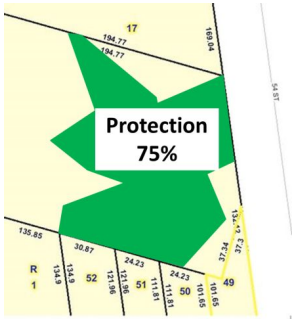
Summary for all

1. Understand Densities



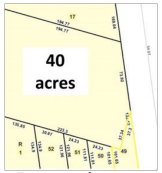
Net Density vs. Real Gross Density

2. Understand Conservation



3. Understand Operations + Infrastructures Costs

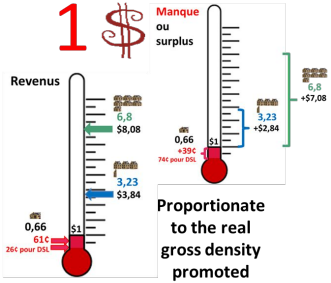
Costs for operations & infrastructures



Proportionate to the area to build

4. Understand Taxation and Development Sales Revenues

Revenus and operations costs



Proportionate to the real gross density promoted

Efficiency is quite obvious!

Source: Adaptation from Stats from municipalities studied in NB

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C. Use appropriate legal instruments
What apply to your area?

Understand the context

4 levels of jurisdictions

1
Federal

Government of Canada / Gouvernement du Canada

2 & 3
Provincial & Regional

New Nouveau Brunswick CANADA

4
Local / Municipal

4 Levels of implementation

Federal & world commitments

- Standards & guidelines
- Funding & programs

Provincial & regional commitments

- Standards & guidelines
- Funding & programs

Local commitments & implementations

- Standards & guidelines
- Local regulations / by-laws
- Funding & programs

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C. Use appropriate legal instruments
What apply to your area?

Local Implementation :
Use Proper Planning Instrument(s)

- **Sustainability in projects / areas** → Municipal and rural plan, Secondary Plan, Development Schemes (CPA)
- **Conservation of areas** → Conservation Easements Act
- **Ownership of Common Space** → Condo agreement (Condo Act)

- **Specific aims to facilitate sustainability / energy efficiency**

- Zoning By-laws
- Building By-laws
- Deferred Widening By-laws
- Controlled Access Street By-laws
- Flood Risk Area By-laws
- Subdivision By-laws
- Development Charge By-laws
- Incentive or Bonus Zoning Agreement By-laws
- Local Government Agreement By-laws
- Acquisition of Land …

C. Use appropriate legal instruments
What apply to your area / site?

Local Implementation: What does it mean?

Plan, Areas, Zoning, Building, Setback and Subdivision instruments

- **Community Plan:** Set objectives at the local level
  - **Zoning:** Prescribe strategies to meet objectives
    - **Building:** Prescribe standards for buildings
    - **Subdivision:** Regulate subdivisions
    - **Setback:** Regulate setbacks of buildings
    - …

Increased level of details

Important Note:
It supersedes what is under
Secondary Plan & Development Scheme

Note:

- ✔ **It is enforced at the local level**
- ✔ **Registered**

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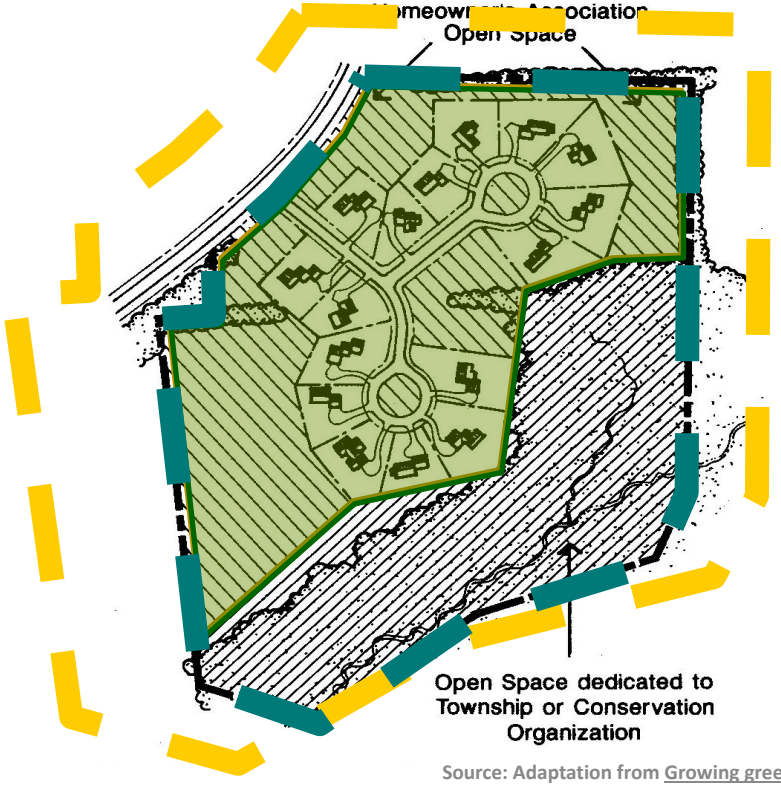
C. Use appropriate legal instruments
What apply to your area / site?

Ownership:
Municipality, HOA or Freehold



Delineation of the Development Schemes

Delineation of the SCD project

Delineation of Condo property & HOA

Delineation of Freehold land & Legal Agreement/Covenant

Source: Adaptation from Growing greener: Putting conservation into local plans and ordinances, R. Arendt (1999)

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D. Integrate all the appropriate elements

1. Know your community
2. Know your site
3. Sell the idea
4. Define your pre-conditions
5. Determine your partnerships

→ Preconditions

6. Step 1 – Pre-application discussion
7. Step 2 – Site analysis plan
8. Step 3 – Conceptual preliminary plan
9. Step 4 – Four-step design process
10. Conceptual Plan by developer

→ Steps and Design Elements

11. Rezoning and legal instruments

→ Legality

12. Put in place the infrastructure

→ A. Integrate Parks & Urban agriculture
B. Integrate all relevant design elements & Workshop

13. Sales of units

→ Benefits and Profits

14. Restoration of biodiversity

→ Restorative & Regenerative

15. Monitoring and reporting

→ Facilitate implementation

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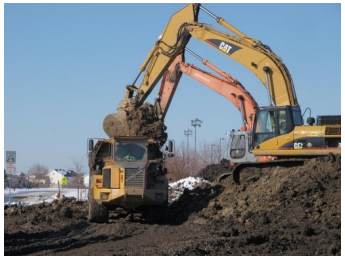
E. Looking at the results



BUT

Need to respond

& Cannot assume support

Why No real change?

1. Customers and clients don't really care about sustainability
2. Professionals tend to stay loyal to traditional
3. Green wash
4. Lack of convincing business case
5. Uncertain capital and life-cycle maintenance costs
6. Unprepared business structures and cultures
7. Cosy existing supply chain relationships
8. Slowness to learn, resistant to change
9. Lack of experience in using these new technologies
10. Under-developed supply chains
11. Lack of knowledge and perceived high risk of failure
12. Union resistance
13. Existence of complementary innovations
14. Complexity of the innovation
15. Trialability of the innovation
16. Supervision and coordination needed

Source: Sourceable, March 2017

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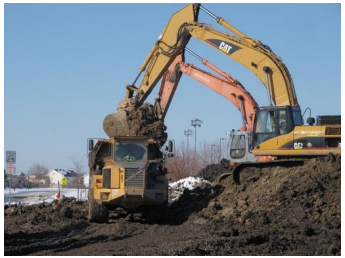
E. Looking at the results



Moving from material and sustainability elements to WELLNESS and FULL INTEGRATION

Why No real change?

1. Customers and clients don't really care about sustainability
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plementary innovations
the innovation
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16. Supervision and coordination needed

Source: Sourceable, March 2017

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Workshop
Practical exercise –

Use the learned design principles in a concrete project by providing your own design of a fictive community subdivision project.

Tuesday, February 14, 2023

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To get the maximum from the workshop;

We invite you to prepare in advance for this workshop by reviewing the information and principles learned during the training:

https://questcanada.org/promoting-energy-efficiency-in-land-use-planning-training/

Session 1 Building sustainable developments by integrating energy-efficiency in projects
Session 2 Create affordable communities (and housing)
Session 3 Integrate grey and green infrastructure
Session 4 Protection of the natural environment and provision of the best return on investments

Tuesday, February 14, 2023

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To get the maximum from the workshop,

Tell us at the workshop the role you would like to play during the workshop.

Choices:

1) Developer / Builder
2) Mayor or councillor
3) Planner / Coordinator
4) Civil engineer
5) CAO of the municipality
6) Other relevant role for a targeted project

Tuesday, February 14, 2023

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Memory helper and steps

Have fun!!!!

Item to consider	Questions to ask
1. Objectives of project	Who should be targeted ? (Focus group(s)) a. Age consideration b. Neighbours contacts c. Necessary amenities d. Energy efficient amenities / facilities
2. Design for Houses	1. Consider constraints & Open space 2. Energy efficiency (Ex. Solar orientation) 3. Density (Ex. Single-family, Duplexes, Apt. / Condos) 4. Find location
3. Road and connectivity	How wide? 1. Right-of-way 2. Asphalt portion Access roads needed? Who is responsible?
4. Stormwater management	What Best Management Practices can be used?
5. Sewage system	On-site or cluster system? Where should it be located?

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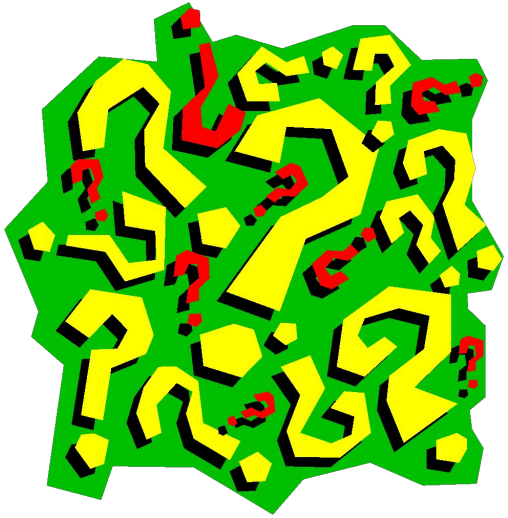
QUESTIONS?



If you are interested to pursue with SCD Approach…

Bringing sustainability with design

Att. Daniel Savard (President) RPP, MBA

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e-mail: Decodesignds@gmail.com

Web: www.decodesignds.ca

Webinar on Canadian Housing & Renewal Association website:

Building Sustainable Communities – The In's & Out's of Project Development (January 24, 2017)

http://chra-achru.ca/en/webinars

THANK YOU

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