
The City of Calgary • Environmental & Safety Management



The City of Calgary Brownfield Strategy

2007-1049

www.calgary.ca/em | call 3-1-1



PUBLISHING INFORMATION

TITLE: The City of Calgary Brownfield Strategy

PREPARED BY: The City of Calgary, Environmental & Safety Management

VERSION: 2007 Edition

PRINTING DATE: May 2007

ADDITIONAL COPIES: To download a free electronic copy: www.calgary.ca/em

FOR FURTHER INFORMATION: Within Calgary: call 3-1-1
Outside Calgary: call (403) 268-CITY (2489)
E-mail: 3-1-1Contactus@calgary.ca

ACKNOWLEDGEMENTS: The City of Calgary, Corporate Properties & Buildings
The City of Calgary, Development & Building Approvals
The City of Calgary, Finance
The City of Calgary, Land Use Planning & Policy
The City of Calgary, Law
Environmental Law Centre (Alberta)
Urban Development Institute - Calgary
WorleyParsons Komex
Yarranton Holdings Ltd.
Barbara Power

PRINT INFORMATION: The document was printed on paper with 30% post-consumer recycled content.

Table of Contents

CHAPTER 1 - Introduction	1
1.1 Introduction	1
1.1.1 Definition of a Brownfield.....	3
1.2.1 Overview of Brownfield Redevelopment Benefits	3
CHAPTER 2 - Context & Needs Analysis	7
2.1 Canadian View on Brownfield Sites	7
2.2 The City of Calgary Context	8
2.2.1 Supporting Policies	9
2.2.2 Brownfield Sites in Calgary	12
2.2.3 Legislative Regime	12
2.2.4 Planning Policies.....	13
2.2.5 Operational Policies & Programs	14
2.3 Brownfield Strategy Needs Analysis	14
2.3.1 Literature Review	14
2.3.2 Stakeholder Consultation	14
2.3.3 Identified Issues	16
2.3.4 The Need for a Brownfield Strategy	19
CHAPTER 3 - Vision, Strategies & Actions	21
3.1 Vision	21
3.1.1 Brownfield Strategy Vision Statement	21
3.1.2 Brownfield Strategy Guiding Principles.....	22
3.1.3 Brownfield Strategy Goals.....	22
3.2 Brownfield Redevelopment Strategy Framework	23
3.2.1 Brownfield Redevelopment Strategy Proposed Objectives	23
3.2.2 Brownfield Redevelopment Strategy Proposed Action Items	23
3.2.3 Brownfield Redevelopment Strategy Financial Plan.....	25
3.3 Brownfield Reclamation Strategy	26
3.3.1 Brownfield Reclamation Strategy Objectives	26
3.3.2 Brownfield Reclamation Strategy Action Items	27
3.3.3 Brownfield Reclamation Strategy Financial Plan	32

Appendices

Appendix A: Glossary of Terms

Appendix B: Description of Current Planning Practices & Processes

Appendix C: City Programs for Contaminated Sites Management

Appendix D: List of Sources & Reference Material

Appendix E: Brownfield Site Selection Criteria

Executive Summary

In accordance with 2006-2008 Calgary City Council Priority 4.11, Environmental & Safety Management developed the Brownfield Strategy. Council Priority 4.11 called for development of a brownfield reclamation strategy, especially for City-owned lands. The strategy would first focus on City-owned lands and then address all land within the city boundaries.

In discussions with internal stakeholders with respect to land use efficiency, it became clear that public and private brownfield redevelopment could be addressed under a single strategy. To accomplish this, the overall strategy vision, guiding principles and goals were developed and the Brownfield Strategy development was divided into two components as follows:

- Brownfield Redevelopment Strategy component – addresses brownfield redevelopment from a city-wide planning and redevelopment perspective and applies to all brownfields within the city limits. This component has not been created. The key steps to create this component are identified in this document.
- Brownfield Reclamation Strategy component – addresses brownfield reclamation and redevelopment of City-owned land only. This component is fully developed and will complement and be integrated into the overarching Brownfield Redevelopment Strategy component.

In keeping with Council's direction for incremental policy development and implementation, the proposed Brownfield Reclamation Strategy component is envisioned as an essential building block to the overarching corporate Brownfield Redevelopment Strategy component. Consequently, the Brownfield Reclamation Strategy component is fully developed and has numerous action items identified for its implementation. The lessons learned from this component will assist in creating and completing the corporate Brownfield Redevelopment Strategy component.

As with any new initiative, full implementation of the identified action items will require adequate resources and funding. This document includes financial plans for both the Brownfield Redevelopment Strategy component and the Brownfield Reclamation Strategy component. These financial plans will be further investigated and may be developed as part of the 2009-11 Business Plan.

1.1 Introduction

In 2003, the National Brownfield Redevelopment Strategy for Canada (NRTEE 2003) was released. This document focused on how to promote brownfield redevelopment in Canada. In alignment with this strategy, the 2006-2008 Calgary City Council Priority 4.11 states: *“Develop a brownfield reclamation strategy, especially for City-owned lands. Maintain current focus and pace of incremental policy development/ implementation; the development of a pilot program and the redevelopment of brownfield sites will occur on an opportunity basis, as sufficient funds and resources are made available. When the strategy is approved by Council, explore pilot sites/ partners and may bring forward a request for capital to fund a pilot project through the budget adjustment process.”*

In accordance with Council direction, the strategy was initially developed to focus first on City-owned lands and then to deal with all lands within city boundaries. However, in discussions with internal stakeholders with respect to land use efficiency, it became clear that that public and private brownfield redevelopment could be addressed under a single strategy. Therefore, the Brownfield Strategy was developed consisting of two components:

1. A framework outlining steps to develop a strategy to address brownfield redevelopment from a city-wide planning and redevelopment perspective (“The Brownfield Redevelopment Strategy Framework”). The Brownfield Redevelopment Strategy has not been created. When completed, this strategy will apply to all brownfields within the city limits.
2. A strategy to address brownfield reclamation of City-owned lands only (“The Brownfield Reclamation Strategy”). The Brownfield Reclamation Strategy is fully developed and is designed to complement and be integrated into the overarching Brownfield Redevelopment Strategy.

In keeping with Council's direction for incremental policy development and implementation, the proposed Brownfield Reclamation Strategy is envisioned as an essential building block to the larger corporate Brownfield Redevelopment Strategy. The relationship between the two is shown in the diagram below.



Figure 1: the Relationship between the Brownfield Redevelopment Strategy and the Brownfield Reclamation Strategy for City-owned Lands

The Brownfield Redevelopment Strategy will provide a comprehensive and consistent approach for city-wide planning and development of brownfields. The strategy will include: incorporation of brownfield redevelopment principles into existing/ revised corporate policies; identification of priority brownfield redevelopment areas; evaluation of financial incentives; and, development of education and awareness programs. This document outlines the framework and steps required to develop the Brownfield Redevelopment Strategy.

The Brownfield Reclamation Strategy, especially for City-owned lands, focuses on strategically linking contaminated sites remediation or risk management objectives with redevelopment objectives, while protecting human health and the environment. This strategy recommends initiatives such as improvements to environmental and planning processes, and clearer regulatory rules and guidelines for decision-makers to be promoted with respect to brownfield redevelopment. This part of the document takes a project-based approach and focuses on operational policy and practice improvement.

To develop the Brownfield Strategy, Environmental & Safety Management secured the engagement of internal (i.e., Corporate Properties & Buildings, Development & Building

Approvals, Finance, Land Use Planning & Policy, Law) and external stakeholders (e.g., Urban Development Institute - Calgary, Environmental Law Centre [Alberta]). Environmental & Safety Management also completed extensive industry research and dialogue on brownfield challenges and strategies and assessed the current City processes and policies. A review of background information and studies, best practices and programs in other municipalities as well as preliminary consultation with the provincial government and industry representatives has helped establish the strategy approach and municipal actions needed to promote brownfield redevelopment in Calgary. The information obtained from this work provided the basis for the strategy development.

The key issues identified were liability risk, uncertainty with the regulatory approval process, environmental site investigation and remediation costs, financing availability and public perception.

As will be discussed later in this document, the current legislation in Alberta with respect to liability, risk assessment and regulatory approval poses significant challenges for brownfield redevelopment in Alberta municipalities. City staff have consulted with Alberta Environment on the legal barriers and gaps inherent in Alberta's regulatory regime with respect to brownfield redevelopment. Further coordination with provincial authorities to examine the needed legal reform and support for potential financial incentives will also shape the Brownfield Strategy.

1.1.1 Definition of a Brownfield

For the purpose of the Brownfield Strategy, a brownfield has been defined by The City of Calgary as: *“An abandoned, vacant, derelict or underutilized property where past actions have resulted in actual or perceived contamination and where there is an active potential for redevelopment. Brownfield sites include parcels of all sizes from corner gas stations to large areas encompassing many properties.”*

1.2.1 Overview of Brownfield Redevelopment Benefits

Over the last decade, all levels of governments have either developed policies or programs to encourage and support brownfield redevelopment. They recognize the environmental, social and economic benefits of returning these underutilized sites to a more productive use. Similarly, Calgary will also benefit from taking a triple bottom line approach to brownfield redevelopment; key benefits are listed below.

Social Benefits

Brownfield redevelopment allows reuse of idle and underutilized land for a higher and better use such as public housing, parks and other public spaces as well as providing for conventional residential, commercial or industrial uses. Brownfield redevelopment can help expedite area revitalization and residential densification while protecting human health and safety thereby providing more support for social infrastructure such as schools, parks, playgrounds and community centres. Brownfield redevelopment can improve aesthetics and remove stigma attached to run down commercial or industrial areas and improve the quality of life in surrounding communities.

Economic Benefits

Brownfield redevelopment allows increased use of pre-existing infrastructure and services; necessary upgrades typically cost less than installing completely new infrastructure. Brownfield redevelopment helps to maximize and make the most use of existing City and public infrastructure. Brownfield redevelopment allows denser and more compact land use which is more economically efficient. Brownfield redevelopment creates employment opportunities.

Redeveloping a brownfield site generally involves remediation which reduces The City's potential future liability; the reduction is likely to be greater than any additional liability resulting from the development itself.

Redevelopment typically leads to increased land values for City-owned and private property and consequently increased property tax revenue. Studies have shown that adjacent property values can also increase.

The economic productivity of surrounding land is likely to be increased if a brownfield is redeveloped. The National Brownfield Strategy (NRTEE 2003) estimates a 10% increase in property values within a 2.4 km radius of a brownfield redevelopment project. The National Brownfield Strategy (NRTEE 2003) also references studies that have shown for every dollar spent on brownfield redevelopment generates 4.5 dollars in economic benefits. Generally these studies assume that if a development is not built on a brownfield it will not be built elsewhere in the municipality.

Environmental Benefits

Redevelopment initiates clean-up or risk management of brownfield sites which helps protect and manage human health, safety and the environment. The redevelopment of brownfield sites also contributes to more sustainable living. Redevelopment of privately-owned brownfield sites can also reduce The City's exposure to off-site contamination migration to adjoining City-owned lands and infrastructure.

The oldest brownfield sites are likely to be centrally located in established areas with existing built infrastructure and transit access. The redevelopment of these sites can reduce vehicle use and associated greenhouse gas emissions, and may improve air quality in the city. More brownfield redevelopment means less greenfield development, which reduces net environmental impacts and the city's ecological footprint.

2.1 Canadian View on Brownfield Sites

In 2001 the Government of Canada mandated The National Round Table on the Environment and the Economy (NRTEE) to prepare a National Brownfield Strategy. In 2003, NRTEE published *Cleaning up the Past, Building the Future - A National Brownfield Redevelopment Strategy for Canada*.

The National Brownfield Strategy (NRTEE 2003) estimates that there are as many as 30,000 brownfield sites in Canada. Its vision is: *“The transformation of Canada’s brownfields into economically productive, environmentally healthy and socially vibrant centres of community life, through the coordinated efforts of all levels of government, the private sector and community organizations.”*

The National Brownfield Strategy (NRTEE 2003) proposes three strategic directions for brownfield redevelopment:

1. Applying strategic public investments to address upfront costs;
2. Establishing an effective public policy regime for environmental liability and risk management; and
3. Building capacity for and community awareness of brownfield redevelopment.

The document also contains action items to implement under each of the directions.

Based on the recommendations of the National Brownfield Strategy (NRTEE 2003), eastern Canada has implemented certain measures to facilitate brownfield redevelopment. The Ontario experience for brownfield redevelopment is an extreme case within a legislative framework that is not available in Alberta, but does include specific measures to plan, encourage or facilitate brownfield redevelopment that may be useful in Calgary. The table below summarizes key trends affecting brownfield redevelopment in Ontario.

Summary of Key Trends Affecting Brownfield Redevelopment in Ontario

Category	Key Trend
Legislation, Regulation and Policies	Ontario has a <i>Brownfields Act</i> that promotes brownfield redevelopment
	Many eastern municipalities have developed comprehensive brownfield strategies
Liability Concerns	Municipal liability limitations
Quality of Environmental Site Investigations	Completion of records of site conditions
	Use of qualified professionals
Development Process Improvements	Establishing municipal brownfield coordinators
	Establishing Brownfield Planning Application Groups
	Completion of community improvement plans
	Approvals in principle
	Creating a brownfield inventory
Communication and Education	Establishing marketing, communication and education programs
Financial Incentives and Programs	<p>Brownfield redevelopment is supported by many types of municipal financial incentives and programs such as:</p> <ul style="list-style-type: none"> • Grants for environmental investigations of properties • Tax incremental based grants • Financial incentive programs • Property tax assistance programs • Rehabilitation grant programs • Building permit fee grant program • Providing waivers on planning and building fees

2.2 The City of Calgary Context

Existing City of Calgary policies are founded on a vision to achieve:

- a sustainable, healthy environment
- healthy, vibrant, complete communities

This vision is encapsulated in the imagineCalgary (2006) *Long Range Urban Sustainability Plan for Calgary*:

- “We treasure and protect our natural environment.”
- “We are each connected to our communities. Whether social, cultural or physical, these communities are mixed, safe and just.”
- “With purpose, drive and passion, Calgary will be a model city, one that looks after the needs of today’s citizens and those to come.”

The imagineCalgary plan voices a new awareness that planning for the efficient, attractive and environmentally sound use of land has a central role to play in moving our communities towards sustainability. Many of Calgary’s brownfields offer opportunities for urban revitalization that can help achieve important social, economic, planning and environmental goals, at the same time as producing potentially significant returns on private investments.

2.2.1 Supporting Policies

Although there are no specific corporate brownfield policies in place, a number of key existing City policies and initiatives both directly and indirectly encourage brownfield redevelopment and support the preparation of a Brownfield Strategy. The various City policies in place clearly identify the promotion of sustainable development and SMART growth as the direction for the Brownfield Strategy.

Existing City policies identify responsible stewardship of land as a key goal for The City of Calgary in order to produce a healthier environment, better spatial live-work relationships, optimal use of existing infrastructure, reuse of underutilized sites, and overall more efficient use and development of land. The following section describes policies and initiatives that indirectly or directly support brownfield redevelopment in Calgary.

SMART Growth

The idea of “SMART growth” is used within the *Triple Bottom Line Policy Framework* to help describe a set of integrated policies that incorporate social, environmental and economic elements (The City of Calgary 2006b). The main objective of SMART growth is to develop communities that are more sustainable. This means communities that use fewer resources like land and energy, are less dependent on the automobile and are more affordable because they require less infrastructure.

***imagine*CALGARY**

The *imagineCalgary Long Range Urban Sustainability Plan for Calgary* (2006) contains several specific strategies in relation to The City's activities around brownfield redevelopment. These include:

- *"Provide mortgages, guarantees and revolving loans for brownfield sites that meet restoration criteria"*
- *"Support the remediation and redevelopment of brownfield sites for appropriate development"*
- *"Encourage the redevelopment of ... old malls and other commercial sites that are no longer economically viable"*
- *"Categorize and prioritize contaminated sites"*
- *"Compile an inventory of contaminated sites"*
- *"Redevelop existing lands (brownfield) to improve previously degraded areas"*

Triple Bottom Line Policy

The City of Calgary adopted its *Triple Bottom Line Policy* on 2005 September 12. Triple Bottom Line is an approach to decision-making that considers economic, social and environmental issues in a comprehensive, systematic and integrated way. The purpose of the *Triple Bottom Line Policy* is:

- *"To advance Council's vision to "create and sustain a vibrant, healthy, safe and caring community" by providing clarity on the definition and meaning of "Triple Bottom Line" at The City of Calgary;*
- *To embed the Triple Bottom Line into The City's corporate policies, performance measures, actions and implementation procedures, and enhance The City's decision making; and*
- *To place Calgary's efforts to achieve its vision in the broader context of efforts of cities around the world to improve their sustainability performance, and make a contribution to global sustainability."*

Ecological Footprint

Calgary has a large ecological footprint and City Council has made it a priority to reduce it (2006-2008 Calgary City Council Priority 1.2 combined with Council Priority 4.1). Brownfield redevelopment has two net effects as part of the reduction of Calgary's ecological footprint. First, it would slow the expansion of Calgary's built area into new greenfield areas and secondly it would make use of the areas with existing infrastructure.

Sustainability Principles

The *Sustainability Principles for the Calgary Land Use and Mobility Plan* were approved by Council in 2006 (The City of Calgary 2006c) as guiding principles for undertaking major land use planning and transportation network studies until the Calgary Land Use and Mobility Plan review is completed in 2008. These principles are:

1. *Create a range of housing opportunities and choices*
2. *Create walkable environments*
3. *Foster distinctive, attractive communities with a strong sense of place*
4. *Provide a variety of transportation options*
5. *Preserve open space, agricultural land, natural beauty and critical environmental areas*
6. *Mix land uses*
7. *Strategically direct and manage redevelopment opportunities within existing areas*
8. *Support compact development*
9. *Connect people, goods and services locally, regionally and globally*
10. *Provide transportation services in a safe, effective, affordable and efficient manner that ensures reasonable accessibility to all areas of the city for all citizens*
11. *Utilize green infrastructure and buildings*

The development of a Brownfield Strategy directly supports Principle 7.

Environmental Policy

The new *City of Calgary Environmental Policy* approved in March 2007 states: *“The City will lead and inspire actions to reduce Calgary’s ecological footprint and conserve, protect and enhance the environment for all Calgarians and the regional community.”* The new focus is on contributing to community sustainability of which brownfield redevelopment is a part.

2006-2008 Calgary City Council Priorities

Council Priorities for 2006 to 2008 include:

- Council Priority 1.1: *“Complete imagineCalgary to clarify the vision for Calgary.”*
- Council Priority 1.2 combined with Council Priority 4.1: *“Reduce our environmental footprint and become a city known for its clear air, land stewardship, clean water and energy conservation.”*

- Council Priority 1.7: “*Build affordable housing.*”
- Council Priority 1.14: “*Develop great parks and great spaces and build key links to interconnect parks with pathways.*”
- Council Priority 1.18: “*Support economic development agencies.*”
- Council Priority 2.12: “*Implement a transit-oriented development (TOD) policy.*”

2.2.2 Brownfield Sites in Calgary

Brownfield sites in Calgary are typically sites where many types of industrial or commercial activity occurred in the past or, in some cases, is still occurring. Typical Calgary brownfield sites arise from current or past activities such as refineries, tanneries, wood treatment plants, railway facilities, bus depots, metal fabrication plants, gravel extraction pits and crushing/concrete/asphalt plants, battery manufacturing and recycling plants, and military bases. Typical smaller sites were or are the locations of fuel storage and automotive service, dry cleaners, or oil or gas wells.

The larger brownfield sites are generally found in the areas of the city classified for industrial and to a lesser extent, commercial land use. The older brownfields are generally found near the inner city around established residential areas. The smaller sites are scattered throughout the city but are more frequent in parts of the city that were intensively developed before 1970. Old fuel storage sites tend to be situated along roads and dry cleaners tend to be situated in commercial land use areas.

Calgary was established and grew later than most other large Canadian municipalities. It has less large-scale industrial developments with fewer involving heavy industry than is the case in many municipalities in central and eastern Canada and on the west coast. Brownfield redevelopment in Calgary is occurring on a market-driven opportunity basis. A challenge unique to Calgary is a lack of natural barriers, such as mountains or waterbodies, which would constrain growth. Consequently there is no shortage of greenfield sites (e.g., farmland) to develop, which are also simpler to develop than brownfield sites.

2.2.3 Legislative Regime

The legislative regime in Alberta differs from that in most other provinces. There is no *Brownfields Act* in Alberta Law. Provisions for dealing with brownfield or contaminated sites under the Alberta *Environmental Protection and Enhancement Act* are incomplete and evolving and there is a lack of clarity of municipal roles in that regard under the *Environmental Protection and Enhancement Act* and the *Municipal Government Act*. There are no provincial planning objectives for brownfields. Unlike Ontario, Alberta

does not have a regional level of government for coordinating the approach to growth management within the region and providing funding. City planning occurs at the municipal level with only a Provincial Planning Board as an avenue for appeal.

There is a trend of the environmental regulators (e.g., Ontario Ministry of Environment) imposing stricter standards, while at the same time increasingly accepting risk management of sites, which is counterproductive. In Alberta, Alberta Environment seems to be following this trend and has also made recent legislative changes in Part Five (i.e., Contaminated Sites) of the Alberta *Environmental Protection and Enhancement Act* which includes delegation of authority by the use of professional sign-off.

2.2.4 Planning Policies

Brownfield redevelopment is not specifically addressed in any City of Calgary policy or initiative, however many policy principles do generally support brownfield redevelopment (e.g., see Section 2.2.1). Since brownfield redevelopment is not explicitly mentioned it could be assumed that there is no formal support to date. There is no strategic framework for policies and processes that could provide efficient and cohesive mechanisms to reuse and redevelop vacant and underutilized land within established or targeted priority urban areas within Calgary. The *Environment Development Review Policy* within the Corporate Planning Applications Group approval process and Area Redevelopment Plans for specific areas facilitate the development and building approvals for brownfields under the current planning and approvals process.

The *Environmental Development Review Policy* was created to achieve two purposes:

- To establish a process to determine the suitability of a site for its intended use with respect to environmental conditions as a component of The City of Calgary planning approval processes; and
- To ensure that environmental conditions are considered as an integral part of the planning approval process in order to promote public health and safety, and responsible and sustainable development.

Appendix B further describes elements of the current planning and approvals process in Calgary.

2.2.5 Operational Policies & Programs

A number of City programs and processes are in place in order to identify, manage and clean-up contaminated sites owned by The City. These are:

- The *Sales, Acquisitions and Leases Environmental Policy* addresses contamination issues for all City property transactions
- The Environmental Liabilities and Assessment Program is designed to identify, quantify, and manage City-owned environmental liabilities due to contaminated sites
- The *Phase I and Phase II Environmental Site Assessment Terms of Reference* (The City of Calgary 2004a, 2004b) provides the standard to which environmental investigations will be conducted
- The *Environmental Investigation Protocol around Buried Utilities* (this document is currently an internal draft under development)
- The *Risk Management Plan Criteria for Contaminated City Lands* will be used when contamination migrates onto City property and risk management is the preferred option (this document is currently an internal draft under development)

These programs are not strategically linked with corporate redevelopment objectives and needs. Appendix C describes various programs currently in place to deal with City-owned contaminated sites.

2.3 Brownfield Strategy Needs Analysis

The following section outlines the need for a Brownfield Strategy. This section describes the results of literature review and stakeholder consultation, identification of impediments to brownfield redevelopment and the conclusion of the needs analysis.

2.3.1 Literature Review

Information about brownfield redevelopment practice in other municipalities was obtained from published sources and from conversations with stakeholders. The key published sources were the National Brownfield Strategy (NRTEE 2003), Ontario Municipal Brownfields Redevelopment Toolbox (aboutRemediation 2005), Environmental Law Centre (Alberta) Report (Hierlmeier 2006), and various brownfield redevelopment strategies from Canadian municipalities (e.g., Cornwall, Guelph, Hamilton, Kitchener, Niagara Falls, Ottawa, Windsor). In addition, discussions were held with municipalities and organizations such as The City of Edmonton, The Town of

Cochrane and the Environmental Law Centre (Alberta). Canadian Brownfield Network workshops held in 2005 and 2006 and an internal City Brownfield information session held in 2006 were also useful sources of information. Most of the information reviewed was from Canadian municipalities but some was from the United States. For a list of sources please refer to Appendix D.

2.3.2 Stakeholder Consultation

On 2006 February 22, at a meeting of the Standing Policy Committee on Utilities and Environment the *Brownfields Reclamation Strategy Action Plan* was discussed. The report (UE2006-05, The City of Calgary 2006a) described the regulatory issues, benefits and legislative framework around brownfields; it also included a list of areas where brownfields exist and a summary of recommendations from the National Brownfield Strategy (NRTEE 2003). Committee directed Administration to proceed with the development of a brownfield strategy.

Early drafts of this document were circulated to internal and external stakeholders for comment. Internally, staff in Corporate Properties & Buildings, Development & Building Approvals, Environmental & Safety Management, Finance, Land Use Planning & Policy and Law received copies. External stakeholders consulted included the Urban Development Institute - Calgary, several environmental consultants and the Environmental Law Centre (Alberta).

There is general stakeholder support for the following:

- creation of a Brownfield Coordinator role within The City of Calgary
- creation of an inventory and defining criteria to select candidate sites for priority redevelopment
- developing a City communications program for brownfields
- using business case analysis to assist in determining if brownfield redevelopment proposals are acceptable

There is also consensus that the inability to transfer or terminate liability in a legally binding manner is a significant obstacle to brownfield redevelopment and that action is needed to deal with the problem. It is also recognized that the Province has the authority to act in this regard and The City of Calgary does not. There is support for The City, in conjunction with other stakeholders, to continue to request the Province to make appropriate legislative changes. Stakeholders offered a variety of suggestions about the details of such a request. It is recognized that the Province is unlikely to act quickly and, in the interim, The City is encouraged to do what it can to manage liability in a way that will encourage brownfield redevelopment. Building on past or current

examples of negotiated agreements on the assignment of liability and pursuing partnerships with parties willing to accept the assignment of liability were among the specific suggestions made to this end.

Respondents identified the major impediments to brownfield redevelopment as uncertainties about liability, the regulatory process (both provincial and municipal) and cost. Some respondents said that the uncertainties about liability and regulatory process were a greater obstacle to brownfield redevelopment than cost. In addition, the Urban Development Institute - Calgary indicated a strong interest to be involved in the implementation of the strategy.

2.3.3 Identified Issues

Based on the work done to date, key impediments to brownfield redevelopment in Calgary were identified and are summarized in the following table.

Summary of Key Impediments to Brownfield Redevelopment in Calgary

Category	Key Impediment
Liability Concerns	Liability – regulatory and civil
	Liability to The City when acting as an approving authority
Financial Burdens	Financial - higher costs and lack of financing options
Regulatory and Process Issues	Approval Process – uncertainty in gaining approval from regulators
	Changing regulatory regime
	How to address off-site contamination issues within brownfield redevelopment
	Environment development review process improvements
	Stigma and community concerns: not viewed as opportunity
	Lack of enabling legislation and policies in Alberta
	Quality of environmental site investigations

The following sections present an overview of the major issues.

Liability Concerns

Liability is a significant deterrent to the redevelopment of brownfield sites because:

- a) there is too much uncertainty about the magnitude of the risks to which any party may be exposed

- b) in Alberta there is no legally binding path to managing or controlling such risks
- c) owners (including The City) and developers are exposed to the substantial legal and financial risks involved

As well as being a landowner, The City may incur liability by:

- a) owning land or utilities adjacent or connected to a brownfield through which contaminants may move (off-site contamination); and,
- b) approving development on a brownfield site, or sites contaminated by substances originating on a brownfield site, when such activity results in adverse effects on any party.

Current regulation of contaminated sites in Alberta does not specifically address off-site contamination and, although the Province and its staff are exempt from liability for regulatory decisions made in good faith, municipalities and their staff are not.

Contaminated sites liability is perpetual in the sense that the Province, under the *Alberta Environmental Protection and Enhancement Act*, may require and enforce remedial action at a site at any time that contaminants are detected at concentrations exceeding guidelines or objectives issued under that Act. Such guidelines and objectives may be updated from time to time, usually to more stringent levels. There is currently no provision for transferring or terminating regulatory liability, although Alberta Environment has indicated that it is considering amendments to the Act to deal with such concerns.

Under the *Limitations Act*, civil liability may terminate if an action is not commenced within two years of a claimed adverse effect. As an adverse effect could occur or, more likely, first be detected at an indefinite future date, civil liability can be in effect very long term if not perpetual. In addition, there are no provisions in Alberta Law for the transfer of civil liability or to make agreements to apportion liability binding.

Financial Burdens

Redeveloping a brownfield typically costs more than developing a similar greenfield site. Additional costs may be incurred for:

- a) remediation or risk management measures;
- b) special design or construction features and other mitigative measures;
- c) dealing with a longer, slower and more complex regulatory process; and
- d) managing potential liability which could lead to future unquantified expenditures.

As well, adequate insurance may not be available at acceptable cost.

Investors may not be willing to contribute capital and few lenders are willing to finance brownfield redevelopers because of uncertainties about the magnitude and assignment of liability and the approval process. The inability to obtain regulator's approval of the completion of remedial work or the implementation of risk management plans, and uncertainties about who is liable, make it difficult to quantify financial risks. However, recently there have been a few targeted capital investment funds created specifically to finance brownfield redevelopment such as the Kilmer Brownfield Equity Fund and Brownfields Capital LLC.

The stigma attached to contaminated sites, unless dispelled by effective communication and other measures, may reduce property values, marketability and revenues. In addition, the potential for future complaints of real or imagined adverse effects is greater than in a greenfield development, with obvious financial and social implications. A few developers see the stigma and uncertainty associated with brownfield sites as an attractive opportunity; most do not.

Regulatory & Process Issues

In Alberta, the planning and approval of development is generally regulated by municipalities under the umbrella of the *Municipal Government Act* but environmental matters such as the clean-up of contaminated sites are regulated by Alberta Environment under the *Environmental Protection and Enhancement Act*. Calgary Health Region also plays a role in reviewing risk management plans with respect to protection of public health under the *Public Health Act*. Redevelopment of a brownfield site is, therefore, addressed under three Acts. The Acts are administered by three departments and two levels of government with no formal direction on how they should interact. Ongoing changes to the *Environmental Protection and Enhancement Act* and its subordinate legislation are adding to the uncertainty. In addition there are no provincial planning policies or enunciated principles for redevelopment of brownfield sites in Alberta.

For brownfield redevelopments, there are three ways to deal with contamination. These are risk management of the site, remediation or a combination of both. Full remediation, which generally involves the removal of contamination or treatment of contamination to appropriate regulatory criteria, has less uncertainty and liability. Any redevelopment with risk management has more uncertainty as contamination is left in-place and management measures and monitoring are relied on to protect human health. There is a potential for future legal actions if risk management measures are found to not be effective. Risk management of contaminated sites is an option commonly accepted by the regulators (Alberta Environment, Calgary Health Region) and is an effective alternative to full remediation in brownfield site redevelopment.

2.3.4 The Need for a Brownfield Strategy

Based on the analysis of the literature review and stakeholder consultation, the need for a brownfield strategy in Calgary was identified for the following reasons:

- Brownfield redevelopment is already occurring in Calgary on an opportunity basis but not in a strategic, coordinated manner. Generally the simplest sites are developed first leaving the more difficult sites untouched.
- The City has a well developed contaminated sites management program but this program is not strategically linked to corporate development needs. By linking the contaminated sites program and development needs, environmental liability can be reduced along with redevelopment challenges and costs.
- City staff and citizens need to be fully informed about the economic, social and environmental and public health benefits of brownfield redevelopment.
- The City needs to identify tools to implement land use policy objectives.
- The City needs to define its desires and objectives with respect to brownfield redevelopment, on City-owned and private land, and to identify and implement measures to achieve the objectives and work towards fulfilling the desires in both cases.
- The City needs to develop a strategy that will provide city-wide planning direction for all brownfields.

3.1 Vision

The preceding chapter describes the Canadian and Calgary contexts in which brownfield redevelopment occurs. Opportunities, benefits and obstacles are addressed and the need for a City of Calgary Brownfield Strategy is established. Based on that information, a vision statement, guiding principles and goals for The City of Calgary Brownfield Strategy were developed.

The City of Calgary Brownfield Strategy consists of two components:

1. A framework and steps to develop the Brownfield Redevelopment Strategy, which will address brownfield redevelopment from a city-wide planning and redevelopment perspective. The Brownfield Redevelopment Strategy itself has not been created. When completed, this strategy will apply to all brownfields within the city limits.
2. The Brownfield Reclamation Strategy, which addresses City-owned and initiated brownfield projects. The Brownfield Reclamation Strategy is fully developed and is designed to complement and be integrated into the overarching Brownfield Redevelopment Strategy.

Both components follow the vision, guiding principles and goals detailed in this section.

3.1.1 Brownfield Strategy Vision Statement

Brownfield redevelopment in Calgary can and should contribute to achieving the goal of vibrant, complete communities and a sustainable healthy environment.

3.1.2 Brownfield Strategy Guiding Principles

1. Align with and support existing policies and strategies (e.g., SMART growth, imagineCalgary, ecological footprint)
2. Reduce blight and stigma created by brownfield sites
3. Return underutilized sites to appropriate productive use
4. Protection of human health and safety and the environment
5. Reduce corporate environmental liabilities
6. Contribute to community revitalization
7. Integrate remediation or risk management with site redevelopment objectives
8. Promote innovative green building technology (e.g., Leadership in Energy and Environmental Design (LEED) Green Building Rating System™) for brownfield redevelopments
9. Involve partners to enhance redevelopment benefits where appropriate

3.1.3 Brownfield Strategy Goals

1. Encourage brownfield redevelopment and overall improvement of brownfield sites throughout Calgary
2. Promote remediation/risk management of contaminated sites to facilitate a higher and more productive use
3. Increase community awareness of the economic, environmental and social benefits of brownfield redevelopment
4. Change public perception of brownfield redevelopments
5. Use City developments as opportunities for brownfield redevelopment where deemed appropriate
6. Leverage financial opportunities
7. Reduce development on greenfield sites
8. Create and preserve open space

3.2 Brownfield Redevelopment Strategy Framework

As mentioned previously, the Brownfield Redevelopment Strategy is not yet developed. The following section contains general objectives and actions planned to complete its development, as resources permit.

For full implementation of the action items identified in Section 3.2.2, the Brownfield Redevelopment Strategy will require adequate resources. A Brownfield Redevelopment Strategy Financial Plan, identified in Section 3.2.3, will be further investigated and may be developed as part of the 2009-11 Business Plan.

All tools or programs developed under the Brownfield Redevelopment Strategy will be evaluated using The City's *Integrated Risk Management Policy* prior to implementation.

3.2.1 Brownfield Redevelopment Strategy Proposed Objectives

This section describes the proposed objectives envisioned for the Brownfield Redevelopment Strategy.

The City of Calgary will endeavour to:

- a) incorporate brownfield principles into existing policy and evaluate the need for comprehensive corporate brownfield redevelopment policies
- b) evaluate the need and effectiveness for financial or other incentives for brownfield redevelopment
- c) use brownfield redevelopment to achieve SMART growth objectives, including improvement of key urban areas
- d) develop education and awareness programs to educate public and private developers of benefits to brownfield redevelopment

3.2.2 Brownfield Redevelopment Strategy Proposed Action Items

The proposed action items envisioned to complete the Brownfield Redevelopment Strategy are described in this section.

Brownfield-Related Planning Policy & Processes

To improve or create new strategic direction for brownfield redevelopment in Calgary, The City will endeavour to:

- incorporate brownfield redevelopment principles into existing/revised corporate policies

- conduct consultation with key brownfield redevelopment stakeholders and investigate the use and benefit of planning policies that provide incentives for brownfield redevelopment
- evaluate the need for a brownfield categorization and prioritization framework, and if deemed necessary, the methodology and use of such a framework

Financial Incentive Programs

To promote or enable private development of brownfields through the use of financial incentives, The City will endeavour to:

- investigate the applicability, suitability, potential effectiveness, balance of costs and benefits, acceptability, need of financial incentives, mechanisms and programs in the Calgary context. Potential financial incentive programs could include, but would not be limited to, those options summarized in the table below.

Summary of Financial Incentives to be Investigated in the Calgary Context

Financial Incentives	
a)	environmental investigation grant
b)	feasibility study grant
c)	tax assistance (e.g., relief from or deferral of taxes)
d)	community revitalization levy (tax increment financing)
e)	tax increment based grant
f)	loan
g)	development charge waiver (if applicable)
h)	planning and development fee rebates
i)	expediting of permits and licenses
j)	provision by the municipality of infrastructure or services for which the developer would normally be responsible

- evaluate potential financing options of proposed incentives and seek Council approval for implementation
- develop criteria for providing incentives to proposed developments
- ensure that financial incentive programs included in the strategy to promote brownfield redevelopment also help to achieve The City’s growth management and sustainable development goals as outlined in the *imagineCalgary (2006) Long Range Urban Sustainability Plan for Calgary* and other key City policies

Land Use & Growth Management

To use brownfield redevelopment to achieve SMART growth objectives, including improvement of key urban areas, The City will endeavour to:

- identify priority areas in the city for improvement using critical needs analysis including stakeholder consultation
- consider policies and processes to provide cohesive mechanisms to transform land within urban areas into vibrant, complete centres of community life
- use existing community/area redevelopment plans to promote redevelopment of brownfields

Education & Awareness Programs

To educate the public on the brownfield redevelopment process on the risks and benefits of brownfield redevelopment, The City will endeavour to:

- build awareness among Council, City staff and all partners of the benefits and challenges of brownfield redevelopment
- develop an education program for private owners and developers for brownfield redevelopments
- develop a proactive, comprehensive and multi-faceted marketing strategy to market brownfield redevelopment programs and development opportunities, and provide information on obtaining advice and assistance on brownfields
- prepare brownfield information packages on The City's concerns and expectations with respect to brownfield sites, site investigations, remediation and risk management for development applicants

3.2.3 Brownfield Redevelopment Strategy Financial Plan

In order to proceed with creating the Brownfield Redevelopment Strategy, financial resources are required. Grant funding to create the Brownfield Redevelopment Strategy will be pursued, with the understanding that matching funding is typically required. If success in funding is achieved, one of the elements under consideration will be the financial incentives listed in section 3.2.2. The financial incentives will be evaluated in terms of need, effectiveness and potential financing options.

As appropriate, they will be included in the Brownfield Redevelopment Strategy for Council approval.

3.3 Brownfield Reclamation Strategy

The Brownfield Reclamation Strategy is complete and the overall strategy and action items for implementation are detailed in the following section.

For full implementation of the action items identified in Section 3.3.2, the Brownfield Reclamation Strategy will require adequate resources. A Brownfield Reclamation Strategy Financial Plan, identified in Section 3.3.3, will be further investigated and developed as part of the 2009-11 Business Plan.

All tools or programs developed under the Brownfield Reclamation Strategy will be evaluated using The City's *Integrated Risk Management Policy* prior to implementation.

3.3.1 Brownfield Reclamation Strategy Objectives

The Brownfield Reclamation Strategy objectives for City-owned and initiated brownfield projects are described in this section.

The City of Calgary will endeavour to:

- a) strategically link current contaminated sites identification and management practices to corporate redevelopment opportunities
- b) select sites for brownfield redevelopment based on site selection criteria for known areas and sites
- c) require the completion of adequate off-site investigation and delineation for the approval of proposed brownfield redevelopments
- d) use innovative investigation, remediation and building technologies as appropriate when developing on brownfield sites
- e) continue to investigate opportunities to reduce The Corporation's liability due to contaminated sites and brownfield redevelopment
- f) strategically acquire brownfield sites to use for corporate purposes or spur on area redevelopment when the site meets strategic needs, acquisition criteria and when funding is available.
- g) enable the sale of brownfield sites with conditions and appropriate business case analysis to allow others to redevelop
- h) partner with various organizations (non-profit and private) to allow private industry to realize a return on investment
- i) conduct pilot projects to promote brownfield redevelopment in Calgary

- j) pursue options for funding of internal programs and developments associated with brownfields
- k) complete a communication and marketing strategy to promote brownfield redevelopment
- l) continue to seek improvements to the environmental development review process for developments
- m) continue to improve City brownfield redevelopment using existing management tools (i.e., measure, monitor, improve) within The City's ISO 14001-registered environmental management system (known internally as "EnviroSystem")

3.3.2 Brownfield Reclamation Strategy Action Items

The Brownfield Reclamation Strategy objectives will be implemented with the action items described in this section.

Strategically Link Current Contaminated Sites Programs with Redevelopment Opportunities

To ensure that all departments are aligned for brownfield redevelopment by linking current contaminated sites identification and management practices to redevelopment opportunities, The City will endeavour to:

- appoint a brownfield project manager to assist with the coordination of departments on various City developments
- manage or remediate the proposed sites for the designated end use
- incorporate environmental investigation and remediation costs into the overall project budget, since process coordination for developments will harmonize financial/investigation information and reduce project costs
- create an inventory of City-owned brownfields using existing programs that identify and prioritize contaminated sites such as the Environmental Liabilities and Assessment Program
- develop criteria to strategically evaluate corporate development needs to identify opportunities for brownfield redevelopment
- evaluate brownfield redevelopment using a valid business case analysis

Site Selection

To identify possible brownfield redevelopment sites for City-owned land, The City will endeavour to:

- select possible brownfield redevelopment sites based firstly on available funding, then on the specific needs and constraints of the project and finally on developed brownfield site selection criteria (refer to Appendix E for Site Selection Process and Criteria)

Investigation Methodology

To ensure that off-site contamination of a brownfield site has been fully investigated, delineated and managed as part of the overall proposed brownfield redevelopment, The City will endeavour to:

- use the *Phase I and Phase II Environmental Site Assessment Terms of Reference* (The City of Calgary 2004a, 2004b) which provides the standard to which environmental investigations will be conducted
- complete development of the *Environmental Investigation Protocol around Buried Utilities* and the *Risk Management Plan Criteria for Contaminated City Lands* (both documents are currently internal drafts under development) and then put both documents into active use
- require full disclosure of off-site contamination including adequate investigation and delineation when its lands are impacted by third parties
- require the risk of remaining off-site contamination be considered in the proposed brownfield redevelopment design

Innovative Technology

To display leadership in investigation techniques and design of brownfield redevelopments, The City will endeavour to:

- pursue grants and opportunities to pilot and try innovative investigation and remediation techniques and design technologies (e.g., Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ and low impact development) as appropriate in conjunction with brownfield redevelopment

Liability & Legislative Changes

The City should identify and consider what additional measures it can adopt to manage risk and reduce liability in approved developments, on both City-owned and private land. To reduce The City of Calgary's liability for owning and developing brownfield sites within Calgary, The City will endeavour to:

- explore with partners ways of apportioning liability on redevelopment projects and incorporate the best results into development agreements
- continue to work with the regulators (Alberta Environment and Calgary Health Region) to improve the provincial liability management process
- continue to work with various organizations (e.g., Federation of Canadian Municipalities, Contaminated Sites Stakeholder Advisory Committee, Alberta Urban Municipalities Association) to champion and support brownfield-related legislative amendments
- request that Alberta improve the contaminated site process under the Alberta *Environmental Protection and Enhancement Act* by implementing the changes described in the following table

Summary of Improvements Needed to the Contaminated Site Process under the Alberta *Environmental Protection and Enhancement Act*

Improvement Needed	
a)	specifically requiring investigation of the potential for off-site contamination in environmental site investigations including buried utilities
b)	requiring stakeholder concurrence with risk management plans
c)	including re-opening clauses in remediation certificates and activating the remediation certificate provisions of the <i>Environmental Protection and Enhancement Act</i>
d)	enacting legislation to make voluntary agreements to apportion liability legally binding
e)	enabling registration of property status with respect to remediation and risk management on land titles (possibly by means of the <i>Environmental Protection and Enhancement Act</i> s. 21 provisions)
f)	extending to municipalities and their employees the same liability protection for decision making in good faith as it provides to itself and its employees
g)	amending the <i>Environmental Protection and Enhancement Act</i> or the <i>Expropriation Act</i> to exempt municipalities from liability associated with contaminants on or originating from expropriated property which the municipality could not reasonably be expected to have known about at the time of expropriation

Strategic Acquisitions

To consider and allow purchasing contaminated sites in the following types of circumstances: a) use for corporate purposes; b) initiating redevelopment in certain areas of the city; or c) consolidating brownfield sites to better manage contamination and liability; The City will endeavour to:

- revise the *Sales, Acquisitions and Leases Environmental Policy*, as required, to facilitate brownfield development through strategic property transactions and extend the property transaction focus to incorporate corporate-wide City property development
- effectively negotiate and document allocations of environmental rights and obligations in real estate transactions
- develop a land acquisition plan for strategic acquisitions of contaminated and brownfield properties with input from key stakeholders
- strategically acquire brownfield sites based on a set of criteria to be developed for use in acquisition of brownfield sites
- develop strategies and recommend changes to legislation where The City obtains contaminated lands such as land dedications and expropriation

Brownfield Sales

To assist private industry to redevelop brownfield sites, The City will endeavour to:

- consider selling brownfield sites for redevelopment based on a business case analysis to ensure the proposed development is viable if sites are not required for City purposes
- develop conditions of sale for brownfield sites such as performance measures requiring remediation to a specified level prior to title transfer or redevelopment
- evaluate the capabilities of interested developers who are specifically interested in purchasing City-owned lands for brownfield redevelopment

Partnerships

To evaluate the potential for brownfield partnership opportunities in order to facilitate development, The City will endeavour to:

- evaluate partnership opportunities with environmental consulting firms, contractors and developers
- investigate the opportunities and limitations on private sector investment in City brownfield projects

Pilot Projects

To test the Brownfield Reclamation Strategy on actual City developments, The City will endeavour to:

- conduct City brownfield redevelopment pilot projects, such as new City facilities and possible residential uses
- apply learnings from the pilot projects to enhance the Brownfield Reclamation Strategy

External Financial Options

To investigate the possibility of reducing up front financial costs of City brownfield-associated projects and developments, The City will endeavour to:

- pursue external funding opportunities through the federal Green Municipal Fund program and other external funding channels for internal brownfield-related projects, programs and developments

Communication & Marketing Plan

To promote City brownfield-related programs and developments, The City will endeavour to:

- develop communication and/or marketing plans for various internal brownfield-related projects, programs and developments to address the public perception and stigma of brownfield redevelopments and promote brownfield redevelopment as an opportunity
- develop a communication plan for the pilot projects
- incorporate brownfield information into its existing communications programs and prepare brownfield information packages for specific audiences

Approval Process Improvements

To allow brownfield redevelopment to continue within the current approval process, The City will endeavour to:

- continually evaluate the environment development review process and policy for improvements to allow further streamlining of brownfield redevelopment
- investigate mechanisms to improve contamination-related liability protection as approving authority such as indemnification statements

Continual Improvement & Monitoring

To provide continual improvement to the brownfield redevelopment for City process and programs, The City will endeavour to:

- use the existing management tools (i.e., measure, monitor, improve) within The City's ISO 14001-registered environmental management system (known internally as "EnviroSystem") to track effectiveness and identify areas for improvement
- develop tracking methods and measures, data sources, and frequency of reporting to Calgary City Council; this will include a feedback and adjustment loop to allow the strategy programs to be adjusted based on the monitoring results and feedback from program users

3.3.3 Brownfield Reclamation Strategy Financial Plan

Similar to the Brownfield Redevelopment Strategy component, funding and resources are required for successful implementation of the Brownfield Reclamation Strategy. While limited funding exists for site remediation, no established funding exists to purchase or redevelop City-owned brownfield sites. In addition, no established resources exist to coordinate brownfield projects and initiatives or for the additional work required by essential support services (e.g., legal services). In order to proceed with the Brownfield Reclamation Strategy, funding options ranging from grants to permanent funding need to be identified and secured.

THE CITY OF CALGARY BROWNFIELD STRATEGY

Appendices

Appendix A – Glossary of Terms

Area Redevelopment Plan: Planning documents adopted by by-law that help to determine and guide the future of individual communities within Calgary. Area Redevelopment Plans supplement the *Calgary Land Use By-law* by providing local policy context and, where appropriate, specific land use and development guidelines on which the approving authorities can base their judgement when considering community planning-related proposals.

Brownfield: An abandoned, vacant, derelict or underutilized property where past actions have resulted in actual or perceived contamination and where there is an active potential for redevelopment. Brownfield sites include parcels of all sizes from corner gas stations to large areas encompassing many properties.

Civil Liability: The establishment, recovery or redress of common law private and civil rights.

Contaminated Site: A site at which substances occur at concentrations that exceed levels specified in policies or regulations or are likely to pose an immediate or long-term hazard to human health or the environment.

Ecological Footprint: A measure of people's demand on nature - the impact of consuming resources and generating waste; energy, water, land and natural areas are all part of our ecological footprint.

Environmental Investigation Information: Information relating to the environmental condition of a site may include, but is not limited to: a) Completed City of Calgary Site Contamination Statement; b) Phase I Environmental Site Assessment; c) Phase II Environmental Site Assessment; d) Remedial Action Plan/Remediation Report; e) Risk Management Plan; f) Geotechnical Investigation; g) Environmental Impact Assessment; h) Underground Storage Tank Removal Report; and, i) Any other pertinent environmental investigation information, in the sole discretion of The City of Calgary Environmental & Safety Management.

Environmental Liability: A legal obligation to make a future expenditure due to past use or release of a particular substance, or other past activities on currently owned property that adversely affects the environment.

Environmental Site Investigation: An approach for identifying and assessing potential environmental concerns with respect to activities conducted at a facility and/or the potential presence of contamination at a site in accordance with accepted standards.

Greenfield: An undeveloped parcel with no actual or perceived contamination.

Liability: An actual or potential obligation that may or may not be accrued.

Reclamation: Means any or all of the following: i) the removal of equipment or buildings or other structures or appurtenances; ii) the decontamination of buildings or other structures or other appurtenances, or land or water; iii) the stabilization, contouring, maintenance, conditioning or reconstruction of the surface of land; and/or iv) any other procedure, operation or requirement specified in the regulations.

Regulatory Liability: A liability offence created by a statute, regulation, bylaw or other enactment of a government body or agency.

Remedial Action Plan: A plan to bring about the restoration or clean-up of a site.

Remediation: The action taken to clean-up, contain or remove the risk posed by contamination at a site.

Risk Assessment: Characterization of the nature, magnitude and likelihood of adverse effects on human health & safety, environment or property from exposure to one or more contaminating substances through various routes of exposure (i.e., pathways).

Risk Management: Eliminating or controlling one or more risk assessment components (contaminants, receptors and/or pathways) with the goal of achieving risk reduction on a contaminated site. Remediation is one possible risk management option.

Risk Management Plan: A plan to eliminate or control risk from contamination.

Site-specific Risk Assessment: A risk assessment that incorporates characteristics of a site (e.g., physical and chemical characteristics, geology, soil type and biology) to establish the risk posed by a specific contaminant or hazard present at a site.

SMART Growth: *“The main objective of Smart Growth is to develop communities that are more sustainable. This means communities that use fewer resources like land and energy, are less dependent on the automobile, and are more affordable because they require less infrastructure.”* (The City of Calgary 2006b).

Sustainable Development: *“development that meets the needs of the present, without compromising the ability of future generations to meet their own needs”* (Brundtland Commission 1987).

The City: The City of Calgary municipal government.

Triple Bottom Line: An approach to decision making that considers economic, social and environmental issues in a comprehensive, systematic and integrated way.

Appendix B – Description of Current Planning Practices & Processes

B.1 Area Redevelopment Plans

Area Redevelopment Plans are statutory plans that identify planning goals and objectives in an existing area. It is a basic community planning document that deals with zoning, traffic, parks, social issues, etc. and is prepared in close consultation with residents, owners and business people. Successful brownfield projects could promote significant community revitalization through redevelopment with land uses consistent with adopted community plans or area redevelopment plans. A series of industrial remediation and redevelopment policies can be found in various community plans, or area redevelopment plans, for established Calgary communities. A number of these plans provide a policy framework to address or promote appropriate interface and integration between industrial and other land uses, primarily residential. These documents may contain design guidelines, such as rules for screening, fencing, landscaping, redevelopment policies requiring higher standards of industrial development or alternative uses. In several of these plans specific strategic policy direction is provided to deal with specific sites in the community.

An area redevelopment plan effectively sets the stage for brownfield redevelopment for a given area by establishing the ultimate end use of specific sites within the study area. Once the end land use is identified for a given site, the technical elements of brownfield redevelopment can then be addressed. Further, strategic brownfield redevelopment within the context of the area redevelopment plan could be conducted to encourage greater implementation of the policy framework established by the area redevelopment plan. The opportunity that exists for The City is to use an area redevelopment plan as a guide for selecting sites for potential brownfield redevelopment.

B.2 Area Structure Plans

Area structure plans are statutory plans that establish policies and provide the framework for subdivision and development of undeveloped land. Area structure plans are prepared in consultation with the landowner/developer, City departments and public agencies. Generally, as the land is undeveloped, there are no significant contamination issues to be addressed. However, there are situations where land that has never been developed has been impacted by contamination originating from an off-site source. By definition, the land would be considered a brownfield. In this context, the environmental conditions of the site would have to be factored in during the development of the area structure plan. Similar to area redevelopment plans, the

technical elements of brownfield redevelopment would be addressed to achieve the end land use. Managing the contamination on undeveloped land is somewhat easier since there are no existing physical impediments (e.g., buildings, infrastructure) that need to be considered. For undeveloped lands that are contaminated, a site-wide approach can be incorporated into the area structure plan and implemented at later stages of development.

B.3 Environment Development Review Policy

The *Environment Development Review Policy* sets out the elements that allow for the consideration of environmental conditions in the planning approval process. This Council-approved policy became effective in January 2006. This policy is currently implemented as part of the review of applications for brownfield redevelopments. Note that the proposed *Calgary Land Use Bylaw* (1P2007) that is currently under review by Council recognizes that environmental considerations are relevant planning matters and formalizes the ability to request environmental information as part of The City's approval process.

B.4 Planning Review & Approval Process

City of Calgary land use planning and control can be divided into two categories: policy planning that addresses long term planning and implementation planning (land use, subdivision, and development permit applications) that implements the policy plans. Land Use Planning & Policy and the Corporate Planning Applications Group (within the Development & Building Approvals business unit) are the two groups that oversee policy planning and implementation planning, respectively.

Environmental Development Review (EDR) is a specialist referee to Land Use Planning & Policy and Development & Building Approvals. EDR's role is to implement the EDR policy that was previously described. EDR participates at all levels of applications including long range planning (regional policy plans, area structure/redevelopment plans) to land use amendments to development permit applications. For policy planning, EDR assists in identifying constraints to development due to environmental issues. For development applications, an applicant is asked to provide environmental investigation information to support their development proposal. If contamination is identified on the site, an applicant must provide remedial action plans and/or risk management plans. EDR reviews all information to ensure that a site is suitable for the intended use and coordinates implementation of the environmental work with the varying levels of approvals issued by The City of Calgary. As part of the process, EDR may also liaise with appropriate regulatory authorities (e.g., Alberta Environment and the Calgary Health Region) as required.

Appendix C – City Programs for Contaminated Sites Management

C.1 Sales, Acquisitions & Leases Environmental (SALE) Policy

The SALE policy was created with the following objectives:

- to ensure that Corporate Properties & Buildings is knowledgeable and informed about any contamination of property that they deal with
- to obtain environmental investigation information on property that will allow Corporate Properties & Buildings to manage and allocate liability through business case-based real estate recommendations and transaction agreements
- to exercise environmental due diligence in property transactions

The SALE policy, approved by Council in 2002, applies solely to property transactions within the mandate of Corporate Properties & Buildings. The policy identifies the responsibilities of Corporate Properties & Buildings and other parties under certain circumstances for the sales, acquisition and lease of City-owned property. For the property transactions noted in the policy, Environmental & Safety Management completes an environmental review of the subject sites to identify environmental conditions prior to the completion of the transaction.

C.2 Environmental Liabilities & Assessment Program

The Environmental Liabilities and Assessment Program was initiated in 1999 to identify, quantify and manage City-owned environmental liabilities due to contaminated sites. On an annual basis Environmental & Safety Management completes a preliminary environmental screening of 600 to 800 City-owned properties to identify environmental issues on all properties owned by The City. Sites identified to have potential contamination are prioritized, investigated and managed.

The Environmental Liabilities and Assessment Program has been identified by Environmental & Safety Management as a possible tool in the creation of a City property inventory.

C.3 Third Party Contamination & Corporate Risk Management

The City of Calgary has a number of other tools in order to deal with third-party contamination and corporate risk management.

The *Phase I and Phase II Environmental Site Assessment Terms of Reference* (The City of Calgary 2004a, 2004b). provide the standard to which environmental investigations conducted for The City or submitted as part of a planning and development application are conducted. The terms of reference are based upon the appropriate Canadian Standards Association documents.

The City is developing a protocol for environmental investigation around buried utilities. This document is currently an internal draft under development. Typically investigation around buried utilities is not done due to potential to damage the utilities, additional costs of investigation, and safety concerns. Utility corridors can act as conduits for liquid contaminants and can transport them or vapours to other properties, facilities or to waterbodies. Contamination is encountered when utilities are repaired or installed creating additional costs, project delays, worker and public health concerns. This investigation protocol is part of appropriately addressing off-site contamination during brownfield redevelopment.

The City is developing risk management plan criteria for contaminated City lands. This document is currently an internal draft under development. These criteria will be used when contamination migrates onto City property and risk management is the preferred option. The criteria are a set of conditions under which The City can accept risk management of contamination from private property that has migrated to City-owned lands. It is a critical tool as it addresses off-site contamination, which commonly occurs and needs to be dealt with as part of a brownfield redevelopment..

Appendix D – List of Sources & Reference Material

- aboutRemediation. 2005. *Ontario Municipal Brownfields Redevelopment Toolbox*. Web document intermittently updated. Available at: www.aboutremediation.com
- Brundtland Commission. 1987. *Our Common Future: The World Commission on Environment and Development*. Toronto, Ontario. Oxford University Press. ISBN 0-19-282080-X.
- Canada Mortgage and Housing Corporation. (2006) *Brownfield Redevelopment for Housing: Case Studies*. Research Highlight, Socio-Economic Series 06-015. 12 pages. Available at: www.cmhc-schl.gc.ca
- Canadian Council of Ministers of the Environment. 2006. *Recommended Principles on Contaminated Sites Liability*. Produced by the Canadian Council of Ministers of the Environment. ISBN 10-1-896997-53-8-PDF and 13 978 -1-896997-53-7 PDF. 17 pages. Available at: www.ccme.ca
- Contaminated Sites Stakeholder Advisory Committee. 2005. *Recommendations to the Honourable Guy Boutilier, Minister of Environment, Government of Alberta*. Penultimate Draft. Produced by Alberta Environment.
- Federation of Canadian Municipalities. *About the Green Municipal Fund*. Available at: www.sustainablecommunities.fcm.ca/GMF/
- Hierlmeier, Jodie. 2006. *Brownfield Redevelopment in Alberta: Analysis and Recommended Reforms*. Produced by the Environmental Law Centre (Alberta). ISBN Number: 978-0-921503-82-8 (82-2). 142 pages.
- imagineCalgary. 2006. *Long Range Urban Sustainability Plan for Calgary*. Produced by The City of Calgary. June 2006. 205 pages.
- National Round Table on the Environment and the Economy (NRTEE). 2003. *Cleaning up the Past, Building the Future – A National Brownfield Redevelopment Strategy for Canada*. Ottawa, Ontario, Canada. Renouf Publishing Co. ISBN 1-894737-05-9. 41 pages + appendices.
- RCI Consulting. 2007. *Brownfield Redevelopment Discussion Paper*. Draft. Prepared by RCI Consulting for The City of Calgary. 74 pages.
- The City of Calgary. 1980. *The Calgary Land Use Bylaw*. Bylaw 2P80. Prepared by the Land Use Section, Development and Land Use Division. 291 pages. Available at: www.calgary.ca/planning
- The City of Calgary. 1995. *The Calgary Transportation Plan*. Adopted by City Council along with associated By-law 41M95 29 May 1995. Available at: www.calgary.ca

- The City of Calgary. 1998. *Calgary Plan – Municipal Development Plan*. Adopted by City Council 20 July 1998. Bylaw 10P98.
- The City of Calgary. 2002. *Sales, Acquisitions and Leases Environmental (S.A.L.E.) Policy*. Approved by Calgary City Council. Produced by Corporate Properties & Buildings. Policy Number AMCW004. 10 pages. Available at: www.calgary.ca
- The City of Calgary. 2004a. *Phase I Environmental Site Assessment Terms of Reference*. Prepared by Environmental Management. Approved by the General Manager of Utilities and Environmental Protection on 2005 June 28. 5 pages. Available at: www.calgary.ca/em
- The City of Calgary. 2004b. *Phase II Environmental Site Assessment Terms of Reference*. Prepared by Environmental Management. Approved by the General Manager of Utilities and Environmental Protection on 2005 June 28. 8 pages. Available at: www.calgary.ca/em
- The City of Calgary. 2004c. *Integrated Risk Management Policy*. Approved by Calgary City Council 6 July 2004. Prepared by the City Manager's Office. Policy Number CC011. 4 pages. Available at: www.calgary.ca
- The City of Calgary. 2005a. *Triple Bottom Line Policy*. Approved by Calgary City Council 12 September 2005. Prepared by Land Use Planning & Policy, Environmental Management and Community Strategies. Policy Number LUPP0012, EM003, CS003. 3 pages. Available at: www.calgary.ca
- The City of Calgary. 2005b. *Council Priorities Consolidation and Reference: 2006 – 2008*. Revised 2005 December. 26 pages. Available at: www.calgary.ca
- The City of Calgary. 2005c. *Environmental Development Review Policy*. Approved by Calgary City Council. Prepared by Environmental Management. Policy Number UEP003. 6 pages. Available at: www.calgary.ca
- The City of Calgary. 2005d. *Transit-Oriented Development Policy Guidelines*. Prepared by Land Use Policy & Planning. Adopted by City Council 2004 December 6. 36 pages. Available at: www.calgary.ca/planning
- The City of Calgary. 2006a. *Brownfields Reclamation Strategy Action Plan*. UE2006-05 Utilities & Environmental Protection Report to The Standing Policy Committee on Utilities and the Environment. 22 February 2006.
- The City of Calgary. 2006b. *Triple Bottom Line Policy Framework*. Prepared by Community & Neighbourhood Services, Environmental Management and Land Use Planning & Policy. 69 pages. Available at: www.calgary.ca
- The City of Calgary. 2006c. *Sustainability Principles for the Calgary Land Use and Mobility Plan*. Attachment 2 to LPT2006-121 Planning, Development &

- Assessment and Transportation Report to The Standing Policy Committee on Land Use, Planning and Transportation. 13 December 2006.
- The City of Calgary. 2007a. *The City of Calgary's Environmental Policy*. Approved by Calgary City Council 2007 March 28. Prepared by Environmental and Safety Management. Policy Number UEP001. 2 pages. Available at: www.calgary.ca
- The City of Calgary. 2007b. *The City of Calgary's Environmental Action Plan*. 29 pages.
- The City of Calgary. 2007c. *The Calgary Land Use Bylaw*. Proposed Bylaw 1P2007. Printed 2007 January 31. Prepared by Land Use Planning & Policy. 664 pages. Available at: www.calgary.ca/planning
- The City of Cornwall. 2004. *City of Cornwall Brownfields Strategy and Action Plan*. Phase II: Program Development, Prioritization and Evaluation Criteria. Final report by IBI Group. 53 pages + appendices.
- The City of Guelph. 2002. *Brownfields Strategy*. 42 pages. Available at: www.guelph.ca
- The City of Hamilton. 2005. *Hamilton Environmental Remediation and Site Enhancement Community Improvement Plan*. 61 pages. Available at: www.myhamilton.ca
- The City of Kitchener. 2003. *Brownfield Remediation Community Improvement Plan*.
- The City of Niagara Falls. 2006. *Brownfield Redevelopment Strategy*. Prepared by RCI Consulting, GSP Group Inc. and Acres International. 58 pages. Available at: www.niagarafalls.ca
- The City of Ottawa. 2006. *Brownfields Redevelopment Community Improvement Plan*. Prepared by RCI Consulting. 62 pages. Available at: www.ottawa.ca
- The City of Windsor. 2005. *Brownfields Discussion Paper: Redevelopment of Former Industrial Properties and Potentially Contaminated Lands*. Planning Department, Planning Policy Section. April 2005. 32 pages. Available at: www.citywindsor.ca
- Urban Development Institute – Calgary. 2007. Letter to City of Calgary dated February 2, 2007 regarding “Draft Brownfield Redevelopment Strategy”.
- WorleyParsons Komex. 2007. Letter to The City of Calgary dated January 4, 2007 regarding “Input into Brownfield Strategy”.

Appendix E – Brownfield Site Selection Criteria

E.1 Site Selection Criteria for City-owned Brownfields

The table below presents some areas within Calgary with potential brownfield site issues that have been previously identified by Administration for redevelopment and revitalisation.

Areas with Potential Brownfield Site Issues Previously Identified by Administration for Redevelopment and Revitalisation

16 th Avenue North Corridor	Beltline
East Village	Former Refinery Site
Nose Creek Landfill	CPR Ogden
Rivers Project	17 th Avenue Southeast
Manchester Yards	

These areas will be examined for City-owned sites and evaluated for potential brownfield redevelopment.

In order to select City-owned brownfield sites for redevelopment, corporate needs, dedicated prioritized resources from stakeholder business units, practical site issues and City planning issues should be considered, as summarized in the following table.

Selection Criteria for City-owned Brownfield Sites

Selection Criteria	
<input type="checkbox"/>	Location
<input type="checkbox"/>	Alignment with transit-oriented development and sustainability principles
<input type="checkbox"/>	Alignment with corporate strategies and needs (e.g., land management strategies, residential housing priority, needs analysis for City services buildings/sites), proposed end use of sites, project budgets, timeframe for developments
<input type="checkbox"/>	Positive triple bottom line business case (viability concept)
<input type="checkbox"/>	Current site use (developed or vacant)
<input type="checkbox"/>	End use / redevelopment needs

Selection Criteria for City-owned Brownfield Sites (cont'd)

Selection Criteria	
<input type="checkbox"/>	Complexity – Type of contamination, on and off-site contamination
<input type="checkbox"/>	Technical – Environmental, legal, planning and other consultants
<input type="checkbox"/>	Cost – depends on complexity and whether choose remediation versus long term risk management (based on end use)
<input type="checkbox"/>	Time – time required for investigation to determine remediation / risk management options and time required to implement the chosen option
<input type="checkbox"/>	Planning principles outlined in City policies

The goal would be to select sites that are supportive of the various planning initiatives outlining the overall vision for The City of Calgary such as Transit-Oriented Development, SMART growth, Triple Bottom Line, Environmental Footprint, imagineCalgary, the Municipal Development Plan and the Calgary Transportation Plan. The development should also be supported by the existing area redevelopment plans for the area that the site is within.

Based on the consideration of the above issues, a list of brownfield sites that present opportunities for redevelopment would be created. This list would be updated from existing programs (i.e., Environmental Liabilities and Assessment Program reviews, Sales, Acquisitions and Leases Environmental (SALE) policy reviews, and contamination discoveries).

E.2 Site Management Options

The City will consider options when considering redevelopment of a brownfield site. These options range from full remediation, which is typically the most expensive to integration into existing risk management plans, which does not remove the contamination but instead manages it in place and monitors it over time to verify the management plan is working and effective. These options apply when The City maintains ownership of the property.

The City will consider the following options when considering redevelopment of a brownfield site:

- Full remediation over time and then redevelop.
- Integrate remediation into development of site to cut down on remediation costs.

- Risk management of site contamination and integrate proposed development into the risk management plan.
- Modify existing risk management plan to allow development to proceed with management measures incorporated into the building and maintained and monitored for effectiveness over time. Maintaining ownership ensures that the risk management plan is monitored for effectiveness and action taken, if necessary, to ensure that the plan is working and protecting human health and the environment.

In the case where a City-owned site was identified as contaminated but has a high potential for brownfield redevelopment, options to facilitate redevelopment where The City may not retain property ownership include:

- sell contaminated site to brownfield redeveloper with contractual agreement that site will be remediated to allow intended use
- remediate to criteria required for current zoning and sell
- partner with company/developer to remediate and develop property where The City may or may not retain land ownership
- lease