

**GREEN GAINS:
UNEARTHING THE TREASURE TROVE OF MUNICIPAL FINANCE INCENTIVES
FOR BROWNFIELD REVIVAL**

by

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ABSTRACT

Brownfields are a potential source of lingering legacy contaminants and a policy problem that poses significant challenges for municipal governments, including providing mechanisms to assist and help fund cleanup activities. There is a significant additional cost associated with remediating contaminants if found on brownfields when compared to greenfield substitutes. This study identifies the municipal finance tools available for use by municipalities and the private development industry when undertaking the remediation of contaminants and the redevelopment of brownfield sites with a particular focus on Hamilton, Ontario. It evaluates their effectiveness through a conceptual proforma analysis. Additionally, this study examines the progression and decline of brownfield-specific Community Improvement Plan Incentives in Ontario from 2018 - 2023. The significant decline amongst smaller municipalities suggests that these municipalities lack the capacity, support, and financial base to implement comprehensive incentive programs. Municipal finance incentives must target the extraordinary costs borne by contamination and the cost of borrowing.

Key words: financial incentives; remediation; brownfield

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EXECUTIVE SUMMARY

Industrial North America in the 1900s was the source of North America's booming economy and transformed waterfront cities along continental shipping routes into vehicles for economic growth. However, late in the century, these productive, tax-generating, employment-producing sites, abandoned North America's downtown areas, migrating into less urbanized areas further from the core. This left municipal governments and developers with numerous vacant, derelict sites that pose a threat to social wellbeing and with no real financial backing to assist with the revival of contaminated land.

Through an examination of publicly available Community Improvement Plans (CIPs) and conversations with municipal staff, the following questions were investigated: (1) What are the basic and unconventional financial and non-financial tools offered by municipal governments and how can they help offset the additional costs of brownfield redevelopment? (2) As Hamilton is widely known as a leader in the brownfield space, what are the tools currently available for use? (2) How do the increased costs of contamination cleanup affect the proforma from a developer's perspective, and what is necessary to support private brownfield redevelopment?

There are existing municipal finance tools available for use by the private development industry when undertaking the remediation of contaminants and the redevelopment of brownfield sites. Municipalities can provide financial assistance to help offset the additional costs associated with lingering contaminants and make the development of brownfield sites more certain through the implementation of a Community Improvement Plan (CIP). Hamilton, Ontario operates one of the

oldest and most comprehensive CIPs titled the Environmental Remediation and Site Enhancement (ERASE) program.

A proforma analysis revealed that financial incentives do not adequately address the additional costs associated with brownfield redevelopment. Payments are modelled on the ‘developer pays’ system, which requires the owner to pay and carry the additional costs throughout the entire development period. Additionally, there has been a significant decline in brownfield specific CIPs within Ontario. In 2018, 79 Ontario municipalities had in-force and active Brownfield-specific CIPs. As of November 2023, a total of 56 brownfield-specific CIPs were offering incentives representing an approximate decline of 29% over 5 years. Small municipalities with a population of less than 150,000 people represented 91% of the total decline.

Municipalities in Ontario would benefit from a detailed tracking mechanism maintained by the provincial government that identifies the status of contamination, remediation efforts to date and public expenditure. Furthermore, grant payments that are disbursed after a project has been completed do not target the additional costs associated with remediating contamination. Rather than providing financial support at the end of a project, grant payments should commence and match the current stage of the development project or consider interest incurred over the project's lifecycle. Municipalities can create a positive feedback loop and merge the real-estate cycle of brownfield redevelopment, merging the real-estate project lifecycle. As more brownfield projects apply for municipal funding due to a more supportive policy environment, municipalities are better equipped with the knowledge and ‘know-how’ when it comes to guiding the process. Increased

municipal capacity leads to more brownfield projects completed within the boundary of a given municipality.

As municipalities begin to offer incentives and subsidize the increased costs associated with brownfield redevelopment, the pressures on greenfield development could potentially be incrementally less. Incentives must almost, if not wholly, offset the additional costs to owners of brownfield sites when compared to greenfield counterparts. Small municipalities outside of the Greater Toronto Area need additional support when compared to the urban centres structured within and around Toronto. They are constrained by a lack of government capacity, funds, staff, and knowledge surrounding incentive programs. These small municipalities would benefit from a 'point person' who could directly advise concerning the operation of a brownfield incentive program and a monitoring program.

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INTRODUCTION

The reuse and remediation of brownfields (potentially contaminated land) is a strategy that multiple levels of government in Canada can use to achieve policy goals such as managing lingering pollution and legacy contaminants, housing provision (including affordable housing), curbing urban sprawl, regenerating urban spaces, all while expanding municipal tax bases, producing local job opportunities, and achieving more efficient municipal service and infrastructure delivery.

Academic work in Canada since the early 2000s, when the brownfield phenomena became a widely popular field of study, has largely focused on the positive social, environmental, and physical benefits that are married to remediation, as well as a handful of barriers associated with assessment, cleanup and the willingness of the private sector to redevelop these sites. Little research has been conducted concerning the financing of brownfield sites from a private sector perspective and government financial tools used to support this perspective such as grants, subsidies, and other non-financial incentives.

Industrial North America in the 1900s was the source of North America's booming economy and transformed waterfront cities along continental shipping routes into vehicles for economic growth. However, late in the century, these once productive, tax-generating, employment-producing sites, many large in size and suitable for heavy- to light-industrial uses, abandoned the convenience of waterfront access in many of North America's downtown areas, migrating into less urbanized areas further from the core. This flight was driven by a variety of factors including, but not limited to, lower land prices in suburban areas as compared to the inner city, extensive infrastructure

investment (freeways) making the ability to commute convenient and the sheer availability of land in the suburbs due to poor regional planning (De Sousa, 2006).

These previously productive large swaths of land became the source of lingering legacy contaminants, including polycyclic aromatic hydrocarbons, polychlorinated biphenyls, lead, asbestos, a range of volatile organic compounds and a policy problem that still poses significant challenges for municipal governments, including providing mechanisms to assist and help fund clean-up activities (See **Figure 1**) (US EPA, 2019). Cities located in the Rustbelt [“a geographic region of the United States that was long the country’s manufacturing, steelmaking...a large part of the Midwest (Indiana, Illinois, Michigan, Missouri, Ohio, and Wisconsin) along with Pennsylvania, West Virginia”] (*Rust Belt | Definition, Map, States, & Cities | Britannica*, 2024) and Canada such as Toronto, Montreal, and Vancouver, once beacons of economic prosperity and sources of the ‘North American dream’, were left with a growing portfolio of derelict, environmental liabilities. Furthermore, disasters triggered by lingering legacy contaminants such as ‘The Love Canal’ in Niagara Falls, New York, brought environmental awareness/justice and the brownfield phenomena to the forefront of the public attention and government policy creation (Phillips et al., 2007).



Figure 1 – Urban brownfield in Toronto, Ontario (Horner, 2024).

This slew of trends described above has left Canadian municipal governments and developers with numerous vacant, derelict sites that pose a threat to social wellbeing and no real financial backing to assist with the revival of contaminated land.

This MRP will evaluate municipal finance incentives targeted toward brownfield sites in Ontario municipalities. More specifically, it will identify the municipal finance tools available for use by the private development industry when undertaking the remediation of contaminants and the redevelopment of brownfield sites with a particular focus on Hamilton, Ontario and the

Environmental Remediation and Site Enhancement (ERASE) program offered by the City of Hamilton. This MRP will attempt to answer the following questions:

1. What are the conventional and unconventional financial and non-financial tools offered by municipal governments and how can they help offset the additional costs of brownfield redevelopment?
2. As Hamilton is widely known as a leader in the brownfield space, what are the tools currently available for use?
3. How do the increased costs of contamination cleanup affect the proforma from a developer's perspective, and what is necessary to support private brownfield redevelopment?

Hamilton, Ontario is a mid-large-sized City located west of the City of Toronto, situated on Lake Ontario. As part of a municipal reorganization initiated by the province in 2001, the surrounding suburbs of Ancaster, Dundas, Flamborough, Stoney Creek and Glenbrook were annexed. The City has a rich industrial past and still serves as a major port along continental shipping routes and is Canada's largest steel producer. Dofasco and U.S. Steel (formally Stelco) still operate some of the largest steel fabrication plants in Canada (Hamilton, 2023). The City is home to one of the fastest growing local economies in the GTA and has a robust advanced manufacturing employment base including iron and steel, motor vehicle manufacturing, railroad rolling stock manufacturing, aerospace and defence, an extensive healthcare industry, and multiple post-secondary institutions (Dugan and Hughes, 2023).

LITERATURE REVIEW

Benefits of Contaminated Site Remediation

The benefits that are associated with the remediation of brownfield sites and the positive effect on communities have evolved and become more ‘all-encompassing’, including arguments in favour of social, environmental, and economic benefits. These arguments have shifted from their early beginnings in environmental and social justice as municipalities and the development community alike have begun to focus on the economic benefits that have proven to be mutually beneficial for both parties.

Early literature and the initial attention of policymakers was rooted in the environmental and social benefits that come with remediating risks associated with brownfield sites. In the 1990s and into the 2000s, the focus began to expand to economic benefits such as expanding employment and tax base, while attracting people back to urban areas (De Sousa, 2017).

On the other hand, social and environmental benefits associated with the remediation of risks posed by contaminated sites emerged well before financial perspectives. The presence of brownfield sites in densely populated cities has been referred to as ‘ticking time bombs’, ‘black eyes’ and a ‘neighbourhood cancer’ spreading to neighbouring properties and leaving cascading impacts on properties involved was a catalyst behind the movement (Greenberg, 2003). This is so in the United States of America, where industry was often located within communities that are home to a large population of people who would identify as members of a minority community and depend on working-class wages. Driven by promises of increased access to better employment opportunities and quality of life, manufacturing and heavy industrial plants were welcomed into these communities as it was assumed the economic and social benefits of industry near communities

would eventually ‘trickle down’. As mentioned earlier, following the abandonment of industry, these communities, home to large racialized populations, were left with disproportional exposure to legacy contaminants and the health risks associated with contaminated land (Capuano, 2003).

Remediation efforts bring immense benefits to urban spaces, including social benefits like the renewal of urban cores, the elimination of social stigmas associated with communities that are disproportionately affected by contaminants (ghettos), and the reduction of ill feelings about community value (De Sousa, 2000). In addition, there are a whole host of well-documented environmental benefits associated with the remediation of risks posed by brownfield sites, including the reduction of urban expansion into greenfield land as an alternative to dealing with contaminants, enhanced environmental quality, the restoration of environments (and the creation of new environments with ecological value), protection of health and safety, and protection of groundwater (De Sousa, 2000). As these benefits continue to evolve, the shift has become geared towards the financial benefits after remediation.

Market conditions are some of the very real factors that contribute to the feasibility of brownfield remediation. However, when dampened the economic benefits from a financial lens are much clearer. This trend is much more prevalent in Canada where market conditions and the realities that are tied to macroeconomic policy governed by the Bank of Canada (B.O.C.) tend to have a great effect on industries such as land development. The Canadian finance, development and real estate markets are extremely volatile and elastic to changes made to macroeconomic policy by the B.O.C. at the federal level. Thus, increasing market pressures driven by macroeconomic policy tend to have an extremely powerful downward pressure on the development industry and

especially on owners of contaminated sites and housing supply (CMHC, 2023). This often deters owners from contaminated sites and potentially negates the financial benefits associated with the remediation of contaminants.

The economic benefits tied to remediation are present, however, sometimes disguised by the market conditions described above. As risks associated with contaminated sites are remediated, they restore the efficient use of land and the efficiency of municipal governments, including property tax collection and efficient municipal service delivery, potentially alleviating budgetary pressures that many municipalities face today. Fiscal benefits of the redevelopment of brownfield sites, which will also be discussed in sections below, include but are not limited to the attraction of foreign and domestic business (including the restoration of light manufacturing and industrial uses in some cases), an increase in municipal tax bases and property values, and expanded job markets (De Sousa, 2000; Hayek et al., 2010; Wang et al., 2023).

Barriers to Redevelopment

When examining the barriers to redevelopment outlined in the literature, it is important to keep in mind that brownfields and greenfields are similar in the sense that a greenfield is a much more ‘risk averse’ substitute for developers who feel that the barriers associated with contaminated sites are too great. As documented by De Sousa, the barriers associated with brownfield sites perceived by the development community can largely be grouped into two categories, institutional and cost (De Sousa, 2015). Some of the most common institutional concerns include the complexity of completing site-specific risk assessment (SSRA) procedures, the complexity and non-standardized

nature of brownfield programs and a lack of regulation and knowledge at provincial and municipal levels to address site-specific contamination concerns (De Sousa, 2015).

Additional barriers that are widely reported across the field of literature include major hurdles related to additional costs that include, but are not limited to liability (over time, after completion) and the time value of money (negatively impacted by lengthy processes), the lack of unique funding and financing options, and the large sum of money required upfront during initial stages of a brownfield project (De Sousa, 2015; Hayek et al., 2010; McCarthy, 2002). Liability continually proves to be one of the largest insurmountable barriers, as perceived and actual legal liability are misunderstood and can be construed on a site-specific basis (Coffin & Shepherd, 1998)

Another barrier stems from direct competition between substitutes (infill vs. greenfield) and the availability of greenfield land in some municipalities. This trend is more prevalent in smaller, more rural communities where the availability of greenfield sites is still high. For example, the annexation of London, Ontario, and the subsequent Land Needs Assessment (2006) study estimated that the City has approximately 60 years of medium-density land supply primarily located on the outskirts of the city (Hayek et al., 2010). This abundant supply no doubt has an impact on preferences and the willingness to accept liability and additional costs associated with brownfield sites, especially in weaker markets.

Additional barriers that are associated with brownfield sites include lingering public perceptions of contamination. The reluctance to get involved with brownfield sites results from the lack of knowledge surrounding the benefits described above, the stigma surrounding contamination (what

is still there?), the areas in which contaminated sites are located and a lack of community support that is essential to the success of brownfield sites (Coffin & Shepherd, 1998; Hayek et al., 2010).

Complex regulation and compliance with differing benchmarks across federal, provincial, and municipal bodies of government further impacts time and costs which creates a major barrier to redevelopment. Processes are complicated by a lack of information, integration, oversight and partnership across these three levels of government in Canada (BenDor et al., 2011). Convolved benchmarks include, but are not limited to, differing requirements and thresholds for cleanup depending on the intended outcome and use of site-specific projects. Standards are influenced by the end function of a project (industrial, commercial, residential and open space), each having differing remediation requirements for contamination (BenDor et al., 2011; McCarthy, 2002).

Another frequently cited barrier to remediation is the lack of funding assistance from different levels of government, which is compounded by increasing uncertainty and the possibility of increasing costs associated with lengthy Environmental Site Assessments (ESA), unknown contaminants revealed by Phase II ESAs, and site acquisition (BenDor et al., 2011; Coffin & Shepherd, 1998; Siikamäki & Wernstedt, 2008). This adds elements of uncertainty, complexity, and issues with collateral as investors require funding assistance from private lending institutions, insurance firms and government bodies (McCarthy, 2002).

Demand poses a final barrier to brownfield redevelopment as it is heavily influenced by the profits that can be made from the redevelopment. Levels of demand vary and are heavily dependent on the location and strength of the local economy. Economically viable sites, where redevelopment

benefits outweigh the costs of remediation, are located in heavily populated downtown cores where demand is high. On the other hand, on economically non-viable sites, often located in suburban, smaller cities with much lower demand, the benefits fail to reclaim the totality of remediation costs, ultimately leading to yet another barrier to remediation (Coffin & Shepherd, 1998).

Financing, Incentives and Liability

As mentioned above, perhaps the largest risk associated with brownfields is the additional cost when compared to greenfield development. However, these perceptions have begun to sway in larger markets that are supported by inflated land values and higher prices per square foot. At times, in large markets such as Toronto, brownfield redevelopment is just as, if not more profitable than greenfield development (De Sousa, 2000). However, the problem lies in small to medium-sized markets that are not supported by high land valuations and lack the financial support and incentives from municipal governments. Additionally, financing contaminated sites brings multiple perspectives to the table including private lenders.

The known and potential liability translates into a higher potential risk for lenders, especially those who take on a 'fixed charge' ("an arrangement in which a lender has the right to take and sell a particular asset from a borrower if the borrower does not pay the loan back over the contaminated property" [(*Fixed Charge*, 2024)]. Private lenders are motivated by certainty and the confidence that all transactions, especially sizable loans associated with site redevelopment are repaid in full, including interest, principal and relevant fees associated with the terms of the transaction. The evaluation of certainty is based on the ability to pay and must be balanced by the liquidity of the asset in question, along with the lender's ability to recover loan loss (Christmas, 2003).

From a lender's perspective, the forms of liability that may occur in the event of default by the borrower can be broken down into two categories: direct liability and indirect liability (Christmas, 2003).

Direct Liability

- If a borrower defaults, the lender becomes directly liable for all environmental contaminants through the result of the acquisition of the property in question that is held as collateral.

Indirect Liability

- The marketability and demand of real estate are potentially impaired by environmental conditions present; and
- Loan impairment when a client is in threat of or has failed to meet its contractual obligations for repayment.

Lenders tend to exercise greater caution when financing redevelopment projects, particularly in inner city areas and where environmental concerns are present. Additionally, Superfund (CERCLA) sites [Comprehensive Environmental Response, Compensation and Liability Act] (CERCLA) allows the “Environmental Protection Agency (EPA) to clean up contaminated sites. It also forces the parties responsible for the contamination to either perform cleanups or reimburse the government for EPA-led cleanup work” (US EPA, 2017)] are heavily stigmatized as lenders are wary about potential liability and adverse impacts due to contaminants (Murphy, 1996).

Some states such as Pennsylvania, Ohio and Illinois have robust brownfield legislation that in most cases, eliminates all lender liability by including language such as “lender[s] [are] only liable if it directly causes or exacerbates a release or compels a borrower to release” (Murphy, 1996) and detailed liability potential in the event of foreclosure. As investors turn to private lenders for development loans that front the additional cost of remediating contaminants, it can become increasingly challenging to access funds depending on the size and type of contaminants as the lender's perspectives of risk and certainty differ dramatically across scales.

The perspectives swirling around private lending and liability have left developers in a tricky position as accessing additional funds required for brownfield sites is difficult. Municipalities can bridge this gap using financial incentives that help directly offset the additional costs associated with brownfield sites when compared to their greenfield counterparts. An alternative that can potentially dampen lender liability would be the government bearing the financial burden and directly providing loans and grants for brownfield redevelopment, thus in turn reducing the number of developers seeking private financing and reducing the average risk on lender's loan books (Pryce, 2010). Providing incentives such as loans and grants to front the initial costs has regulatory backing in the Ontario context as outlined below.

In 2001, Ontario updated its brownfield policy through the *Brownfields Statute Law Amendment Act, 2001* which introduced Ontario Regulation 153/03 (Records of Site Condition) in force on October 1, 2004, within the *Environmental Protection Act (Brownfields Statute Law Amendment Act, 2001)*. In summary, to redevelop a contaminated site, a property owner must hire an engineer or geoscientist (Qualified Person - QP) to assess and submit a Record of Site Condition (RSC)

confirming that contaminants have been remediated to the applicable standards for the intended use. Property owners must file an RSC when transitioning from a less sensitive use (industrial) to a more sensitive use (residential) to reduce liability, fulfil financing and mortgage requirements and obtain municipal permits (De Sousa and Ridsdale, 2021).

A Phase I ESA is first conducted to examine the extent of potential contamination through historical evaluation, site visits and interviews. If potential contaminants are identified, the owner must move to a Phase II ESA; if not, the owner is free to file an RSC. Phase II ESAs involve a much more in-depth investigation which includes physical sampling to determine the location and type of contamination (De Sousa and Ridsdale, 2021).

Several vehicles give municipalities power to offer financial incentives within the *Planning Act*, R.S.O. 1990, c. P.13. Municipalities have the ability to and can provide financial assistance that helps offset the additional costs associated with lingering contaminants and makes the development of brownfield sites more certain. Section 28 of the *Planning Act* grants municipalities the regulatory power to provide incentives and attract investment regarding development. The planning tool authorised under this Act to implement financial incentives is Community Improvement Plans (CIPs) (*Planning Act, 1990*). Based on the definitions found in s. 28 (1) and (1.1) of the Act, municipalities may, if they wish, delineate a community improvement project area where development incentives can be offered (Khayat, 2018). Section 28 of the *Planning Act* goes on to state:

(2) Council may, by by-law, designate the whole or any part of an area covered by such an official plan as a community improvement project area;

(3) When a by-law has been passed under subsection (2), the municipality may,

(a) Acquire land within the community improvement project area;

(b) Hold land acquired before or after the passing of the by-law within the community improvement project area; and

(c) Clear, grade or otherwise prepare the land for community improvement;

(7) The municipality may make grants or loans, in conformity with the community improvement plan, to registered owners, assessed owners and tenants of lands and buildings within the community improvement project area; and

(7.1) The eligible costs of a community improvement plan may include costs related to environmental site assessment, environmental remediation, development, redevelopment, construction and reconstruction of lands and buildings for rehabilitation purposes.

There is a variable scale of use within Ontario as CIPs can encompass the entire area of a municipality, a few blocks, or singular sites. They may also be specifically targeted toward brownfield redevelopment or broader community development objectives. The authority granted under this section of the Act gives municipalities in Ontario the power to grant development incentives, financial and non-financial, to help offset the additional costs incurred by owners of contaminated sites.

Bills 108/138/197 introduced new section 37 requirements (*Planning Act*) and introduced the Community Benefit Charge (CBC), replacing Density Bonuses. Under the *Planning Act*, new section 37 requirements prohibit a developer's ability to bonus financially using incentives provided by municipalities and sets the CBC cap at 4% of the post-development approval land value making these charges more transparent, however, much more rigid (*More Homes, More Choice Act, 2019*). The cumulative payment resulting from the implementation of an incentive

cannot exceed the total eligible costs to obtain an RSC under Ontario Regulation (O.Reg) 153/04 of the *Environmental Protection Act*, RSO 1990, c E.19, further restricting the owner's ability to bonus.

Efficient Service Delivery and Property Value

According to the Government of Ontario (2022), "Brownfield properties are vacant or underutilised places where past industrial or commercial activities may have left contamination (chemical pollution) behind, including factories, gas stations and waterfront properties (port lands) formerly used for industrial or commercial activities" (*Brownfields Redevelopment | Ontario.Ca*, n.d.). In contrast, a greenfield site is not subject to the same environmental pressures as they are defined as "an area of land that has never previously had buildings on it or been used for industry" (*Greenfield Site*, 2024).

The pressure to develop housing is becoming increasingly strong as supply has remained relatively flat, but immigration rates and population increase continue to skyrocket. This presents the question: Where is the most appropriate location for the much-needed housing stock? The two options that Canada has are sprawling into undeveloped greenfield land or prioritising previously used sites, also known as infill or brownfields. Each option has strengths and weaknesses, with financial feasibility remaining the largest hurdle. When comparing the two options, the private development industry tends to opt for greenfield opportunities as they remain less risky in all aspects of business (De Sousa, 2000). There is a need to 'level the playing field' when it comes to brownfield redevelopment to in turn make it a viable, more attractive substitute for greenfield development.

The capital costs of infill versus greenfield development are a relatively recent body of literature that can better quantify both options. Development in greenfield areas requires the provision of additional facilities such as schools, hospitals, municipal servicing, and emergency services. Studies suggest that these trends are directly related to higher car use and correlated with increased emissions along fringe municipalities as transit infrastructure investment has largely not kept pace with housing development (Biddle et al., 2006). There are very few capital costs associated with infill development other than actual land costs, hard costs and connection fees. In most cases, there is existing capacity within the municipal infrastructure and services described above and infill projects tend to be located near existing or planned transit infrastructure (Biddle et al., 2006).

Throughout the literature, it is well documented that the remediation of environmental contaminants has rippling effects on surrounding property values. An empirical study found that property values within a 2.07-kilometre radius accompanying cleanup rose on average between 5 and 11.5 per cent (Haninger et al., 2017). Brownfield projects generate immense value, and economic outcomes have spillover effects on surrounding property values (De Sousa et al., 2009).

Local governments have identified that remediation is important for human and environmental health, however, another compelling benefit for municipalities is generating additional tax revenue within the boundaries of a contaminated site. A study estimated that residential property tax increases resulting from the cleanup of 48 brownfield sites ranged from \$29 - \$97 million (USD) in a single year. Interestingly, the revenue generated solely from the property tax increase was approximately 2-7 times higher than the initial financial contribution (\$12.4 million) and greater

than the estimated cleanup cost (\$28.8 million) (Sullivan, 2017). Additional tax revenue can be used to fund various programs, incentivize cleanup and provide social housing.

Offering financial incentives through CIP incentives is not necessarily a recent phenomenon in the Canadian context. Research completed by Dr. Chris De Sousa and Reanne Ridsdale identified the most common tools used by municipalities in Ontario. These tools included Tax Increment Equivalent Grants, Tax Assistance, and a Study Grant program that supports initial site assessment. There has been a proportional decline in municipalities offering incentives and cancellations for revenue-generating tools such as development charge credits. Most municipalities found that the tools available for use are effective, however small municipalities had limited awareness of the frequency and effectiveness of use. Larger municipal governments noted that the regular use of tools was effective. Interestingly, only 30% of municipal respondents stated that funding was tied to specific goals such as urban design, sustainability, employment, and desired end uses such as affordable housing, commercial or employment uses (De Sousa and Ridsdale, 2021).

In a 2010 study, Hayek et al. examined perceptions around London, Ontario's CIP program targeted toward the owners of brownfield sites. Municipal participants acknowledge the presence of CIP incentives made the redevelopment of brownfield sites more attractive and that without them, it would potentially deter owners from redeveloping contaminated sites and instead push them toward greenfield substitutes. Some participants noted that these incentives within the CIP are necessary to induce private investment, making it easier for developers to manage and deal with risk, not eliminate it (Hayek et al., 2010).

METHODOLOGY

To answer the proposed research questions, a multi-method approach to quantitative and qualitative data collection was used. Ethics approval was obtained by the Primary Investigator, Dr. Christopher De Sousa on June 13 of 2023 for his project titled, *Examining the Role of Public Funding and Financing Incentives in Supporting Brownfield Redevelopment in Canada*, in which I participated as a research assistant. The approval provided us with the capacity to contact municipal staff in the planning, economic development, and other various departments to determine CIP accuracy and identify any discrepancies. It is important to note that the qualitative data collected was provided by sources within municipal government and done so in their professional capacity largely confirming CIP program accuracy and status. For the sake of this MRP, all sources will remain anonymous.

Data collection consisted of a review of the following:

1. A content analysis of existing brownfield and municipal finance literature that is readily available;
2. A content analysis of municipal CIPs and financial incentives; and
3. A review of current macroeconomic and market factors within the province of Ontario.

Based on the research questions noted in the section above, and the fact that the majority of financial incentive documents are available publicly and many reviewed over a 5-year term, the most appropriate method for completing this MRP was determined to largely rely on literature existing online. A total of 112 municipal CIPs were surveyed through independent data collection and publicly available documents. When I noticed a discrepancy or an outdated By-law, the municipality was then contacted to confirm the accuracy of the program. In total, over 50

municipalities were contacted to confirm accuracy. Approximately 15 provided confirmations through email or a brief phone call. As these conversations were done so in a professional capacity, no opinions were provided by me or municipal staff. A qualitative analysis was used to examine the extent to which financial incentives could prove useful for the development community undertaking a brownfield project.

One of the limitations of this study was the time in which I had to collect data. The organizational aspect of meeting arrangements with municipal staff and professionals within the industry was difficult as employees were often extremely busy and did not have capacity to assist. Furthermore, employees' availability was often limited to multiple weeks from the contact date. Another limitation included the coordination of municipal and provincial employees in terms of program operation. Often, contacts in the planning department were listed as the point of contact. After first contact, I was often redirected to multiple departments trying to access the 'point person' of the respective program, usually being within economic development departments. This process became extremely time consuming as the study drew on.

The project was conducted with data from a selection of Ontario municipalities offering CIP incentives specifically targeted at the additional costs of brownfield projects and remediating contaminated sites. Additional data was obtained from an ongoing research project in progress by Dr. Christopher De Sousa (MCIP, RPP), Jim Tischler (FAICP, PCP, MCIP-I) and myself titled: *Examining the Role of Public Funding and Financing Incentives in Supporting Brownfield Redevelopment in Canada* and a dataset provided by the Ministry of Municipal Affairs and

Housing (MMAH) titled, *Municipal Financial Incentives for Brownfield Redevelopment, Trends among Ontario Municipalities, 2018*.

The City of Hamilton was selected to provide a more in-depth look at brownfield program details, operation, and management. This city was selected based on the following criteria:

- Hamilton is seen as an industry leader in the management and remediation of brownfield sites in Ontario;
- Hamilton has a similar mid-large size population in comparison to other Ontario cities (Hamilton - 536,920 [2021]);
- It is conveniently located on a large body of water and functions as a seaport for cargo and trade routes; and
- It has a heavy industrial past and present (heavy industry was once the driving economic force and is still present today).

Using the MMAH dataset, information collected to date by Dr. De Sousa and me, and municipal CIPs, I was able to compile a collection of municipal finance incentives and details regarding program application. These incentives and data collected were incorporated into a qualitative analysis (high-level proforma) to examine their usefulness.

ANALYSIS

At a point in time, the Ontario Ministry of Municipal Affairs kept track of and catalogued all the active CIP programs in Ontario municipalities that were specifically designed to offer brownfield incentives. As of 2018, a total of 79 Ontario municipalities had an in-force and active brownfield-specific CIP designed to incentivise contaminated site redevelopment (Trends in Brownfield Community Improvement Plans, 2018). This number has been in decline since the initial catalogue in 2008. As of November 2023, as shown in **Table 1**, a total of 56 brownfield-specific CIPs were active and offering incentives representing an approximate decline of 29% over 5 years (De Sousa, Horner and Tischler, 2024 [*working paper*]). These statistics show a surprisingly steep decline in municipal assistance and investment for brownfield redevelopment in Ontario.


Quick Statistics (Ontario Municipalities)	
Ontario Municipalities with Brownfield Incentives (2011)	44
Ontario Municipalities with Brownfield Incentives (2018)	79
Ontario Municipalities with Brownfield Incentives (2023)	56
% Change (2018 - 2023)	- 29%
	
<p><i>Working Draft (November 2023)</i> <i>Chris De Sousa PhD, RPP</i> <i>Simon Horner BAH, MPI (2024)</i> <i>Jim Tischler FAICP, PCP, MCIP-I</i> <i>Funded by SSHRC</i></p>	

Table 1 – Brownfield CIP decline from 2018 – 2023.

Common Incentives

There are a wide variety of financial incentives designed to provide financial relief for developers who undertake brownfield projects (see **Table 2**). Most of the common incentives have some sort of monetary value and are largely aimed at lessening the financial burden on private developers. Some of the most common incentives offered through a variety of CIPs in Ontario are Tax Increment Equivalent Grants, Property Tax Assistance, Feasibility Grants, and Planning Fee Grants. A more in-depth description of each tool is provided in the section below.

Common Incentives	
Type	Brief Description
Tax Increment Equivalent Grant (TIEG)	A diminishing yearly grant equal to the municipal property tax increment post redevelopment. This can be a percentage of the tax increment and usually up to 10 years.
Tax Assistance	Municipal tax cancellation for a set period equal to, or a percentage of the education reduction set by the Province under the Brownfields Financial Tax Incentive Program (BFTIP).
Feasibility Grant	Grants are provided to assist in examining the extent of contamination of a particular site and other remedial action plans.
Planning Fee Grant	Grants are provided to reduce the total payable by a developer per planning application.

Table 2 – Commonly offered brownfield incentives in Ontario CIPs.

Tax Increment Equivalent Grants

Tax Increment Equivalent Grants (TIEG) are one of the most widely used municipal finance tools offsetting the additional costs of site remediation through a prescribed number of years. TIEGs can be considered ‘revenue neutral’ as they do not tap into existing general revenue or existing tax bases. Using this mechanism, property taxes are paid by the owner as usual and the municipality ‘grants’ the expected property tax increment after project completion (Example of a Tax Increment Equivalent Grant, n.d.). The TIEG in Ontario is generally paid over 10 years (or until eligible costs of obtaining an RSC) declining by 10% each year until eligible costs have been paid out or the TIEG period has expired, whichever first. By the final year (Year 11), the municipality pays a grant equal to \$0 and collects the entirety of the property tax increment, capitalizing on the increased property tax paid post-redevelopment (See **Figure 2**).

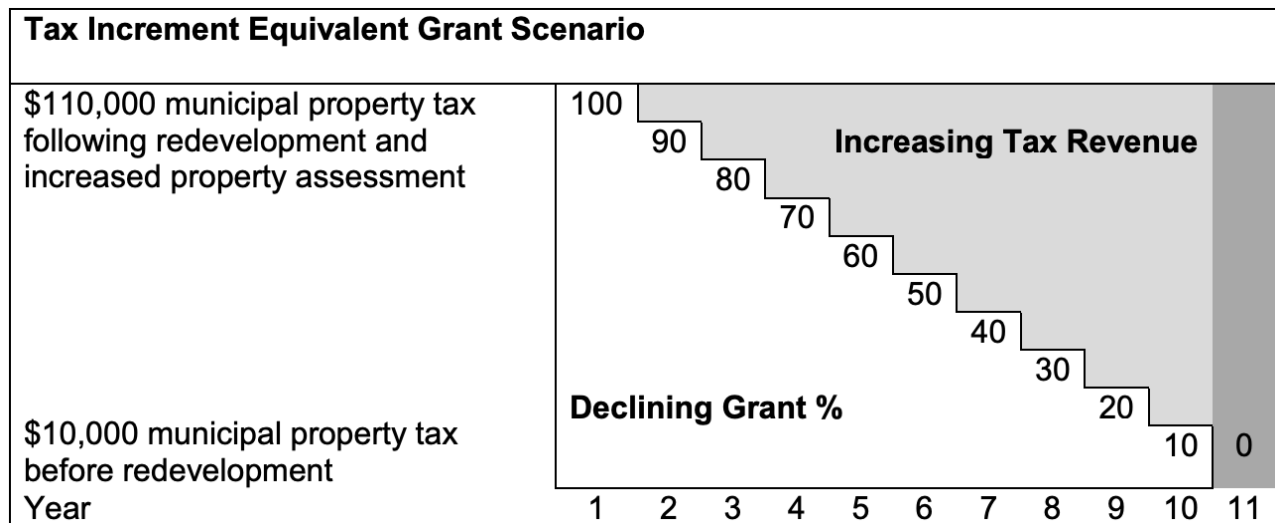


Figure 2 – Example of a tax increment equivalent grant.

Property Tax Assistance

Another common property tax assistance tool administered by municipalities is the proportional matching of municipal property tax cancellation to the province of Ontario’s tax cancellation. Under the BFTIP program (Province of Ontario education tax cancellation program), a

municipality may cancel a portion or all of a property's property tax payable during the rehabilitation and development period, up to 10 years for residential development (*Brownfields Financial Tax Incentive Program | Ontario.Ca*, n.d.). Provincial matching is proportional, so the province may match the cancellation with an entire or percentage reduction to the educational portion of the property tax. This tool is not considered revenue neutral, but rather revenue foregone as the cancellation can occur during the pre-development and development stages before reassessment.

Feasibility Grants

Feasibility grants are sometimes referred to as Environmental Site Assessment (ESA) Study Grants and can be used in several ways. Many ESAs are required under O.Reg 153/04 of the *Environmental Protection Act* including Phase I ESAs and Phase II ESAs to obtain an RSC. Further studies that may apply to a contaminated site include Remedial Action Plans, Risk Assessments, and Designated Substances and Hazardous Material Surveys. Environmental studies can be extremely costly to acquire, ranging between \$10,000 to \$100,000 (Wilson, 2021). Municipalities may, if they wish, provide a grant equivalent to a percentage of the total cost of a study and up to a total dollar amount of a study.

Most ESA Study Grants are formatted as follows (*Environmental Site Assessment Grant Program*, n.d.). Provide a matching grant of X% of the cost for an eligible environmental study to a maximum grant of:

- \$XX, XXX per study;
- X studies per property; and
- \$XX, XX per project.

Planning Fee Grants

Another common type of grant offered by municipalities is reimbursement for planning application fees that are associated with various types of applications including Official Plan Amendments (OPA), Zoning By-law Amendments (ZBLA) and Site Plan Control Applications (SPA). Planning applications have become increasingly expensive, including standalone OPAs (>\$129,000), standalone ZBLAs (>\$250,000) and standalone SPAs (>\$100,000) based on a 40-story application (27,000 square meters of residential gross floor area) (Toronto, 2017). Planning application grants may be equal to a percentage reduction, up to a total dollar amount, which occurs first.

For example, a municipality may offer a grant for eligible individual planning applications such as ZBLAs, OPAs and SPAs or a greater discount for applications submitted concurrently to incentivise the submission of complete applications. Discounts can be equal to a percentage of the total fee per application or a percentage of the total cost. Potential discounts could operate in the following way:

- XX% discount of the total application cost; or
- Up to \$XX, XXX, whichever occurs first.

Uncommon Incentives

In addition to the most common incentives offered by municipalities, there are a host of uncommon incentives, some of which are non-financial, but have the potential to attract private investment and indirectly positively affect cost from a developer's perspective. Some of these unique incentives include, but are not limited to, the following: development charge incentives, parking rate reductions, streamlined approvals and 'Other Charge' reductions (See **Table 3**).

Uncommon Incentives	
Type	Brief Description
Development Charge Incentives	Cancellation, rebate, or deferral of municipal development charges.
Parking Rate Reductions	Reduced residential parking space ratios.
Streamlined Approvals	Development applications are reviewed under their designated Bill 109 timeline.
‘Other Charge’ (Parkland & Section 37) Incentives	Reduced parkland payments (in-lieu) and reduced post-approval land value cap (4%) for section 37 (CBC) charges.

Table 3 – Uncommonly offered brownfield incentives in Ontario CIPs.

Development Charge Incentives

Development charges are levied by municipalities and the province to pay for the increased cost of providing additional services such as water, roads, transit, and sewer for new development (Toronto, 2023). They are legislated under the *Development Charges Act, 1997*, S.O. 1997, c. 27 and implemented through the passing of municipal By-laws every five years.

Under section 5(1).10 of the *Development Charges Act, 1997*, a municipality may if it wishes reduce the total development charges payable per unit type by percentage to the land owner or waive them entirely (*SO 1997, c 27 | Development Charges Act, 1997*). However, this tool could potentially contribute to a significant loss of municipal revenue, especially for those who rely on development charge revenue for day-to-day operating expenses. One way to combat this revenue shortfall is offering a development charge deferral in which the owner of a property pays the charge in instalments over a period of time once development or significant sales have been completed.

Parking Rate Reductions

Parking requirements, especially underground parking structures, can kill an entire project. In 2024, the price per square foot to build underground parking structures ranged from \$175 to \$300 per square foot or \$50,000 per parking space (Canadian Cost Guide, 2024; The Canadian Parking Association, n.d.). Some municipalities have recently amended parking By-laws to reflect parking rate maximums rather than minimums, however, most municipalities still use parking minimums. By passing site-specific municipal By-laws, a municipality may prescribe low maximum parking space ratios and sometimes no parking requirement when located near public transit.

Streamlined Approvals

On April 14, 2022, Bill 109 *More Homes for Everyone Act* received royal assent from the province. Among many alterations to the *Planning Act*, one notable change included modifications to the approval timeline that municipalities are required to abide by. Post Bill 109, City Staff have delegated authority to review SPA applications within 60 days before a fee refund is required. Likewise, Council must review ZBLA applications within 90 days and 120 days for concurrent OPA/ZBLA submissions before fees will be refunded (*More Homes for Everyone Act, 2022*). Municipalities could offer owners of brownfield sites an expedited timeline as prescribed by Bill 109, offering more certainty and less perceived risk surrounding extended timelines.

'Other Charge' Reductions

Municipalities often lump section 37 contributions and cash-in-lieu payments for parkland dedication as 'other charges'. Although a significant portion of municipal revenue, municipalities can either lower the percentage cap required for section 37 payments or lower parkland dedication requirements, affecting the total payment in-lieu cost. Currently, a municipality may request up to 4% of the post-approved development land value through section 37 (*RSO 1990, c P.13 | Planning*

Act). Additionally, municipalities may request 5%-15% of the development land area to be conveyed to the City as parkland or cash-in-lieu (Toronto, 2018). However, through site-specific By-laws, municipalities may cap these rates at a lower cost for a private landholder.

Hamilton ERASE Program Incentives

The City of Hamilton operates the first and most widely known brownfield financial incentive program in Ontario – Environmental Remediation and Site Enhancement (ERASE) Programs for Brownfields, enacted in 2001 and subsequently renewed and amended in 2010, 2014 and 2018 (To Adopt the Environmental Remediation and Site Enhancement Community Improvement Plan, 2023). It offers the widest variety of funding strategies offered by municipal government and is available for use by the private sector. Another reason why this program has been so successful is its wide definition of eligible costs and the ability to cover a wide variety of costs within multiple stages of the development process.

The wide range of eligible costs is not limited to remediation and investigation activities alone but also includes incremental construction costs for sustainable buildings. This range can be helpful for developers looking to recoup additional costs to redevelop contaminated sites. The following five tools that make up the program are (*Municipal Programs*, 2019):

ERASE Study Grant (ESG)

This grant is intended to offset the additional costs of acquiring the necessary studies before filing an RSC subject to the following (*Municipal Programs*, 2023):

- Maximum 50% of an eligible study to a maximum grant of;
 - \$20,000.00 first study; and

- Combined \$35,000.00 for two.

To be eligible for the ESG, a developer must apply for the grant with the intention of redevelopment, not due diligence or sale. A developer must then complete the necessary studies in consultation with the City and pay in full. Upon study completion, all documents are to be submitted to the City where they are reviewed and reimbursed (Erase Study Grant (ESG) Program, 2023).

ERASE Redevelopment Grant (ERG)

The ERG is similar to a TIEG as payment in the form of a grant is provided to the developer over a certain period. Program details are shown in **Table 4** below (Municipal Programs, 2023):

**Table 1 – Prescribed Grant Parameters:
Brownfield Developments and Enhanced Brownfield Developments**

		Brownfield Development	Enhanced Brownfield Development
Maximum Eligible Costs Permitted For:	the transportation and disposal of contaminated soil at a licensed landfill facility	80%	80%
	*In-situ or Risk Assessment remediation methods or the transportation and treatment of contaminated soil so as to enable reuse	100%	100%
	all other environmental remediation and DSHM eligible costs unless otherwise specified	80%	100%
Maximum Potential Annual Grant Payments		10**	13**
Maximum Annual Grant as a Percentage of Actual Tax Increment Realized		80%***	100%

Table 4 – ERG Grant parameters.

For the purposes of this grant, payment concludes once the percentage cap has been met or eligible costs have been met, whichever first occurs. Eligible costs include, but are not limited to (Erase Redevelopment Grant (ERG) Program, 2023):

1. *Physical environmental remediation of soil and/or groundwater which includes the cost of any action taken to reduce the concentration of contaminants on, in or under the eligible site required to meet the applicable SCS needed to facilitate the planned development/use and to permit the filing of a RSC by a Qualified Person, including costs of preparing and filing the RSC and Certificate of Property Use (CPU);*
2. *Clean backfill, grading and compaction to replace contaminated soils, where required;*
3. *Phase II ESAs, Remedial Action Plans and/or Risk Assessments not reimbursed, or planned to be reimbursed, under the ERASE Study Grant (ESG) Program;*
4. *Peer reviews with respect to Risk Assessments where an RSC is not required by the MECP;*
5. *Installation of environmental and/or engineering controls/works, related to environmental remediation, as specified in the Remedial Action Plan, Risk Assessment and/or CPU;*
6. *Testing of on-site excess soils for potential reuse but shall not include the excavation, management, transportation or disposal of such soil except where the soil originates from the site and is found to be contaminated.*

ERASE Tax Assistance (ETA)

The ETA program is similar to the ERG program; however, tax assistance is provided in a cancellation rather than a grant. This program can be paired with the Ontario BFTIP program with approval from the Minister of Finance office. Details of the program are as follows (Erase Education Tax Assistance (ETA) Program, 2023):

- 80% of the increase in the municipal portion is eligible for cancellation;

- 6-year relief period for commercial development, a 10-year relief period for residential development; and
- Matching from the Province is subject to Ministerial Approval.

Like other programs, grant payments conclude once the totality of eligible costs has been met or the grant criteria have been met, whichever first. A wide range of eligible costs are covered which include (Erase Education Tax Assistance (ETA) Program, 2023):

1. *Physical environmental remediation of soil and/or groundwater which includes the cost of any action taken to reduce the concentration of contaminants on, in or under the eligible site required to meet the applicable SCS needed to facilitate the planned development/use and to permit the filing of a RSC by a Qualified Person, including costs of preparing and filing the RSC and Certificate of Property Use (CPU);*
2. *Clean backfill, grading and compaction to replace contaminated soils, where required;*
3. *Phase II ESAs, Remedial Action Plans and/or Risk Assessments not reimbursed, or planned to be reimbursed, under the ERASE Study Grant (ESG) Program;*
4. *Peer-reviews with respect to Risk Assessments where an RSC is not required by the MECP;*
5. *Installation of environmental and/or engineering controls/works, related to environmental remediation, as specified in the Remedial Action Plan, Risk Assessment and/or CPU; and*
6. *Testing of on-site excess soils for potential reuse but shall not include the excavation, management, transportation or disposal of such soil except where the soil originates from the site and is found to be contaminated.*

ERASE Commercial Districts Remediation Loan (ECDRL)

ECDRL loans can be paired with tax assistance programs to further suppress costs. This program is specifically targeted toward commercial corridors in the City such as Downtown Hamilton, Stoney Creek, Barton Street and Dundas providing a loan subject to (Erase Commercial District Remediation Loan (ECDRL) Program, 2023):

- 80% of actual remediation costs, up to \$400,000.00 at a 0% interest rate;
- 4-year loan term; and
- A minimum of 25% of the original loan amount is to be repaid annually.

The following costs are eligible to be covered under the remediation loan (Erase Commercial District Remediation Loan (ECDRL) Program, 2023):

1. *Physical environmental remediation of soil and/or groundwater which includes the cost of any action taken to reduce the concentration of contaminants on, in or under the eligible site required to meet the applicable SCS needed to facilitate the planned development/use and to permit the filing of a RSC by a Qualified Person, including costs of preparing and filing the RSC and Certificate of Property Use (CPU);*
2. *Clean backfill, grading and compaction to replace contaminated soils, where required;*
3. *Phase II ESAs, Remedial Action Plans and/or Risk Assessments not reimbursed, or planned to be reimbursed, under the ERASE Study Grant (ESG) Program;*
4. *Peer-reviews with respect to Risk Assessments where an RSC is not required by the MECP;*
5. *Installation of environmental and/or engineering controls/works, related to environmental remediation, as specified in the Remedial Action Plan, Risk Assessment and/or CPU;*

6. *Testing of on-site excess soils for potential reuse but shall not include the excavation, management, transportation or disposal of such soil except where the soil originates from the site and is found to be contaminated; and*
7. *DSHM Survey and/or abatement/removal in accordance with the Occupational Health and Safety Act and Ontario Regulation 278/05 (where applicable) on sites that:*
 - a. *Contain a current/closed institutional use;*
 - b. *Contain a building designated under Part IV or V of the Ontario Heritage Act; or*
 - c. *Are being developed for use as a not-for-profit housing development.*

ERASE Affordable Housing Grant (EAHG)

A recent review (2023) of the ERASE program implemented the new EAHG grant which incentivizes affordable housing. Under this program, ‘not-for-profit housing development’ is eligible for a grant of up to \$200,000.00 up to eligible cleanup costs (Municipal Programs, 2023). Any entity in good standing with the *Not-for-Profit Corporations Act, 2010, Canada Not-for-profit Corporations Act, Co-operative Corporations Act, 2022*, or CityHousing Hamilton is eligible for this grant (Erase Affordable Housing Grant (EAHG) Program, 2023). Eligible costs under the EAHG Grant include:

1. *Physical environmental remediation of soil and/or groundwater which includes the cost of any action taken to reduce the concentration of contaminants on, in or under the eligible site required to meet the applicable SCS needed to facilitate the planned development/use and to permit the filing of a RSC by a Qualified Person, including costs of preparing and filing the RSC and Certificate of Property Use (CPU);*
2. *Clean back fill, grading and compaction to replace contaminated soils, where required;*

3. *Phase II ESAs, Remedial Action Plans and/or Risk Assessments not reimbursed, or planned to be reimbursed, under the ERASE Study Grant (ESG) Program;*
4. *Peer-reviews with respect to Risk Assessments where an RSC is not required by the MECP;*
5. *Installation of environmental and/or engineering controls/works, related to environmental remediation, as specified in the Remedial Action Plan, Risk Assessment and/or CPU;*
6. *Testing of on-site excess soils for potential reuse but shall not include the excavation, management, transportation or disposal of such soil except where the soil originates from the site and is found to be contaminated;*
7. *DSHM Survey and/or abatement/removal in accordance with the Occupational Health and Safety Act and Ontario Regulation 278/05 (where applicable); and*
8. *Some incremental construction costs for sustainable buildings.*

ERASE Municipal Acquisition and Partnership Program (EMAP)

This program authorizes the city to purchase and partner with the private sector subject to council approval in the cleanup and redevelopment of contaminated sites. It is one of the few public-private partnerships inscribed in legislation (*Municipal Programs*, 2019). The program enables the City of Hamilton to:

- Acquire, hold, clear, grade or otherwise prepare brownfields for the purposes of achieving community improvement that supports [the] Plan's goals and objectives;
- Construct, repair, rehabilitate or improve buildings on brownfields acquired or held by the City in support of [the] Plan's goals and objectives;
- Sell, lease, or otherwise dispose of any brownfields acquired or held by [the City] in support of [the] Plan's goals and objectives; or

- Participate financially or otherwise with private sector entities to further the goals and objectives of [the] Plan.

Hamilton's CIP incentives are based on the 'Developer Pays' model of development finance. Within this model, the landowner or developer is required to pay for the upfront additional costs of brownfield development, such as site assessments, demolition, and remediation without municipal assistance. Once development has commenced, the building is turned over, and the municipality has expanded its tax roll, eligible grant payments will commence.

The Relationship Between Cost and Subsidy – Proforma Analysis

A fictitious development project in the City of Hamilton will be used to display the initial burden of additional costs and subsidies available that lessen these costs. The development statistics have been provided in **Tables 5, 6, 7 and 8** below. For the purpose of this exercise, the contemplated development is a corner gas station that is heavily contaminated and located near higher-order transit. Additionally, it will include a conceptual development proforma displaying the additional costs and upfront subsidies for a development project. Only subsidies that mitigate actual project costs during the development period have been included. Grant payments disbursed after turnover have been omitted. Additionally, non-financial tools have been excluded.

Actual Development Details	
Lot Size (ft ²)	14,500
FSI	6.0
Above grade GFA	90,000
Gross Construction Area	100,000
Below Grade GFA (ft ²)	30,000

Table 5 – Actual development details.

GFA by Use (ft²)	Share	GFA
Residential GFA	95.00%	85,500
Floor 1 GFA Share	5.00%	4,500

Table 6 – Gross floor area by use.

Net Sellable Area (ft²)	Efficiency	NSA
Residential Efficiency	72.00%	61,560.00
Floor 1 Efficiency (Not Sellable)	85.00%	3,825.00

Table 7 – Efficiency by use.

Unit Breakdown	Share	Units
Bach	10%	13
1BR	65%	86
2BR	15%	20
3Br	10%	13

Table 8 – Unit mix.

As shown in **Tables 9 and 10** a variety of costs are influenced by contamination including the actual cost of remediation, ESA costs and an increased percentage assumption for both soft costs and contingency due to the complex nature of the project requiring additional consultants and reserve funds for unexpected costs.

Development Costs		
Construction		
Hard Costs - Building	\$338	\$33,800,000
Hard Costs - Below Grade	\$238	\$7,140,000
Remediation Cost (Gas Station)		\$500,000
Total Hard Costs		\$41,450,000
Other Costs		
Phase I & II Assessments	Mid- High-Range	\$45,000
Development Charges		\$5,959,317
Parkland Dedication CIL (% of land value)	10.00%	\$1,080,000
Section 37 CIL (% of land value)	4.00%	\$432,000
Soft Costs (% of Hard Costs)	35.00%	\$14,507,500
Contingency (% of Hard Costs)	10.00%	\$4,145,000
Fees Total (DC's)		\$7,471,317
Total Costs before interest	\$78,373,817	

Table 9 – Development costs.

Additional Costs and Subsidy	
Site Assessments	\$45,000
Remediation Cost	\$500,000
ERASE Study Grant	\$35,000
Total Additional Cost	\$510,000

Table 10 – Additional costs and subsidy applied.

Table 11 below shows just how difficult it is to make the financial argument for brownfield redevelopment even when there are subsidies and grants involved. Accessing subsidies is timely and difficult as all the necessary documents must be filed and peer-reviewed by multiple departments in a municipality. Although helpful, the increased costs have cascading effects, especially on interest as shown below.

Project Returns	
Total Revenue	\$89,262,000
Total Costs before interest	\$78,373,817
Total Development Cost (With interest)	\$94,116,006
Unleveraged Project (e.g. no debt; 100% Equity)	
Profit (Unleveraged)	\$11,677,414
Profit/Costs	12.4%
Profit/Revenue	13.0%
Profit/Equity	14.9%
Leveraged Returns	
Profit	-\$4,064,776
Profit/Costs	-4.3%
Profit/Revenue	-4.6%
Profit/Equity	-5.2%

Table 11 – Leveraged and unleveraged project returns.

One of the most variable factors that contributes to increased cost accounting is the amount of interest payable by the developer over the project timeframe when contamination is present (See **Table 12**). A full breakdown of the cost of borrowing is provided in **Appendix A**.

Project Costs			
	Total	Debt	Equity
Land Cost	\$10,800,000	\$6,480,000	\$4,320,000
Soft Costs	\$14,507,500	\$8,704,500	\$5,803,000
Fees	\$7,471,317	\$4,482,790	\$2,988,527
Hard Costs	\$41,450,000	\$24,870,000	\$16,580,000
Contingency	\$4,145,000	\$2,487,000	\$1,658,000
Total	\$78,373,817	\$47,024,290	\$31,349,527

Table 12 – Project costs and cost share.

Construction (+Land) Loan Details	
Prime Rate	5%
Additional Interest	2.50%
Loan to Cost Ratio	60%
Loan Amount	\$47,024,290
Equity	40%
Equity Investment	\$31,349,527
Interest on Construction (+ Land) Loan	\$15,742,189
Total Development Cost	\$94,626,006

Table 13 – Loan details and total cost.

As shown above, in **Table 13**, a mid-rise brownfield project with a total cost (excluding interest) of \$78,373,817 would incur an estimated total payment of \$15,742,189 in interest over a 5-year development period equating to a total cost of \$94,626,006. These assumptions are relatively conservative. In reality, the cost to examine and remediate contamination is site-specific and project timelines often drag on much longer than anticipated. Furthermore, municipal grants that are specific to brownfield redevelopment do not target the cost increment of a brownfield when compared to greenfield sites. The majority of grants are paid once the project has been completed and the developer has replaced the construction loan with a term loan.

RECOMMENDATIONS

Coordination, capacity, and the financial tools used to manage contamination and remediate contaminated sites differ tremendously among Canadian municipalities and notably, lack assistance and oversight from the province and federal government. This next section will include recommendations for a more coordinated approach to funding the remediation of brownfield sites.

Review and Monitoring

Dealing with large environmental problems that require a significant amount of public dollars must be supported by all three levels of government. Emphasis should be placed at the highest levels to ensure proper management and the effective dispersal of funds. Streamlined policy efforts involve reaching agreements on policy objectives (target brownfield cleanup) and agreements on timing (10-year period) resulting in a more wholesome, coordinated approach to policy creation (Schnabel & Hegele, 2021). A streamlined approach to brownfield policy creation, management and funding in Canada is crucial to the success and remediation of contaminated sites.

The fragmented approach led by local levels of government is extremely nuanced and leaves too much room for interpretation. For example, a large percentage of municipalities have neglected providing brownfield financial incentives (56 Ontario municipalities with programs) due to their inability to manage, facilitate and fund a program that requires significant effort and public funds (De Sousa & Horner, 2023 [working paper]). Looking toward the American model, programs that are tightly managed by both the EPA and state governments provide municipalities with clear avenues to access public dollars.

The EPA and State governments take on a much more managerial role when it comes to the disbursement of funds and management of portfolios, while their Canadian counterparts have downloaded a large portion of the responsibility to more local levels of government. Programs that are funded by higher levels of government tend to ‘trickle down’ and create a more equitable approach to accessing funding. On the contrary, the Canadian approach has left municipalities with the responsibility of managing and providing funding at the local level, which has proved to be problematic. The EPA has a comprehensive grant system which requires municipalities to apply for access to a larger pool of funds which is then disbursed and can be tracked to the dollar amount (US EPA, 2013).

In Canada, this type of tracking and monitoring system does exist; however, it is only accessible to sites that are managed by the Federal government and its crown corporations (Federal Contaminated Sites Inventory [FCSI]) (*Federal Contaminated Sites Inventory*, 1994). The FCSI tracks a variety of attributes necessary for cleanup including location, priority, contamination details, and total expenditures to date. Municipalities in Ontario would benefit from a detailed tracking mechanism like the FCSI maintained by the provincial government. It would allow municipalities to annually report sites with suspected contaminants and any remediation activities carried out to date, potentially attracting private investment as there is a greater level of transparency. However, most municipalities and the provincial government do not have an ‘in-house’ expert who is familiar with the process and funding required to develop brownfield sites. There is a need for a tracking mechanism such as the FCSI to be managed by a sole entity or department within the government dedicated to brownfield development, extending the capabilities and knowledge to deal with these sites.

Real-Estate Lifecycle of a Brownfield Project

CIP programs and the structure of repayments fail to recognize the actual lifecycle and project timelines of a brownfield project. Broadly speaking, most real-estate projects situated on greenfield sites have one major milestone that relies heavily on funding from private lenders, that is the construction period. Brownfield projects have two unique components that rely on lenders and include the normal costs of development plus the extraordinary costs borne by contamination. The two stages include: (1) the remediation period which includes the activities undertaken to mitigate contamination, and (2) the construction period. Savvy property owners will split these periods with two separate loans from lending institutions including a line of credit or term loan that is reserved specifically for the costs of remediation and a separate, more traditional term loan reserved for the construction of the building.

Municipal grants must specifically offset the extraordinary costs present during the first stage of a brownfield project. This will create two positive feedback effects including easier access to remediation loans and merging the separate stages into one more realistic real-estate cycle. Grants directed to offset remedial lines of credit provide lenders with a form of collateral that is otherwise not present. If a borrower were to default on a remedial line of credit, lenders are satisfied by the fact that the loan is guaranteed by the government in the form of a CIP grant. In the event of foreclosure, the lender can if they wish carry out the remaining remediation activities that have been guaranteed by a CIP grant. Upon completion, they can proceed to sale, or complete the project. Additionally, strategic grants that offset the extraordinary costs could merge the remediation stage with the construction stage creating one brownfield real-estate cycle equal to, if not better than traditional real-estate cycles. A direct result of this simplification is that the

development market now has certain advantages within the brownfield market catalyzing demand rather than relying on the altruism of the development industry.

Upfront Costs (Feedback Loop)

Perhaps the most restrictive component of brownfield redevelopment is the additional upfront costs associated with site assessment, demolition, and remediation. On average, Phase I site assessments range from \$3,000 to \$5,000, while Phase II site assessments can range from \$7,000 - \$60,000 depending on the extent of contamination (*Environmental Site Assessments – What You Need to Know*, n.d). Actual remediation costs place a further burden on property owners as costs can range from \$200,000 for lightly contaminated sites to \$1,000,000 for public drinking water facilities (B.H Wilson et al., 2004).

In the Canadian model, these additional costs are incorporated into the proforma and paid by the developer upfront as municipal CIP programs are operated through the ‘developer pays’ model. These additional costs then must be carried throughout the entire project, until most grant payments begin at completion.

Figure 3 shows the relationship between additional costs and the development timeline for a portfolio of sites; however, the general premise that the additional costs present a considerable risk during the most volatile time period remains the same for individual projects. That is, the riskiest, additional costs are paid by the developer during the initiation of a project, carried through the entire lifecycle and not reimbursed municipally until project completion.

TIEG programs targeting these initial costs that are used by most municipalities offering incentives must be rearranged to address the totality of costs including interest as described above. As currently structured, TIEG programs do not reimburse the time cost of money (interest) on eligible cleanup activities. Many also rest on the premise that eligible costs can be recouped over a 10-year time period. Current eligible costs for most TIEG programs include any action to reduce contamination to file an RSC. In practice, these payments and the totality of the TIEG address the principal costs of remediation loans and lines of credit but do not address the interest incurred over the lifecycle of remediation.

Costs eligible for reimbursement under a TIEG program must be more detailed and include the principal amount of remediation loans and interest payments on such loans. Additionally, longer repayment terms should be applied on a case-by-case basis and dependent on the size of remediation loans to ensure that the totality of costs is reimbursed. This will result in longer repayment terms; however, it will create a more realistic structure that targets the total cost of borrowing to undertake remediation activities.

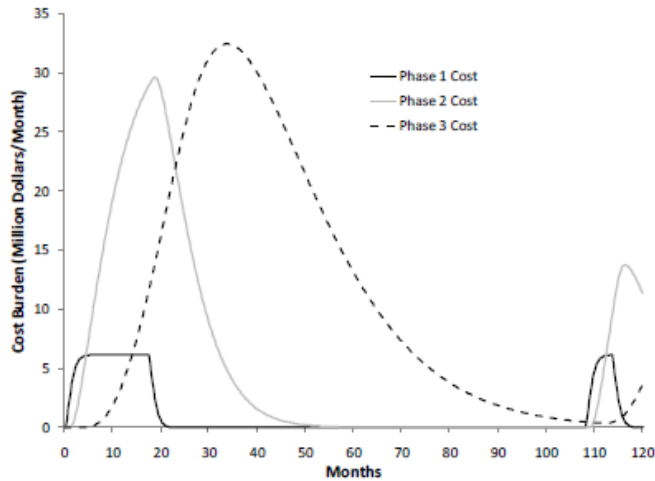


Figure 3 – Relationship between cost and time (BenDor et al., 2011).

The willingness of developers to undertake development on contaminated sites depends heavily on the subsidy available during these initial stages of the project. Rather than providing financial support at the end of a project, grant payments should commence and match the current stage of the development project. For example, Study Grants could potentially be disbursed as soon as an ESA has commenced which offsets the carrying costs throughout the development timeline. CIP incentives should target the carrying cost of interest that is caused by the initial additional cost to remediate contamination paid upfront by the developer. Grants paid upon completion of a project do not adequately address the increased costs at the beginning of the lifecycle of a project. Another viable alternative that could complement the current municipal repayment structure is accounting for carried costs at payment dispersal. This could manifest as increased municipal payments that add interest to the total amount resulting in a more realistic repayment.

Create a Feedback Loop

Municipalities can create a positive feedback loop between redeveloped brownfields and the amount of funding available for contaminated sites (See **Figure 4**). As more brownfield projects apply for municipal funding due to a more supportive policy environment, municipalities are better equipped with the knowledge and ‘know-how’ when it comes to guiding the process. Increased municipal capacity leads to more brownfield projects completed within the boundary of a given municipality. As the literature suggests, an increasing amount of remediation projects leads to an increase in local jobs and tax revenue, ultimately leading to an increased amount of total funding available for grants and subsidies that support brownfield projects.

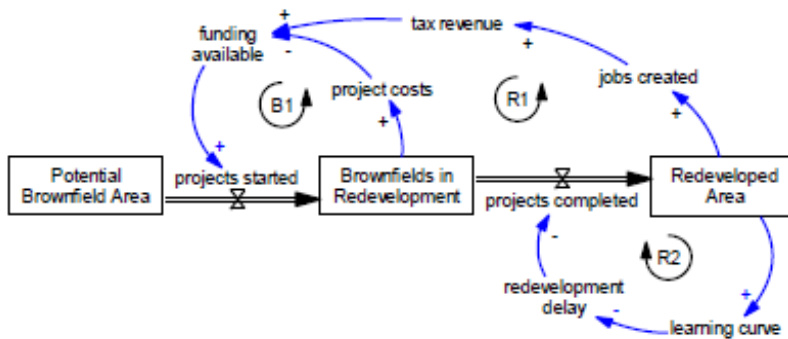


Figure 4 – Brownfield redevelopment feedback loop (BenDor et al., 2011).

The cornerstone of moving the market in a positive direction is supporting the private development industry. Developers supporting the market, a key driver of development economics, is only possible when CIP programs are robust, supportive and strategically designed to subsidize the entire project. As shown in **Figure 5** below, a supportive CIP structure can be designed that capitalizes on neutral revenue generated by completed redevelopment projects (expanding tax

base) and the reinvestment of neutral revenue into funds, accounts or streams that address the technicalities of remediation projects.

As mentioned, expanding tax bases attributed to a greater number of completed revitalization projects creates a pool of neutral revenue. A municipality looking to support the market should then create reserve accounts that address the additional complexities. These accounts can include, but are not limited to, a remediation fund (that directly supports the cost of cleanup), a reserve fund (designed to support externalities over the lifecycle) and an operational fund (that assists the operation and administration of CIP programs). Robust programs like these can help incentivise the market to create demand. Additionally, as investment in CIP programs increases, this will likely catalyse a greater number of redevelopment projects due to the availability of funding. It will also provide municipal governments with greater financial and administrative capacity to operate CIP programs.

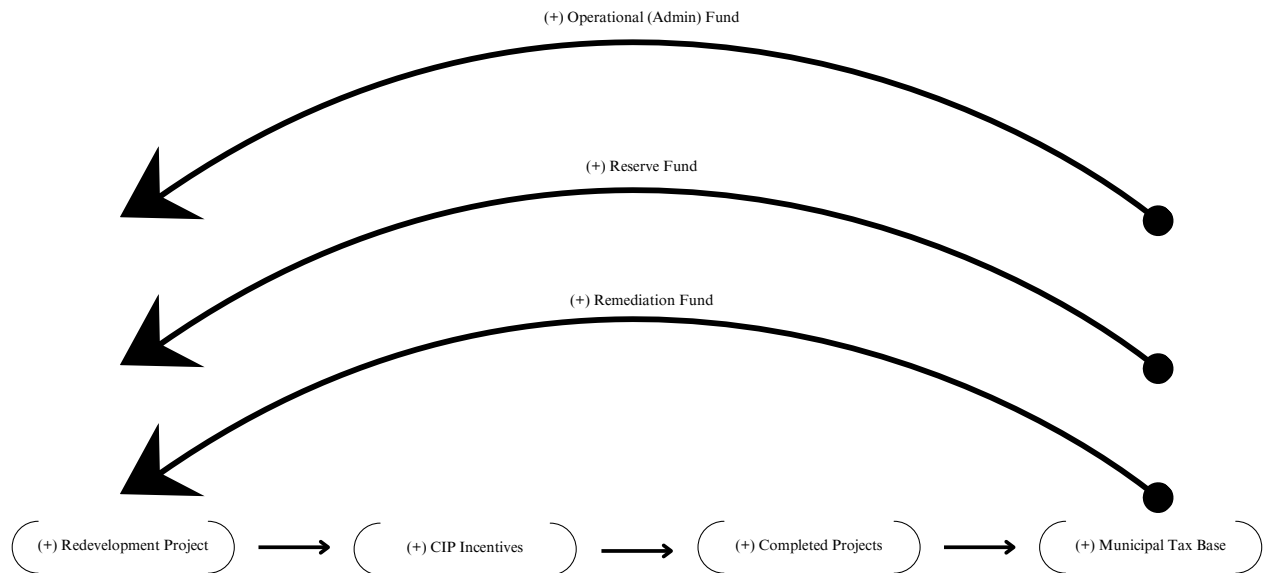


Figure 5 – CIP feedback loop.

Notwithstanding the above, there is no doubt that the initial years may be difficult financially from a municipal budget perspective. However, as programs mature and become self-sufficient, operating through separate reserve funds generated from the incremental increase in property tax this model has the potential to attract and support private investment.

Greenfields vs. Brownfields

Suggesting that the Greenbelt scandal of 2023 could have been avoided if municipalities provided greater financial incentives for contaminated site redevelopment would be naïve due to Ontario's failure to address short-term land supply. However, if municipalities offered incentives subsidising the increased costs associated with brownfield redevelopment, the pressures on greenfield development could potentially be incrementally less.

The key to this strategy is that incentives must almost, if not wholly offset the additional costs to owners of brownfield sites when compared to greenfield counterparts. In markets such as Toronto, this could potentially attract an even greater amount of brownfield and infill projects as the saleable price per square foot is much greater in urban areas with convenient access to municipal services and public transit when compared to the suburbs.

However, the problem lies in municipalities with extensive urban boundaries permissive of greenfield development and no sufficient financial incentive backing alternatives such as infill. Municipalities looking to combat sprawl and tap into increased sources of revenue without piling on additional tax must facilitate brownfield redevelopment. Increased MPAC-assessed values on residential properties within the inner city led to an increased property tax base and would be a

viable substitute for multiplying exactions on an already stressed development market (Development Charges, Cash in-lieu).

Smaller Municipalities Need Support

Of the 23 programs paused or cancelled between 2018 and 2023, 21 of them belonged to a municipality with a population of 150,000 people or less. Small municipalities represented 91% of the municipalities of the total decline of programs within the timeframe (See **Table 14**). These municipalities are largely located in areas outside of a 50-kilometre radius of Downtown Toronto.

CIP Program Decline (2018 – 2023)	
Total CIP Decline	23
CIP Decline in Municipalities with a Population Under 150,000	21 (91%)

Table 14 – CIP program decline in small municipalities.

Small municipalities outside of the Greater Toronto Area need additional support when compared to the urban centres structured within and around Toronto. These municipalities are often short-staffed and lack the ability to facilitate the implementation of CIPs. Financial incentive programs are extremely complex, lengthy, and confusing to implement without proper coordination between Planning, Economic Development and Council.

Additionally, these municipalities require support from higher levels of government in the form of a 'point person' who could directly advise concerning the operation of a brownfield incentive program and a monitoring program explained above. Furthermore, small municipalities lack the general revenue sourced from user charges, property tax and 'other charges' to fund incentive programs. They are further constrained by low costs per square foot on development land and low sellable price per unit putting further stress on owners of contaminated sites. From a business perspective, these constraints deter developers from conducting business in these municipalities. As a result, organisational and financial pressure unique to local markets must be mitigated by the highest levels of government. The economics of brownfield redevelopment are key to achieving brownfield redevelopment which results in a host of public good. Unless extraordinary costs are addressed by municipalities there can be no public benefit.

APPENDIX

Appendix A: Loan calculation table for a conceptual brownfield project.

Month	Opening Balance	Land draw	Soft Cost Draw	Fees Draw	Hard Cost Draw	Contingency Draw	Interest	Closing Balance
1	\$0	\$10,800,000	\$242,275	\$0	\$0	\$0	\$69,566	\$11,111,842
2	\$11,111,842	\$0	\$242,275	\$0	\$0	\$0	\$71,531	\$11,425,648
3	\$11,425,648	\$0	\$242,275	\$0	\$0	\$0	\$73,508	\$11,741,431
4	\$11,741,431	\$0	\$242,275	\$0	\$0	\$0	\$75,497	\$12,059,204
5	\$12,059,204	\$0	\$242,275	\$0	\$0	\$0	\$77,499	\$12,378,978
6	\$12,378,978	\$0	\$242,275	\$0	\$0	\$0	\$79,514	\$12,700,767
7	\$12,700,767	\$0	\$242,275	\$0	\$0	\$0	\$81,541	\$13,024,584
8	\$13,024,584	\$0	\$242,275	\$0	\$0	\$0	\$83,581	\$13,350,440
9	\$13,350,440	\$0	\$242,275	\$0	\$0	\$0	\$85,634	\$13,678,349
10	\$13,678,349	\$0	\$242,275	\$0	\$0	\$0	\$87,700	\$14,008,325
11	\$14,008,325	\$0	\$242,275	\$0	\$0	\$0	\$89,779	\$14,340,379
12	\$14,340,379	\$0	\$242,275	\$0	\$0	\$0	\$91,871	\$14,674,525
13	\$14,674,525	\$0	\$242,275	\$0	\$0	\$0	\$93,976	\$15,010,776
14	\$15,010,776	\$0	\$242,275	\$0	\$0	\$0	\$96,094	\$15,349,145
15	\$15,349,145	\$0	\$242,275	\$0	\$0	\$0	\$98,226	\$15,689,646
16	\$15,689,646	\$0	\$242,275	\$0	\$0	\$0	\$100,371	\$16,032,293
17	\$16,032,293	\$0	\$242,275	\$0	\$0	\$0	\$102,530	\$16,377,098
18	\$16,377,098	\$0	\$242,275	\$0	\$0	\$0	\$104,702	\$16,724,075
19	\$16,724,075	\$0	\$242,275	\$0	\$0	\$0	\$106,888	\$17,073,238
20	\$17,073,238	\$0	\$242,275	\$0	\$0	\$0	\$109,088	\$17,424,601
21	\$17,424,601	\$0	\$242,275	\$0	\$0	\$0	\$111,301	\$17,778,178
22	\$17,778,178	\$0	\$242,275	\$0	\$0	\$0	\$113,529	\$18,133,982
23	\$18,133,982	\$0	\$242,275	\$0	\$0	\$0	\$115,770	\$18,492,028
24	\$18,492,028	\$0	\$242,275	\$0	\$0	\$0	\$118,026	\$18,852,329
25	\$18,852,329	\$0	\$242,275	\$7,471,317	\$1,152,310	\$115,231	\$175,351	\$28,008,813
26	\$28,008,813	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$185,967	\$29,704,597
27	\$29,704,597	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$196,651	\$31,411,064
28	\$31,411,064	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$207,402	\$33,128,282
29	\$33,128,282	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$218,220	\$34,856,318
30	\$34,856,318	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$229,107	\$36,595,241
31	\$36,595,241	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$240,062	\$38,345,119
32	\$38,345,119	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$251,086	\$40,106,021
33	\$40,106,021	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$262,180	\$41,878,017
34	\$41,878,017	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$273,343	\$43,661,177
35	\$43,661,177	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$284,577	\$45,455,570
36	\$45,455,570	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$295,882	\$47,261,269
37	\$47,261,269	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$307,258	\$49,078,343
38	\$49,078,343	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$318,705	\$50,906,864
39	\$50,906,864	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$330,225	\$52,746,906
40	\$52,746,906	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$341,817	\$54,598,539
41	\$54,598,539	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$353,483	\$56,461,838
42	\$56,461,838	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$365,221	\$58,336,876
43	\$58,336,876	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$377,034	\$60,223,726
44	\$60,223,726	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$388,921	\$62,122,464
45	\$62,122,464	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$400,883	\$64,033,163
46	\$64,033,163	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$412,921	\$65,955,900
47	\$65,955,900	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$425,034	\$67,890,751
48	\$67,890,751	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$437,224	\$69,837,791
49	\$69,837,791	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$449,490	\$71,797,097
50	\$71,797,097	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$461,834	\$73,768,747
51	\$73,768,747	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$474,255	\$75,752,818
52	\$75,752,818	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$486,755	\$77,749,389
53	\$77,749,389	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$499,333	\$79,758,538
54	\$79,758,538	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$511,991	\$81,780,345
55	\$81,780,345	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$524,728	\$83,814,889
56	\$83,814,889	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$537,546	\$85,862,251
57	\$85,862,251	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$550,444	\$87,922,511
58	\$87,922,511	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$563,424	\$89,995,751
59	\$89,995,751	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$576,485	\$92,082,052
60	\$92,082,052	\$0	\$242,275	\$0	\$1,152,310	\$115,231	\$589,629	\$94,181,497
Total Interest							\$15,742,189	

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