Sustainable Cities

next generation communities

dockside green garrison woods emerald hills

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Imagine for example neighborhoods that are regenerative – that produce more energy than they consume; that provide strong social support networks for their residents; that generate wealth from valued goods and services; that minimize their ecological footprint, curtail GHG emissions and enhance the natural and human environment; that are resilient and able to respond effectively to unexpected shocks and threats; and that give more than they take!

N.K. Seymoar 2009

background

The International Centre for Sustainable Cities (Sustainable Cities) has been working since 2001 in the field of integrated long-term (100 year) visioning and planning[1]. Inspired by the Jasper Innovation Forum's theme of "Next Generation Communities", in the summer of 2009 Sustainable Cities undertook to document the learning from three innovative communities currently in the design or building process in Western Canada. This paper summarizes the results of that exploratory research with the Canada Lands Company's Canadian Forces Base (CFB) redevelopment in the center of Calgary Alberta[2]; Dockside Green, a brownfield redevelopment in Victoria, British Columbia[3] ; and Emerald Hills Urban Village (EHUV), a suburban greenfield development in the County of Strathcona in Alberta[4]. Each case is at a different stage of development, and together they provide insights into a range of issues related to advancing integrated community sustainability in Canada and moving beyond these state-of-the-art communities toward Next Generation Communities. By documenting these three cases, this paper is intended to identify the current state of the art in Western Canada and help accelerate the transfer of learning from city to city – thus speeding the wider adoption of similar types of community design elsewhere.

conceptual drawing of Emerald Hills development

[1] ICSC was one of four partners in Cities[PLUS], the award winning 100-year plan for Metro Vancouver. In 2004 it founded the Sustainable Cities: PLUS Network – a peer network of more than 40 cities and regions from around the world interested in sharing their learning on long-term integrated planning (see www.sustainablecities.net).

[2] Two communities - Garrison Woods and Garrison Green are completed and Currie Barracks is under development.

[3] The first completed phase Synergy, is part of the Dockside Wharf Community.

[4] Emerald Hills Urban Village is on 50 acres within the 300 acre Emerald Hills neighborhood. The townhouse development is under construction and several units have been completed, sold and occupied.

what is meant by "Next Generation Communities?"

Next Generation Communities are places "where people can live and work well, with minimal environment impact, by utilizing local water, food and energy resources. Next generation communities are envisaged to be well connected to other communities, resilient and generating income by providing knowledge-intensive goods and services to global markets, without relying heavily on the exportation of natural resources...This type of community represents a major shift from the current highly centralized and mega-urban work-life system, which evolved from technological and investment realities of past centuries. Next generation communities offer extraordinary opportunities for technological and social innovation".

Axel Meissen, Chair of Foresight for the Alberta Research Council

The concept of Next Generation Communities builds on the idea of "complete communities", urban villages and human scale urban development. It goes beyond smart growth's focus on land-use and transportation systems to consider social and cultural sustainability, and also goes beyond new urbanism[5] in its emphasis on the nature of work and wealth creation in such communities.

It may help to distinguish past generation communities in the Canadian West which were built in an expansionist manner over the past 50 years following World War II and which featured the car and suburban development current generation transition communities – which propose an alternative to the suburban model and include the innovative people-centered urban communities of the sort described in this paper and next or future generation communities – which are those we wish to envision and create, that truly move us beyond the current best cases and practices into our desired future.

Imagine for example neighborhoods that are regenerative – that produce more energy than they consume; that provide strong social support networks for their residents; that generate wealth from valued goods and services; that minimize their ecological footprint, curtail GHG emissions and enhance the natural and human environment; that are resilient and able to respond effectively to unexpected shocks and threats; and that give more than they take!

While we expect the definition of Next Generation Communities will be the subject of considerable refinement, generally speaking it has to do with envisioning the kinds of communities we want for our children, grandchildren and great grandchildren. Using a definition of a generation as 30 years, such a concept involves standing in the desired future and casting back to consider options and set directions, rather than forecasting the future and basing directions on extrapolations of current trends or technologies. Most cities use forecasting models and are dependent on infrastructure and urban forms designed 50 to 100 years ago. Because it is likely that the decisions of today with regard to community form will last for another hundred years, if we want to make communities more sustainable and resilient places we need to consider different ideas.

While there are numerous ways to envision future communities – many cities have structured their visioning and implementation processes around a set of core themes such as economic, environmental (including the natural and the built environment), social, cultural and governance systems, within which strategic areas such as land use, transportation, air, water, health, social equity, accessibility etc fit. Some communities, particularly First Nations communities have added a specific focus on culture. Communities using "The Natural Step" base their framework on four science based system conditions[6].

[5] The *Charter of the New Urbanism*, states: We advocate the restructuring of public policy and development practices to support the following principles: neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice

[6] In brief, the system conditions lead to four operating principles: 1. Do not withdraw more from the earth's resources than nature can replenish. 2. Do not accumulate more waste than nature can absorb. 3 Do not degrade the environment upon which life depends and 4. Do not prevent current and future generations from meeting their human needs in an equitable fashion. See www.thenaturalstep.org

the case studies : 3 state-of-the-art communities

The three cases chosen are not what we would call Next Generation Communities, but they do represent the current state-of-the-art in Western Canada and as such represent the current near term future. They incorporate many sustainability principles and each highlights a different combination of public, private and civil society engagement. They are at different stages in their development with Canada Land's Garrison Woods being the oldest and fully implemented, Dockside Green having completed Phase I, and Emerald Hills Urban Village beginning implementation.

Emerald Hills conceptual drawing

conception, motivation + implementation

Canadian Forces Base (CFB) Redevelopment, Calgary, AB

Canada Lands Company's mandate is to purchase surplus strategic properties from the government at fair market value, and improve, manage, or sell them to benefit the Government of Canada, and local communities. They purchased the CFB in Calgary in 1997.

The project received strong support from the Canada Lands Company Board of Directors and Senior Management Team, a number of key consultants, and innovative Calgary builders as well as a receptive Planning Department and City Council. Canada Lands had done considerable research on New Urbanism mixed-use developments in the United States and were convinced that there was a solid business case for this type of development in Calgary

Three communities have been involved. The first, Garrison Woods, with 1,600 housing units was completed in 2004 and the second, Garrison Green, with 1000 units in 2006. There is a mix of types of housing including single-family homes, townhouses and apartments and numerous parks, private schools and senior-oriented projects.

In 2008, the third community of the planned development - Currie Barracks received a LEED ND gold rating certification for an approved plan for neighborhood development, the first in Canada[7]. It began construction in 2008. When completed, Currie Barracks will contain approximately 3,000 housing units of various types, 200,000 ft^2 retail space, and 300,000 ft^2 of office space. Currie Barracks is improving on the new urbanism and smart growth principles of the previous phases through low impact design (primarily in the form of sustainable storm water management solutions) and even greater density, as well as heritage preservation with the most provincially designated historic buildings and landscapes in an urban centre in Alberta.

[7] LEED (Leadership in Energy and Environmental Design) is a rating system developed by the U.S. Green Building Council to measure the environmental sustainability of a building. LEED ND moves beyond the building and site to the neighbourhood level. see: www.USGBC

Dockside Green, Victoria, BC

Dockside Green is a 15 acre harbourfront Brownfield redevelopment in the neighborhood of Victoria West. The developers are Vancity, Canada's largest credit union, and Windmill West, part of the Three Point Properties group. There is a planned total of 1.3 million square feet of mixed residential, office, retail and commercial space in 26 buildings. It is expected that approximately 2,500 people will live at Dockside in three communities. The first completed phase (Synergy, part of the Dockside Wharf Community) has been certified LEED Platinum and the following phases are planned to reach that target as well.

The City acquired their portions of the site in 1989 for $1 and had tried to sell the land three times, but was unsuccessful due to serious industrial remediation problems. By 2001, the property had accumulated $5 million in debt and had been nicknamed 'Darkside'. The city decided they had to take a more creative approach to dealing with this property and found a champion in Kim Fowler, a city planner who became the City's project manager for the site in its early years.

Vancity had been looking for ways to raise its profile in Victoria as it expanded in the Victoria market. Jacques Khouri, CEO of Vancity Enterprises had been interested in setting up something similar to Portland's EcoTrust Building- a Sustainability Centre where not-for-profit organizations could share office space and ideas. Vancity had completed a feasibility study and had considerable discussions with various stakeholders in Victoria including Joe Van Belleghem with Windmill Developments.

When the City put out a Request for Proposal (RFP) on the harbourfront site, it focused on the green aspects of the project: the basic requirement would be for LEED Silver- anything above that would then be awarded a certain number of points in the adjudication process. Points were also awarded for open/green space and innovation. Khouri and Van Belleghem responded to the RFP. Khouri and Vancity came from the social housing side, and Van Belleghem and Windmill came from the green side. The social housing and other social amenities part of the Vancity/Windmill proposal gained them considerable innovation points and helped push them over the top. It also garnered them a standing ovation at the public presentations to Council. Van Belleghem had the grand vision for the site and Vancity brought the "patient capital"- and its values around social sustainability and a Triple Bottom Line[8] approach to the project[9].

Emerald Hills Urban Village, County of Strathcona, AB

Emerald Hills Urban Village is a 50 acre Greenfield development located in Sherwood Park, Strathcona County just east of Edmonton. Sherwood Park originally grew up as a bedroom community for the refineries with a typical suburban development pattern of single family homes, big wide roads, and the separation of land uses.

The County had the desire to change Sherwood Park from "a collection of houses into a community". Committed to sustainable development they have incorporated four principles for guiding sustainability based on The Natural Step and 12 themes for evaluating sustainable development into their Municipal Development Plan (MDP). Their first mixed use higher density development, a town centre project, Centre in the Park (CITP), was built in partnership with Christenson Developments. CITP is a 20 acre site with varied building stock, the highest building being 6 stories and includes a community energy system and a community centre.

aerial mock-up of the Dockside Green development

[8] 'Triple Bottom Line' coined by John Elkington, is an approach to decision making or performance measurement that that considers social, environmental and economic factors rather than the traditional approach which only takes into account profit and loss.

[9] Vancity is a 50% partner in this development and provided 100% of the capital and financing for this project.

In 2002, Wil Mayhew, a consultant, working with Natural Resources Canada (NRCan) created SuN Living[10], an approach and process for achieving sustainable neighborhood-scale development. In 2004, the search for a pilot project for SuN Living led Mayhew to Strathcona County and Christenson Developments who, along with three co-developers, had already established an initial concept plan for Emerald Hills Urban Village (EHUV). Although the County had already approved a plan and a land use bylaw was in place, because of the commitment and trust that had been developed by Christenson and the County as a result of CITP, they agreed to treat EHUV as if it were a clean slate and apply the SuN Living process.[11]. This involved committing to sustainability principles, establishing mission and vision statements, identifying and setting targets, developing strategies and actions, and setting up implementation guidelines. As a result of the depth of stakeholder involvement, collaboration and cooperation (which included County departments and councillors) all existing bylaws pertaining to EHUV were amended in one council sitting without any opposition.

conceptual drawing of an Emerald Hills tower

The EHUV master concept plan and course of action that emerged included a density of almost 1800 dwelling units (double the initial plan) and multi-residential buildings reaching 14 storeys (unheard of in Strathcona County). Public, private and commercial buildings were clustered around an open space village 'heart' where there were no through roads and almost all parking was underground. Mixed uses included attached bungalows, townhouses, condominiums, rental apartments, assisted seniors living, an extended care facility, and approximately 650,000 ft of commercial, retail, office space and live / work units. In addition, the infrastructure features included a community energy system and onsite storm water and wastewater management. A set of sustainable neighborhood infrastructure guidelines are currently being developed as part of the ongoing detailed design. Adjacent to EHUV, plans are in place for a Strathcona County hospital and a new drug addiction centre for teens has already opened on the hospital site.

design + technologies

All three developments are mixed use, dense, and walkable with considerable attention given to green space and public space. Each of their aesthetic designs fit in with the expectations of the surrounding community: Garrison Woods reflects its heritage status with wood framed structures in traditional architectural styles (Tudor, Colonial, Craftsman and Victorian) popular in Calgary. Genstar Development, the land developer for the entire Emerald Hills area has adopted a heritage theme for the area and the EHUV architectural guidelines are following this theme. Dockside shows a distinctively west coast wood, steel and glass face.

Garrison Woods incorporated new urbanism design including customized road standards and an overall gross density of about 10 units per acre (UPA), much higher than typical Calgary subdivisions of 6 – 8 UPA. Cars are kept away from the buildings and put underground so as to have more landscaping and green space around the buildings. CLC also invested in saving mature trees (one motivation for relaxing road standards), specialty lighting and interpretive signage to reflect the military history of the site.

The Plan for Currie Barracks takes the new urbanism focus even further with a density of 16 units per acre; improved street lighting design and LED traffic lights which will result in a 30% energy reduction; green spaces for storm water retention and active living. There will be only 8% surface parking, 99% of homes will be within a 5 minute walk of public transportation and 98% within a 10 minute walk of schools. Like Garrison Woods, it is a mixed-use, walkable community with a range of housing types and sizes and 20% of new homes constructed are expected to meet the Built Green rating system[12]. Currie Barracks is currently running into regulatory barriers to implementation, so it remains to be seen which design features will be finally incorporated into the actual development.

Dockside also invested in designs that centre on people not cars, but is going much further than any other development in Canada by essentially achieving an off-the-grid neighborhood. Dockside has committed (with financial penalties in place if they fail) to achieving LEED Platinum on all buildings, and those already built have achieved this rating. They are projecting 45-55% less energy use than conventional buildings, with a 259 ton savings per year on greenhouse gas emissions, as well as 65% less use of potable water. Their biomass centralized energy plant opened in July, and they are treating all sewage on-site and using the treated water for toilets and landscaping. Storm water is being managed through green roofs and naturalized creeks and waterways. They provide a car-share service. They have also

[10] SuN stands for Sustainable Urban Neighbourhood.

[11] See SuN Living http://sunliving.ca/en/home/

[12] Adam Stoker, Enermodal Engineering, the LEED consultant on the certification of Currie Barracks. http://www.enermodal.com/Canadian/news/EEL-Newsroom-LEED-ND.pdf accessed October 14, 2009

conceptual drawing of Dockside Green

provided meters for energy and water use for each unit so that residents can monitor their resource consumption. Studies have shown that meters will reduce energy use by 20% by providing real time updates to people about their consumption habits.

Emerald Hills Urban Village is applying the SuN principles through specific commitments to density, mixed-use, walkability, LEED or other Green building standards, protection of green space, use of green space for storm water management, integrated waste management, recycled materials, composting, community food production, and minimized car access amongst other things. They are currently working on the specific standards needed to implement the overarching sustainability themes. The master concept plan and course of action are documented in an implementation manual, the Emerald Hills Urban Village SuN Guidelines which are integrated into SuN Living (www.sunliving.ca). Christenson is also planning on hiring community coordinators to help promote sustainable living, demand-side management of resources (energy, waste and water), and foster a sense of connectedness in the community.

regulatory environment

DOCKSIDE GREEN: A SANDBOX NOT A STRAIGHTJACKET

For Dockside Green, the way the RFP was set up was very important in being able to innovate. Kim Fowler described is as creating "a sandbox, not a straitjacket." They defined the land use, design guidelines and a minimum and maximum density and that was all. The City had only two requirements: financial viability and a minimum LEED silver construction standard. Other than that the proposals would be evaluated using a Triple Bottom Line approach that also allowed for a wider range of applications. Because of this, the primary focus was not on how much money was being offered for the land, it also took into account the amenities being offered, something that is often not possible with more rigid RFP requirements. The focus was on a rigorous evaluation process behind closed doors to avoid political and media pressure, which included community representatives and a lawyer with experience in municipal law, who were able to testify as to the fairness of the process.

Regulatory barriers have not been significant for the residential, commercial or retail aspects of the Dockside development. There were more issues with some of the green infrastructure such as the sewage treatment plant, in operation since 2008, where they had to prove to the utility that they were not linked to the municipal sewer system. There is some discussion now of Dockside possibly treating some municipal sewage as the volume currently processed by the plant is so far below its capacity that it is not functioning optimally. The other regulatory issue that came up with regards to Dockside was the mechanisms for providing social housing. The City of Victoria offers significant tax breaks for any unit of social or low-income housing, but the system is still set up with the idea that public entities such as the BC Housing Corporation, Capital Region Housing Corporation or Canada Mortgage and Housing Corporation will provide social housing. The mechanisms are not in place for private sector entities such as Vancity to develop social housing or even to partner effectively with BC Housing.

STRATHCONA COUNTY - REGULATORY ALIGNMENT

Strathcona County likewise did not have significant regulatory barriers to the Emerald Hills development. There were three by-laws that needed to be changed and this was done in a twenty minute council session with no opposition, indeed with a great deal of enthusiasm and self congratulation. The project has had significant impact on the county's development process. They have aligned the development process with their policy priorities as set out in the MDP. A SuN Design Committee reviews development permit applications and works with the developer early in the process to make sure that the four principles and 12 themes outlined in the MDP are followed.

CFB CALGARY - INCREASING RESISTANCE + BARRIERS

The experience of Canada Lands and Calgary on the other hand has been a case of increasing rather than decreasing barriers. Initially, Garrison Woods was treated as an exceptional development by the City of Calgary and therefore regulations were relaxed in order to accommodate the new urbanism approach to this development. What was an exception became more of a model as Calgary embarked on a citywide visioning process called "imagineCALGARY". The sustainability principles from the visioning were then incorporated in a land-use and transportation plan through a project called Plan It that was passed by Council in 2009. This plan is consistent with the higher density people centered urbanism envisioned by CLC. However, it was found that there was a fundamental conflict escalating between what Canada Lands Company was trying to achieve on the CFB redevelopment, what City Council had passed as aspiration and policy, and the approvals process at the City. The gap between aspiration and realization was increasing, so in 2009, City Council commissioned an

[13] See http://www.usgbc.org/ShowFile.aspx?DocumentID=5546 for the checklist and description of the LEED rating for new construction, accessed October 14, 2009

[14] http://docksidegreen.com/images/stories/sustainability/overview/greeninitiatives.pdf

independent study by T-six Urbanists to examine where the breakdown occurred. In their report, "Urban Shift", T-six Urbanists suggest that the fundamental problem is that the approvals framework is based on encouraging suburban automobile dependant type development while the City's high level policy is encouraging human-scaled urban development. This has meant that Garrison Green and Currie Barracks have had to deal with lengthy delays and compromises in design that have been approved at the policy level but not at the operational level, thus thwarting both the developer and the councils' intent.

Garrison Woods is the oldest of these developments. Dockside Green is only partially occupied and Emerald Hills Urban Village has barely begun construction, so the fact that the latter two have had fewer regulatory problems may also be because they are exceptions. The key will be to see how the experience of these two becomes systematized and reflected in on-going development. The EHUV development team is currently applying for research funding through the EQuilibrium Communities Initiative to research and develop green infrastructure guidelines that will direct the implementation of a neighborhood-scale sustainable energy strategy and provide the basis for a sustainable storm water, wastewater and potable water strategy.

Dockside is still fairly unique in Victoria, and it remains to be seen if it can be repeated systematically. Because of its success from a Triple Bottom Line perspective, there has been a lot of support for this style of development and recognition for both Vancity and Windmill Development. Victoria is however, just beginning to change things internally to be able to implement more sustainability projects.

A common issue for the cities in all three cases has been lack of staff. Because these development are not typical of what has been done generally over the last 60 years in North America, the learning curve is steep for everyone - the municipality, the developer, the financer. It takes time, which means money, to change how things are done.

partnerships + consultation

Another characteristic of all three developments was the amount of stakeholder consultation and community engagement that occurred. Consultation was both internal and external. Neighboring communities had substantial influence on the development of both Garrison Woods and Dockside.

PUBLIC PARTICIPATION

CLC and the City of Calgary conducted a 17-month public consultation process on Garrison Woods. There were established neighborhoods around the CFB base, and some of the people there had in fact lived on base during previous wars. Although there was concern about how the closing of the base would affect local business, significant concerns were expressed by the public not only regarding increased traffic, but increases in density and the interim leasing program. One of the major initiatives of Canada Lands Company has been to lease, on an interim basis, some of the former military housing units at Garrison Woods and Garrison Green, as well as the commercial buildings at Currie Barracks. The interim leasing of the housing, particularly at Garrison Woods, was not well-received by the adjacent communities who did not support the retention and refurbishment of the "Permanent Married Quarters" (PMQs), which they considered inappropriate in a new development. In order to preserve the built heritage of the site, CLC retained 400 PMQs, renovated and upgraded them through the addition of verandah and other finishes. Approximately one-third were relocated onto new foundations to increase densities. The townhouse and multifamily developments fitted in with the traditional style architecture of the heritage buildings on the rest of the site.

Likewise, it was input from the community that influenced the adoption of the mixed use plan for Dockside rather that the light industrial plan that the City initially favored. Emerald Hills has had less direct community input at the neighborhood level, although open houses were held, but Strathcona County initiated its overall sustainability direction through community engagement.

STAKEHOLDER ENGAGEMENT

Stakeholder engagement was a key factor also in the success of Dockside and the Emerald Hills Urban Village development process. Dockside was careful to engage all the key decision makers in the various City departments, members of the community starting from the inclusion of representatives of the Victoria West Community Association in the bid process and continuing to have them engaged through bimonthly meetings with 15 members of the Association and the developer's staff to address issues such as sight-lines and the appearance of the architecture[15]. The project was managed by a multidisciplinary team at the City. Vancity noted that one of the advantages of being able to take a longer view on their investment is that they were prepared for the upfront costs of including all the trades in

Garrison Woods, part of the Canadian Forces Base development

[15] Community Research Connections http://www.crcresearch.org/case-studies/case-studies-sustainable-infrastructure/land-use-planning/triple-bottom-line-practice-f accessed September 25, 2009

stakeholder meetings at the beginning of the project to ensure that they were all on board with the vision. This saved money in the long run. Vancity also had to work with its own internal stakeholders to change the way they offered mortgages. Emerald Hills Urban Village involved considerable stakeholder engagement through the SuN Living process and ensured a unity of vision from the County and the developers. The lead developer, Christenson Developments, was on board with the vision from the beginning but had to educate the other co-developers on the project. Although there was considerable involvement and support from the County Council and senior managers, in retrospect, the project team wished they had included more of the key people, such as the County engineers involved in the development approval process, from the beginning.

RESIDENT ENGAGEMENT

In addition to this type of stakeholder consultation through the development process, there is also a common commitment to durable outcomes in terms of the behavior of residents. In Emerald Hills Urban Village, this is explicitly linked to a Sustainable Living Program that will be developed with the Village residents . As Bard Golightly of Christenson put it, "All the green infrastructure in the world means nothing if people's behavior does not change". In their current projects Christenson has put in place plans for demand side management of resources to decrease water, energy use and waste and will also draw on their experience with assisted living developments to provide social program and lifestyle coordinators to work with the EHUV residents to help build a sense of shared community and identity. The Dockside Green and CLC developers were not as explicit about this kind of social intervention. The understanding is that these communities will offer more opportunities for strong community spirit simply because the diversity of housing types will provide opportunities for a range of people to live there and interact with neighbors because it is a walkable and shopable place.

Eric Wieser, one of the multi-family builders for Garrison Woods pointed to three things that he felt made the multifamily part of GW a success. First were the three different product types available in each building: a large garden apartment with front and back entrances designed to appeal to empty nesters moving from their single family residence; medium sized second floor apartments for professionals; and smaller third floor loft spaces appealing to young people. Second was the requirement that all units be owner occupied, and third was that the developer hosted Easter and Christmas parties in the coach house amenity building for the multi-family dwellings. This ensured that people knew their neighbors. Brian Pincott, city alderman, noted that unfortunately, the goal of having a mixed community has not held up over time because of the success of the project. It has become so fashionable and prices have risen so much, it has blocked out many younger people or those with lower incomes from buying into the project. This is in spite of the initial goals of the developers to ensure that there was a good range of product to appeal to and be accessible to different market segments. It is still anchored however by seniors' residences and includes several schools to encourage a diverse community by age.

Dockside also has incorporated affordable housing into its Master Development Agreement including 26 units for ownership targeted at families with incomes between $30,000 and $60,000 and 49 rental units which will be managed by a non-profit. These units are not yet available but are expected to start construction in spite of the economic downturn

The success of Emerald Hills and Dockside in creating an effectively operating community remains to be seen. If they are also one-off highly appealing developments like Garrison Woods , with no formal mechanism for protecting affordable lower income housing, they may also suffer the same fate of escalating gentrification and a compression of income and age diversity.

Garrison Woods, part of the Canadian Forces Base development

financing

These developments all benefited from a sense of "patient capital". Dockside partners Vancity and Windmill West did have to borrow money, much like any other developer and pay interest, but Vancity had a longer term view on returns. Canada Lands Company will fund projects using existing capital, or if necessary, will borrow money commercially, which requires the paying of interest like any commercial lending arrangement. It is fair to say that these types of projects often require a developer with patient capital that is prepared to make a significant upfront investment in the public realm (streets, parks, alleys, etc.) and wait a longer period of time to realize on the profits.

In all the projects, there was a strong business case for the development. Bard Golightly of Christenson Developments noted that with good planning the "green premium" is minimized so that this is not a significant financial barrier anymore. However, both Christenson and Vancity did note that the upfront planning costs of these developments are more significant than traditional developments because of the need to develop the relationships with all the decision-makers and stakeholders. Detlef Beck used the example of having the contractor, the plumber, the electrician, the carpenter etc. at the table discussing how to implement the sustainability principles in several meetings, paying for their time before anything was being built. Money will be saved in the end, but the up front costs are greater. As developers and construction companies become more experienced with these kinds of developments, however, these costs will go down.

CLC estimated that it was 30% more expensive to develop Garrison Woods than a traditional development, but that rates of return are consistent with or slightly higher than industry standards[16].

None of the developers involved are what one might think of as "typical" although all have a long track record. Canada Lands is a crown corporation, and considers itself a developer with a social conscience. CLC's purchase and sale agreements, including the price and terms of transactions, when considered as a whole, are consistent with industry standards. In certain instances, it has been more flexible on price and terms when attempting to deliver affordable/social housing initiatives such as Cypress Greens in Garrison Green as well as a number of the seniors-oriented projects in both Garrison Woods and Garrison Green. Vancity is a credit union whose mandate includes the social and environmental elements of sustainability as well as economic, and Christenson Developers is family-owned with a strong sustainability vision. Patient money seems to be key to opening up the development process to innovative players. These developers were all willing to shoulder the cost of being the first to try something new.
The concept of professional risk (liability) was also reported as significant factor in preventing the early and wide adoption of the technologies being used in the three communities by other developers and engineers. This is a matter worthy of further investigation.

discussion

Goodwin Watson's Structure – Process – Attitude theory[17] sums up the research on human and social change in a simple to understand proposition – namely that the structure of a situation (or building or institution) exudes the greatest influence on the process of interaction and relationships, and this in turn has the greatest influence on behaviors and attitudes. While there is some movement in the direction from attitudes to process to structures, the overwhelming influence is in the other direction.

To apply this framework to the three cases under discussion reveals some useful lessons that may help other cities who wish to achieve more sustainable communities.

structure

Structures determine the kind of community that is developed. With regard to urban design, structures may be classified under six headings: physical form, financial instruments, technologies, policy and regulations, economic structures and institutional structures. As identified above all three cases involved innovative structures with regard to physical form, financial instruments and technologies. Policies and regulation changes particularly in the approvals process were required and continue to pose a challenge, particularly in Calgary. Two issues seem worthy of additional discussion:

Economic structures that generate wealth: These three cases assume that many of the residents will continue to be employed outside of the communities – in the greater Victoria, Edmonton or Calgary regions. As mixed use communities, they hope to attract artisans, businesses and knowledge based jobs. but have not yet demonstrated success, and there is a concern that including only 'clean' jobs means that the products of 'dirtier' manufacturing jobs are simply imported - linking them to problems with transportation e.g. greenhouse gas emissions and vulnerable to peak oil shocks. The challenge for Next Generation Communities is to redefine work to value caring for people or nature as much as manufacturing. The work of the UK on "Prosperity Without Growth" is the most advanced thinking in this direction[18].

Institutional Structures: Subsidiarity is a basic principle of good governance but typically it has been applied to cities by increasing their responsibilities without increasing their resources (tax base) or capacity. All three cities reported their lack of human resources to handle the extensive consultation etc to embrace innovations. Likewise structures at the community level that encourage neighborhood self governance through formal associations of residents, community groups and businesses are needed. This is planned for EHUV and is part of Calgary's community association system. All of the developments are governed by provincial regulations on condominiums, which generally involve condo associations but there does not appear

[16] CMHC Residential Intensification Case Studies Built Projects Garrison Woods http://www.cmhc-schl.gc.ca/en/inpr/su/sucopl/upload/Garrison-Woods-Calgary-Alberta.pdf accessed October 9, 2009

[17] Watson, Social Psychology Issues and Insights, Lippincott, NY, 1966

[18] See *www.indigodev.com/*ProsperityWithoutGrowth*.html*

to be formal multi-sector institutions to maintain the sort of consultative process that characterized the design of the communities in their early stages. One of the largest barriers to change within cities is the structure and mandates of departments and the reward structure for senior managers. Departmental 'silos' were mentioned as a significant issue to be addressed in all three developments.

process

Psychologist, Kurt Lewin, developed the concept of field theory, which says that in order to understand human behavior you must understand the context or field within which the behavior occurs. An early advocate of systems thinking as it relates to humans, he and his colleagues found that participatory processes and democratic leadership led to better results as well as greater satisfaction and ownership of the results. The right kinds of groups can achieve better results than the smartest individuals operating alone.[19]

While the structure has the greatest influence on outcomes, the process that is undertaken can transform the attitudes and behaviors of the people engaged. If you change the people at the decision making table, you change the decisions that are made.

In all three cases the processes that were undertaken were characterized by attempts to be inclusive and involved the developers, builders and sub trades, city council and neighboring residents in an active process of meaningful engagement. All three cases used variations of multi stakeholder participatory design – typically based on design charrettes[20].

Consultants and developers were familiar with or qualified in LEED standards, smart growth, sustainability and new urbanism concepts. They in turn trained their colleagues or sub contractors and trades in the standards or objectives being sought. The lack of familiarity with LEED or sustainability principles among city engineers, fire chiefs and waste management specialists was frequently cited as a barrier to implementation. Given that research shows that city officials learn best from their peers[21], explicit attempts to bring staff from a successful development to meet their colleagues in another development would hold promise for overcoming these barriers.

All three cities have sustainability plans and targets for which they have developed indicators and expect these projects to contribute to meeting them (i.e. reductions in green house gas emissions, energy use, car dependence etc). If this monitoring process is followed and openly reported it has the potential to ensure that the communities will continue to learn and adapt to emerging challenges.

Sensitivity to the cultural dimension of the developments is exemplified by CLC's heritage preservation policies and Dockside's First Nations relationships[22] Canada Lands has incorporated community space and hosted community events at holiday times to help residents meet one another. EHUV will be facilitating this dimension in the future. The concept of mixed use designs should encourage studio work/live space and attract cultural groups and artisans. The compounding factor seems to be market success leading to unaffordable space.

attitudes

Attitude is a generally positive or negative view that predisposes individuals toward some object (person, place, thing, experiences, or idea) and away from others. It is a disposition or readiness to act or react in a certain way.

The concept of attitude is relevant to the question of urban design. Although not explicitly measured in this review of the three projects some observations can be made. In the case of Garrison Woods for example, the prevailing wisdom among developers was that Calgarians preferred car centered single family dwellings in suburbia and would not buy homes in a denser neighborhood closer to the city centre. Presented with an optional housing product however, they responded differently, embracing the new experience and telling (selling) the experience to their friends and colleagues.

There were insufficient resources to conduct a survey of the attitudes of the residents of the three projects. The market success of the projects to date would suggest a positive attitude based on the experience of living in the communities; however, this is a matter that needs to be confirmed through further research. There is evidence that the attitudes of the subcontractors and builders were positively affected. It appears that the participatory design processes and extensive consultations helped them form new reference groups that supported innovation.

case study conclusion

This review of three current state-of-the-art communities in Western Canada has found considerable common ground in their attributes as examples of best practices, and in their structures and processes. All three required visionary leadership and aspired to go beyond current practice. They involved partnerships and collaboration among municipal public sector elected officials and staff, private sector investors/owners, developers and builders, and community sector organizations and neighboring residents. All three required a strong business case and patient capital or a long-term perspective on returns. To varying degrees they have embraced technological innovations and issues of car dependence, social equity and engagement.

The Structure- Process- Attitude Theory was introduced to provide a conceptual framework that would organize the analysis and assist in transferring this learning to other communities by helping them to prioritize their investment of time and money. These cases represent some of the best of current practice, policies and technologies available in Canada. They are far ahead on the journey to sustainability but still fall short of the vision of communities as net contributors to the social, economic, cultural and environmental well-being of current and future generations.

[19] James Surowiecki, "The Wisdom Of Crowds", Anchor Books, 2005

[20] Charrette refers to a time limited participatory planning process see *www.charretteinstitute.org*

[21] Nola-Kate Seymoar, Zoe Mullard, Marena Winstanley, City-to-City Learning, International Centre for Sustainable Cities, 2009

[22] This is exemplified by Docksides' inclusion of First Nation Art, holding a blessing ceremony, and having an archaeologist present for excavation in case they found any middens or remains.

Participants at the Next Generation Communities workshop add colour to their collective vision

imagining Next Generation Communities

In order to go to the next step and imagine communities that would meet the needs of future generations, in preparation for the Jasper Innovation Forum 2009, Sustainable Cities held a half day workshop on the subject at the Gaining Ground Conference in Vancouver in October 2009. The three cases were presented and then under the leadership of Stanley King of The Co-design Group[12], participants were invited to put themselves in the shoes of their grandchildren or great grandchildren and imagine the kind of community in which they would like them to be living. As people spoke, Stanley drew their images on a large sheet of paper, eliciting their help in defining the ideas, placing the people and objects, and building on one another's contributions. When the paper was filled, he encouraged participants to colour in the outlines and started on the second sheet. The images and words illustrated the essence of that interaction

The visioning session painted a picture of a diverse group of people, of different races, ages and classes, working in an urban farm, a restaurant, some small shops, offices above shops, art stalls, and a bicycle factory. The images portrayed children playing on a playground, splashing in a stream going through the community. The stream absorbed and cleaned wastewater. Participants wanted to conceive of a different economy, one possibly based on barter or direct exchange of services rather than money; an economy based on prosperity and fairness, rather than growth. Because people would consume less, there would be more time for leisure and less time working. Transportation included a streetcar, rapid rail, bicycles, and some type of electric vehicle for seniors, people with mobility challenges, and those needing to transport goods and groceries etc. within the neighborhood. A wildlife corridor of unmanicured greenspace ran under the elevated rail. Homes were above the shops, stepped back in an eight story high-rise to take advantage of daylighting. Energy was provided through solar skin, solar tubes, wind and other renewable sources or possibly from household waste to energy facilities. There were bee hives, fruit trees, and a moveable chicken coop. Finally, there was a soap box to show that it was a democratic society where people's voices were heard.

One person commented that all of these suggestions are already being done somewhere in the world, and another said, "Look, it is all about people." The visions of different technologies or urban form were indeed not that different from the three "This Generation" examples, except for the assumption that there would be no fossil fuel dependant vehicles at all, and that the energy infrastructure would have been refined to the point where it provided all the energy needs of the population with no pollution, GHG related or otherwise and perhaps gave back to a grid.

What was different from present day communities was the way people interacted. The emphasis was on a democratic, open, warm community, where people were happy, where they had considerable leisure time, where they did not have to work in demeaning jobs, where they consumed less, and exchanged goods and services outside of a cash economy. Food production and waste disposal was local and integrated. Nature was not separate from urban spaces. Children were safe and part of the community. People knew and liked their neighbors.

This is a different utopian view of the future from a futuristic, fast, industrialized one. It could have been, as one participant noted, a picture of an ideal community one-hundred years ago. It seems that technologies may come and go, but human needs remain the same. In a time where the fast, the industrial and the atomized has lost its appeal, visions of the future are ones ultimately about community.

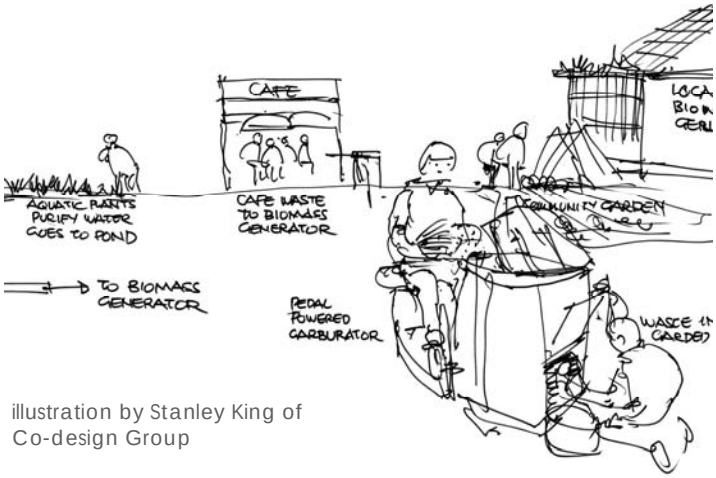
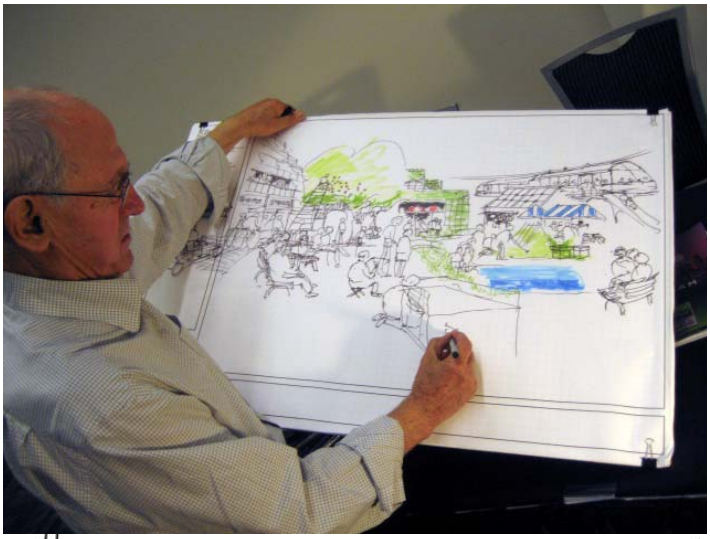
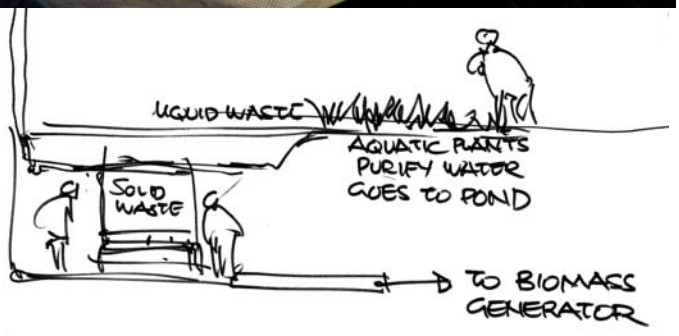


illustration by Stanley King of Co-design Group

[22] see www.theco-designgroup.com

Illustrations by Stanley King of Co-design Group at the Next Generation Communities workshop during the Gaining Ground Conference in Vancouver





next steps

The challenge of envisioning Next Generation Communities is only the first step in a process to move beyond the near term future as represented by the cases described earlier. Many questions remain. How would things be different in rural or remote communities? Have we factored in the unexpected? If we chose one alternative does it preclude other possibilities in the future? The difficult work becomes one of identifying gaps, prioritizing goals and objectives, and defining actions that will move us beyond incremental gains to those which may lead to breakthroughs that will transform the nature of how we live, work and play in Canadian communities in the context of a shared planet. We anticipate that the Jasper Innovation Forum 2009 will launch such a journey.

appendix A

All three cases have inspiring vision statements and sets of principles as exemplified by The Emerald Hills Urban Village one below.

EMERALD HILLS URBAN VILLAGE

The vision: *"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 allowing homes, shops and services to transform into opportunities to live, work, play and relax, enhancing the health and well-being of both its citizens and the ecosystems upon which they rely."*

principle #1: Ecological Preservation

Ribbon of Green – The urban experience is transformed into an array of places and spaces linked with a continuous ribbon of green where residents can reconnect with nature, pause and enjoy life, and where both natural and human ecosystems can flourish.

Central Open Space - Complimentary land uses are organized around a central 'heart' – an open space of plazas, patios, promenades, parks and playgrounds linked with a network of greenways.

Open Space Amenities – Natural spaces are designed for informal and programmed activities – farmers' markets, plant sales, craft fairs, festivals, public displays – providing all ages and interests with opportunities for social exchange and recreation.

Urban Biodiversity – Nature is celebrated as a precious resource with native and edible vegetation, and elegant water features layered and blended into delightful spaces and places, encouraging local plant, animal and insect species to thrive within an urban context.

Enhanced Ecosystems – Natural spaces and greener/smarter/cheaper infrastructure are integrated in ways that amplify urban system performance and liveability; optimize resource use; and preserve, enhance and regenerate nature and life-sustaining ecosystems.

Village Gardens – A garden-market atmosphere where community, backyard, balcony, and roof top gardens provide fresh fruits and vegetables to tempt our taste buds, nurture our health and well-being, and support the overall ecology of the Village.

Soft Path for Water – The master concept plan and course of action embrace a soft path for water by using the buildings, landscape, and natural habitat to emulate nature's water cycle, optimizing water quality and quantity, and enhancing overall aesthetic and educational appeal.

Water-Wise Living – Bioswales, ponds and rain barrels enhance the aesthetic, educational and natural habitat aspects of the Village, and buildings integrate water-saving technologies allowing residents to preserve, conserve, recycle and reuse their water resources.

principle #2: Environmental Protection

Compact Development – Intensified land use reduces the demand for material and energy resources, creating opportunities to free us from our dependence on mined substances that accumulate in nature and threaten the health of both human and natural ecosystems.

Walkable-Hikeable-Bikeable – Places and spaces are knit together with naturalized corridors such that vehicle movement is limited, most surface parking is underground, and no automobile access is provided through the Village heart.

Mobility Options – An interconnected network of vibrant greenways encourage a range of safer and healthier mobility options, making the use of the automobile optional and freeing us from our dependence on fossil-fuelled transportation.

Environmentally Sensitive – Addressing climate change is woven into the fabric of the planning and design; waste is treated as a resource to be reused and recycled; and sustainable development and sustainable living focus on the use of renewable resources.

Sustainable Material Choices – Wise material choices promote sustainable harvesting practices; encourage the substitution of essential but scarce minerals and metals with others that are more abundant; increase building life; and create healthy indoor environments.

Local Green Economy – Easy access to an array of nearby eco-friendly shops amenities and businesses providing a range of environmentally-sensitive goods services and employment opportunities allow residents to live more sustainably.

Recognized Standards – The overall site and buildings conform to recognized sustainability principles and best practices assuring planning, design and implementation are being carried out to the highest viable standards.

Innovation & Best Practices – Innovation and best practices create the possibility of enjoying a high quality of life while lowering our impact to a one planet footprint. An urban village doing the right things right.

principle #3: Waste-Free Production

Sustainable Development – Sustainable planning, design and implementation of the site and buildings optimize the use of recycled, reclaimed, renewable, local, low impact, and cradle-to-cradle materials which minimize the accumulation of toxic substances in nature.

Sustainability Assurance – The site and buildings conform to recognized sustainable standards providing assurance that material choice during design and implementation integrate cradle-to-cradle solutions and activities.

Native Vegetation – A palette of native and drought tolerant vegetation is layered into the open space and landscaping and blended into public places facilitating maintenance programs committed to alternatives to chemical fertilizers, pesticides and herbicides.

Organic Gardening – Herbicide- and pesticide-free growing and landscape opportunities throughout the Village allow residents to garden organically creating healthier natural spaces for people and encouraging native plant, animal and insect species to thrive within an urban context.

Substitution – System solutions and design choices are adopted that reduce our dependence on unnatural, persistent, and toxic compounds and products by substituting them with natural, abundant substances that break down more easily in nature.

Green Purchasing – Sustainability criteria for material selection, green business charters that consider the entire supply chain, and cradle-to-cradle products choices, allow residents to live more sustainably while supporting a local and green economy.

Waste as Food – Waste and wastewater is treated as a resource resulting in the creation of an urban ecology that integrates and cascades resource use such that the output ‘waste’ from one use becomes the input ‘food’, or raw material, for another.

Waste-Wise Living – A County-wide curbside recycling and composting program, onsite backyard composting and demonstration initiatives, and business sector recycling, reuse and repair centers, enable and foster waste-wise lifestyles throughout the Village.

principle #4: Social Equity

Array of Uses – A diverse mix of residences, amenities, services, employment, educational and recreational opportunities provide destinations and gathering places that are appealing for children, youth, adults and seniors and promote social interaction.

Village Spine - A naturalized corridor travels its entire length providing residents, employees and visitors with easy access to a local economy that fosters sustainable lifestyles that are easy, attractive and affordable.

Flexible & Adaptable – The master concept plan and course of action integrate flexible design strategies that enhance well-being and social interaction in the built environment and allow for the possibility of living affordably in the same neighbourhood throughout one's lifetime.

Sustainable Lifestyles – Flexibility is built into residential and business spaces providing residents and building owners with solutions for adapting homes and offices to changing lifestyles, and to lifestyles better suited to working from home.

Equal Opportunities – Diverse housing opportunities and a balanced local economy generate a high quality of life and genuine wealth for people of all ages, income and skill levels while fostering fairness and equal treatment for all residents.

Sustainable Living Program – Residents and business owners with shared community values come together to create a sustainable living program for the Village that takes advantage of the innovation and opportunities integrated into the overall concept plan.

Art Leads Design – From buildings and water features, to street furniture and signage, art and cultural heritage are integrated into all elements of the built environment early in the design process, awakening a design paradigm centered around local creativity and cultural vitality.

Cultural Vitality – Public art is incorporated into spaces, places, and functional amenities such as signage and water features, providing residents with opportunities for community expression and interaction that showcases local character and a strong identity.

For further information see www.emerald-hills.ca.

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