Agenda – Council – May 19, 2010

Report – Standing Policy Committee on Infrastructure Renewal and Public Works – May 11, 2010

Item No. 4 Green Back Lane Initiative Pilot
eFile E

STANDING COMMITTEE RECOMMENDATION:

On May 12, 2010, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Infrastructure Renewal and Public Works and submits the following to Council:

1. That approval be granted to undertake a pilot "Green Back Lane Initiative", as part of the 2011 Back Lane Capital Program.

2. That the Winnipeg Public Service conduct an evaluation of the performance of the pilot back lane, and report back three years following the completion of the Green Back Lane Initiative Pilot.

3. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

Report – Standing Policy Committee on Infrastructure Renewal and Public Works – May 11, 2010

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On May 12, 2010, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Infrastructure Renewal and Public Works and submitted the matter to Council.

STANDING COMMITTEE RECOMMENDATION:

On May 11, 2010, the Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the recommendation of the Winnipeg Public Service and submitted the matter to the Executive Policy Committee and Council.

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On January 13, 2010, the Executive Policy Committee referred the recommendation of Mayor's Environmental Advisory Committee, pertaining to investigating the Chicago Green Alley Initiative and Vancouver's Country Lanes program to determine the feasibility of a pilot initiative in Winnipeg, to the Public Service for recommendation and report back to the appropriate committee of Council in 90 days.

ADMINISTRATIVE REPORT

Issue: **Recommendation for a Green Back Lane Initiative Pilot**

Critical Path: **Standing Policy Committee on Infrastructure and Public Works – Executive Policy Committee - Council**

AUTHORIZATION

Author	Department Head	CFO	CAO
P. Regan, Manager of Sustainability	B.W. Sacher, P. Eng. Director of Public Works	M Ruta	A Robinson Deputy CAO

RECOMMENDATIONS

1. That approval be granted to undertake a pilot "Green Back Lane Initiative", as part of the 2011 back lane capital program.
2. That the Winnipeg Public Service conduct an evaluation of the performance of the pilot back lane, and report back three years following the completion of the Green Back Lane Initiative Pilot.

IMPLICATIONS OF THE RECOMMENDATIONS

On January 13, 2010, Executive Policy Committee considered Mayor's Environmental Advisory Committee's (MEAC) recommendation and directed the Winnipeg Public Service "to explore this matter further with the intent to initiate a pilot program in a city back lane to be determined by the aforementioned public works process, for recommendation and report back to the appropriate committee of Council within 90 days."

The Chicago Green Alley Initiative
The Chicago Green Alley Initiative was designed to showcase innovative environmental technologies to help manage stormwater, reduce heat in urban areas, promote recycling and conserve energy. The program began in 2006, and as of the end of 2008, more than 80 Green Alleys have been installed.

Chicago's Green Alleys incorporate the following key characteristics or treatments:

- Permeable pavements (asphalt, concrete or pavers) that allow stormwater to filter through the pavement and drain into the ground, instead of collecting on hard surfaces or draining into the sewer system.
- Open bottom catch basins – installed in alleys to capture water and funnel it into the ground
- High-albedo pavement, a lighter coloured surface that reflects sunlight instead of absorbing it, helping to reduce the urban heat island effect

- Recycled materials, such as concrete aggregate, slag and recycled tire rubber
- Proper grading and pitch to facilitate drainage
- Use of dark sky-compliant light fixtures to reduce light pollution and provide uniform illumination
- Involvement of neighbouring property owners in maintaining their Green Alley and in implementing sustainable practices to enhance the performance of the Green Alley (by recycling, composting, planting trees, using rain barrels and so on).

Green Alleys require some special care to maintain optimum functionality, including sweeping or vacuuming to maintain permeability of the surfaces, and avoidance of the use of certain substances such as sand or salt. Photos and further information on the Chicago Green Alley Initiative are provided in Appendix “A”.

The Vancouver Country Lanes Program
In 2002, in accordance with the growing emphasis on sustainability principles endorsed by the City of Vancouver, the “Country Lane” concept was introduced as a pilot to explore more sustainable alternatives to traditional lane and street designs. The Country Lane concept uses two narrow bands of hard surface down the wheel paths for the length of the lane. The area between and beside these bands has a structural component able to support vehicles, but is still able to be top-soiled and planted with grass. Pictures of how conceptually the finished Country Lanes would look are given in Appendix "B". This innovative design contributes to a more attractive, greener, rural aesthetic, while reducing environmental impacts and discharges to the City's storm sewer system.

Application of Green Alley Treatments in Winnipeg
The City of Winnipeg currently utilizes a number of the treatments utilized by Chicago and Vancouver, including:

- High-albedo pavement and proper grading and pitch to facilitate drainage in back lanes
- Permeable pavers have been installed in some roadways in park environments
- City is partnering with Manitoba Hydro commencing in 2010 to pilot dark sky-compliant LED streetlights in three Winnipeg locations to test the energy savings capacity. There is no cost to the City for this pilot. If the results of the pilot are positive, Manitoba Hydro will adopt the LED light as the standard for streetlighting, and will replace burned out pressurized sodium fixtures with LED fixtures over time.

The proposed Green Back Lane pilot would involve one block of back lane in a combined sewer area, to be selected from the 2011 reconstruction priority list for the Back Lane Capital Program. A 2010 pilot is not possible as the engineering for the back lanes scheduled for reconstruction in 2010 has been completed and construction is scheduled to commence in the spring. The lane would be reconstructed utilizing treatments and materials consistent with the Chicago Green Alley Initiative, designed and built to address Winnipeg’s climate and soil conditions. The selected back lane will be identified as one of the pilot locations for the LED streetlighting partnership with Manitoba Hydro.

A key success factor for the Green Back Lane pilot is the support and active involvement of the neighbouring property owners. This was identified as a key element of both the Chicago and Vancouver pilots. A comprehensive and ongoing engagement process will be integrated into the initiative, to gain their support for the initiative in their lane, to educate about the characteristics and maintenance requirements of their Green Back Lane, and to solicit their active involvement in incorporating environmental practices on their properties to enhance the performance of the

Green Back Lane. The Winnipeg Public Service will work closely with the area Councillor during this process.

Costs for the Green Back Lane Pilot are anticipated to be 10 – 25% greater than an improved back lane reconstruction (based on the reported experience of other cities who have undertaken similar initiatives). Current unit costs for an improved back lane in Winnipeg are $325 per square meter. Confirmed costs for the pilot are dependent upon the length of the lane chosen, specific treatments and materials selected and a corresponding engineering analysis being conducted. Opportunities for partnerships or sponsorships with manufacturers of innovative products or landscaping materials suitable for use in this type of application will be pursued, in accordance with the Cit's Sponsor Winnipeg Program.

Anticipated benefits of a green back lane installation in Winnipeg would be similar to those experienced in Chicago:

- Reflection of sunlight from hard surfaces rather than absorption, helping to reduce the urban heat island effect
- Use of recycled materials in construction, thus reducing waste to landfill and energy consumption related to production and transportation of new materials
- Reduction of light pollution and provision of uniform illumination
- Increased awareness of and involvement in sustainable practices (recycling, composting, planting trees, using rain barrels) by neighbouring residents

As with any new design, the short and long term performance of the Green Back Lane design will need to be monitored. The durability of both the hard and soft surfaces over time under the untested conditions will be important to the success of the design. The performance of the drainage system depends to a large degree on the existing soil conditions and the potential for ponding exists during storm events. This pilot project will provide an opportunity to assess these issues and allow refinement and improvement upon the functionality of the design.

An evaluation of the performance of the Green Back Lane will be undertaken over a three-year period commencing upon completion of the lane, and will consider the impact of the treatments on stormwater runoff, the durability and condition of the materials installed, impacts of weather and use, level and costs of alternative maintenance required, level of involvement of neighbouring property owners in activities supporting the Green Back Lane, and level of satisfaction of adjacent property owners with the lane. The three year evaluation period will allow for an adjustment period for both residents and the Public Service to the specific requirements and performance of the land, and for a variety of weather and use-related conditions to occur.

HISTORY

- At their September 14, 2009 and October 27, 2009 meetings, the Mayor's Environmental Advisory Committee (MEAC) made a recommendation to the Mayor "that the City investigate the Chicago Green Alley Initiative and Vancouver's Country Lanes Program to determine the feasibility of a pilot initiative in Winnipeg".

- At their January 13, 2010 meeting, Executive Policy Committee considered MEAC's recommendation and directed the Winnipeg Public Service "to explore this matter further with the intent to initiate a pilot program in a city back lane to be determined by the aforementioned public works process, for recommendation and report back to the appropriate committee of Council within 90 days."

FINANCIAL IMPACT

Financial Impact Statement **Date:** March 23, 2010

Project Name: **First Year of Program** **2011**

Recommendation for a Green Back Lane Initiative Pilot

	2011	2012	2013	2014	2015
Capital					
Capital Expenditures Required	$ -	$ -	$ -	$ -	$ -
Less: Existing Budgeted Costs	-	-	-	-	-
Additional Capital Budget Required	$ -	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal	$ -	$ -	$ -	$ -	$ -
Debt - External	-	-	-	-	-
Grants (Enter Description Here)	-	-	-	-	-
Reserves, Equity, Surplus	-	-	-	-	-
Other - Enter Description Here	-	-	-	-	-
Total Funding	$ -	$ -	$ -	$ -	$ -
Total Additional Capital Budget Required	$ -				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs	$ -	$ -	$ -	$ -	$ -
Less: Incremental Revenue/Recovery	-	-	-	-	-
Net Cost/(Benefit)	$ -	$ -	$ -	$ -	$ -
Less: Existing Budget Amounts	-	-	-	-	-
Net Budget Adjustment Required	$ -	$ -	$ -	$ -	$ -

Additional Comments: Included in the Public Works Department's 2011 Forecast of the 2010 Adopted Capital Budget and Five Year Forecast is an amount of $2.75 million for Lane Renewals - Various Locations as part of the Regional and Local Streets Program. It is anticpated that this budget would be used to fund the Green Alley Initiative Pilot project. The costs associated with a pilot project cannot be determined at this time as they are dependent upon the length of the lane, specific treatments and materials selected.

"Original Signed by D. Stewart, CA"
Department Controller

CONSULTATION

In preparing this report there was consultation with:

Internal :

Green Back Lane Initiative Working Group:
Water and Waste, Engineering
Public Works, Engineering
Public Works, Streets Maintenance
Public Works, Transportation
Planning, Property and Development, Planning and Land Use

SUBMITTED BY

Department	Public Works
Division	Engineering
Prepared by:	P. Regan
Date:	March 22, 2010
File No.	

Attachments:
Appendix A - Chicago Green Alley Initiative
Appendix B - Vancouver Country Lanes Program

APPENDIX “A”
Chicago Green Alley Initiative

Chicago's Green Alley Initiative

Source: ww.metaefficient.com/architecture-and-building/chicago-green-alley.html

Urban alleyways. Grubby places that only scrappy cats or cop-show perps could love, right? Not in Chicago, where the Department of Transportation is giving them some serious TLC with its recently implemented Green Alley Program. This city-wide renovation initiative will offer some surprising environmental benefits and improve quality of life for residents.

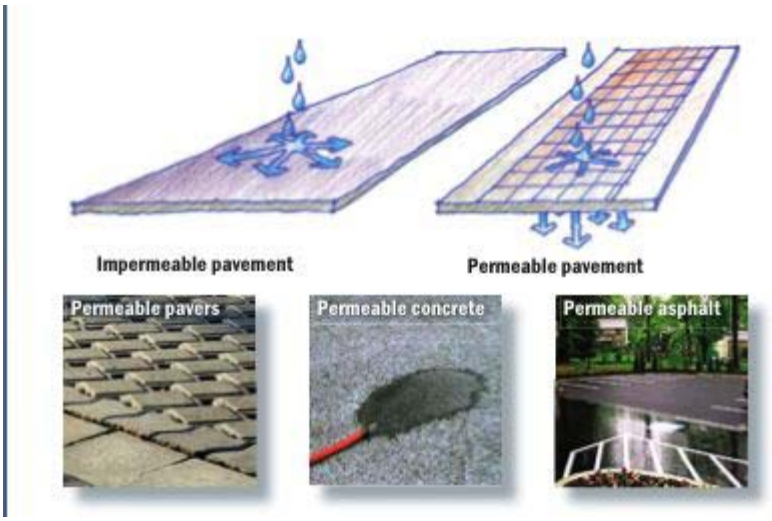
Alleys may seem like a tiny fraction of a city's infrastructure. But Chicago has more than any other city in the world – 1,900 miles of alleyways that translate to 3,500 acres of paved landscape. And traditional alley designs have been plagued with flooding problems that overwhelm the city's sewers, plus they can worsen nighttime light pollution and trap heat in the summer months. In response to this, The Chicago Department of Transport has followed the lead of Portland and companies like Aviva and Johnson & Johnson who have introduced impressive green initiatives. The four basic components of Chicago's Green Alley program are effective stormwater management, minimizing heat absorption, creating designs to reduce light pollution, and maximizing the use of recycled materials wherever possible.





Alley Before And After Renovation (photo: Chicago DOT)

Using permeable pavement along with proper grading for drainage is a key element of managing water runoff. Paving materials that let rainwater infiltrate the soil (instead of entering the sewers) allow groundwater to be recharged, and reduce unnecessary stress on water treatment plants. A variety of pavers are being used, including permeable asphalt and concrete materials as well as open grid-style pavement tiles.



Permeable Paving Materials (photo: Chicago DOT)

The “heat island” effect that occurs when paved surfaces absorb the sun’s rays can substantially increase ambient temperature (and energy demand) in the summer months. The Green Alley program mandates the use of high-albedo (light-colored) pavements that absorb minimal heat. Benefits include reducing the need for air-conditioning in surrounding structures, and creating a better environment for vegetation growth.

Nighttime light pollution means that in most urban areas, a starry sky is a rarity. The Green Alley program requires the use of directional light fixtures that give street-level illumination for residents without shining upward into the sky. The new fixtures also provide a natural white light instead of the ubiquitous yellow glow seen from older sodium lamps.

Using recycled construction materials is also crucial for the Green Alley program, and creates cost savings while reducing raw material consumption and stress on landfills. Recycled concrete aggregate is being used in both foundation and surface layers, and reclaimed asphalt and ground tire-rubber can be used in pavement. Slag waste from steel production can also be used in the concrete components of the projects.

The Green Alley upgrades are being gradually implemented throughout the city. The Department of Transportation is also working with property owners to encourage their involvement in the Green Alley program, by providing maintenance advice and encouraging projects like rain gardens to complement the new alley designs.

APPENDIX “B”
Vancouver Country Lanes Program

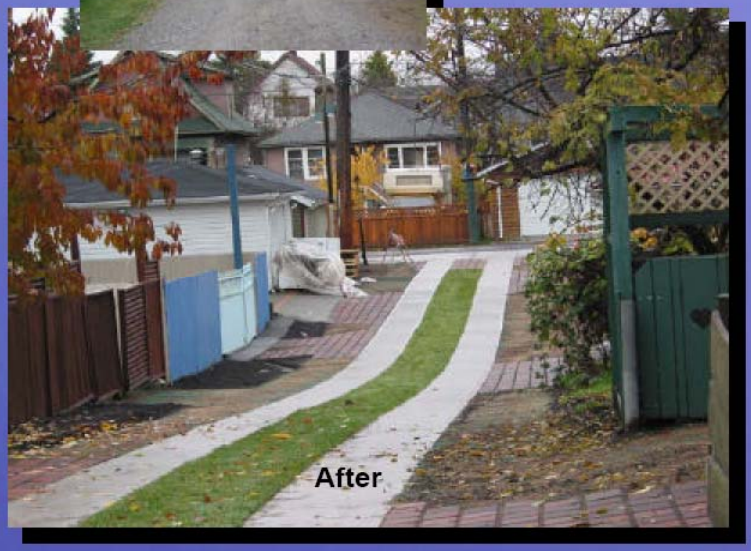
ENGINEERING SERVICES

Winter 2002

Country Lanes



Before



After

The Country Lane

The City of Vancouver is developing an alternative to the traditional asphalt lane. This new "Country Lane" uses materials that allow rainwater to infiltrate into the ground while providing a durable surface for vehicles to drive on. The first lane in this pilot project has just been constructed providing residents with a space that calms traffic, is aesthetically pleasing and is more environmentally responsible. Three locations have been chosen as trial demonstration lanes. The City will monitor the costs, maintenance, and functionality of each of these projects. The three locations were chosen because of strong community support and commitment by its residents to help maintain and promote this concept.

The picture above shows the City's first Country Lane, located south of the 700 block of E 27th Ave.



The Grand Opening held on November 23rd.

Mayor Philip Owen on the left and Project Manager Wally Konowalchuk on the right