Industrial Land Retention in Two Cities

Municipal strategies to retain manufacturing in industrial districts in Montreal and New York City

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ABSTRACT

In a post-industrial world, how effective are industrial land retention policies? North America's manufacturing sector has been in decline for decades, and this trend has been most pronounced in large former industrial epicenters like New York and Montreal. Even so, there are still manufacturing firms that may find it to their advantage to be located in urban neighbourhoods in these cities. These firms are important to local economic diversity but must contend with market pressures where industrial land is frequently being converted for other uses. This report is an analysis of the strategies and policies being employed by municipal agencies to retain land for manufacturing in traditionally industrial urban neighbourhoods.

The report is primarily a policy analysis of the key city-level policies on industrial retention in New York and Montreal, as well as two location-specific case studies in each city: Sunset Park and the Brooklyn Navy Yard in New York, and the South West Borough and LaSalle in Montreal. The main findings show that industrial land retention is on municipal policy agendas as a means of supporting employment diversity and in some cases promoting growth sectors. There are diverse strategies and planning mechanisms employed in each case study reflecting not only differing priorities but also local economic conditions.

RÉSUMÉ

Dans un monde post-industriel, quelle est l'efficacité des stratégies de conservation des terrains industriels? Le secteur manufacturier en Amérique du Nord a été en déclin depuis des décennies, et cette tendance est plus prononcée dans les epicenters industriels grands et ancien, comme New York et Montréal. Même ainsi, il y a encore des manufacturières qui le trouvent à leur avantage d'être situé dans les quartiers urbains à l'interrieur de ces villes. Ces entreprises sont important car ils contribut à la diversite de l'economie local, mais ils sont en competition pour les terrains industriels qui sont fréquemment converties à d'autres usages par les autre secteurs. Ce rapport est une analyse des strategies et des politiques employées par les organisms municipaux pour retenir les espaces industriels pour la fabrication dans les quartier aux centre-ville.

Ce projet de recherche est une analyse des politiques et programmes qui sont utiliser dans les municipalités de New York et Montréal, ainsi que deux études de cas spécifique dans chaque ville: Sunset Park et le Brooklyn Navy Yard en New York, et les arrondissements du Sud Ouest et LaSalle en Montréal. Les conclusions principales montrent que la retention de terrains industriels sont un strategie sur les agendas de la politique municipale comme moyen de soutenir la diversité de l'emploi et, dans certains cas, la promotion des secteurs de croissance. Il-y-a diverses stratégies et mécanismes de planification employés dans chacun des cas reflétant non seulement des priorités différentes, mais aussi les conditions économiques locales.

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Introduction – Definition of the Problem

This report is about industrial land use (ILU) in two cities: Montreal and New York City. The main objective of this research is to describe how land in traditional industrial districts in urban areas is being used today and in particular, to examine what, if any strategies, policies and initiatives are being pursued to retain industrial land in these cities, what the outcomes have been, and whether there are any indicators of success. The purpose is not so much to compare and contrast the two cities, but to document two divergent experiences. The central research question underpinning this effort has been:

What strategies have municipal agencies in Montreal and New York City pursued to retain manufacturing in industrial districts and how effective have they been?

Examining all industrial land in any city, let alone two, would be beyond the scope of this type of research. For this reason, the lens will be focused on two somewhat comparable areas: the Lachine Canal environs in Montreal, and the Brooklyn waterfront in New York. Both areas were once industrial heartlands, situated on major waterways, with close proximity to sizable labour forces and the city centre. Today, much of the remaining industrial land in these locales is under tremendous pressure to be repurposed for other uses, primarily residential and mixed-use developments.

As this research will show, there is interest at various levels of city governance in retaining some industrial land for ongoing or future industrial use. Several high profile initiatives are being pursued in New York, while by contrast Montreal works on a case-by-case basis and on a much smaller scale. When considering the New York example, this report will explore three approaches: the City-led Industrial Business Zones (IBZs), and two case studies on the Brooklyn waterfront, the community-led 197-A Plan of Sunset Park, and the quasi-government administered

Brooklyn Navy Yards. For Montreal, which does not have comparable examples of industrial land retention efforts, several City-based policies and two case studies on the Lachine Canal: LaSalle and the South West Borough, will be examined.

Objectives of the Research

The purpose is of this report is foremost to document the industrial land use policies taken in two cities. It is intended to be primarily descriptive, not prescriptive. Certainly, the method of the policy analysis will be clear enough that it could be applied to any city. The underlying motivation for this research was based on the assumption that cities should actively protect some of their industrial land from conversion to other uses, notably residential. Part of the process of this research has been to test that assumption, and to understand why industrial land retention may or may not be a suitable or successful approach for planners. This report is also intended to be part of a compendium of related research on the status of contemporary urban manufacturing, and the planning response to it.

The Broader Context

United States President Barrack Obama dedicated a significant portion of his 2011 State of the Union Address to discussing jobs, job creation and innovation in America. He stated that in a globalized world economy, a key issue for the future economic success of his country was "whether new jobs and industries take root in the U.S. rather than somewhere else around the world" (Obama, quoted on National Public Radio, 2011). Obama's emphasis on local jobs and industries in America was heavy on generalities and populist appeal, but may be indicative of a growing concern at the highest levels about American dependence on the globalization of manufacturing.

Of course, it would be a premature stretch to suggest that the United States, or Canada for that matter, are at some sort of economic crossroads in terms of how

goods are produced and consumed. Despite a plethora of literature and commentary on the value of localism and the limits of globalization, as well as major social and political upheaval in many parts of the world, and the specter of peak oil always looming on the horizon, it does not appear that the trend of de-industrialization in North America, and particularly in its cities, is about to reverse course. If anything, that trend appears to be moving along at full steam, as it has for the last 4 decades or more.

Indeed, there has been an overall decline in the manufacturing sector in North America since about the 1960s (Kodrzycki & Munoz, 2009; Crandall, 2002). In 1959 for example, manufacturing accounted for 27.7% of USA GDP. In 1999, it was just 16.1%. Similarly, jobs: 33.1% non-farm employment in the US was in manufacturing in 1959, and in 1999, it was 14.4% (Crandall, 2002). Manufacturing employment in the US actually peaked in 1979 at just over 21,000,000 jobs. Although there are continuous cycles in employment levels as years pass, that number has not been reached since (Mayer, 1998). In Canada, the overall downward trend in manufacturing more or less mirrors the United States. Manufacturing in Canada has slumped within the last decade after experiencing a bit of a boom in the 1990s, particularly in the auto industries following the NAFTA agreement. Job losses have affected both urban and rural areas, although industry in eastern Canada in particular has seen decline (Statistics Canada, 2006).

The losses in manufacturing employment has been most pronounced in cities, particularly traditional manufacturing centres in the Northeast and Midwest in the United States, and in urban centres in Ontario and Quebec in Canada (Baldwin *et al.,* 2001; Vinodrai, 2001).[1] Deindustrialization has vast implications for cities, particularly how urban land is occupied and used. Where large amounts of industrial land was left vacant as manufacturers departed or closed, many

[1] While there is an overall trend in deindustrialization at the national and continental scale, it should be acknowledged that certain locations have seen growth in this sector, even recently.

neighbourhoods became blighted, property values fell and unemployment and poverty numbers rose. Dempwolf suggests that it was in the 1970s that deindustrialization became a serious structural problem for cities, when the rate of disuse of industrial land reached a point where they were not able to absorb it all into other uses (Dempwolf, 2010). Since that time, planners and city officials have been confronted with that complex challenge of how to treat unoccupied or under-occupied industrial land, and how to manage the loss of jobs.

More recently, former industrial land in urban settings is being repurposed for other uses, particularly residential. There are plenty of successful examples of former industrial neighbourhoods being revitalized and gentrified, and indeed there are many undeniable advantages to having a thriving middle class moving back downtown. Cities benefit from population growth and increased land values and tax revenue, among other things.

Despite the overall decline in manufacturing, there are some businesses that persist and even thrive in cities today. What is more, there are some people who advocate for preserving some industrial land for its traditional use, despite gentrification trends. Is urban industrial land retention just the indulgent pursuit of the naïve, caught up in nostalgia while overlooking manufacturing's brutal and grimy past, and the scars it has left on our cities? After all, the negative externalities of the industrial city, such as overcrowding, noise, and pollution, were central to the origins of urban planning as a profession and led to some of the first zoning regulations.

Even so, there are also voices in the planning world raising concerns about industrial land retention in cities. In a recent interview in spring 2011, Vancouver's planning director Brent Toderian summed up the pressures on that city's industrial land, stating: "We have only 10% of the land area of the city of Vancouver that doesn't allow residential. […] But that 10% that doesn't allow residential holds 50% of our jobs so it is incredibly important land to a complete city (Toderian, quoted in

Lee, 2011)."[2] In a later interview, Mr. Toderian continued on the same theme: "We found through detailed survey work of our industrial lands in Vancouver that they represent a very robust economy […] I think we're going to see a change in globalization because of energy costs. Cities that have preserved their flexible job-space land and lands for industrial uses are going to be the more resilient, successful cities in the future" (Toderian, quoted in Atchison, 2011).

There are plenty of others who echo Mr. Toderian's assertions. Joe Berridge of Urban Strategies Inc. in Toronto might not agree with Mr. Toderian that gas prices will significantly dictate where industry locates in the immediate future, but he similarly asserts in a media interview that "an industrial footprint will remain vital element of Toronto's commercial mix and should be maintained to preserve jobs in the downtown core" (Berridge, quoted in Atchison, 2011). Mark McClure, former Planning Commission Chair of Oakland, California, described the debate over the conversion of Oakland's approximately 33.8 million sq. ft. of industrial land for residential use as "the most important issue facing Oakland today" (Prado, 2008). Even the General Plan of the City of Los Angeles states that it is important to "actively ensure that the City has sufficient quantities of land suitable to accommodate existing, new and relocating industrial firms" (Department of City Planning & Community Redevelopment Agency of Los Angeles, 2007).

These concerns are understood in the two cities examined in this report as well. The Director of McGill's School of Urban Planning Dr. Raphael Fischler commented in the press (spring 2011) that "it's important for a city to maintain cheaper places where start-ups or smaller companies can actually continue to function without having to go to the suburbs" (Fischler, quoted in Atchison, 2011).[3] It should be

[2] Toderian was commenting in context to a decision by the city council to allow a piece of industrial land to be rezoned for a resitential-commercial development. Toderian was not necessarily implying manufacturing should be a specific use on that industrial land, as industrial also includes other activities like shipping.

[3] Dr. Fischler was commenting on the recent trend in Montreal, particularly Griffintown and other areas along the Lachine Canal, that have seen major redevelopment in recent years

noted that Dr. Fischler was not referring only to manufacturing, but to businesses from a wide variety of possible sectors. Similar statements have been made in New York, where the Pratt Centre for Community Development, the New York Industrial Retention Network (NYIRN), Zoning For Jobs and other groups are coordinating lobbying efforts to promote strategies to safeguard manufacturing space (Pratt Centre, 2009). "We are losing the next generation of small, creative industries[4] that are vital to the city's economic diversity and the renewal of its middle class," said NYIRN Executive Director Anne Seifried, speaking of manufacturing businesses being priced out of their buildings because of rapid rent increases; "it's frustrating to see a preventable situation continue unchecked" (Seifried, quoted in Massey, 2009). Brad Lander, New York City Council Member for District 39 in Brooklyn (and the former Director of the Pratt Center) acknowledges that New York does not "need as much land zoned for manufacturing in 2008 as in 1961 […] But [in rezoning industrial land to residential] you get past a point where you are really pushing manufacturing jobs out, not that you are aligning the space for manufacturing with the interests of the city" (Lander, 2009).

In the last decade at least 20 municipalities in the United States have undertaken extensive industrial land use reviews (Dempwolf, 2010; Wolf-Powers, 2010). While some of these studies were simply intended to differentiate between successful industrial clusters and brownfields that could be converted for new uses, a number of the studies recognized the vital links between industrial and other activities as a component of a healthy local economy (Dempwolf, 2010). Dempwolf found that collectively, these 20 studies demonstrate that industrial businesses are crucial supports for vibrant mixed-use and residential areas, that close proximity is a key to that supportive relationship, and that industrial uses are highly sensitive to rent fluctuations, and without protection, marginal demand for residential/mixed-use

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with working-class neighbourhoods with strong industrial footprints being transformed by high-end condo developments, largely thanks to their proximity to the water. "Local residents were angry that job opportunities were being removed," he recalls.

[4] As in the statement by Fischler, *industries* includes but is not limited to manufacturing

redevelopment can crowd out industrial businesses, harming to long term economic development (Dempwolf, 2010). We can now return to the original question: What land use strategies have municipal governments in Montreal and New York City pursued to retain manufacturing in traditional industrial districts and how effective have they been?

Montreal and New York as Case Studies

Montreal and New York are good parallel cities for this research. Both are old, dense cities with a rich industrial heritage that shaped their growth. Indeed, they were the epicenter of manufacturing in their respective countries throughout most of the 19th and the first half of the 20th century. The manufacturing sector in both cities has declined significantly since peaking in about the 1950s. Nevertheless, both still have a much smaller but nonetheless important number of manufacturing firms that operate in central neighbourhoods.

Recognizing the difficulty of examining all initiatives in two large cities, specific areas within each will be examined more closely – the Lachine Canal in Montreal (with a focus on the Boroughs of LaSalle and the South West Borough), and the Brooklyn waterfront in New York (with explorations of Sunset Park and the Brooklyn Navy Yards). Both were once industrial heartlands, situated on major waterways, with close proximity to sizable labour forces and the city centre. Their industrial legacy is evident, and some industrial infrastructure remains intact. Recently, both areas have been subjects of significant gentrification. Much of the land in these areas is being repurposed for other uses,[5] particularly condo developments, and recreational uses. There are many differences as well, not the least of which is that the Brooklyn waterfront is still used for shipping while the Lachine Canal is restricted to recreational boating.

[5] According to the Pratt Centre, New York lost about 1,800 acres of industrial land between 2002 and 2009 to zoning changes, with another 1,800 acres targeted for rezoning to other uses in the future. Of the 95 zoning changes occurring during that time period, 1 quarter rezoned industrial land to another use, and not one rezoned land to become industrial (Pratt Centre, 2009).

Despite the historical and geographical similarities described above, the political and planning traditions and the physical development processes of each city are very different, and each area has experienced very different outcomes. The City of Montreal does not have an industrial land retention policy; industrial policy is based more on incentive programs. Industrial land conversions (to residential or mixed use) are approved or refused on a case-by-case basis (Canada Mortgage and Housing Corporation, n.d.). New York City has a specific land retention policy in place, which will be examined below. Local government and non-government agencies in both cities also have strategies that will be examined.

Project Outline and Methodology

The body of this report is divided into two main sections. Part I is a literature review, divided into three chapters. Chapter 1 is a brief exploration of the basic trends in urban manufacturing in post-War North America, with a specific focus on the decline of manufacturing in cities in the northeast, including the two cities in question. Chapter 2 examines the legacy of manufacturing in North America and its outcome on the urban landscape, with a focus on how industrial land is used today, notably brownfields. Chapter 3 presents an overview of urban manufacturing in large cities today, including a summary of the types of businesses that still operate in cities like Montreal and New York, and the land use issues they encounter.

Part II is a policy analysis, examining several different strategies that municipal agencies in New York and Montreal are pursuing to retain industrial land for this purpose. An overview of the geographic, historical and political context will be presented for each case study. This will be followed with a summary of the timeline, goals and objectives, key interventions, and the roles of local actors. The cases presented have been limited to a manageable scale, examining first the key citywide policies, and then two location-specific sites for each city, and therefore this report is not intended to present an exhaustive account of all industrial land in the

geographic regions. An effort was made to identify different approaches to industrial land as well within each city, for the purposes of contrast.

The main questions the author seeks to answer through policy analysis were inspired by the frameworks for policy analysis proposed by Heidenheimer (1990), who asks 'how, why and to what effect do governments pursue particular courses of action and inaction', and by Dye (1976), who asks 'what do governments do, why do they do it, and what difference does it make?' (from Jans, 2007). Using these fundamental questions as a template in mind, certain questions to answer about contemporary municipal policy as it relates to manufacturing emerged:[6]

- Is industrial land retention on the local political and policy agenda?
- What policy options have been considered?
- What goals or objectives are being pursued?
- What are the effects of the given land use policy? Are there any examples of success in achieving objectives?

These baseline questions were then distilled to be more specific to the case studies and respond to the initial research topic about what policies are used in the two cities and how effective have they been. The key questions that this report will seek to answer through the policy analysis are:

- Why was preserving or creating industrial space considered a viable policy approach for a given site or neighbourhood?[7]
- What steps has/will the local agency take to monitor the effectiveness of their

[6] Informed in part by: Howlett M. & M. Ramesh (2003) *Studying public policy. Policy cycles and policy subsystems.* Canada: Oxford University Press

[7] In the cases examined in New York, it should be noted that while each fits within the municipal policy framework of Industrial Business Zones, they are not necessarily top-down policy approaches. The Brooklyn Navy Yards was a private sector led initiative, and Sunset Park a community-driven effort, to establish industrial zones. However, each case was guided to correspond with municipal policy objectives and therefore are relevant to consider. Understanding how these proposals were received and adopted will be telling.

policy on preserving industrial land, and what are considered the metrics of success? Is there any way to gauge whether this approach has been beneficial for the city?

- What lessons can be learned from each particular experience that could be applied elsewhere? This final question will obviously be based on the authors' interpretation, and will be explored in the conclusion section.

As previously stated, the author takes the position that the national, political and planning contexts between the two cities are very different and cannot be automatically applied to the other. However, the initial research question will be re-examined in the conclusion and an attempt made to determine which policies are working and what general lessons might be drawn.

Definitions in Terms

A methodological challenge for this analysis is in properly differentiating *manufacturing* from *industrial*. These terms might be used interchangeably in casual conversation, and even in some of the sources used in this paper, but there are significant and important distinctions. In brief, manufacturing is one of many activities contained under the industrial umbrella. Under the NIACS system (North American Industry Classification System), manufacturing sector applies to any establishment that engages in the "mechanical, physical, or chemical transformation of materials, substances, or components into new products" (NAICS Association, n.d.). Other activities like warehousing, shipping and distribution, and certain kinds of transportation are also considered industrial uses, but they do not necessarily share the same history or trends. The initial goal of this research was to understand policies as they relate to manufacturing specifically, but it quickly became evident that not all policies and programs made such distinctions. Therefore the analysis will include comment on how, if at all, a distinction is made between manufacturing and industrial activities more generally.

The sources of information used in the policy analysis are drawn as much as possible from primary sources including official plans and policies, from interviews with public or agency officials,[8] and available maps and statistical data. Key informants interviewed for this research are directly involved in the management of local industrial retention policies, and their contributions in interviews were from their official capacities and reflect that perspective. These sources are complemented by secondary material including media reports and journal articles. It should also be noted that it was not possible to secure an interview with a representative in the South West Borough in the timeframe of this report.

Part I - Literature Review

Manufacturing Trends in North America

From the origins of the industrial revolution in the 19th century, manufacturing in the United States was concentrated in major port cities in the Northeast and Great Lakes regions of North America, but it began to shift away from New England shortly after WWII, and away from the mid-Atlantic states – New York, New Jersey, and Pennsylvania - slightly later (Crandall, 2002). Similarly, in Canada there were significant concentrations of manufacturing its largest cities including Montreal, Toronto and Hamilton. These Canadian metropolitan regions have also lost manufacturing jobs in both absolute and relative terms since the 1950s, although the changes have not been quite as dramatic as in some U.S. cities (Baldwin et al., 2001; see Appendix, *Figure 1* for more detailed numbers for Canada).

Were did manufacturing go? Very generally, industry moved out of the centre city to the suburbs or to smaller cities, from the Northeast and Midwest to the South West and South (for the United States), and from North America to overseas (Greenstein & Sungu-Eryilmaz, 2004). In Canada, a westward shift was not significant, although there was some growth in resource-based manufacturing like pulp and paper in resource-rich western cities in Alberta and British Columbia that

[8] See *References* section for details of interviews.

also benefit from being closer to Asian markets (Statistics Canada, 2006). However, this trend is not as pronounced as the shift from north to south in the United States.

The reasons for these transitions are numerous and there is extensive literature on industry location and its relationship with other uses, starting with Alfred Weber's seminal work of 1929, the *Theory of the Location of Industries* on through William Alfonso, Edwin Mills and many others (Dempwolf, 2010). The classical narrative of the suburbanization of industry suggests that businesses moved out to the suburbs to find more abundant and cheaper land and people followed the jobs. Zoning regulations allowing for large lots and low densities in the suburbs, along with direct and indirect government incentives, augmented the trend (Greenstein & Sungu-Eryilmaz, 2004).

Manufacturers' move out of large cities was also influenced by easier truck mobility and better highway infrastructure in suburban areas, weaker or non-existent unions in smaller cities and in the American South, innovations in the type of production and energy generation, and new built forms for factories that tended to be horizontally deployed on the landscape (Howland, 2011; Glaeser, 2007; Ingram, 1998). A change in the type of production, with a greater focus on military and high tech manufacturing in the 1980s and 1990s, favoured suburban manufacturing and furthered the shift of jobs westward in the United States as well (Greenstein & Sungu-Eryilmaz, 2004). Manufacturing is typically more decentralized than services, and larger manufacturers tend to be more decentralized than smaller ones, making these transitions easier (Ingram, 1998).

Overall transportation costs for shipping goods have shrunk dramatically in recent decades, based primarily on more efficient technologies, so location advantage for shipping has become far less important than previously (Glaeser, 2007). Containerization is a good example of a new technology that has eased shipment costs for manufacturers and further reduced the necessity for them to be located

near ports, which more often than not are near large urban centers like Montreal and New York (Levinson, 2008).

However, even suburban manufacturing is in decline in some areas as land values there rise and congestion becomes problematic, forcing manufacturers to move to increasingly peripheral sites, or overseas (Howland, 2011). Very cheap labour and lax environmental standards, coupled with growing efficiency in international transportation and telecommunications have enabled many manufacturers to locate overseas to countries like China, Mexico, Vietnam, and Malaysia (Howland, 2011). Lowering international trade barriers over recent decades has greatly accelerated this trend.

How is Urban Industrial Land Being Used?

Land use and local economies in urban areas that once hosted abundant manufacturing have changed dramatically as a result of deindustrialization, with industrial land being increasingly occupied by other uses, or not occupied at all. Highest returns on land in cities is very often residential and sometimes commercial; landowners can make more money off residential and even commercial than industrial rent (Phillips-Fein, 1998). Today, industrial land often accounts for only 5-6% of land in most large North American cities (Ingram, 1998).

Brownfields

Brownfields are idle, abandoned or underused former industrial sites with remnants of past use still present, notably contaminated soil (De Sousa, 2008; Nolon & Salkin, 2006; Geltman 2000). They become idle or abandoned when the prior use of the land is no longer profitable, and those businesses close or move elsewhere (De Sousa, 2008; Evans, 2004). The decline in manufacturing in North America over the last 50 years has led to a proliferation of brownfield sites (Brachman, 2004). That brownfields exist is simple economics: the cost of preparing the land for a new use is too high, or conversely, the potential revenue generated from a new use is too low relative to the costs of demolition, decontamination and potential liability. In

addition, liability and remediation costs are very difficult to predict, adding financial uncertainty to the mix (Evans, 2004; Brachman, 2004; Geltman, 2000). Thus, many sites lie vacant for extended periods of time (Nolon & Salkin, 2006).

Environmental regulations regarding brownfields, enacted to ensure that proper remediation is taken, also impose strict liabilities on landowners. In some cases, this has served to discourage redevelopment (Brachman, 2004). What is more, improved transportation has ensured that the value of land in an urban location is not as critical as it once was for many uses. The rent that could once be charged for an inner-city site has fallen in relative terms over the last several decades, while the costs of site remediation have gone up (Evans, 2004). Even when potential uses for brownfields in cities are available (including green space), landowners will not part with an asset at a loss; they will wait for a reasonable price to be offered. In their view, their land had value in the past, and it will likely have some value in the future. Landowners may hold property until market conditions allow them to sell land at a profit (Evans, 2004).[9] Some landowners, particularly larger corporations able to cope with non-revenue generating assets, may chose to 'mothball' their contaminated land, essentially fencing it off and limiting their activities to paying property taxes, which they might find far cheaper than handling the costs and liabilities of decontamination (Brachman, 2004).

In urban areas, brownfields are usually considered eyesores and sometimes hazards. Their redevelopment can cause tensions between competing economic and environmental objectives (Brachman, 2004). Today, brownfields are increasingly viewed as potential community assets and investment opportunities among policy makers, planners and community organizations. Many brownfields are in urban settings, and their redevelopment represents part of the solution to

[9] In some cases, the value of the land may have decreased significantly from what was originally paid. In these cases, the loss in value may only be reflected when the land is resold. Landowners may want to avoid selling land at a paper loss – this is particularly true of public authorities (Evans 2004: 60).

both urban revitalization and limiting sprawl (Brachman, 2004). Policy makers recognize that private-sector market forces will tend to focus development on greenfields outside the urban core. Successful brownfield redevelopment is contingent on minimizing the barriers to redevelopment that discourage investment (Brachman, 2004).

These conditions assume a regular, efficient property market. In reality, there are always shifts in supply and demand, information is not always available, bureaucracies cause delays, and human tendencies defy market logic. It is not always true that landowners are compelled to maximize their profits; this is especially the case with government landowners. Putting brownfields into use requires some public or private investor with the assets, time, and vision to realize a new, realistic use (Evans, 2004). De Sousa has argued that the Canadian policy in this regard is piecemeal and deficient when compared to the United States (De Sousa, 2006).

Economically, apart from negative externalities like the contamination of, for example, groundwater, there is no reason why brownfields must be redeveloped (Evans, 2004). In the interest of improving contaminated land, generating tax revenue, and relieving development pressures on undeveloped land, municipalities often encourage projects on brownfields. The tools municipalities may use to encourage development often includes incentives, such as helping cover the cost of remediation (Nolon & Salkin, 2006).

Brownfield sites that are either located in existing industrial zones or are relatively isolated from residential areas tend to be the most obvious candidates for reuse as industrial sites. These projects tend to generate less community opposition (Brachman, 2004). Still, many brownfields do not get converted into new industrial uses. There are many reasons, from rate of return on investment, to even physical arrangement, such as vertical versus horizontal manufacturing floor space that does not reflect certain industrial needs (Greenstein & Sungu-Eryilmaz, 2004).

Whether a brownfield site is redeveloped or not is usually a function of the surrounding area and the local economy – it really comes down to future earnings, whether they will be greater than the potential cleanup and liability cost. The vitality of the local economy may play a much bigger role in whether brownfields are redeveloped for future use than any single site characteristic (Greenstein & Sungu-Eryilmaz, 2004).

Urban Industrial Parks

Manufacturing has been concentrated in industrial parks since WWII in both urban and suburban settings (Shultz, 1997). Many cities still have industrial parks of one variety or another. The following are a few examples of the different types.

Restricted Manufacturing Zones

Since about the mid-1980s, many American cities have used zoning to create areas of industrial retention, using restrictions on land use. Chicago is well known for its industrial retention zoning policies. In 1988, the City of Chicago designated a 115-acre area in the Near North Side as a Planned Manufacturing District (PMD). A PMD is a specially zoned area that places significant restrictions on the rezoning of industrial land for non-industrial uses. They are intended to preserve jobs by protecting industrial firms from encroachment by land uses deemed incompatible with manufacturing. Several other PMDs have been established in Chicago since (Rast, 2005). Other cities, from Seattle to Portland to Cleveland – and also New York City - have used similar approaches.

Enterprise Zones

States have enacted zones of concentrated development in areas of distress, decay, or blight since the 1980s. Called Enterprise Zones, these are designated areas that qualify for reduced taxes and in some cases less government regulation (Hirasuna & Michael, 2005). The principle of Enterprise Zones is to stimulate development in

depressed urban locations by providing tax incentives, informed by the simple economic theory that lower taxes and regulation will spur job creation (Hirasuna & Michael, 2005). By 2000 nearly 40 states had such legislation. The outcomes of these initiatives are considered variable as they tend to be focused more on job creation than restoring blighted areas to being high tax return areas (Green Leigh, 2004).

Business Incubators Zones

City centres often still have a concentration of small manufacturers, particularly in 'incubator zones' (Ingram, 1998). Incubators are arrangements that help small, new firms and entrepreneurs survive during critical early years by providing shared spaces and facilities, and support programs. They vary in size and scale, and may be both public or private initiatives (Municipal Research and Services Center of Washington, 2010).

Information & Technology (IT) Parks

There are numerous examples of related industries clustering together. Geographic proximity promotes interconnection and knowledge sharing between firms; and as a result clusters of manufacturers tend to be more dynamic than isolated firms (Saxenian, 1994). The most prominent example of a successful industry-specific cluster is Silicon Valley in California. While Silicon Valley developed on its own in a fairly decentralized manner, many governments have set about trying to imitate its success by designating zones or regions of a concentration of firms, often tied with a 'champion' firm or institution, in a variety of industrial sectors. Many of the most successful clusters are tied to information technology or related manufacturing (Saxenian *et al*., 2001).

The Value of Urban Manufacturing

The manufacturing sector is not as central to many large urban economies as it once was, but there are several reasons espoused by advocates for industrial land retention. For example, some argue that there are social benefits gained by the

presence of a sector that can offer higher wages and career ladders to a wide variety of a local population, including immigrants and less educated workers (Howland, 2011; Curran, 2007).[10] Several studies have also tried to apply a *multiplier effect* assessment to demonstrate how interconnected manufacturing firms are to other sectors (Curran, 2007; Phillips-Fein 1998).

Still, the most convincing argument in favour of industrial retention relates to local economic diversity. Beginning with McLaughlin in 1930, numerous urban economists have argued that more diversified local economic structures are less prone to shocks, better able to contend with market fluctuations (McLaughlin, 1930; Malizia & Ke, 1993; Polèse, 2010; Quigley, 1998; Dixit and Stiglitz ,1977; Simmie & Martin, 2010) and are potentially better breeding grounds for innovation (Duranton & Puga, 2001; Feldman & Audretsch, 1999). Cohen and Zysman (1987) argue that manufacturing in particular is central to economic diversity and to safeguard local economies from market fluctuations in other areas (Curran, 2007). A mixed economic base may contribute to a city's resilience in an economic downturn (Polèse, 2010; Phillips-Fein, 1998). Cities without economic diversity may experience polarized labour markets and reduced opportunities for entrepreneurship and small businesses (Phillips-Fein, 1998). The choice for cities should not be an industrial versus service economy (Phillips-Fein, 1998), but rather a highly diverse economy with business and employment opportunities available in a wide variety of sectors.

Types of Manufacturing Firms In Urban Areas Today

Edward Glaeser reminds us of a few general rules of urban economics: that firms are mobile, and therefore location choice is at the centre of urban economic

[10] This argument is often made in contrast to the low-end service jobs typical of the service economy, such as hotel and call center work (as in Phillips-Fein 1998: n.p.). The argument has been effectively made that deindustrialization has led to a polarization of local economies between very high and very low skilled job opportunities, with accompanying pay scales (Sassin and Castells, in Curran, 2007). Nevertheless, many contemporary manufacturing jobs require a high level of technical skills and knowledge, and manufacturing is certainly not closed to highly educated people.

development (Glaeser, 2007), and that firms that locate in an area that does not maximize their profitability must find some advantage to that location, even if it is personal preference (Glaeser, 2007). Some advantages are innate (like geography), and many others are man-made: for example, a firm might choose to locate near its suppliers or customers, or ideally both, to save on transportation costs (Glaeser, 2007).

For the most part, manufacturers that could have left their downtown lot for cheaper land or labour elsewhere have already done so (Curran, 2007). In general therefore, the manufacturers that operate in central urban areas today are those that have some reason to be there; they have found some competitive advantage that they rely on for success. This could be proximity to niche markets for some, diverse supply lines for others, or other unique urban advantages like infrastructure and opportunities for extensive 'face time'.[11] Smaller, locally owned companies may have incentives to stay where they are simply because relocation costs and breaks in consumer and supplier chains would be too costly to make up (Mayer, 1998). Indeed, the types of manufacturers that still find it to their economic advantage to be situated in central urban settings, where land values are high, tend to be smaller, more specialized and less polluting than the manufacturing businesses of years previous (Mistry & Byron, 2011).

Challenges for Urban Manufacturers

Gentrification

In highly gentrifying neighbourhoods, manufacturers are being squeezed out not because they find economic advantages elsewhere, but because of the demands of the real estate market (Curran, 2007; Phillips-Fein, 1998). The challenge for manufacturers is not whether their business is profitable, but rather as renters, whether the landowner can make more money renting or selling to a developer. It is true that residential users will often be willing to pay more for old industrial land

[11] 'Face time' is a term used by economists to describe in person interactions and dealings that businesses have with each other.

or buildings than manufacturing firms (Phillips-Fein, 1998), and land owners are not likely to accept less than full value for use of their land. Gentrification can also put businesses at risk even when their neighbourhood is not being gentrified but other areas are; when enough of their connections and suppliers are forced out, local networks shrink and can become unsustainable (Curran, 2007). Still, gentrification is one of the most central issues to urban planning today with consequences far more widespread than the manufacturing sector. As yet, a planning 'solution' to manage some of the negative externalities associated with gentrification remains elusive.

Nuisance Litigation

Introducing residential uses near industry can threaten the latter in terms of litigation over noise, smell and traffic. Indeed, residential users can drive out industrial neighbours by complaining about nuisances (Hills & Schleicher, 2010). There is precedent in New York for this occurring, and it remains the main justification for creating industrial districts – described later - on the Planning Department's website (Hills & Schleicher, 2010). Robert J. Hughs, Brooklyn's largest barge operator reason for opposing condo development on the industrial waterfront is that, should developers be allowed to build near existing industrial activity, "The first thing luxury condo owners will do is 'sue us'" (Vitullo-Martin, 2006).

Conversion (and illegal conversion)

Many former manufacturing centers have substantial industrial buildings remaining. In many cities, these have often been converted into condos, as well as big box stores, offices, hotels and other uses. As often as not, industrial conversion occurs primarily in idle or underused industrial buildings. Typically, if one building on a block or in a neighbourhood is converted, others nearby will often follow suit. These conversions have led to some very attractive and successful projects and have given new life to derelict areas.

Sometimes, developers may purchase a building with the intent of conversion, even if it is full of businesses. Lander notes such a trend has been prevalent in the Red Hook industrial area in Brooklyn, where property owners were 'warehousing' their land, essentially gambling on the idea that the city would grant rezoning or variances for their industrial properties to allow conversion to residential and other uses. In these cases, property owners were raising rents above what manufacturers could pay, or they weren't looking very hard to find manufacturing tenants. In both situations, they would use the lack of industrial tenants as justification for acquiring a zoning variance, essentially saying "Look! Our building is vacant, we need to convert it to residential" (Lander, 2009). Conversions nearby are enough to drive rent high enough to force businesses out, even when their own building has not been repurposed (Phillips-Fein, 1998). When occurring on a larger scale, these circumventions of zoning can threaten local economic diversity and the livelihoods of local residents. One rationale for preserving industrial land is based on the notion of scarcity. While each industrial conversion project, considered in isolation, might make economic sense, but when considered as a whole is a loss of assets that can no longer provide employment (Phillips Priess Shapiro Associates, Inc., 2006).

Part II – Policy Analysis: New York City & Montreal

New York City – Present Situation

In 1950, New York had 2 million manufacturing jobs. Since that time, many of those jobs have moved either to New Jersey, the southern and southwestern parts of the United States, or overseas (City of New York, 2005). Population migration out of cities into suburbs and peripheral areas, especially following WWII, accelerated the movement of jobs out of the center city (City of New York, 2005). In 2005, there were about 500,000 jobs classified as *industrial* in New York, spread between manufacturing, waste management, and construction (City of New York, 2005). Total job numbers have continued to diminish; New York State's Labor Department reported that New York City has shed tens of thousands of manufacturing jobs since

2005, with Brooklyn and Queens both loosing 9,000 jobs each between 2005 and 2010 (Levin, 2011).

Though only a fraction of the number of jobs are available in manufacturing compared with the city's past, the industrial sector remains a key part of the local economy, adding about 1.7 billion annually in direct tax revenue to city coffers (City of New York, 2005). Manufacturing jobs are important for people with lower skill levels; of all city residents with no more than a high-school diploma, 30% work in the industrial sector, or 58% of all employed in the sector (City of New York, 2005). All of New York's ethnicities have found employment in manufacturing, although Hispanics are particularly well represented (City of New York, 2005). Wages in this sector are reasonably decent compared to equivalent service jobs, paying on average $49,000 per year, compared with $34,000 in the service industry (Pratt Center for Community Development, 2009).

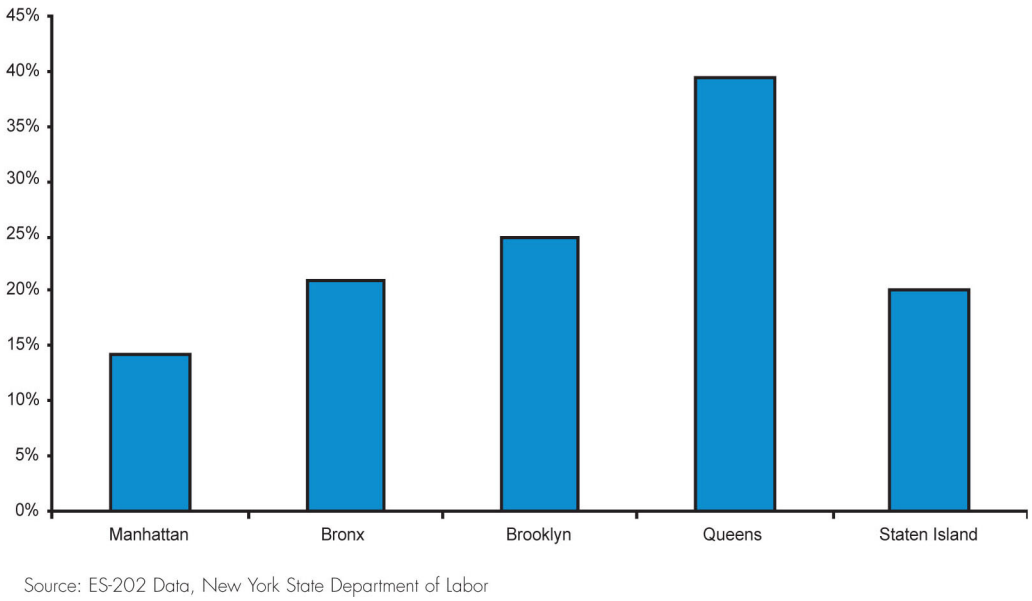
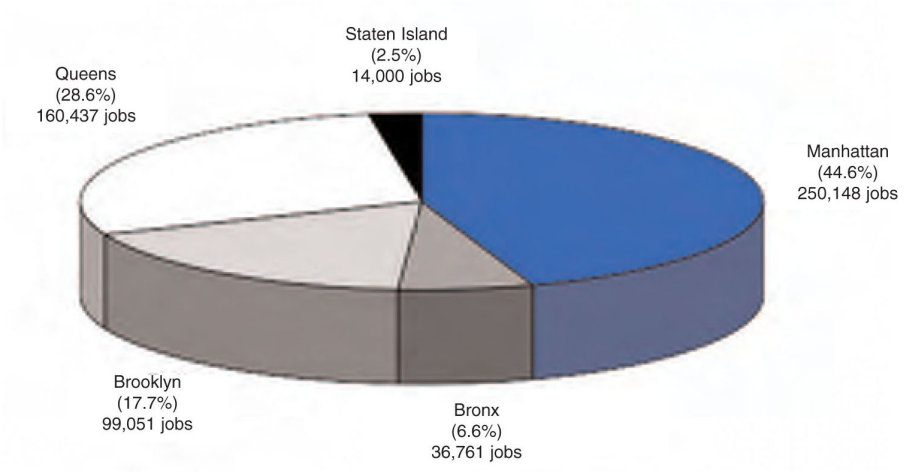


Figure 1 Industrial Employment as a Percentage of Total Boroughwide Employment - Source: City of New York, 2005



Source: ES-202 Data, New York State Department of Labor

Figure 2 Source: Geographic distribution of New York City's industrial employment 2004 – Source: City of New York, 2005

Today, most manufacturing firms in New York are small (80% have 20 employees or less), and are renters (60%). The majority of these businesses occupy 10,000 sq. feet of space or less (City of New York, 2005). While total employment numbers continue to decline, the job market is dynamic. There continue to be new manufacturing business start-ups – in 2005, a third of industrial businesses have been in operation for 5 years or less, and another third in operation between 6 – 20 years (City of New York, 2005).

Industrial Land in New York

As manufacturing in New York has declined, and as the space and building requirements of contemporary urban manufacturing firms has changed, land zoned for industrial use has also shrunk. Developable land of any type is scarce in New York, and industrial land even more so.

For many decades, industrial land in New York was kept apart from other uses, primarily to protect residential areas from the environmental hazards and noise of manufacturing. The idea of protecting industrial land from other uses was first

introduced by Robert Wagner[12] in the 1950s, who campaigned to have the city's zoning revised. Studies commissioned by Wagner suggested that manufacturing uses were threatened by housing development, and that it was imperative for the city to safeguard its industrial future by preserving land exclusively for industry. After more than a decade of campaigning, Wagner successfully convinced City Council to enact the 1961 Zoning Resolution that provided noncumulative[13] manufacturing zones in New York City for the first time (Hills & Schleicher, 2010).

Within the 1961 Zoning Resolution, establishments like hotels, office towers and big box stores were considered permissible uses for industrial land. Lander speculates that these uses were originally permitted since, at the time, they were uncommon (especially box stores), and were unlikely to be built in any number in manufacturing areas anyway (Lander, 2009). Today, these allowed uses are more significant as big box stores are a much more attractive investment for many developers (Lander, 2009). Zoning in New York is 'as-of-right' where the City has no discretion on what is built as long as the application meets the code, and projects are not subject to community review (Lavine, 2011). In this way, developers can legally and successfully use loopholes in older zoning regulations to convert buildings and land to other uses (Lander, 2009).

In his earliest years in City Hall, Mayor Michael Bloomberg and his administration (2002-present) supported condo conversion of industrial buildings (Chung, 2009; Lander, 2009). Lander describes this policy as tantamount to "open season" on all industrial land, and a lot of land was rezoned (Lander, 2009; see Appendix, *Figure 3* for a map of recently rezoned industrial land). Indeed, since 2002, New York City has rezoned more than 700 acres of industrial land in Brooklyn, Queens, Staten Island and the Bronx for new housing development and for waterfront access (Ilnytzky, 2011). Nevertheless, the Bloomberg Administration was also responsible

[12] Wagner served 3 terms as Mayor of New York City between 1954 and 1965.
[13] Noncumulative zoning is restricted to one stated use, and restricts any other uses.

for the creation of a significant new approach to exclusive industrial zones, called Designated Industrial Business Zones.

Designated Industrial Business Zones (IBZs) in New York

In January 2005 the Bloomberg Administration convened a task force on industrial policy to formulate citywide industrial policy (Chung, 2009) and preserve industrial land for continued industrial use (City of New York, 2005). The first outcome of this effort was the creation of the Mayor's Office of Industrial and Manufacturing Businesses (OIMB), to coordinate policies and programs that promote industrial and manufacturing firms (Office of Industrial and Manufacturing Businesses, 2011). Following the creation of this office, the City designated 14 (later expanded to 16)[14] zones, seen in figure 3, scattered throughout the five Boroughs as Industrial Business Zones (IBZs). These sites were chosen as areas of industrial land retention, and were officially ratified through public process in 2006 (Mayors Office of Industrial and Manufacturing Businesses n.d.). In all, about 22,500 acres of land fell into these 16 zones (Hills & Schleicher, 2010).

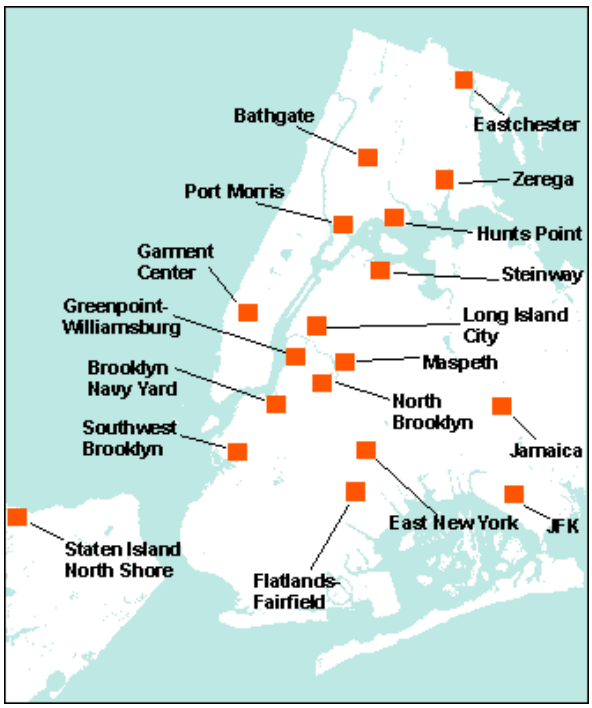


Figure 3 Distribution of IBZs – Source: Pratt Center, 2009

The basic principle of an IBZ is a defined area within which the City will not propose their own zoning amendments or support individual rezoning requests. This guarantee is intended to make firms inside the zones confident that they will not be forced to relocate after making significant investments in their business and

[14] Includes the Brooklyn Navy Yards – a special case that will be described later - and one other

property. As added incentives, firms that relocated within one of the zones would become eligible for a modest tax benefit, and some financial support would also be available for local non-profit organizations that work to strengthen businesses in those zones. Some infrastructure improvement money is also available (Lander, 2009). A key difference compared with previous designated industrial zones is the commitment from administration not to rezone land in the IBZ, the first time such a commitment was made in New York (Lander, 2009).

It is important to note that there is more industrial land outside of the IBZs than in, but none of that land is subject to any protection from conversion by the city under this plan (Lander, 2009). As an extension of the IBZ program, certain other industrial clusters were designated as Ombudsman Zones. These zones allow for a wider array of uses, including non-industrial. Businesses in the Ombudsman Areas have access to some support from city agencies but do not qualify for any tax incentives or zoning protections (Chung, 2009). Property owners can and sometimes do continue to seek zoning amendments in these other industrial areas under the usual land use procedure. For example, even within the last several years there is evidence of business displacement in the Ombudsman Zone in Greenpoint-Williamsburg[15] (an area with many furniture manufacturers and home goods designers), in which many blocks in the area have already been converted for condominium use (Chung, 2009).

How was land designated for IBZs?

IBZs, in essence, replaced the In-Place Industrial Park program (IPIP) of 1980,[16] otherwise know as M-Zones: manufacturing zones (Chung, 2009). The IBZ spatial boundaries were a redrawing of existing M-Zones to better reflect areas where

[15]Greenpoint-Williamsburg is serviced by the East Williamsburg Valley Industrial Development Corporation (Chung, 2009)

[16] IPIPs were established to clean up New York's blighted industrial areas of the 1970s and 1980s, with limited economic development objectives at the outset. IPIP zones were selected as those deemed in greatest need of public funds and intervention. In later years, additional IPIPs were designated based moreso upon volume of economic activity (Chung, 2009).

industrial activity in the city was deemed likely to be successful (City of New York, 2005) and better align these industrial corridors to match broader citywide development strategies (Chung, 2009). Indeed, Lander speculates that the designated IBZs were areas in which the Bloomberg administration had no immediate plans for redevelopment (Lander, 2009).

The IBZ boundaries were officially determined by the New York Industrial Development Agency (IDA). Basically, the IDA drew its boundaries around existing dense clusters of manufacturing. Officially, IBZs were designated based on the following characteristics:

- Current land use (as industrial clusters)
- The neighbourhood's industrial character
- No 'as-of-right' zoning for residential in the area
- Traffic studies
- Existing Empire Zone boundaries[17]

Goals and Vision

The basic goal the City seeks to achieve through the redrawn IBZs is to create "best in class industrial districts" that support "vibrant industrial business districts [that offer] competitive advantages over industrial districts in other parts of the metropolitan region" (City of New York, 2005).

Key Interventions

The crucial element of the IBZ is the guarantee not to rezone any IBZ land *as residential*. Technically though, it will be up to the Board of Standards and Appeals to consider any application for a zoning amendment in an IBZ (City of New York, 2005). Additional incentives will also be provided to encourage businesses to make use of the IBZs. Some of the incentives are financial: a one-time tax credit (of

[17] Empire Zones are State-defined geographic zones in which designated businesses may qualify for tax exemptions and/or State subsidies.

$1,000/job to a maximum of $100,000/business) will be given to relocating businesses that move to any IBZ, but it is not available to any business already there. This is a State-administered tax incentive, coordinated with Albany.

Other incentives are of a more intangible variety. The Department of City Planning will carry out area planning studies for each IBZ , with a focus on identifying traffic and infrastructure needs, and clustering opportunities. Marketing and information campaigns targeted at new, expanding, or relocating businesses will also be created by the OIMB as a support feature for IBZs.

Although the IBZs are the main outcomes of the policy, the City did make a commitment to take on several other roles to stimulate and support urban manufacturing and industrial space more generally in the city. This includes a four-pronged approach to discouraging illegal industrial land conversion:

1. Increased monitoring and inspection of illegal conversion
2. Increased financial penalties for the destruction of industrial space
3. Stop-work and other orders issued at illegal construction sites
4. Propose legislation with higher penalties for illegal conversion within IBZs

Other interventions include leveraging city-owned industrial assets for industrial uses – the City owns about 13 million SF of industrial space, and have previously invested in the Brooklyn Navy Yards, the Brooklyn Army Terminal, and Bush Terminal. No details on what kind of investments might be included are provided.

There are other incentives initiated by the City to encourage businesses within New York to relocate to an IBZ. These programs are aimed at lowering the costs of industrial activity by managing external costs, and include:

- Launch a commercial fleet parking violations pilot program
- Create a dumpster shed program

- Form an Industrial Energy Consumer Coalition
- Administer a Bi-annual 'Industry NYC' survey
- Target NYC Business Solutions to industrial businesses (by locating these centres in IBZs, retaining an industry ombudsman, launching a regulation education campaign, expand training for industrial workers (City of New York, 2005).

The final initiative will be support service organizations for manufacturers through enhancing NYCIDA (New York City Industrial Development Agency), and enhancing the Commercial Expansion Program (CEP) for industrial businesses.[18] Establish the *Office of Industrial and Manufacturing Businesses*, to serve the existing *Industrial and Manufacturing Businesses Council.* This organization will bring together the recommendations of business leaders, academics, and advocates for manufacturing. This office will rely heavily on existing programs from other offices.

Outcomes

As Council Member Lander points out, there is no guarantee that any of the IBZs will exist in the future. The city's commitment not to rezone land within the IBZs is a statement of the administration, but is not bound by anything in any legal sense. Boundaries are somewhat arbitrary, based on the Bloomberg Administration's assessment. For this reason, Lander is concerned that manufacturing land may continue to be repurposed as developers come up with new schemes to circumvent the IBZ designations (Lander, 2009). There are already accounts suggesting that non-industrial development is occurring within IBZs. A report from NYIRN claims that at least 39 sites in the 16 IBZs are being used for non-industrial purposes, including bowling alleys, an art gallery and several bars in a Williamsburg IBZ and a shopping center in East Greenpoint (Sollars, 2009). It is worth highlighting that only residential uses are excluded from IBZs. There is some contention about whether these commercial establishments are compatible with manufacturing.

[18] Which are tax abatement schemes for property owners in designated areas

Some of these uses are sometimes seen as forbearers of impending gentrification, but this is not necessarily the case.

On the one hand, developable land in New York is at a premium. There may always be some behind-the-scenes pressure from developers to get access to the IBZ land. On the other hand, due to the recent economic downturn, there has not been a lot of major development in New York recently (Lavine, 2011). It may take another housing boom in the city before it is possible to assess how strictly future administrations maintain the current IBZ boundaries.

Legally, IBZs are separate from zoning regulations and do not appear on municipal zoning maps. In theory, this makes them tenuous, especially if a future administration decides they are no longer a priority. Including them in official zoning would entail a public action, and Lander suggests that that alone would strengthen them (Lander, 2009). Still, Lander does point out that there are ways in which IBZs have some stability in practice. The most convincing of his arguments is that the tax credit tied to IBZs is a State law, and changing it would take a legislative commitment in Albany, which could be somewhat difficult to coordinate (Lander, 2009).

IBZs are not free of criticism, however, even from advocates of urban manufacturing. Chung points out that IBZs are aimed (not surprisingly) at the needs of the largest manufacturers, to persuade the biggest revenue-earners to remain in the city. For Chung, the City's concept of manufacturing reflects a 20th century conception of heavy, dirty businesses in red brick factories that need Euclidean zones[19] to set them apart from residential neighbourhoods (Chung, 2009). Chung notes that there are many smaller, agile 'creative' manufacturing firms, especially in sectors like fashion, scattered throughout Brooklyn. Chung

[19] Zones that segregate land uses and establish uniform building and use standards within each zone.

argues that these businesses are poorly served by New York's current industrial land policies (Chung, 2009).

Industrial land on the Brooklyn Waterfront

Distribution of Industrial Jobs by Borough - Q1 2004						
	Bronx	Brooklyn	Manhattan	Queens	Staten Island	NYC
Construction	24.4%	21.2%	11.1%	24.3%	41.4%	18.3%
Manufacturing	23.7%	30.7%	18.3%	20.5%	8.5%	21.3%
Wholesale Trade	25.3%	21.3%	32.1%	14.6%	10.6%	24.2%
Transportation and Warehousing	19.7%	21.1%	32.7%	37.6%	34.4%	31.3%
Waste Management, Remediation Services and Utilities	6.9%	5.6%	5.8%	2.9%	5.2%	5.0%

Figure 4 Distribution of Industrial Jobs by Borough, 2004 – Source: City of New York, 2005

Each New York Borough boasts a specialty sub-sector of industrial jobs. Manhattan was once the Mecca for manufacturing in the city, but is now primarily a warehousing and wholesale centre. Manufacturing is highest in Brooklyn, which is home to 31% of the total manufacturing jobs in New York (City of New York, 2005).

Geographic Orientations

Brooklyn is the most populous of New York City's five Boroughs, with about 2.6 million residents (United States Census Bureau, 2010), located on the western tip of Long Island, across from Manhattan. Brooklyn has substantial waterfront along the East River, and many of the

Figure 5 Brooklyn's Neighbourhoods – Source: unknown

adjacent neighbourhoods including Bayridge, Sunset Park, Red Hook, and Greenpoint-Williamsburg are important sites for manufacturing and other industrial activity still today.

Assessment

Many of Brooklyn's waterfront neighbourhoods are considered viable for ongoing industrial use for a number of key reasons, including the area's historic legacy as a site for industry, the presence of many large industrial buildings, its proximity to Manhattan, and the substantial rail infrastructure still in place (Harkins, 2011). However, Bonnie Harkins of Nautilus Development notes that there are challenges to the continued viability of industry as the whole waterfront has never recovered from the drastic decline in freight traffic (by rail and sea), and there is an ongoing lack of political coordination and private investment (Harkins, 2011).

Sunset Park: 197-A Plan

Background Summary of the Sunset Park 197-A Plan

Figure 6 197-A Area Boundary: In Green – Brooklyn Community Board 7, 2011

The Sunset Park 197-A Plan of 2010, supported by Brooklyn Community Board 7 (hereafter CB7), is a comprehensive plan to turn Sunset Park into a viable economically and environmentally sustainable employment area. The aim is to develop the "[…] Sunset Park

waterfront as a sustainable mixed-use neighbourhood that promotes regional and local economic development, fosters a healthy living and working environment, and reconnects upland residential communities to the water's edge" (Brooklyn Community Board, 2011). Among the priorities of this plan are to promote industrial activity as a central component to the neighbourhood. This approach to industrial retention differs significantly from the IBZ program since it is neither zoning-based[20], nor focused exclusively on industrial issues.

Site Context

Figure 7 Map of Sunset Park in Yellow - Source City of New York 2005

Sunset Park, still sometimes known as Brooklyn Heights, is a neighbourhood in western Brooklyn, abutting the Upper New York Bay area. It has long been a major destination for new immigrants, and today has a reputation as Brooklyn's Chinatown. Of note, it is the second highest walk-to-work community in all of New York City (Laufer, 2011).

The neighbourhood developed around the thriving port and an early model industrial park, Bush Terminal (1895 - present). Industrial activity declined sharply after peaking just after WWII. Still, Sunset Park remains a key production site in New York City's garment industry, and is increasingly made up of small Asian and Latino immigrant-owned


Figure 8 Manufacturing in Sunset Park - Source: Jill Merriman, July 6, 2011

[20] Community Boards cannot control zoning anyway

firms. Due to the market conditions created by the globalization of garment production and the abundance of low-skilled immigrants in the area, the primary competitive advantage of this area is in "low-road" strategies, notably the prevalence of sweatshop conditions (Hum, 2003).

The area encompassed in the 197-A includes some residential and commercial zones, but is predominantly industrially-zoned land. There are approximately 1,200 industrial firms (including manufacturing) in the area employing about 19,000 people (Brooklyn Community Board*, 2011). A tour of the neighbourhood revealed a dense and active community.

Figure 9 Industrial Buildings, Sunset Park - Source: Stephen Charters, July 5, 2011

Figure 10 Residential mixed with Industrial, Sunset Park - Source: Stephen Charters, July 5, 2011

The groundwork to create a 197-A for Sunset Park began about 15 years ago, when the City floated the idea of building a container port on the waterfront. The port idea was eventually dropped, but the prospect of significant waterfront development inspired community leaders and activists to become more involved in shaping the neighbourhood's future. The galvanizing issue at the outset was to ensure that public access to the waterfront would be included in any future development (Laufer, 2011).

Political Context

197-A Community Plans

197-A plans are long-term oriented, non-binding community plans designed to guide future land use decisions by city agencies. They are an established method of planning within the City Charter. These plans can be initiated at different levels, including Community Boards (as in this case), Borough Boards, Borough Presidents, and the Department of City Planning (DCP). These plans are primarily concerned with land use, but also set out goals and objectives for a particular site or neighbourhood. They can influence changes in policy and land use, but they are not binding policy documents. They must nonetheless be adopted through the 197-A process, as outlined in the City Charter (Laufer, 2011). Despite not being binding, any 197-A plan has to be grounded in legal and economic realities, and defendable as a legitimate plan.[21] Since 1992, New York has adopted 13 197-As, with 2 other attempts.

In some ways, 197-A plans could be described as an institutionalized method of community planning. The impetus for a plan originates in a community's local government bodies, and the goals and objectives are locally defined. The 197-A process provides the framework for how a community vision could be adopted.

Community Boards

The Sunset Park 197-A was an initiative of Community Board 7 (one of 59 districts in New York, including 18 in Brooklyn). Community Boards are the lowest level of municipal government in New York. They are made up of 50 voting members appointed each year for two-year terms, half appointed by the City Council and the others by the Borough President. All members are unpaid volunteers. Community Boards have no authority to make or enforce laws, but their recommendations are

[21] The DCP provides planning resources and technical assistance to the community. Follows a 9-step process, including several review stages (Department of City Planning, n.d.)

often heeded by the Mayor and City Council in regards to finance, development, land use and zoning.

CB7 is responsible for creating and managing the 197-A plan. The Board had to coordinate numerous community meetings over several years, as well as raise the funds necessary to have these meetings and hire a planner to draft the document. According to Laufer, fund raising, while successful, was the most difficult part of the process for the Board (Laufer, 2011).

Goals and Vision

After nearly 15 years of consultations and deliberations, CB7 was able to establish several key goals and visions for the community. These goals reflect the diversity of interests and needs of Sunset Park (Laufer, 2011). Chief among them is the need to maintain industrial jobs in the neighbourhood:

- To promote industrial redevelopment and job creation in Sunset Park while retaining existing industrial jobs.
- To maximize waterfront access and open space opportunities in combination with industrial and waterfront redevelopment.
- To preserve existing industrial, commercial and residential uses and fabric in the area east of First Avenue.
- To encourage development that places a minimal environmental burden on adjacent residential communities.
- To preserve and celebrate Sunset Park's rich maritime and industrial heritage (Brooklyn Community Board, 2011).

The goals are not arranged in line of priority, each is considered integral to community development in Sunset Park (Laufer, 2011).

Details of Key Interventions

CB7's role is restricted to drafting, promoting and monitoring the status of the Plan. Implementation is dependent on the City and private sector investment. As it has been less than a year since the Plan was ratified, it is not possible to assess success. However, Jeremy Laufer offered some insight into the types of interventions likely to be implemented in the next several years, or those already underway.

Ensuring that there is public access to the waterfront, the catalyst for the 197-A, is already underway, with the first public space on a pier already open as of summer 2011. Specific to manufacturing, several initiatives have a good potential to occur. Most notable will be several port redevelopment projects, the introduction of a green technology incubator,[22] and the opening of a glass recycling facility.[23] In addition, several worker-training programs focused on technical and industrial skills will be established.

Outcomes

The adoption of a 197-A is only the beginning of the process of meeting the goals set out in the plan. As the most recently adopted 197-A in New York, and in consideration of the close coordination between CB7 and the DCP, District Manager Jeremy Laufer believes that there is a good chance that all priorities will be met in a reasonable timeframe. Indeed, it is the role of Laufer's office to maintain continuous dialogue with the planning department to remind them of their commitments for investment. Laufer states that in his dialogue with the City has been positive in this regard, and he is pleased with the actions taken (Laufer, 2011). Still, many of the key interventions in the 197-A, including port upgrades, require considerable

[22] Laufer will be chairing roundtable discussions as part of the Brooklyn-Rotterdam Waterfront Exchange program about the creation of a green business incubator in Sunset Park.

[23] The Sunset Park Materials Recycling Facility will be a main site for glass recycling in New York City, and will include wind turbines and educational components. Ground has already been broken on this 125,000 sq. ft. project.

investment and time. A challenge will be to maintain commitment to development as administrations, and their priorities and budgets, change.

There are several factors in place that may increase the chances that CB7 will be able to achieve its objectives laid out in the 197-A plan. Coordination and knowledge sharing on development between Districts on the Brooklyn waterfront is one such factor. Laufer notes that there are no specific agreements between Community Boards in Brooklyn but they do not consider themselves in competition. They routinely cooperate on projects such as a waterfront recreational corridor. What is more, the same planner that drafted the Red Hook 197-A Plan adopted in 1996[24] was purposefully hired by CB7 (Laufer, 2011). Also of note is the relatively low level of gentrification that Sunset Park is experiencing compared to other parts of Brooklyn like Williamsburg (Laufer, 2011). The comparative absence of major development pressure on the waterfront will be advantageous for the development of manufacturing businesses.

How industrial land retention is defined and understood locally

Industrial land retention is considered part of a broader vision to sustain Sunset Park as a vibrant neighbourhood. Manufacturing is a considered an important community asset and local officials embrace the social advantages of manufacturing, particularly the many jobs it provides for low income Sunset Park residents. As Laufer put it, "the best social program you can offer is a job" (Laufer, 2011). Supporting manufacturing is considered compatible with, even inseparable from, other community objectives like waterfront access and environmental sustainability.

[24] Red Hook is a mixed-use neighborhood in Brooklyn, just north of Sunset Park, with a mix of high density residential with light-to-heavy manufacturing zones. The Red Hook Plan, sponsored by Community Board 6, was the first 197-A Plan in Brooklyn.

Brooklyn Navy Yard

Background Summary of the Navy Yard

The Brooklyn Navy Yard (hereafter the Yard) is a model industrial park on the grounds of one of the United States' historic shipbuilding facilities. The Yard is designated as an IBZ, but is a special case as the land is City-owned, and managed by the quasi-governmental non-profit corporation, the Brooklyn Navy Yard Development Corporation (BNYDC). The BNYDC's roles are to promote and lease space in the Yard, revitalize and develop underutilized or decrepit lots, and oversee the modernization of its infrastructure (Brooklyn Navy Yard Development Corporation, 2011).

Site Context

The Yard occupies about 300 enclosed acres[25] on the banks of the East River, directly across from Manhattan. It abuts the vibrant Brooklyn neighbourhoods of Williamsburg and D.U.M.B.O., both of which have dense, diverse populations and economic activity, and are areas of significant development and gentrification.

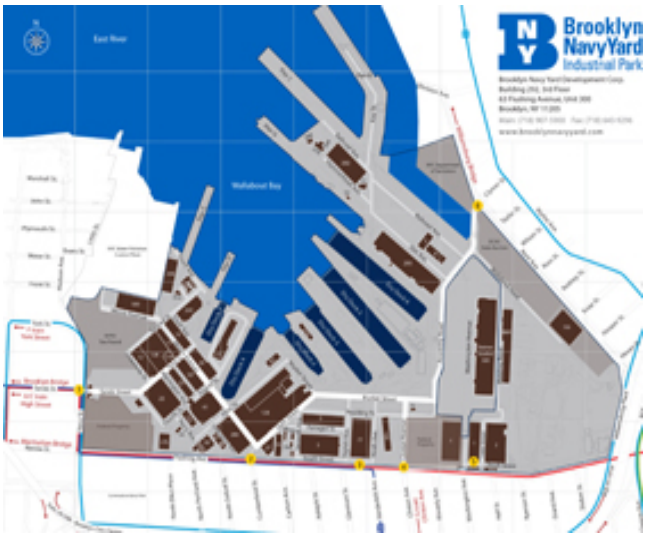


Figure 11 Map of Navy Yard – Source: Brooklyn Navy Yard Development Corporation, 2011

The Yard itself includes a hodgepodge of newly constructed and historic buildings of all scales, including some in states of disrepair, as well as both functional and defunct piers and dry docks, open lots, and some overgrown and undeveloped acreage that includes a vacant historic hospital complex and a

[25] Indeed, the Yard is fenced off from its surroundings.

former naval cemetery. The vacant lots are all considered available for future industrial development.

Figure 12 Industrial Buildings, Brooklyn Navy Yard - Source: Stephen Charters, July 6, 2011

Figure 13 Empty Lot, Brooklyn Navy Yard - Source: Stephen Charters, July 6, 2011

History and Development

In 1966, the United States Navy closed its Brooklyn operations, ending the Yard's tenure as the longest running industrial facility in the United States, and leaving over 9,000 civilian workers unemployed. One year later in 1967, the City of New York purchased 260 acres of the Navy Yards, including most of its industrial buildings (Brooklyn Navy Yard Development Corporation, n.d.). In 1971, the Navy Yards were re-opened as a City-owned industrial park, managed by an quasi-governmental local economic development corporation known as the 'Commerce Labour and Industry in the County of Kings', or *CLICK* (Brooklyn Navy Yard Development Corporation, 2011).

The Yard has many tenants, including manufacturers, other industrial sector firms including warehousing, and some design and technical firms. Currently, the Yard is in the midst of large-scale expansion. Since 2006, the Bloomberg administration and the BNYDC have announced an eight-building expansion including over 1.7 million square feet of new industrial space, 2000 new jobs and $250 million of

private investment. Plans to develop an additional 40 acres are currently under way (Brooklyn Navy Yard Center, 2011).

Figure 14 Pre-fab housing manufacturer – Source: Stephen Charters, July 6, 2011

Figure 15 Innovative bicycle stand manufacturer – Source: Stephen Charters, July 6, 2011

Vision and Goals

The fundamental mission for the Navy Yard, and thus the mandate for the BNYDC, is to restore at least as many civilian jobs to the area as were lost when the facility closed (Drucker, 2011). The priority is to provide jobs in the industrial sector, including manufacturing. Technically, commercial jobs are not excluded, although they are limited to certain spaces within the Yard, explained below.

Key Interventions

The primary model for developing land in the Yard has been to lease lots to developers as a 'ground lease' – where the BNYDC remains the land owner and charges rent, and the developer constructs or renovates an industrial facility of their choice (Drucker, 2011). Some projects developed under the 'ground lease' mechanism during the economic recession of 2008 - 2011 stalled. As a result, the Navy Yard has sought other means of land tenure. Notably, they BNYDC acted as a developer by constructing or renovating their own buildings and renting out space directly to individual firms (Drucker, 2011).

Figure 16 Industrial building being renovated for new use - Source: Jill Merriman, July 6, 2011

The BNYDC also operates additional programs focused on job creation, notably an employment placing service. To date, this service has successfully placed 1,500 people in industrial-sector jobs (Brooklyn Navy Yard Development Corporation, 2011). The priority with this service is to place workers in firms that operate in the Yard, or in the surrounding communities (Brooklyn Navy Yard Development Corporation, 2011).

Outcomes

Plenty of indicators suggest that the Navy Yard has been a success in terms of incubating businesses and creating jobs. Currently, there are about 275 businesses operating in the Yard, employing 5,800 people, up from 3,600 in 2001 (Drucker, 2011). The Yard's available floor space, some 4 million sq. ft., has been leased to near capacity for almost a decade (BNYDC & NYIRN, 2009). What is more, the Yard is in the midst of the largest expansion of site facilities since WWII (Drucker, 2011). Even a museum about the facility is set to open on site. The biggest challenge the Navy Yards faces at this time is that the market downturn in the USA has been discouraging private investment (Drucker, 2011).

Future Expected Outcomes

There are several priorities for the BNYDC in the future. The immediate targets are to add 1.5 million sq. ft. of industrial floor space and create 2,000 new jobs, both within 2 years (Brooklyn Navy Yard Development Corporation, 2011). Indeed, the BNYDC would like to reach a total of 10,000 jobs at the Yards in the next 5 years (Drucker, 2011). There are two main activities that are priorities for achieving these outcomes. The first is to develop many of the open spaces in the Yard; there are numerous vacant lots. The second is to renovate some of the old buildings on

site; there is some building renovation already underway (Drucker, 2011). The extent to which these activities can be achieved is largely dependent on whether private developers seek to invest in the Navy Yard.

In addition, there is also the possibility of expansion: a public review process began in June 2011 to transfer ownership of several lots on Admirals Row on the southern boundary of the Yards from the federal government to the BNYDC, which would then be developed into a 74,000 sq. ft. supermarket, along with over 200,000 sq. ft of wholesale and industrial space (Brownstoner, 2011).

How industrial land retention is defined and understood locally

Industrial land retention is understood by the Navy Yards as a means to create jobs. The Navy Yards maintains primarily industrial space, including a large number of manufacturers, but these businesses are mixed in with warehousing and distribution businesses, a major film studio[26] and a commercial property with a supermarket project a possible second commercial venture.[27] Manufacturing is currently and will likely always be a major component of the employment mix at the Navy Yards, but is not the only type of business permitted (Drucker, 2011). Residential uses will be excluded however, as they not seen as compatible with the objective of using the Yard for job creation. Substantial gentrification has already occurred in the adjacent Williamsburg and D.U.M.B.O. neighbourhoods, and Navy Yards officials are aware of the pressures to develop residential units in the area (Drucker, 2011).

[26] Styner Studios has the largest sound stage outside of Hollywood, and is currently in expansion. One possibility will be opening a film school onsite, associated with Brooklyn College (Drucker, 2011)

[27] The supermarket would be located on a peripheral lot that would serve the surrounding community, which is a food desert. The lot in question is currently federal land and the Navy Yard is currently in negotiations to acquire that land.

Montreal – Present Situation

At its peak, Montreal was the heart of manufacturing in Canada, largely concentrated on and near the Lachine Canal. However, the local manufacturing sector has declined in total numbers, particularly after shedding jobs in labour-intensive industries such as clothing and textiles since the 1960s (Vinodrai, 2001).[28] The manufacturing sector's place in the Montreal economy has continued to decline even within the last several years. In 2006, manufacturing was the second largest employment sector on the Island of Montreal, with 13 percent of the job share, and by 2010 had dropped to fourth, accounting for only 10 percent of the job share (Institut de la statistique du Québec, 2011). Even so, manufacturing endures and some parts of the city rely heavily on manufacturing as an employment sector and revenue generator. In 2008 for example, there were more than 9,000 manufacturing businesses on the island of Montreal, directly employing more than 88,000 people (Institut de la statistique Quebec, 2010; see Appendix, *Figure 2* for more detailed employment numbers for Montreal).[29]

Today many of these firms are located outside of Montreal's urban center. The municipality of Montréal-Est for example, hosts heavy manufacturing like oil refining, while the Borough of Saint-Laurent is home to the major aeroplane and train manufacturer Bombardier. The presence of manufacturing outside of the urban core is not surprising given the many location advantages for industry in peripheral areas like Montréal-Est and Saint-Laurent. Distance from large residential areas, and easy access to highways for trucking makes them an attractive area for manufacturing businesses.

Meanwhile, the industrial land near the Lachine Canal, once the epicenter of manufacturing in Montreal, and indeed Canada, for nearly a century has largely been

[28] There were 27,000 fewer jobs in textiles industries between 1976 and 1997 (Vinodrai, 2001).

[29] Note: this refers to actual production workers and does not include executive, administrative, clerical/office or sales staff employed by manufacturing establishments. The total number of people employed within the sector in 2008 was 107,800.

converted to new uses. What remains of manufacturing here are pockets of smaller firms woven into the urban fabric, and a few larger businesses including several operational flourmills and breweries.

Industrial Land Use in Montreal

In its Master Plan (2004), the City of Montreal has designated numerous areas dispersed throughout the island as 'Employment Zones'. There are seven types of Employment Zones, including business and retail, institutional, and three areas where manufacturing is a permitted use: *Diversified Employment Areas* (i.e. mixed-use), *Industrial Areas*, and *Extensive Industrial Areas* (City of Montreal, 2004). All three types are present at different points along the Lachine Canal. Permitted uses in industrial areas include a variety of manufacturing types, as well as distribution activities and complementary businesses and services (City of Montreal, 2004). By contrast, Extensive Industrial Areas are reserved for industrial firms that require large lots and spatial segregation from residential areas, based on the their type of production (City of Montreal, 2004). The aforementioned oil refineries in Montréal-Est and train manufacturing in Saint-Laurent are examples of use found in Extensive Industrial Areas. Montreal's Master Plan is not zoning, but rather establishes the overall basis on which zoning is written. In this way, actual permitted uses may vary by location across the city, even among Employment Zones.

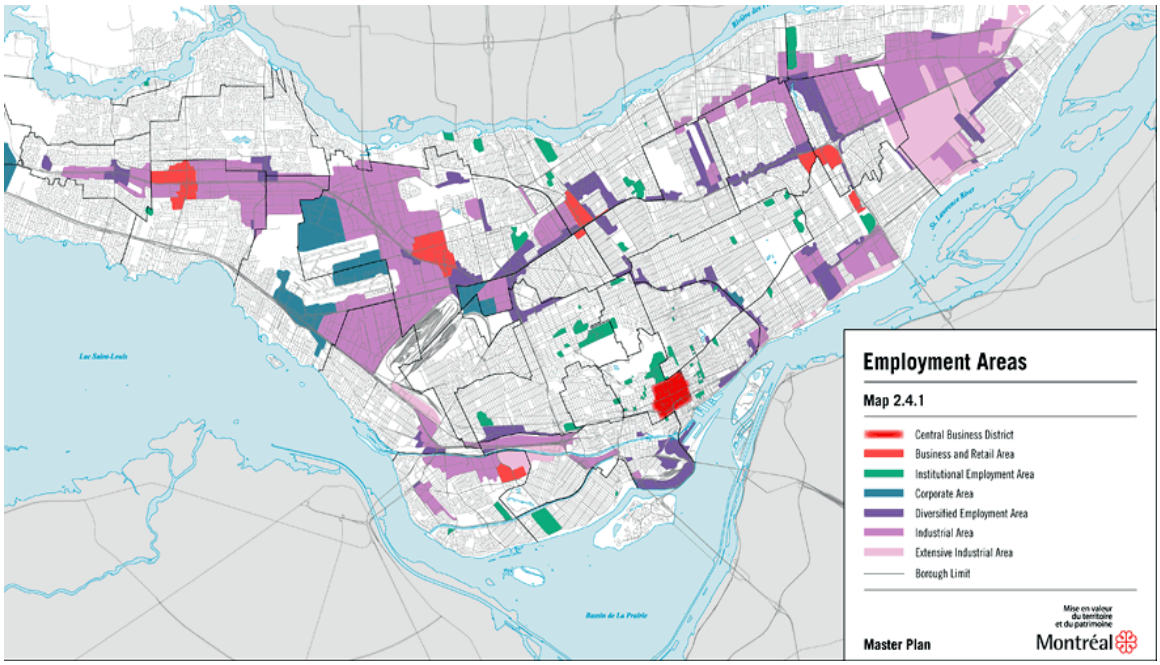


Figure 17 Employment Areas in Montreal - Source: City of Montreal, 2004

Montreal Policy

Current City policy is not focused on industrial retention in terms of land preservation, but more on supporting the growth of *creative* sectors. Certain manufacturing industries are a part of the broader vision of Montreal as a creative city. Fashion is the best example of this. Montreal ranks with Los Angeles and New York among the top centers of fashion production in North America. The City considers the fashion industry as a defining part of Montreal's identity and creative atmosphere. The industry generates $1.35 billion annually, with 86% of the Quebec's employment in the apparel sector and 66% of the province's manufacturers located on the island of Montreal (City of Montreal, 2011).[30] In its policies on creative production, Montreal does not make a distinction between the production of tangible items like apparel and intangible products like movies and computer software.

[30] Montreal is one of the few North American cities has university programs in fashion.

PR@M-Industry

The City of Montreal offers some subsidy programs aimed at supporting local industry, manufacturing included. The PR@M-Industry program is a public subsidy designed to encourage non-residential property development in certain zones in the metropolitan area of Montréal. Through this program, the City aims to encourage investment in property development on island, strengthen a diversified economy and revitalize the city's industrial heritage. PR@M is administered as a partnership between the City of Montreal and the municipal Borough governments (Dion, 2011).

The program offers property owners a five-year general property tax rebate on the increase in property value resulting from the construction, conversion or expansion of an industrial building on their lot (to a maximum of $1 million per year). In essence, there is a 5 year exemption on property taxes for any newly constructed square feet of floor space in a manufacturing facility (Dion, 2011). In order to qualify for the subsidy, the building must also be put into specific use, although the range of options is quite broad. Eligible activities include manufacturing, but also film and video production; science and engineering R&D; architecture and design firms, performing arts spaces, and several other uses (Ville de Montreal, 2011). An additional advantage is offered to property owners in select industrial districts, where all property tax increases over the next five years would be covered.

The program is currently open for applications but has not been implemented yet. Therefore, it is not possible to say whether this subsidy will support property development.

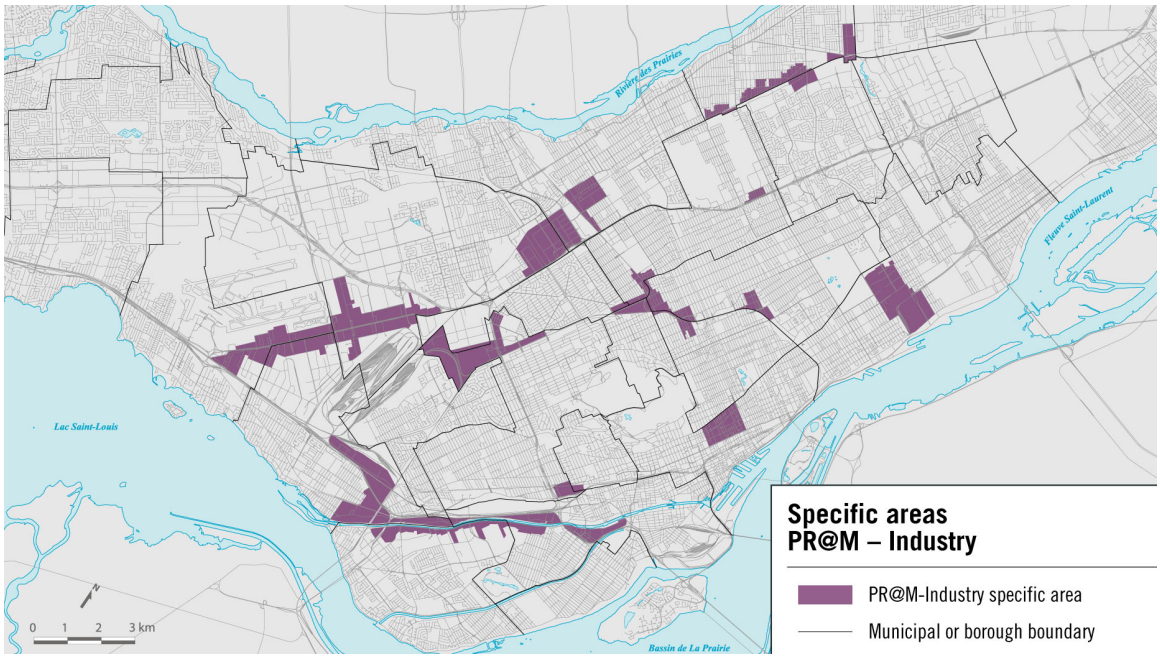


Figure 18 – PR@M Industry Applicable Districts – Source: Ville de Montreal, 2011

ClimatSol

ClimatSol is another direct investment program in Montreal. It is a site decontamination program (for brownfields) that also includes measures for reducing greenhouse gas emissions and improving energy efficiency of buildings. Financial aid is provided to qualifying development projects to help cover the cost of treating and transporting contaminated soil, of up to $1 million (Ville de Montreal, 2008). ClimatSol is funded by the Province and is available throughout Quebec; it is administered by the City of Montreal within its jurisdiction. Such a program could be accessed by most types of developers, including industrial developers.

Revi-Sol

Revi-sols was an incentive program that, while no longer in operation having ran from 1998 to 2003, was an important aspect of recent City policy as it relates to industrial land. The objective was to encourage urban development urban on brownfields in Montreal. In this program the province of Quebec funded 50% of clean-up costs for qualifying sites. The City of Montréal administered the program.

About 130 projects used Revi-Sol to decontaminate and put in use nearly 206 hectares of land. About half the projects included residential uses as well. One of the most notable projects was redevelopment of the Angus Shops, a rail yard and rolling stock manufacturing and repair facility in the Borough of Rosemont, into a mixed-use area. The Revi-sols program was considered a success in stimulating urban development on former industrial sites (Canada Mortgage and Housing Corporation n.d.).

Assessment

The City of Montreal does not take the same high profile approach to supporting manufacturing that New York City has taken. There is no equivalent to the IBZ program. Nonetheless, Montreal prioritizes supporting and promoting key sectors for growth. Manufacturing is only one part of the broader assortment of industries that form part of the City's prioritized sectors that include fashion and textiles, aerospace, biofoods, and entertainment and software products.

Decisions on industrial land use in Montreal are being made on a case-by-case basis without the benefit of a comprehensive strategy or the basic information needed for understanding the opportunity costs of rezoning industrial land (Canada Mortgage and Housing Corporation n.d.). Through ClimatSol and previously Revi-Sol, the City has invested significantly in brownfield revitalization, yielding numerous development projects. The focus has been to intensify development on island and stimulate profitable development of all varieties, including residential, commercial and mixed use.

The Lachine Canal

Geographic Orientations

The Lachine Canal runs 14.5km from the Vieux Port of Montreal to Lac Saint-Louis. It cuts through the heart of the island's South-West, spanning the South West Borough, LaSalle and Lachine. The Canal was opened in 1825 to bypass the un-navigable Lachine rapids and connect the Great Lakes to the Atlantic, becoming the

head of the largest inland shipping corridor in the world and playing a major role in Montreal's, and indeed Canada's, early development and urbanization (Desloges & Gelly, 2002).

Historical Context

The Lachine Canal established Montreal as the cradle for manufacturing in Canada for many decades. Not only was it a critical transportation route between markets and sources of raw materials, its locks provided a reliable source of power, and copious water for industrial use (Sharma, 1971). Moreover, the banks of the Canal were originally peripheral to Montreal's commercial and residential core, with empty land available for development. From 1880 to 1940, almost 15% of all Canadian manufacturing workers were employed along the banks of the Canal (Desloges, 2003).

Figure 19 : The Lachine Canal, Circa 1905

The opening of the Canal coincided with favourable global market forces to create an ideal scenario for manufacturing to emerge. The Industrial Revolution brought major advances in mechanization and specialization of production, as well as more complex global markets - including a growing American market. The first major industries to locate along the Canal were producers of staple items, including flour, beer and tobacco (Sharma, 1971); the first was the Ogilvie Flour Mill, at the St. Gabriel Lock. By 1860, the Montreal end of the Lachine Canal (downriver) was packed with industrial businesses. The industrialization of the Lachine end (upriver) of the Canal began in 1882, when the Dominion Bridge Company opened shop, followed closely by Dominion Wire (Sharma, 1971).

Railways became a major mode of transporting goods by the 1850s and 1860s. While the Canadian Pacific and Grand Trunk lines eased the need for factories to be located directly adjacent to water, they did not significantly draw businesses away from the Canal but opened up new corridors for industry (Sharma, 1971). The Canal and railways combined to intensify Montreal's manufacturing sector, with leather, garment, tobacco, and the print industries being among the most important employers in the mid to late 19th century. By the late 1880s, iron and steel production gained a foothold, especially the production of fittings, nails, pipes, and wire, as well as tools, telephones and sewing machines. Flour and sugar refining remained major employers (Sharma, 1971). The scope and diversity of the manufacturing sector by the onset of WWI is reflected in the table below, showing a sample of business classifications (Sharma, 1971):

Industry	Number of Businesses	Number of Employees
Boots and Shoes	39	5,700
Boilers and Engines	8	1,350
Clothing	200	11,000
Cotton	6	3,500
Appliances	13	2,200
Tobacco	35	4,000
Leather	13	500
Meat Processing	12	750

Montreal was a major site for arms production during both World Wars (Sharma, 1971). Manufacturing greatly expanded in WWII with many businesses converted for military use, and the labour force grew rapidly in parallel (Sharma, 1971). Following WWII, Montreal surged ahead as Canada's political, cultural and industrial centre, with standards of living rising dramatically and the North American economy booming (Sharma, 1971).

It was only in the late 1950s that industry began moving away from the Lachine Canal area in any significant numbers. The growth of the post-War suburbs in the metropolitan region was a major reason for this shift. Many young and growing

suburban communities set aside significant industrial land to boost their tax base and attract more residents. The provincial government encouraged the designation of industrial parks in the suburbs, authorizing the use of public funds to grant subsidies to industries to move into their communities. By this time, the road and highway network was sufficiently developed in Montreal making easy transportation to these industrial parks possible (Sharma, 1971). Equally significant, the opening of the St. Lawrence Seaway in 1959 ended the transportation importance of the Lachine Canal. Cheaper energy sources, as well as growing concerns about water and air contamination, contributed to the Lachine Canal's decline as a site for industry post-war (Sharma, 1971). Changes in technology and the organization of factories were yet another factor, and businesses sought out peripheral locations with adequate space and facilities (Shultz, 1997).

The Canal was finally closed to shipping in 1970. Left behind were declining industrial businesses, many of which would close within a decade, and 120,000 cubic meters of contaminated sediment in the Canal, not counting the contaminants in the soil along its banks (Morrisette, 2010). As a result, many among the area's sizable working class population became unemployed or underemployed. The latter half of the 20th century for the South West Borough in particular was characterized by decades of decline, high unemployment rates and poverty.

Present Situation

Within the last decade or more, however, there has been a significant gentrification in old industrial neighbourhoods in central Montreal, especially in the South West Borough (Twigge-Molecey, 2009). The residential awaking of the South West relates to two trends that have characterized the Montreal housing market since about 2000: growing demand for high-end dwellings near the downtown, and a corresponding boom in condo development. This can be partly attributed to the

revitalization of the Old Port and the growth of Cite Multimedia[31] just east of the Canal, bringing more white-collar jobs downtown with many employees seeking housing nearby (Comite habitation Sud-Ouest, 2002).

What is more, the Canal and the strips of land along its banks were decontaminated (partially) , the locks upgraded, and designated a national park in 2002 featuring a recreation corridor popular with cyclists. The water itself is now open to recreational boating as well. The presence of this park has further added to the desirability of the area for residential development. Major residential land conversions have already taken place in the South West Borough, and even larger mixed-use developments are planned or underway, notably Les Bassins du Nouveau Havre project in Griffintown in the South West Borough.

South West Borough

Geographic Orientations

The South West Borough (so named for its location southwest of Montreal's CBD) is an amalgam of rather distinct old industrial neighbourhoods on either side of the Lachine Canal; Saint-Henri, Little Burgandy and Griffintown on the north, with Ville Emard, Pointe-Saint-Charles and Cote Saint Paul on the south side.

Present Situation

As previously stated, the South West Borough has experienced significant residential development and gentrification over the last decade or more, although it has not been evenly distributed throughout the area. An important facet of the revitalization of the South West through residential development has been the widespread conversion of industrial buildings. Though major conversions of industrial land to residential use in this area began in the 1980s, most conversion took place in the 1990s, especially after 1997 as Montreal's economic fortunes began to rebound and the urban residential market grew (Comite habitation Sud-

[31] A semi-successful high tech and information technology cluster that was initiated in the late 1990s

Ouest, 2002). 39% of residential construction in the South West Borough from 1996 to 2001 was through the conversion of industrial buildings (Comite habitation Sud-Ouest, 2002). Very often the buildings were vacant or underutilized, and amendments to zoning were often granted (Comite habitation Sud-Ouest, 2002).

The conversion of industrial land continues. At the end of 2010 for example, the Southwest Borough hired Groupe Altus to do a feasibility study on the different types of land uses that could be adjacent to the Canal in a specific study area along rue St Patrick between Wellington and Atwater. After conducting research and interviewing local property owners, Groupe Altus concluded that there were significant barriers to the use of industrial properties along St Patrick. St Patrick is not an easy truck traffic route, and many of the buildings with current industrial tenants are old and not as well equipped for industrial needs as other sites, including in the nearby Industrial Parc in Pointe-Saint-Charles. Increasing rents are also a barrier. Certain recommendations include converting some land along the banks of the Canal to residential and small office space to compliment the huge office development slated for nearby Griffintown, as well as creating more public space and access routes to the recreational trail (Arrondissement du Sud-Ouest, 2011). Reserving any space for industrial use is not part of the discussion.

Industrial Land Retention in the South West Borough

Opposing industrial to residential land conversion in the South West has been a concern for certain community members since the 1980s, at a time when many former industrial facilities were vacant or underused. Preserving the industrial land on the banks of the Canal for employment use was one of the first priorities identified in the 1984 Programme économique de Pointe-Saint-Charles (PEP), a socio-economic study of the area, conducted by residents. Shortly thereafter, a 5-year moratorium on industrial land conversion was imposed by the City in 1987, valid until the release of the 1992 Plan d'urbanisme. This temporary moratorium was enacted, in part due to lobbying from local community groups such as Urgence Sud-Ouest.

The moratorium aside, efforts by community groups in the South West to protect industrial zones throughout the 1980s and 1990s largely failed. Although the 1992 Plan confirmed the industrial zoning,[32] a series of spot zoning amendments were granted by successive City administrations in the years following the moratorium and many industrial buildings were converted to residential uses anyway, especially lofts (Comite habitation Sud-Ouest, 2002). What is more, the objectives and approaches of industrial land retention proponents tended to be quite different depending on the neighbourhood. Industrial conversion proved a far more contentious issue in Pointe-Saint-Charles than St Henri, for example, and received less attention still in Little Burgundy (Comite habitation Sud-Ouest, 2002). There is no official study of how many industrial buildings were converted during this time (Comite habitation Sud-Ouest, 2002).

The redevelopments of the Redpath Sugar Refinery and the Belding Corticelli building, some of the largest factories along the Canal in Pointe-Saint-Charles, are indicative of the trend. Redpath Sugar closed the factory in 1980, moving their facilities to the Toronto waterfront. The building lay vacant for more than 20 years, and there were ongoing local discussions about converting it to social housing or other uses (Comite habitation Sud-Ouest, 2002). The Redpath building was purchased in 1999, and resold to another developer in 2003. It is now high-end condos.

The legacy of industrial activity – contaminated brownfields - contributed to conversion in the South West as well. Property owners who took on the cost of decontaminating were generally not prepared to sell their land for new industrial uses, since the return on that sale was not likely to be nearly as profitable (if profitable at all) as condominiums. As high-end condos were the most lucrative

[32] It should be noted that zoning presented in Montreal's Plans d'Urbanisme are not official zoning, but merely serves as a template upon which zoning regulations are drafted.

alternative for most sites, they have become the norm in the area (Comite habitation Sud-Ouest, 2002).

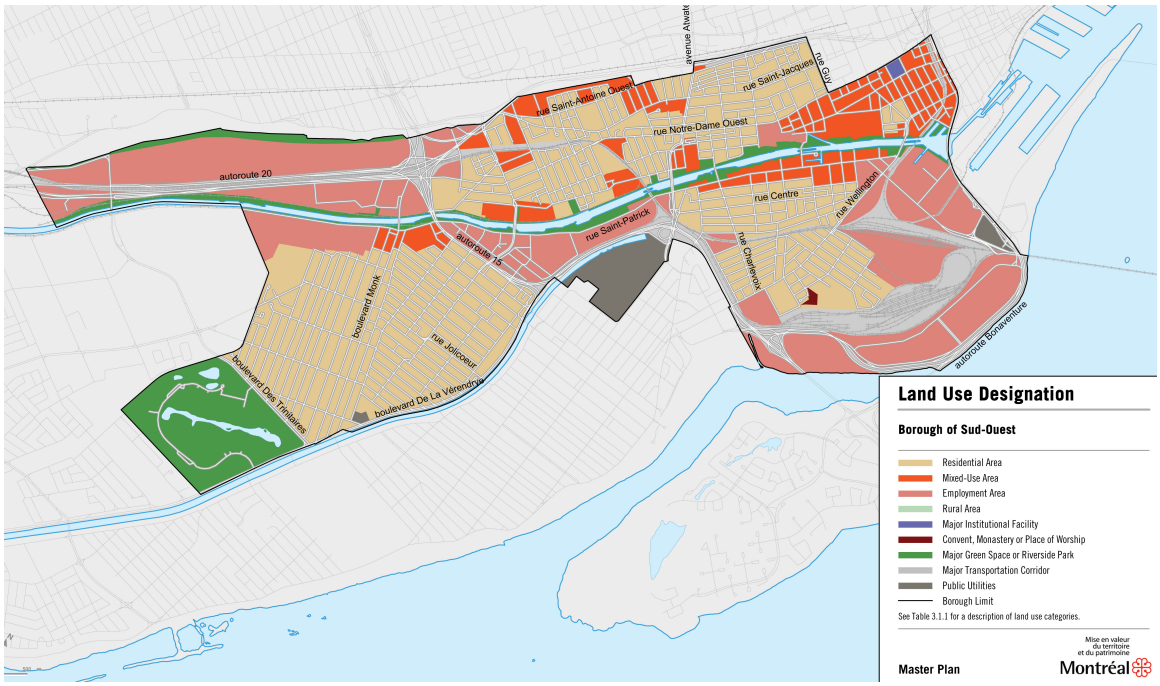


Figure 20 South West Borough Land Use in Montreal Master Plan - Source: Ville de Montreal, 2004

Today, large tracts of land in the South West Borough are designated in Montreal's Master Plan as either 'Mixed Use' or 'Employment' areas. Mixed Use areas can include light industrial uses, although local zoning will specify the uses authorized for each parcel of land, based on the nature use and how it will affect its surrounding environment. According to the Master Plan, the purpose of this stipulation is to ensure that employment and residential uses are smoothly integrated (Ville de Montréal, 2004). As such, there is a fair amount of discretion available to planners in allowing certain types of industrial uses.

Parc d'entreprises Saint-Charles

There is at least one major industrial site in the South West Borough. The Parc d'entreprises Saint-Charles, formerly the Montreal Technoparc, is a City-owned industrial park that opened in 1988 on the site of a former landfill and dump site between the neighbourhood and the river in Pointe-Saint-Charles, very near the

Lachine Canal. The City of Montreal holds about 2 million square feet of vacant land, and is targeting communications high-tech firms as new tenants (Regroupement Economique et Social du Sud-Ouest , 2011).

How industrial land retention is defined and understood locally

Preserving industrial land in the South West Borough is an issue that has a colourful history, as it is tied in with fairly dramatic urban change and community activism. Even so, specific policies to preserve industrially-zoned land for new manufacturing use has not translated as a priority for the Borough. Managing substantial residential development and demographic change have placed many other issues at the forefront of the policy agenda. Industrial activities are integrated into

Assessment

The authors of the 2002 Comite habitation Sud-Ouest report on the revitalization of the South West Borough argue that planners in the Borough frequently used spot zoning, and these amendments did not always respect the designations of the City Master Plan. As a legacy of this trend that focused on individual projects instead of neighbourhood coherence, there is sometimes poor cohabitation of industrial and residential uses in the South West. What is more, rapid condo development has contributed to haphazard gentrification that had some negative impacts on the community, especially socio-economic polarization and displacement (Comite habitation Sud-Ouest, 2002).

The authors go on to suggest that some locations that are unfavourable for condo development could be attractive to other uses like manufacturing such as near the Turcot highway interchange. The Comite points of that government would be needed to help in decontamination, otherwise the lots are too expensive and would be underutilized (Comite habitation Sud-Ouest, 2002).

Ville de LaSalle

Geographic Orientations

Lasalle is a Montreal Borough that borders the southwest bank of the Lachine Canal. Located about 5km from the CBD, it is more peripheral than the South West Borough, has a fairly low population density, and essentially transitions from an urban setting to near suburban at its furthest point from the downtown. It was an independent municipality until 2002 when it was merged with Montreal.

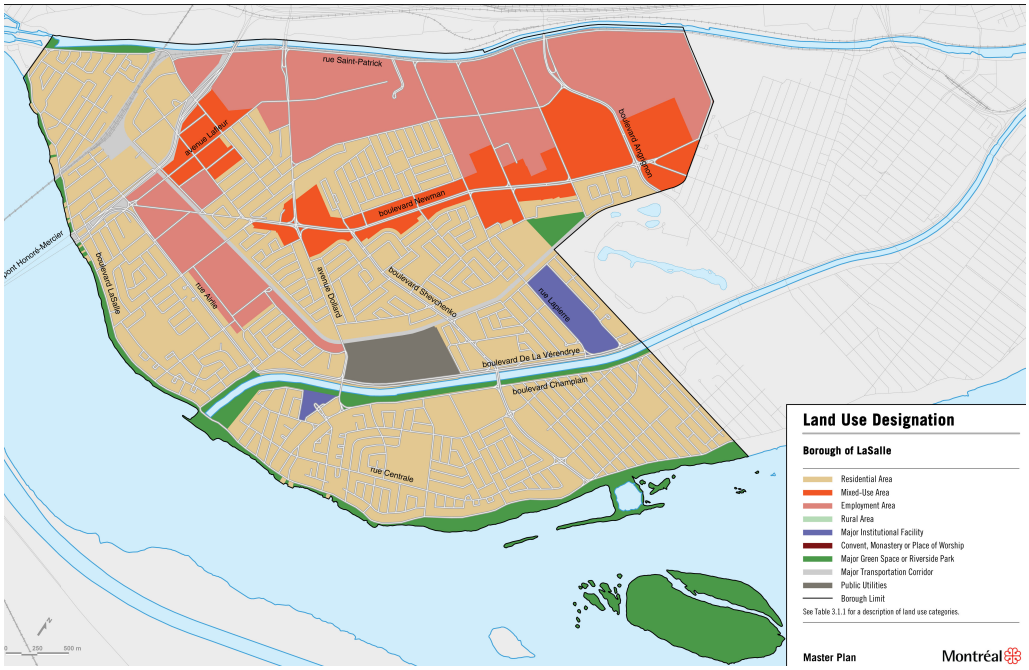


Figure 21 LaSalle Land Use in Montreal Master Plan 2004 - Source: City of Montreal, 2004

Manufacturing in LaSalle

Manufacturing was long a major part of the local economy in LaSalle. However, there were significant job losses in the manufacturing sector in the closing decades of the 20th Century. LaSalle had been a major site of food production. In the early 2000s, General Foods closed down operations entirely and Seagrams scaled back significantly, with 1,500 jobs lost between them (Dion, 2011). Since around 2004, employment in manufacturing has been relatively stable, aside from some instability in 2008 attributable to the global financial crisis (Dion, 2011).

There are currently 6,700 industrial sector jobs in LaSalle accounting for about 25% of the Borough's jobs (Développement économique LaSalle, 2011). Industrial jobs

have declined overall over the last decade, notably shedding 14.6% of industrial jobs between 2001 and 2006 (Développement économique LaSalle, 2008). Much of the manufacturing sector relies on traditional industries, including manufacturing, food products and printing (Développement économique LaSalle, 2008). The decline of these businesses reflects broader trends, and there are concerns that the trend could be long term. However, several niche business types are expanding, including the eco-industrial sector (Développement économique LaSalle, 2008).

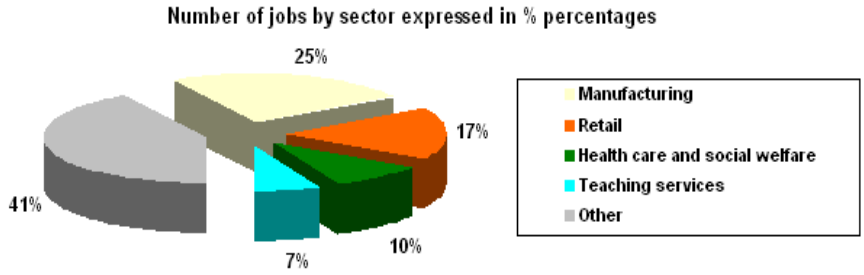


Figure 22 Number of Jobs by Sector expressed in percentages - Source: Développement économique LaSalle, 2011

Businesses that operate in Lasalle include food producers like Fleischmann's Yeast and Labatt Breweries, paper and printing industries including Quebecor World, Sisca and Kruger, and a variety of fabricated metal businesses and chemical companies (Développement économique LaSalle, 2011). LaSalle is considered a viable location for manufacturing because of proximity to downtown, including access to the metro system, proximity to the highway network for trucking and two functioning rail lines (Dion, 2011).

Interventions

Manufacturing is still considered a priority in LaSalle. The Borough administration's focus is on attracting and supporting specialized manufacturing companies that use less land but employ larger numbers of skilled workers. Many steps have been taken to establish a cluster for photo-optic and photonic design and manufacturing in the Borough, including establishing a partnership with local colleges on knowledge exchange programs with manufacturing firms (Dion, 2011). In essence,

LaSalle wants to ensure that there are the same number (or, preferably more) manufacturing jobs in the Borough, but have them occupy less land (Dion, 2011). Industrial land retention is not the issue; one could say that it is industrial job retention.

The Borough has taken steps in recent years to support manufacturing jobs. Between 2004 and 2005, the planning department tried to enforce zoning bylaws to discourage warehousing, which was considered unproductive use of land since it only provides a handful of low-end jobs (Dion, 2011).

Outcomes

In Dion's estimation, LaSalle might be the biggest converter of industrial land to other uses in Montreal over recent years. Approximately 1 million square feet of land has been rezoned for other purposes, including the Monsanto site on rue St Patrick. Two major ongoing developments in LaSalle - Quartier Angrignon, a major mixed residential-commercial site and Bois des Caryers, a residential project, are transforming former industrial in the area (Bonneau, 2010).

Challenges

The main challenge is Lasalle is industrial land used for wharehousing. The problem is that while land owners are conforming to the zoning, the use of the land generates minimal tax revenue and provides few jobs.[33] Attempts to curtail these land uses ended up in costly litigation battles however (Dion, 2011).

Economic developers seeking to promote manufacturing in LaSalle also find that there is not much free land available for new manufacturing projects, and that some available facilities are not suitable for the space requirements of new manufacturing businesses. Redeveloping existing industrial spaces is difficult, and the legacy of brownfield contamination discourages investors.

[33] Dion noted that even a large warehouse facility might only provide a handful of jobs (ex. a few security guards)

How industrial land retention is defined and understood locally

Industrial land retention is understood as an opportunity to develop new sectors and clusters. For LaSalle's planners and economic development officers, it is not as important to reserve a requisite amount of land for manufacturing use, but to ensure that what land is occupied by industrial businesses is sufficiently profitable and provides numerous, high quality jobs. This preference does pose a conundrum for the Borough, however. The traditional industrial infrastructure that occupies a lot of the industrial land in LaSalle features primarily low rise, horizontally deployed floor space. The new space requirements for the growth clusters in photo-optics and photonics are not nearly as space intensive, and are not necessarily well suited to adapt to existing industrial buildings if they become available (Dion, 2011).

The Borough administration tends to prefer a separation of uses. Some of this results from the presence of Extensive Industrial Areas along the Canal as identified in the Montreal Master Plan, where the types of manufacturers in these zones require large lots and separation (City of Montreal, 2004). Manufacturing businesses have a place in LaSalle, but not interspersed among commercial or residential zones. LaSalle is the most peripheral of the cases examined in this report, and generally its manufacturing infrastructure is much more spread out than in the other cases.

Conclusions – What Have We Learned?

In both New York and Montreal, manufacturing has declined and large amounts of industrial land has been rezoned for other uses in recent decades. Nevertheless, some firms still find it valuable to locate in urban neighbourhoods in these cities. The manufacturing firms that find economic advantage in being situated in large urban areas tend to be smaller, more specialized and requiring of less space than their predecessors (Mistry & Byron, 2011; Wolfe-Powers, 2010).

In returning to the central research question stated at the outset of this report, this report has shown that planners and policy makers in Montreal and New York City find merit in pursuing programs and policies that support urban manufacturing businesses; industrial retention is on the municipal agenda. Different strategies to retain manufacturing in traditionally industrial urban neighbourhoods have been enacted. The approaches are diverse, reflecting different priorities as well as unique local economic conditions. The priorities and outcomes of these policies, both between and within the two cities, are mixed.

At the City level, Montreal and New York differ significantly in their approach to retaining manufacturing in their traditional industrial zones, although both have a place for industrial retention. New York's Industrial Business Zones reflect a higher-profile, more traditional, and perhaps more obvious approach to supporting industrial land, focused on the separation of uses and prohibitive regulations. There are specific areas zoned for manufacturing in Montreal as well, notably the Industrial and Extensive Industrial Employment Areas, but current City policy is primarily concerned with funding schemes for a diversity of 'growth' industries (including but certainly not limited to manufacturing) and the promotion of clusters.

At the Borough/neighbourhood level in New York, Sunset Park incorporates manufacturing as a key element of its urban fabric, cohabitating the neighbourhood in equilibrium among other uses and activities. Attracting manufacturing jobs to the area is viewed locally as an important and inseparable component of broader community development goals as expressed in a community based plan. The nearby Brooklyn Navy Yard is a showcase industrial park contained within a highly defined space, where manufacturing and other creative industries rub shoulders but are kept apart from other uses, especially residential. The Navy Yard is all about job creation and innovation. Manufacturing is encouraged but holds no special status among other industrial activities; firms of all types are welcome so long as they meet employment and industrial baselines.

In Montreal, LaSalle's administration maintains separation of its large tracts of industrial land from its residential expanses. Borough officials actively support manufacturing activity of all types but prioritize certain specialized growth sectors like photo-optic production that, while classified as manufacturing, is very different from much of the existing types of production that characterized the area. Attracting and retaining industrial jobs are considered priorities, but the type and quality of the jobs is also important. Industrial land that only hosts low-end uses like warehousing are not considered the best use of land and conversion to other uses is considered viable. The South West Borough, much like Sunset Park, has a diversity of manufacturing spaces dispersed through its territory, but does not single out manufacturing as a sector to support. The South West Borough has experienced the highest development pressures of all the case studies and local officials have largely embraced residential and mixed use development.

There are many distinctions between Montreal and New York that make direct comparisons impractical. The scale, availability and price of land, as well as the size of the labour force in New York is obviously incredibly different to Montreal. The planning process is different in each city as well; Montreal has no equivalent mechanism for a neighbourhood to develop a plan equivalent to New York's 197-As, for example. Another important distinction between the cities is the historical development of the old industrial neighburhoods. Notably, the Lachine Canal is no longer used for shipping and port activity, while there is still extensive port activity in Brooklyn, including expansion projects (Harkins 2011). For these reasons, the author considers this research as a documentation of different approaches and not a comparative piece.

There are credible arguments that point out the deficiencies of certain methods of industrial land retention. The economic argument for restrictive zoning is that it provides a sense of stability for firms and will encourage them to invest and expand. However, land can always be rezoned if an administration is sufficiently motivated to do so, and from that perspective there will always be some uncertainty for

businesses regardless of where they locate (Lander, 2009). There are other pertinent questions that municipalities must consider regarding industrial land retention. Should they limit the potential of the land within their territory? Is industrial land retention merely an attempt to counteract market forces, and if so, does that strategy make any sense? Will too many restrictions brand the city as unfavourable to profitable development?

There are also good reasons in favour of, for example, converting some former industrial areas along the Lachine Canal to residential, recreational and commercial uses. There are many advantages to densification and the revitalization of downtown neighbourhoods, not to mention the cost of site decontamination often necessitates high revenue-generating uses. The fortunes of the South West Borough are certainly much brighter after more than a decade of intense residential conversion and gentrification. Hill and Schleicher present a good argument that industrial retention may work better in theory than in practice (Hills & Schleicher, 2010). Many questions can go unanswered in reports calling for industrial retention programs: 'Which types of industry should be protected?' 'Which firms should be subsidized?' Ultimately, Hill and Schleicher agree that there are likely certain social and economic benefits that could be gained from supporting urban manufacturing; however they feel that zoning is too restrictive and inefficient, and advocate instead for non-restrictive zoning with direct subsidy to manufacturing firms that demonstrate positive spillovers (Hills & Schleicher, 2010). Even this alternative seems as though it could be harder to implement in practice, as it could require more resources and monitoring by planning departments, and smaller and new firms could be left behind.

Despite the various critiques of industrial retention, there are several important lessons can be learned from these case studies. There are diverse approaches to industrial land retention, and restrictive zoning is not the only tool available. In each case, the approaches were rightly dictated by local conditions, but that does not mean similar strategies will not be applicable elsewhere. The Brooklyn Navy

Yards used highly restrictive land controls, but also made use of a previously derelict city asset. As is best seen in the case of Sunset Park, industrial retention can be, and indeed should be, integrated with other social, environmental and economic objectives. In the Montreal examples, there are trade-offs between land conversion and the promotion of growth industries, which seems prudent given the types of industries likely to locate in cities today. In Montreal more than New York it seems, there is far less distinction drawn between manufacturing and other types of production. A nimble understanding of the types and needs of manufacturing in a city will be imperative for municipal governments in supporting these businesses.

In summary, there are no easy solutions for policy makers: industrial activity typically generates less tax revenue than residential, but is an important part of a diverse local economy. Part of the challenge for cities is integrating their spatial decisions and economic priorities. Alexandre Dion, speaking from experience as an economic development commissioner, advised that it is really important to try to match economic priorities with land use priorities (Dion, 2011). This is probably far easier said than done.

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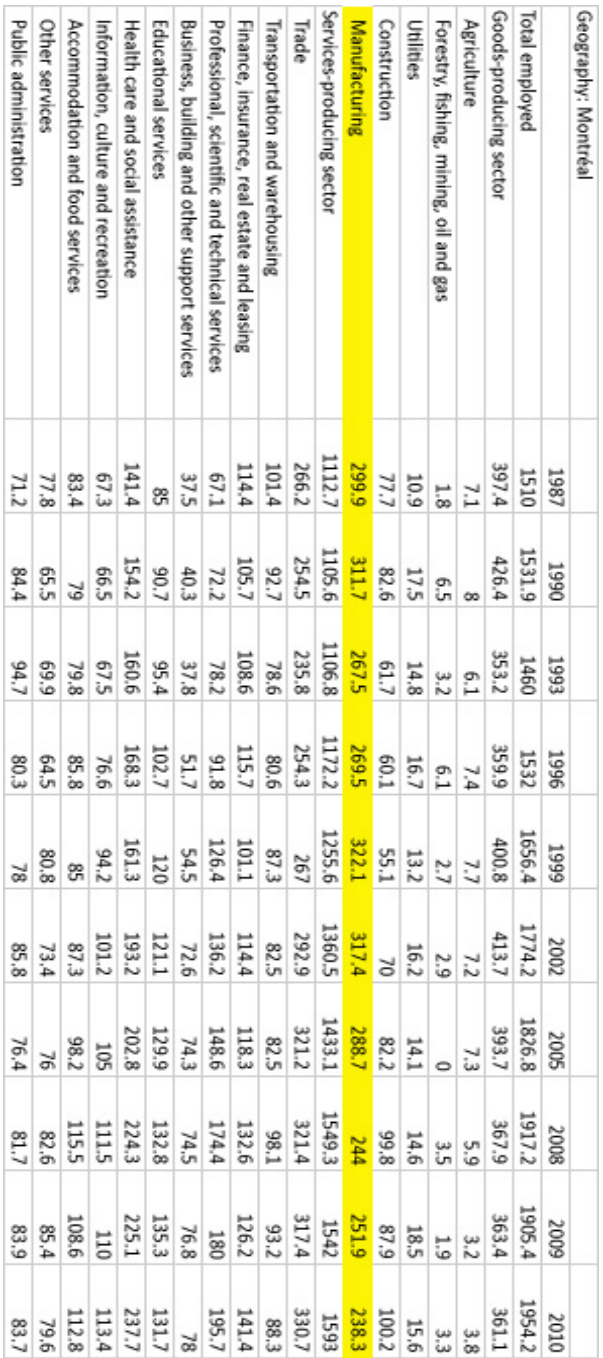
Appendix

Figure 1

Industry: Manufacturing									
	1987	1990	1993	1996	2000	2003	2006	2009	2010
Abbotsford	6.8	7	7.4	8.8	9.4	9.8	10.1	9.1	7.8
Calgary	29.2	32.5	30.3	38.5	55.5	53.7	50	43.3	46.8
Edmonton	37.5	35.9	36.7	36.8	46.4	50.6	47	43.5	39.6
Greater Suc -		3.3	2.9	3	3.5	4.3	3.1	3.7	3.6
Halifax	10.7	12.3	8.8	9	11.3	10.7	10.5	11	10.7
Hamilton	80	78.3	58.2	63.9	67	75.9	56.8	52.2	54.6
Kingston	6.7	7.1	6.6	4.8	6.5	6.1	5.8	4.2	4.7
Kitchener	56.2	52.9	48.4	53.5	68.6	63.1	62.6	50.4	53.7
London	38	40	29.3	30.8	39.5	41.9	40.4	30.7	29.1
Montréal	299.9	311.7	267.5	269.5	311.4	290.4	270.6	251.9	238.3
Oshawa	32.3	33.9	28.3	27.6	33.7	33.8	31.8	20.9	18.4
Ottawa-Gat	27.3	28.3	27.7	24	45.3	35.1	41.9	36.6	28.4
Québec	24.9	27.9	20.7	25.5	30.6	32.7	41.9	33.7	29.1
Regina	5.6	6.2	5.8	6.4	5.8	5.5	6.6	7.2	7.1
Saguenay	12.3	14.1	13	10.1	11.4	9.8	11.6	9.1	8.2
Saint John,	7.3	8.4	7.4	6.2	5.6	5.2	5.1	5.4	5.2
Saskatoon	7.6	8	7.9	9.5	9.9	9.4	11.1	10.7	9.9
Sherbrooke	12.1	10.5	9.7	16.2	18.1	22.6	15.5	12.2	12.8
St. Catharir	47.3	41.8	33.4	33.6	35.1	30.5	27.1	21	21.4
St. John's, I	2.8	3.9	2.7	3.2	3.2	3.4	3.7	4.2	3.2
Thunder Ba	8.3	7.6	6.1	6.7	6.3	6.8	5.2	2.9	2.4
Toronto	446.2	408.6	338.9	394.6	446.9	469.9	417.1	337.4	336.2
Trois-Rivièr	12.6	11.4	9.6	10.5	11.4	10.8	10.8	9.6	8.9
Vancouver	82.7	90	85.4	101.7	111.4	110.9	101.9	89.5	90.3
Victoria	7.1	6	7.2	6.3	6.2	8.3	7.4	6.9	5.9
Windsor	37	39.6	37.4	35.2	49.4	48.3	43.4	30.5	29.6
Winnipeg	42.9	42.7	37.6	43	50.6	47.2	46.2	40.7	41.4

Figure 23 Manufacturing Employment Total Numbers in thousands, Sample Years 1987 - 2010 - Source: Statistics Canada, 2010

Figure 2



Geography: Montréal											
	1987	1990	1993	1996	1999	2002	2005	2008	2009	2010
Total employed	1510	1531.9	1460	1532	1656.4	1774.2	1826.8	1917.2	1905.4	1954.2
Goods-producing sector	397.4	426.4	353.2	359.9	400.8	413.7	393.7	367.9	363.4	361.1
Agriculture	7.1	8	6.1	7.4	7.7	7.2	7.3	5.9	3.2	3.8
Forestry, fishing, mining, oil and gas	1.8	6.5	3.2	6.1	2.7	2.9	0	3.5	1.9	3.3
Utilities	10.9	17.5	14.8	16.7	13.2	16.2	14.1	14.6	18.5	15.6
Construction	77.7	82.6	61.7	60.1	55.1	70	82.2	99.8	87.9	100.2
Manufacturing	299.9	311.7	267.5	269.5	322.1	317.4	288.7	244	251.9	238.3
Services-producing sector	1112.7	1105.6	1106.8	1172.2	1255.6	1360.5	1433.1	1549.3	1542	1593
Trade	266.2	254.5	235.8	254.3	267	292.9	321.2	321.4	317.4	330.7
Transportation and warehousing	101.4	92.7	78.6	80.6	87.3	82.5	82.5	98.1	93.2	88.3
Finance, insurance, real estate and leasing	114.4	105.7	108.6	115.7	101.1	114.4	118.3	132.6	126.2	141.4
Professional, scientific and technical services	67.1	72.2	78.2	91.8	126.4	136.2	148.6	174.4	180	195.7
Business, building and other support services	37.5	40.3	37.8	51.7	54.5	72.6	74.3	74.5	76.8	78
Educational services	85	90.7	95.4	102.7	120	121.1	129.9	132.8	135.3	131.7
Health care and social assistance	141.4	154.2	160.6	168.3	161.3	193.2	202.8	224.3	225.1	237.7
Information, culture and recreation	67.3	66.5	67.5	76.6	94.2	101.2	105	111.5	110	113.4
Accommodation and food services	83.4	79	79.8	85.8	85	87.3	98.2	115.5	108.6	112.8
Other services	77.8	65.5	69.9	64.5	80.8	73.4	76	82.6	85.4	79.6
Public administration	71.2	84.4	94.7	80.3	78	85.8	76.4	81.7	83.9	83.7

Figure 24 Total Sectoral Employment in Montreal in thousands, manufacturing highlighted in yellow (sample years between 1987 and 2010) - Source: Statistics Canada, 2011

Figure 3

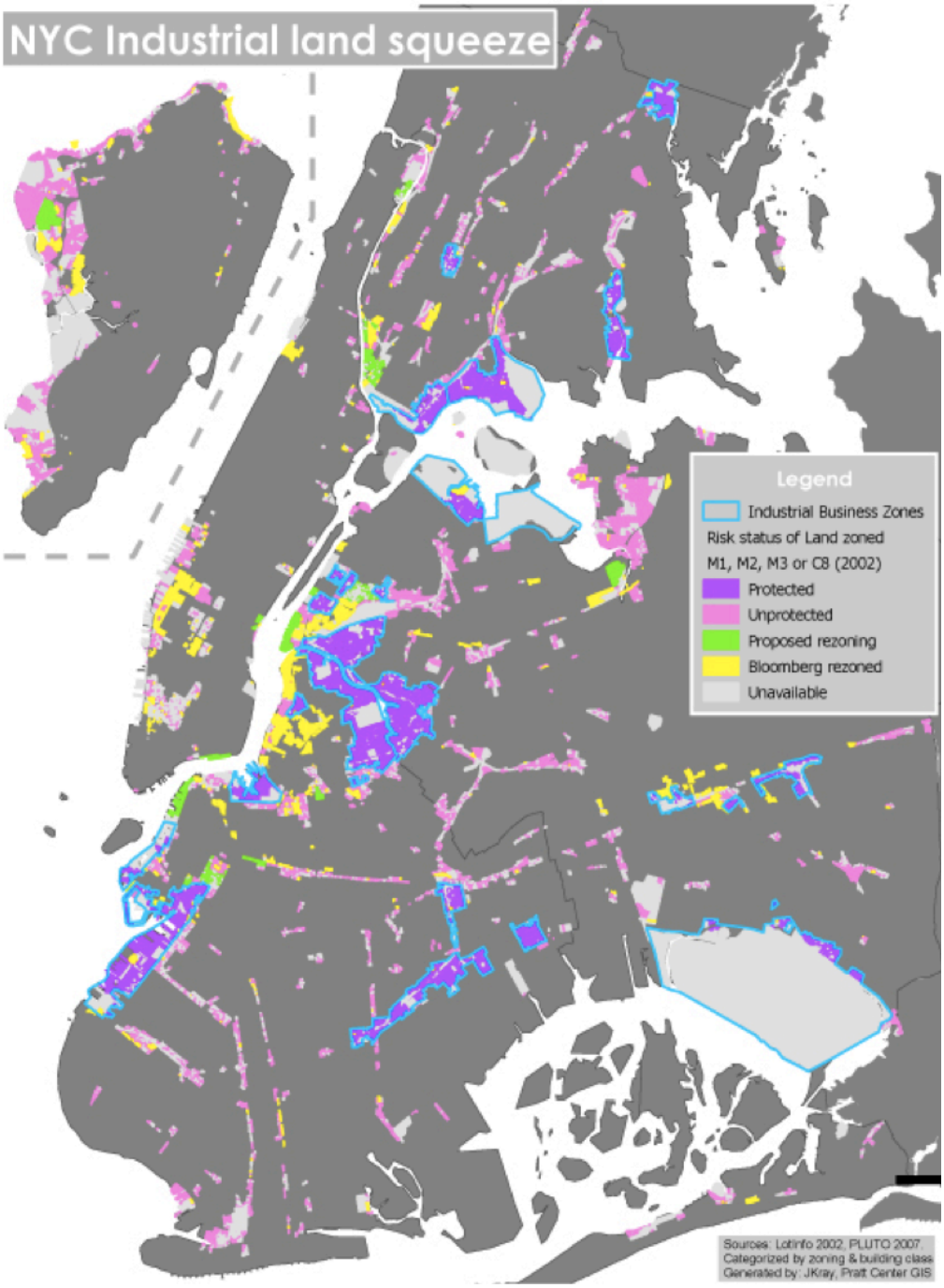


Figure 25 The status of industrial land in NYC - Source: Pratt Center, 2009