

Transforming Grey Spaces into Vibrant Places: A Case Study of the Champlain Bridge Mural Pilot Project

Introduction

Murals are an ancient human art form, their creation reaching back through time and across continents. From the rock paintings of the Australian aboriginals to the animal depictions in the caves of Lascaux in France, they served to represent themes of interest to prehistoric humankind. Today, murals are a means of transforming otherwise forgotten spaces into vibrant places and thus can be effective larger-than-life tools for economic and cultural revitalization. Mural art can contribute to various aspects of social sustainability and projects can be planned with ecological sustainability in mind.

This paper will first consider murals in the context of socio-ecological sustainability. General principles and approaches will then be presented, illustrated by details from the Champlain Bridge Mural Pilot Project, on topics including the commissioning organization, mural location, graffiti management, theme selection, approval process, environmental assessment, artist selection, and mural execution. Conclusions will be drawn and recommendations made for future mural projects to address socio-ecological sustainability and foster creativity and vitality in the communities in which they are located. Finally, the concept of a mural lease will be explored as a possibility for commissioning murals on a fixed time frame.

Socio-Ecological Sustainability

Sustainable development is "...development that meets needs of the present without compromising the ability of future generations to meet their own needs."¹ The concept is essentially that we should not prevent people now, or in the future, from meeting their needs or harm the biosphere that sustains us. If humanity and the planet are to prosper, a socio-ecological sustainability perspective should inform all aspects of urban and regional planning, including mural projects.

Murals by their very nature promote social sustainability by addressing in some way seven of nine human needs as defined by Chilean economist Manfred Max-Neef. These needs are: creation, participation, leisure, understanding, identity, subsistence and protection.² The criterion of creation is fulfilled for the artists who paint the murals as well as for the public when a new colourful dimension is added to the landscape. Participation is fulfilled for both the artists responsible for the work and the public observing the work being created - seeing a painting in progress can spark the imagination of those passing by. Murals can be viewed and enjoyed as a leisure activity, cultural tourism centered on murals being proof of this. They can also contribute to a greater understanding of any subject they depict, particularly if the theme is intended to be educational. Through the representation of locally-relevant themes, murals contribute to place-making, by extension building the identity of the community. And artists who support themselves either in whole or in part through mural projects meet their own subsistence needs. The case can be made that the presence of murals also offers a certain degree of protection as areas that attract a greater number of people are generally seen as being safer:³ after a neglected area has been revitalized with a mural people will be more likely to gather there. Murals have also been shown to evoke in residents a greater sense of pride in place.⁴

Ecological sustainability must also be taken into consideration in the planning and execution of murals. One scientifically-derived principle for ecological sustainability holds that any processes which contribute to the systematic increase of man made substances in the biosphere are unsustainable.⁵ Man made substances such as paint used in the production of murals are no exception to this principle. Paint is highly challenging from an ecological perspective, as it is specifically designed to resist the elements and is ultimately persistent in the environment. Paint often contains petrochemical by-products and certain pigments can contain dangerous heavy metals such as cadmium, cobalt, chromium, manganese and mercury. Spray paints are particularly toxic: the most commonly utilized brand Montana contains 10-20% toluene and 3-10% xylene,⁶ chemicals both described as potent reproductive toxins. In addition, xylene is a neurotoxicant that can cause memory loss on repeated exposure.⁷ If these paints have such effects on human beings, they cannot possibly be benign when released into the environment. Nevertheless, when considered from a long-term graffiti management perspective, murals can potentially reduce the overall volumes of chemicals used; if muralled walls are effective at deterring graffiti and do not require cleaning as often, fewer chemicals from paint and cleaning solvents will enter the environment over the long term. In addition, appropriate environmental precautions may be taken to ensure that paint and cleaning products are properly managed during the course of the work. These precautions, as well as information on environmentally responsible types of paint, will be presented later in the paper.

The Commissioning Organization

Examples of organizations, established or ad-hoc, that may wish to initiate a mural project, include businesses, various levels of government, community associations, arts groups and artists themselves. Understanding the structure and philosophy of a particular group will be helpful in determining the rationale for commissioning murals, potential locations, as well as mechanisms by which murals may be approved and financed. This paper presents the experience of a government agency commissioning a mural.

The National Capital Commission (NCC) is a crown corporation of the Government of Canada. It is responsible for the management of federally owned lands in Canada's Capital Region, in both Ottawa, Ontario and Gatineau, Quebec. These lands include parks, the Rideau Canal Skateway, sites in urban areas, and the official residences. The NCC has a mandate and mission to plan, develop and use these properties as a source of pride and unity for all Canadians. The region is well maintained and green, offering numerous recreational and cultural opportunities for residents and visitors, in large part due to the efforts of the NCC.

The Life Cycle Management division is responsible for extending the life cycle of NCC assets, including its public art collection, various civil assets and living assets such as trees and floral displays. The removal of graffiti on these assets also falls under the purview of this division. The author worked as a student project officer with the Life Cycle Management division, and initiated the Champlain Bridge Mural Pilot Project to assess the viability of murals as a cost-effective and creative graffiti management strategy.

The NCC's Commemorations and Public Art portfolio consists of 54 sculptures and monuments located in high profile locations in Ottawa and Gatineau. Pieces, usually sculptures, are typically donated by groups or individuals. In the 1970's and 1980's the NCC had a budget to purchase artworks and at that time commissioned several murals, notably one by renowned native Canadian sculptor Bill Reid; however, since the buildings on which they were painted have been renovated, the murals no longer exist. Much of the organizational learning that took place to commission these murals has also been lost. The

recent mural project represented a divergence from the NCC's current public art policy as the NCC no longer has a budget to purchase artworks.

Location

Physical locations suitable for murals include bridge pilings, retaining walls, sides of buildings and construction hoardings. In many instances, the location will also suggest the underlying reason why a mural should be commissioned, including for graffiti management or decorative, educational or historical purposes. Graffiti management is invariably an issue for any government agency involved in land management, with certain 'hard to manage' locations requiring innovative solutions.

The National Capital Region, including the cities of Ottawa and Gatineau, is situated on both sides of the Ottawa River. The Champlain Bridge crosses the river in the Region's west end. Originally built in the 1920s, the bridge was reconstructed from 2000 to 2003, and now has three lanes, including a reversible central lane as well as dedicated bike lanes and sidewalks. This pedestrian and cyclist-friendly bridge is one of several connections linking the extensive recreational pathway network on both sides of the Ottawa River.⁸

The Voyageurs Pathway, passing underneath the Champlain Bridge and through the project location, offers a spectacular view of the Ottawa River along the north shore. It has been called "...one of the most spectacular pathways in the network."⁹ The area under the bridge often serves as a rest stop for pathway users, making the location a natural gathering place. The two pilings on which the murals are installed are at the north end of the Champlain Bridge and measure approximately 18 m wide and 5 m high each. The presence of low quality graffiti on both bridge pilings detracted from the natural beauty of the area.

The Ottawa River is historically significant as it was first an important canoe route for the Algonquin native peoples. When explorers and settlers arrived, the river facilitated the fur trade with the French and subsequently the timber trade with Britain.

The Ottawa River at the mural site is geologically important as well: a rare and magnificent bed of stromatolites is found only 50 meters west of the Champlain Bridge. Stromatolites are 450 million year old fossilized life forms, part algae, part cyanobacteria, that are thought to have played a role in the creation of oxygen in the atmosphere.¹⁰ The stromatolites are visible from the pathway when the water level of the river is low in summer and will soon be the subject of an NCC interpretation panel to be installed in the vicinity.¹¹

Graffiti Management

Graffiti is a discourse amongst those who use the streetscape as their canvas. It comes in many forms such as tags, throw ups and pieces¹² and may be an expression of hip hop culture, a political statement, simple vandalism or a gang or hate-related act.¹³ Devon Brewer distinguishes hip hop graffiti as "...a kind of graffiti with unique forms and functions, not to be confused with gang, bathroom or other kinds of graffiti."¹⁴ Using information gathered from established graffiti writers, he ranks 18 graffiti management methods including 'traditional methods' such as paint out programs and anti-graffiti coatings, and 'alternative methods,' including legal graffiti walls managed by writers, or businesses and cities hiring artists. Brewer's analysis states: "...alternative strategies were regarded as more effective than any of the traditional methods [for controlling hip hop graffiti]."¹⁵ It should also be noted that besides simply reducing the occurrence of illegal graffiti, alternative graffiti management methods also have positive spin-off effects for both artists and community, consistent with principals of social sustainability.

Research into wall art and graffiti in the National Capital Region conducted by the author in 2001¹⁶ uncovered a substantial pool of local artistic talent capable of producing large-scale, high quality murals. Three factors were cited by graffiti artists as being required for the production of high quality pieces: time, money and permission. An increase in any one of these factors would lead to an increase in the overall quality of the work. As graffiti artists work with neither permission nor a great deal of money, time is the only factor over which they have control. Thus, high quality murals, or productions, are generally in geographically removed areas, far away from the public's view. Graffiti commonly seen by the public are tags and throw-ups, low-complexity writing that can be completed in a short amount of time.¹⁷ Another important finding was that graffiti artists respect high quality art work - a code of ethics that extended to legal murals present in the region. Anecdotal evidence from local graffiti removal companies corroborated this finding, indicating that existing murals in Ottawa-Gatineau did not typically sustain damage from graffiti writing. The combination of the presence of local artistic talent able to produce high quality murals, along with a general respect for high quality art work, indicated that murals would be an appropriate method for the prevention of low quality graffiti the National Capital Region.

The idea for the Champlain Bridge Mural Pilot Project evolved from the need for an effective graffiti management strategy at the Champlain Bridge location. Anti-graffiti coating had been applied to the bridge pilings on the Quebec side in 2002. Despite the anti-graffiti coating, low quality graffiti in the form of tags and throw ups appeared in 2003 and again in 2004. Anti-graffiti coatings, also known as sacrificial coatings, are designed to absorb graffiti, acting as a layer which protects the surface below. Should graffiti occur, the strategy is to remove the graffiti and then re-apply the coating. Protecting significant surfaces such as heritage buildings or prominent walls with this type of coating is a common graffiti management strategy in Canada. However, despite the application of anti-graffiti coating, a wall remains a vast blank expanse, or canvas, and the temptation for graffiti artists to 'hit' the wall is not eliminated.

Some removal was done in 2003 on specific areas where graffiti had occurred, giving the bridge pilings a patchy, unattractive appearance. In the summer of 2003, the author was asked by supervisors at the NCC to visit the project location and arrange for graffiti-removal and re-application of anti-graffiti coating. The work was not immediately carried out however, as the quote of \$4,700 and potentially recurring nature of the expense provided the financial rationale for experimenting with murals as a graffiti management strategy at the location. At this stage, a preliminary inspection was conducted using the Canadian Institute of Conservation *Condition Report and Care of Outdoor Murals* form to determine the suitability of the two walls for murals.¹⁸ The new concrete walls were determined to be very good surfaces on which murals could be installed and minor issues such as dirt, bugs and a broken light on site were noted.

The precedent for the use of murals as a graffiti management strategy has been set by cities such as Philadelphia in the United States and Toronto in Canada.¹⁹ Other Canadian communities that had organized murals for cultural purposes included the neighbourhoods of Vanier in Ottawa and the West End in Winnipeg. Murals have also proven to be useful for economic revitalization, having become tourist attractions in numerous North American towns and cities including Chemainus, British Columbia and Welland, Ontario. When murals have been devised as a part of a cultural tourism strategy, a positive economic spin-off for businesses often results when tourist dollars are spent in the community. Thus, this alternative method of graffiti management can be shown to potentially have positive benefits other than simply keeping the graffiti off the wall.

Theme Selection and Project Goals

Before the project could be approved, financing allocated, and a call to artists made, a theme was required. With such a spectacular location on the shore of the Ottawa River, the thematic possibilities were numerous. A multi-departmental project team was assembled from different departments within the NCC to advise on the mural and to design a theme that would then be included in the call to artists.

The resulting theme, "*The National Capital Landscape through the Changing Seasons*," was further explained by the following statement: "Examples of subjects within this theme include features of the natural or built landscape and recreational activities taking place in the region. While no restrictions will be placed on the style of the murals, preference will be given to an original and innovative design concept that is appealing to all ages and evokes a sense of fun in discovery."²⁰

At this point, goals for the project were established, consistent with the objectives of the various departments within the NCC, and ultimately of benefit to the public. The Champlain Bridge Mural Pilot Project had four primary goals: 1. to provide a cost-effective approach to graffiti management; 2. to beautify the area through the installation of public art; 3. to increase the perceived safety of the area for pathway users; 4. to complement and enhance the Ottawa River Quebec shoreline interpretation program.

Approval Process

As this mural project was essentially the first of its kind at the NCC, the approval process was both informal and formal, taking place both within and outside the organization. Initial support was built informally, beginning in the Life Cycle Management division, to whom the project was proposed as a creative and cost-effective graffiti management strategy. Project briefs were prepared that included photographs of the location. The Commemorations and Public Art coordinator was brought on board at an early stage, and provided invaluable expertise throughout the project, being in support of a hybrid project that saw maintenance funding used to fulfill both maintenance and aesthetic objectives. Following informal conversations and meetings with supervisors, advice was sought from a continually widening network of individuals in different groups within the organization including Interpretations, Design, Procurement, Legal and Communications - the varied expertise being a distinct benefit of organizing a mural project under the auspices of a government agency. During this time, input was also sought from residents close to the project location, a local geoharitage expert familiar with the stromatolites, and staff at the City of Ottawa who had recently initiated a mural program. Expert advice on the completion of mural projects was also sought from Mural Routes, a mural arts organization.

Following approval of the project in principle by the director of the Urban Lands and Transportation Division, of which Life Cycle Management was a part, a presentation was made to the NCC's Integrated Land Use Review Committee. This committee reviews land use proposals in an integrated manner, so that they may be understood, critiqued and approved by numerous divisions simultaneously. The project plan was described and evidence of a favourable cost-benefit analysis for completing the project provided. One concern raised by the committee was whether the mural would possibly encourage more graffiti in this location. In response to this question, the tendency of local graffiti artists to respect high quality art work was described. The project was given preliminary approval on the basis of being a pilot and direction for further approvals was given. The Design department requested to sit on the art competition jury and have final approval over the mural designs. The project was then presented to the Executive Management Committee who approved it as well. By proceeding with the project on a pilot basis the process of organizing

a mural contract could be understood and its viability as a graffiti management solution for 'hard to manage' areas assessed.

Financing

Upon approval of the project, the sum of \$10,000 plus cleaning costs was allocated for its completion, the amount being inclusive of materials and expenses including the artists' time. This amount was arrived at on the basis of average costs of other murals in both Canada and the United States, as well as on the budgetary allowances of the NCC. To facilitate the production of the mural, the two artists were paid individually in two installments, \$2000 each upon acceptance of the design, and \$3000 each upon completion of the mural. This measure was intended to accommodate artists who typically have fewer resources on hand with which to buy supplies than established construction or landscaping contractors.

Environmental Assessment

It became clear during the approval process that an environmental assessment would be necessary in order to comply with Canadian law on the subject. According to the law, all projects taking place on federal lands relating to construction, installation, enlargement or modification of a work with a surface area of more than 25m² must be the subject of an environmental assessment. To this end, a site visit was made with an NCC environmental officer who consulted an assessment checklist and advised on topics to be covered in the assessment. Areas assessed included features of the geological, biological and human environments. Three possible impacts were identified as a result of this analysis, including dust and paint residue entering the river during the wall cleaning phase, paints entering the river during the painting phase and finally, disruption to cyclist or pedestrian traffic on the pathway. Mitigation measures were identified for each potential impact and an environmental emergency plan was devised.

Because the project was taking place in the riparian zone of the river, Article 22 of the Quebec Law on Environmental Quality required that a Certificate of Assessment be signed by the Quebec provincial Ministry of the Environment. Thus the final approval needed was from outside the NCC. Submitted in late summer, the project was approved in late autumn, at which point it was too cold to proceed with the work. The project was postponed to the summer of 2005.

In total, the approval process, including the environmental assessments, took 16 months. This highlights the fact that seeking approval for mural projects within a large government organization where procedures are not already in place can take a significant amount of time. Had there been a public consultation process to develop the theme of the mural, the process may have taken longer.

Artist Selection

A juried art competition was organized to select a winning design and the team of artists to complete the work. A formal call out to artists was prepared in the form of a Request for Proposal. The Terms of Reference document included information on the purpose of the mural, information on the site and mural theme and style as well as specifications and fees. The project time frame and proposal evaluation criteria were also described. Artists were asked to team up in pairs and to submit proposals including their CV's, examples of their previous work and a concept design for two walls. A firm closing date for entries was set. Site visits were made available to artists upon request.

Given the nature of the project as a pilot and the limited budget, emerging artists were targeted with the call-out. Those invited to submit a proposal either resided in the National Capital Region or had knowledge of the area. The author was able to readily identify which artists had the necessary skill set to complete such a project. Additionally, contact information for other mural artists was obtained from public arts officials from the City of Gatineau and the City of Ottawa. Established area mural artists were also identified and invited, although none applied as they were either occupied with other projects or felt that the fee was too low. In total, seven teams submitted proposals; an eighth team also submitted a design, but missed the deadline by mere minutes. This illustrates part of the learning curve associated with emerging artists working for the first time with a large organization with 'strict rules of engagement.'

The jury was comprised of staff from various departments within the NCC who had been consulted on the project, as well as a representative from the Arts and Culture department from the City of Gatineau. Proposals were evaluated based on 60 points for the more important design component and 10 points for each of the experience and previous work of each artist. Evaluations were completed by each member of the jury and results tabulated to select the top three teams. The jury subsequently met and arrived at a consensus as to the most appropriate design and team.

Patrick Thompson of Ottawa and Patricio Dyer of Montréal were selected to complete the work. The visual strength of their proposal and the written work that accompanied the illustrations were of superior quality. The designs were quite simply the most inspiring, colourful and thematically appropriate for the site. The south wall mural was inspired by the nearby stromatolites and the north wall mural by the region's animals in winter. Following acceptance of their proposal, the artists were asked to refine their drawings for the two murals by producing a maquette. Paintings done to scale were produced for each mural and the designs were subsequently accepted with minimal alterations.

Execution of the Work

Prior to commencement of the work, both walls were pressure washed to remove the anti-graffiti coating, dirt, and bug residue. Due to the proximity to the river and attendant environmental precautions, this work cost \$5,700, more than similar work in another location. Precautions taken during the work included bringing a water truck on site rather than removing water from the river to perform the work. Only high water pressure was used and waste water was captured to ensure that no anti-graffiti coating or paint entered the river.

This cleaning and the application of two base coats of latex primer ensured that the mural would be painted on a fresh clean surface. These surface preparation measures are cited by mural experts as being among the most important to ensure the longevity of a mural.²¹

The paints used in the creation of the murals were those typically used for murals including outdoor latex paints, acrylics and spray paints. Latex and acrylic paints are water-based and are considered to be among the more environmentally-friendly paints. The artists used spray paint only where necessary. They found it useful for covering large areas in a short amount of time and for achieving certain stylistic effects.

Environmental precautions included being prepared with a bucket, shovels, saw dust and plenty of tarps to address spillage. Fortunately, during the project there were no incidents and this equipment was not needed. Paint and supplies were safely stored each night at nearby Fablewood, the only residential home in close proximity to the work site.

The artists' safety is of paramount importance during the completion of a mural project. In this project, artists were responsible for precautions themselves as well as for having accident insurance. General worksite safety measures included the wearing of respirators and gloves to prevent direct contact with paint and having drinking water and sunscreen on site. At this location in springtime, bug protection was also a necessary measure. In total, the work took 30 days to complete, with the artists working approximately 10 hour days. This was 9 days longer than had originally been anticipated, attesting to the immense size of the project. Ladders were used in lieu of scaffolding to speed up the painting process.

Signs were placed on site to alert pathway users to the work taking place at the location. An information sign was also placed on site with brochures about the project. This was a useful way to inform the public so the artists did not have to stop working each time a member of the public stopped to admire the work in progress. The artists found that many members of the public stopped to look and that many also sped by on their bicycles or rollerblades and yelled words of encouragement. Similarly, publicity surrounding the project was very favourable, with articles published in two local newspapers and an interview conducted on French public radio.

After the painting of the murals was completed on both walls they were allowed to dry and a sacrificial coating of Tri-art was applied. Maintenance work will include annual pressure washing with water to remove dirt and other residues on the murals. The artists have been requested to monitor their work over the coming year. Subsequently, the maintenance of the murals will become the responsibility of the general maintenance contractor for the area.

For the benefit of passersby, and to acknowledge the work of the artists, there are plans to install a plaque to explain the mural project and its connection with the stromatolites and nature in the area.

Conclusions

In the course of the Champlain Bridge Mural Pilot Project a large government organization redirected funds from a purely maintenance operation to a project that leveraged local artistic talent to simultaneously achieve multiple objectives for the benefit of the entire community. The project illustrates how murals are a means of transforming otherwise forgotten spaces into vibrant places and thus can be an effective tool for economic and cultural revitalization.

Of the four project goals, the beautification of the area through public art was met as the murals are an attractive addition to the Voyageurs recreational pathway. People stop to admire the murals, suggesting that the area has become somewhat safer with more people around. With one of the murals being inspired by the nearby stromatolites and the other by the region's animals in winter the designs are thematically appropriate and will serve to complement and enhance the Ottawa River Quebec shoreline interpretation program when it is completed. And although the murals have received popular acclaim from both the public and members of the NCC, the true test will be that they not attract additional graffiti. Should there be no graffiti for a significant period of time, the objective of using murals as a cost-effective graffiti management strategy will have been achieved and the project will be deemed a success. The possibility will then exist for a similar strategy to be considered for other locations under the purview of the NCC in Canada's Capital Region. At the time of writing no vandalism had occurred.

Although they were not explicit goals of the Champlain Bridge Mural Pilot Project, numerous aspects of social sustainability were addressed, including human needs in the areas of creation, participation, leisure, understanding, identity, subsistence and protection as defined by Manfred Max Neef.

With the two murals being installed in close proximity to a body of water, the Champlain Bridge Mural Pilot Project presented an opportunity to explore the implications mural art has for ecological sustainability. In addition to an environmental assessment by the Quebec Ministry of the Environment and appropriate wall cleaning procedures, both artists rose to the challenge of working in a manner consistent with the environmental assessment and did an excellent job of keeping the site clean. One artist commented that he enjoyed the opportunity to work at the site and that he felt the project had allowed him to reconnect with nature. Furthermore, the project was a good point of departure for enquiry into how mural art can be even more ecologically conscious in future.

Recommendations

A formal public consultation was not conducted for this mural project due to time constraints and the general absence of residents in the immediate vicinity of the site. In future at other sites, engaging the community in the co-creation of the mural theme would rally support for the project in the early phases and ensure that the final product reflects themes and images relevant to the community. Another option would be to give artists greater creative freedom by allowing them to develop the theme themselves, possibly in conjunction with community members.

A public call to artists, suggested for future projects, would generate publicity and solicit applications from talent of which organizers may have been unaware. For example, in Canada, call-outs can be made through Mural Routes (www.muralroutes.com) and through Art Engine (www.artengine.ca), a web site for visual and media artists.

Large government organizations have within them considerable expertise, and are able to absorb many of the overhead costs that could make the production of murals challenging for business, community or ad-hoc groups. It should be acknowledged however that a power differential exists between individual artists and large organizations. Payments to artists should be appropriately timed and mural projects should be sufficiently funded to ensure that artists are adequately remunerated for the difficult and challenging work they do. They will feel a greater sense of being valued for their skills and be better able to fully apply their creative powers to a given project.

General recommendations for ecologically conscious painting include buying the correct amount of paint for a project, painting until all the paint is gone and using any excess paint for other projects.²² Proper onsite environmental precautions, as were taken in the Champlain Bridge Mural Pilot Project, should also be followed to ensure that no paints or related substances enter the environment on site. Ultimately un-used paints should be taken to a hazardous waste depot for disposal and empty paint containers, both buckets and spray cans, recycled.

Options for materials that are more ecologically conscious include reused paints and recycled latex paints,²³ which can be less expensive than new paints and of equally high quality. Over and above simply reusing or recycling paints, however, is the option of using paints that contain little or no toxic chemicals. Examples of toxic substances to be avoided in paints include chlorinate hydrocarbons, white spirit, Volatile Organic Compounds, glycols, vinyl chloride and heavy metals. Paints are currently available on the market using either less toxic or non-toxic alternatives to these substances. And artists may always request a Material Safety Data Sheet (MSDS) to determine the toxicity of individual products.

Research is needed, both on paints and the varied surfaces to which they may be applied, to determine which are in fact most appropriate for the production of large scale, high quality

murals in an environmentally responsible manner. Environmentally friendly paints have traditionally been a niche market in the coatings industry, however observers say that as more buildings are now being constructed in accordance with green building standards such as LEED²⁴ demand will increase for approved paints.²⁵ To the author's knowledge, no low or non-toxic paint is currently available in a spray can form, this being an area requiring further development.

A different approach to environmental concerns is the concept of a mural lease. Entering a lease agreement for a specified number of years would acknowledge the temporal nature of murals. Wall art is essentially a semi-permanent art form: as it consists of paint exposed to the elements, it is bound to crack and fade or be painted over in due time. The mural lease would acknowledge that another mural could be installed in its place at the end of the lease period. Murals could thus be completed with a wider variety of materials, including less toxic or non toxic paints which are possibly not as durable in the outdoors as their more toxic cousins. The mural lease would also lead to more frequent employment for local artists and ultimately contribute to a more creative society.

As we become increasingly aware of the importance of sustainability, it is hoped that the experiences of the Champlain Bridge Mural Pilot Project and the author's recommendations arising from it, will contribute to knowledge in the field and that murals can continue to be an effective tool for transforming grey spaces into vibrant places for generations to come.

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¹ World Commission on the Environment and Development (1987) *Our Common Future*.

² Max-Neef, Manfred and Paul Ekins, eds. (1997) *Real life economics: understanding wealth creation*, London: Routledge.

³ Jacobs, Jane. (1961) *The death and life of great American cities*, New York: Vintage.

⁴ Golden, Jane et al. (2002) *Philadelphia murals and the stories they tell*, Philadelphia: Temple University Press.

⁵ Robèrt, K.-H., B. Schmidt-Bleek, J. Aloisi de Larderel, G. Basile, L. Jansen, R. Kuehr, P. Price Thomas, M. Suzuki, P. Hawken and M. Wackernagel. (2002) Strategic sustainable development: selection, design and synergies of applied tools. *Journal of Cleaner Production* Vol 10 No 3 pp. 197-214.

⁶ Montana Paints. "Safety Data Sheet" Available online at: <http://www.montanacolors.com/safety.htm>

⁷ Labour Environmental Safety Alliance. <http://www.leas.ca/forums/CheckIngredients.htm>

⁸ 170kms of bicycle paths exist in the national capital region, making it the largest urban path network in North America.

⁹ NCC web site. Available online at: <http://www.ncc-ccn.ca>

¹⁰ Donaldson, Allan (2004) Personal Communication.

¹¹ Bergeron Gagnon (2003) *Plan d'Interpretation de la rive Quebécoise de la Rivière des Outaouais: rapport final*. pp. 113-115.

¹² Brewer, Devon D. (1992) Brewer and Miller (1990) define tags, throw ups and pieces as being the three basic forms of hip hop graffiti. "Tags are stylized signatures written in ink marker, spray paint etc... and represent the writer's chosen, self-fashioned street name. Throw-ups are larger names written in bubble block or similarly expansive styles in which the outlines of the letters are drawn in one color and filled in with another. Pieces are the most sophisticated form of hip hop graffiti. They are large, elaborate, polychrome murals depicting a word or words (frequently the writer's name) and often include backgrounds, designs, characters, the writer's tag, messages and comments."

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- p. 188.
- ¹³ Ostrom, Devon. Forthcoming. "Semantic differential between vandalism and graffiti art." *Spacing*.
- ¹⁴ Brewer, Devon D. (1992) "Hip hop Graffiti Writers Evaluations of Strategies to Control Illegal Graffiti", *Human Organization* Vol 51, No 2, pp. 188-196.
- ¹⁵ Ibid. p. 193.
- ¹⁶ Webster, Jessica (2001) "Wall Art in the City of Ottawa." Prepared for Geography field study course, 45.300 and Webster, J. (2001) "Graffiti: the discourse of the dispossessed." Prepared for Urban Cultures 56.456.
- ¹⁷ Tech Wall, a large retaining wall located on the grounds of the old Ottawa Technical School in an exception to this. Visible from the main public transit route, the wall is a continually evolving public gallery of quality graffiti art. In 2003, at the urging of local citizens, Ottawa City council resolved to protect the park should a move be made by the Ottawa School Board to sell the land. The site is of great cultural significance to local youth.
- ¹⁸ Canadian Conservation Institute (2002) "Condition and Care Recommendations: Outdoor Mural" Available online at: http://www.cci-icc.gc.ca/headlines/murals/conditionreport_e.pdf
- ¹⁹ Golden, Jane et al. (2003) *Philadelphia murals and the stories they tell*, Philadelphia: Temple University Press and King, Larry. 2003. Personal Communication. See also <http://www.torontopolice.on.ca/graffiti>
- ²⁰ NCC (2004) Request for Proposal: Champlain Bridge Mural Pilot Project.
- ²¹ Mural Routes. (2003) *Mural production: a resource handbook*.
- ²² Niemeyer, Shirley, Kathleen Heiden and Wayne Woldt. "Handling household wastes: paint and paint related products." Available online at: <http://www.healthgoods.com>
- ²³ Some municipalities and companies are beginning to recycle and re-sell latex paint. For a Canadian example, see Calgary's Calibre Environmental Limited. Available online at: www.recyclepaint.com
- ²⁴ Developed by the U. S. Green Building Council, Leadership in Energy and Environmental Design (LEED), is a voluntary, consensus-based green building rating system that sets the national standard for developing high-performance, sustainable buildings in the U.S.
- ²⁵ Zimmerman, Greg. "Low VOC paints are more than just green." Available online at: www.facilitiesnet.com

Photos that may be relevant to better understand the case study will be presented in the workshop. Due to capacity restrictions it was not possible to include them into this full paper.