

SUSTAINABLE INFRASTRUCTURE: Implications for Canada's Future

Dr. Ann Dale

Canada Research Chair in Sustainable Community Development, Royal Roads University

Jim Hamilton

Hamilton, Thomas & Associates Ltd.

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INTRODUCTION

The ability of Canadian communities to redirect their existing infrastructure to more sustainable forms, to anticipate the effects of climate change impacts on that infrastructure and to optimize energy savings through retrofitting of and maintenance of existing infrastructure will determine our country's future prosperity. Infrastructure plays a critical role in the capacity of Canadian communities to realize these sustainable development goals, to enhance their competitiveness, and even more importantly, their ability to innovate.

The importance of sustainable infrastructure to a community and its capacity for innovation is similar to the foundation the human skeleton plays in the overall structuring, functioning and health of the body. Ecologically, for example, simply retrofitting existing buildings with current standard technology can reduce greenhouse gas emissions (GHGs) by 30 percent, and with leading-edge technology, by 60 percent (Danny Harvie, e-Dialogues, September 2004). This one improvement offers one of the larger, single potential sources for energy reductions—more than one fifth of the present energy consumption and up to 45 million tones of CO₂ could be saved (UNEP 2007). With cost reductions due to reductions in energy-use factored in, such a change results in a more competitive local economy. Socially, such changes enhance the willingness to innovate further to achieve a sustainable community. In addition, research indicates that the built environment has a significant, yet variable influence on mental health as a source of stress, and has a major influence over social networks, and the action of the planning process itself (Dennard 1997). Consequently, we can no longer afford not to invest in sustainable infrastructure.

This report is the result of a year-long research project studying sustainable infrastructure in Canada. It offers recommendations for more sustainable infrastructure choices that provide a strong backbone for community innovation, social and economic prosperity while at the same time sustaining ecological systems. The project was funded by Infrastructure Canada and the Social Sciences and Humanities Research Council (SSHRC).

For the ease of the reader, findings and key strategic policy recommendations are described first, followed by research analysis, methodology, key deliverables, and outreach.

Findings

The project produced several overarching findings. The first among these was the indicated strength of support for doing something, almost anything, in order to mitigate global climate change through implementation of more sustainable infrastructure choices and the retrofitting of existing infrastructure. Between the undertaking of the expert and general-public e-dialogues, development of the case studies, the web-based and paper based surveys, and discussions undertaken by members of the main research team, in excess of 700 decision-makers, practitioners and researchers from across Canada were queried about sustainable infrastructure. In the course of this work, the research team experienced negligible “push-back” on the critical need to act now on redirecting infrastructure investment and the mitigation and adaptation for climate change impacts. The general consensus was clearly “something has to be done”. There was near unanimous agreement that investment in infrastructure is a necessary and sufficient condition for the ecological, social and economic well-being of all communities.

Second, as revealed in the case studies and supported in the e-Dialogues, there are clear examples in Canada of leading-edge examples of what can be done with respect to innovative sustainable infrastructure choices. Nevertheless, there are implementation gaps between communities as well as gaps in the diffusion of knowledge and practice across the country. There is consequently a serious need to increase the speed of exploitation of state-of-the art and leading-edge technologies and knowledge across the country by linking key innovators, early adopters and marketers, particularly with respect to moving from leading-practice to more take-up of state-of-the art infrastructure innovation.

Third, as encouraging as the findings of the case studies are; the process of infrastructure investment in Canada appears remarkably weak in terms of governance and integrated land-use planning. Efforts are certainly being made in many communities to implement land-use planning, and to consider environmental and climate change imperatives in infrastructure decision-making, but there are serious disconnects between planning and on-the ground implementation. Comprehensive governance structures are generally not in place or when they are, they are rarely put into practice in terms of integrated decision-making for sustainable community development. There is a systemic lack of the implementation of long-term planning practices throughout Canadian municipalities, revealing a serious implementation gap between rhetoric and practice.

Finally, tied to governance, or perhaps as just another perspective of it, senior governments have a key leadership role to play in promoting sustainable infrastructure. Efforts to implement integrated planning and decision-making are too often “champion-based” and therefore represent the efforts of well-meaning people despite the weak support of those more senior in the organization or of more senior governments. Put figuratively, strong government leadership would be characterized by a strong centre with the edges following. Our current situation can be described as a weak centre with strong edges (or champions) succeeding in spite of the system.

Strategic Policy Recommendations

A number of key observations and recommendations emerged as a result of the five on-line real-time e-Dialogues, the e-focus group of planners and architects, analysis of the e-audiences, a survey of planners across the country, the twenty case studies, and discussions undertaken by the research team. The observations and recommendations follow.

Using Market Mechanisms to Stimulate Greater Innovation and Adoption

1. It is clear that unless the environmental costs of the factors of production such as land, water and air are internalized into the costs of production, sustainable infrastructure will not be a political priority. Getting the prices right, and costing these externalities is a critical first step.

Recommendation: That municipal governments implement a comprehensive water pricing system and the provincial and federal governments a carbon pricing system, with the generated revenues, devoted to sustainable infrastructure investments.

Necessity of Innovative Financing

2. Innovative private-sector financing of infrastructure investment in support of sustainable communities is a necessity. The price tag to renew present community-infrastructure is simply too high to be covered only through a tax-based system; private sector financing when offered through private-public partnerships (P3) provides a significant alternative source of funds as well as a range of techniques, such as Energy-Performance Contracting and Build-Own-Operate-Transfer, broad enough to have considerable applicability to most communities. More importantly, they stimulate greater infrastructure innovation as such partnerships spread the risk of innovation, and critically bring diverse intellectual and expertise to the problem(s).

Recommendation: That governments implement programs to enhance the knowledge and use of alternative financing techniques, such as P3 partnerships.

Reducing Uncertainties and Risks

3. The choice of infrastructure is critical in determining how fast, if ever, a community will achieve sustainable community development. Most communities in Canada, however, are so far from being sustainable that success in achieving sustainability will only be attainable through the use of leading edge and state-of-the-art technologies. But such technologies carry with them significant uncertainties and risks that may be beyond the capacity of any one municipality to consider in isolation.

Recommendation: That the federal government lead and broker partnerships for a comprehensive program of pilot projects be put in place, documented through case studies, to optimize the tipping points for leading edge and proven state of the art technologies; where appropriate, the university and college sector could be used for pilot projects, especially when involved in private-public partnerships.

Recommendation: That mechanisms be considered to alleviate risks associated with the implementation of leading edge as well as proven state of the art technologies, such as ‘guarantee’ programs, subsidized insurance and reduced pay-back periods through zero loan investments by lenders, as well as leveraged mortgage investments.

Recommendation: All levels of government should implement principles of asset management, life cycle analysis and full cost accounting with ongoing periodic reviews of sustainable infrastructure investments.

Recommendation: That all levels of government ensure their regulatory regimes provide lee-way for investors willing to incur risks by moving to leading edge and proven state of the art technology investments in new and retrofitting of old buildings.

Policy Congruence and Policy Alignment

4. Policies, codes, and standards for sustainable infrastructure development vary enormously across and between governments, and often are simply inconsistent. In addition, initiatives at community levels are often stymied because of a lack of congruence at regional, provincial or even national levels. The upshot is too often that planning is disconnected from actual implementation and is undertaken without regard for higher level consequences or impacts.

Recommendation: That Infrastructure Canada convene a series of regional policy and planning round tables to identify policy inconsistencies, and to begin comprehensive policy congruence and realignment between municipal, provincial and federal levels.

Comprehensive Planning Techniques

5. Comprehensive long term planning for sustainability in Canadian communities is not common, and when in place, only rarely linked to decision-making bodies and applicable governance structures. In addition, present planning at best only touches on the costs associated with sustainable development, and particularly climate mitigation and adaptation.

Recommendation: That the Government of Canada implement a program to accelerate the dissemination of knowledge, sustainable infrastructure innovations and planning techniques that will be required if communities wish to realize sustainable community development; included within this should be techniques to enhance the sociological and economic and environmental attributes of sustainability as well as methods to forecast costs.

Innovative Financing Techniques

6. Innovative financing options are a key for communities trying to redirect less sustainable infrastructure choices to more sustainable ones. Three innovative financing recommendations follow:

Recommendation: That the federal and provincial governments encourage municipalities to sponsor the wide-spread use of energy performance contracting to finance improvements in energy and water use of buildings. Such contracts should include provision for any savings generated to be reinvested towards the implementation of more sustainable infrastructure. (In essence, the private sector will finance such improvements as long as the actual energy/water savings, expressed in dollars, are earmarked to pay off incurred debts.)

Recommendation: That the federal and provincial governments encourage the use of innovative financing tied to sustainable infrastructure implementation, such as on-gas bill financing to support energy improvements within smaller buildings and businesses. (Essentially, a gas-utility company provides funds to its customers to finance energy-improvement investments, and takes repayments through an agreed-upon surcharge on energy bills. The intriguing point here is that traditionally, financial constraints on small/medium commercial and private properties typically make project financing difficult to obtain.)

Recommendation: Municipalities consider the use innovative arrangements, such as Built/Own/Operate/Transfer (BOOT) public/private/partnerships to finance sustainable larger infrastructure investments. Such partnerships, however, have to consider longer-term planning horizons to ensure public safety and prudence. (Based upon a concession, a BOOT sees a private sector firm financing, constructing, owning and

operating a public utility on behalf of a municipality or a university or college for an agreed upon period of time. Widely used to finance water and other public utilities, this project failed to identify a BOOT by a municipality, although there is an example in the college sector, the co-generation system at the Southern Alberta Institute of Technology.)

Recommendation: That different project delivery mechanisms including BOOT and P3 be investigated as alternatives for financing and implementing projects. We would also recommend that a comprehensive review of experience with

BOOT and P3 projects be undertaken to assess their pros and cons, to determine key learning points and to recommend ways to improve upon the potential failures of these project delivery mechanisms.

Specific recommendations from the e-Dialogues, e-focus group and e-audiences are included as Appendices A, B and C.

Research Analysis

The present organizing principles of modern government are questionably applicable to a society faced with climate change and redirecting its current infrastructure to meet this challenge, as well as the overall implementation of sustainable community development. (Governments have inherited from the nineteenth century a way of thinking and organization that is structured around old problems, rather than around current and emerging issues.

For example, nineteenth and even twentieth century thought organized government almost exclusively around themes of National Defence, Transportation, Natural Resources, Security, the Environment, Employment and so forth, and for good reason; those times experienced the depression and two horrendous wars. But the twenty-first and twenty-second centuries will demand something quite different in terms of successful governance. They will demand new ways of organizing around the key issues of sustainable development—climate change, re-aligning municipal, provincial and federal infrastructure to sustainable standards, biodiversity conservation, soil erosion, pollution, water and energy security to name only a few.

A fundamental gridlock appears to stymie effective planning and integrated decision-making when it comes to environmental matters in almost all Canadian communities. This gridlock is not due to lack of research, knowledge and information residing in communities, but rather is the result of the lack of a coherent vision about the meaning of community and governance, particularly at the federal level. It is multi-dimensional and involves, among other things, a lack of coherent societal dialogue; the implication is that we have lost a shared meaning in our communities. And what may be more important, we may have also lost at the national level any concept of what is important for our future(s).

Again and again, the e-Dialogues emphasized the lack of a shared Canadian vision about the national priorities when sustainable infrastructure and addressing climate change impacts

are being considered. In addition, the project identified fundamental disconnections between federal, regional and local governments, fostered by jurisdictional conflicts, duplication and overlap, as well as between small, mid and large urban communities, and most critically, the business and research communities (Bradford 2003; Dale 2001). There is a pressing need to review the existing legal framework as it impacts the environment. A consistent theme through the research project was that present law is at best a patchwork in dealing with on the ground implementation of sustainable infrastructure and the environment, and varies enormously from province to province and municipality to municipality. For example, in British Columbia, the Fraser River Basin is ‘protected’ by no less than 62 different agencies (Hanna 1999).

Research further indicates that the choice of infrastructure is critically dependent upon the length of the planning process, preferably something that reflects the expected life of infrastructure investments, and the integration of ecological, social and economic imperatives through integrated decision-making processes. Without long-term planning and the reconciliation of these three imperatives (Dale 2001; Robinson and Tinker 1997) by communities, investment, while worthwhile, will not necessarily be focused and run the serious risk of community dissatisfaction and increasing security and safety concerns affecting innovation capacity. In our case studies, both Okotoks and Mont Ste-Hilaire deal with these matters as do the long-term planning processes in Calgary and Ottawa, albeit very differently.

Put another way, it is instructive to note that the magnitude of existing infrastructure investments in any large city is simply enormous. For Ottawa, Ontario, a very rough estimate puts the value of these investments at something in the range of \$112 billion. To upgrade such investments to sustainable standards will require an enormous effort that can only be undertaken over a long period of time and demands unprecedented politi-

cal and bureaucratic leadership and champions. As well, over 90 percent of our leading-edge case studies involve private-public partnerships, which make sense given the risks associated with being ‘at the edge’, in terms of new technology.

Infrastructure choice is also affected with what is known as technological lock-in. One unsustainable infrastructure investment is often intrinsically tied to another investment. Consider the complex relationship in a typical 1950s suburb between lot sizes, storm pipes, sewers, roads, parks and so on. From a technological perspective, to change one component to more a sustainable option requires appropriate adjustment to the others, and much of this work may be exceedingly difficult and costly.

This sort of lock-in applies to non-technical matters as well. Present municipal planning processes are a good example of this; a new and better decision-making process might not be able to overcome the momentum of older but established processes that do not really address matters of sustainability. The interconnected nature of our economic and social decision-making processes necessarily prevents sudden change. In effect, the result is that economics and politics are less a game of survival of the fittest and more a game of survival of the first. “Lock-in”, as Arthur calls it, occurs as there is always an energy cost associated with switching to a new path (1994). Sometimes this cost appears too high to bear, especially if planning is shorter-term. There is also no real market mechanism to facilitate such a switch; such changes must be conducted by fiat, and this is very difficult and costly.

Research Methodology

For the purposes of this research, sustainable community development is defined as a process of reconciliation of three imperatives—the ecological imperative to live within global biophysical carrying capacity; the social imperative to ensure the development of systems of democratic governance and the economic imperative to ensure a decent material standard of living for all. And equitable access to resources—ecological, social and economic—is fundamental to its implementation. (Dale 2001; Robinson and Tinker 1997). Infrastructure is the set of structural elements that supports the day to day function and influences the direction of human society.

Sustainable infrastructure refers to the designing, building, and operating of these structural elements in ways that do not diminish the social, economic and ecological processes required to maintain human equity, diversity and the functionality of natural systems.

The project was conducted by a diverse trans-disciplinary team assembled from across the country. Its members brought public and private sector experience to the table, as well as expertise in economics, planning, forestry, system dynamics, sustainable development and community participatory processes, as well as geography.

The research project used a modified Delphi approach to bring together experts—practitioners, decision-makers, researchers and civil society members—in on-line synchronous e-Dialogues, individual Canadians in an on-line asynchronous public forum and an e-focus group of planners and architects to discuss case studies in leading-edge case studies from across the country.

Key Deliverables

1. a dynamically interactive website designed to enhance literacy on public infrastructure in Canada, launched in September 2006, <http://crcresearch.royalroads.ca/sustainableinfrastructure>
2. a case study selection criteria grid
3. an on-line dynamic, interactive case study tool to speed the exploitation of knowledge about leading-edge sustainable infrastructure practice in Canadian communities, <http://crcresearch.royalroads.ca/casestudies>
4. the development of 20 case studies, capturing the energy, transportation, waste management, land-use planning sectors, and governance, see Appendix C
5. a database of key innovators http://crcresearch.royalroads.ca/contact_dir
6. a continuing public forum in which individual Canadians can make their views known and share ideas <http://crcresearch.royalroads.ca/eforumexit.html>
7. five e-Dialogues and archived discussions for further research and public policy development, conducted between September 2006 and concluded January 31, 2007, <http://crcresearch.royalroads.ca/edialogues>, see Appendices A and D

8. development of an integrated tool for communities for integrated community sustainability planning (ICSP), see <http://crcresearch.royalroads.ca/files-crcresearch/File/PlanningTool.pdf>
9. an e-focus group of planners from across the country to critique the integrated tool, <http://crcresearch.royalroads.ca/node/3245>
10. a survey of planners across the country to identify key innovators and innovations
11. a final report, published on the website and disseminated to the Canadian Consortium for Sustainable Development research, www.ccsdr.crcresearch.org, key federal government contacts, expert participants, planners and municipal decision-makers
12. a series of community checklists for municipal decision-makers to consider in implementing energy, waste, transportation, governance and land-use planning projects, see: <http://crcresearch.royalroads.ca/sustainableinfrastructure>

13. journal articles

- Dale, A. et al. Meta-case analysis. In preparation
- Dale, A., Waldron, L. and L. Newman. *The Evolution of an Interactive Case Study Tool*, submitted to the International Journal of Higher Education
- Hamilton, M. and A. Dale, *Learning Models for Sustainable Infrastructure*, submitted to the International Journal for Sustainable Development
- Ling, C., K. Hanna and A. Dale. (submitted, May 2007). *A Template for Integrated Community Sustainability Planning*. Journal of Environmental Management
- Newman, L. and Y. Herbert. *The Use of Deep Water Cooling Systems: Two Canadian Examples*, submitted to Renewable Energy

All deliverables are available on the main website at <http://crcresearch.royalroads.ca/sustainableinfrastructure> unless otherwise indicated.

Outreach

The five e-Dialogues and e-focus group brought together 35 researchers, practitioners, planners and decision-makers. Analysis of web usage indicates some 8500 significant visits to the website in May, 2007. Of these visits, some 3900 were to the case studies and some 2,800 to the e-dialogues. Analysis also indicates that case study visits have increased steadily from September, 2006 when significant visits were less than 500 per month.

E-dialogue visits peaked during the active phase of the e-Dialogue series at 6200 and 5,500 respectively during December, 2006 and January, 2007. September, 2006 visits to the e-dialogue portion of the web-sites were at 1,200. Please refer to Appendix E for detailed statistics.

In addition, an on-line survey invitation was e-mailed to 1559 planners nationwide through the Canadian Institute of Planners (CIP). The initial invitation was distributed in November 2006, with an e-mailed reminder, also sent by the CIP distributed in February 2007. The survey (located at <http://www.survey.crcresearch.org/index.php?sid=3> in English and <http://www.survey.crcresearch.org/index.php?sid=4> in French) was completed by 33 respondents. The survey was intended to illicit both innovative examples of sustainable community infrastructure from across Canada, and also innovators that have contributed to the development of sustainable community infrastructure. Those innovators that agreed to be publicly noted were included in the database of innovators and innovations.

The project returned by respondents included 17 from Ontario, 4 from Quebec and BC, 2 from Alberta, and 1 each from PEI, Saskatchewan and Manitoba. There were also 3 respondents who declined to give a location. There were many projects

described including alternative energy projects, social housing and waste diversion schemes. Barriers common to many of the projects included problems in coordinating various public agencies, a lack of political will and/or support, legal problems with implementing novel or innovative technologies; the most commonly stated barrier was financial.

Responses for the key factors for success were almost unanimous with most identifying inter-agency and community partnership with strong political support and key individuals willing to work at the development of such cooperation.

A letter was sent to all Federal Government departments inviting them to participate in the research project. As a result, the research report is being disseminated to 25 key departmental contacts. In addition, the planning tool was widely disseminated across the country to researchers, planners and to municipalities via municipal associations. As well, a research panel was led at the Congress of Humanities, Saskatoon, May 30 - June 3, 2007.

The principal investigator, Ann Dale, wishes to acknowledge the contribution of the most diverse trans-disciplinary teams she has had the privilege to lead—Jim Hamilton, Katherine Thomas, Hamilton, Thomas & Associates, Ltd.; Dr. Marilyn Hamilton, Associate Professor, Royal Roads University; Dr. Kevin Hanna, Wilfrid Laurier University; Dr. Lenore Newman, Professor, Royal Roads University; Dr. Levi Waldron, Post-Doctoral Scholar, Royal Roads CRC Research Program; Yuill Herbert, Director, Sustainability Solutions Group; and Dr. Chris Ling, Post-Doctoral Scholar, Royal Roads CRC Research Program.

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Archived at: <http://cocresearch.royalroads.ca/edialogues>

Energy, Wednesday, Nov. 22, 1:00 pm PST

Participants

Ann Dale, *Moderator, Trudeau Fellow, Canada Research Chair in Sustainable Community Development, Royal Roads University*

Marilyn Hamilton, *Moderator, e-audience, Associate Faculty, Royal Roads University*

John Brennan, *former Director, Federal Buildings Program, NRCan*

Deanna Douglas, *Bursar, Langara College*

Jim Hamilton, *Principal, Hamilton, Thomas & Associates*

Rodney McDonald, *President, Manitoba Chapter, Green Buildings Council, Sustainability and Standards Specialist, Manitoba Hydro*

Scott McLeish, *Honeywell*

Forrest Smith, *Principal, EcoSol Consulting Ltd.*

Key Energy Recommendations

1. There is enough money, and the technologies exist we just need to get on with it.
2. Very simple and boring “grunt work” changes can achieve the first 20% or so of savings.
3. The minimum energy requirement in LEED is 25% better than Canada’s Model National Energy Code for Buildings (MNECB), and is easy to obtain. Fifty percent is possible without unreasonable cost increases.
4. A barrier is that organizations only have so much money, and they will direct it to the area of highest return, which rarely will be energy.
5. Long payback periods are a barrier.
6. Lack of knowledge is still a barrier as well. More data is needed.
7. Regulation might be needed to overcome the barriers.
8. Proper pricing can help to overcome barriers.
9. Leadership is also critical. People have to champion the projects.

Transportation, Wednesday, Nov. 29, 1:00 pm PST

Participants

Ann Dale, *Moderator, Trudeau Fellow, Canada Research Chair in Sustainable Community Development, Royal Roads University*

Marilyn Hamilton, *Moderator, e-audience, Associate Faculty, Royal Roads University*

Emmanuel Le Colletter, *Charge de projets, Agence metropolitaine de transport, Montreal*

Marty Collier, *Manager, Detour’s Urban Source*

Brianna Illingworth, *Moving the Economy, Mobility HUB project*

Lenore Newman, *Assistant Professor, Royal Roads University*

Key Transportation Recommendations

1. Using existing Infrastructure in new ways can be as effective (and much cheaper) that building from scratch.
2. Subsidies to road infrastructure impede the use of economic incentives to change behavior.
3. Car sharing is an under studied, under used option.
4. Funding is a barrier to innovative transportation projects.
5. Land use planning and transportation planning are inseparable.
6. Better transit without proper planning can encourage exurban sprawl.

Waste, Wednesday, Dec 6, 1:00 pm PST**Participants**

Ann Dale, *Trudeau Fellow, Canada Research Chair in Sustainable Community Development, Professor, Royal Roads University*

Darren Gardham, *Supervisor, Custodial Services, Royal Roads University*

Marilyn Hamilton, *Associate Professor, Royal Roads University*

Chris Ling, *Post-doctoral Scholar, Canada Research Chair in Sustainable Community Development, Royal Roads University*

Dwight G. Mercer, *Waste Minimization Co-ordinator, City of Regina*

Jo-Anne St. Godard, *Executive Director, Recycling Council of Ontario*

Jerry Leonard, *Executive Manager, Edmonton Waste Management Centre of Excellence*

Alfred Von Mirbach, *Waste Diversion Professional, Perth, Ontario*

Land Use Planning, Wednesday, Dec. 13, 1:00 pm PST**Participants**

Ann Dale, *Trudeau Fellow, Canada Research Chair in Sustainable Community Development, Professor, Royal Roads University*

Marilyn Hamilton, *Associate Professor, Royal Roads University*

Tony Boydell, *Director, School of Environment and Sustainability, Royal Roads University*

Kevin Hanna, *Professor, School of Geography, Sir Wilfrid Laurier*

Chris Ling, *Post-Doctoral Researcher, Infrastructure Project*

Don Luymes, *City of Abbotsford, WPS/CIPS award*

Marla Zucht, *General Manager, Whistler Housing Authority*

Key Waste Recommendations

1. The need for landfill space has driven some very innovative processes to avoid opening new landfills: almost anything is less expensive than landfilling.
2. Education key to achieving high diversion rates. It is also still too easy to do the wrong thing.
3. Growth in green bin programs is encouraging, and they tend to pay their own way.
4. Ultimately waste reduction must occur earlier in the product chain, i.e. packaging reductions.

Key Land Use Planning Recommendations

1. Land use planning can both create barriers and facilitate solutions.
2. In the case of land use planning, the theory is not always reflected in the results.
3. A systems approach is difficult when many different authorities are involved.
4. Respecting the intrinsic characteristics of a landscape is important.
5. Planners need political support to create change.

Governance, Wednesday, Jan. 10, 1:00 pm PST**Participants**

Ann Dale, *Trudeau Fellow, Canada Research Chair in Sustainable Community Development, Royal Roads University*

Jim Hamilton, *Hamilton, Thomas and Associates Ltd.*

Lenore Newman, *Moderator, Assistant Professor, Royal Roads University*

David Bell, *Professor Emeritus, Senior Scholar and Former Dean, Faculty of Environmental Studies, York University*

Steven Huddart, *Program Director, JW McConnell Foundation*

Jon Purkis, *Federation of Canadian Municipalities*

Bob Slater, *School of Public Policy and Administration, Carleton University.*

Key Governance Recommendations

1. A key objective for government is to set the right price signals to encourage sustainable community development.
2. Infrastructure is difficult for government because of the long time frame involved. Government needs to manage long term priorities better.
3. A problem in Canada is miscommunication or lack of communication between federal, provincial and municipal governments.
4. Government has the power to nurture or frustrate champions.
5. Government responds to the public; we have to show concern on these issues.

e-Focus Group on Integrated Community Sustainability Planning

Archived at <http://crcresearch.royalroads.ca/edialogues>

April 15th, 2007. 4:00 pm EDT

Participants

Ann Dale, *Moderator, Trudeau Fellow, Canada Research Chair in Sustainable Community Development, Professor, Royal Roads University*

Marilyn Hamilton, *Moderator, Professor, Royal Roads University*

Peter Andzans, *Manager of Community Sustainability, Abbotsford, British Columbia*

Karen Hurley, *Planner, PhD candidate, University of Victoria*

Chris Ling, *Post-doctoral scholar, Canada Research Chair in Sustainable Community Development*

Rob McLaren, *WHW Architects*

Sean Pander, *Program Manager, Vancouver Climate Change Protection Program*

Margaret Steele, *Community Developer, Grand Forks, British Columbia*

e-Focus Group Key Points

- Community control of the landscape we inhabit is a key component of sustainable development.
- The barrier of inertia and adherence to the *status quo* continues to be a problem, including the desire of employees in planning departments to “not rock the boat”.
- Effective partnerships between individuals, departments, and governments can be effective at overcoming inertia.
- Scale is a critical issue. Planning must respect the level of the neighbourhood, the city and the region.
- Plans should be driven by positive images of the future that celebrate the possible.
- The team should take a leadership role in suggesting to planners that all aspects of sustainability be included in the ICSP.
- Don't encourage people not to be visionary or utopian.
- The cost of the process might be a barrier to implementation.
- A web version of the tool would provide flexibility and accessibility.
- The tool offers an excellent guide to the ICSP process.
- Sustainability is not an end state, and plans must be flexible in order to provide for a process of change.
- There must exist methods of including civic dialogue in a meaningful way.
- Regulations and zoning have not kept pace with changing times.
- ICSPs must reflect diverse interests, needs, and values within the community.

Case Study Title	Sector	Location	Innovation Descriptor
Micro-generation Strategy for Canada	Energy	National	Policy leadership and innovative technology
Deep Water Cooling	Energy	Halifax, NS, Toronto, ON	Innovative technology and financing
Energy Efficiency for Homeowners	Energy	Halifax, NS	Community leadership
Energy Performance Contracting	Energy	Toronto, ON	Innovative financing options
Renewable Energy on Prince Edward Island	Energy	PEI	Innovative technology and financing
Wind Power Generation	Energy	Kingston, ON	Innovative technology and financing
Ecoperth	Governance	Perth, ON	Community engagement process
Mid-term Objectives	Governance	Toronto, ON	Policy leadership and community involvement
Quest Food Exchange	Governance	Vancouver, BC	Social infrastructure, integrated community process
United We Can	Governance	Vancouver, BC	Provincial and municipal policy leadership to build community capacity
Green Building Policy	Governance	Calgary, AB	Policy leadership
Long Term Planning Initiatives	Land Use Planning	Edmonton, AB, Calgary, AB Ottawa, ON	Long-term integrated planning
Triple Bottom Line in Practice	Land Use Planning	Victoria, BC	Governance and long-term planning
What Makes a City Livable?	Land Use Planning	Okotoks, AB Vancouver, BC	Governance and long-term planning
Alternative Road Allocations	Transportation	Whitehorse, YT	Community leadership
Integrated Transportation Strategies	Transportation	Mont-Saint Hilaire, QC	Sustainable urban transport
Mobility HUBs	Transportation	Toronto, ON	Integrated transportation planning and community leadership
Sustainable Transportation	Transportation	Montreal, QC	Integrated transportation planning
Green Waste Programs	Waste	Nova Scotia Whitehorse, YT	
Storm Water Management	Waste	Chilliwack, BC Toronto, ON	

e-Audience Dialogue Key Recommendations*Moderator: Dr. Marilyn Hamilton***e-audience Dialogue One: Energy**

November 22, 2006, 1:00 p.m. PST

Energy Key Points

1. Advances need to be available to everyone, not just showcase projects.
2. As the average person relocates every five years, there is little incentive for retrofitting if payback periods are long.
3. Is there a place for graduated electricity costs?
4. Current energy needs cannot be met by renewable sources.
5. Eventually peak oil will play a huge role in limiting our options.

e-audience Dialogue Two: Transportation

November 29, 2006, 1:00 p.m. PST

Transportation Key Points

1. Transportation is a social justice issue.
2. Governments greatly subsidize car travel.
3. Land use planning and urban form greatly influence transit options.
4. Are there ways to reduce the need for travel?
5. Telecommuting could just allow people to drive longer less often.

e-audience Dialogue Three: Waste

December 6, 2006, 1:00 p.m. PST

Audience Waste Key Points

1. Incineration seems to be getting a lot of press lately: is it a reasonable option?
2. Overconsumption is still a big part of the problem; recycling is a band-aid solution.
3. e-waste is a growing problem.
4. Education will be a big part of waste reduction.
5. Our stressful lives increase our consumption.

e-Dialogue Four: Land Use Planning

December 13, 2006, 1:00 p.m. PST

Audience Land Use Planning Key Points

1. If walkable neighbourhoods are so popular why can't we build more of them?
2. Land Use Planning affects many other things.
3. How do we build a sense of place?
4. Planners often end up having to approve things that go against long term sustainability plans.

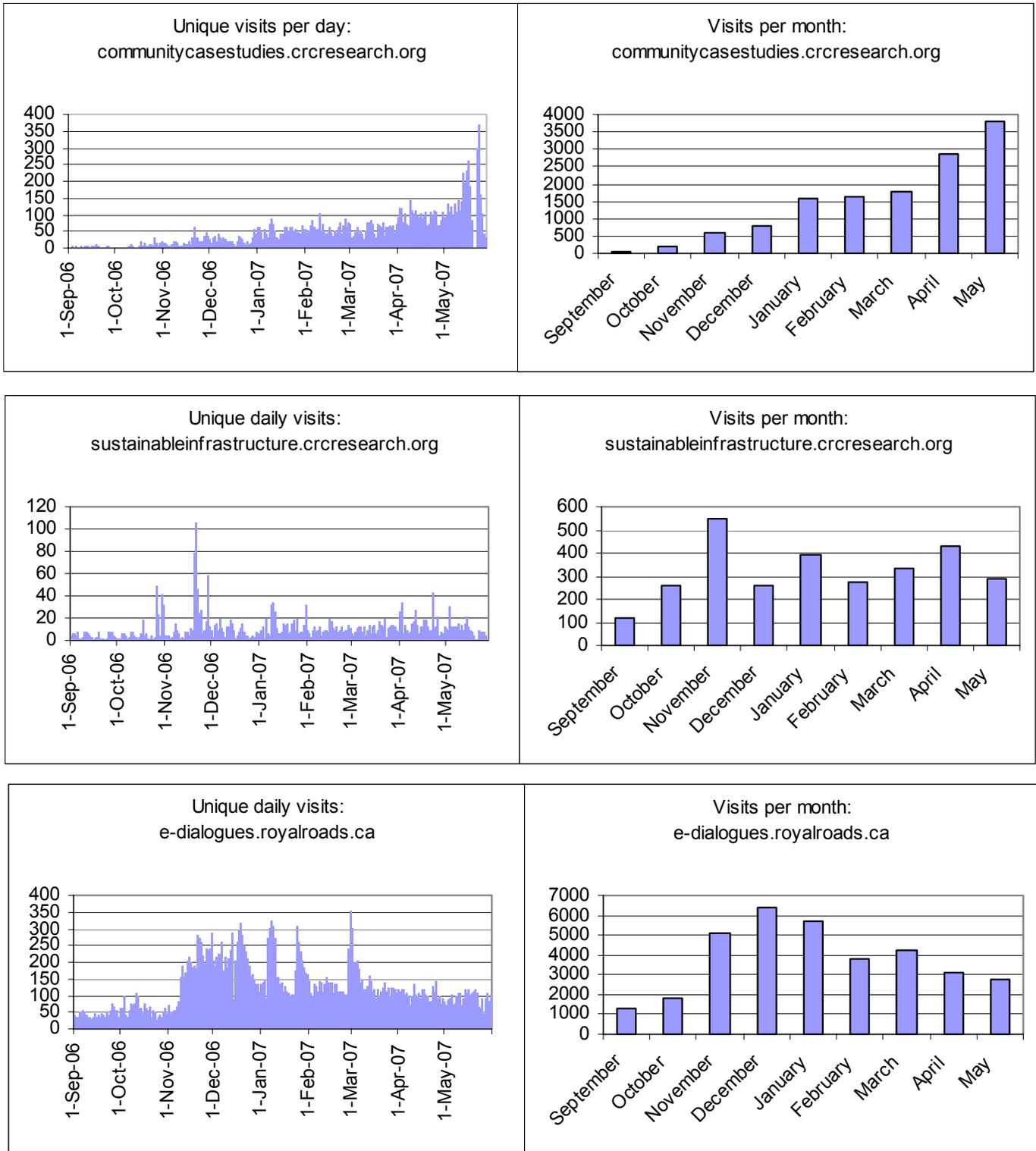
e-Dialogue Five: Governance

January 10, 2007, 1:00 p.m. PST

Audience Governance Key Points

1. What is the best scale for governance in terms of effective infrastructure provision?
2. We need to think beyond government mandates, as we live with infrastructure decisions for as long as a century.
3. There is an impression that individuals cannot influence government.

Visitor statistics for sustainable infrastructure project websites





SUSTAINABLE INFRASTRUCTURE: Implications for Canada's Future

Dr. Ann Dale
*Canada Research Chair in Sustainable
Community Development
Royal Roads University*

Jim Hamilton
Hamilton, Thomas & Associates Ltd.

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