



**Master Municipal Construction Document Association
Water Sustainability Committee of the BC Water & Waste Association
West Coast Environmental Law Association
Ministry of Community Services**

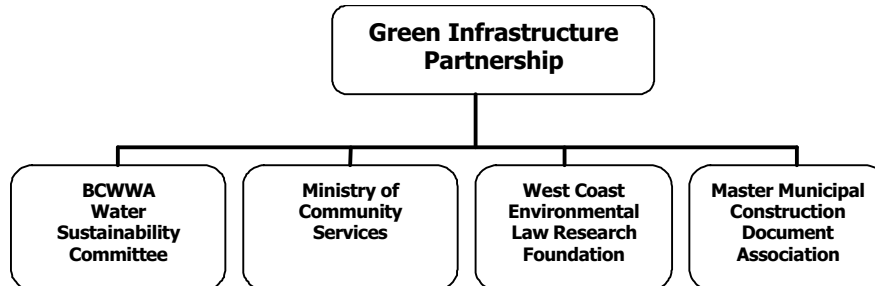
The Green Infrastructure Partnership: Convening for Action in British Columbia

July 2005 Progress Report

Developing Sustainable Solutions for a Liveable Province

FOREWORD

The Green Infrastructure Partnership was formed in October 2003, and is a consortium of four organizations:



These organizations share a vision of making green infrastructure practices more prevalent in communities across British Columbia. An integral part of the process is to create a picture of what the future landscape can look like. If we agree on where we wish to be in one or two generations, then we can map out the route to get there.

Consultation Workshops in May 2004 and May 2005 have resulted in successive reconfigurations of the Green Infrastructure Partnership's work plan, with the emphasis now on educating stakeholders regarding the benefits of a *design with nature* approach to community planning and land development, and facilitating adoption of this approach. This means build and/or rebuild communities in harmony with the natural environment.

The Green Infrastructure Partnership is promoting an integrated approach to land development that addresses the need for coordinated change in policies, programs and practices at different scales – that is: region, neighbourhood, site and building.

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EXECUTIVE SUMMARY

KEY MESSAGES: The Green Infrastructure Partnership (GIP) is one of six inter-connected initiatives that comprise the **Water Sustainability Action Plan for British Columbia**. The Action Plan provides a partnership umbrella for on-the-ground initiatives that are informing Provincial policy through shared responsibility. The Action Plan is also enabling the Province to collaborate with local government to advance water stewardship and sustainable communities.

This Progress Report provides a record of how consultation workshops are shaping the work plan of the GIP, and identifies next steps. Key messages in this report are distilled as follows to provide a seamless storyline:

Section 1 - Creating our Future:

In planning for the next 50 years and beyond, the vision is one of greener communities that will achieve higher levels of ecological and stream protection. Achieving this outcome will require changes to existing land use regulations, design guidelines and construction standards.

Section 2 - Design with Nature:

To both accommodate population growth and achieve a community vision for sustainability and liveability, the GIP is encouraging implementation of a *design with nature* approach to community planning and land (re)development.

Section 3 – Turning Ideas Into

Action: Reaching the critical mass necessary to achieve the *design with nature* vision requires a series of transformational events that will be the catalyst for comprehensive partnership action that creates a legacy. The desired outcome in ‘convening for action’ is on-the-ground changes in the way we develop land and manage water.

Sections 4 and 5 – Roundtable Sharing:

The GIP convened Consultation Workshops in 2004 and 2005 in order to:

- Obtain feedback/input.
- Generate enthusiasm.
- Obtain tangible commitments of support.

The 2004 workshop was practitioner oriented. They stressed the need for systems-based thinking and an integrated approach to planning, zoning and infrastructure design. It also stressed that green infrastructure was more than tinkering with the ways things are currently done.

The 2005 workshop involved local government. The atmosphere was upbeat with participants enthusiastically stressing that the number of success stories is growing. There are hurdles to overcome, but they are not insurmountable. The clear message was to make outreach and practitioner education the #1 priority.

Section 6 – An Integrated Work Plan:

Partnership initiatives that are already underway as part of the Water Sustainability Action Plan will enable the GIP to move forward with implementation of a multi-pronged Outreach & Continuing Education Program (OCEP), efficiently and effectively. Refer to next page for a synopsis of the OCEP elements.

Section 7 – Benefits in Pooling

Resources: Willing municipalities will be asked to assign staff to pool resources under a partnership framework. This will result in the following benefits:

- Builds relationships.
- Municipalities can leverage the efforts of their own staffs.
- Cross-fertilization of case study experience.
- Common understanding of issues and solutions.
- Consistent messaging region-wide.

INTEGRATED WORK PLAN: The inspiration provided by the 2005 Workshop has prompted the Green Infrastructure Partnership (GIP) to revisit the components and priorities of its Integrated Work Plan. In doing so, the GIP recognizes the need to blend two broad themes:

- **Practitioner Perspective (2004):** Build bridges between those who make the decisions and those who implement them.
- **Local Government Manager Perspective (2005):** Convey knowledge and impart understanding to decision-makers through focussed communication.

Benefits will flow from the GIP delivering added value through an **Outreach and Continuing Education Program (OCEP)** that enables the GIP to be an effective facilitator. The graphic below illustrates the ten educational elements of the reconfigured Integrated Work Plan. Objectives are generally as described:

- **Website:** To enable web delivery of case study information, the GIP will develop a community-of-interest on waterbucket.ca.
- **Speaker Series:** To promote understanding of green infrastructure, the GIP will involve elected officials as hosts of a Speaker Series.
- **Project Tours:** To enable sharing and cross-fertilizing of ‘how to do it’ case study experience, the GIP will initiate and coordinate a program of regional field trips.

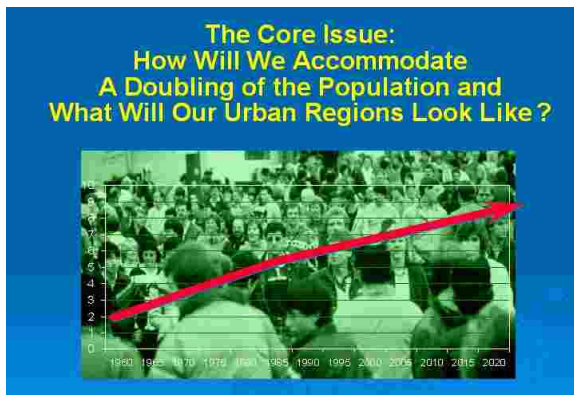
- **Workshop Roadshow:** To ensure consistent messaging and build capacity within the member municipalities, the GIP will coordinate a pooling of municipal resources to undertake training workshops.
- **Communication Guides:** To be clear and compelling in conveying key messages, the GIP will develop documents that are brief and to the point.
- **Guide to Green Infrastructure Standards:** To facilitate green infrastructure regulation and bylaws, the GIP will compile and promote examples of effective regulatory approaches for an array of situations, and will highlight and analyze the trade-offs between different options.
- **Green Infrastructure Standards:** To facilitate sharing of technical information, the GIP will serve as a clearing house for tracking local government initiatives.
- **Water Balance Model:** To facilitate better land use decisions, the GIP will collaborate with the Water Balance Model Partnership to implement an on-line training program.
- **Streamlined Environmental Approvals Protocol:** To provide certainty and reward those who are implementing green infrastructure, the GIP will promote linkage between the ‘time is money’ principle and the opportunity to use the savings in interest costs to finance environmental restoration.

Outreach & Continuing Education Program (OCEP)				
Website	Project Tours	Communication Guide for Elected Officials	Guide to Infrastructure Standards	Water Balance Model
Speaker Series	Workshop Roadshow	Communication Guide for Senior Managers	Green Infrastructure Standards	Streamlined Environmental Approvals Protocol

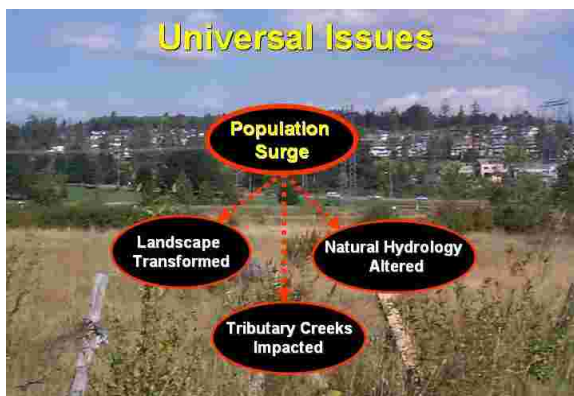
SECTION 1 Context

1.1 Creating Our Future

The urban regions of British Columbia are geographically constrained and have little room to sprawl. In Greater Vancouver, for example, this means that 75% of the next one million people will be housed in existing built-out watersheds.



Increasingly, the focus of design professionals is on how to build and/or rebuild communities in balance with the natural environment. Redevelopment and densification are creating opportunities, over time, to reverse past failures.



In planning for the next 50 years and beyond, the vision is one of greener communities that will achieve higher levels of ecological and stream protection. Achieving this outcome will require changes to existing land use regulations, design guidelines and construction standards.

1.2 Providing Leadership

Infrastructure design in North America, Australia, the United Kingdom and New Zealand is in a major sea-change, and British Columbia is in the vanguard of that change.

The **Green Infrastructure Partnership (GIP)** is promoting an integrated approach to land development that addresses the need for coordinated change at different scales – that is: region, neighbourhood, site and building.

The GIP will provide leadership and encourage others to implement ‘green infrastructure’ design practices and regulation province-wide.



The GIP is committed to building bridges between those who make the decisions and those implement them. Success will depend upon an approach that is interdepartmental, interagency and interdisciplinary.

Implementation by local governments will be voluntary – involving a range of social and economic considerations – but once the decision is made to embrace ‘green infrastructure’, implementation will need clearly defined standards and regulatory models.

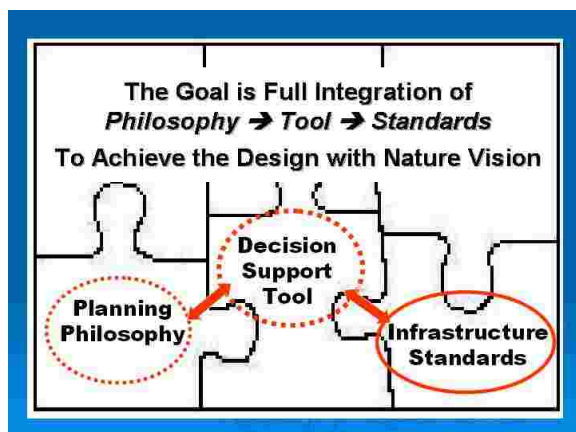
In Section 2, we explain what we mean by ‘green infrastructure’, and elaborate on the vision for rebuilding communities in balance with the natural environment.

1.3 Integration of Complementary Initiatives

The Green Infrastructure Partnership is one of six inter-connected initiatives that comprise the **Water Sustainability Action Plan for British Columbia**. The Action Plan is bottom-up, is comprehensive in scope, and provides an umbrella for grassroots initiatives that are informing Provincial policy through shared responsibility. Future Action Plan Elements will build on this foundation.



The *Watershed Approach*, the *Water Balance Model* and the *Green Infrastructure Partnership* complement each other to provide an integrated and synergistic package as conceptualized below. The over-arching messages that link the three initiatives are: Why do things differently, how to make **design with nature** decisions, and what to build where and how.



SECTION 2

What We Mean By Green Infrastructure

2.1 Design with Nature

Green infrastructure means use of processes and systems that are natural or mimic nature to provide community services -- i.e. *design with nature*. It means using natural systems for community services like rainwater management, water treatment and public space.

'Design with Nature' Means:

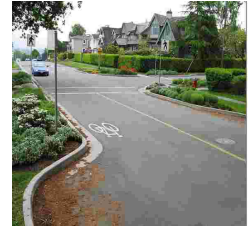
- Develop compact, complete communities
- Increase transportation options
- Reduce the loads on water, waste and energy systems
- Protect and restore urban greenspace
- Strive for a lighter 'hydrologic footprint'
- Achieve higher levels of stream protection

Community Vision: To both accommodate population growth and achieve a community vision for sustainability and liveability, the Green Infrastructure Partnership is encouraging implementation of a *design with nature* approach to community planning and land (re)development. This requires thinking in terms of a continuum:

- where we are now (*the starting point*);
- where we wish to get to (*the end point*); and
- how we will get there (*the strategy*).

Green Space and Public Health: The *design with nature* approach embraces what environmental psychologists know: greenspace is fundamental to human health and social well-being. So, as communities in British Columbia redevelop and densify to accommodate more and more people, creation of greenways and greenspace/landscaping takes on increasing importance.

Transportation Synergies: In addition, integration of rainwater management solutions (such as reducing impermeable surfaces) with sustainable transportation strategies (such as grid street networks) can ultimately achieve streets that are greener in various ways as well as safer and more liveable.



Water-Energy Nexus: At the other end of the spectrum, the *design with nature* approach also takes into account the 'water-energy nexus' – that is, we get energy from water, and we use energy to supply, use and treat water. Water use involves significant energy inputs which must be considered.

Watershed / Landscape-Based Planning: The *design with nature* approach also promotes the watershed as a fundamental planning unit, and emphasizes that:

- the Built Environment and the Natural Environment are connected;
- improving the Built Environment can protect or help restore the Natural Environment;
- how we (re)develop individual sites has ripple effects at the watershed scale;
- actions on the ground can result in cumulative benefits over time.



2.2 Green Infrastructure in the Larger Context

Green infrastructure can also be seen in a larger sense as land development that is more sustainable, economically, environmentally and socially. In this way it is similar to the “smart growth” approach to community planning and development. It means means the land use strategies and types of development that creates more compact complete communities, provides diverse affordable housing, and also uses tax dollars more efficiently, preserves green space and working lands, and increases transportation choices.

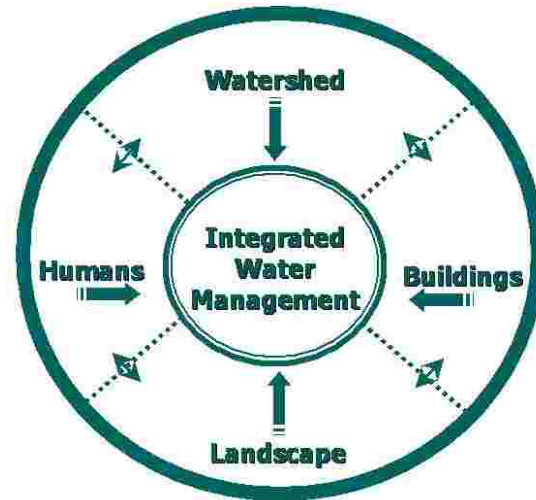
Municipal infrastructure design focussed on using green infrastructure and incorporating smart growth principles points to local government standards that call for drainage standards based on infiltration, road standards and utility alignments that minimize pavement and give equal weight to the needs of cyclists, pedestrians and drivers, district heating systems, and green buildings.

2.3 Implementation Challenge

The challenge is in moving from planning to action. Effective implementation of the *design with nature* approach will rely upon changes in policies, programs, applied research, practitioner education and standards of practice for landscape (re)development, transportation and infrastructure servicing.

From a local government perspective, opportunities for implementing *on-the-ground changes* are found at three scales in areas that are subject to regulation as illustrated opposite:

Everything is Connected: The ‘integration’ process that is at the heart of a *design with nature* philosophy involves consideration of land, water, air and living organisms – including humans - as well as the interactions among them.



In an ‘integrated landscape’, water is the unifying element, where **water** encompasses all aspects of the water cycle: both human and natural.



SECTION 3

Convening for Action

3.1 Turning Ideas Into Action

Because it is simply not good enough to focus only on defining the problems (the ‘what’) or debating the perspectives (the ‘so what’), the objective in Convening for Action is to challenge individuals and organizations to demonstrate **how we can move from talk to action** (the ‘now what’).

“Convening for Action”
is designed to turn ideas into action

Convening for Action: Roundtable on Water Sustainability

A Transformational Event: The Catalyst for Comprehensive Partnership Action

- **What** is the problem?
- **So What** can be done about it?
- **Now What** will be done?

On-the-Ground Changes: Turning ideas into action requires the combination of:

- Outreach Presentations
- Partnership-Building
- Regional Events
- Product Development

The desired outcome in “Convening for Action” is implementation of on-the-ground changes in:

- Policies
- Programs
- Applied Research
- Practitioner Education
- Standards of Practice

3.2 Informing Change

Convening for Action is practitioner-oriented in order to achieve on-the-ground changes in the way we develop the landscape and manage water. The focus is on education as the means for shifting practice in British Columbia to address water use as an integral part of land use.

Practitioner Education: The Convening for Action initiative places emphasis on practitioner education so that practitioners will be more informed and will then become more responsive. An integral part of the process is to create a picture of what the future landscape can look like. If we agree on where we wish to be in one or two generations, then we can map out the route to get there.

Practitioners are reached through relationships plus events. Producing valuable longer-term products (e.g. research and publications) will ensure that Convening for Action events have successful outcomes.

Building momentum through coordination of events

- **Build on the Last, and Pave the Way for the Next**
 - 2004 Green Infrastructure Consultation Workshop
 - Okanagan Water Management Conference (Feb)
 - UBCM Environment Conference (Mar)
 - Penticton Demand Management Workshop (Apr)
 - REAC Green Infrastructure Workshop (May)
 - Rainwater Harvesting Workshops (May & June)
 - Vancouver Island Meeting of the Minds (Sept)
 - Water Conservation on the Wet Coast Workshop (Oct)
 - Convening for Action (May 2006)
 - Water in the City – Victoria (Oct 2006)
- **Ensure Consistent Messaging**

A Transformational Precedent: The four **SmartStorm Forums** that were held during the period 1999 through 2001 provide a precedent for raising awareness and generating momentum that resulted in action, namely: *Stormwater Planning: A Guidebook for BC*; and *Water Balance Model*. The Green Infrastructure Partnership is an extension of these initiatives

3.3 Consultation Workshops

The Green Infrastructure Partnership has organized two Consultation Workshops within a 12-month period. The first, in May 2004, was organized from the practitioner perspective. The second, in May 2005, was organized from a local government manager perspective.

2004 Practitioner Workshop: The 2004 event introduced the GIP to a selected provincial audience. It also provided the opportunity to test and validate the direction in which the GIP was heading. Participants included pioneer practitioners and/or advocates of emerging green infrastructure practices.

The primary purpose of the 2004 consultation was to explore the diversity of issues and difficulties inherent in defining and implementing a green infrastructure approach to land development.

The lead partner for workshop organization was West Coast Environmental Law, with funding provided by the Real Estate Foundation of BC. To provide context and guidance for the workshop, West Coast prepared a Discussion Paper on behalf of the GIP and convened 15 industry leaders and 20 observers. A list of participants is included as Attachment B.

Workshop outcomes are documented in a *Report on the Green Infrastructure Consultation Held on May 11, 2004 in Vancouver*.¹ Section 4 summarizes the event outcomes and provides a frame-of-reference for the 2005 Consultation Workshop.

2005 REAC Workshop: The 2005 event was conducted under the umbrella and work plan of the provincial *Convening for Action* initiative. The workshop was designed to engage the GVRD Regional Engineers Advisory Committee (REAC) as follows:

1. Inform REAC participants regarding the over-arching Convening for Action process.
2. Obtain feedback and input from participants regarding content and delivery of the Integrated Work Plan for the Green Infrastructure Partnership (GIP).

The lead partner for workshop organization was the BCWWA Water Sustainability Committee. The Ministry of Environment and the Real Estate Foundation of BC have provided initial funding for the Water Sustainability Committee to spearhead *Convening for Action* as an element of the **Water Sustainability Action Plan for British Columbia**. The essence of ‘convening for action’ is captured as follows:

- Challenge practitioners and others to step back from their existing paradigms (e.g. big pipe solutions, whether for water supply or drainage conveyance).
- Inform practitioners and others regarding alternatives (e.g. rainwater harvesting to augment water supply and/or reduce rainwater runoff volume).
- Give practitioners the tools and the experience to do things differently.

Also, the purpose in convening for action is to ‘inform change’, rather than ‘to advocate change’.

¹ Available at <http://www.wcel.org/wcelpub/2004/14183.pdf>

SECTION 4

2004 Practitioners Workshop

4.1 Context

Initially, the intent of the Green Infrastructure Partnership was to develop a new set of engineering design guidelines that local governments could easily incorporate into municipal subdivision approvals and construction documents, and to produce documentation that would assist local governments in adopting the new green infrastructure standards.

Deliverables: Going into the 2004 Consultation Workshop, it was envisioned that the GIP deliverables would take the form of an integrated *Model Subdivision Bylaw and Green Infrastructure Standards* that would present a ‘best practice’ summary for land development regulation, and would comprise three components:

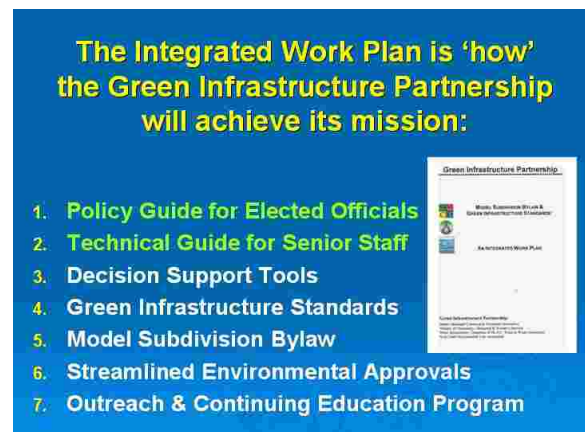
- **A Front End** – typical bylaw definitions and legal/planning content.
- **Technical Content** – consisting of references to an environmental supplement to the *MMCD Design Guidelines and Construction Standards*.
- **Decision Support Tools** – including the *Water Balance Model for BC*.

At the 2004 Workshop, an over-arching theme that emerged from the discussion revolved around the role that the GIP should play in bridging the gap between those who make the decisions and those who implement the decisions. This led the GIP to revisit its approach to development of the Integrated Work Plan for the Partnership.

Workshop Impact: On the basis of the May 2004 consultation feedback, the GIP concluded that an effective way to build bridges is to produce two levels of ‘*why we are doing this*’ guides: one for elected officials and the other for senior managers. Over the next 12 months, meeting this need became the primary focus of the GIP work planning effort. The definition of what constitutes a ‘guide’ has been evolving.



Integrated Work Plan: In revisiting its approach, the GIP made the decision to adapt the collaborative model that was successfully implemented in the 1990s for development of the *Development Cost Charges Bylaw Guide*. Under this model, willing municipalities would commit staff resources to develop GIP products.



4.2 Workshop Overview

The 2004 Workshop provided a timely and strategic opportunity to formally launch the Green Infrastructure Partnership and broaden awareness of the goals and objectives of the Partnership in developing a Model Subdivision Bylaw and Green Infrastructure Standards.

Of relevance, prior to the formation of the GIP, West Coast and MMCD had been proceeding on independent tracks to develop a Model Bylaw and Green Infrastructure Standards, respectively. Therefore, the 2004 Workshop had symbolic significance in merging the two streams of effort.

Workshop Structure: Because there was recognition by the GIP that the ultimate credibility of the event depended on engaging the design community early in the process, the workshop was organized in two parts:

- **Morning** – Facilitated by West Coast in order to consult with experts to discuss what “green infrastructure” means in the context of engineering Design Guidelines.
- **Afternoon** – Facilitated by MMCD in order to involve and educate the design community regarding the MMCD expectations in “greening” the current MMCD standards.

Workshop participants included representatives with expertise in the jurisdictions and with the projects that have embraced some aspect of green infrastructure. It also included practitioners who are at the forefront of developing green infrastructure practices (architects, developers, engineers, biologists, and transportation planners).

In addition to the above participants, the MMCD invited a number of observers. These were engineering practitioners who were interested in submitting a proposal to MMCD to develop a Green Supplement to the existing *Master Municipal Design Guidelines and Construction Standards*.

Workshop Purposes: As noted in Section 3, the primary purpose of the workshop was to explore the diversity of issues and difficulties inherent in applying a green infrastructure approach to land development, and to provide this information to the MMCD Technical Team. Other purposes included:

- Alert the members of the Partnership to the best practices underway in B.C. and to the technical documents available to the MMCD Team.
- Understand the breadth of what “green infrastructure” currently means or could encompass.

The desired outcomes in convening the Practitioners Workshop were twofold:

- A better understanding of the range of issues involved in translating green infrastructure into on-the-ground standards.
- A summary report of the Consultation that would provide input to MMCD in developing their interim Green Supplement.

4.3 Workshop Outcomes

Recommendations: Feedback and input from workshop participants resulted in identification of seventeen (17) recommendations in five theme areas. Attachment B contains a tabular compilation. The theme areas are listed as follows:

1. Naming and Approach
2. General Design Considerations
3. Rainwater Management
4. Roads
5. Other

These provide direction for developing a multi-faceted program that will provide options for designers, builders and governments. Complete details can be found in the 2004 Consultation Report.

Workshop participants stressed that incorporating green infrastructure into municipal design requires a systems-based and integrated approach to planning, zoning and infrastructure design. For instance zoning, street and building design need to be integrated into rainwater management systems. Practitioners cautioned that minor adjustments to existing standards for subdivisions and infrastructure could be counter productive, and that a thorough green infrastructure supplement would be a monumental task.

Implications for Integrated Work Plan:

The results of the 2004 Consultation are reflected in Section 6 (Integrated Work Plan). A key decision of the Green Infrastructure Partnership that flowed from the workshop was a reassessment of delivering access to model green infrastructure standards through a single green infrastructure supplement, and a shift to outreach on standards and models that had been developed around BC using a variety of approaches. .

Workshop participants stressed that future technical analyses should embrace *Adaptive Management, Performance-Based Objectives* and *Context-Sensitive Design*.

SECTION 5

2005 REAC Workshop

5.1 Background

Three questions provided a frame of reference for designing the agenda for the REAC (Regional Engineers Advisory Committee) Workshop that was hosted by the City of Surrey. The emphasis was on 'now what will be done'.

- **WHAT** is the issue or problem?
- **SO WHAT** can be done?
- **NOW WHAT** will be done?

Workshop Purpose: The main focus of the REAC Workshop was on proposed policy and technical communication guides for elected officials and senior managers, respectively. The objective was to solicit the participation of willing municipalities in developing content. Refer to Attachment C for context.



Representatives from ten GVRD municipalities attended. Participants included both engineers and other professionals.

5.2 Workshop Program

A copy of the Workshop Program is included as Attachment D. A list of participants is provided as Attachment E. Objectives in convening were:

- Obtain early feedback/input.
- Generate enthusiasm.
- Obtain tangible commitments of support.

The workshop was titled **How Can You Help Us Help You Help Us?** and was organized in three parts that paralleled the *What/So What/Now What* questions:

Developing Sustainable Solutions for a Liveable Region

- **HELP US** through Roundtable Sharing: Who is Doing What & What has Worked (or Not)?
- **HELP YOU** through an understanding of Leading and Managing Change
- **HELP US** through Roundtable Input: What Should the Guides Look Like?

Roundtable Sharing: The over-arching theme for the first part was: **What** are the conditions that make implementation of green infrastructure either easy or difficult? Participants were asked to make impromptu presentations on their successes and/or failures. Refer to Attachment F for the raw information as captured on flipcharts. The scope of the 'What discussion' is summarized below.

WHAT?

- GVRD municipalities are 'doing it' – where are you on the continuum?
- Why should we care?
- Who tried to do something and failed?
- What are the barriers to implementing new approaches and standards?
- What lessons have you learned? How can you creatively elicit and re-frame people's values to find solutions after 'becoming stalled'?
- How can others build on your case study experience?

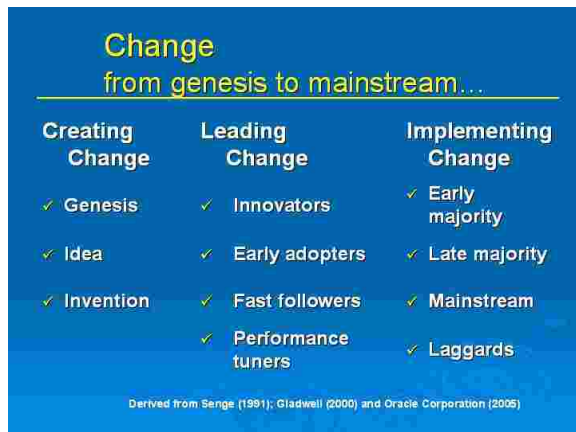
Leading and Managing Change: The over-arching theme for the second part was: **So What** are the options and the best choice. This part provided a framework for reflecting on successes and failures. The observation was made that the Roundtable Sharing session had described every possible situation.



SO WHAT?

- Changing Minds: Stories, Counterstories and Strategies
- East Clayton story
- What we have learned from the Roundtable Sharing discussion

A key message was: To bring about changes in infrastructure practices and standards, it comes down to individuals innovating and taking great personal risk. The process for creating, leading and implementing change is summarized below:



Change from genesis to mainstream...

Creating Change	Leading Change	Implementing Change
✓ Genesis	✓ Innovators	✓ Early majority
✓ Idea	✓ Early adopters	✓ Late majority
✓ Invention	✓ Fast followers	✓ Mainstream
	✓ Performance tuners	✓ Laggards

Derived from Senge (1991); Gladwell (2000) and Oracle Corporation (2005)

In British Columbia, and over the past decade, green infrastructure has moved from *Creating Change* to *Leading Change*. The ‘early adopters’ trail-blazed in the early 2000s with the East Clayton and UniverCity sustainable communities, and sustainable subdivisions in the Chilliwack and Victoria regions. Within the last year or so, the ‘fast followers’ have begun to emerge around the Greater Vancouver region.

Roundtable Input: The over-arching theme for the third part of the workshop program was **Now What** are the strategies and commitments for development of the two Guides? Attachment D provided the backdrop for the discussion as summarized below.

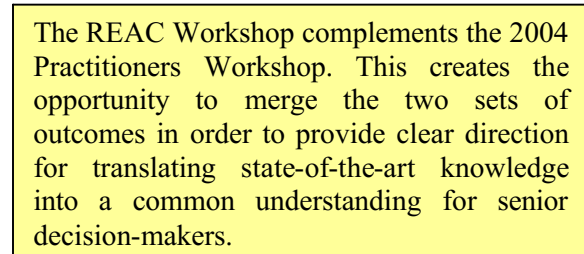


NOW WHAT?

- Any time a land use decision is made, it creates a legacy
- How can Green Infrastructure move from market-niche to market-share?
- What do you need to explain **why** and **how** to implement changes?
- What barriers – process, political, financial, planning, legal – require tools and strategies for building green infrastructure into communities, neighbourhoods and buildings?

Participants were asked whether the two Communication Guides would be useful in explaining **why** and **how** to implement change; and if yes, what should they look like. Refer to Attachment F for the raw information as captured on flipcharts.

Then What: The themes that emerged from the Roundtable Input are synthesized in Section 5.3 on the next page. The workshop outcomes will provide the framework for moving forward with development of the two Guides: from concept to implementation.



The REAC Workshop complements the 2004 Practitioners Workshop. This creates the opportunity to merge the two sets of outcomes in order to provide clear direction for translating state-of-the-art knowledge into a common understanding for senior decision-makers.

5.3 Workshop Outcomes

The key messages that emerged from the Roundtable Sharing part of the program provided the context for identifying desired outcomes during the Roundtable Input session.

Key Messages: The workshop atmosphere was upbeat and participants were enthusiastic. The number of success stories is growing. There are hurdles to overcome, but they are not insurmountable. Key messages arising from the discussion are distilled as follows:

- Incremental progress is being made in implementing on-the-ground examples of green infrastructure throughout the region (i.e. the glass is half-full).
- Build it so they can see it, and green infrastructure will over time move from being the exception to being the norm.

Quote of the day: “We must construct pilot projects to help change the mindset of the masses, because projects such as Country Lanes and Crown Street in Vancouver show that this is what it takes to create the demand for green infrastructure.”

- Pilot projects are scattered around the region, but there is no overall vision for what each community wants its municipality to look like.



- The rate of progress in changing standard practices generally depends on the willingness of individual champions to push the envelope in applying new approaches.
- It can be lonely being an innovator.
- The number of champions throughout the Greater Vancouver region is increasing.
- Even where there is a willingness, the ability of local government to deliver changes in policies, practices and standards largely depends on staff time and resources.
- Competing demands for essential services limit the time that is left over for staff to champion green infrastructure.
- Because green infrastructure is currently viewed by local governments as non-essential, provision of dedicated staff resources is not rated a high priority.
- The success that is being achieved is resulting from personal relationships and a shared vision.
- Relying solely on written documents is not the way to create the appetite for change.
- New approaches are needed to share, adapt and leverage experience among practitioners - both within and among municipalities.
- New approaches are needed to inform and educate elected officials and the community at large.
- Be pragmatic and balanced, and let the message speak for itself.
- Language is important because it impacts on how messages are received.

It is significant that ten GVRD municipalities participated in the workshop, and that senior managers considered the subject matter to be sufficiently important to make the time to attend. The success of the event was the result of the participants opening up and sharing their experiences. The discussion also underscored that there is critical mass for moving forward with an interactive approach to communication of the *design with nature* vision; and that this can be achieved through an array of educational tools that inform change.

Moving Forward: A defining consideration is that the REAC Workshop complements the 2004 Practitioners Workshop. The two sets of outcomes are readily merged. The combination of the two provides clear direction for translating state-of-the-art knowledge into a common understanding for senior decision-makers.

The REAC Workshop provided further validation of the Convening for Action vision, confirmed the direction in which the Green Infrastructure Partnership is heading, and reinforced the supporting framework for the Integrated Work Plan.

At the same time, the workshop drew attention to benefits that should result from reconfiguring the Integrated Work Plan. The clear message was the need to make outreach and continuing education the #1 priority.

Outreach and Continuing Education: Guides by themselves are not sufficient to move green infrastructure *from the exception to the norm*. Rather, the process to:

- create,
- promote and
- implement

a regional vision for ‘designing with nature’ depends on having an outreach and continuing education program that reaches a range of target audiences and builds capacity. It is in forums such as the REAC Workshop that practitioners and others become ‘fired up’ (or ‘catalyzed’). These forums are transformational in that they:

- Challenge practitioners and others to step back from their existing paradigms.
- Inform practitioners and others regarding alternatives.
- Give practitioners the tools and the experience to do things differently.

The last two bullets are critical. There must be substance to the knowledge-transfer program. Words for the sake of words will not galvanize elected officials and senior managers into action.

Leading Change: The challenge is how to lead and implement the necessary changes in policies and standards of practice. In his book *Leading Change*, published by the Harvard Business School Press in 1996, John Kotter presented an 8-step mindmap for implementing change (reference: <http://www.refresher.com/!leading/>):

1. Create sense of urgency
2. Create a guiding coalition
3. Develop a vision and strategy
4. Communicate the change vision
5. Empower stakeholders for action
6. Create short term wins
7. Consolidate gains to create more change
8. Anchor new approaches in the culture

It is events such as the REAC Workshop that create the guiding coalition and a common understanding of a change vision: **the *design with nature* approach to community planning and land (re)development.**

Educational Elements: The discussion on May 12th crystallized a number of concepts for potential educational program elements that would facilitate long-term change:

1. **Green Infrastructure Project Tours** – would enable sharing and cross-fertilizing of ‘how to do it’ case study experience.
2. **Green Infrastructure Workshop Roadshow** – would pool municipal resources to address the staffing issue, ensure consistent messaging and build capacity within the member municipalities.
3. **Green Infrastructure Speaker Series** – would be based on the Richmond model for educating elected officials (i.e. by getting them involved in speaker introductions).
4. **Green Infrastructure Website** – would enable creation of a web library and interactive tools, as well as web delivery of case study information (i.e. by means of a case study template).

The groundwork for these program elements has been laid. Refer to Section 6 for details.

Purpose of Communication Guides: The two Communication Guides would be the glue that binds the educational elements. They are also educational elements unto themselves: They would provide a mind-map for the four other elements listed on the previous page.

- **Green Infrastructure Communication Guide for Elected Officials** – Provide a big picture overview that will help facilitate informed decision-making; and together with the Communication Guide for Senior Municipal Staff, will provide the bridge between those who make the decisions and those who implement the decisions.
- **Green Infrastructure Communication Guide for Senior Municipal Staff** – Identify policy options and provide the technical pros and cons for a range of green infrastructure elements, and expand over time.

Precedent: Because the Guides would mainly be for communication / education purposes, they would not be complex. The emphasis would be on articulating the design with nature vision in clear terms. An example of ‘how to do this’ is the 15-page framework document that was written for the Burke Mountain development in Coquitlam: *A Natural Systems Approach to Stormwater Management: Implementing Low Impact Development at Burke Mountain*.

Target Audiences: It is a challenge to write documents that elected officials and senior managers will readily read and embrace. Language is critical. The vision must be compelling to be accepted region-wide.

OUR VISION

The Guides will be written from the perspective of senior managers...
by senior managers...
for senior managers & elected officials

Process Objective: It is the process for developing the Communication Guides that would provide credibility and legitimacy for our green infrastructure initiative:

- In a sense, the knowledge-sharing process is more important than the actual Guides.
- Hence, the emphasis would be on collaboration that results in consensus regarding a regional vision.

A process founded on solid content would create the critical mass necessary for implementation of changes in infrastructure policies and standards of practice.

Our Vision: The vision for the two Green Infrastructure Communication Guides is that:

- ☑ they will be clear, concise and compelling in translating state-of-the-art knowledge into a common understanding for senior decision-makers;
- ☑ they will enable decision-makers to articulate to elected officials **why** standards of practice need to change for land (re)development, transportation and infrastructure servicing; and
- ☑ they will enable decision-makers to assess recommendations and give direction to technical staff on **what** will be done, and **how** changes in practice will be implemented.

These Communication Guides are an integral part of the process of building an informed ‘community of interest’ so that it will become a ‘community of practice’. The Guides will establish a language . The way they are written will define broad themes so that elected officials and senior managers can step outside their normal view of the world (i.e. to get away from denial of the issues). The other educational elements will provide the *on-the-ground* content.

SECTION 6

Integrated Work Plan

6.1 Context

The clear message from the 2004 Practitioners workshop was that tinkering with existing standards does not work. Solutions need to be integrated.

The clear message from the 2005 Workshop was that times are changing: much is happening, people in local government are short on time and resources, and too often they are dragged and /or bogged down by trivia. To make more effective use of their limited time, there is a desire for less documents and more interactivity in combination with customized information via web-delivery.

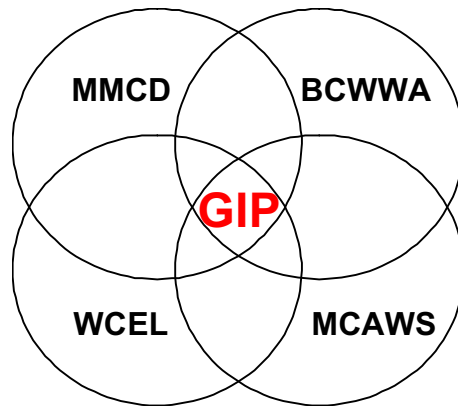
The modern challenge is how to access information easily. Making information accessible creates change. If one cannot find it, then it does not exist.

Broad Themes: The REAC Workshop has prompted the Green Infrastructure Partnership to again revisit how it will deliver an Integrated Work Plan. In reassessing and/or redefining “what is the desired content” within each Plan Element, the GIP is cognizant that there are two broad themes in play:

- **Practitioner Perspective (2004):** Build bridges between those who make the decisions and those who implement them.
- **Local Government Manager Perspective (2005):** Convey knowledge and impart understanding to decision-makers through focussed communication.

In terms of reconciling and blending these two themes, it has become clear that benefits will result from shifting the emphasis ... from producing traditional products to delivering added value through an **Outreach and Continuing Education Program (OCEP)**, especially if it is multi-pronged.

Spheres of Influence: Over the past year, the consortium of organizations that comprise the GIP has been evolving a shared vision of what the Integrated Work Plan will look like. Individually, each partner has a sphere of influence. The domain of the GIP is where the four spheres of influence overlap. The goal in forming the GIP is that the whole will be greater than the sum of the parts.



Several levels of thinking have shaped the integration of individual work plans into one seamless plan – at one level is the question of what can be accomplished by the GIP through a shared vision; at another level is the matter of what each Partner is already committed to undertaking within its sphere of influence.

Key Principles: To realize the vision, Key Principles that provide a framework for action by the GIP are listed below:

1. Promote the GIP as an entity.
2. Look for synergies with other initiatives.
3. Take a long-term view.
4. Create change incrementally.
5. Educate and train practitioners.
6. Build on success.

6.2 Outreach & Continuing Education Program

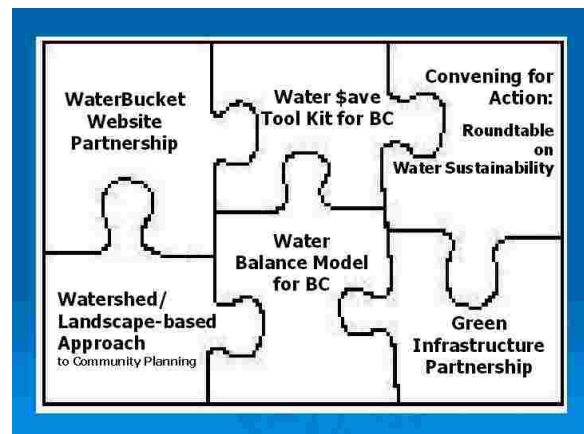
Through a multi-prong OCEP that enables the GIP to be an effective facilitator, the GIP can achieve its mission in **promoting changes in policies, programs, practices and practitioner education:**



The graphic below illustrates the ten educational elements of the reconfigured Integrated Work Plan. The scope of each is described in the accompanying Table 6-1.

Water Sustainability Action Plan for BC:

The purpose of partnerships is to leverage the efforts of complementary initiatives. Alternative delivery of information is already being achieved through partnerships that can be readily adapted to meet local government desires as identified in the REAC Workshop. As described in later in this section, initiatives that are already underway as part of the Water Sustainability Action Plan will enable the GIP to move forward with implementation of OCEP, efficiently and effectively.



Under the Action Plan framework, the role of the GIP is to contribute the ‘technical substance’ that will lend credibility to related initiatives. **In terms of implementing on-the-ground changes in the way we develop land and manage water, a key message is this: The whole is greater than the sum of the parts.**

Outreach & Continuing Education Program (OCEP)				
Website	Project Tours	Communication Guide for Elected Officials	Guide to Infrastructure Standards	Water Balance Model
Speaker Series	Workshop Roadshow	Communication Guide for Senior Managers	Green Infrastructure Standards	Streamlined Environmental Approvals Protocol

Table 6-1: Integrated Work Plan for Green Infrastructure Partnership

OCEP Element	Scope
Website	To enable web delivery of case study information, the GIP will develop a community-of-interest on waterbucket.ca .
Speaker Series:	To promote understanding of green infrastructure, the GIP will involve elected officials as hosts of a Speaker Series.
Project Tours:	To enable sharing and cross-fertilizing of ‘how to do it’ case study experience, the GIP will initiate and coordinate a program of regional field trips.
Workshop Roadshow:	To ensure consistent messaging and build capacity within the member municipalities, the GIP will coordinate a pooling of municipal resources to undertake training workshops.
Communication Guides:	To be clear and compelling in conveying key messages, the GIP will develop documents that are brief and to the point.
Guide to Green Infrastructure Standards:	To facilitate green infrastructure regulation and bylaws, the GIP will compile and promote examples of effective regulatory approaches for an array of situations, and will highlight and analyze the trade-offs between different options.
Green Infrastructure Standards:	To facilitate sharing of technical information, the GIP will serve as a clearing house for tracking local government initiatives.
Water Balance Model:	To facilitate better land use decisions, the GIP will collaborate with the Water Balance Model Partnership to implement an on-line training program.
Streamlined Environmental Approvals Protocol:	To provide certainty and reward those who are implementing green infrastructure, the GIP will promote linkage between the ‘time is money’ principle and the opportunity to use the savings in interest costs to finance environmental restoration

6.3 Green Infrastructure Website

Web delivery is a core element of an information transfer strategy for achieving on-the-ground changes. The communication needs of the GIP can be readily provided through the waterbucket.ca website.

This communications vehicle has been funded and developed through a federal/provincial inter-governmental partnership to overcome barriers to providing universal access to information. The #1 barrier is the one related to finding, retrieving and /or sharing appropriate resources useful for promoting learning and change.



Communities-of-Interest: waterbucket.ca will over time comprise a number of “communities-of-interest (COI)” for specific themes. Initially these will correspond to Action Plan Elements. Other COIs will be added as and when there is both a need and funding. Each COI is a self-managing website that provides easy access to a variety of information modules developed within the COI structure.

This dynamic information source is developed on a collaborative, non-proprietary platform that allows emerging communities to leverage the investment of existing partners and use communication and web development resources effectively. Each time a feature is developed, it immediately becomes available to all COIs.

Sponsorships: Because the GVRD has played a major role in creating content for the Water Sustainability Action Plan, a goal of the WaterBucket Partnership is that individual GVRD committees will sponsor and provide editorial oversight for three complementary communities-of-interest on waterbucket.ca:

- **REAC (Regional Engineers Advisory Committee):** Green Infrastructure – because REAC members are accountable for implementation of engineering standards.
- **SILG (Stormwater Interagency Liaison Group):** Rainwater Management – because SILG has a legal mandate under the requirements of the regional Liquid Waste Management Plan.
- **TAC (Technical Advisory Committee):** Watershed-Based Community Planning – because TAC represents the planners.

Land & Water British Columbia has provided a grant that is enabling the WaterBucket Partnership to create the structure and content placeholders for the **Green Infrastructure COI**. This will be the communication vehicle for the Green Infrastructure Partnership. Initial web work will be completed in Summer 2005.

Website Development: The hardware and software for waterbucket.ca establish the basic structure for COI development. Building on this foundation, the front-end process for creation of the Green Infrastructure COI is two-fold:

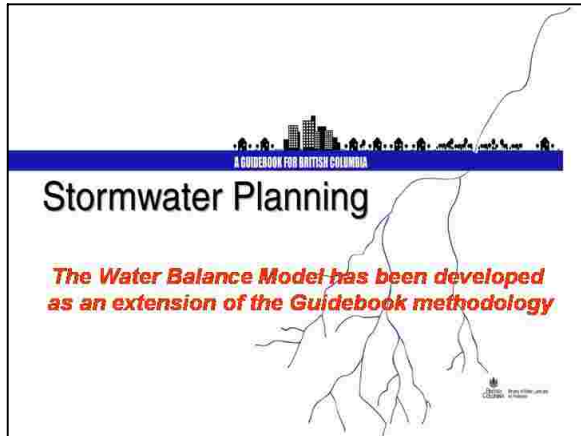
- **Table of Contents:** Decide menu headings and dropdowns.
- **Controlled Subject Index:** Focus on how to sort through web links and brainstorm the way that content records will be categorized.

The objective is not to reinvent the wheel. Rather, it is to provide web users with multiple ways to access information wherever it may reside.

A WaterBucket Working Group will develop an editorial policy and champion content development for the Green Infrastructure COI.

6.4 Water Balance Model

Developed by another Inter-Governmental Partnership (IGP) that draws its strength from local government, the Water Balance Model (WBM) is a decision support and scenario modeling tool. The WBM is web-based and can be found at waterbalance.ca.



The WBM enables users to compare scenarios for rainwater runoff volume reduction in order to achieve a light 'hydrologic footprint'. The WBM creates an understanding of how to employ source controls to get rainwater into the ground and/or absorbed by trees and landscaping under various combinations of land use, soil and climatic conditions.

Outreach and Continuing Education Program: Commencing in 2003 with the formal launch at the Annual Conference of the Union of BC Municipalities, the Inter-Governmental Partnership has been successfully developing and delivering a comprehensive WBM outreach and workshop training program for a range of audiences (i.e. elected officials, municipal advisory committees, the land development community, stewardship groups, and professional associations).

Because of the natural synergies, the existing OCEP can be readily adapted and/or expanded to meet the additional needs of the Green Infrastructure Partnership.

On-Line Training Program: Recent WBM workshops have resulted in identification of 'gaps and needs' that the Inter-Governmental Partnership intends to address through an *On-Line Training Program* for local government.



This program has a natural fit with the **On-Line Case Study Module** recently developed by SILG to enable project information to be submitted by experienced practitioners. The objective of the SILG initiative is to compile a *Case Study Library* over time.

This program also has a natural cross-over with the three educational elements identified in Section 4, namely: **Project Tours, Workshop Roadshow and Speaker Series.**

Program Elements: To accelerate changes in land development practices, there is a clear need to develop a set of real-life 'how to' working examples to guide users step-by-step through the application of the WBM at different scales. The working examples will be delivered as lunchtime seminars over the Internet to broaden inter-departmental awareness of the capabilities of the tool to help local government staff make better land use decisions. The proposed *On-Line Training Program* has three elements:

- **Deliverable #1** – *Regional Workbook* that is complete with WBM input/output screens for Case Study Examples.
- **Deliverable #2** – Series of three *On-Line Seminars* to lead participants through 'how to' Case Study Examples at the site, subdivision and watershed scales.
- **Deliverable #3** – A *Web Library* so that the Seminar Examples will be available to all WBM users for self-directed learning.

SECTION 7

Next Steps

7.1 Sustaining On-the-Ground Momentum

The mission of the Green Infrastructure Partnership is to provide leadership and encourage application of green infrastructure design practices and regulation in British Columbia. This mission is being achieved by bringing together practitioners at ‘convening for action’ events that form an essential part of the Integrated Work Plan.

The 2004 and 2005 consultation workshops involved convening for action. Both underscored that considerable progress is being made on-the-ground in implementing green infrastructure. To sustain the momentum that has resulted from pioneering efforts, next steps to move green infrastructure from the exception to the norm are identified as follows:

1. Formalize a WaterBucket Working Group for the *Green Infrastructure Community-of-Interest* – by July 8/05
2. Submit this Progress Report to REAC – by July 22/05.
3. Ask REAC to provide a *Statement of Support* that can be included with grant applications to federal and provincial funding agencies – by July 22/05
4. Ask those who participated in the *2005 REAC Workshop* to provide feedback on this Progress Report – by August 15/05.
5. Share this Progress Report with those who participated in the *2004 Consultation Workshop* – by August 15/05.
6. Obtain a commitment-in-principle from REAC to support implementation of the Green Infrastructure Partnership’s *Integrated Work Plan* – by Sept 30/05.

7. Ask REAC to formally endorse the *Water Sustainability Action Plan for British Columbia* – by September 30/05.

7.2 Implementation of Integrated Work Plan

Under the umbrella of the Water Sustainability Action Plan, the Water Sustainability Committee has undertaken to submit a grant application to the federally funded KOA Program (i.e. where KOA stands for Knowledge-building, Outreach and Awareness-raising). The pending grant application will embody elements of OCEP as described in this report

It will also be necessary for the Green Infrastructure Partnership to secure other sources of funding, both cash and in-kind, to advance the Integrated Work Plan in general and OCEP in particular:

- **Core Funding** – to carry out program delivery and provide the leadership, facilitation and organizational services necessary for successful implementation.
- **In-Kind Contributions** – in the form of staff time to proactively participate in the process and contribute/review content for individual elements.

Benefits of Regional Collaboration: By pooling resources under a partnership framework for outreach and continuing education, this results in the following benefits:

- Builds relationships.
- Municipalities can leverage the efforts of their own staffs.
- Cross-fertilization of case study experience.
- Common understanding of issues and solutions.
- Consistent messaging region-wide.

7.3 Integration with Nature's Revenue Streams

Nature's Revenue Streams (NRS) is a 3-year public-private project, and is a partnership between the District of Saanich and Aqua-Tex Scientific (i.e. Patrick Lucey et al). The NRS already has a 10-year *on-the-ground* history of building projects that demonstrate 'how to do it'.

The Green Infrastructure Partnership has signed a Statement of Collaboration with Nature's Revenue Streams, a Vancouver Island initiative, that has obtained the support of the Federation of Canadian Municipalities for a \$2.7M initiative which will link rainwater infrastructure to the restoration of stream and watershed function.

NRS will show how urban development can be used as an opportunity to improve watershed and stream health, build/restore aquatic habitat and reduce infrastructure costs for developers and the municipality while also addressing rainwater runoff.

Synergy: The GIP and NRS initiatives have considerable synergy and commonality, both in terms of approach and green infrastructure deliverables. Hence, the GIP and NRS have agreed to collaborate to promote development and province-wide implementation of Green Infrastructure policies, regulations and practices.

Nature's Revenue Streams (NRS)

- Develop an urban stream "how-to" manual
- Develop an applied training program for municipal councils, municipal staff and the construction industry
 - Based on a program (framework) for the entire Colquitz watershed, focused on restoration and protection of freshwater ecosystem function
- Use as a Case Study for other municipalities

Statements of Collaboration: The Green Infrastructure Partnership and Nature's Revenue Streams have signed a Statement of Collaboration. This states that the two initiatives will 'cooperate and coordinate'; and that they will support each other in making grant applications.

The strategic significance of the Statement of Collaboration is that it is a first step in creating a truly pan-provincial initiative. It is a way of bringing together green infrastructure practitioners in two regions: the Lower Mainland and Southern Vancouver Island.

Nature's Revenue Streams has also executed Statements of Collaboration with the Water Sustainability Committee and the Water Balance Model Partnership. The inter-relationships between the four initiatives will be defined in the months ahead.



GREEN INFRASTRUCTURE PARTNERSHIP

**Master Municipal Construction Document Association
Water Sustainability Committee of the BC Water & Waste Association
West Coast Environmental Law Association
Ministry of Community Services**

Attachment A

2004 Practitioners Workshop: Participants

**Report on May 2004 Green Infrastructure Consultation Workshop
With Green Infrastructure Practitioners**

Participants	Expertise	Contact Information
Mark Allison Transportation Planner, City of New Westminster	Complete communities, Road design	(604) 527-4654 mallison@city.new-westminster.bc.ca
Dipak Basu Municipal Engineer, City of Chilliwack	Rainwater management, Community design	(604) 792-9311, Ext 2950 basu@chilliwack.com
Patrick Condon James Taylor Chair in Landscapes & Livable Environments, UBC	Complete communities	(604) 822-9291 patrick.condon@ubc.ca
Franc D'Ambrosio Principal D'Ambrosio Architecture & Urbanism	Complete communities	(250) 384-2400 fdambrosio@fdarc.ca
Richard Drdul Community Transportation Planner	Transportation management, Road design	(604) 222-3541 richard@drdul.com
Chris Hartman VP Development Simon Fraser Community Trust (UniverCity)	Complete communities	(604) 291-3220 hartman@sfu.ca
Todd Litman Executive Director, Victoria Transport Policy Institute	Transportation management, Road design	(250) 360-1560 litman@vtpi.org
Patrick Lucey Principal, Aqua-Tex Consulting	Green infrastructure, stream health	(250) 427-0260 aqua-tex@islandnet.com
Steve Muenz Manager Development Engineering, City of Kelowna	Hillside development	(250) 862-3339 ext. 477 smeunz@city.kelowna.bc.ca

**Report on May 2004 Green Infrastructure Consultation Workshop
With Green Infrastructure Practitioners**

Participants	Expertise	Contact Information
Adriane Pollard Manager Environmental Services, District of Saanich	Dark sky lighting, Green infrastructure	(250) 475-5494 , ext. 3556 pollarda@saanich.ca
Barry Smith (Retired) Senior Land Use Specialist, Ministry of Agriculture & Food	Working lands, agriculture/urban interface	(604) 853-6779 bsmith9@shaw.ca
Kim Stephens Program Coordinator, Water Sustainability Action Plan for British Columbia	Water Sustainability, Rainwater management, Community design	(604) 922-4657 kimastephens@shaw.ca
Karen Thomas Land Agrologist, Ministry of Agriculture & Food	Working lands, agriculture/urban interface	(604) 556-3104 karen.thomas@gems2.gov.b c.ca
Joe van Belleghem Principal, Windmill Developments	Green buildings, Green infrastructure	(250) 592-6769 joevb@shaw.ca
John Volpe Associate Professor, University of Alberta	Fish & riparian health	(250) 480-1955 jvolpe@ualberta.ca

**Report on May 2004 Green Infrastructure Consultation Workshop
With Green Infrastructure Practitioners**

Invited Observers	Affiliation	Contact Information
Ron Bowman	Terasen & BC Public Works Association	ron.bowman@terasen.com
Bob Dolphin	Master Municipal Construction Documents Association	ssu@telus.net
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Ron Smith	Ministry of Sustainable Resource Management; & Water Sustainability Committee	ron.smith@gems6.gov.bc.ca
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Robyn Wark	City of Burnaby; & Water Sustainability Committee	robyn.wark@city.burnaby.bc.ca
Phil Wong	Environment Canada & BC Water & Waste Assoc.	phil.wong@ec.gc.ca
Pamela Zevit	Como Watershed Group	cwg@vcn.bc.ca
Ray Fung	District of West Vancouver; and Water Sustainability Committee	rfung@westvancouver.net
Neil Nyberg	Chair, MMCD	neilnyberg@shaw.ca

**Report on May 2004 Green Infrastructure Consultation Workshop
With Green Infrastructure Practitioners**

Interested Consultants	Affiliation	Contact Information
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Jim Dumont	McElhanney Consulting Services Ltd	jdumont@mcelhanney.com
Colin Kristiansen	Delcan	c.kristiansen@delcan.com
Alan Newcombe	Earth Tech	alan.newcombe@earthtech.ca
Greg Scott	Earth Tech	greg.scott@earthtech.ca



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Attachment B

2004 Practitioners Workshop: Outcomes

Report on May 2004 Green Infrastructure Consultation Workshop With Green Infrastructure Practitioners

		CONSULTATION OUTCOMES
Theme	Sub-Themes	GIP Recommendations Arising from the May 11th Workshop
#1 – Naming and Approach	1.1 Name of MMCD Green Design Supplementaries	Title the Interim Supplement “Options for Greening of Existing Standards”
	1.2 Set Out Objectives of Supplement	Develop a Policy Guide that serves as a Decision Support Tool and sets out the broader objectives and reasons for adopting the Green Supplement.
#2 – General Design Considerations	2.1 Link Land Use Planning with Subdivision Servicing and Comprehensive Planning	Develop a Policy Guide that serves as a Decision Support Tool and outlines the need to integrate Land Use Planning and Subdivision Servicing Requirements on a Neighbourhood Scale
	2.2 Integrated Development Processes	Provide Policy Makers with Decision Support Tools that enable Implementation of more Integrated Lland Use Planning and Development Approval Processes.
	2.3 Performance-Based Objectives and Context-Sensitive Design	Establish Measurable, Achievable and Affordable Performance Objectives and Targets that enable Designers to exercise Professional Judgement in achieving Context-Sensitive Solutions to Public Infrastructure Issues.
	2.4 Monitoring and Adaptive Management	Identify appropriate Performance Monitoring Standards (including Timeframe and Process) for Public Infrastructure where possible
	2.5 Integrate Servicing Standards with Ecological Functioning	Identify Infrastructure Design Techniques that support Ecological Systems by applying Design with Nature Concepts.
#3 – Rainwater Management	3.1 Manage the Full Range of Rainwater Events and Use Infiltration Methods	Identify Landscape Solutions and Comprehensive Planning Techniques for Rainwater Management, with particular emphasis on returning water to Natural Hydrologic Paths.
	3.2 Rainwater Management and Roads	Identify Techniques that integrate Rainwater Management and Road Standards.
#4 – Roads	4.1 Grid Street Network	Develop a Policy Guide that serves as Decision Support Tool and sets out Standards for Use of Road Grid Patterns.
	4.2 Road Widths	Develop a Policy Guide that serves as a Decision Support Tool and sets out ‘tradeoffs’ between Road Width, Service Functionality, Land Cost, etc
	4.3 Crossings and Roundabouts	Provide options which focus on pedestrian safety and provide choices for roundabouts and other control measures.
#5 – Other	5.1 Greenways	Create Design Guidelines for Different Types of Greenways
	5.2 Accessibility Standards	Incorporate Well-Accepted Accessibility Standards in the Guidelines
	5.3 Lighting	Develop a Policy Guide that serves as a Decision Support Tool and sets out “trade-offs” between Service Functionality, Lighting Cost Safety Implications etc
	5.4 Edge Planning for Agricultural Land	Develop a Policy Guide that serves as a Decision Support Tool for Subdivision Servicing on lands adjacent to Agricultural Land
	5.5 Maintenance	Develop a Policy Guide that serves as a Decision Support Tool and sets out the maintenance implications of various servicing choices, and how to plan and accommodate on-going maintenance funding.



GREEN INFRASTRUCTURE PARTNERSHIP

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Attachment C

Green Infrastructure Communication Guides

Green Infrastructure Communication Guides

Context and Scope: The Green Infrastructure Partnership is promoting an integrated approach to land development that addresses the need for coordinated change at different scales – that is: community, neighbourhood, site and building. The Partnership will provide leadership and encourage others to implement green infrastructure design practices and regulation. To assist local governments with ‘implementation design’, the Partnership will develop two Guides:

- **Green Infrastructure Policy Guide for Elected Officials** – will provide a big picture overview that will help facilitate informed decision-making; and together with the Technical Guide for Senior Municipal Staff, will provide the bridge between those who make the decisions and those who implement the decisions.
- **Green Infrastructure Technical Guide for Senior Municipal Staff** – will identify policy options and provide the technical pros and cons for a range of green infrastructure elements, and will be expanded over time.

Our Vision: There is no lack of written material on ‘green infrastructure’ and all that it entails. What is lacking is this: communication documents *written from the perspective of senior managers... by senior managers... for senior managers and elected officials*. The vision for the two Guides is that:

- they will be clear and compelling in translating state-of-the-art knowledge into a common understanding for senior decision-makers;
- they will enable decision-makers to articulate to elected officials **why** standards of practice need to change for landscape (re)development, transportation and infrastructure servicing; and
- they will enable decision-makers to assess recommendations and give direction to technical staff on **what** will be done, and **how** changes in practice will be implemented.

For the Guides to be effective and accepted by local government, senior decision-makers must have hands-on involvement during their development. Hence, the process for Guide development is key.

The Process for Getting There: The Guides will be developed through a two-track process where one track is ‘content development’ and the other track is ‘working sessions’ where content is vetted and consensus is reached. To undertake the process, the Partnership will:

- obtain funding to carry out the core functions for Guide development;
- ask willing municipalities to assign staff resources to contribute Guide content; and
- form an Editorial Board to provide Guide oversight and endorsement

The plan is to complete the Guides by May 2006 so that they can be unveiled as part of the **Convening for Action** transformational event that will be organized in conjunction with the World Urban Forum in June 2006.



GREEN INFRASTRUCTURE PARTNERSHIP

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Attachment D

2005 REAC Workshop: Program

May 12th Workshop for Regional Engineers Advisory Committee “Green Infrastructure: How Can We Help You Help Us Help You”

	Time	Theme	Speaker/Facilitator	Scope of Discussion
	1230	<i>Lunch</i>		
1	1300 - 1315	Context is Everything and Change Happens	Paul Ham & Kim Stephens	Setting the Scene - context & desired outcomes for workshop: <ul style="list-style-type: none"> - Start with an end in mind - We are in a transition stage as we apply new knowledge and tools - How will the region accommodate an extra 1 million people by 2030? - What do we want the region to look like in 2030? - What is ‘green infrastructure’ and the intent of Green Infrastructure Guides?
2	1315 - 1415	Roundtable Sharing: Who is Doing What & What Has Worked (or Not)	Susan Rutherford	What are the conditions that make implementation of green infrastructure either easy or difficult? <ul style="list-style-type: none"> - GVRD municipalities are “doing it” – where are you on the continuum? - Why should we care? - Who tried to do something and failed? - What are the barriers to implementing new approaches and standards? - What lessons have you learned? How can you creatively elicit and re-frame people’s values, to find solutions after “becoming stalled”? - How can other municipalities build on case study successes?
	1415	<i>Refreshment Break</i>		
3	1430 - 1500	Challenges & Strategies	Erik Karlsen	So What are the options and the best choices? <ul style="list-style-type: none"> - Changing Minds: Stories, Counterstories and Strategies - East Clayton story - What we have learned from the Roundtable Sharing discussion
4	1500 - 1555	Roundtable Input: Will the Green Infrastructure Guides Be Useful and What Should They Look Like?	Ray Fung	Now What are the strategies and commitments? <ul style="list-style-type: none"> - Any time a land use decision is made, it creates a legacy - How can Green Infrastructure move from <i>market-niche</i> to <i>market-share</i>? - What do you need to explain why and how to implement changes? - What barriers (process, political, financial, planning, legal) require tools and strategies for building green infrastructure into communities, neighbourhoods, sites, buildings?
5	1555 - 1600	Next Step: Report on the Workshop	Paul Ham	Then What - moving from concept to policy to implementation: <ul style="list-style-type: none"> - The workshop outcomes provide the framework for moving forward - You have provided insights and there are potential tools that you can use



GREEN INFRASTRUCTURE PARTNERSHIP

**Master Municipal Construction Document Association
Water Sustainability Committee of the BC Water & Waste Association
West Coast Environmental Law Association
Ministry of Community Services**

Attachment E

2005 REAC Workshop: Participants

**Report on May 2005 Green Infrastructure Consultation Workshop
With Greater Vancouver Regional Engineers Advisory Committee**

2005 REAC Workshop Participants

N ame	Position & Organization	Email address
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**Report on May 2005 Green Infrastructure Consultation Workshop
With Greater Vancouver Regional Engineers Advisory Committee**

2005 REAC Workshop Participants

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Attachment F

2005 Roundtable Sharing: Flipchart Notes

Roundtable Sharing: Flipchart Notes

Ten Greater Vancouver municipalities participated in the Consultation Workshop:

1. West Vancouver
2. North Vancouver District
3. Vancouver
4. Burnaby
5. Port Moody
6. Coquitlam
7. Richmond
8. Delta
9. Surrey
10. Langley City

WHAT?

- GVRD municipalities are 'doing it' – where are you on the continuum?
- Why should we care?
- Who tried to do something and failed?
- What are the barriers to implementing new approaches and standards?
- What lessons have you learned? How can you creatively elicit and re-frame people's values to find solutions after 'becoming stalled'?
- How can others build on your case study experience?

SUCCESSSES:

1. Langley Township – innovative project by BFW Developments in Yorkson watershed: stormwater treatment + deep well injection
2. White Rock – rebuilding of 160th: road narrowing, swales; trail-multi-use
3. White Rock – revise subdivision standards: reassess functional classifications for roads
4. White Rock – formed stormwater utility
5. Richmond - Green high rise buildings are being initiated by developer initiateds: now “in fashion”
6. Richmond - Multi-uses identified in neighbourhood planning process
7. Richmond - have established high performance building standards
8. Richmond - Sustainability speakers program
9. Richmond – ESA policy of “no net loss” is transitioning to “multi-function”
10. Delta – OCP review looking at standards and change in languageGVRD – success with institutional buildings going green - especially water
11. GVRD – greening of combined sewer overflow tank in New Westminster
12. GVRD - Multi-use rights of way
13. GVRD - Channel reconstruction that's natural
14. GVRD – Seymour Filtration plant – LEED Gold for Admin Bldg, 2 hectare green roof over main tanks, narrow pavement and swales; no storm sewers
15. Vancouver - Curb bulges
16. Vancouver – engineering culture has changed over past 20 years

Report on May 2005 Green Infrastructure Consultation Workshop With Greater Vancouver Regional Engineers Advisory Committee

17. Vancouver – Southeast False Creek
18. Vancouver - Densification of downtown Vancouver creatin opportunities
19. Vancouver - Pilot projects to “convert masses” (e.g. Crown Street & Country Lanes)
20. West Vancouver - geothermal system at aquatic centre
21. West Vancouver - Water metering program
22. West Vancouver - Energy recovery at Eagle Lake
23. Surrey - Water metering program
24. Surrey – drainage infiltration systems at neighbourhood scale and along roads,
25. Surrey - Campbell Heights industrial area: swales, biotreatment ponds
26. Surrey – Roads are narrower and interconnecting in new neighbourhoods
27. Surrey - close working relationship between planning and engineering;
28. Surrey - planning ahead with review of land
29. Surrey - Existing communities pushing green for new developments
30. North Vancouver – narrower pavement
31. North Vancouver – exfiltration drainage behind catch basins (Dollarton Highway)
32. North Vancouver - onsite exfiltration systems in conjunction with redevelopment
33. North Vancouver – updated Subdivision Bylaw
34. North Vancouver – toilet replacement program
35. North Vancouver - Permeable lane pavement pilot
36. Port Moody - OCP leadership (i.e. integrated approach)
37. Port Moody – engineering and planning work closely together
38. Port Moody - In-stream habitat - support because visible (vs. storm)
39. Port Moody - Infrastructure for bikes, walking
40. Port Moody - reassessing need four traffic lanes
41. Burnaby – Total Stormwater Management Policy to advance green infrastructure
42. Burnaby – Alternate Street Design
43. Burnaby – new bylaw to limit impervious area
44. Burnaby – moving from reactive to proactive by adding staff
45. Burnaby – using case studies to establish expectations for policies
46. Burnaby – education for elected officials
47. Coquitlam – Subdivision Bylaw
48. Coquitlam – Northeast Coquitlam & Hyde Creek IWMP
49. Coquitlam – LID Policy Manual for Northeast
50. Coquitlam – will tackle infill development next
51. Coquitlam – Comprehensive Landscape Strategy – establish target tree cover
52. Delta - Impervious bylaw for several years
53. Delta – developing design standards for roads, streetscapes and infiltration
54. Delta – traffic calming
55. Delta – now have landscape architect in transportation department
56. Delta – providing bike paths in conjunction with Interceptor Sewer Project
57. Delta - Supportive politicians - staff cannot move fast enough

BARRIERS / FAILURES:

1. Langley City - Resources a challenge: time, people, money
2. Langley Township – Liability concern re deep well injection for BFW project
3. Langley Township – Time delay in approving BFW project
4. Outmoded docs + standards
5. GVRD - Rainwater harvesting blocked by plumbing code
6. GVRD - Different reactions by municipalities to green buildings; code issues
7. GVRD - Green buildings encountering infrastructure limitations
8. Vancouver - Resistance by senior engineers to new ways
9. Vancouver – avoid hype because can be counter-productive, especially re water
10. West Vancouver – developers slow to implement alternative approaches
11. West Vancouver - Social resistance to increasing density
12. Surrey - Telling developers to “do the right thing” not an incentive
13. North Vancouver - Infiltration system failure when poorly applied
14. North Vancouver – LEEDS certification exceeding budget
15. Port Moody - Challenge keeping up with car dependence
16. Port Moody – not enough time when forcing people to experiment
17. Port Moody – budget constraints
18. Port Moody – lack of data for decisionmaking
19. Port Moody – conflict when change standards part way through a project
20. Port Moody - Steep terrain
21. Burnaby – huge challenge is Maintenance/ lifecycle costs for new infrastructure
22. Burnaby – uncertainty re the end result
23. Burnaby – need for champions
24. Richmond - lane greening policy challenged by conflicts with fire & garbage trucks
25. Richmond - Right to Farm vs. ESA “no net loss”
26. Richmond – take a lot to understand others knowledge and get good ideas off ground
– and within cost limitation
27. Richmond - IKEA roof → lack of standards a problem
28. Delta – 100-yr context and how do we try to green development in conjunction with
infrastructure renewal
29. Delta – challenged by time and resources

GREEN INFRASTRUCTURE POLICY & TECHNICAL GUIDES:

The Need:

1. InfraGuide – don't duplicate
2. InfraGuide – biggest difficulty getting to senior managers and elected officials
3. What is lacking is an understanding of how to deliver Green Infrastructure
4. Need inventory/library of case studies
5. Development community
6. Include fisheries as a partner
7. Need interactive/web-based delivery
8. Need right people around table
9. Need template for info-sharing case studies
10. Web tools must be fun
11. Provide "active" help
12. Organize Farm Tours, Green Infrastructure Tour

Barriers to Mainstreaming:

1. Codes/Regulation
2. Development approval time
3. Life-cycle costing
4. What's benefit to me (i.e. for development community)
5. Cultural beliefs/mindset
6. Complexity of technical choices
7. Lack of compelling vision
8. No overall vision
9. Lack of life-cycle cost data
10. Lack of understanding of the cost if don't implement green infrastructure
11. Practicality
12. Don't do a good job of building on what has just been done
13. Lack of understanding of: Who benefits? Who pays?
14. How system integrated?
15. Choice of language
16. What makes sense
17. Concern over risk
18. Credibility of individuals