

**Evaluating Ontario's New Brownfields Regulation as a Step Toward
Policy Maturity**

By
Devin Reynolds

Queen's University
Kingston, Ontario, Canada

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Executive Summary

The purpose of this report is to evaluate Ontario's brownfields regulation through the policy maturity model introduced by Adams *et al.* (2010). This is an ideal time to evaluate Ontario's progress toward policy maturity because the Province has recently adopted a new brownfields regulation, Regulation 511/09 under the Environmental Protection Act, which came into full force on July 1st, 2011. According to the policy maturity model, brownfield policy maturity is achieved when policy creates a framework where brownfields are consistently viewed as a strategic source of profit by the private sector (Adams *et al.* 2010).

The report begins by providing a summary of the progress Ontario has made in terms of brownfield policy over the past decade, including the introduction of Regulation 153/04, Records of Site Conditions, and Community Improvement Plans. Regulation 153/04 governed the investigation and remediation processes prior to Regulation 511/09. Records of Site Conditions were introduced to decrease liability associated with redevelopment, and Community Improvement Plans can provide financial incentive for redevelopment.

Next, this report summarizes the key changes introduced by Regulation 511/09, including the new generic standards for acceptable concentrations of contaminants, the new requirements for Phase I and Phase II Environmental Site Assessments and the new Streamlined Risk Assessment process. Third, this report introduces the steps of the policy maturity model through which Regulation 511/09 is evaluated.

Methods employed are manifest and latent analyses of interviews performed with 13 stakeholders (n=13) from two important private stakeholder groups: environmental consultants

and developers experienced with brownfield redevelopment. The interviews were used to evaluate the following research questions:

1. *“What are the strengths and weaknesses of Regulation 511/09?”*
2. *“What are the anticipated impacts of the new regulation on the most significant barriers to redevelopment in Ontario?”*
3. *“Does Regulation 511/09 constitute as step toward brownfield policy maturity in Ontario?”*

Potential Benefits of Regulation 511/09

Although it is difficult to predict what the true impacts of the new regulation are until after the implementation date, a number of potential benefits were reported by the respondents. It should also be noted that not all respondents shared the same perspective and that these benefits are not anticipated by all respondents. First, the regulation introduces more appropriate generic standards, based on new and more accurate science, which may be better suited to protect human and environmental health (92% of respondents, 12/13). Second, it provides a more prescriptive process for Phase I and Phase II Environmental Site Assessments and clarifies what is expected of investigations and reporting, which has the potential to deliver higher quality work (31% of respondents, 4/13).

Drawbacks of Regulation 511/09

Certain stakeholders are concerned that Regulation 511/09 will have a number of negative repercussions on the redevelopment industry. Environmental investigations will become more costly, which may discourage some property owners from undergoing site cleanup and remediation (62% of respondents, 8/13). Additionally, some respondents reported that the

generic standards are going to be very difficult to satisfy (69% of respondents, 9/13), creating more brownfields (31% of respondents, 4/13) and causing other owners to avoid redevelopment altogether.

Other Factors

Other implications are more contentious and the impacts will not be understood until after implementation. Some respondents reported that these new standards will drastically slow redevelopment timelines due to longer investigation process (31% of respondents, 4/13), while other respondents said this may be partially off-set by the Streamlined Risk Assessment method (31% of respondents, 4/13).

Many respondents also expect an increase in the number of Risk Assessments, resulting in a decrease in the number of full cleanups (54% of respondents, 7/13), which may be a cost or a benefit depending on perspective.

Progress Toward Policy Maturity

This paper has attempted to predict some of the impacts of the new regulation based on the existing regulation 153/04 framework. If the predictions of the respondents are accurate, the provincial government will still have some important steps to take before Ontario has a mature brownfield policy strategy. Most respondents described the role of the federal and provincial government in redevelopment strategies and funding for general redevelopment as minor (69% of respondents, 9/13). Five respondents believed the government should participate more in funding (38% of respondents) while 3 believed this is not necessarily the responsibility of the government or that they should not be involved (23% of respondents).

Based on the responses, it also appears as though the regulation is not expected to address the most significant obstacles to redevelopment in Ontario: cost, time or liability.

Potential policy recommendations would include monitoring the frequency of brownfield redevelopment following implementation in order to determine whether more stringent requirements discourage redevelopment efforts. If this is the case, the Provincial government should consider forms of financial or procedural incentives (ie streamlining). Funding a policy cost-benefit assessment may also be a useful undertaking.

The respondents also indicated that currently it is very difficult for properties to be redeveloped unless the property is located in cities where land values are high (such as the City of Toronto) or where the intended use is in high demand. Respondents agreed that in order for properties in small real estate markets to be redeveloped in the future the government will have to develop a specific strategy to address them.

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1 Introduction

The potential economic, social and environmental benefits of brownfield redevelopment have been well established in the academic literature for years. Unaddressed, brownfield sites can negatively impact a neighbourhood's image or lower the quality of life of an area, especially if it means closed services or empty lots (Ogilvie 2003). These sites also have the potential to contain contamination which can be a risk to human and environmental health (Siikamaki and Wernstedt 2008).

Conversely, redevelopment can provide many benefits such as revitalizing old neighbourhoods and creating new homes and jobs (Ogilvie 2003, NRTEE 2003). Redevelopment is also appealing for municipalities since it has the potential for lower infrastructure costs than greenfield development and can generate additional property taxes. Furthermore, it is appealing because it can preserve agricultural land and minimize growth in "green areas", which is important to protect water quality and limit the extent of impervious surfaces in a city. More centrally located brownfields also provide opportunities for sustainable transit (Ogilvie 2003, NRTEE 2003).

Over the past ten years, brownfield policy in Ontario has been maturing significantly (Adams *et al.* 2010). Many regulations and amendments have been introduced at the provincial level in order to encourage redevelopment. Despite these efforts, several persistent barriers prevent redevelopment from reaching its full potential in Ontario (NRTEE 2003). The most significant barriers are the cost and time of the investigation process. An additional barrier is liability, particularly the lack of protection from civil liabilities (usually legal action from

adjacent property owners) (Ogilvie 2003, NRTEE 2003) but liability can also include clean-up orders from the Ministry of the Environment or legal action from the tenants on site.

Ontario has recently replaced the existing brownfield regulation with Regulation 511/09, made under the Environmental Protection Act, which comes into full force on July 1st, 2011. Changes to the previous processes for redevelopment provide an opportunity to evaluate Ontario's progress toward brownfield policy maturity using the policy maturity model introduced by Adams *et al.* 2010. According to this model, brownfield policy maturity is achieved when policy creates a framework where brownfields are consistently viewed as a strategic source of profit by the private sector (Adams *et al.* 2010). In order for this to happen the government must strategically create policy which encourages redevelopment. This paper evaluates Regulation 511/09 based on whether it accomplishes any of the steps in this model.

A series of interviews were conducted with 13 private sector stakeholders in order to evaluate the following research questions:

- 1 *“What are the strengths and weaknesses of Regulation 511/09?”*
- 2 *“What are the anticipated impacts of the new regulation on the most significant barriers to redevelopment in Ontario?”*
- 3 *“Does Regulation 511/09 constitute as step toward brownfield policy maturity in Ontario?”*

The respondents belonged to two categories: environmental consultants (7 respondents), and developers (6 respondents) with experience of brownfield redevelopment in Toronto.

The next section of this report will outline the existing regulatory framework for brownfields in Ontario (Section 2.1) and introduce the key changes brought in place by

Regulation 511/09 (Section 2.2). Section 2.3 explores the policy maturity model and England's and the United States' progress toward policy maturity. England's efforts are used to illustrate a strong example of strategic policy in order to encourage brownfield redevelopment. The United States is used as an example of encouraging redevelopment through strong financial incentives.

Section 3 covers the methods used in this report, which are manifest and latent content analyses on a series of interviews with the two important stakeholder groups.

Section 4 discusses the key observations from these interviews, including the benefits and drawbacks of the new regulation, and whether or not Regulation 511/09 is a step toward policy maturity. Finally, Section 5 summarizes the key points from the discussion and concludes the analysis.

2 Context

This section will begin with an overview of the existing regulatory framework for brownfields in Ontario. It will then highlight the key changes which are brought in place by Regulation 511/09. It will conclude by presenting Adams *et al.*'s 2010 framework through which this report will be evaluating Regulation 511/09.

2.1 Existing Brownfield Regulation Framework in Ontario

The purpose here is not to summarize the entire history of brownfield regulation in Ontario, but rather to present the key regulatory advancements of the past decade. These include: Regulation 153/04, Record of Site Conditions, and Community Improvement Plans.

Contaminated site regulations in Canada are created and enforced at the provincial level (Welbourn *et al.* 2009). The Canadian federal government contributes by creating guiding documents for many remediation issues but it is the decision of each province or territory whether or not the guidelines will be adopted (Welbourn *et al.* 2009). The Canadian Council of Ministers of the Environment (CCME) is composed of 14 Ministers of the Environment who promote cooperation and consistency in inter-jurisdictional issues such as pollution and contamination. The CCME created procedures for contaminated site assessment which were adopted directly by several provinces. Ontario however has maintained its own procedures under the authority of the provincial Ministry of the Environment (MOE) (Welbourn *et al.* 2009).

The previous contaminated site regulation in Ontario (effective until July 1st 2011) was Ontario Regulation 153/04 Record of Site Condition – Part XV.1 of the Environmental Protection Act (Environmental Protection Act R.S.O. 1990 c. e.19). It regulated the remediation

processes for contaminated sites within the Province. The regulation described qualifications required by professionals performing site clean-up work (referred to as “qualified persons”), processes for Environmental Site Assessments (ESAs), and the role of Record of Site Conditions (RSCs) outlined below. It also revised an existing guiding document, “Guideline for use at Contaminated Sites in Ontario” (the “Guidelines Document”) (MOE 1997), which described the appropriate Site Condition Standards under this regulation (Welbourn *et al.* 2009). This Guideline Document informed practitioners and property owners of the applicable maximum acceptable contaminant levels on specific sites as described below. It presented complex procedures, only certain of which were mandatory. The purpose was to guide owners and consultants through the ESA and remediation options and processes (MOE 1997).

Regulation 153/04 and the Guideline Document can be seen as progress toward a more comprehensive brownfield policy for the province (Welbourn *et al.* 2009, Adams *et al.* 2010). The Guidelines Document replaced two other guiding documents, “Guidelines for the Decommissioning and Clean-up of Sites in Ontario” from 1989 and “Interim Guidelines for the Assessment and Management of Petroleum Contaminated Sites in Ontario” from 1993. Both these documents were far less detailed and provided less guidance for property owners and consultants. Numerical standards were adjusted in the 2004 document to account for more recent and relevant science which was performed between 1994 and 1997. Updates to quantitative standards and investigation processes suggest contaminated sites and redevelopment has been a recent priority for the MOE (Welbourn *et al.* 2009, Adams *et al.* 2010).

2.1.1 Investigation Process Established by Regulation 153/04

Owners may be required to undergo the site investigation process in order to sell a property, receive a building permit (in order to develop a property), or to protect themselves from contamination liability. This process begins with a Phase I ESA which uses a variety of methods, including investigations of past uses, interviews, mapping and site visits in order to determine whether there is the potential for contamination on site. If the Phase I ESA concludes that contamination is possible, a Phase II ESA is required (OCETA 2011, Welbourn *et al.* 2009). If not, the property owner can receive a Record of Site Condition. There are certain past uses that automatically trigger a Phase II ESA under section 27 of Regulation 153/04, such as a drycleaner (which suggests chlorinated solvents or chlorinated Volatile Organic Compounds are likely to be present on site) or a garage (Volatile Organic Compounds, petroleum hydrocarbons or lead contaminations are likely) (Welbourn *et al.* 2009).

A Phase II ESA is a more intensive investigation of the property which involves sampling of all or some of the following: soil, groundwater, surface water or sediments for compounds indicated as likely to be present by the Phase I ESA. The Phase I ESA also determines where contaminants are most likely to be found and thus guides the procedure of the Phase II ESA. The Guideline Document outlines required procedures for the Phase I and II ESAs (OCETA 2011, Lompart 2004, Welbourn *et al.* 2009).

During a Phase II ESA, concentrations for a list of contaminants are established for samples at various locations across the site. These measured concentrations can be compared to tables found in the Guidelines Document to determine if the concentrations exceed acceptable levels established by the MOE. Therefore, if a particular substance is detected it doesn't

constitute a contamination unless it exceeds the applicable standards (OCETA 2011, Lompart 2004, Welbourn *et al.* 2009).

These standards are presented in a number of different tables within the Guidelines Document. Acceptable concentrations vary based on medium (soil, groundwater or surface water), the intended land use (residential, commercial, agricultural, etc.), whether the site will be used for potable water, proximity to surface water, and the depth of soil on site (MOE 1997). These standards are termed “generic standards” and have been developed based on risk based scientific studies (OCETA 2011, Lompart 2004, Welbourn *et al.* 2009). Should measured values on a site exceed the generic standards, three options for remediation are possible.

The background approach requires the site to be restored to concentrations consistent with levels in the natural environment, using the Ontario Typical Range values (MOE 2004) and the values from the Provincial Water Quality Objectives (MOE 1999) and a variety of other provincial standards (Welbourn *et al.* 2009). These background standards are particularly stringent and are only used in special circumstances such as a property located next to a sensitive area (OCETA 2011, Lompart 2004, Welbourn *et al.* 2009).

The majority of sites use the “generic approach” where measured values are compared to “generic standards” located in the Guidelines Document. In the generic approach, if any substance exceeds the generic standards, the site is considered contaminated and the concentrations must be lowered to or below the generic standards (Welbourn *et al.* 2009).

In certain cases, restoration below the generic standards may be considered overly arduous and unnecessary. In such cases where higher levels of contaminations can be safely accommodated on site, the Site Specific Risk Assessment approach may be undertaken (OCETA

2011, Lompart 2004, Welbourn *et al.* 2009). This process involves a scientific analysis of the specific conditions of the site, including establishing receptors and contaminant pathways. The analysis must illustrate that the receptors on site cannot be affected by the concentrations of substances present on site. For example, this process would be useful if a site exceeds the generic standards for a substance that has the potential to impact surface water quality and it can be demonstrated that there is no surface water within a certain distance to the site. Site Specific Risk Assessments typically take a long time and are very expensive, due to the amount of investigations which are required. However, the traditional “dig and dump” process of site cleanup is also very expensive because much physical work is required to excavate and transfer large quantities of soil. Site Specific Risk Assessments are normally peer reviewed upon completion (although this is not mandated under regulation 153/04) and then they are submitted to the MOE for review (Welbourn *et al.* 2009).

Phase I and Phase II processes under regulation 153/04 were consistent with those outlined in the Canadian Standards Associations’ guidelines. Therefore, Ontario’s cleanup procedure was fairly consistent with other provinces under this regulation 153/04 (OCETA 2011, Lompart 2004).

Regardless of the route taken, the site can be deemed “clean” if concentrations do not exceed the applicable standards or an MOE approved Site Specific Risk Assessment has been completed (OCETA 2011, Lompart 2004, Welbourn *et al.* 2009).

2.1.2 Record of Site Conditions (RSCs) and Liability

A common challenge with brownfield sites is that it is very difficult to hold the polluter responsible for clean-up. In many cases, the original polluter may be bankrupt, impossible to

find, or the original cause of contamination cannot be determined (Pardy *et al.* 2009). In order to avoid all cleanup responsibilities falling on the government, the Environmental Protection Act authorizes cleanup orders to be issued to present or past owners of contaminated properties. In many cases this individual has nothing to do with the original contamination (Pardy *et al.* 2009). Since owners can be held financially and legally responsible, it encourages diligence when purchasing property in Canada, but unfortunately it presents a liability barrier to potential purchasers (Pardy *et al.* 2009).

The Ontario government has taken steps to alleviate this liability, including introducing: the Brownfield Statute Amendment Law in 2001, Regulation 153/04, and further amendments to the Municipal Act and the Planning Act in 2007 (Pardy *et al.* 2009). These reforms were a step toward a strategy to promote brownfield redevelopment in the province. They allowed municipalities to grant monetary and other incentives for redevelopment efforts, clarified roles for liability, and provided guidelines for the necessary conditions of redevelopment (Pardy *et al.* 2009).

The most significant addition was the Record of Site Condition (RSCs), which documents the condition of the site and the cleanup process. RSCs serve as a certification from a “qualified person” that a particular site meets provincial standards. They can be issued regardless of the method taken for risk assessment (either background approach, generic approach or an MOE approved Site Specific Risk Assessment) (OCETA 2011, Lompart 2004).

An RSC is required when a property owner proposes a more sensitive use: such as a commercial property being converted to a residential use. Importantly, RSCs are commonly obtained by property owners for other reasons: to provide comfort to a lender, to meet municipal

requirements for planning approval (often to receive a building permit), or on a condition for a sale (Pardy *et al.* 2009).

An owner who has filed an RSC is protected from Ministry orders, including stop orders and orders to remediate, provided the contaminating use has been terminated and no additional contamination has occurred on the site. These amendments provide some protection for lenders as well since the filing of the RSC offers some assurance that the property is appropriate for redevelopment. Unfortunately, RSCs offer little protection from civil liability (if elevated contaminant levels are found on a neighbour's property) which causes concerns for both owners and lenders (Pardy *et al.* 2009).

When an RSC is based on a Ministry Approved Risk Assessment, owners are often granted a Certificate of Property Use (CPU). The CPU runs on title and prevents future action that would compromise the conditions of the Risk Assessment, thereby preventing further contamination (OCETA 2011, Lompart 2004, Pardy *et al.* 2009).

The amendments also came with important liability protection for municipalities. Municipalities are no longer considered to be responsible for, or in control of, the contamination on a property when they enter a property to provide essential services such as hydro or water, or deal with an emergency on a property (Pardy *et al.* 2009). Secondly, municipalities are also offered protection from cleanup orders when they acquire a property through foreclosure or bankruptcy (Pardy *et al.* 2009). Municipalities and third parties are not however granted protection when there is a threat to human health or the condition of the natural environment, meaning liability is a persisting concern, and continues to be cited in the academic literature as a

key barrier to redevelopment in the province (Adams *et al.* 2010, Hayek *et al.* 2010, Wernstedt *et. al* 2010)

2.1.3 Community Improvement Areas and Financial Incentives

A number of financial options are available to municipalities under part IV of the Planning Act (Planning Act R.S.O. 1990. c. P.13) which deals with Community Improvement Plans (CIPs). Under section 28(6), once a CIP is designated in an Official Plan, a municipality can use public funds to clean up and redevelop sites if deemed necessary. This is critical in locations where the real estate market is not strong enough to promote private interest in redevelopment and other goals such as investment into bicycle lanes, transit oriented development or mixed use development (MMAH 2008).

CIP are established for “community improvement project areas” specified in a city’s Official Plan. Under section 28(1) of the Planning Act a “community improvement project area” is defined as “a municipality or an area within a municipality, the community improvement of which in the opinion of the council is desirable because of age, dilapidation, overcrowding, faulty arrangement, unsuitability of buildings or for any other environmental, social or community economic development reason”.

Alternatively, under section 28(7), municipalities can provide grants or loans for the costs of environmental investigations and remediation to private redevelopment efforts within the CIP in order to help balance the cost of redevelopment compared to greenfield development (Pardy *et al.* 2009, MMAH 2008).

Furthermore, under section 365.1(2) of the Municipal Act, a municipality could pass a by-law, cancelling municipal and school taxes for up to 18 months and for amounts up to the cost of

remediation for certain properties within the CIP. This is known as the Brownfield Financial Tax Incentive Program (BFTIP). Owners of applicable properties can apply to the municipality to pass such a bylaw and the application is reviewed by the province to determine whether the property is eligible (MMAH 2008).

Finally, a municipality can also provide tax-relief with conditions they deem appropriate under section 365.1(2) of the Municipal Act (Municipal Act R.S.O. 2001 c. 25). These may come in the form of forgiveness of back taxes or a refund of paid taxes based on certain conditions (Welbourn *et al.* 2009, MMAH 2008). The levied taxes are payable to the municipality if the conditions are not met by the developer (Welbourn *et al.* 2009).

This section has briefly outlined why certain experts consider Ontario brownfield regulation to have improved over the last decade (Welbourn *et al.* 2009, Adams *et al.* 2010). Regulation 153/04 and the Guidelines Document helped clarify roles and responsibilities in the remediation and redevelopment process. The introduction of RSCs and amendments in 2001 and 2007 were introduced as a means to protect property owners, lenders and municipalities from a certain degree of liability. Finally, the CIP was introduced in order for municipalities to take control of their local conditions and help with the financial burden associated with investigation and remediation.

Despite this progress, there is acknowledgement in the scientific literature that a number of barriers, including liability and financing, still exist. These barriers prevent redevelopment from reaching its full potential in Ontario (Adams *et al.* 2010, Ogilvie 2003). The introduction of new brownfield regulation in Ontario (Regulation 511/09) serves as an ideal time to review the

changes new regulations will bring for redevelopment and evaluate whether they address any persisting barriers to redevelopment in the Province.

2.2 Regulation 511/09

The introduction of Regulation 511/09 will generate key changes to the brownfield regulatory system in Ontario. It is an extensive amendment to regulation 153/04 and will be fully implemented on July 1, 2011.

The first key change is that many quantitative soil, water and sediment standards from the Guidelines Document have been revised to be based on more current and accurate science. These new standards are intended to better reflect appropriate contaminant levels for human and environmental health. In general, the standards are more rigorous and they introduce some new standards where none existed previously (Coburn *et al.* 2010, Spensieri 2009). For example, the new standards introduce criteria for petroleum hydrocarbon in non-potable groundwater situations which previously had no criteria and therefore was not being investigated in Phase II ESAs).

More stringent criteria could have a significant impact on property owners and not just when they are seeking an RSC. These standards are often used to assess property values, negotiate real estate transactions and in civil action cases (Coburn *et al.* 2010). There is some belief that the standards have been tightened so drastically that most property owners will not attempt cleanup of contaminants, but will choose instead to undergo a Site Specific Risk Assessment (Coburn *et al.* 2010, Donahue 2009).

The amendments also revise the required processes for Phase I and Phase II ESAs in order to receive an RSC. Therefore, the MOE of Ontario is requiring a more detailed Phase I and II ESA process than those outlined in the Canadian Standards Association guidelines. These changes include, under section 32 of the new regulation a list of 71 potentially contaminating activities identified in a Phase I which automatically trigger a Phase II (an increase from only a handful from section 27 of the previous regulation). They also redefine what is required in a Phase I and Phase II ESA, including new schedules regarding application, site investigation, evaluation and preparation of assessment reports (Elliot and Brohm 2010). For example, Phase I and II ESAs will now require conceptual site models to be developed in order to determine the scope of investigation, all exceedances must be delineated laterally and vertically, and there are new requirements for sampling locations and counts (Elliot and Brohm 2010, Coburn *et al.* 2010). The amendments bring other refinements such as additional restrictions on importing soil to RSC properties (Coburn *et al.* 2010).

The goals of these changes were to enhance the integrity Phase I and Phase II ESAs and to ensure consistency in quality across the industry. In doing so, one impact will be more expensive and time consuming ESAs and more Phase I ESAs which automatically trigger Phase II ESAs (Elliot and Brohm 2010, Donahue 2009).

These amendments strive to bring more integrity to the RSC process as well. All RSCs will now be checked by the MOE within 30 business days and certain RSCs will undergo further review. The new requirements of Phase I and Phase II ESAs should also improve the reliability of RSCs (Elliot and Brohm 2010, Donahue 2009).

Finally, the amendments also introduce a new Streamlined Risk Assessment process as an alternative to the expensive, time consuming method mentioned earlier (Coburn *et al.* 2010). The purpose is to make Risk Assessments a more legitimate option for owners when remediation is not necessary. Under the new procedure, a qualified person can modify several generic standards based on the specific site parameters, such as chemical and physical characteristics on site and site location relative to surface and groundwater (Donahue 2009). Streamlining in theory would make redevelopment more appealing and competitive to greenfield development.

2.3 Brownfield Policy Maturity Model

Across North America and Europe, brownfields are being redefined as opportunities rather than planning problems by planners and governments (Adams *et al.* 2010). Officials are now realizing the economic, social and environmental potential of redeveloping previously underused sites (Adams *et al.* 2010). Redefining brownfields as opportunities is a gradual process which relies on changing policies, public perception and incentives. In Ontario, brownfield policy has matured significantly in the past 10 years, but the need for further redevelopment continues to be an important concern within the province (Adams *et al.* 2010, Welbourn *et al.* 2009). Experts have suggested that brownfield policy in Canada has been slow to encourage redevelopment compared to England and the United States (De Sousa 2002).

This research examines Regulation 511/09 through the perspective of the policy maturity model introduced by Adams *et al.* 2010 (Figure 1), in order to determine whether the new regulation is a step toward policy maturity. The basis of the model is that government must strategically develop policy which encourages brownfield redevelopment. This process begins by grasping the significance of the problem, then recognizing the potential benefits associated with

tackling the problem and finally, generating engagement from the private sector. Ultimately, a mature brownfield policy is evident when it creates a framework where brownfields are consistently viewed as a strategic source of profit by the private sector (Adams *et al.* 2010). Currently in Ontario this is not the case. This study will be useful in order to determine whether important stakeholders feel regulation 511/09 will improve the potential for profit through redevelopment.

The following section will introduce the policy maturity model and highlight some key questions regarding Ontario's brownfield strategy which persist in the literature. It will also use the relative successes of England and the United States as examples of progress toward policy maturity. These questions will be used in the interviews to survey important stakeholder positions regarding these themes and evaluate Ontario's progress towards policy maturity. Emphasis is placed on section 2(b) – *Identifying and tackling the main constraints to redevelopment* – in order to determine whether the new Ontario contaminated site policy addresses barriers to redevelopment.

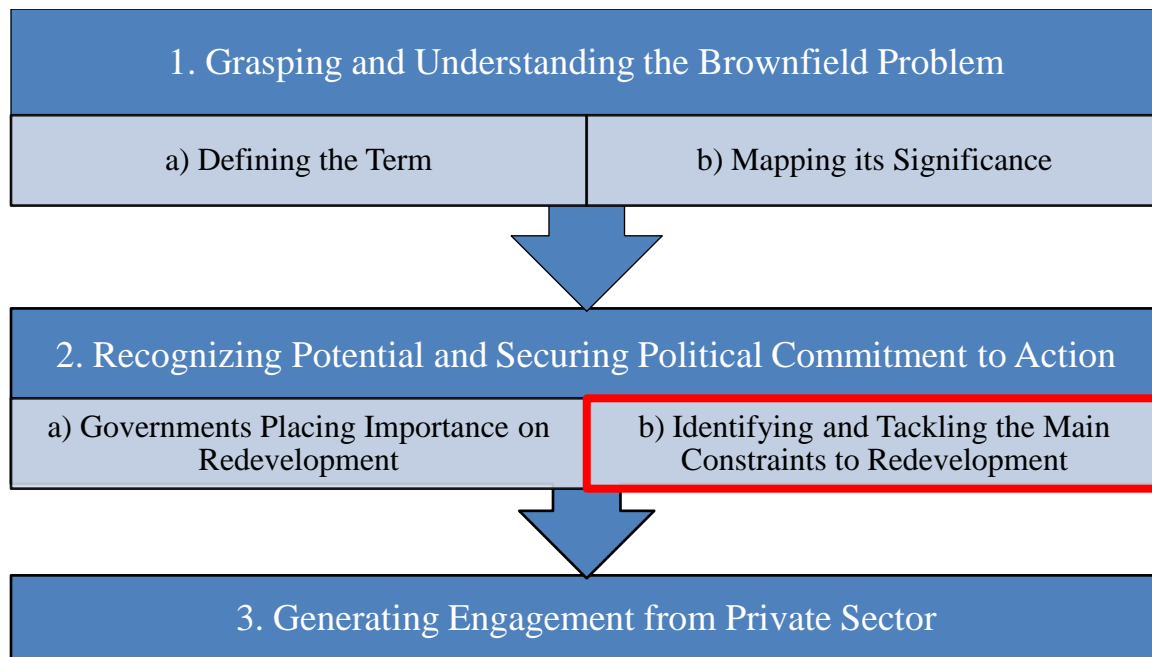


Figure 1 - Brownfield policy maturity model presented by Adams et al. 2010. This research investigates if the Ministry of the Environment’s Contaminated Site Regulation (Regulation 511/09) satisfies step 2b) of this model.

2.3.1 Step 1 – Grasping and Understanding the Brownfield Problem

a) Defining the Term

The first step in the policy maturity model is to define the term brownfield. This allows the government to clearly state the problems that policy will attempt to address. Canada has defined brownfields as:

Abandoned, idle or underutilized commercial or industrial properties where past actions have caused known or suspected environmental contamination, but where there is an active potential for redevelopment (NRTEE, 2003, p. ix).

Potential for redevelopment is hard to define and changes over time, making it difficult to estimate how much brownfield land there is in Canada. It also ignores contaminated underused

sites in small communities with real estate markets. Because of these factors, there is a belief that this definition will gradually change to align with the American definition, which excludes the reference to development potential (Adams *et al.* 2010). Unlike in the United Kingdom, North American definitions of brownfields do not encompass underused previously developed sites without potential contamination such as outdated retail or commercial sites. These sites have adopted the non-legislated term “greyfields” (Adams *et al.* 2010). The distinction between potentially contaminated sites and non contaminated sites suggests the Canadian and Ontario governments consider contaminated site cleanup a priority, which is separate from the goal of redeveloping underused sites.

b) Mapping its significance

The next requirement according to the policy maturity model is mapping the significance of the problem (Adams *et al.* 2010). The purpose for this step is to measure the extent of the brownfields issue in order to determine the severity and track progress in tackling the issue.

The National Land Use Database (NLUD) was launched in 1998 in order to map and track the amount of brownfield land in England as well as land that is likely to become brownfield in the future. This database categorizes sites by ownership condition and provides estimates of redevelopment potential for each site (Adams *et al.* 2010). NLUD provides some information on whether or not the amount of national brownfields are increasing or decreasing and therefore whether redevelopment strategies are having success (Adams *et al.* 2010).

Unlike England, Canada has never successfully developed a consistent information or inventory system for brownfields. Existing inventories have instead been the result of local initiative and innovation. Many communities estimate the amount of brownfield land they

contain. Overall however, these efforts have been sporadic, as there is a persisting fear from the development community that stigma will be attached to their property, and the agency responsible for mapping would be liable (Adams *et al.* 2010). A prevailing question in brownfield literature is whether an inventory system would be beneficial in order to grasp the extent of the problem and track the progress of redevelopment efforts.

There is no reliable data on the total number of contaminated sites in Canada. This information is not publicly available. As a result, it is difficult to construct a database of sites even at a municipal level (Welbourn *et al.* 2010). In 1996, the National Round Table on the Environment and the Economy estimated there were approximately 3900 sites with known or suspected contamination in Ontario, and a national total of between 20 000 and 30 000 (NRTEE 1996). Other studies have indicated that as much as 25 percent of Ontario's land could be considered contaminated (Benazon 1995).

It is even more difficult to get a reliable count of brownfield sites. Market forces change over time so at any given time a site may or may not be considered to have redevelopment potential (Welbourn *et al.* 2010). Only a handful of studies have even attempted to estimate the total number of brownfield sites in Canada. Estimates range from under 30 000 to over 100 000 brownfield sites (Welbourn *et al.* 2010, Ogilvie 2003). Regardless, it is clear that the brownfields are widespread in Canada and are not simply a local issue.

2.3.2 Step 2: Recognizing Potential and Securing Political Commitment to Action

a) Governments placing importance on redevelopment

The next requirement of the policy maturity model is that governments progress from political to commitment to redevelopment. Adams *et al.* 2010 indicate that this is most likely to

occur as governments recognize the broad contribution redevelopment of brownfield sites can have on other goals. In England, redevelopment efforts coincided with public and political concern over environmental matters, most notably development of greenfield sites (Adams *et al.* 2010).

England's attempt to promote brownfield redevelopment displays the progression from political interest to commitment. It also illustrates that practical action was required to promote redevelopment rather than reliance on statements of political interest and target figures. In 1995, the conservative government estimated 4.4 million new homes were to be constructed by 2016 (Adams *et al.* 2010, Dixon 2006). In order to curb construction on greenfield sites, they declared that they wanted 50 percent of construction would occur on previously developed land. This was the first example of political interest in brownfield redevelopment in Britain. Political will was demonstrated in 1998 when the the target was from 50 percent to 60 percent and policy changes were made to discourage greenfield development. The intended effect was to shift development from greenfield to brownfield sites but in reality it only served to decrease greenfield development while brownfield redevelopment remained stable (Adams *et al.* 2010). The result was a decrease in the total number of construction projects and an increase in housing prices (an undesirable consequence in the shift in planning policy to discourage greenfield development). The final step occurred in 2003 when the government produced the *Sustainable Communities Plan*, largely as a response to the housing price problem. Within this plan, the English Partnerships, an urban regeneration agency was tasked with developing a national brownfield strategy and given 500 million Euros over three years to assemble housing sites on brownfield lands. The benefits of the government's hands on approach were felt in 2005 where 123 000 dwelling units were built on brownfield sites (an all time high) (Adams *et al.* 2010).

The England experience demonstrates that redevelopment efforts were largely unaffected over the first decade of indirect policy support. The *Sustainable Communities Plan* demonstrated willingness to devote significant resources to redevelopment which brought a more effective response (Adams *et al.* 2010).

In the United States, there has been considerable political interest and commitment toward redevelopment. Much of these efforts have relied upon local and state initiative, thus there remain variations across jurisdictions in redevelopment success. Congress passed a Small Business Liability Relief fund in the 1990s and a Brownfield Revitalization Act. These were followed by the Brownfields National Partnership Action Agenda which provided resources from over 15 federal agencies in support of redevelopment. (Adams *et al.* 2010). Much funding continues to be lead by the federal Environmental Protection Agency (USEPA). The Brownfields Action Agenda passed by the USEPA in 1995 clarified federal roles in brownfield cleanup, provided funds for projects and tests of redevelopment approaches. It also provided direct assistance to various redevelopment efforts (Adams *et al.* 2010).

The variation in redevelopment efforts occurs at the state and local level. In the early 1990s, many states implemented a voluntary cleanup program in order to offer liability protection to brownfield property owners (Adams *et al.* 2010). Most brownfield projects in the United States are managed by state-led programs but there has been significant contribution from the federal agencies. Unlike in England, the redevelopment efforts in the United States have focused on the economic potential of these projects rather than protection of greenfield land (Adams *et al.* 2010). As a result, most resources have been directed to properties with market potential or for projects with a taxable end use. In many cases, grants indicate job creation as a criteria leading to a larger representation of certain types of developments (Adams *et al.* 2010).

Oregon is one state that has strong redevelopment incentives. The Oregon Department of Environmental Quality performs Site Specific Assessments (SSAs) which are funded by the Environmental Protection Agency. In doing so, they also provide recommendation and guidance to property owners (DEQ 2009). This is unlike most cases in Ontario where the private sector is responsible for investigation costs and decision making. Additionally, Business Oregon offers the Brownfield Re-Development Fund and the Oregon Economic and Community Development Department offers the Oregon Coalition of Brownfields Cleanup fund. Both of these programs offer low interest loans and some grant options (Business Oregon 2009, DEQ 2009).

The United States also provides more extensive loan guarantees than in Canada. The United States Small Business Administration provides guarantees of up to 1 million dollars for remediation projects (Hara 2003). Many states also provide loan guarantees including Oregon (although these are limited to clean up costs, not redevelopment) (Hara 2003).

While the United States has plenty of financing options at the national, state and local level, stakeholders often indicate that the regulatory process is complex. A variety of private and public stakeholders at different levels of government are involved in the redevelopment, incentive and management of brownfield lands (Adams *et al.* 2010).

Stakeholders across Canada have also cited the complexity and uncertainty of regulatory systems as a hindrance to redevelopment efforts (Adams *et al.* 2010). Despite this, the federal government has been relatively hands off on redevelopment. Support from the federal government has been largely through information gathering, federal property management and limited financial assistance. In 2005 several long term funding opportunities were announced totaling 5 billion dollars, but 95 percent of these funds were for federally related projects or

technological development (Adams *et al.* 2005). Due to the lack of resources devoted to redevelopment projects Canada's federal government could be perceived as demonstrating political interest and will but not commitment.

Brownfield regulation therefore falls principally on the provincial and local governments. As mentioned above, the introduction of CIPs in 2007 has helped to some degree but all these financial incentives are from the municipal level, and municipalities often lack the funds necessary to cleanup brownfields within their jurisdiction. As a result, the private sector is usually financially responsible for redevelopment projects. In markets where land values are high Vancouver and Toronto, redevelopment success has been relatively strong despite little financial assistance (Adams *et al.* 2005, De Sousa 2002). Similarly, redevelopment efforts in locations where the intended use is in high demand have also been successful (City of Brockville 2007). Key questions remain for brownfield stakeholders in Ontario: first, should the federal or provincial governments play a stronger role implementing a brownfield strategy and devoting resources to redevelopment efforts? Second, how will communities with small real estate markets and industrial histories deal with their brownfield problems? These questions are posed to the respondents of the study to evaluate whether the government is displaying commitment to redevelopment efforts.

It should be noted, there are a number of regulations under the provincial government which coincide with the goals of brownfield redevelopment. The Greenbelt Plan and the Ontario Growth Plan –Places to Grow both serve to restrict the amount of greenfield land which can be developed and therefore raise the economic feasibility of redevelopment of brownfield sites. The 2005 Provincial Policy Statement also encourages municipalities to include intensification and redevelopment strategies into their Official Plans.

b) Identifying and tackling the main constraints to redevelopment

In order for brownfields to be redefined as opportunities rather than problems redevelopment must be seen consistently as an opportunity for economic benefit. This is done by strategically creating policy to address the key constraints to remediation and redevelopment (Adams *et al.* 2010). As indicated in the previous section, England and the United States have had some success in doing so by offering substantial resources to tackling constraints such as cost and liability rather than with broad supportive policy statements (Adams *et al.* 2010). Adams *et al.* also indicates that tackling the constraints is an iterative problem where the largest issues are addressed only to reveal further constraints which need to be tackled as well (Adams *et al.* 2010).

In Ontario, considerable work has already been done in order to determine the key barriers to redevelopment (De Sousa 2000, Ogilvie 2003). Liability and regulatory mechanisms are often cited as the strongest constraints in Ontario (De Sousa 2000, DiFrancesco 2005). This is particularly true for residential developments due to the increased number of end users and the greater potential for civil action (DiFrancesco 2005). Moderate barriers also exist such as stringent requirements for remediation, uncertainty regarding Risk Assessments, financing (including lack of incentives and difficulty finding financing) and property perception factors ((De Sousa 2000, DiFrancesco 2005). These barriers are represented in Table 1.

Table 1 - List of most common barriers to redevelopment in Ontario based on literature review. This study will concentrate on the factors which are affected by new regulation.

#	Barrier to Redevelopment	Studies
1	Liability - civil liability -regulatory risk -cleanup orders	Adams <i>et al.</i> 2010, Hayek <i>et al.</i> 2010, Wernstedt <i>et. al</i> 2010, <i>Regional Analytics</i> 2002, NRTEE 2003, De Sousa 2002, DiFrancesco 2005
2	Regulatory Mechanisms (cost) - investigations - cleanup - higher property taxes than greenfield	Adams <i>et al.</i> 2010, Hayek <i>et al.</i> 2010, Wernstedt <i>et. al</i> 2010, <i>Regional Analytics</i> 2002, NRTEE 2003, De Sousa 2002, DiFrancesco 2005
3	Regulatory Mechanisms (time) - investigations - approvals for RSC, SSRA, etc.	Adams <i>et al.</i> 2010, Wernstedt <i>et. al</i> 2010, <i>Regional Analytics</i> 2002, NRTEE 2003, DiFrancesco 2005
4	Stringent Requirement	Adams <i>et al.</i> 2010, DiFrancesco 2005
5	Uncertainty Regarding Process	Adams <i>et al.</i> 2010, NRTEE 2003, DiFrancesco 2005
6	Financing: Difficulty Finding Funding	Adams <i>et al.</i> 2010, Hayek <i>et. al</i> 2010
7	Financing : Lack of Incentives	Adams <i>et al.</i> 2010, Wernstedt <i>et. al</i> 2010, <i>Regional Analytics</i> 2002
8	Market (various)	Adams <i>et al.</i> 2010, Hayek <i>et. al</i> 2010, <i>Regional Analytics</i> 2002, NRTEE 2003, De Sousa 2002
9	Property Perception Factors	Adams <i>et al.</i> 2010, Hayek <i>et. al</i> 2010, Wernstedt <i>et. al</i> 2010, NRTEE 2003
10	Timing, Regulatory and Cost Attractiveness of Greenfield Development	Adams <i>et al.</i> 2010. De Sousa 2002

The creation of the new contaminated site regulation in Ontario, Regulation 511/09 presents an ideal time to evaluate whether policy is being strategically amended in order to tackle key barriers and encourage redevelopment.

It should be noted that there are several market inefficiencies which persist in Ontario (as well as across North America and the United Kingdom) (Adams *et al.* 2010). First, in areas where growth rates are low it is difficult to promote redevelopment unless demand is high for a specific intended land use (Adams *et al.* 2010). Second, certain land agencies often hold on to

land and wait until development will be profitable (Adams *et al.* 2010). Third, certain properties are held on to by owners who are unwilling to sell or redevelop. Finally, in most areas greenfield development remains a more attractive option for developers (Adams *et al.* 2010, Siikamaki and Wernstedt 2008). Attempts to address these issues have been piecemeal and reliant on local initiative in Canada (Adams *et al.* 2010).

2.3.3 Step 3: Generating Engagement from Private Sector

The final step is to ensure the policy measures are promoting private sector growth which addresses the goals of the government. Most commonly in Canada, developing firms specialize in either commercial and industrial redevelopment or residential redevelopment. As mentioned, there is a market for brownfield redevelopment in cities such as Toronto but redevelopment is generally driven by economic factors rather than social and environmental since it has been left to the private sector. This however has done little curb the development on greenfield sites (De Sousa 2002). Additionally, the successful redevelopment of these sites can provide misleading statistics about redevelopment success in the province, causing policy makers to be hesitant to address sites in other markets which are being ignored. The real measure of maturity then will be if policy is able to change behavior – such as redevelopment of sites not considered “low hanging fruit”. Adams *e al.*2010 urge policy makers not to focus on the number of sites which are redeveloped but rather on changing policies to address the sites which would not otherwise be redeveloped.

3 Methods of Research Inquiry

This research used a manifest and a latent content analysis as described by Gaber and Gaber 2005. These forms of content analysis are effective because they are a means to systematically analyze interviews to discover motives and interests (Gaber and Gaber 2005). Together, they are ideal methods because they allow answers from different interviews to be grouped together in order to count how many respondents agree. The manifest analysis is a means of measuring the intensity of certain categories by counting the number of times it was mentioned in interviews. A manifest analysis was used for the questions involving barriers (questions 3-5) as a count of how many times each barrier was mentioned. The latent analysis is a more qualitative method, whereby certain responses are grouped into similar themes (ie, municipal governments have the strongest role encouraging brownfield redevelopment) and are associated with a particular stakeholder group. This has been termed “abstraction” by Graneheim and Lundman because it is an interpretation and a grouping together of a higher level concept (Graneheim and Lundman 2004).

3.1 Research Variables

The research variables were identified using a literature review prior to the interviews. The literature review consisted of a review of scholarly articles, regulations, newspaper articles and documents created by various firms. This was done using search engines such as the Queen’s University Library Search engine and Google Scholar. In this stage, two key stakeholder groups were identified: consultants responsible for environmental investigations (including Phase I and Phase II ESAs), and developers experienced in brownfield redevelopment. This study focused on the Greater Toronto Area in order to draw from the largest sample of consultants and developers

in Ontario. One limitation to this study is that other stakeholder groups were not included, such as representatives of the MOE, environmental lawyers, landowners who own large amounts of contaminated property (including municipal officials) and interest groups, due to time constraints for the interview period. It is important to note that the views expressed in this study did not represent these other stakeholders.

The interview questions were designed to specifically address the research question. Each question addresses a particular aspect of the policy maturity model as illustrated below (Table 2). As indicated, there is a particular focus on part 2(b) of the model - Identifying and tackling the main constraints to redevelopment – the first 5 questions address this step.

Table 2 - List of interview questions and the associated step of the policy maturity model which they address.

Interview Questions	Associated Policy Maturity Model Step
1. What are the key goals of the new regulation? (or what was the previous regulation lacking?)	Part 2(b) Identifying and tackling the main constraints to redevelopment – In order to determine if the stakeholders perceive the intentions of the regulations consistently and to determine what constraints new regulations are intended to tackle
2. Do you foresee any unintended effects of the new regulations?	Part 2(b) Identifying and tackling the main constraints to redevelopment – To determine if the key stakeholders believe the regulations will have negative implications for brownfield redevelopment
3. What are the key barriers to brownfield redevelopment in Ontario today?	Part 2(b) Identifying and tackling the main constraints to redevelopment – To construct a list of the key barriers to redevelopment. This will determine whether the interviewees perceive the barriers to be consistent with those found in the literature review.
4. Does the new regulation address any of these barriers?	Part 2(b) Identifying and tackling the main constraints to redevelopment – If new regulation addresses key barriers to redevelopment it can be considered a step towards policy maturity.
5. Are there any barriers that are left unaddressed?	Part 2(b) Identifying and tackling the main constraints to redevelopment – If new regulation does not address the key barriers to redevelopment, it is not considered a step toward policy maturity
6. The United Kingdom has strong brownfield inventory and information programs. Would this be helpful in Ontario?	Part 1 b) Mapping its significance – To determine if these stakeholders believe mapping and tracking brownfield progress would contribute to redevelopment in the province.
7. How would you rate the role of the Provincial and federal government role in redevelopment strategies and funding?	Part 2 a) Governments placing importance on redevelopment – To determine how these stakeholders evaluate federal and provincial government’s commitment to brownfield redevelopment
8. How will communities with smaller real estate markets and industrial histories deal with brownfields?	Part 3 Generating Engagement from Private Sector - The policy maturity model indicates that a mature policy would promote redevelopment in areas where it otherwise would not occur. If stakeholders feel redevelopment is possible in small real estate markets, it suggests progress toward policy maturity.

3.2 Data Collection

A list of potential participants was assembled using a variety of methods. First, online searches were used to compile a list of both consultants and developers involved in brownfields. A representative from the Canadian Brownfield Network provided a list of contacts for developers experienced in brownfield redevelopment since developers were harder to find using online searches. Additionally, each respondent was asked to identify other potential applicable participants. This “snowball” technique may have the potential to introduce a small degree of bias because respondents may be likely to recommend like minded individuals but in the opinion of the researcher, this was necessary in order to reach the largest number of potential respondents as possible.

The potential participants were contacted either by email or by telephone and the same script was read or sent in each case. They were subsequently forwarded the Letter of Information explaining the study in detail and the list of interview questions before they agreed to participate. In total, approximately 15 consultants and 15 developers were contacted. Of these, 7 consultants and 6 developers were interviewed using survey the survey form over the telephone.

3.3 Organizing Data

For the questions concerning the barriers to redevelopment (numbers 3-5), categories (in this case barriers) were created before the responses were analyzed. These preexisting barriers then served as “bins”. Each time one of these barriers was listed, it is noted. If a barrier was listed which was not anticipated, a new bin was created. The unit of analysis was each individual barrier meaning the response was definitively categorized once that barrier was mentioned.

Using preexisting bins offers two advantages: it keeps the focus on the research question, and it allows comparison between what the respondents indicated and the existing scientific literature.

For questions that were not concerning the barriers (numbers 1,2 and 6-8), preexisting categories did not exist, meaning the categories were created after the audio logs were listened to. These were the latent analysis questions where concepts had to be interpreted and grouped together (Graneheim and Lundman 2004). The units of analyses in this case were broader themes, meaning responses had to be interpreted and categorized (Graneheim and Lundman 2004).

There was the risk that this would cause a deviation from the research question but it also ensured the categories were true to what the respondents answered.

3.4 Analyzing Data

The purpose of the manifest component of this content analysis is to count the number of times a common response is given across the entire response pool (13 interviews) (Gaber and Gaber 2005). For example, the third interview question asks “what are the key barriers to brownfield redevelopment in Ontario?”, the manifest analysis counted the frequency of each as a response and therefore gave an indication of what barriers are more widely believed to be critical.

The latent analysis on the other hand grouped similar themed responses into categories (Gaber and Gaber 2005, Graneheim and Lundman 2004). This was done for the entire respondent group as a whole (13 interviews) and within each group to compare differences between group responses (6 compared to 7). For example, question 7 asks “How would you rate

the role of the federal and provincial government in brownfield strategies and funding”, if two responses from Consultants suggested the provincial government has a large role in funding, these responses would be grouped together and compared to the themes found in the developer responses. This is an example of a “pattern investigation” which can also be described as using “Key Words in Context” in order to determine how different groups view a certain topic (Gaber and Gaber 2005).

Additional note taking also took place whenever a respondent recommended a case study or gave a unique opinion in response to a question.

3.5 Limitations

As mentioned, this study was focused on two private sector groups: environmental consultants and developers in order to evaluate using the policy maturity model which is heavily tied to private sector participation in redevelopment. Other private sector groups were not interviewed including lawyers and organizations which own a large quantity of land. These groups were omitted due to time constraints in order to focus on a larger sample size in the two categories which were addressed. One strength of conducting the study in this manner is that it provided a clear picture of the views of two important stakeholder groups.

Public sector input may have also been valuable including interviews with the MOE, MMAH or city officials responsible for site clean-up. The rationale for focusing on the private sector groups was to more specifically study the private sector contribution to correspond with the model presented by Adams *et al.* In addition, the MOE’s perspective is largely documented on the MOE website and accompanied documentation (MOE 2010), and on the Ontario government’s environmental registry (MOE 2011).

Another potential limitation was present for all questions which did not address barriers to redevelopment (questions 1,2 and 6-8). For these questions, there were no preexisting response categories in the academic literature. Therefore respondents could not be prompted by ranking the importance of certain potential responses. The strength of this method is that each responded is able to list the most important responses in their opinions without being influenced by a list of common answers. The weakness is that the number of responses in each category was often quite low (either because the respondents had different perspectives or because they did not think of a certain response).

The latent analysis also used themes as the units of analyses as seen in the results section. There is a potential for misinterpretation of a response when dealing with higher level concepts rather than a single word as in the manifest analysis. The strength of this method however is the ability to synthesize differently worded answers into the same categories. In order to minimize the risk of misinterpretation, respondents were often asked if they considered their answer to match those that were already received.

4 Results

The total number of responses for the questions one and two are displayed in Tables 3 and 4.

Table 3 - Counts of each response theme to question one of the interviews by both consultants and developers.

Question One – In your opinion, what are the key goals of the new regulation? (or what was the previous regulation lacking?)				
#	Response	Consultant Response Count	Developer Response Count	Total Response %
1	Updating numerical standards based on new science	7	5	92% (12/13)
2	Ensure provincial wide consistency in reporting	4	3	58% (7/13)
3	Indicated this is a positive step for brownfield regulation with certain pitfalls	3	3	46% (6/13)
4	More control on movement of contaminated soils	1	1	15% (2/13)
5	To make process easier (with Streamlined Risk Assessment)	0	2	15% (2/13)
6	Indicated they haven't seen adequate justification for changes in numerical standards	2	0	15% (2/13)
7	Improving the RSC Audit Process	1	0	8% (1/13)
8	Removing conflict issues for qualified persons	0	1	8% (1/13)

Table 4 - Counts of each response theme to question two of the interviews by both consultants and developers.

Question Two – Do you foresee any unintended effects of the new regulations?				
#	Response	Consultant Response Count	Developer Response Count	Total Response %
1	Stringent standards will cause many sites to have contaminant levels above the generic criteria	3	6	69% (9/13)
2	Cost of investigations will rise	4	4	62% (8/13)
3	New regulations will result in more Risk Assessments rather than full cleanup	4	3	58% (7/13)
4	Will slow brownfield redevelopment	3	2	38% (5/13)
5	Increases timeline for investigations	1	3	31% (4/13)
6	Will create more brownfields	2	2	31% (4/13)
7	Removes professional judgement from investigation process	3	0	23% (3/13)
8	Creates a 2 tiered approach for property investigation	2	0	15% (2/13)
9	Standards so stringent it is impossible to import clean soil from a quarry because even clean soil is considered contaminated	1	1	15% (2/13)
10	Liability during transition period not helpful	0	1	8% (1/13)

The most popular answer to the first interview question was that the new regulation updates the generic standards based on new science (92% of respondents, 12/13). The second question had 3 responses which given most frequently: stringent standards will cause many sites to have contaminant levels above the generic criteria (69% of respondents, 9/13), the new regulations will result in more Risk Assessments rather than full cleanup (58%, 7/13) and the cost of investigations will rise (7 responses). Both these tables represent latent analyses because similar responses were grouped into themes.

Tables 5, 6 and 7 display all the responses for questions three, four and five.

Table 5 - Counts of each response to question three of the interviews by both consultants and developers.

Question Three – What are the key barriers to brownfield redevelopment in Ontario today?				
#	Response	Consultant Response Count	Developer Response Count	Total Response %
1	Cost/Lack of Financing (including uncertainty in costs)	5	4	69% (9/13)
2	Time	1	3	31% (4/13)
3	Legal issues (liability)	2	1	23% (3/13)
4	Complexity of process	2	1	23% (3/13)
5	Stringent Standards	0	2	15% (2/13)
6	Public Perception	1	1	15% (2/13)
7	Lack of adequate communication between MOE and private professionals	1	1	15% (2/13)
8	Uncertainty due to changes in regulation	2	0	15% (2/13)
9	Many others all at a count of 1	/	/	8% (1/13)

Table 6 - Counts of each response to question four of the interviews by both consultants and developers.

Question Four – Does the new regulation address any of these barriers?				
#	Response	Consultant Response Count	Developer Response Count	Total Response %
1	Time (Streamlined Risk Assessment Process and faster approval process for RSCs)	2	2	31% (4/13)
2	Small improvements to consistency in reporting and investigation	2	2	31% (4/13)
3	Small improvements to perceived risk	1	0	8% (1/13)
4	Consistency in investigation reduces uncertainties in cost of brownfield redevelopment	1	0	8% (1/13)
5	Making Risk Assessments more accepted in the industry	0	1	8% (1/13)
6	Doesn't Address any barriers	2	2	31% (4/13)

Table 7 - Counts of each response to question five of the interviews by both consultants and developers.

Question Five - Are there any barriers that are left unaddressed?				
#	Response	Consultant Response Count	Developer Response Count	Total Response %
1	Cost of Work (investigations and clean-up)	3	4	58% (7/13)
2	Time	1	3	31% (4/13)
3	Liability	1	1	15% (2/13)
4	Stringent Standards	1	1	15% (2/13)
5	Uncertainty	0	1	8% (1/13)

The most commonly reported barrier in question three was Cost/Lack of Financing (69% of respondents, 9/13). In question four, respondents reported that the MOE was attempting to address the time as a barrier (31%, 4/13) more often than any other barrier. In question five, respondents indicated most frequently that the cost of work was a barrier which was not being addressed by the new regulation (58%, 7/13). These tables represent manifest analyses because the counts were based on words used by the respondents themselves rather than the themes of responses.

The complete list of responses to questions six, seven and eight are presented in tables 8, 9 and 10.

Table 8 - Counts of each response theme to question six of the interviews by both consultants and developers.

Question Six – The United Kingdom has strong brownfield inventory and information programs. Would this be helpful in Ontario?				
#	Response	Consultant Response Count	Developer Response Count	Total Response %
1	Not helpful or not realistic	2	3	38% (5/13)
2	Yes	2	2	31% (4/13)
3	Unsure	2	0	15% (2/13)
4	No, it would slow things down	1	0	8% (1/13)

Table 9 - Counts of each response theme to question seven of the interviews by both consultants and developers.

Question Seven – How would you rate the role of the Provincial and federal government role in redevelopment strategies and funding?				
#	Response	Consultant Response Count	Developer Response Count	Total Response %
1	Both have a minimal role in funding especially the federal government	5	4	69% (9/13)
2	The government should participate more in funding	2	3	38% (5/13)
3	Province good at funding on case by case basis (PPPs)	3	1	31% (4/13)
4	The government shouldn't necessarily be involved in funding	2	1	23% (3/13)
5	Municipalities have been more proactive in strategies and funding than the other levels of government	2	1	23% (3/13)
6	The provincial government should address property tax issues associated with brownfields	1	1	15% (2/13)
7	Federal government should provide funds for aging infrastructure	0	1	8% (1/13)
8	CIP money inadequate generally because it comes too late in the process	0	1	8% (1/13)

Table 10 - Counts of each response theme to question eight of the interviews by both consultants and developers.

Question Eight – How will communities with smaller real estate markets and industrial histories deal with brownfields?				
#	Response	Consultant Response Count	Developer Response Count	Total Response %
1	Requires business thinking, creativity and need.	3	2	38% (5/13)
2	They won't clean up brownfields as things are now	2	3	38% (5/13)
3	They require financial support from the government	3	0	23% (3/13)
4	In unique circumstances, a company goes above and beyond to help	1	0	15% (2/13)
5	Define their CIP into very specific area	0	1	15% (2/13)
6	Perform streamlined Risk Assessments (cheaper)	0	1	15% (2/13)
7	Policy should not provide funding for small market brownfields unless it does for large markets as well (should not grant one market an advantage over another)	0	1	8% (1/13)

The most popular response to question six was that an inventory or information system for brownfields in Ontario would not be helpful or was not realistic (38%, 5/13), although 4 respondents felt that it would help brownfield redevelopment in the province (31%). In question seven, the respondents were asked to rate the role of the federal and provincial government in brownfield funding and strategies: 9 respondents (69%) indicated that they have minimal roles (particularly the federal government). In question eight, the most popular responses were that small communities can clean up brownfields by using creativity and business strategies (38%, 5/13) and that they are not going to be able to cleanup brownfield sites as they are now (38%, 5/13). Each of these tables represents latent analyses since themes were produced from each response.

Additional note taking also took place in order to get a more detailed understanding of the respondents' opinions. The unique responses included the following ideas. First, the prescriptive investigation process of regulation 511/09 will eliminate opportunities for professionals to make judgment decisions. Second, West Don Lands were suggested as a case study to illustrate the potential of public, private partnerships. Alternative methods of funding brownfield redevelopment were suggested including that the federal government should provide more funds through the Federation of Canadian Municipalities for aging infrastructure, or that provincial government could lower the property taxes on brownfield redevelopment sites to rates paid by greenfield sites during the investigation process. All these ideas are expanded on in the discussion.

5 Discussion

5.1 Impacts of Regulation 511/09

The purpose of this section (5.1) is to evaluate the first research question: *What are the strengths and weaknesses of Regulation 511/09?*” by highlighting the positive steps that are brought in by Regulation 511/09 and to introduce the criticisms which exist.

5.1.1 Key Goals of Regulation 511/09

Regulation 153/04 was considered a step forward for Ontario’s brownfield policy because it clarified roles and requirements for site cleanup and redevelopment in the Province (Adams *et al.* 2010, Welbourn *et al.* 2009). Regulation 511/09 specifies even further what is required of the redevelopment industry by redefining precisely what is required in a Phase I and Phase II ESA, implementing more control on the movement of contaminated soil and improving the RSC audit process. For many, this will be seen as a positive step because the MOE is defining specifically what is acceptable and what is not acceptable when it comes to investigations, reporting and cleanup. 6 respondents (46%) referred to these amendments as a positive step for the province. However, each respondent also highlighted some issues that the new regulation fails to address.

The interviews conducted suggest that two important stakeholder groups, environmental consultants and brownfield developers are up to date and in agreement on the major changes Regulation 511/09 brings in place. In response to the first question: “In your opinion, what are the key goals of the new regulation? (or what was the previous regulation lacking?)”, the most popular response theme was “Updating numerical standards based on new science” (92% of

respondents, 12/13). It is not surprising that this response was given most often, because the new numerical standards have the potential to redefine what properties contain parameters above the generic criteria (and therefore which properties are considered contaminated) and it redefines the footprint of contamination on the site.

The key goal which was reported second most by the respondents was “ensuring provincial wide consistency in reporting” (54%, 7/13). Within this group, there were mixed feelings toward this objective. While most respondents felt ensuring consistency in investigation and reporting approaches is important, especially to ensure a certain quality of work from consulting companies which may otherwise cut corners, they also felt these requirements may serve as a burden. Under 511/09, Phase I and Phase II ESAs are becoming a more rigid process, with more requirements imposed on the process. Therefore they remove the opportunity for professional judgment from those trained to make decisions. One respondent stated that this could be a concern for two reasons. First, it causes the industry to lose sight on factors which matter most (such as whether a contaminant plume is contained) and puts more emphasis on requirements of the process. For example, past reports on a site may indicate that a particular contaminant is contained based on a large number of soil samples with eight duplicates each. The new requirements state you must have ten duplicate samples and therefore causes this historic investigation to be suspect even though using professional judgment you may be confident this contaminant is contained. In other words, a prescriptive process may not be more effective than professional judgment in determining whether or not a contaminant plume is contained. Secondly, professional judgment may also be useful in keeping costs low for investigations. More prescriptive requirements increase the price of Phase I and Phase II investigations (and

therefore brownfield redevelopment) because left to the discretion of a professional, some unnecessary investigations or samples may be omitted.

The MOE does have counterpoints to this argument (provided in the documentation associated with the new regulation on the MOE website), which demonstrates there are two logical sides to this debate (MOE 2010). Some qualified persons were not using best practices, which drastically reduced the integrity of investigations and RSCs. The response was to make the requirements very clear and more rigorous, which has the potential to reduce pressure on qualified persons to keep costs low during investigations (since discrepancies in costs for investigations could narrow due to similar procedures). While property owners may not be happy with a more costly investigation process, the qualified person can educate them on why the MOE requires this procedure. The end result is both a better protection of human and ecological health and confidence that once an RSC is filled, further problems are less likely because the investigation was complete (MOE 2010).

There were a few other key goals which were mentioned by the respondents at a lower frequency. One, “The MOE is exerting more control over the movement of contaminated soil” (2 respondents) is an important change because the Ministry hopes to keep contaminated soil from filling up landfills and shift from “dig and dump” remediation to in-situ treatments. Second, 2 respondents felt a key goal was to make the process easier with the introduction of the Streamlined Risk Assessment. Finally, improving the RSC audit process and removing the possibility of conflict of interests for qualified persons were also reported as key goals (1 respondent each).

5.1.2 Potential Shortcomings of Regulation 511/09

The second question asked the respondents if they “foresee any unintended effects of the new regulations?” The most popular response theme was that the stringent standards will cause many sites to have contaminant levels above the generic criteria (69%, 9/13). This is perhaps a misleading theme because while some standards are becoming more stringent, others are becoming less so, and many are not affected at all. Overall, there are more parameters that are becoming more stringent rather than less (Coburn *et al.* 2010, Spensieri 2009) and some standards are being tightened dramatically, such as Petroleum Hydrocarbons F1-F4 in Non-potable groundwater situations which previously had no maximum and now cannot exceed 750, 150, 500 and 500 µg/L which is approximately at the detection limit. In terms of human health and ecological health, stringent standards are certainly a positive direction. However, a number of potential impacts of these stringent standards must be considered. First, as of July 1st, 2011, certain owners will shift from having a clean property to having a “contaminated property” based on a redefinition of what constitutes contamination. This owner is now financially responsible for investigations and remediation if they wish to have a clean site or there is risk of off-site issues. Furthermore, certain respondents reported that certain parameters are becoming so stringent that property owners will not even attempt to cleanup below the generic criteria because it will be impossible or financially unrealistic.

As a result, another frequent consequence reported by the respondents was that Regulation 511/09 will result in more Risk Assessments rather than full cleanups (54%, 7/13). Again, the respondents who responded in this manner were mixed on whether this is a consequence or a benefit of the new regulations. The purpose of a Risk Assessment is to determine whether parameters which exceed the generic criteria can be safely accommodated on

site. Therefore, an effective Risk Assessment could save unnecessary remediation or digging and dumping of soil. On the other hand, certain respondents felt even the Streamlined Risk Assessment process would take longer and be more costly than remediation and that certain risks are still carried on sites that don't meet the generic criteria, particularly that leaving contaminants in place does not help the natural environment.

Other consequences that were reported were that the new requirements of investigations will increase costs significantly (62%, 8/13). Respondents felt it was a step toward more accurate investigations but may discourage property owners. These requirements are also expected to increase the timelines associated with investigations (31%, 4/13) which the respondents reported is problematic for three reasons: it further increases costs (as property taxes and interest accumulate), makes markets harder to predict and in the case of residential developments, it makes it difficult for developers to sell a certain quota of units ahead of construction (which is often required to get investments from lenders).

Respondents indicated that this new regulation has the potential to slow brownfield redevelopment (38%, 5/13) since property owners may be discouraged to redevelop by the stringent standards, as timelines are increased for investigation and more generally, as it takes time to get used to new standards and a new process. There was also a suggestion that there may be a certain type of property which is at the margin of being economically feasible to redevelop under 153/04 regulations that now will be "mothballed" as it is now not worth the investment.

It was also mentioned that this has already begun a two tiered approach for investigating properties (15%, 2/13). Certain owners are not following the new processes if they do not want

an RSC. Lastly, it was indicated that more sites will now be considered brownfields (23%, 3/13) according to the new standards.

5.2 Progress Toward Policy Maturity

The previous section provided an overview of the strengths and weaknesses of Regulation 511/09 according to the respondents. The following section will attempt to evaluate the other two research questions: *“What are the anticipated impacts of the new regulation on the most significant barriers to redevelopment in Ontario?”* and *“Does Regulation 511/09 constitute a step toward brownfield policy maturity in Ontario?”*

5.2.1 Step 1 – Grasping and Understanding the Brownfield Problem

a) Defining the Term

As mentioned, the most commonly accepted definition of brownfields in Canada is that of the NRTEE, presented in 2003.

Abandoned, idle or underutilized commercial or industrial properties where past actions have caused known or suspected environmental contamination, but where there is an active potential for redevelopment (NRTEE, 2003, p. ix).

By definition, brownfields in Canada therefore must have known or suspected contamination. This is unique to North America, as in the United-Kingdom they consider the priority of redeveloping underused sites to be paramount and do not distinguish between brownfields and “greyfields”. Canada’s distinction between these terms suggests there is a stronger priority

associated with the cleanup of contamination. This is interesting because one of the key results of Regulation 511/09 is that more Risk Assessments will be undertaken rather than full cleanups (due to the difficulty of meeting the generic standards and the Streamlined Risk Assessment process). Cleanup may still be required in order to satisfy a Risk Assessment but it is less cleanup that would be required to lower the site below the generic standards.

b) Mapping its significance

Question six of the interview was designed specifically to assess the opinion of consultants and developers on the importance of a brownfield inventory system similar to those in the United-Kingdom. The results were mixed. 5 respondents (38%) felt that an inventory system such as this would not be particularly helpful or else was not realistic for Ontario. There were a number of reasons for this response. First, the respondents indicated that brownfields were relatively easy to find in the province, therefore investors and developers are already aware of this economic opportunity. Secondly, they responded that private property owners would be very adverse to releasing environmental information so creating an accurate inventory would be nearly impossible. One respondent reported that diverting resources to the construction of an inventory would slow down the redevelopment process.

Other respondents agreed with the policy maturity model and felt that an inventory and information system would be helpful in the province (31%, 4/13). Two reasons were given for this response. First, it would help the provincial and federal government grasp the extent of the brownfield problem and how it is changing over time, which would provide some justification for increased funding. Second, making environmental information more public would encourage due diligence in investigation, purchasing and selling property.

5.2.2 Step 2: Recognizing Potential and Securing Political Commitment to Action

a) Governments placing importance on redevelopment

As mentioned earlier, both the United-Kingdom and the United-States governments have contributed significantly to brownfield redevelopment strategies and funding. The England experience showed that broad policies were not enough to stimulate redevelopment. It wasn't until significant financial resources were allocated to the cause that a real difference was seen. Regulation 511/09 is not accompanied by any new financial assistance programs.

To evaluate stakeholder opinions on the commitment of the federal and provincial governments to redevelopment efforts, the respondents were asked to rate the roles of both levels of governments in brownfield strategies and funding. The most popular response theme was that both levels have a relatively minor role, particularly the federal government (69% 9/13). Although most respondents indicated that the provincial government doesn't provide any general funds to private redevelopers for the cleanup or redevelopment of brownfield lands, some respondents indicated that it does do a good job at funding specific projects at a case by case basis, often in the form of Public-Private Partnerships (PPPs) (31%, 4/13).

One example which was mentioned specifically was the West Don Lands project in Toronto. The project requires cooperation between Infrastructure Ontario, the Ministry of Infrastructure, Waterfront Toronto, Infrastructure Ontario and the City of Toronto. The site is 90 acres in historic downtown Toronto, which was selected to house the Pan/Parapan American Games Athletes' Village. The site is currently contaminated and all parties are working together, with Infrastructure Ontario responsible, among other things: the environmental and geotechnical work (Ontario Realty Corporation 2010).

The respondents agreed that there was very little funding for general brownfield projects from the provincial and federal level, they did not agree on whether there ought to be more funding. 5 respondents (38%) stated that there should be more funding from government to help address the financial burden associated with redeveloping brownfield sites. A creative idea was presented by 2 respondents (15%). It was indicated that greenfield and brownfield redevelopment share a number of common costs. However, brownfield has the added time and financial costs of investigation and possible cleanup. Additionally, brownfield developers must pay property taxes throughout the investigation and remediation process. Property taxes on brownfield properties are generally much higher than those on greenfields to begin with, and brownfield developers must pay them over a prolonged period due to the length of the investigation and remediation process. A creative form of funding would be for the provincial government to lower the property tax to the greenfield equivalent rate throughout this period so the developer has funds during the costly investigation phases. The Ontario Realty Corporation is already lobbying for this along with the Canadian Brownfield Network.

No respondents mentioned the Brownfield Financial Tax Incentive program from the provincial government which can offset the business and education tax for properties within a CIP, suggesting perhaps this was not seen as a significant incentive to redevelop sites in general.

However, 3 respondents (23%) stated that government staying away from funding was not a bad thing. These respondents indicated that brownfield redevelopment is a complex market driven by a number of factors and government funding may be seen as an interference on real property issues.

Another idea was presented by one respondent who suggest the federal government should provide more funds to municipalities for aging infrastructure through the Federation of Canadian Municipalities (FCM). While brownfield redevelopment is often said to save money by building on existing infrastructure, this infrastructure is often too old or part of the original contamination. This approach could potentially please both arguments since private companies wouldn't be funded directly and municipalities could allocate their funds as they deemed appropriate.

Finally, 3 respondents (23%) indicated that municipalities have been more proactive than the other levels of government in funding brownfield redevelopment with CIPs. The provincial government did create this regulation in 2007, under part IV of the Planning Act, creating this opportunity for municipalities.

b) Identifying and tackling the main constraints to redevelopment

The policy maturity model indicates that in order to facilitate brownfield redevelopment, the government must first understand the main constraints or barriers to redevelopment in their particular jurisdiction. The third interview question: “In your opinion, what are the key barriers to brownfield redevelopment in Ontario today?” was designed in order to determine whether the constraints listed in the academic literature accurately reflect those that professionals are facing today. Table 11 compares the most common barriers listed in the academic literature with those reported by the respondents.

Table 11 - Comparison of the most common barriers to redevelopment reported in the academic literature to those reported by respondents.

#	Barrier to Redevelopment – Literature	Barrier to Redevelopment - Respondents
1	Regulatory Mechanisms (cost)	Cost/Lack of Financing
2	Regulatory Mechanisms (time)	Time
	Liability (including civil liability)	Legal issues (liability)
3	Stringent Requirement	Complexity of process
4	Uncertainty Regarding Process	Stringent Standards
5	Financing: Difficulty Finding Funding	Public Perception
6	Financing : Lack of Incentives	Lack of adequate communication between MOE and private professionals
7	Market (various)	Uncertainty due to changes in regulation
8	Property Perception Factors	Others
9	Attractiveness of Greenfield Development	

The barriers listed by the respondents reflect those which are established in the literature, indicating that the barriers to brownfield redevelopment in Ontario are well established. The next step then is to design policy which addresses the main barriers to redevelopment. The respondents were then asked: “Does the new regulation address any of these barriers?” Four respondents felt that Regulation 511/09 does not address any of the key barriers to brownfield redevelopment in Ontario. One reason given is that the regulation simply was not intended to encourage redevelopment; rather it was intended to update standards in order to protect human and ecological health (a worthwhile goal on its own).

There were some barriers that the other respondents felt the new regulation has the potential to address. Five respondents (38%) mentioned that the time associated with redevelopment could decrease if the Streamlined Risk Assessment and the faster approval of RSCs process works as the MOE hopes it will. This is another result which is hard to predict before the regulation is in place but if these factors are effective, certain redevelopments could be

faster. Four respondents (31%) indicated that there will be minor improvements to consistency in investigation and reporting which should provide more certainty in environmental conditions present at the site. One respondent indicated that the more prescriptive investigation process will increase costs of investigations but not only will this provide more certainty and due diligence in understanding the site conditions, it may also help developers by making the costs of investigation more predictable. Currently, as many consulting companies do not follow the same process, it is difficult for developers to predict what their costs will be.

Finally, one respondent indicated that the new regulation may help by making Risk Assessments a more common occurrence and thereby raising more awareness and acceptance of this method to the public.

The respondents were then asked if “there any barriers that are left unaddressed?” In contradiction to the previous question, “time” was the second most popular answer (31%, 4/13). These respondents felt the added requirements in Phase I and Phase II ESAs will outweigh any benefits from Streamlined Risk Assessments or faster approval process. Some felt that the Streamlined Risk Assessment process will not be fast enough since proponents will still need to prepare the Risk Assessment report and pre-submission forms, making the Streamlined process still two years long. Another respondent said it will generally take two years or longer to complete the Phase I and Phase II ESAs, which is longer than it currently takes.

The most frequently reported barrier which was not being addressed was the cost of work (62%, 8/13). This is not surprising since the majority of respondents actually reported that the new process will increase the cost of investigations. As a result, many respondents predict proponents will be less inclined to undertake investigations or cleanup. This anticipated

consequence is established in the literature as well as numerous articles have predicted substantial increase in costs associated with Phase I and Phase II ESAs (Elliot and Brohom 2010, Donahue 2009). Furthermore, the banks may require new phase II investigations or addendum reports on sites which have already finished investigation to confirm the site still meets the generic criteria (Evans 2010). This could be another significant increase to cost for property owners who were finished investigations.

The respondents also reported that liability is not being addressed, particularly off-site or third party liability (15%, 2/13). There currently is not protection against civil action from adjacent property owners relating to off-site migration since RSCs only protect against orders from the ministry. This concern has also been expressed in the literature surrounding the new regulations (Donahue 2009).

The other barriers which were listed were stringent standards (15%, 2/13) and uncertainty toward redevelopment process (1 respondent) which could be worsened by a change in regulation and processes. Other analysts have expressed their concern that there may be an automatic lull in brownfield redevelopment as the industry takes time to learn the new standards and the new approaches (Spensieri 2009).

5.2.3 Step 3: Generating Engagement from the Private Sector

According to the brownfield policy maturity model, a mature policy is one that is able to generate development on sites that wouldn't otherwise be developed with market forces alone. As mentioned, Ontario redevelopment has generally addressed "the low hanging fruits", meaning the least contaminated sites in the best markets.

When asked, “How will communities with smaller real estate markets and industrial histories deal with brownfields?”, many respondents compared this situation to another common scenario in Ontario: small sites with lots of contamination and no market for cleanup such as numerous abandoned gas stations scattered across the province. 5 respondents explained how these sites require municipalities to be creative in developing a business strategy for these sites (38%, 5/13). They reported that this generally occurs when there is a great enough need or desire to cleanup such sites, the municipality can encourage development by deciding what is unique about their circumstance and how they can find a niche in the redevelopment market. From here, they can set up a CIP in order to encourage private investment. One respondent suggested they set up a very small CIP, focused on one area to generate interest at a high priority area and move from there. Other respondents were not as optimistic and said that under current circumstances, these types of brownfields will not be redeveloped realistically (38%, 5/13).

Three respondents (23%) suggested that the federal or provincial government should consider a strategy to fund this category of brownfield site: sites which would otherwise not be redeveloped but where a public benefit could be gained. With some funding, the government could shift the balance to where economic conditions are favorable relative to the costs, risks and liability associated with redeveloping such sites.

One respondent had a conflicting opinion, that governments should not get involved in this manner. Funding small community or small contaminated sites would offer one market an advantage over another market (larger, more centrally located sites which are typically redeveloped), which is not a fair way of doing things when dealing with privately owned real property.

6 Conclusions

Regulation 511/09 overhauls the brownfield regulation in Ontario which was previously established by Regulation 153/04. This study interviewed two important stakeholder groups in the redevelopment industry: environmental consultants and brownfield developers in order to evaluate the new regulation. According to the interviews, this regulation has some potential to positively impact redevelopment in Ontario. First, the new generic standards are based on more recent and accurate science on acceptable risk based limits in order to protect human and environmental health. Second, the more prescriptive process for Phase I and II ESAs may enhance the accuracy of environmental investigations and add more predictability into timelines and costs for the investigation process. Third, the MOE hopes to minimize the amount of “dig and dump” cleanup which transports a lot of soil into landfills.

Unfortunately, many respondents felt some of the shortcomings of the new regulation will outweigh these advantages. First, the prescriptive framework removes the opportunity for professional judgment in investigation and reporting work. Importantly, it also adds to the costs of investigation and cleanup to redevelopment, which is already more expensive than greenfield development. Finally, it makes the generic standards very difficult to satisfy which could potentially discourage property owners to undertake work, or cause certain properties to be “mothballed” as redevelopment is no longer economically feasible. Due to all these factors, a policy cost-benefit assessment may be a valuable option for Ontario.

Some impacts will only be realized once the regulation is officially in place, such as the shift toward more Risk Assessments rather than full cleanups to levels below the generic standards. The time implications of a more demanding Phase I and II ESA process appear that

they will outweigh the benefits of the Streamlined Risk Assessment process according to the respondents.

In terms of progress toward brownfield policy maturity, it is interesting that the most common definition of brownfields in Canada continues to associate the term with contamination, where the new regulation is expected to decrease the amount of full cleanups which occur in favor of more Risk Assessments. Secondly, there appears to be some debate whether or not mapping the significance of the brownfield problem in Ontario as described in step 1b) of the brownfield policy maturity model would encourage redevelopment in Ontario.

The respondents did indicate that there is very little funding for general brownfield redevelopment projects, suggesting the federal and provincial government has more work to do in displaying commitment to redevelopment.

The primary goals of the regulation (as noted by the respondents) are: to update the numerical standards and to ensure province wide consistency in reporting and investigation. The persistent barriers to redevelopment do not appear to be addressed by this regulation: cost of cleanup is expected to increase, there is some debate over the timeline implications of this change and liability (particularly from off-site issues) is not addressed. It would be encouraging if the provincial government had released these new standards together with means to address some of these crucial barriers, perhaps as secondary goals.

Finally, perhaps the most important theme which has emerged in evaluating policy maturity progress is that Ontario currently has not strategy to address brownfield properties where there is a small market for redevelopment. Brownfield sites in communities with small

real estate markets or small sites without economic redevelopment potential (such as abandoned gas stations) will sit idle until some thinking is put into developing a strategy to address them.

6.1 Next Steps

This paper has introduced the benefits associated with Regulation 511/09 and the rationale behind Ontario's new brownfield regulation. It has also highlighted the risks associated with the new stringent processes. After implementation on July 1st, 2011 it will be critical that the frequency of brownfield redevelopment is monitored to ensure that developers are not discouraged by the stringent requirements. If this is the case, Ontario may need to take extra measures in order to increase the potential for profit associated with brownfield redevelopment. In particular, research must be conducted in order to develop a strategy to address the sites where redevelopment is currently unfeasible.

NRTEE has already done considerable work toward encouraging a national brownfield strategy (NRTEE). The Ontario Realty Corporation and the Canadian Brownfield Network are also hoping to minimize property taxes on brownfield sites during the investigation process. Efforts such as these show a lot of promise in terms of bringing redevelopment onto a competitive level with greenfield development.

Other questions remain such as whether Ontario needs a way to track its redevelopment progress and how much of a role the provincial government should have in terms of financial incentives (which could potentially affect the private real estate market). During the implementation of a new brownfield regulation serves as an ideal time to reevaluate these questions along with Ontario's brownfield strategy.

Appendix A – Letter of Information

Letter of Information

Project Title: **Exploration of the Impacts of the Ministry of the Environment’s (MOE’s) New Contaminated Site Regulation (Regulation 511/09)**

Completed by: Devin Reynolds, Masters Candidate
School of Urban and Regional Planning, Queen’s University
5dr5@queensu.ca

Supervisor: John Andrew
Professor, School of Urban and Regional Planning, Queen’s University
andrewj@queensu.ca

Summary of report:

This Masters report uses telephone interviews with important stakeholders in the Greater Toronto Area in order to determine the anticipated impacts of the MOE’s new brownfield regulation (regulation 511/09) through the perspective of redevelopment. Following a framework in a paper by Adams *et al.* 2010¹, the research will review the new regulation and its anticipated impacts on the barriers to brownfield redevelopment in Ontario in order to determine if this regulation is a step toward policy maturity in Ontario.

Two important stakeholder groups will be interviewed: developers and environmental consultants. This will give a sense of what impacts the stakeholders anticipate from the new regulation and whether they believe the barriers to redevelopment are being addressed. It will also indicate whether the stakeholders agree on the impacts of the new standards by comparing responses across groups.

Interviews will take approximately 15 minutes and the questions will be sent to you ahead of time. Participation in this project is completely voluntary you may withdraw at any point. Should you choose to withdraw, all your responses will be deleted and your data will be removed from the study completely. If there are any particular questions which you don’t want to answer for any reason, you may skip over them.

¹ Adams, D., C. De Sousa, and S. Tiesdell. 2010. Brownfield Development : A Comparison of North American and British Approaches. *Urban Studies Journal Ltd.* 41 (1): 75-104.

The identities of all participants are confidential. Only the researcher and supervisor will have access to this information. Identities will be coded and the file containing the codes will be kept on a hard drive in a locked drawer. Responses will not be able to be traced to individuals.

There is a small degree of risk involved in this study. Individuals will not be identifiable (nor will specific consulting firms or developers) but the overall opinion of the groups (developers or consultants in the GTA) will be identified.

Interviews will be recorded in order to analyze the content afterwards. Recording will not take place unless you give consent.

The report will ultimately be available from the School of Urban and Regional Planning. Faculty at the school and future students will have access to the report.

Any questions about study participation may be directed to researcher, Devin Reynolds at [-----](#) or --- --- ----, or the supervisor John Andrew at [-----](#). Any ethical concerns about the study may be directed to the Chair of the General Research Ethics Board at chair.GREB@queensu.ca or 613-533-6081.

This study has been granted clearance according to the recommended principles of Canadian ethics guidelines, and Queen's policies.

By signing below, the participant is indicating that they have read and understand the Letter of Information and is willing to participate in the interview.

Name: _____

Date: _____

Signature: _____

Appendix B - Interview Questions

- 1 What are the key goals of the new regulation? (or what was the previous regulation lacking?)
- 2 Do you foresee any unintended effects?
- 3 What are the key barriers to brownfield redevelopment in Ontario today?
- 4 Does new regulation address any of these barriers?
- 5 Are there any barriers that are left unaddressed?
- 6 The UK has strong brownfield inventory and information programs. Is something like this required in Ontario?
- 7 How would you rate the role of the provincial or federal government role in redevelopment strategies and funding?
- 8 How will communities with smaller real estate markets and industrial histories deal with brownfields?

Do you know of anyone else who is knowledgeable about the new regulation that I should be interviewing?

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