

GETTING SMART:

Smart growth, energy efficiency and public facilities

Ann Ruzow Holland

By default and by design, smart growth principles have been employed in rural areas for many years. Compact community design can be a requirement of geography or of remoteness from metropolitan areas. Infrastructure just may not be available outside of a remote village or hamlet. Community and stakeholder participation can be part of the rural way of life. But, things are changing ... fast. Many parts of the country are experiencing rural sprawl as a consequence of not following smart growth principles.

Local government officials are painfully aware of the consequences of rural sprawl on the cost of providing infrastructure and services. They are being bombarded with concerns about paying the steeply rising energy bills for the community's energy expenditures. Frustration is created by an aging infrastructure, limited resources, and an overwhelming responsibility to maintain facilities and services that may not be meeting the municipal needs today or in the future. Community leaders may be thinking about their own problems outside of a smart growth mindset.



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Green Community Technologies

The principles embedded in smart growth imply long-term planning. The hardest steps are getting started, and moving away from crisis-to-crisis planning. The Green Community Technologies (GCT) process is an innovative and environmentally-friendly planning process that helps organize and identify the most pressing problems local governments are facing. Funded by the US Department of Agriculture's Small Business Innovative Research program, Yellow Wood Associates created the GCT to help communities access the best state-of-the-art technologies to solve their infrastructure problems.

The GCT process applies a "systems approach" and identifies areas where alternative approaches have significant potential to save money, reduce energy consumption, protect the environment, and improve service delivery. Based on community priorities, research is undertaken to identify alternative proven approaches that match community needs, conditions, and constraints. When communities are ready to implement changes, a roster of qualified contrac-

tors is developed. The process culminates by identifying capital allocation opportunities that provide sustainable solutions. The results are compelling because governments report substantial cost and energy savings, improved bond ratings, regulatory compliance, and job generation. Participating communities employ smart growth principles while improving community quality of life.

Linking local government with the right kind and fit of technical assistance moved the following group of communities from dilemma to action, bringing smart growth, climate change concerns, and public facility planning together in dramatic new ways.

Communities Move From Dilemma to Action

Franklin, New York

Franklin (population 1,218 – Census 2005) is in the Adirondack region of New York. The town identified issues with respect to existing buildings and was considering constructing a building to meet town needs. Over the years, information collected by the town's building committee was insufficient to provide a clear path forward. Franklin was in need of a new approach. A multi-facility assessment was conducted using the GCT process, researching green building alternatives, and identifying regulatory issues and resources. The use

of existing assets was maximized and the amount of new construction was minimized. Through the GCT process, town decision makers were introduced to principles and practices of green building, and were given conceptual designs to bring to an architect. The town is addressing its building needs in phases in order to address the most critical needs first, move functions around temporarily without running out of space for them, and focus its limited resources on one or two projects at a time without becoming overwhelmed. The new community centre will be LEED-certified, and the cost of energy saved by retrofitting the town garage will be more than enough to heat the new building. Franklin has employed an architect and engineer devoted to the “green” approach, and is moving forward with a capital finance plan for the facilities.

Richmond, Vermont

Richmond is located in the western foothills of the Green Mountains on the eastern edge of the Lake Champlain Valley. Parts of Richmond’s infrastructure are nearly a hundred years old, requiring costly improvements in the near future. The town’s capital assets had never been completely inventoried, so Richmond prepared a GCT capital asset inventory and assessment that satisfied GASB 34 requirements. Local leaders took advantage of this effort to map and digitize all infrastructure locations to create a capital asset overlay in their geographic information system. Richmond’s auditors commended the town on completing the fixed asset requirement. Once the inventory was completed, six alternative approaches that could make a real difference in outcome and cost were identified using a participatory approach. The GCT process identified the differences in cost, performance, capacity, and impact between conventional and alternative approaches, and provided an analysis of options based on the latest technologies and life-cycle economics.

Richmond has been very active as a result of the project, and is in the pro-

cess of installing highly efficient pumps and motors for the new sewage treatment plant and taking steps to upgrade underground pipes. Richmond’s latest interest is in generating local energy using renewable fuels. The town instituted a new energy conservation policy in 2007, is moving forward with a town-wide compact fluorescent initiative (3,000 new bulbs with a 4,000 goal), insulated the historic town centre walls and roof, joined EPA’s Community Challenge Program, and installed T-8 fluorescents in the town centre basement for a new teen centre. The town is also conducting a streetscape study to incorporate emerging storm water treatment methods and reviewing zoning by-laws for LEED and sustainable design standards.

West Central Initiative, Minnesota

West Central Initiative, a regional economic development group in Minnesota, represents the Cities of Ottertail, Brandon, and Battle Lake. In 2003, the group released a study that indicated that it would take more than 800 million dollars to upgrade the aging municipal water, wastewater and storm water systems over the next 20 years. “Many of the systems were built in the 1930s with an estimated design life of about 50 years,” said WCI President Nancy Straw. “Communities are living on borrowed time.”

Research is being conducted on a wide range of potential effective and environmentally sound solutions to issues ranging from storm water filtration to avoid damaging wetlands to decentralized wastewater system management to biological options for treatment of drinking water. Each city will receive an individualized report including preliminary cost information for new, novel, and conventional approaches to meeting infrastructure needs.

Montgomery, New York

Montgomery (population 20,891 – 2000 Census) is a town in Orange County that wanted to engage with residents in planning for the town’s energy future. The GCT process was used in conjunction with the “You Get What

You Measure” process, to help the group identify seven important goals. Key indicators of progress toward the goals include citizens and community leaders who are knowledgeable about energy sources and efficiency; access to all resources needed to use the most sustainable options; providing reasonably priced energy and conservation training for citizens; and having more rewards and incentives for conservation and efficiency. Next steps may include research comparing the costs and benefits of conventional versus green building, and a study of the effectiveness of incentives versus regulation in achieving energy efficiency at the local level.

Hinesburg, Vermont

The Town of Hinesburg (population 5,000) is in close proximity to metropolitan Burlington. The town is experiencing unprecedented growth and was faced with growing residential demand that would force expansion of its wastewater treatment system. With a multi-million dollar capital project looming, the GCT process helped by identifying opportunities to reduce input into the treatment plant by diverting grey-water from a single source that does not require expensive secondary treatment. In addition, the GCT process identified opportunities for water conservation in new construction that will reduce per unit wastewater flows, and alternative treatment technologies that will improve efficiency at the plant. As a result, Hinesburg expected to avoid investing millions of dollars in expansion, in favour of much less expensive pre-treatment upgrades and a smaller and more efficient wastewater treatment system.

The conventional solution would have been to expand the treatment plant rather than look at the quality of flows it was treating and opportunities for conservation and redirection. In the end, Hinesburg hired an engineering firm to take the issue of wastewater further, and they recommended the conventional solution of an expanded sewage treatment system (which was not what was recommended by the GCT approach). The town decided to raise a bond issue

based on the engineer's recommendation. The issue was subject to vote, which was turned down by the community. The town is now regrouping to decide how to proceed.

Lessons Learned

Taking the time to analyze alternative approaches was in each community's best interests. It also served to conserve taxpayer dollars and improve environmental impacts, thus addressing the smart growth principles. Introduction of a systems approach brought new choices to local officials to move from dilemma to concrete action. Communities that engage in the GCT process are successful at saving tax dollars, improving bond ratings, and helping assure citizens' access to basic services. What is different about the GCT process is that it accomplishes these goals within the smart growth rubric (see the table on page 29).

Smart growth principles recommend that communities consider a proactive approach to their infrastructure. Public auditors and comptrollers recommend a long-term view of their infrastructure investments. Communities know that it is also in their best interests, but the process can be daunting and complex. By linking information on asset conditions with the extent to which they meet and will meet community needs, municipal leaders can plan replacements well

Smart Growth Principle	Green Community Technologies® (GCT) process
Create a Range of Housing Opportunities and Choices	A sustainable and energy efficient foundation infrastructure keeps housing affordable and facilitates infill development if properly sized and configured.
Create Walkable Neighbourhoods	GCT helps communities meet goals of walkability based upon sound ecological principles for development of paths aimed at reducing storm water, mitigating flooding and icing and improving green space. The results are improved ambience through narrower streets, better sidewalks, paths, and trails using environmentally friendly materials and designs.
Encourage Community & Stakeholder Collaboration	Based upon participatory action research and society for learning philosophy, GCT builds capacity and engages communities in grassroots decision making.
Foster Distinctive, Attractive Communities with a Strong Sense of Place	Communities need information in which to make wise decisions as part of good stewardship practices. GCT helps set standards for infrastructure and public facilities that consider the triple bottom line; good for the environment, the community and the economy.
Make Development Decisions Predictable, Fair and Cost Effective	GCT introduces local government officials to life cycle costing and alternative approaches to planning, such as variable rate structures, construction techniques and development options that can save money and energy. Saving money, energy and helping governments move away from crisis-to-crisis capital spending towards articulated development plans spins off benefits to taxpayers and developers and creates a level playing field.
Strengthen and Direct Development Towards Existing Communities	GCT works with local government to ensure that infrastructure has the capacity to support planned growth, without which development will sprawl outward. This principle infers conservation of resources. GCT promotes conservation of infrastructure and public facilities through intelligent use and reuse of existing assets, the triple bottom line approach and life cycle costing.
Take Advantage of Compact Building (Community) Design	GCT promotes spatial and resource conservation. It also helps officials to maintain the community footprint, facility or system footprint by helping them evaluate what they have in a systems context, then making long-term decisions in that context.

in advance, and identify opportunities for cost savings through combined purchases. Understanding the pros and cons of alternative approaches helps public officials explain their decisions and choices to the electorate and improves accountability. Proactive planning, combined with intelligent capital allocations, will contribute to enhanced

fiscal stability and physical security.

The GCT communities profiled are attaining sustainability by design, and not by default. The decisions they made will profoundly affect their ability to function in a society where energy supply, sprawl, and environmental impact are crucial concerns. **MW**

as published in

Municipal World

CANADA'S MUNICIPAL MAGAZINE – SINCE 1891

1-888-368-6125

www.municipalworld.com