

Recharging un(der)used fuel station brownfields in Cornwall, Ontario



Source: Chris De Sousa

Abandoned fuel station brownfields across North America often lay dormant due to environmental complications on-site and additional redevelopment costs.

INTRODUCTION

Brownfields are abandoned, vacant or underused properties. They are sites where past action, often commercial or industrial activity, has resulted in actual or perceived contamination. They include places like former power and manufacturing plants, to aviation facilities, car repair factories and railroads, and former gas stations. Former use coupled with potential contamination serves to complicate the expansion, reuse or redevelopment of these sites. It also limits and delays efforts to restore, regenerate, and update post-industrial communities.

The redevelopment, remediation and reuse of brownfield properties is critical in cleaning up, restoring and renewing contaminated land. It has been proven to support neighbourhood revitalization and renewal, increase surrounding property values, support urban intensification and growth, while minimizing the associated environmental impacts, health and safety risks. Be that as it may, many communities continually struggle to deal with and redevelop these sites because of the magnitude of sites present and their associated costs and environmental contingencies. This is particularly true for small and mid-sized communities where the demand for property is often lower and clean/green land is in abundant supply.

QUICK FACTS

Authors

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Full Report Link

<https://www.brownfieldsresearchlab.com/work/current/>

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This work is based on student research for the course: PLG 620 Advanced Planning Studio 1, School of Urban and Regional Planning, Ryerson University (Winter 2019). Information for the case study was obtained from online sources, available reports, and site visits and direct communication with the stakeholder.

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The opinions expressed in this case study are those of the authors only and do not represent the opinions and views of either Ryerson University, the School of Urban and Regional Planning, or the Canadian Brownfields Network.



Fuel Station Brownfields

Fuel stations brownfields, are sites that once stored and dispersed gasoline, are often smaller parcels of land that may be potentially contaminated with a range of pollutants and significant remediation costs. Consequently, the environmental costs of re-use sometimes exceeds the value of land, deterring many developers and municipalities from redevelopment. As such, they are often left idled or mothballed as landowners wait and pay their property taxes while hoping the market picks up and makes redevelopment viable. Challenges also seem to be increasing as fewer larger gas stations are needed and older smaller neighborhood stations are “put to pasture.” The magnitude of sites makes it increasingly difficult for municipalities to evaluate and prioritize individual fuel station sites within their portfolio of brownfields. Municipalities have also been reluctant to intervene forcefully in the management of these privately held lands while taxes are paid.

Recently, interest in redeveloping former gas stations has become increasingly important because of the quantity of these sites, their prime locations (e.g. on corners of prominent urban intersections, proximity to downtown) and ongoing competition for land in growing North American municipalities. In support of this interest, stakeholders across North America have begun to seek guidance on how to address existing redevelopment barriers, navigate re-use, and prioritizing individual sites.

The purpose of this summary report is to identify and outline how municipalities can strategically prioritize, address, and redevelop former gas stations sites within their brownfield inventory. It is based on a research project conducted by a group of undergraduate urban planning students (Catalyst Consultants) at Ryerson University in an applied planning studio course for the City of Cornwall and supervised by Professor Chris De Sousa (for the full report see <https://www.brownfieldsresearchlab.com/work/current/>). This report starts off by describing the student research on how municipalities, in general, can evaluate, prioritize, and manage their portfolio of fuel station brownfields, and then outlines how this was applied to the City of Cornwall in eastern Ontario.

Site Evaluation and Prioritization

The redevelopment of former gas stations is contingent on-site evaluation and prioritization.

As a seemingly complicated process, site evaluation and prioritization should aim to better understand the public and market value of each property. Evaluation is key to understanding what, if any, interventions are possible and applicable to each brownfield site, while prioritization helps identify which and why particular sites should be addressed first. With often limited available city resources, this process helps ensure that reuse targets properties that will have the greatest impact on the greatest number of people.

The student researchers identified four main reuse approaches for former gas station brownfield sites that involve varying costs, benefits and challenges. The four “fates” from least to most financially dependent include: (1) no intervention; (2) beautification;

(3) interim use; and (4) property redevelopment. Reviewing the various site’s development potential, relevant municipal financing programs and other site characteristics, is valuable in determining what reuse options are most suitable. Research suggests that intervention objectives should be front-loaded in order to categorically establish “the implementation of the project, the implementation phases, the challenges faced by the parties involved and the community needs as well”¹. Although often difficult, this review is paramount in identifying what remediation processes are or may be necessary, what type of intervention is most appropriate for a given site, and how future use may then be permitted.

Four Main Reuse Approaches for Former Gas Stations

Option	Focus	Pros	Cons
No Intervention	No action is taken or appropriate for the site. Most appropriate for sites requiring further investigation, or that have high or uncertain level of contamination.	<ul style="list-style-type: none"> • No initial or maintenance costs 	<ul style="list-style-type: none"> • Does not enhance social capital or provide profit returns • Decreases value of adjacent properties • Environmental contamination may remain
Beautification	Offers low-cost approaches to improving the aesthetic appeal of a blighted and unwelcoming site through the removal of all visual signs of deterioration or degradation on a vacant site.	<ul style="list-style-type: none"> • Improved site aesthetics • Easy to implement with minimal costs • Increases surrounding property values • Application not contingent on contamination levels • Harnesses site potential to attract greater investment and future development 	<ul style="list-style-type: none"> • Increased maintenance costs (relative to profitability) • Low/no return profit • May be perceived by the public as a waste of tax money if used
Interim Use	Involves temporary, programmed activities on-site, which help create short-term community and stakeholder interest until redevelopment becomes feasible (e.g. community gardens, farmers markets, open public space).	<ul style="list-style-type: none"> • Helps enhance social capital and community engagement • Convenient temporary use (with a view to securing permanent redevelopment) • Diverse, low-cost options (e.g. phytoremediation) • Encourages economic development while increasing adjacent property values 	<ul style="list-style-type: none"> • Initial use and maintenance cost (higher than beautification) • Unknown risks of personal liability become a concern • Various passive remediation methods require a longer time frame to be effective
Redevelopment	Removing or rehabilitating a site and its existing structures and replacing them with new, permanent development. It is an investment grounded in supporting innovation, and economic and social growth.	<ul style="list-style-type: none"> • Greater long-term profit • Can support direct municipal needs (e.g. growth, tax base, improved aesthetics) • Increases value of adjacent properties • Increases local sustainability, health and safety 	<ul style="list-style-type: none"> • Greater long-term profit • Can support direct municipal needs (e.g. growth, tax base, improved aesthetics) • Increases value of adjacent properties • Increases local sustainability, health and safety

Prioritization

Choosing which sites local governments should intervene in and prioritize can benefit from coming up with selection criterion in order to achieve a fair, replicable, and comprehensive site selection/prioritization process. Most notably, criteria should always be rooted in the larger and unique goals or objectives of each municipality, acknowledging that individual indicators will inherently assume different levels of importance for each criterion according to the context they are operating in. Furthermore, Limasset et al (2018) suggest that it is important to define the aim toward which indicator tools are being developed. For example, considering whether sites in an inventory should be prioritised in terms of urgency for cleanup, a preferred reuse option or considering a portfolio of sites within a small area.

Once the pool of sites has been refined, there are a few existing tools that have been designed and tested to aid governments and other stakeholders in the prioritization of brownfield sites. One well known method is the Timbre Brownfield Prioritization Tool (TBPT), which aims to match a predetermined project with the most appropriate brownfield site². Inversely, the second method, the Brownfield Site Ranking Model, aims to grade an inventory of sites to determine what type of development would be possible on each site³.

Approaches for Brownfield Site Ranking

	Timbre Brownfield Prioritization Tools (TBPT)	Brownfield Site Ranking Model
Background	Considers the “three pillars of sustainability” (economic, social and environmental factors) that impact site selection to aid stakeholders to determining and weighting the redevelopment potential of various brownfields.	Based on 11 sorting criteria that range from financial incentives, regional infrastructure and labor resources, to local community acceptance.
Process	The TBPT centers on three pre-set dimensions: the site’s redevelopment potential, site attractiveness and marketability, and environmental risks. Each are based on pre-set factors (with pre-set weights) that involve numerical data and verbal information (e.g. land value, previous use, area size, transport links etc.), that are dependent on end-users’ needs and data availability. These factors are then divided into positive (increasing site potential) and negative (decreasing site potential) categories to identify which, and what sites should be prioritized for pre-selected projects.	Pre-determined categories are given a standardized site score at the local and county level. Scores are based on each category’s importance to redevelopment, to a maximum score of 120. Once calculated, the scores can be used to ascertain what type of development is appropriate for each site. All potential brownfield sites are then summarized on a geospatial databased such that their information is easily comparable.
Significance	<ul style="list-style-type: none"> • Useful for parties responsible for wider territories or clusters of brownfields by identifying the most critical, profitable, or valuable sites to regenerate • Provides a consistent classification assessment • Creates an individually tailored (based on project need) prioritization for local decision making 	<ul style="list-style-type: none"> • Helps minimize staff time while maximizing the efficiency of public funds • Facilitates cooperation between different jurisdictions and public/private units

In providing consistent methods for comparing sites, these tools effectively highlight how and why different sites have been prioritized for redevelopment and other potential uses.

The Case of Cornwall, Ontario

Located just an hour from Montreal, the City of Cornwall is one of Ontario’s first and oldest established communities, with a current population of 46,400 people⁴. As a smaller municipality, the City has focused on providing world-class amenities, while sustaining their small-town charm, strong community, and hospitality. As part of the Windsor-Quebec City corridor, the Cornwall is a prime stop-off point for many transport networks; namely Highway 401 and the CN main rail line. This, combined with relatively low hydro electricity rates and an affordable housing market, makes Cornwall an attractive place for development and ongoing growth⁵.

Over time, the city has accumulated an estimated inventory of 561 brownfield sites, 145 of which are former gas stations, and 119 of which are former gas stations that have not been decommissioned⁶. These sites, especially

those that are most centrally located, are tying up valuable real estate in the community that could serve a more functional purpose, better contribute to the municipality’s tax base, and enhance local employment opportunities. Given the City’s intent to promote a vibrant social, economic, and cultural scene that can attract youth and foster the development of a growing tourism sector⁷, these idled gas station sites evidently stand as an obstacle, but also present spaces of opportunity to revitalise and establish new activity in the community.

As a city keen to activate, reuse, and redevelop these sites, Cornwall selected a shortlist of seven sites from their brownfields inventory for analysis. This shortlist was based on nine strategic objectives emphasized by the city, which focused on a desire to spur economic activity, intensify the downtown and waterfront, strengthen the public realm, and attract a more diverse, young workforce and tourist population.

This list needed to be further refined to three sites best suited to apply the three intervention options (e.g. beautification, interim use, redevelopment). With guidance from the City of Cornwall’s priority objectives, the student group sought to take a fresh approach to prioritizing these sites.

To identify the three sites, criteria were developed to appropriately evaluate and prioritize the seven properties based on local needs. The City’s objectives, combined with each site’s potential profitability and relevant site characteristics, led to the development of 8 selection criteria: location, ownership, size, visibility, existing buildings on-site, existing contamination level, market value, and zoning. These criteria were then assigned a high (green) or low (red) weight based on the subjective research of the team and objectives outlined by the City.

For example, sites that were owned by the City of Cornwall were of high priority compared to those that were privately owned. Sites that fit neither category were ranked medium priority (yellow).

In commonality with the Brownfield Ranking Model, this selection criteria was key to evaluating potential redevelopment and identifying appropriate site options. It was further designed to identify sites of greatest need “either because they are the most critical or most profitable for a [wider] regeneration operation.”⁸ Ultimately, this process led to the selection of 3 sites that, according to the ranking method, had the best potential for beautification, interim use or redevelopment. Expertise by the Catalyst Consulting student group suggested that of the seven sites, the lowest scoring option was best fit for beautification, medium scoring was best fit for interim use, and the highest scoring was best fit for redevelopment, as was based on the municipality’s hierarchy of value and identified needs.

Ranking Method for Cornwall Gas Station Brownfields

Priority	High	Low
Ownership	City of Cornwall owned because of known cooperation	Privately owned due to major focus on profit returns, or unknown cooperation
Market Value	Inexpensive square footage; ~\$5.00 and under	Expensive square footage; \$10.00 and over; or undisclosed
Visibility	On 2 major roadways and situated on a corner lot	On minor roads within a residential area
Presence of Structure/ Infrastructure	Vacant lot	Pre-existing structures with use
Zoning	Commercial or mixed-use	More restrictive, such as highway commercial, retail and height limits
Location	Central	Removed significantly from the core

Cornwall Reuse Options

Beautification Option: Second St W and Brookdale Ave, Cornwall Ontario (Northeast corner)

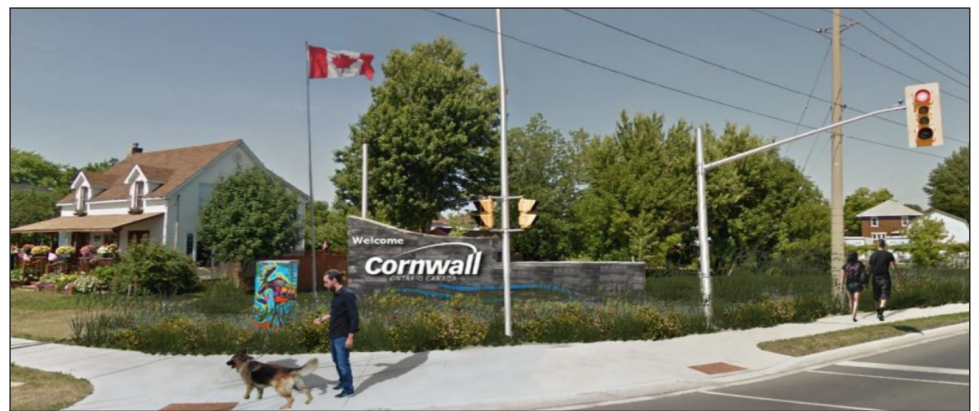
The property at Second and Brookdale was chosen as the site for beautification for two primary reasons: its high visibility and its city ownership. With a lot size of 0.33 acres, it lies near a bridge connecting New York state and Cornwall, and on the intersection of two major highways. The site also borders residential units and boasts good pedestrian permeability, further increasing its remediation potential. Beautification was chosen based on existing parking restrictions and limited vehicular access alongside the existing sewage line, which compromises potential remediation of the site. As a City-owned property, there is also great opportunity to develop the site into a distinct landmark for residents and visitors to Cornwall.

Recommended Opportunity - Signage:
Due to its proximity to the US border, the site could be effectively used to enhance the city’s strong sense of identity. With a standard City of Cornwall sign, the surrounding landscape can be used to complement and extend the site’s curb appeal. One option would be to create a meadow encircling the sign and covering the entirety of the site. At minimal expense, a meadow would help promote walkability through the provision of a natural pathway, which would increase local biodiversity and provide important environmental benefits. Alternatively, this site could be used in a more active manner by introducing additional

Second St W and Brookdale Ave Today



Second St W and Brookdale Ave with Signage and Conservation Meadow



parking and seating. Landscaping could help attract the community by creating a gateway feature for the city. This could be achieved through the addition of benches for seating, planting on the site and along the street, and through opportunities for public art. As a

landmark, it could be a potential place for gathering or recreational purposes, while enhancing biodiversity and improving local air quality.

Source: Irene Patrinos

Cornwall Reuse Options

Interim Use Option: 1901 McConnel Ave, Cornwall Ontario

As a large site spanning 11.74 acres, 1901 McConnel is suitable for interim use because of its higher land value, distance from the city center and somewhat limited redevelopment potential. Located just off highway 401 and bordering two major streets, this commercial land is surrounded by green space and a nearby water body. These attractive attributes make it appealing for community-based uses and benefits from being able to leverage surrounding community interest into community movement.

Recommended Opportunity – Event Space and Innovation Centre: This space could effectively accommodate town fairs, events, markets and community gardens by providing open space, seating, and adaptive shipping containers that are reusable as vendor/retail spaces. Given the large size of the site, it could be divided into four spaces: a parking area, a pop-up market space, a farmer's market and a community garden, enhancing use and access to the site.

Alternatively, this site could consider other interim uses such as a sports field or solar farm. That being said, these uses are potentially less applicable or feasible on this site due to anticipated future development, existing demands, and local demographics.

Redevelopment Option: Montreal Road and Albert Street, Cornwall Ontario (Southwest corner)

Situated on Le Village, a main street in the east end of Cornwall with strong connections to its Francophone heritage, this site's primary strengths are its central downtown location and proximity to the waterfront. Surrounding units are primarily commercial, mainly owned by Dubuc Eye Care Centre, and the site itself is owned by Imperial Oil. Its current partial use as a parking lot for Bergeron Electric and previous lease discussions reflect the property's redevelopment potential. The area further contains high levels of pedestrian traffic and provides a great opportunity to encourage active transportation.

Recommended Mixed-Use Development: For Cornwall specifically, the opportunity to synergise different land-uses through mixed-use infrastructure, such as residential and commercial, is attractive for channelling economic enterprise, harnessing youth innovation and pedestrian activity, and promoting social inclusivity as evidenced by the City's Official Plan. Similar to a mixed-use brownfield regeneration project called Egleston Crossing in

1901 McConnel Ave Today



1901 McConnel Ave with Event Space and Innovation Centre

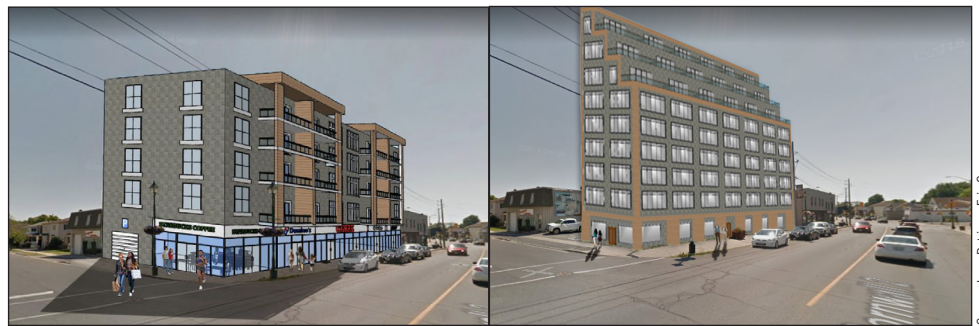


Source: Irene Patrinos

Montreal Road and Albert Street Today



Montreal Road and Albert Street with Proposed Mixed-Use Redevelopment



Source: Irene Patrinos, Eric Gao

Massachusetts, this site represents a key opportunity for redevelopment because of its downtown location and surrounding commercial real estate. The site could consider providing commercial space at grade, with residential condominium or retirement units above. Each option could provide a developer with a reasonable return on investment if supported by local brownfield incentives offered by the City, while addressing local needs and adding to the neighbourhood appeal.

Alternatively, this site could be used commercially for a restaurant or café, acting as a space for social interaction while contributing to the overall public realm. It could further serve as a parking lot that would be useful given the pervasive car culture of the city. These options, however, were considered to be less reflective of the city's planning objectives and do not offer the same potential or creative value as the mixed-use development put forward by Catalyst Consultants.

Concluding Remarks

Fuel station brownfields are, and will continue to be, a blight on communities and an obstacle to redevelopment. That said, research and findings have highlighted that there are many options for the reuse, remediation, revitalization, and redevelopment of these sites that can contribute to the innovative, forward-thinking and sustainable goals of municipalities.

The redevelopment of former gas stations is contingent on proper site evaluation and prioritization, which aims to identify what options are possible on each site, and at what urgency. Targeting actions to focus on the goals and objectives of each municipality was important for helping Cornwall prioritize factors such as visibility, city ownership, and low market value. This is key to ensuring that revitalization not only considers the state and potential of these sites today, but also considers the future capacity, needs and goals of the places they are operating in.

This report highlights how and what is necessary in order to move forward with brownfield management and redevelopment through the case of Cornwall, but more broadly aims to raise awareness, increase public education, and initiate discussion and interest among all stakeholders, developers, municipalities, and others interested in restarting former gas stations and other blighted properties.

Endnotes

- 1 Moscovici, A-M et al. (2019). Redevelopment of Brownfield Sites: Case Study-Biled Village, Romania. IOP Conference Series: Materials Science and Engineering, 471, 1-6.
- 2 Pizzol, L., Zabeo, A., Klusáček, P., Giubilato, E., Critto, A., Frantál, B., Martinát, S., Kunc, J., Osman, R. and Bartke, S. (2011). Timbre Brownfield Prioritization Tool to support effective brownfield regeneration. Journal of Environmental Management, 166: 178-192.
- 3 Thomas, M. R. (2002). A weighted, multi-attribute, site prioritization and selection process for brownfield redevelopment. Environmental Practice, 4(2), 95-106.
- 4 City of Cornwall Tourism. (2018). Cornwall Official Visit Guide . Page 5. Accessed on: Feb 28, 2019. Hardcopy.
- 5 City of Cornwall (2018). City of Cornwall Official Plan.
- 6 City of Cornwall. 2019 GIS Materials . [Shapefile]
- 7 City of Cornwall (2018). City with a World of Opportunities: Data Book 2018. Retrieved from: <https://www.cornwall.ca/en/do-business/resources/Plan-ning/DATABOOK-2018---Final.pdf>
- 8 Limasset, E et al. (2018). Points of attention in designing tools for regional brownfield prioritisation. Science of the Total Environment, 622-623, 997-1008.