McGill | School of Urban Planning

The Economies of Space

Making a Case for Sustainable Urban Development

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Abstract

Across disciplines, there has been a fascination with the concept of sustainability and it continues to pervade academic and professional discussions and discourses. In this research project, I study a real estate project in the hot property market of Toronto that is socially, environmental and economically sustainable. Based on this research, I came up with conclusions and strategies that could incentivize such developments. This research project is composed of three parts.

In part one, I defined sustainability by looking at it through three lenses: academia (through a literature review), practice (through four industry standards that administer sustainability and finally policy (through summarizing the policy documents in Ontario). These definitions set the groundwork for part two of this project where I took the Alexandra Park revitalization project as a case study. Based on the definitions of part one, I evaluated the sustainability goals of the project and conducted a stakeholder dialogue with key informants from Tridel, Toronto Community Housing Corporation and Urban Strategies to determine the challenges, risk, incentives and prospects of sustainable development. The research of part one and part two were then synthesized in part three where four conclusions and five strategies are proposed to make sustainable development more feasible,

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Introduction and Problem Definition

Across disciplines, there has been a fascination with the concept of sustainability and it continues to pervade academic and professional discussions and discourses; signaling the attempt to mitigate the heavy deterioration that human activity has been having on human environment and natural resources. Popularized by the The Brundtland Report in 1987, the concept of sustainable development emerged in an effort from the United Nations to bring countries together to pursue sustainability. The Brundtland report defines sustainability as "meeting the needs of the present without compromising the ability of future generation to meet their own needs" (Keeble, 1988).

Since then, sustainability has found applications in both public and private initiatives and a wide debate has emerged on "eco-innovation" in private practice through the integration of ecological and social aspects into products, processes, and organizational structures (Klewitz, 2014). As part of that, sustainable entrepreneurship emerged as 'an innovative, market-oriented and personally driven form of creating economic and societal value by means of environmentally or socially beneficial market or institutional innovations' (Schaltegger and Wagner 2011), where business entities, including real estate developers seek to 'transform the market structure intentionally and directly by creating economic, social, and/or environmental value simultaneously' (McMullen and Warnick, p. 12).In the more specific context of urban development and planning, Campbell defined sustainable development as a balance of social justice, economic growth and efficient and environmental protection and within that triangle, planners stand to balance these seemingly opposing goals to provide green, profitable and fair development (Campbell, 1996). Sustainable urban development is one of the ways finance and investment have been responding to the social and political need for sustainability. Traditionally speaking, real estate has always been linked to "creating value" and finance and investment have always been the agents through which cities got built and the determinants of real estate value creation. Through this, space is a commodity and urban developments pursue a maximization of sellable/rentable floor area to maximize return (Willis, 1995, Logan and Molotch, 1987, Verdell and Lane, 1989).

Through this mode of "postmodern" urban development, the production of space is leading to a the production of "place-lessness" (Harvey, 1990; Relph, 1976) and cities get built without taking into consideration some of the social, environmental and even cultural drivers being city-building or the impact a project may have on its context (Fainstein, 1994). Although this model of development has been a characteristic of postmodern development (Harvey, 1990), there has been a growing demand from markets, society and policy for development that is socially, economically and environmentally sustainable. Developers have thus been successful in responding to this demand by building alternatives that address triple bottom line considerations of economic, social and environmental "sustainability" (Warren-Myers, 2012, Kucukvar, M., & Tatari, 2012). These type of developments do come with perceived risks and barriers (Galuppo, L., & Tu, C., 2010) but investors and developers are starting to understand the financial value of sustainable developments (Addae-dapaah et. al, 2009) and making sustainability a key objective. These types of developments remain a fraction of most of what gets developed in cities all over the world (Warren-Myers, 2012; Kucukvar, M. & Tatari, 2012) and research could be done to learn how these developments have achieved sustainability and incentivize other similar developments - particularly in contexts where the property market puts pressure on real estate development to maximize financial returns. In the Canadian context, Toronto is the country's largest metropolis and at the time of writing, its real estate market is booming. With net immigration into the Greater Toronto Area (GTA) at a 15-year high and the local construction sector is on track to record its 10th straight year of growth and the drivers of demand remain indisputable (PwC, 2018). This make To-

ronto a prime case study for this research.

Stemming from this premise, this research project aims to:

- Analyze how built projects maneuver the economics of construction, real estate markets to achieve socially and environmentally sustainable goals.

- Create value in creative ways to fund sustainability.

- Define how the broad concept of "sustainability" is applied on the ground and in the specific context of the GTA.

- Propose different strategies so financial and real estate development products, architectural forms and building programs can adapt to achieve more sustainable developments.

For this research to be relevant, I am situating it in a professional context and framing it in a way that makes it useful to professionals with the conclusions and strategies presented as a catalogue to that would initiate discussion about sustainability in practice.

This project is divided into three parts:

Part One: Defining Sustainable Development:

In the first part of the project, I will review how the concept of sustainability is defined through three lenses : academia, urban policy and professional practice. This review is a means to productively understand how the elusive concept of sustainable development could be understood.

Part Two: Sustainability Applied in Practice:

To apply the research of Part One in practice, I will take the Alexandra Park revitalization project in Toronto as a case study. I will look at the sustainable goals that were defined and then understand the negotiations, challenges and risks that come with achieving these sustainable goals.

Part Three: Conclusion, Strategies and Recommendations:

As a synthesis of parts one and two, I will present a catalogue with conclusions and strategies from this research. This catalogue proposes design, policy and financial strategies to make sustainable development more feasible. Due to the scope of this research being limited to four months, I will only explore the stated research goals in the GTA. This research could have included comparative studies with other development scenarios, hot property markets in North America (Vancouver, New York, San Francisco, etc.) or Canadian contexts (Montreal, Halifax, etc.). This research does however build a framework that could be expanded on through further research.

Chapter Summary

Sustainability as a concept is elusive with multiple lenses to approach it. A productive way of looking into it would be through three lenses that relate to urban development: academic literature, sustainability standards and finally policy statements that apply to the context of Toronto. These definitions will create the frameworks to define and elevate a project's sustainability goals as they relate to the social, economic and environmental dimensions of sustainability.

1

Defining and Administering Sustainability

Chapter Introduction

Before delving into the analysis of sustainability in practice and on a case study, the first part of this research project will consist of defining the broad concept of sustainability. While this is a task whose complexity and breadth might make the exercise almost redundant, a productive way of looking at it would be through dividing how sustainability is defined through three lenses:

Academia (1.1A): Through published work, I will research the different dimensions of sustainability (namely environmental, social and economic sustainability) as they have been theoretically defined in the literature. I will then reach a summary of the criteria the literature suggests with respect to each of these dimensions and as they apply specifically to the urban context.

Urban Policy (1.1B): Reviewing provincial and municipal urban policies that apply to new developments in the City of Toronto shows what is the current policy discourse is and what parts of it relate to sustainability. I will pick out the key policies that relate to sustainable development and describe how they help achieve it.

Practice (1.1C): Different industry standards evaluate sustainable real estate and investment through means and criteria that differ. I will briefly review these standards, compare them to each other and develop a a summary of what the evaluation criteria are.

1.1

1.1 A Social Sustainability
1.1 B Economic Sustainability
1.1C Environmental Sustainability

Academic Literature On Sustainability

In this section, I will presented a summary of published academic works on social, economic and environmental sustainability in the built environment. I will then develop a set of goals that developers and planners should aim for to successfully achieve each aspect of sustainability. These goals are also presented with suggestions on how they can be applied. Although presented separately, sustainability is interrelated and these goals usually overlap in urban development.

1.1 A Social Sustainability

While a broader literature does exist on concepts of social capital, inclusion and cohesion, social inclusion and exclusion, the literature that addresses social sustainability is quite limited (Dempsey et. Al, 2011). As a concept, social sustainability is broad and multi-dimensional and its goals are open to a multitude of answers, with no consensus on how these goals are defined (Hopwood et al., 2005; Littig and Griessler, 2005).In the context of urban space and places, social sustainability is achieved when places meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. These places are also safe and inclusive, well planned and offer equality of opportunity and good services for all (Dempsey et. al, 2011).

Other definitions claim that social cohesion and inclusion are the components of a strong, fair and just societies; both for the present community in place and future communities as well (Lister, 2000; Coleman, 1988) while maintaining the ability of this community to ensure its continuity at an acceptable level of functioning, whether it is in the present, or the future (Coleman, 1988). Social sustainability in urban space often involves the collective aspects of social life, the interaction between members and their participation in local community. In turn, this contributes to the stability of the community and its growth while ensuring equity, empowerment, accessibility, participation, sharing cultural identity and institutional stability (Kahn, 1995). All these aspect of social sustainability are directly and indirectly related to real estate development and the production of space as social sustainability has significant ties to the urban form and the urban context in which communities exist (Bramley and Power, 2009). Social sustainability can be discussed under the following six principles.

Social Equity:

Social equity in general is achieved through social inclusion. An equitable society is when no practice hinders individuals from participating in a society whether for political and socioeconomic reasons (Pierson, 2002; Ratcliffe, 2000) or from forms of racism and ageism (Kellaher et al., 2004) that stem from systematic, global issues of inequity. Urban development could reproduce inequity and at the local scale it plays a crucial role as it effects the everyday experience of individuals in the built environment. Territorial justice can be said to prevail when access to services is equalized across geographical areas (or horizontal equity) (Kay, 2005). These services include access a grocery stores, open spaces, schools, hospitals or clinics, etc. Social equity also extends to the housing market and more particularly the access to housing through the provision of affordable or off-market housing (Bramley and Power, 2009). Social equity does have some limits and can productively be attained in practice if some basic standard is achieved by society and policy where rather than having an absolute ideal equity, we achieve a practical concept where basic accessibility and equity is met.

Social Interaction:

Social interaction has been defined as 'the basic process in the formation both of human nature and of the social order' (Wirth 1964, p. 17). Social interaction in a given space and place is what distinguishes between a cohesive society and a group of individuals living separate lives with little sense of community, pride or attachment to place (Dempsey, 2006). Social interaction and social networks are consistently described as integral aspects of social capital (Forrester, 2001) and in our contemporary age, most social interaction has an added online layer of interaction that is superimposed on the physical space.

Networks of Community and Participation:

Participation in local and community activities is described as one of the domains of social capital (Forrest and Kearns, 2001) and a dimension of social sustainability is the integration and coherence of a social network (Littig and Griessler, 2005). This can be evinced in the attendance at neighbourhood group meeting or if residents frequent green and public open spaces.

Diversified Systems of Interaction:

It is suggested by theorists and policy makers that a community requires well established, long-term residents as well as intergenerational interaction in order to be described as sustainable (Silburn et al., 1999). Others have made claims that socioeconomic mixing could foster places where everyone belongs and would in turn generate opportunities for shared experiences among people across income segments and backgrounds (Civic Commons, 2019; Burton and Mitchel, 2006) as well as different ethnic backgrounds (Amin, 2002).

Sense of Ownership and Pride:

Physical settings, people's activities and the meanings they derive from them are interrelated and are essential for the development of a sense of community (Gehl, 2001; Lynch, 1960). Moreover, 'to be inside a place is to belong to it and to identify with it' (Relph, 1976, p. 49) and this extends to not just physical environment but also to people who inhabit it. The built environment and the sense of attachment to a place that people have to it are shared by residents of a particular neighbourhood, and together create its 'own order, its special ensemble, which distinguishes it from the next place' (Relph, 1976, p. 2).

Feelings of Safety and Security:

Ensuring a sense of safety and security with a community has strong ties to other dimensions of social sustainability. One can argue that feelings of safety can play a role in exchanging trust which in turn contributes to the sense of community and sense of place within a neighbourhood. Jacobs famously argues for "eyes on the street" and "activated sidewalks" as key elements for the success of neighbourhoods and for promoting means for natural surveillance (Jacobs 1961 ; Cozens and Hiller, 2012) This is a result of design considerations such as windows overlooking streets, short blocks, density, diversity of uses and building ages which in turn will promote a constant activity across times of day (Jacobs, 1961). Some of the claimed associations between safety and the built environment include the cited benefits of natural surveillance, i.e. active frontage such as windows directly overlooking streets, which is said to increase perceived comfort and safety when people interact with one another.

Conclusion on Social Sustainability in Urban Space:

Social sustainability is of course multidimensional and includes other aspects such as family, income, inter-generational relations, etc. In this section, only the physical aspect related to urban space was discussed. In summary, social sustainability in urban space and in physical setting tries to create assets that would ensure that a sense of community is first created and fostered without favouring how one segment of the society uses space over the other. This in turn has positive effects on the physical environment, its maintenance and people's experience in it. While the goals above are mentioned distinctly, they are of course complementary. For example, social interaction stems from networks of community and a sense of safety and security are tied to having a sense of ownership. Below is a summary table of the main goals and how can they be achieved

Goal	How
Social Equity	Inclusion, fair provision of services and housing and affordability.
Social Interaction	Creating opportunities through spatial design and programming to foster connections.
Networks of Community and Participation	Events and workshops and public spaces that foster social interaction
Diversified Systems of Interaction	Socioeconomic and cross-generational mixing
Sense of Ownership and Pride	Distinct physical settings, positive shared experiences and participation in the process of place-making.
Feelings of Safety and Security	Activated open space and natural surveillance.

Table 01: Main Goals of Social Sustainability and How to Achieve Them in Urban Development

1.1 B Economic Sustainability

Although all three dimensions of sustainability seem equally foundational, the economic aspect of sustainability should be considered as critical for achieving sustainable development as a whole (Krueger et al. , 2012), particularly for urban development. This is because economic sustainability builds the foundations that enable development to respond to environmental and social sustainability needs. Economists have traditionally held the belief that the supply of natural resources was unlimited and that economic growth would bring the technological capacity to replenish natural resources destroyed in the production process (Goodland, 1995).

Today, we know that this is far from true and there is an increasingly lively debate on economic sustainability. The present economic environment is subject to major changes and economic growth alone is not considered any longer a top priority, given the turbulences such as economic and environmental crises, rapid population growth, pollution, climate change, etc. Others argue that through growth, there is an inverted U-shape relation between environmental degradation and income per capita, so that, eventually, growth reduces the environmental impact of all economic activities (Stern et. al, 1996), including real estate and urban development. For all these problems, feasible and relevant solutions are sought after across disciplines and one of the approaches to solving these "problems" is the pursuit of economic sustainability (Borza, 2014) whether it is for the society as a whole or through urban development. "Economic sustainability" implies a system of production that satisfies present consumption levels without compromising future needs. What 'economic sustainability' seeks is the 'sustainability' of the economic system itself. That concept was originated by Hicks in the 1939 book *"Value and Capital"* and was later named the Hicksian income which describes the level at which an economic entity (an individual, a household, or a whole economy) could consume but still leave a stock of productive capital intact so as to be able to keep on consuming at that rate indefinitely (Hicks, 1939). To speak accurately in terms of 'economic sustainability', it is necessary to 'extrapolate the definition of income from its sole focus on human-made capital and its surrogate money… to embrace the other three forms of capital: natural, social and human.' (Goodland, 1995). In the Western context, economic sustainability should "focus on attuning existing economic models to create and maintain a balance between economic growth and social requirements while protecting local ecologies and reducing the negative impart of development on the planet and on climate" (Subeh and Al-Rawashdeh, 2012). These economic definitions of income relate directly to real estate development as it is an economic process that through the consumption of land and the creation of space generates an "income" that could contribute to social needs and ecological and environmental considerations if it goes beyond capital and profit. As a result, principles of economic sustainability in urban development have emerged. Similar to other notions of sustainability, definitions, concepts differ but based on a review of the literature the underlying principles and how they relate to urban spaces are as follows:

Growth as Development

In the context of post-war development, planners and policy makers have switched their focus from regulating to promoting development (Kipfer & Keil, 2002; Kipfer & Petrunia, 2009). In different Western countries, the postwar period also aimed at stimulating private investment because in believed it produced economic growth (Fainstein, 2007). In the literature on sustainable development, it has become com-

monplace to call for supplanting the principle of economic growth with a new doctrine of economic development. "To grow" means "to increase in size by the assimilation or accretion of materials" where as "to develop" means "to expand or realize the potentialities of; to bring to a fuller, greater or better state." (Goodland, 1995). Growth implies quantitative physical or material increase; development implies qualitative improvement or at least change. Quantitative growth and qualitative improvement follow different laws and our planet develops without achieving "growth". Our economy, on the other hand is a subsystem of a depleting and finite earth and this economy and we should eventually adapt to a similar pattern of development that instead of depleting, expands the potential (Goodland, 1995). In a nutshell, the difference is that rather than pursuing quantitative growth, we should pursue qualitative improvement in the physical environment, living conditions and livelihoods of residents. Only then would growth be considered sustainable development.

Reinvestment Into Communities

Another key consideration of economic sustainability is ensuring or seeking that economic development does not further cause a concentration of capital but seeks to redistribute wealth and promote intra-generational equity and greater democratic involvement in decision-making (Gibbs, 1997). While it is important for cities is to grow in order to generate revenues and increase the tax base, municipal taxation. Policy should thus seek the reinvestment of value created from urban environments into the community to improve the livelihoods of people and residents to rather than consolidating returns with the proponents of the "growth machine" (Logan and Moloch, 1976). This could be through development charges that allow for infrastructure improvement or direct investment into the community. However this should still be balanced and as will be discussed in later sections of this project, the increase in development charges will negatively influence the overall sustainability of the project because it has direct effects on affordability.

Efficiency and Productivity:

The first principle of efficiency and economic sustainability is the efficient use of resources and it is at the core of economic feasibility because it has apparent links to the notion of sustainability through making the most use of the scarce and limit resources available (whether its energy, land, capital, etc.) (Alles et. al, 2002). Simply put, it translates to minimal inputs producing the maximal output possible. Another aspect of economic efficiency is related to the way markets operate. Ideally, markets create incentives and convey signals to achieve economic efficiency and provide opportunities for individuals to achieve mutually agreeable gains from trade.

Real estate markets however are notoriously known for being inefficient because buyers and sellers are not equally informed and due to the lag between supply and demand (Locke, 1986) and development can in many cases lead to inequity. However, efficiency can still be achieved in the broader sense through conducting a highest and best use analysis to make sure the lot of land is utilized in a way that is efficient and productive and tries to achieve efficient use of resources and allowable exploitation. Through this, well designed development can create an efficient urban form which also contributes to other forms of sustainability.

Conclusion on Economic Sustainability in the Urban Environment.

Economic sustainability should, in theory, be inherent because market ensure efficiency and productivity and growth. In the urban environment, this is not always the case and real estate markets can compromise sustainability and lead to inequity, excessive exploitation of natural resources and concentration of capital.

Like all markets, reflect wider inequities: therefore, as incomes polarize and middle and lower incomes stagnate (Piketty, 2013) Well functioning markets thus naturally respond to demand from higher income groups because they command more resources. If the mechanisms to reinvest value into the built environment are in place however, the economy can sustain itself and promote other forms of sustainability. As mentioned at the beginning of this chapter, economic sustainability and more particularly feasibility, is at the core of achieving sustainability in general because it is the engine that mobilizes development in general.

Goal	How
Growth as Development	Qualitative improvement in the physical environment rather than a quantitative increase in outputs.
Reinvestment into Communities	Ensuring value created from a Physical area is reinvested in the community living in that geographic area.
Efficiency and Productivity	Highest and best use of land, resources and exploitation.

Table 02: Main Goals of Economic Sustainability and How to Achieve Them in Urban Development

1.1 C Environmental Sustainability

One of the key issues that emerge when discussing urban development is environmental sustainability of new urban developments. The interest in the planet Earth's limited and depleting resources dates back to the first decades of the twentieth century with early planning works such as Patrick Geddes' *Valley Section Model in Edinburgh*.

Since the 1990s, there has been a shift in the discussion in urban design thinking that is characterized by an increased awareness and concern for natural systems and a greater understanding of the planet's fragility. This discussion has made its way to and transformed the contemporary practice of urban design, planning, architecture and engineering (Lang, 2005).

Through a maintenance of the global life-support system, environmental sustainability seeks to sustain human life and the planet indefinitely; particularly because human life depends on the source capacity of the earth's resources to provide raw material to sustain human life such as food, water, air, energy while limiting waste from the output and minimizing the sink capacities (Goodland, 2005).

While the planet's resources and sink capacities are large, they are finite. This raises the importance of environmental sustainability to maintain rather than deplete resource and overuse capacity (Goodland, 2005). For example, accumulation of CFCs in the atmosphere damages its capacity to protect humans as well as other species which, human life depends on. When it comes to urban development this translates to limiting energy consumption, reduction of pollution and GHG emissions and the protection of natural areas and arable land and increasing the energy efficiency. In urban areas, this extends to the reuse of urban areas and to the efficient utilization of building sites as a possible strategy to this end (Næss, 2009).

In much of the literature on sustainable urban development and spatial planning in industrial countries (e.g. OECD/CEMAT, 1994; UN/ECE, 1998) the following elements are emphasized:

- Reducing energy consumption and emissions per capita down to a level that would be compatible with the ecological criteria for sustainable development that have been defined at a global level.
- Minimizing greenfield developments which would reduce the conversion of and development on natural areas, ecosystems and soil resources that would otherwise be used for agriculture.
- Restricting the use of environmentally harmful construction materials.
- Replacement of open-ended resource flows into closed loops where natural waste from resource transformation is reused. This also includes maximizing use of local resources.
- A sound environment for the city's inhabitants, without pollution and noise damaging to the inhabitants' health, and with sufficient green areas to give opportunities for the population to experience and become emotionally related to nature.

Conclusion on Environmental Sustainability

In the built environment, environmental sustainability is perhaps the most popular form of sustainability and it strongly tied to marketing benefits that come from it and its relationship to costs and marketability. Environmental sustainability has also been popularized in detail and the criteria for its implementation are illustrated more in the following chapter, particularly in the LEED Standard and the Toronto Green Standard evaluations.

1.2A LEED
1.2B GRESB
1.2C B-Corporations
1.2 D Toronto Green Standard

Administering Sustainability

Unlike other standards such as fire and buildings codes or the Canadian Accessibility Standards, which are quantifiable and objective, sustainability has emerged as an elusive concept and qualitative with its administration almost entirely governed by private initiatives. In Toronto however, the city has developed its own standard for sustainability and tied it to its policies. In this section, I will review three private sector standards for administering sustainability and the City of Toronto's Green Standard. The first three are some of the most popular standards when it comes to sustainability and real estate development and offer different perspectives on how sustainability is administered in practice. The LEED standard is the most popular across buildings across the world and is the most comprehensive rating system on the market today for assessing green building and energy performance. GRESB is an emerging benchmark and does not look at the building itself only but rather at a real estate portfolio as a whole. Finally, B-Corp has emerged as part of corporate social responsibility that advocates for sustainability across business ventures, real estate development included. From the public sector, the Toronto Green Standard is the City of Toronto's own metric for evaluation green building. Through the review of these standards, I will have a better understanding of how sustainability can be administered from different facets, the building (LEED), a real estate portfolio (GRESB) and finally a business' own ethical initiative (B-Corp). These four standards thus offer different perspective on how sustainability could be administered and how in practice sustainability is translated into evaluation criteria.

1.2A Leadership in Energy and Environmental Design (LEED)

The US Green Building Council (USGBC) and the Canada Green Building Council (CaGBC) are both private, membership-based non-profit organizations that promote sustainability in building design, construction, and operation through administering the LEED accreditation. LEED (which stands for Leadership in Energy and Environmental Design) is a certification process which is supposed to be an external metric that evaluates a building's energy performance. Based on the number of points it achieves a project either receives LEED Certified, Silver, Gold or Platinum certifications.

LEED consists of many categories or rating systems such as New Building Design and Construction, Interior Design and Construction, Operations and Management. Out of these rating systems, LEED Neighbourhood Development (LEED-ND) is the most recent of these standards and aims to target urban developments and for the sake of this research's context, I will be discussing the LEED-ND rating system. LEED-ND was launched in 2009 and combines the ideas of Smart Growth, New Urbanism, and the green building movement together. LEED-ND aims to create a metric that can foster a sustainable urban design philosophy which is basically a walkable and transit-served urbanism, integrated with high performance buildings and high performance infrastructure (Smith, 2015).

According the USGBC's online database, there are currently 167 countries and territories with LEED projects. There are also 245 built LEED-ND Projects (21 in Canada and 182 in the United States). Similarly, there are 211 LEED-ND projects planned (16 in Canada and 109 in the US). (USGBC, 2018). The LEED-ND Rating System is based on points collected in five categories that add up and give a project a tiered rating. The evaluation of sustainability is limited to environmental and is divided in the categories as follows in the LEED-ND AP Handbook (GBCI, 2018):

Smart Location and Linkages (27 points)

The aim behind this category of the rating system is to ensure that a project site is in dense, urban contexts and awards additional points to sites with reduced automobile dependence.

Neighbourhood Pattern and Design (44 points)

This category, which has the most point weighting, promotes the creation communities, reduction in the rate at which a development occupies land and the concentration of population. More importantly, this section includes form-based prescriptions for street sections and street network design and promotes diversifying uses and users, universal accessibility, local food production and civic spaces.

Green Infrastructure and Building (29 points):

This category grants points when an individual building in the developed is LEED certified and places benchmarks on overall water and energy efficiency. It also awards points based for optimal solar orientation, waste and stormwater management, adaptive reuse, district heating and cooling as well as the reduction of heat island effects.

Innovation and Design Process (6 points)

This category provides leeway to earn points on issues not included in the original criteria and is supposed to promote innovation.

Regional Priority Credits (4 points)

Added in 2012, this category gives extra points for credits that have been determined to be of local significance and aims to make the certification process more regional. LEED-ND as a metric for evaluating the environmental sustainability of urban form places heavy emphasis on location-related attributes rather than emphasis on items in the green construction and technology categories (Garde, A., 2009) or on other factors such as innovation or prioritizing regional credits. This stems from the fact that large weighting is given to *Smart Location and Linkages* which are derived in both cases from the site's location at a proximity to the downtown of a metropolitan region rather than actual attributes of the project. This is almost equivalent to the maximum points allowable for innovation and regionality categories (10 points). The larger implications of prioritizing development in areas already experiencing growth is that reinforces existing inequalities because branded sustainable urban developments will only add to an already high quality of life (Smith, 2015). This also excludes development in areas such as suburbs that could benefit from sustainable development and disregards the different frontiers of sustainability (Wachsmuth et. al, 2016).

There has also been debate in the literature and among professionals on the efficacy of LEED. The rating system was modeled after the British BREAM however the 'point-system' in the case of LEED-ND it is more straight forward to obtain the points, where specific requirements or a choice between different options would lead to the target score. In contrast, the original BREEAM Communities had a weighting system that offers opportunities for BREEAM Communities to adapt to different local situations (Kyrkou, 2011). LEED has also been criticized for commercializing sustainability (Kyrkou, 2011) and that it is just a branding scheme (Garde, A., 2009, Häkkinen and Belloni, 2011). The merit of LEED ND (and LEED in general) however is that the standard is more of less available to any member of the public and is accessibly and legibly structured where under each section a series of prerequisites and credits are listed.

1.2B Green Real Estate Sustainability Benchmark

From the side of finance and institution investment, there has been an increasing trend incorporating environmental, social and governance (ESG) performance of real assets into their investment process. (Warren-Myers, 2012, Kucukvar, M., & Tatari, 2012). Despite perceived risks and barriers (Galuppo, L., & Tu, C., 2010) investors and developers are starting to understand the financial value of sustainable developments (Addae-dapaah et. al, 2009).

Stemming from the demand from regulators, consumers and other stakeholders for more sustainable buildings and infrastructure, GRESB was developed as response and to provide ESG data and powerful analytical tools to the real estate industry. The methodology is consistent across different regions, investment vehicles and property types and aligns with international reporting frameworks, such as GRI and PRI (GRESB, 2018). The data are subjected to a multi-layer validation process and the result is high-quality data that investors and participants can use in their investment and decision-making processes (Eichholtz et. al, 2010).

Based on the initial assessment, the GRESB provides a Score for each participant (which can be either investors, developers and property management) supplemented by peer group comparisons that take into account country, regional, sectoral and investment type variations. GRESB results range from simple overall scores and absolute measures of performance to rich, detailed indicator-level insights and relative rankings through four components (GRESB, 2018).

GRESB Model:

The GRESB Model provides the basis for the GRESB Score. It evaluates the performance of real estate portfolios against two dimensions – Management & Policy with implementation & Measurement – which are combined together to produce the GRESB Score.

GRESB Score:

The GRESB Score is the value of ESG performance out of a 100. The GRESB Score gives quantitative insight in absolute terms, over time and against peers.

GRESB Rating:

The GRESB Rating is based on the GRESB Score and its quintile position relative to all participants in the GRESB Assessment is based on 5 star ratings with 20% of each participant in each category.

Peer Ranking:

GRESB Benchmarks also enables entities to compare performance against peers and provides high level peer rankings against all participants as well as peer comparisons at the individual indicator level. The literature on GRESB is still scarce and the standard is still relatively new. What it is interesting about the GRESB is that sustainability is approached from the investors and other real estate entities that are notorious for seeking profit maximization without necessary regard to other considerations such as the environment.

1.2C B-Corporations

The application of a B-Corporation or B-Corp certification is fairly new and the first certification was issued in 2012. A B-Corporation is a private certification and associated mark that signifies that a business meets certain standards of social and environmental performance. To become a B-Corporation, a firm must first score high enough on a survey meant to distinguish sincere social and environmental commitments from mere window dressing. Second, an applicant must include in its articles and company mandates to respect these commitments and the interests of employees, the community, and the environment (Sneirson, 2008).

The B-Corp model provides a common collective identity for internal and external validation for a wide range of companies that are focused on societal impact rather than maximizing profits and they attempt to legitimate this form of sustainable entrepreneurship by influencing the business community and government officials (Stubbs, 2014). B-Corps also work at an individual level to pursue their goals but also utilize several mechanisms at a governmental, individual and social scales, such as education of and communication to the business community, investors and the media to influence "the unconverted" (Thornton et al., 2012) Some B corps also extend this effort to not only influence other entities in pursing goals but to lobby with the government agencies to give them tax incentives (Stubbs, 2014).

In summary, B-Corps pursue profits positive social and/or environmental outcomes as they pursue profit . Success is not gauged by maximizing profits for owners/shareholders, but by the impacts the B-Corps are making. Profits are thus a means to achieve positive social and environmental ends (Stubbs, 2014).

So, B-Corps approaches sustainability from a matter of principle at a corporation level and they engage with the B-Corp network to evaluate the impact of their efforts and validate it is as a tool for change and for positive societal and environmental ends. It is thus qualitative when compared to a rating system like LEED or a benchmark like the GRSEB as it operates at a macro scale of overall performance. As a result, B-Corps are not limited to the construction or urban development industries and thus have a large array of business applications.

1.2D Toronto Green Standard (TGS)

The three standards discussed previously, are all administered by non-profit private entities. From the public sector's perspective there is the CESI (Canadian Environmental Sustainability Indicators). The CESI is an initiative that is a collaborative effort of Environment Canada, Statistics Canada and Health Canada, with input from Canadian provinces and territories initiated by the Government of Canada to develop and report on a small set of priority environmental indicators, notably air quality, water quality and greenhouse gas emissions. The indicators are intended to help provide Canadians with a better understanding of the relationships that exist among the economy, the environment and human health and well-being with respect to air quality, water quality and greenhouse gas emissions. The indicators are also intended to assist those in government who are responsible for developing policy and measuring performance.

In Toronto, the city has developed Toronto Green Standard (TGS) as its guidelines for sustainable building which has to be applied on new private and city-owned developments. The TGS has four tiers that are based on performance and provides measures and guidelines that could support environmentally sustainable design. Tier 1 of the TGS is required for any new project to get planning approval. Tiers 2 to 4 on the other hand are voluntary and are for higher levels of performance that are associated with financial incentives and would granted post-construction. Projects that demonstrate Tier 2 performance levels of performance or above would be eligible for compensation in the form of refunds on development charges that were already paid to the city as a financial incentive.

The Toronto TGS has the following environmental priorities:

•"Improve air quality and reduce the urban heat island effect •Reduce energy use and greenhouse gas emissions from new buildings while making buildings more resilient to power disruptions, and encourage the use of renewable and district energy

•Reduce storm water runoff and potable water consumption while improving the quality of storm water draining to Lake Ontario

•Protect and enhance ecological functions, integrate landscapes and habitats and decrease building-related bird collisions and mortalities

•Divert household and construction waste from going to landfill sites." (CoT, 2018)

The Toronto Green Standard was first released in 2006 and has developed as such:

•2006: The TGS introduced as a voluntary standard for new development.

•2010: TGS was structured into two tiers. Tier 1 was mandatory and Tier 2 was voluntary but would include financial incentives.

•2014: The started was updated to version 2 and it came into effect.

•2018: Version 3 of the standard came into effect with 4 tiers of performance. Version 3 also included the GHG emissions reductions targets to 2030 as well as significant changes to what qualifies as Tier 2.

As of 2017, over 1,500 developments were required to meet Tier 1 and 15 per cent of the residential projects that participated in the Development Charges Refund Program. The TGS is complementary to the TransformTO plan that aims to reduce GHG emission by 30.6 Megatons by 2050.

The standard for mid-rise and high rise developments has the following categories:

Air Quality:

Encourage the use of low emitting fuel efficient vehicles and encouraging alternative means of transit (cycling, carpooling, etc.) and walking. That category also calls for the reduction of heat islands.

Energy/GHG & Resilience:

This category calls for the reduction of energy loads in buildings, reduce carbon source supply and enable self recovery during an emergency power disruption.

Water Balance, Quality & Efficiency

From construction throughout building operation and until demolition, the aim behind this category is to insure water quality is good and enhance rainfall and clean stormwater management and reduce the demands for potable water.

Ecology:

Landscapes that support native vegetation and urban forestry as well as designing buildings to reduce bird collisions and address nighttime glass and light pollution to support the ecosystem as a whole and human health.

Solid Waste:

Facilitate waste reduction and diversion and encourage adaptive reuse and to encourage using products and materials that minimize the life cycle impact to the environment.

Section 1.2 Conclusion

Such standards and the bodies that administer them play a key role in that they engage with societal change through changing market conditions and government policies (institutional entrepreneurship) on one hand (Schaltegger and Wagner, 2011) but also by operating at different levels of the state and new network spheres of authority which challenge traditional distinctions between local, national and global environmental politics (Bulkley et. Al, 2005). LEED evaluates the specification and projected performance or a project, GRESB is a benchmark to evaluate performance, collect data and analyze it and the B-Corp provides the frameworks for drafting a general principle that a company can adhere to.

In these varying contexts, urban development entities are given liberty to define and approach sustainability from different angles and pursue one of those standards because it aligns with the values of the firm or its investors (Stubbs, 2014), or because there are financial incentives such as tax breaks and reduction in operation costs or because its good reputation to be perceived as sustainable. But sustainability should be more than a perception and the challenges of sustainability at the urban scale are complex and broad-ranging. In that notion, several assessment systems have been developed the last few years aiming to support and further promote sustainable integrated solutions for urban scale developments. However, it is necessary those systems to offer at the same time the framework for achieving successful sustainable solutions, and not only to work as tools with a simple checklist of requirements (Kyrkou, 2011).

While B Corps and GRESB try to go beyond the checklist approach of LEED and to some extend TGS, each approach is left to the administering body with its different proprietary evaluation models which raises questions to the subjectivity and complacency of either of these standards. Furthermore, these standards administer sustainability as a nuance of profit maximization and within capitalistic frameworks further commercialize the built environment which compromises "the ability of future generation to meet their own needs" - as the Brundtland report identifies sustainability.

However in the current context, this is inevitable because a definition and standards around sustainability are not in place. In order to achieve full sustainability, international rules and regulations will be necessary to ensure an even playing field for all market participants and to all developers. At present, most sustainability decisions are taken by market players in a context where they need to evaluate the commercial costs versus the benefits, especially with respect to competition. It is only if these values are fully integrated into the decision-making of every market player that they will become a norm i.e. like the building-code, they will become a non-negotiable component of real-estate development.

Standard	Tiers	Variations	Admin Body	Application	Scope	Measuring Criteria
LEED	Certified, Silver, Gold and Platinum	Bulding Design and Construction. Interior Design ad Construction, Operations and Maintenance, Homes, Neighbourhood Development	USGBC/ CaGBC	Interiors, Buildings, Neighbourhoods, I	Environmental	Quantitative
GRESB	5-Star Rating	Real estate, Debt, Infrastructure, Products and Services	Multi-Disciplinary Board	Real estate portfolios and Infrastructure	Environmental, Social and Economic	Quantitative + Qualitative
BCORP	None	Private, Startup, Publicly Traded, Affiliates	B-Corp Board	All business ventures	Environmental, Social and Economic	Qualitative
TGS	Yes, 4 tiers	Low-Rise Residential Mid to High-Rise Residential and Non-Residential. City Agency, Corporation & Division Owned facilities	The City of Toronto	New developments	Environmental	Quantitative

Table 03: Summary of Sustainability Standards and Their Evaluation Criteria

1.3

1.3A The PPS
1.3B The Growth Plan
1.3 C The Official Plan

Sustainability in Provincial and Municipal Policy

In the municipal structure of Canada, most local governments are formed by an act granted by the province. Municipalities, as local governments are creatures of the province and can be created, disbanded or amalgamated as a provincial government sees fit. Through this delegation of powers, municipalities are responsible for legislation related to city building. Provinces however set the vision and the aims for the cities to apply in specific policies and bylaws on matters including sustainable development. With the objective of setting the aims for future development, different planning bodies in Ontario have published policy documents that deal with growth, place making for different scales of development. I will review the latest version of three policies that are the most relevant to the analysis of sustainable new development and are selected because the degrade in scale from the provincial, the regional and finally to the city-level scale.

1.3A The Provincial Policy Statement, 2014

The PPS is issued under Section 3 of the Ontario Planning Act. The PPS is the provincial the government's policy framework related to land use planning. It applies across Ontario and provides a direction for land use planning across the province. Municipalities then use these aims and direction to develop their own policy documents to guide and inform decisions on planning matters. When it comes to sustainability, the 2014 Policy statement mentions it (either in the form of sustainability or sustainable) 12 times while the 2005 document mentions it only five times. The 1997 version of this document only mentions it once (in the definition of Woodlands) and rather points to ideas such as conservation of sources and preservation of the environment. This change in the number of mentions in the PPS versions indicates how the concept of sustainability has been growing in popularity and becoming a core part of policy - how exactly is the aim of this section. The latest version of the Provincial Policy Statement seeks planning for "the long-term prosperity and social well-being of Ontario… (through) strong, sustainable and resilient communities for people of all ages, a clean and healthy environment, and a strong and competitive economy". It lists multiple policies and the ones related to sustainable development are presented in Table 04.

PPS	Target	Details	How it Contributes to Sustainability
Policy 1.1.1	Community Building	Healthy, liveable and safe communities that includes financial well-being, diversity of uses, conserve biodiversity, accessibility, etc.	As a fundamental principle, it helps achieve all three forms of sustainability. This also
Policy 1.1.2 and 1.1.3.7	Land-Use	Make land available for a range and mix of land uses and integrate phasing within the development stages to adjust to upcoming needs.	Adds to resilience and increases the capacity to respond to change.
Policy 1.1.3.2, 1.1.3.3 and 1.1.3.6	Land-Use	Require land use patterns that promote intensification and a mix of uses, and will efficiently use land, resources, public services facilities and infrastructure.	Promotes environmental sustainability through a more efficient use of land and to social sustainability by promoting interactions.
Policy 1.2.1	Growth	Coordinate and integrated approach for managing growth and resources	An individual project can contribute to these goals, particularly for economic development strategies, growth and managing natural resources and ecosystmens
Policy 1.4.3	Housing	Calls for an appropriate range of housing types and densities to meet projected requirements of current and future residents through various measures	Contributes to Social Equity, Resilience as well as economic sustainability of communities.
Policy 1.5.1	Community Standards	Healthy, active communities should be promoted by planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, foster social interaction and facilitate active transportation and community connectivity	This helps achieve the social sustainability goals mentioned earlier and fosters a sense of place. Community connective also constibutes to economic growth and sustainability.
Policy 1.8.1	Environment	Calls for improved air quality, reduced greenhouse gas emissions, and climate change adaptation through land use and development patterns	Minimizes environmental impact on new developments.

Table 04: The PPS Policies That Point to Sustainability

1.3B -The Growth Plan for the GGH, 2016

The PPS vision is complemented by a more recent policy framework places for the Greater Golden Horseshoe Region (GGH Region). One of the key guiding component of the vision for the GGH is that its communities will be supported by a strong economy, a clean and healthy environment, and social equity. It builds on the policy foundation of the PPS and provides additional direction and more specific details as they apply to the GGH Region The fundamental aim of the Growth Plan was to create more compact and complete communities, facilitated by implementing provincial policies related to density, intensification and growth management. The new policies of the Growth Plan affect all municipal Official Plans within the Greater Golden Horse shoe region. According to Thorne (2016), this represents Canada's "most concentrated effort to date at regional planning in a rapidly growing urban context." The Growth plan is a regional plan rather than a provincial plan where concepts are more precisely tailored to the unique context of the Greater Golden Horseshoe region. This balances both broad, high-level policies with very prescriptive policies and targets to manage strong regional growth management policies as well as continued municipal flexibility..

Growth Plan	Target	Details	How it Contributes to Sustainability
Policy 2.2.1.1 / 2.2.1.4	Growth	Growth should be directed to settlement areas that can support "complete communities". These are defined in diverse land-uses, equity, access to transit, adapting and mitigating climate change	Adds to resiliency and addresses all there dimensions of sustainability
Policy 2.2.6	Housing	Develop a housing strategy that includes affordable housing to meet current and future needs	Mostly contributes to social equity
Policy 4.2.5	Open Space and Environment	Different parties are encouraged to develop public accessible parkland, open space pithing the GGH including urban agriculture and rooftop gardens.	Helps achieve social sustainability while addressing environmental sustainability
Policy 4.2.9	Energy	Promote a Culture of Conservation. For reduction energy usage, waste and consumption.	Environmental sustainability

Table 05: The Policies in the Growth Plan That Point to Sustainability

1.3C - Toronto's Official Plan, 2015

At the finest resolution of policy is the city's official plan which was published in 2015. The Official Plan sets out density and zoning regulations for new development and sets out the city's policy goals related to the development of the city. Similarly, the plan describes policies that are related to sustainable development and every new project being developed should refer to this policy document before it seeks the City's approval.

Official Plan	Target	Details	How it Contributes to Sustainability
Policy 3.2.1.1, 3.2.1.2 and 3.2.1.3	Housing	Adequate, rental and affordable housing as a basic requirement as well as maintenance of the existing housing stock and promoting private investment in affordable housing.	Mostly contributes to social equity
Policy 3.2.1.4	Housing	Encourage the production of affordable housing by assistance proivded from the city.	Contributes to social equity as well economic sustainability
Policy 3.2.1.6	New Development	New developments shouldn't result in a loss of six or more rental units (also states exceptions)	Maintains a stable stock of affordable social housing
Policy 3.2.1.7	Energy	Promote a Culture of Conservation. For reduction energy usage, waste and consumption.	Ensures environmental sustainability
Policy 3.2.1.9	Housing	Provide a mix of housing types and afforability	Mostly contributes to social equity
Policy 3.2.2	Community	Requires the provision of community facilities and social infrastructure	Social sustainability and networks of interaction
Policy 3.2.3	Parks and Open Spaces	Parks and open spaces strategies With subsections detailing the strategy Parkland acquisition strategies, including decisions about whether to accept parkland or cash as a condition of development and park area allocation per proposed units	Ensures environmental sustainability
Policy 5.1.1	Community Benefits	Pursuant to Section 37 of the *Planning Act*, may be enacted to permit more height and/or density in return for the provision of community benefits	Economic sustainability and the provision of means to pursue sustainability
Policy 5.2.2	Investment and Revitalization	Sets out multiple tools to stimulate reinvestment and revitalization in community interests.	Ensures growth leads to development and that funds get reinvested in the community

Table 06: The Official Plan and the Policies That Point to Sustainability

Conclusion of Section 1.3

The analysis of these policies indicates a clear definition of what sustainability is or at least what *"good"* development and design should entail. However, the repetition of aims at different planning levels points towards a consistent definition of which goals of sustainability, or which elements, are prioritized by the city and which ones developers end up pursuing.

The policies however are open to a degree of interpretation because they are not clear by-laws that need to be accurately implemented. How these elements play out after a project is built is different story; a project might be presented and rendered as pursuing these policies but through the lifecycle of the project, or even the construction phases, it might take on completely different dimensions that would not fulfill the aims and ambitions of these policies.

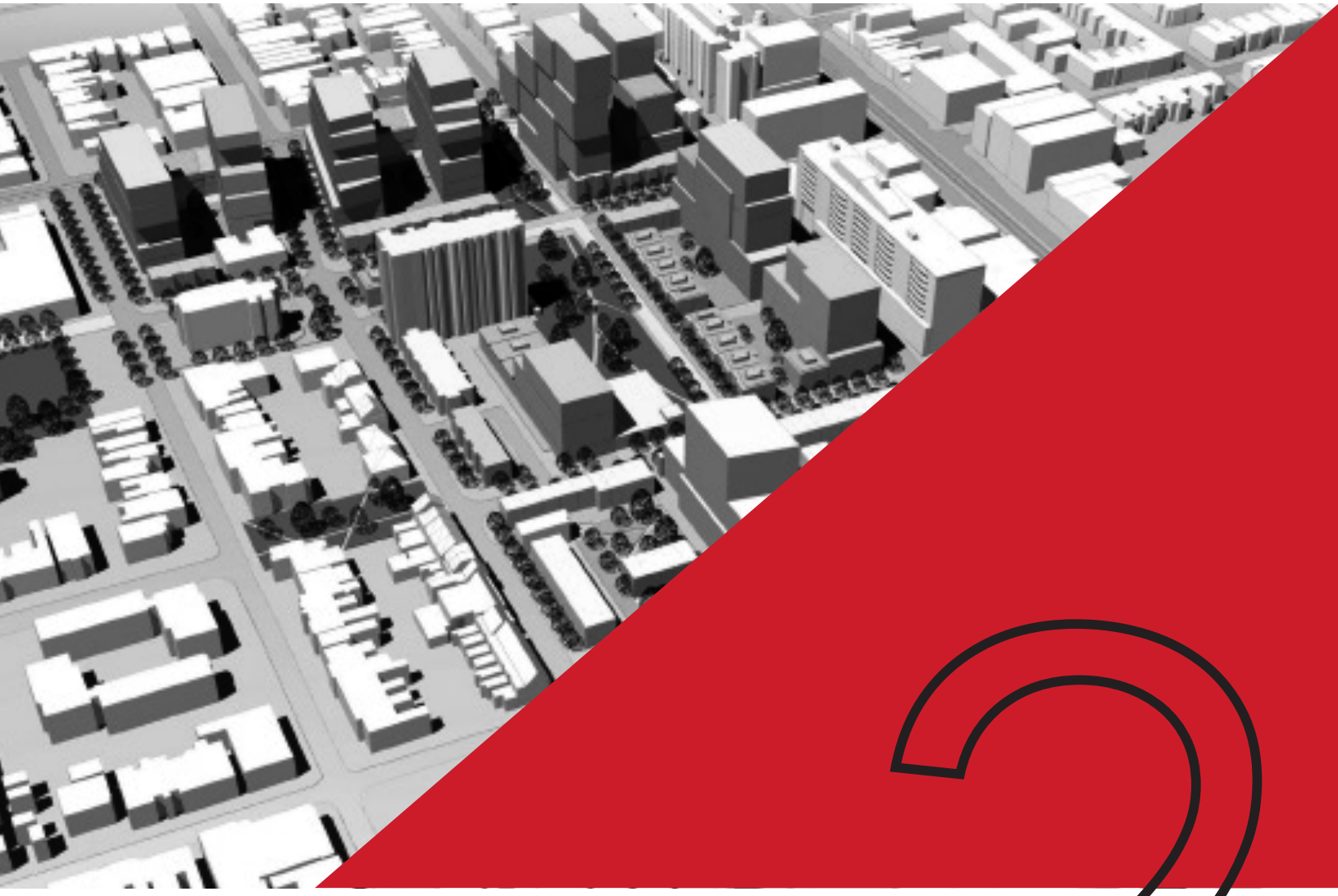
Chapter Conclusion

The aim of this chapter was to define sustainability from three lenses: academia (through a literature review of the three dimensions of sustainability), urban policy (by reviewing provincial and municipal policy documents and finally professional practice (by looking at industry standards that administer sustainability). Each of these lenses approaches sustainability in a different way and has different priorities and approaches. One can argue that within these varied and diffuse definitions of sustainability its value is compromised because its application becomes more complicate. Or, as Campbell argues, through multiple definitions of sustainability its meaning is lost (Cambpell, 1996). With that being said, sustainability is still a key issue that should be comprehensively and systematically tackled. The question is how can this be done so that the concept of sustainability is more than a buzz-word and a vacuous concept that in attempt to do everything careens into doing little?

This question was one of the key catalysts for this research project and how it is framed; which is by looking at the professional practice and on projects that leave the drawing board and hit the ground. To pursue this research, I selected the Alexandra Park project revitalization as a case study because it is a good example of a new development that addresses sustainable development. So, in parts two and three of this research project, I will take these definitions as the base to analyze how sustainability is applied on the ground.

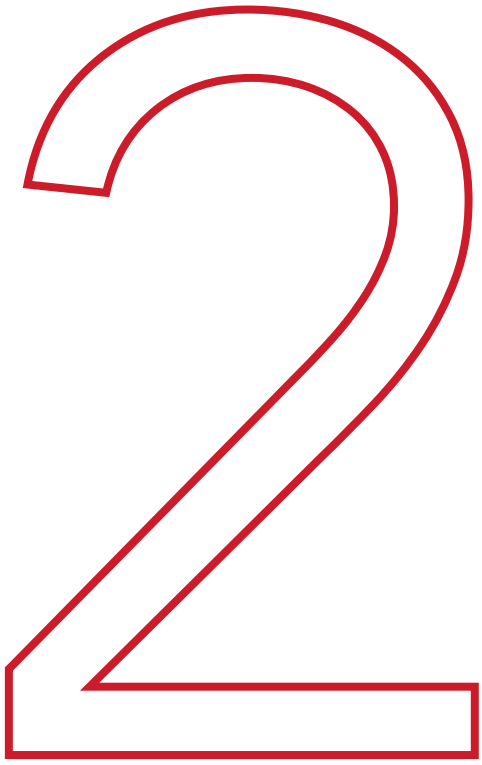
Chapter Summary

Applying the research of part one, this part looks at the Alexandra Park Revitalization plan as a case study by studying the project and evaluating the proposed sustainability goals to find that the project, by renovating affordable housing units, maintaining residents in place and building new construction to high environmental standards pushes the boundaries of sustainability. This however comes with a set of challenges, risks and incentives which are also determined through interviews with stakeholders and key informants that have been working on this project.



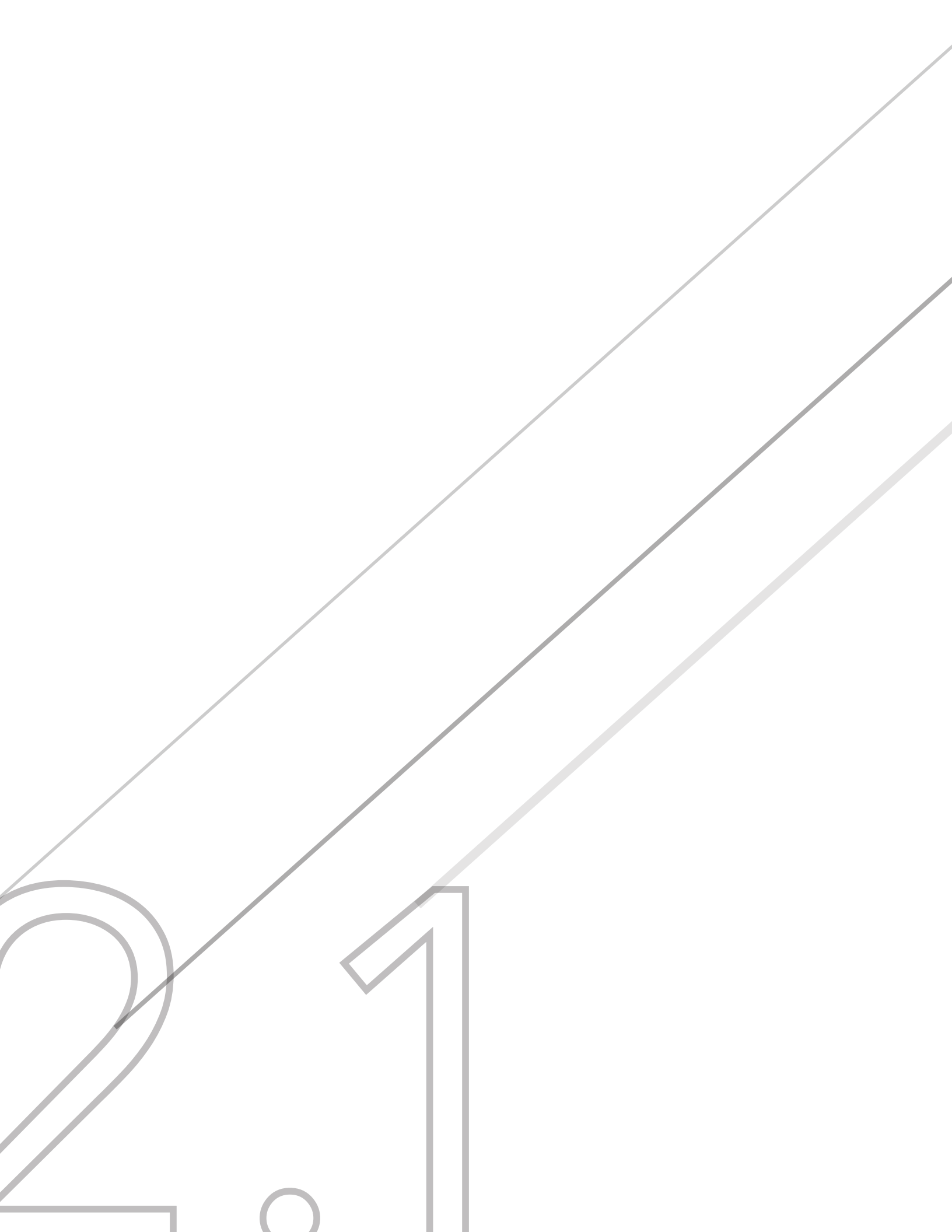
2

The Alexandra Park Revitalization



Chapter Introduction

Based on the definitions and the published planning documents that were reviews in Part 1 of this research project, in this chapter I will define and establish what sustainability goals were aimed for in the early planning phases of the Alexandra Park project and document what development goals relate to sustainability. I interviewed different parties that were involved in the project to understand the role they played in achieving the project's success but also to understand the challenges and risks, incentives and prospects for achieving sustainability. The findings from these interviews are synthesized together to understand sustainability as a single goal of the development process, this also addresses confidentiality considerations of the parties interviewed.


2.1

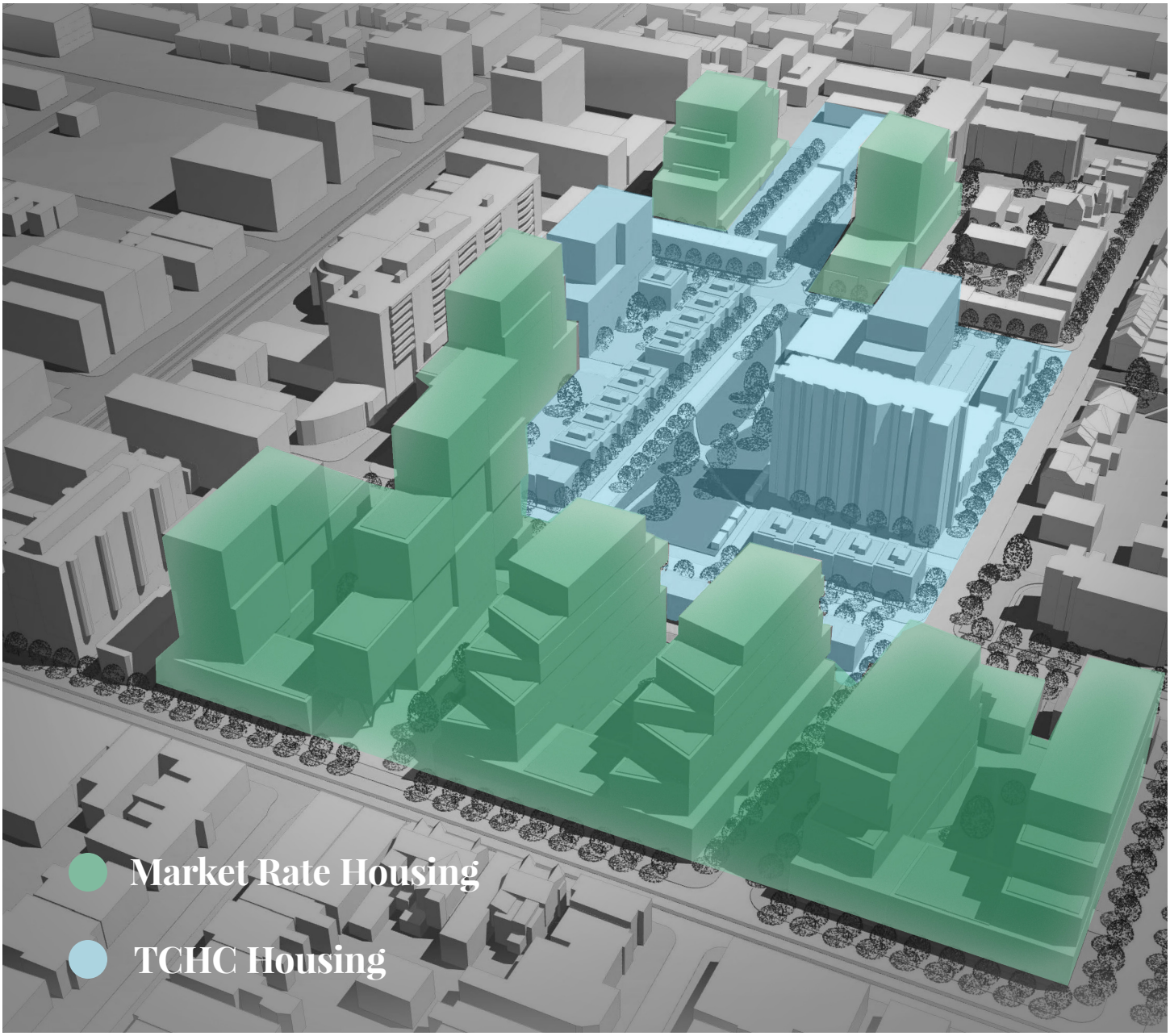
The Revitalization Plan

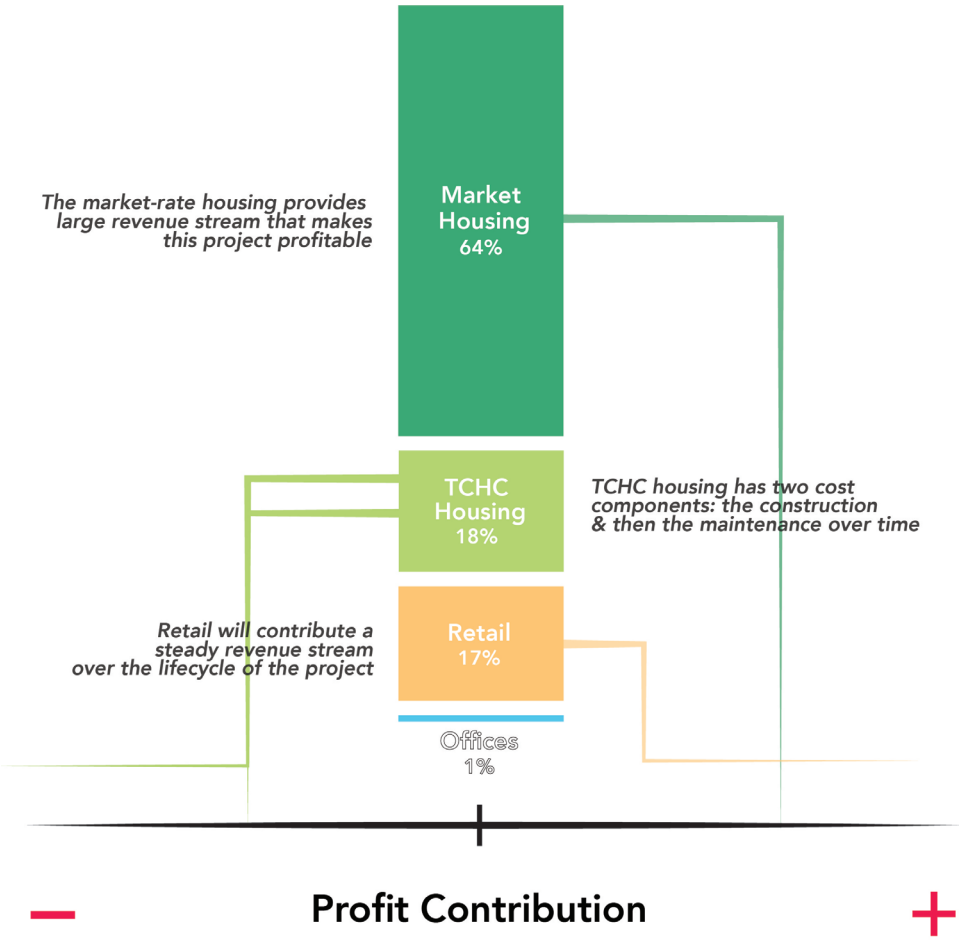
Before delving into the project's current revitalization, it is useful to understand the history of the Alexandra Park Project, which gave this Toronto neighbourhood its name. The project's history dates back to 1964 when the Toronto City council approved plans for the Alexandra Park Housing Cooperative. This led to the expropriation of sixteen acres of private property, the demolition of many of the older Alexandra Park houses and to create affordable housing that is managed by the city. Towards 2009, the buildings of the project fell behind the required maintenance schedules and with other revitalization projects happening elsewhere in the city (namely Regent Park) residents of Alexandra Park requested that the Toronto Community Housing Corporation (TCHC), which owns the property, to develop a revitalization project.

Project Massing and Program

In 2009, the TCHC began the revitalization plan and through consultations with the community, Urban Strategies the TCHC developed a masterplan that integrates market-rate housing, communal spaces and amenities in a single, diverse community.

Through the program and massing, the masterplan links to the vibrant Downtown neighbourhoods of Kensington Market and Queen West. On the project's edge the market rate units and retail are situated keeping the community facilities and affordable housing at the centre to preserve the coherence of the old community and the previous configuration. This can be seen in the overall massing of the project in terms of height and layout which also integrated shadow and wind analysis as well as respecting the scales of the surrounding.





The Public and Private Partnership Between Tridel and Toronto Community Housing

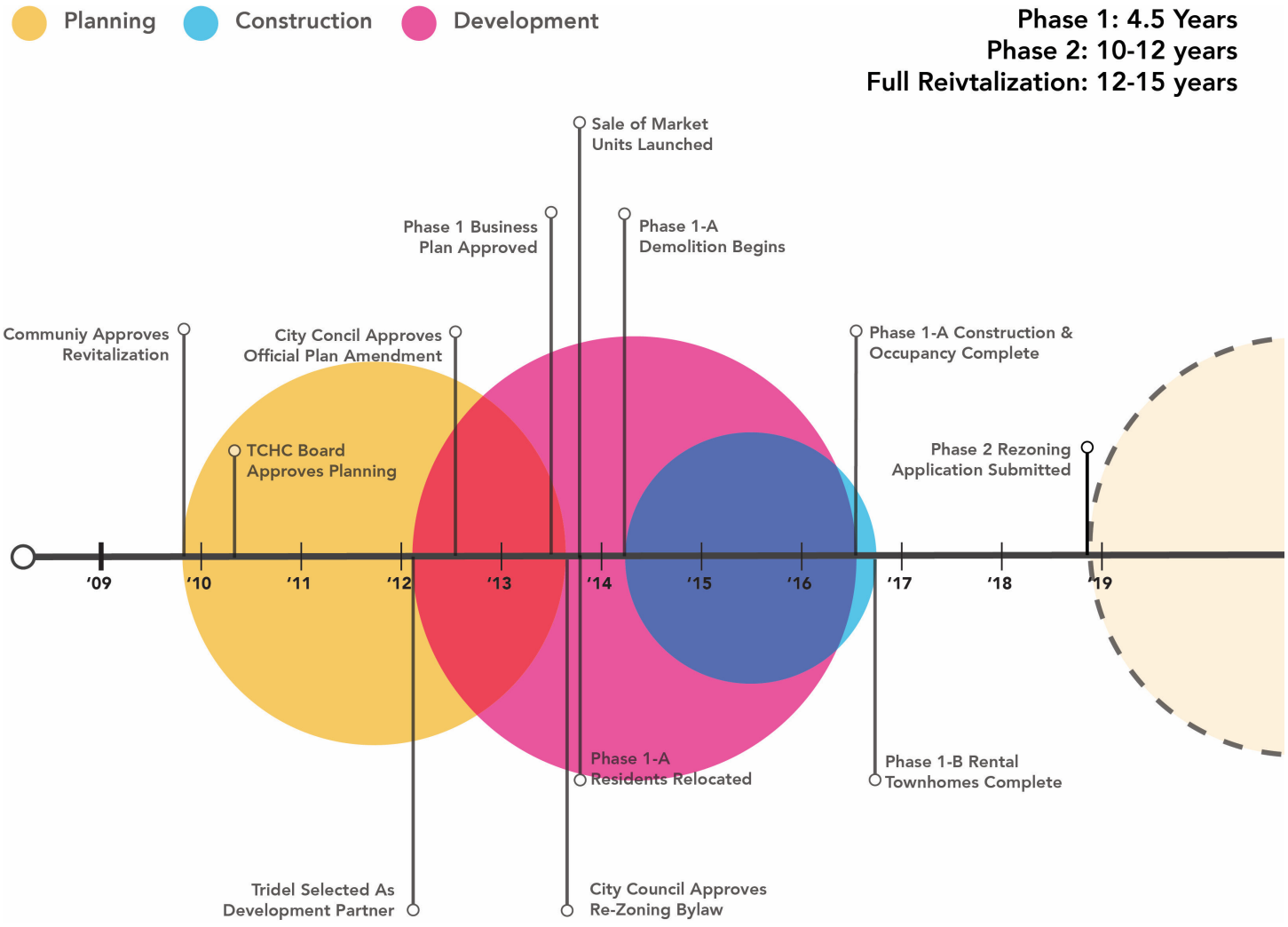
The Toronto Community Housing Corporation is the City's arm responsible for the provision and the maintenance of affordable housing. It is the original land owner of Alexandra Park Project but through the revitalization, that ownership has been restructured so the project consist of two portions. The first portion is the market rate housing which is developed, built and sold by Tridel, the TCHC's development partner. The second portion is that of the affordable housing which is also being built by Tridel but is owned by TCHC and operated by the Atkinson housing co-op. The market rate housing is the main revenue generator but the project has other revenue sources coming from the rental of retail and offices which will allow for a continuous cash-flow to maintain the development.

Within this unique partnership, TCHC has the final say on all of the project and they require certain construction standards and have an in-house design review panel which approves what gets developed, including input on the market rate housing. This relationship started with Phase 1 of the project's revitalization. After Phase 1, Phase 2 of the project was initiated and an RFP was put out and Tridel was selected again. Through their work, Tridel has built a strong reputation for developing green communities. Through this area of expertise, as well as their in-house project management and partnerships, they are able to navigate the development process to achieve the complex goals set out by the development plan. Despite this complexity, the partnership between Tridel and TCHC has been largely successful. This is facilitated by the mutual benefits that arise from this partnership and development configuration.


Dundas Street
Site 1,2,3
3 ST
13 ST
Site 4
15 ST
16 ST
Alexandra Park
Site 6
21 ST
15 ST
Site 8
17 ST
14 ST
3 ST
Central Green
Site 9
12 ST
Community Centre
Randy Pedmore Park
Paul Lane Garden
Site 15
Site 14
Site 13
15 ST
Site 10
Site 11
14 ST
Denison Avenue
Augusta Avenue
Cameron Street
Spadina Avenue
Queen Street
5 bed
4 bed
3 bed
3 bed (Integrated)

Project Configuration and Timeline

Total Size:18 acres
Replaced RGI Rental Units: 410 Refurbished Units
RGI Rental Units: 396 Units
Retail Space: Up to 5,700 m2 of new retail space will be added to the community, including approximately 370 m2 of incubator space for local social enterprise and business development along the south side of Dundas St.
Employment: Approximately 157 jobs created to date for Phase 1
Market Units: 1540
Amenities: New public park and basketball courts, Enlarged community centre, new connector streets, improved east-west and north-south pedestrian access.



The Revitalization Model in Toronto

Whenever revitalization is discussed in the context of Toronto, the Regent Park redevelopment is always referenced and often to criticize the revitalization model (Lehrer et. al, 2010; Kipfer and Petrunia, 2009). Despite Alexandra Park being a revitalization project as well, it is a model that is different from Regent Park. Completed between 1945 and 1959, the original Regent Park was part of the national-provincial-municipal public housing under the CMHC and it was then seen as a model community because planners thought they can achieve social control through physical design and was part of the overall Urban Renewal discourse in the middle of the century (August, 2008).

Due to lack of maintenance, changing demographics and negligence, the project began to deteriorate and it became increasingly associated with crime and blight. As a response, plans for redevelopment were put in place by the TCHC (Purdy, 2003). In that process of the revitalization, TCHC had varying degrees of control on different factors and the project was subject to the broader market conditions that ultimately affected how the private sector participated in the project. After a developer backed out in 2005, the TCHC was forced to grant more concessions to attract other developers to the project - including giving up on the replacement of the public housing units on site where 600 of the existing 2087 where to be built elsewhere (Kipfer and Petrunia, 2009).

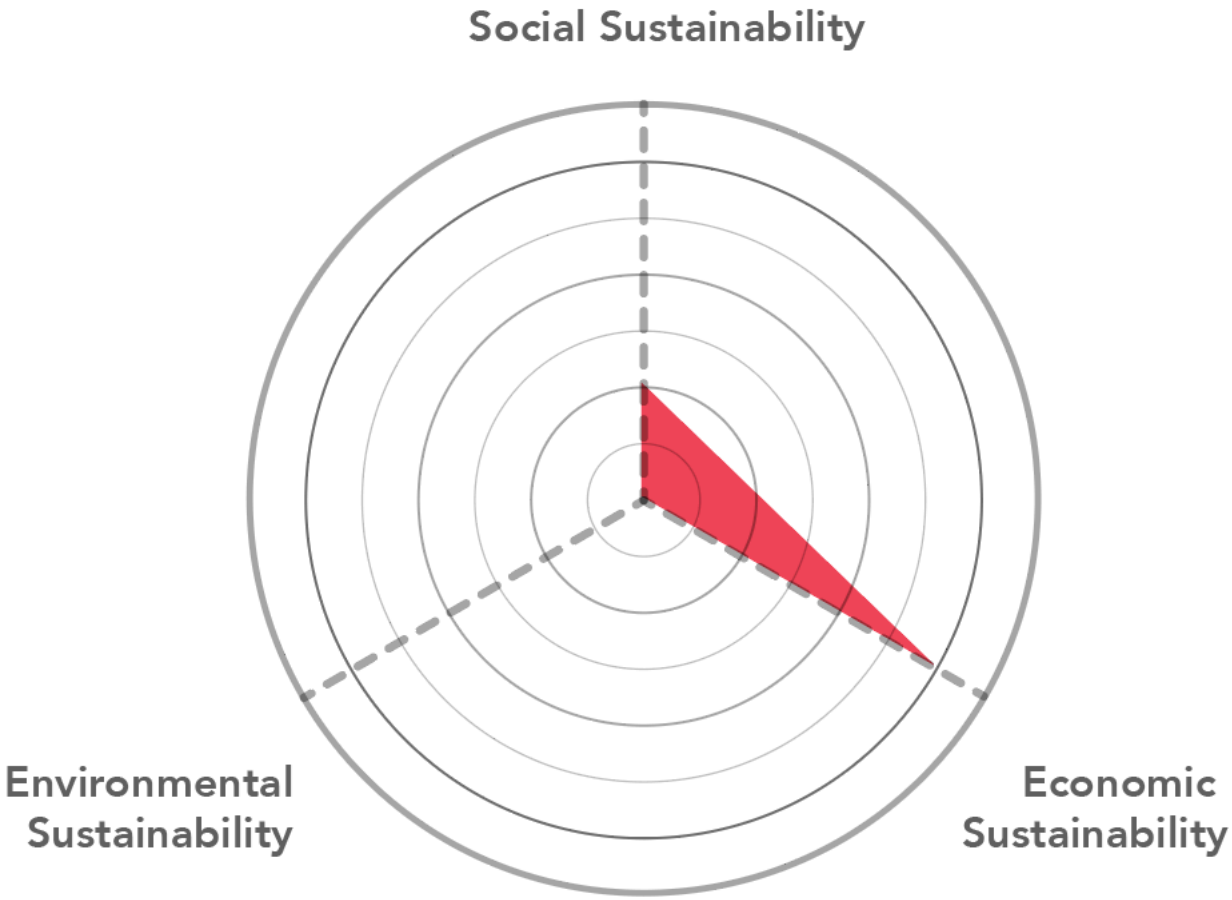
In the case of the Alexandra Park project, the market conditions in Toronto, the city and province's policies and the TCHC-Developer structure are all different from Regent Park. The demand for housing in Toronto is very high which would make the absorption of units rapid which is an incentive for a developer to be involved and capitalize on the land value available. From the policy perspective, Part 1 of this research indicated to the general aim is for maintaining affordable housing units and seeking sustainable growth. The City's official plan also has specific policies that require new developments to maintain an affordable housing stock (Policies 3.2.1.1, 3.2.1.2 and 3.2.1.3 of the City's Official Plan).

Additionally, the relationship between TCHC and the private developer consists of a partnership and TCHC has a say on all aspects of the revitalization, including the market rate housing. Another distinction is that TCHC, with its development partner Tridel, have made zero displacement and self-financing key goals, which is fundamentally different from the process that the Regent Park Revitalization went through.

To this end, the developers have incorporated additional affordable housing as a "buffer" for future needs but had to incorporated 20,200 sqm of additional residential market gross floor area offset the cost of replacing a building with affordable housing (73-75 Augusta Square) and ensure that revitalization remains self financing.

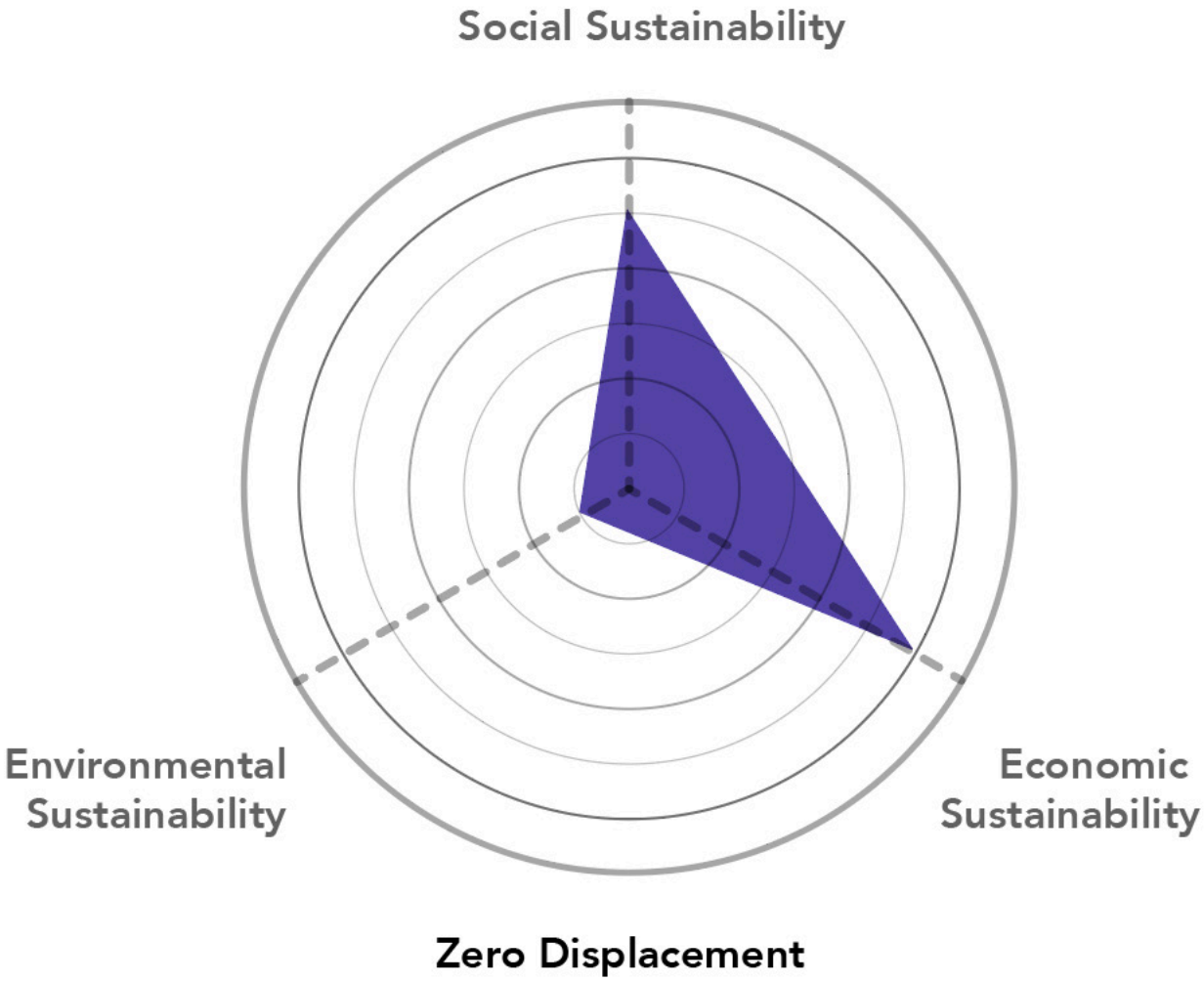
Sustainable Development Goals

Based on the Planning Rationale, the development applications that were pre-sented to the city of Toronto and interviews conducted as part of the research, the following development goals were identified. The are presented here and evaluated in radar charts according to the definitions of the sustainability that were developed in Part One of this research. These radar charts try to quantify qualitative aspects of sustainability as they were defined above and presented below with an explanation of the goal and the rationale behind that evaluation.

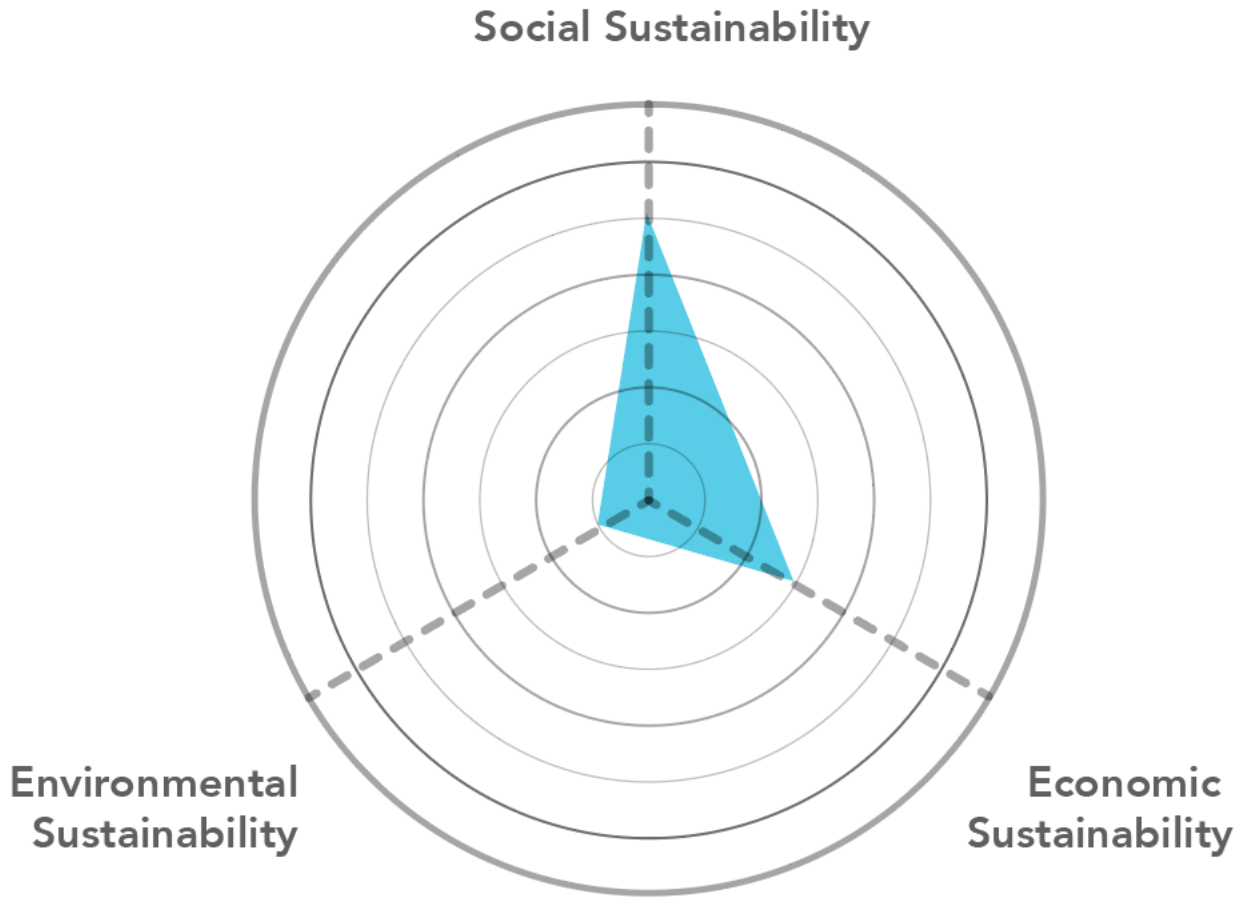


Providing Jobs and Grants

The project goes beyond the bricks and mortar of the redevelopment but also integrates economic development opportunities. By employing members of the community and creating grant and scholarships programs. The development is thus assisting in the upward mobility of the community members.

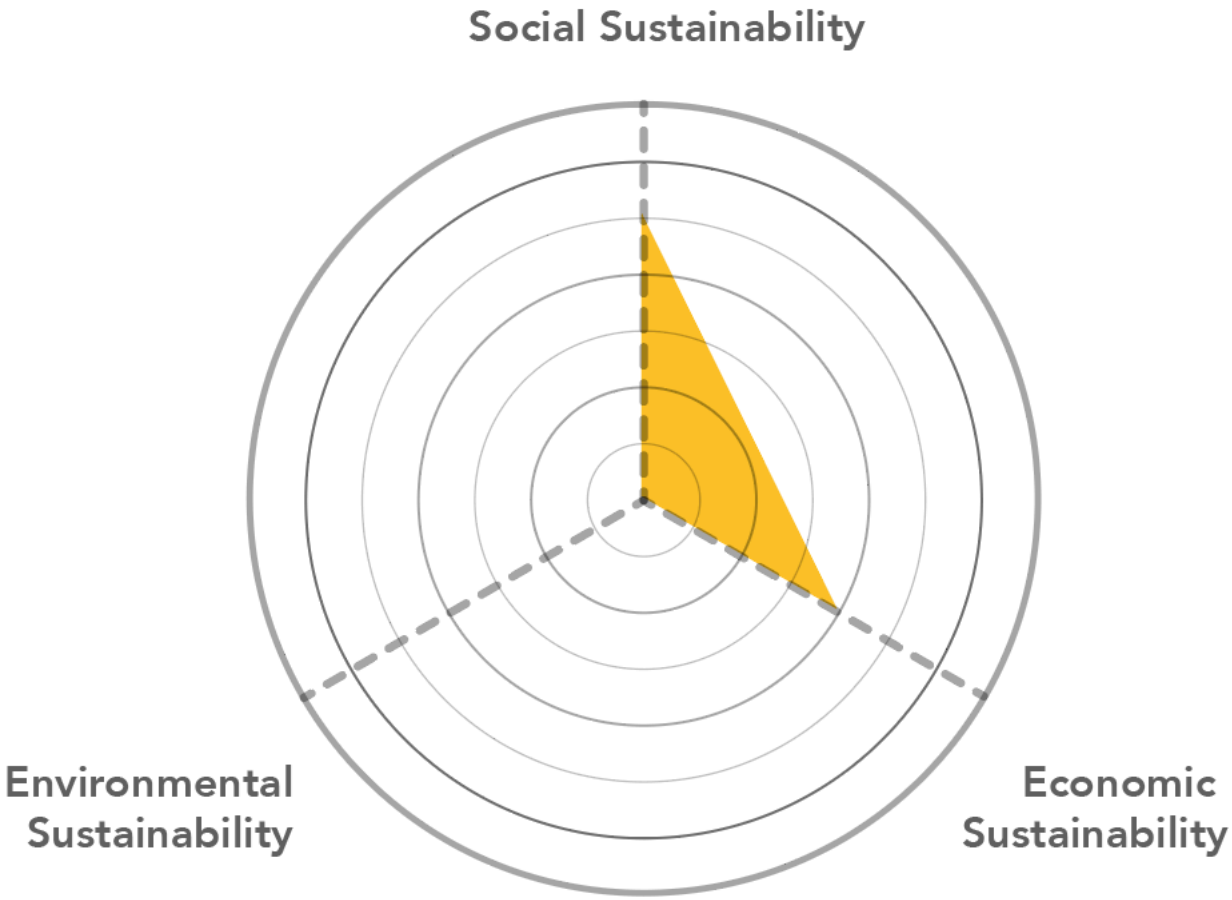


One of the merits of this revitalization is that it is self-financed. The project is also phased so that tenants are not displaced in the revitalization process and maintain housing on site.



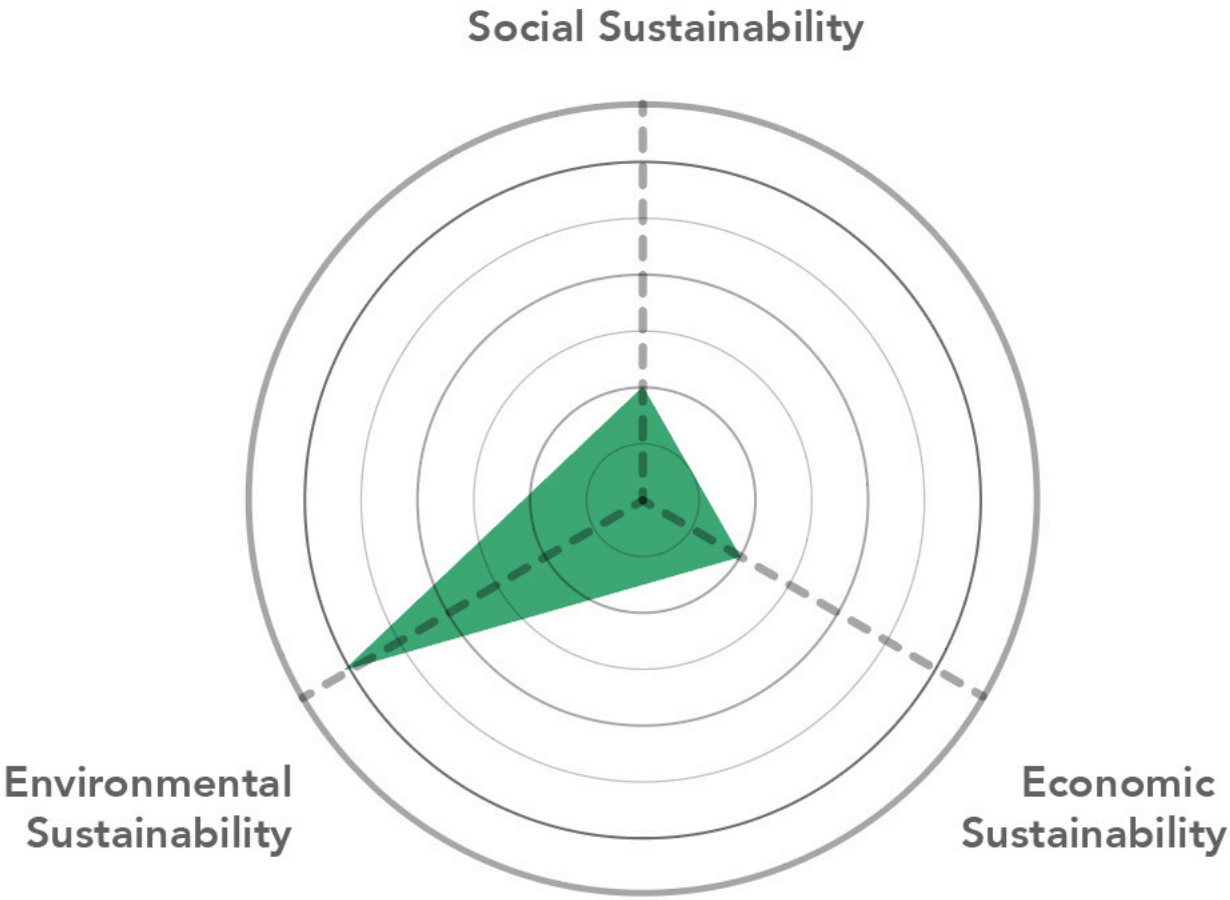
Knit Project With Neighborhood

The design and massing link the project to Kensington Market and Queen West neighbourhoods and is programmed to allow for pedestrian flows from outside. The Project is also located near transit to link with the rest of the city. These features make sure that the project is not `isolated and that users can relive on active transport rather than being car dependent.



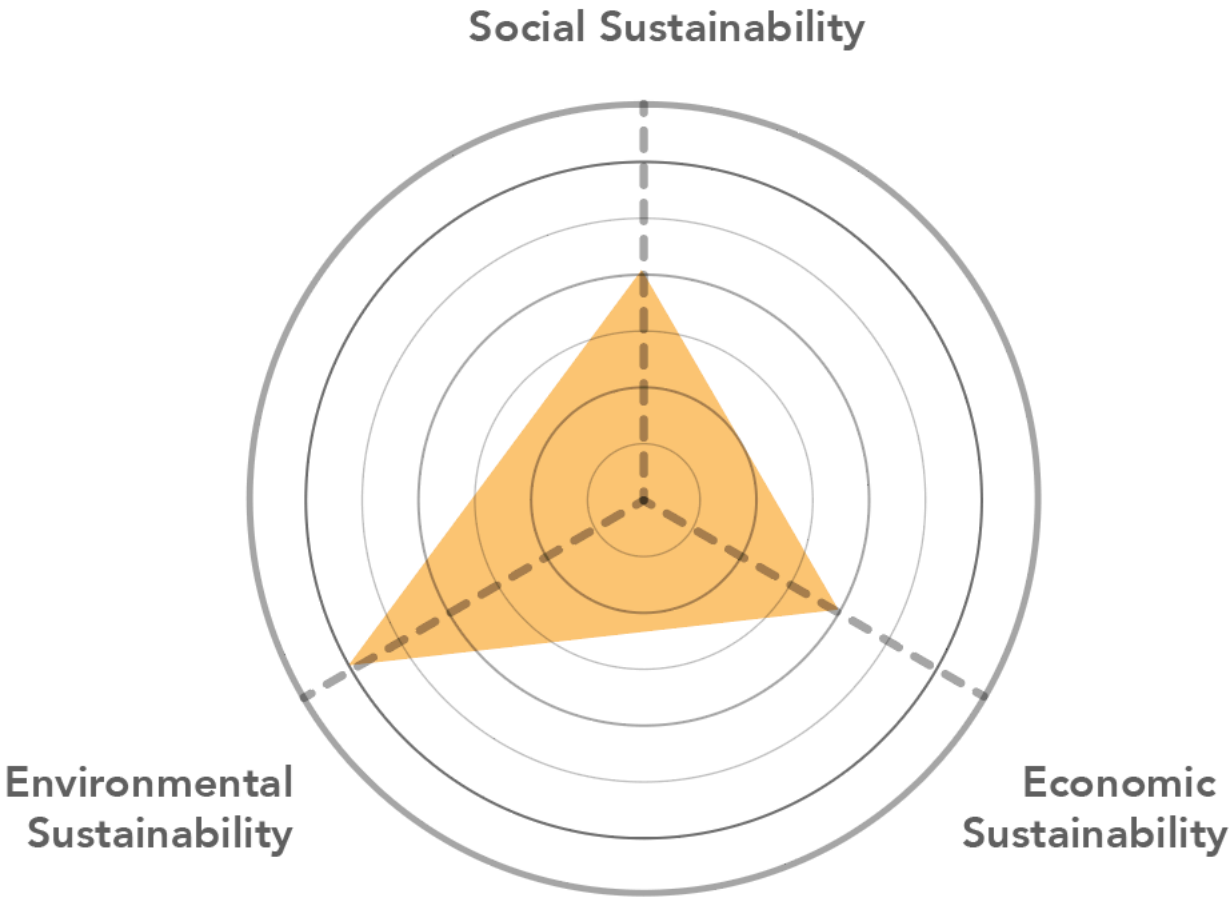
Rennovation of Community Facilities

The project will invest in multiple community facilities such as a large public park in the centre of the community, containing the Central Green, Entry Green and Alexandra Plaza, as well as five POPS. The revitalization will also include a 1,100 square metre facility for the Alexandra Park Community Recreation, a new 370 square metre Local Social Enterprise Space and a City-run child care centre. There facilities are essential for the growth of the community and maintaining its stability.



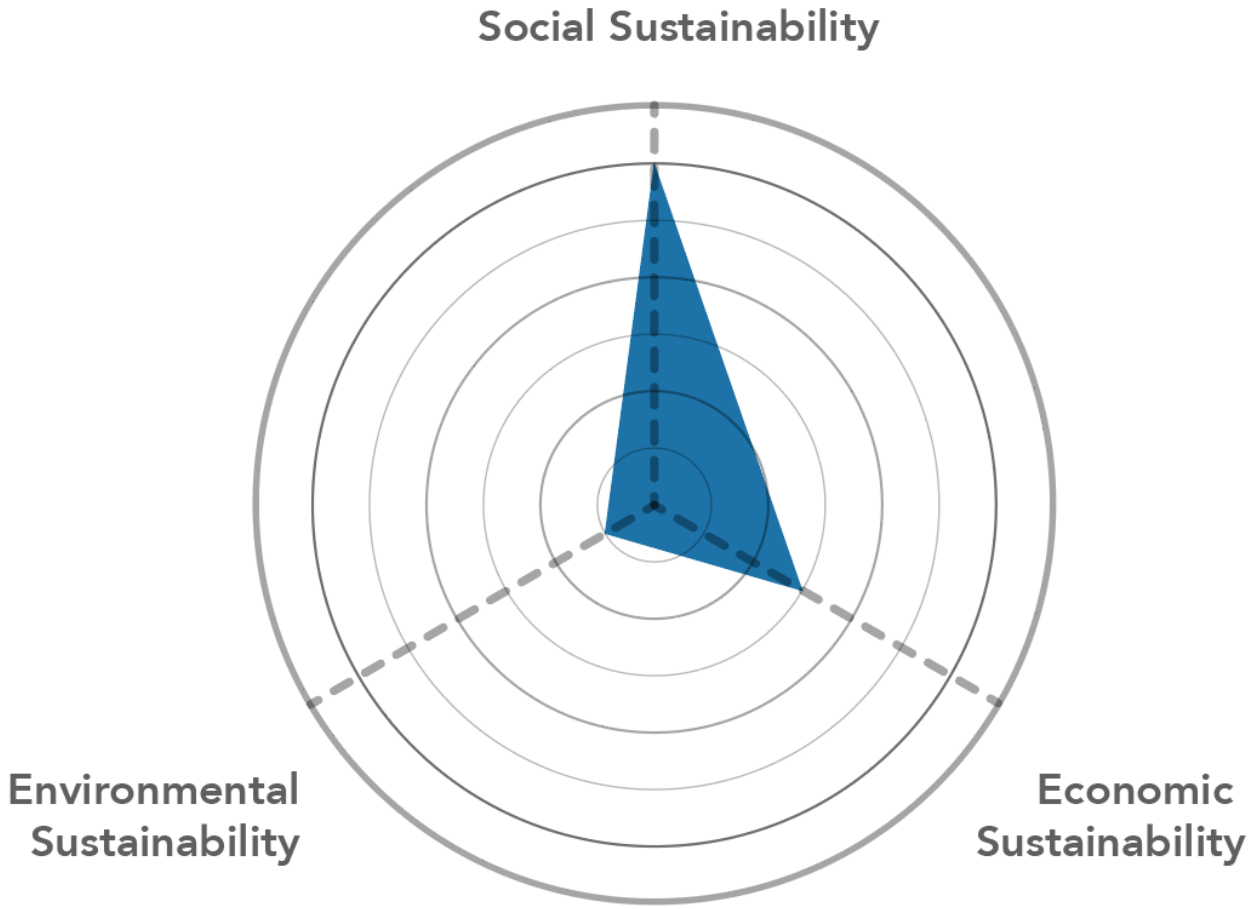
Achieving Tier 2 of TGS

The City of Toronto requires that all new developments meet Tier 1 of the City's Green Standard however, the revitalization project is going a step further with phase 1 and achieving Tier 2 of the standard where as the TCHC's part will pursue Tier 2 across the phases.



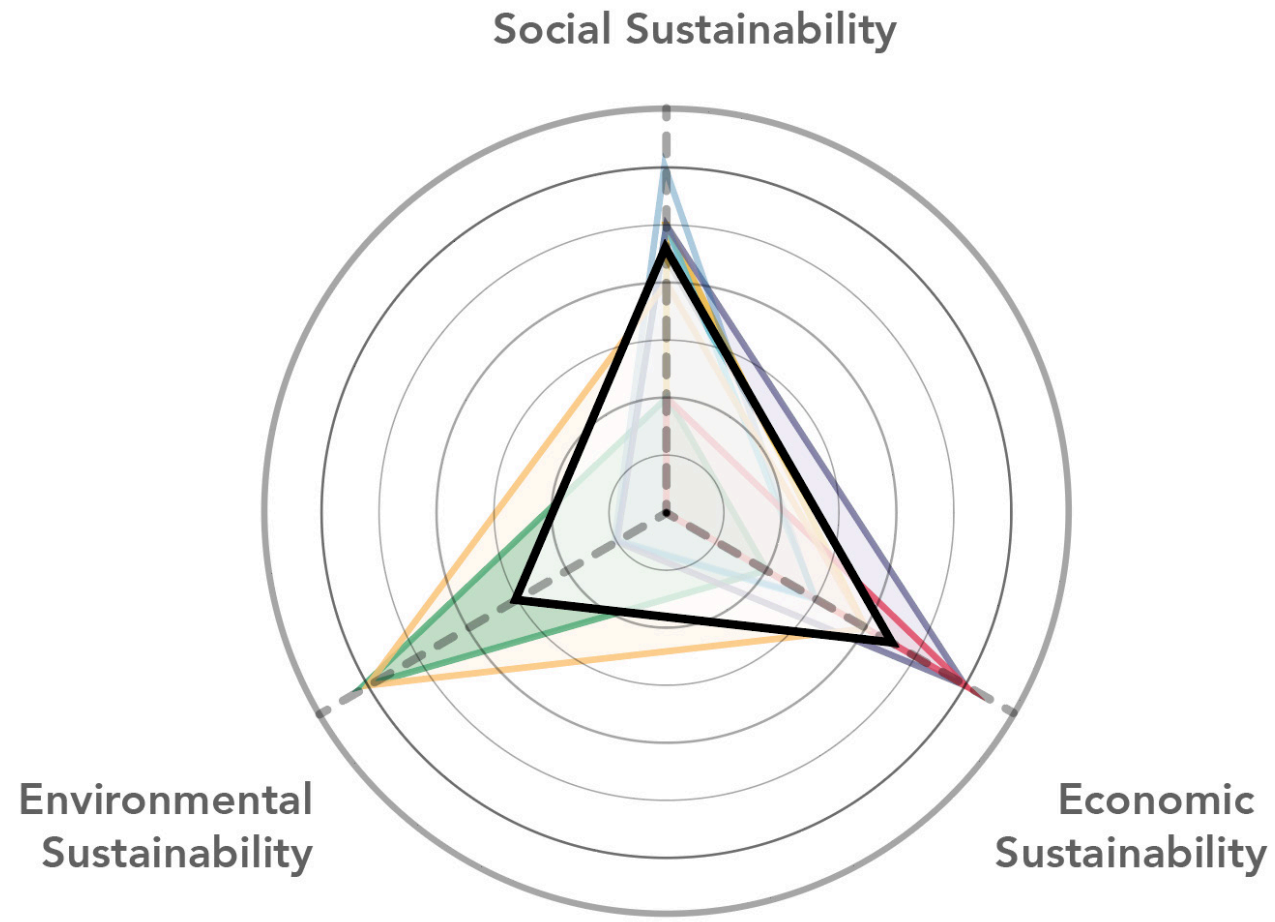
Green and Activated Public Spaces

A significant component of the masterplan are programmed open green spaces and communal green spaces that will contribute to activating the public realm while also providing green spaces that have environmental benefits.



Rennovating + Providing Afforadble Housing

As part of the revitalization, the developer is renovating and rebuilding most of the existing affordable housing while also providing 5200 sqm of additional affordable housing. This contributes to maintaining a sense of community and networks of connection in place while also ensuring that the value extracted from the project is reinvested in the community; both of which are goals of social and economic sustainability.



The project's sustainability seems to be well balanced in terms of sustainability particualry because it renovates affordable housing, maintains residents in their place while also providing them with economic development opportunities.

2.3

Achieving Sustainability

As mentioned in the project's introduction, The Alexandra Park Revitalization project with its configuration and phasing is complex. Through interviews with a development manager at Tridel, an assistant development manager at TCHC and an Urban Planner at Urban Strategies, I was able to understand the challenges and risks, incentives and prospects - particularly for achieving the sustainability goals mentioned for the revitalization. As mentioned in the project's introduction, The Alexandra Park Revitalization project with its configuration and phasing is complex. Through interviews with a development manager at Tridel, an assistant development manager at TCHC and an Urban Planner at Urban Strategies, I was able to understand the challenges and risks, incentives and prospects - particularly for achieving the sustainability goals mentioned for the revitalization.

Challenges and Risks

Risk is part of any development, but as the project steers away from the norm and tries to introduce something new, the development process is faced with challenges that in turn increase the risks. For the Alexandra Park Project, a significant part of these challenges are related to fulfilling each dimension of sustainability.

Social Sustainability:

Mixing affordable housing with market rate housing requires complex social engineering and design that integrates a mix of uses at the level of individual buildings and at the level of a communal spaces. The project also combines different housing typologies (townhouses, apartments, etc.). Assembling these poses challenges on the design so it ensures that buildings and the spaces around them are leading to a cohesively knit community. If this social engineering does not work as designed, it will seriously impact the project's success and profitability if different social groups clash or if public spaces aren't utilized. An example of this is the design of the corner site (see image left) where social engineering and the integration of different types of units were central to the design. This is because it's the only instance of the masterplan where affordable and market rate housing are adjacent and the design is challenged with moving away from the "poor door" notion and ensuring a continuity in the facade design and that all units are built to the same quality. Another challenge that the social sustainability of the project poses is the zero-displacement goal. This goal has been challenging because it dictates the phasing of the project and orchestrating the timing of rehousing with the development phases. This procedure is complex and can cause delay risks which would impact the project's revenue and profitability and the livelihoods of the residents.

Economic Sustainability:

One of the main challenges of building this project is ensuring that it is self-financed throughout. The TCHC does have limited resources and maintains a large portfolio that suffers from a maintenance backlog. Having the revitalization be completely self-financed could not have happened without the project having a significant portion of market housing. The City of Toronto has in place the Development Charges Act (Through Section 37) which is one of the means the City has in place to achieve fiscally responsible growth through charges on new development to ensure that new development pays for itself and that additional capital costs do not fall on existing residents in the form of higher property taxation and user fees (Official Plan, 2015). This policy helps fund infrastructure growth and maintenance. From developers' perspective, these demands are too stringent and policy makers have high expectation of how much of the development revenue can be taxed. Coupled with increases in the costs of construction and land, the profit margins of developer tend to be squeezed. This cost usually ends up being transferred to consumers though an increase in the cost of housing. Usually these consumers are buying their first (and only) homes at the entry level and their right to access housing gets compromised, further exacerbating the issue of affordability across the city.

Environmental Sustainability

With its broad scope, sustainability is still an elusive concept that is not well defined. When it comes to the environmental aspect, it is particularly vague at the early design stages where it is unclear how certain design decisions affect the environmental performance and what is the cost/benefit relationship for these decisions is. A key challenge with sustainability also is that

projects take years to finish and standards are constantly changing. Keeping a project up with the standard that is required from the city and the increasing requirements for environmental performance can be difficult. So, not only is assessing the environmental sustainability at the present difficult, designers should future-proof the performance to increases in standard requirements. In the case of the Alexandra Park revitalization, 15 years. Environmental sustainability is usually simplified to green building technologies and implementing these technologies increases the costs. In market-rate developments, this is often justified by the increase in the marketability of the building and revenue. Green building also contributes to efficient use of energy which from an operation perspective, reduces the costs. For the TCHC, these are added costs and despite what green technologies might reduce in operation costs, green building is still expensive to fulfill. Moreover, as a public agency TCHC buildings are required to be at the forefront of the environmental innovations such as achieving a minimum of Tier 2 of the Toronto Green Standard. Finally, there is a key risk that emerges from environmental sustainability in that it has an independent life cycle of performance over the lifetime of the building. Maintaining environmental sustainability could translate into unforeseeable costs in the future which, if not maintained, would compromise the planned environmental performance that was aimed for at the early stages of the project

nent of this model is the unique partnership between TCHC and Tridel where the mutual benefits facilitate this public-private partnership which is often negatively associated with effectiveness and equity (Andrews & Entwistle, 2010). In this Public-Private development configuration, the hot housing property market in Toronto, with a very high demand for housing, contributed to the success of Phase 1 where all market units were sold immediately. This generated enough revenue to fund sustainability and the ongoing project phase. Additionally, having the TCHC as a development partner and owners of under-exploited lots significantly reduces the cost of land in one of the most expensive land markets in North America. The project's location in downtown Toronto allows the TCHC and Tridel as developer to generate higher revenues makes resources available to fund sustainability while keeping the project profitable. So, for this configuration to be possible, similar market conditions, as well as underdeveloped land, need to be available to facilitate the public-private partnership and support a project that is similarly sustainable.

Evaluating The Success of Sustainability

The success of any goal of a project and particularly sustainable goal can only be evaluated in retrospect and after a significant time has passed on the project. The success of these depends on how well they are maintained and the project's timely delivery as well as the users' satisfaction after living within these communities. For Alexandra Park, the existing residents are being rehoused so the success of the project is determined by the satisfaction of the residents with how the phasing went and if the satisfaction with the changes their new living configuration.

Incentives

Unlike the challenges, the incentives for pursuing sustainability are usually bundled and cannot be separated according to the three dimensions of sustainability. As was seen in Part One of this research, no current standards for sustainability are applied widely and pursuing the challenges and risks mentioned above are all voluntary at this point since no standard is enforced.

One of the key incentives for developers to pursue sustainability on this project has to do with their corporate social responsibility that adopts a holistic approach to community building. The project can be seen as part of a legacy and part of the positive mark that they want to leave in the built environment. The project's complexity was thus a chance to pursue the goals of community building, reinforce their reputation as a community-oriented developer and expand their skill sets. This is particularly applicable because this project re-imagines and reinvents what a community in the downtown of Toronto could be and having it in their portfolio is a valuable asset.

Large developers with in-house project management, contracting and construction expertise and they have developed a mastery of LEED and TGS 2 and applied them on about 75% of their projects. The main incentive is that the City of Toronto offers refunds of development charges to projects that achieved Tier 2 of the TGS. Green buildings also have the added benefit of adding marketability to the market rate development. From the TCHC's perspective, marketing is not relevant, rather green building helps partially offset the operation and maintenance costs. Pursuing sustainability however is an opportunity for the TCHC to tell a good story and help them deliver a strong pitch to planning authorities and public that their developments are comprehensively designed and at a high caliber.

Prospects

The above discussion is situated at point of the project where Phase 1 was already finished and Phase 2 is underway. This research captures the challenges, risks and incentives but it also portrays the prospects for the future of sustainability, on this project but also on future projects.

Future of Environmental Sustainability

Environmental sustainability is constantly evolving with new technologies being developed that make building more energy efficient. As part of that future, technologies such as EnWave and Passive House can facilitate the environmental sustainability aspect because they centralize green energy sources and make it available at a large scale. In an aim to future-proof their sustainability performance the TCHC will also soon be pursuing Passive House at a large scale within the project which is quite progressive and has not been applied yet at this scale before in Toronto. There are also growing requirements and integration of future proofing buildings today and making them resilient to changes in the climate should be central for planning for the future of sustainability.

Replication of the Alexandra Park Model

The revitalization model of Alexandra Park has direct benefits for sustainability and through the partnerships involved, it would be useful to explore what aspects of this development can be replicated elsewhere. The first compo-

Chapter Summary

The final part of this project will bring together the outcomes of the first two parts to conclude the analysis but also propose strategies and recommendations that could overcome barriers in fulfilling sustainability and creating incentives that would catalyze such projects. These conclusions will also help create the discourses and narratives around sustainability in urban design and in development that could influence policy and practice and broaden the horizons of the possibilities that could come along.

3

Conclusions and Strategies

3.1

Conclusions

#1 Land Value and Contribution of Sustainability

#2 Revitalization as a Sustainable Model

#3 Balancing Inequity, Gentrification and Wicked Problems

#4 Opposing Priorities and Common Goals

Land Value and Sustainability

Increased land value has direct relationships to inequity, concentration of capital as well as unfair development and the literature of that critique of increased land value is expansive. Increases in land value does seem contradictory to the principle of sustainability as defined in part one of this research. In the case of Alexandra Park, the high land value of the site and its development potential however the main contributor to the project's success and feasibility and provides the support for pursuing sustainability. Land value does have the opportunity to mobilize the economy and create sustainability and reinvest value created into better developed and designed communities. More broadly speaking, land value is an asset for the city and through returns from development, it can allow the city of capture land value and reinvest it in infrastructure and the city's development. This is an opportunity that could not work in contexts where land value has little development potential or market value. It is equally important though for a city to also balance how much value it expects to capture from development. These value capture expectations can put pressure on residents and raise the entry price of housing due to the increase in costs; further increasing the gaps in inequality in a city.

Revitalization as a Sustainable Model

The revitalization model in itself is instrumental for pursuing sustainability and fundamental for making the Alexandra Park revitalization project happen. From the perspective of environmental sustainability, it reuses previously developed land rather than using a greenfield. It also converts parking lots from impervious, heat absorbing surfaces into either green roofed buildings or green communal spaces which directly contribute to mitigating urban heat islands while also contributing to the social sustainability aspects of the project. The reuse of land also unlocks value by increasing its exploitation and creates a return that funded the renovation of the aging social housing, creation of communal spaces as well as funding economic development opportunities for the existing community of Alexandra Park and contributing to sustainability as a whole.

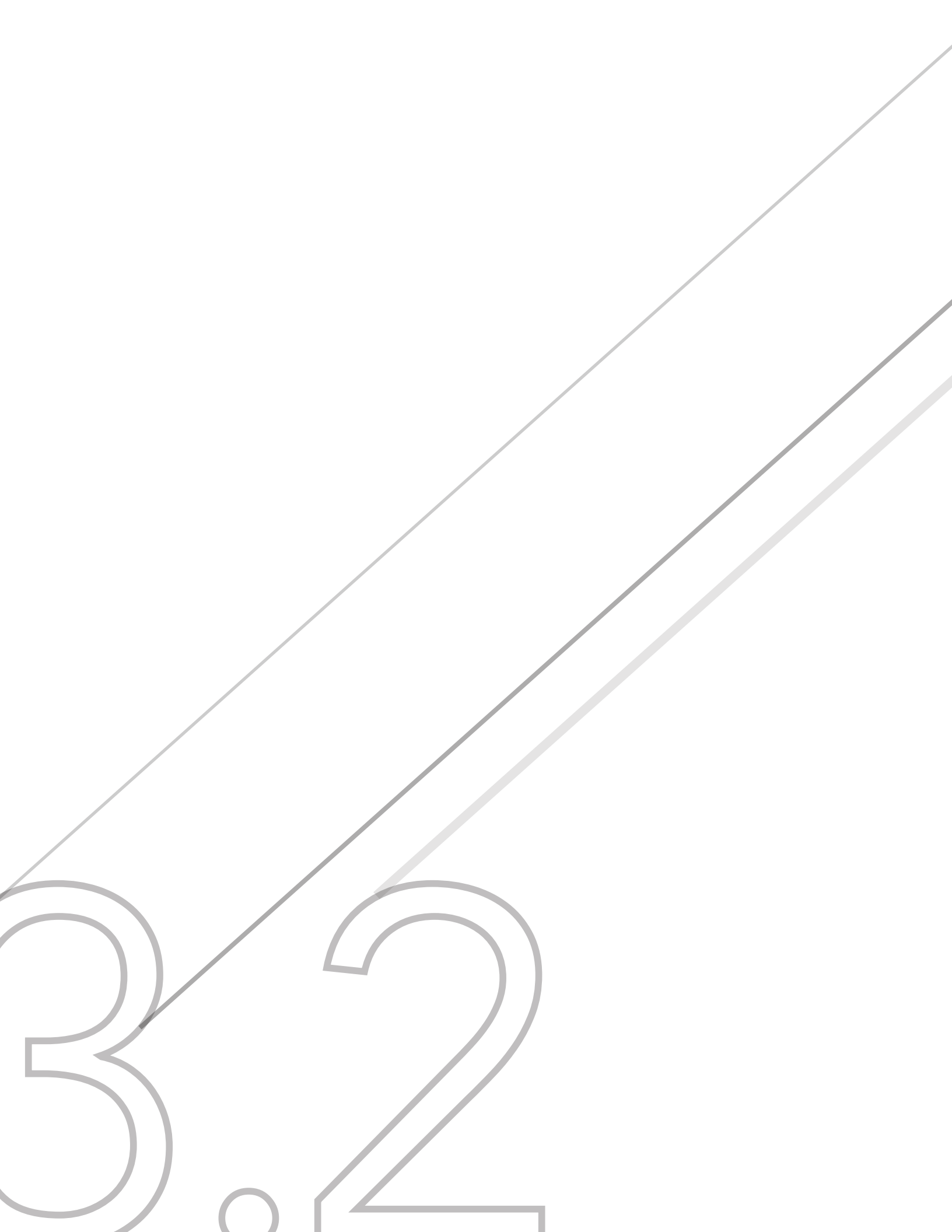
Balancing Inequity and Gentrification

The Alexandra Park revitalization does achieve many sustainability goals that are congruent with the definitions of sustainability as they were defined in Part One of this research. The discussion of sustainability in general cannot be limited to the boundaries of the site. From a higher level of discussion, the project does create some form of inequity with prime vs. non-prime housing which distinguishes The Alexandra Park development from other developments by the TCHC or other forms affordable housing in other parts of the city. This differentiation results from the happenstance of the

revitalization project being situated in the Downtown and on a land that had unexploited value. Despite the fact that unlocking that value is seen as sustainable, it does not solve all problems of equity that come with urban development. Through the revitalization plan, the project does ensure that people are not displaced and that they are given development opportunities such as grants and displacement is often thought of to be the main consequence of gentrification (Palen & London, 1984 ; Henig, 1980). The increase in the number of market rate housing however would bring new user groups that would to contribute to the gentrification of an already changing part of the city. This new demographic would demand different types of services and land-uses which would alienate the existing users and isolate them. Despite that, the revitalization plan was catalyzed by the community and developed in consultation with them. The gentrification that would result is thus the trade off that residents have to make and is the price to be paid for renovating affordable housing units in downtown Toronto while maintaining zero displacement. This process is a negotiation between the benefits and costs of having the revitalization take place. This is not a problematic issue with the Alexandra Park itself but rather points to the "wicked problems"of development and planning. By their nature, these problems are complex and difficult to tackle because of incomplete, contradictory, and changing requirements and are socially complex means they have no determinable stopping point (Rittel and Webber, 1974).

Opposing Priorities Common Goals

Through the interviews conducted, different actors working on this project had different perceptions on which aspect of sustainability was most relevant or feasible due to their different priorities and mandates. For example, developers are more concerned with pursuing the environmental sustainability because there are direct benefits from green building where as social sustainability goals (which is achieved through affordable housing and communal spaces) are more complex and the riskier part of the development to achieve. From the TCHC's perspective, keeping up with the environmental sustainability requirements translates to an increase in building cost in order to have green building technologies installed. From the consultant's perspective, it is a matter of bringing things together with certain degrees of speculation and uncertainty. Pursuing sustainable design is in many cases qualitative and it is difficult to understand the efficacy of a certain design and planning decisions on a project to be completed in the future. It is also difficult because they're harder to quantify and correlate them to costs. The consultants also have the complex task of social engineering the masterplan so it comes together and those decisions also depend on speculation. Social and economic sustainability are also difficult to measure and standardize which makes making them a common goal difficult.


3.2

Strategies

Through this research project, I first defined sustainability through three different lenses, analyzed sustainability in practice through determining what goals were aimed for in the Alexandra Park project. Though interviews with key informants I was also able to understand the challenges and risks related to sustainability as well as incentives for pursuing it. I then was able to come up with conclusions from this analysis. In the last part of this research project I will propose strategies that are based from what planners could learn from the Alexandra Park project through strategies that Urban Planners, Designers and Developer could use to apply on other projects

#1 Life-Cycle, Sustainability and Revenue

#2 Tax Credit and Private Investment in Sustainability

#3 Creating Value Through Program and Design

#4 Economies of Scale

Lifecycle, Sustainability and Revenue

Sustainability goes beyond the conception and construction phases of the project, but rather is an issue that could only be fully assessed over the life-cycle of a building by taking into consideration of how it performs, how it affects the urban context and the extent to which it fulfills the goals set out. This means that it can only happen if sustainability is maintained and reassessed. This will go beyond the initial phases and costs of construction but into the lifecycle of the building. One strategy of ensuring sustainability throughout is structuring a building and program so that part of the revenue generated is dedicated to the maintenance of sustainability and if capital expenditures of a project extend beyond repairs. For this to happen though, it shouldn't be voluntary on the part of the developer, but a set of incentives and policy frameworks should be put in place by the city so that parts of the program are dedicated for these funds.

Tax-Credits and Private Investment in Sustainability

In the United States, there are approximately 5.1 million affordable housing units provided through an array of federal, state and local programs. More than 2.3 million of the affordable units (approximately half) were the product of the Low Income Housing Tax Credit (LIHTC) program. In the U.S., private sector participation is available through investment, financing or subsidized provision of housing at lower rents. This program works through tax credits that are purchased by individuals, corporations, banks, private equity groups, syndicators of credits and investment funds. It is estimated that historically $6 to $8 billion per year has been invested in tax credits by the private sector and it is estimated that over $100 billion in private equity capital has been generated from the sale of tax credits since the inception of the program in 1986. In recent years, the pool of tax credit investors has grown dramatically as investors have discovered the stability and returns of affordable housing investments financed with tax credits (ULI, 2018). The structure of a tax credit transaction begins when developer who was awarded tax credits for having a portion of the developed as affordable housing sells those credits to private sector investors. This is in exchange for an interest in the property ownership entity (such as in an LLC/LLP). The developer retains a very small general partner ownership, normally less than 5%, while the tax credit investors receives the remaining ownership interests. Thus, in addition to the tax credits, the investors receive the typical returns on their investments based on the ownership interest they acquire as limited partners. Tax credits are also purchased by individuals, corporations, banks, private equity groups, syndicators of credits and investment funds (CBRE, 2017).

The LIHTC provides developer with up-front equity which reduces the amount they need to borrow and while the LIHTC does provide a critical source of financing for affordable housing developments, most of these projects also require additional sources of financing (Eriksen & Rosenthal, 2010). In Canada the situation is different. Affordable housing in Canada is administered by the Canada Mortgage and Housing Corporation (CMHC), an agency of the Canadian federal government (Carter, 1997). The affordable housing programs in Canada are very decentralized due to the partnership structure that exists between CMHC and each province/territory. Under that structure, annual allocations of funds from CMHC to each province/territory are matched by the receiving province/territory, giving

them the ability to design and deliver affordable housing programs that address their local housing needs and priorities. As a result, approximately 80% of the existing affordable housing portfolio is directly administered by the provinces and territories (CBRE, 2017). Private investment opportunities in Canadian affordable housing were first initiated in 2013, when Manitoba passed a tax credit for the construction of new affordable rental housing as part of its overall budget. Named the Rental Housing Construction Tax Credit (RHCTC), this first-of-its-kind tax credit in Canada and provides a credit of up to 8% of the capital cost of new rental housing construction in Manitoba if the project is five or more residential units and at least 10% of the units are affordable (Allary, 2016). In the context of a hot property market like Toronto, it would be interesting to evaluate if a provincial policy could applied to affordable housing but also to other sustainability goals.

Creating Value Through Design and Program

The program of a building, its distribution and the building design can have a direct impact on the value of a building. Besides good design and high quality materials, features such as green or open spaces and building amenities could help add value and increase revenue from certain parts of the building by improving spatial qualities and the tenant experience. Through a mixing of uses, part of the program and amenities can bring sources of revenue that could subsidize the added costs that might come with sustainability (both environmental and social). If there is a market for it, good design can result in a price premium, a project's visibility, be a marketing device, and increase absorption and decrease vacancy (Millhouse, 2005). Good design can enhance land value by offering policy stability and ensuring faster official approval (Hack & Sagalyn, 2011) and be a catalyst for economic development (Nase et. al, 2013). These added revenues could have a potential for being a resource that could fund the sustainable goals of a development. With that in mind, the implications this strategy has on affordability should be kept in mind, particularly in the context of Toronto, where the entry level housing is barely affordable.

Economies of Scale

Through the development process as well as through construction the economies of scale can play a significant role in developing sustainability. The size of the developer and consultant teams as well as their experience can reduce the costs of designing for sustainability through their know-how and expertise. This was the case of Alexandra Park where the developer's skill facilitated the applications for TGS 2 as well as their ability to navigate the construction process more efficiently. This also applies to consultants, such as architects who can navigate the whole development process more efficiently. The size of the project also plays a role in facilitating the achievement of sustainability, particularly by overcoming the initial costs of development and generating more profit that could be allocated to other parts of the project. This is due to the marginal cost principle where the cost added by producing one additional square meter of space after a certain point will actually bring the overall cost of production down while increasing the revenue. Additionally, if these additional units of production are distributed vertically, it will contribute to more profit generation because the cost of producing a square meter on the first floor is almost the same as the 20th, but the value is not the same. This

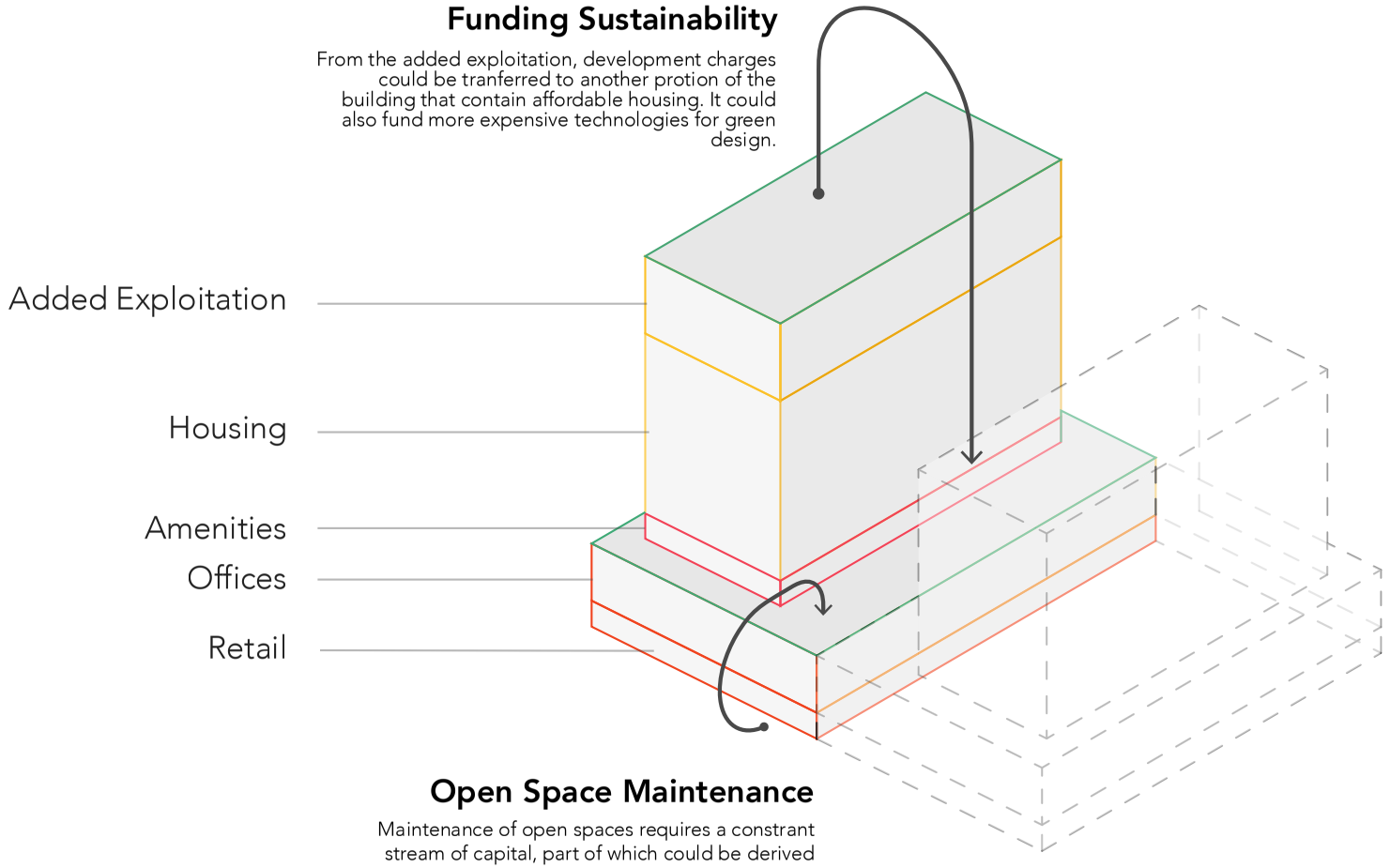
further reinforces the idea that larger projects will lead to more revenue which can contribute to value creating in portions of the site and then allocating them to fulfilling sustainable goals. With that being said, not all projects can be mega-projects because with larger scale projects it becomes more difficult to disregard the community, its needs and social equity (Bornstein, 2010). Also, limiting the production of sustainability to larger developers and consultancy firms hinders the full participation of smaller actors and sustainability should be practiced across scales and not be limited to when larger projects could afford it. The economies of scale also allow for pursuing environmental sustainability more easily through district level heating and sustainable energy generation at the source. In the context of Toronto, projects such as *The Well* have already started implementing such technologies to install thermal energy storage tanks underground and to provide low carbon cooling and heating to the project and nearby sites. Such strategies simplify the provision of sustainability and make administering it easier.

Minimizing Risk Through Multi-Phased Projects

In every real estate development project, the developer and investors take a certain amount of risk and as mentioned in the introduction, pursuing sustainable developments do come with certain risks and barriers (Galuppo, L., & Tu, C., 2010). One way of reducing these risk is in multi-phase projects that happen over extended periods of time. This would allow for one phase to test out the riskier sustainable goals or technologies, learn from the initial phased and then reduce and manage the risk accordingly in the phases of the project to follow. The phasing would also allow the project to reassess its original market study and reduce risk by adapting to the changed market needs, assuming enough time has passed. This strategy could be coupled with incentives by the city so that the developer would explore with innovations in sustainability. Phasing should also be measured against the potential reduction in returns if a project is slowed down.

Funding Sustainability

From the added exploitation, development charges could be tranferred to another protion of the building that contain affordable housing. It could also fund more expensive technologies for green design.



Open Space Maintenance

Maintenance of open spaces requires a constrant stream of capital, part of which could be derived from the rents collected from retail and offices over time.

Phasing

Phasing a building has the potential to reduce risk, get initial funds needed to fund other part of the project such as open spaces and affordable housing. Phasing also has the potential to reduce risk by attuning the project to the dynamics of the local real estate market

Closing Words

The Alexandra Park revitalization project is achieving a lot in terms of sustainability and while not all commercial projects could be expected to provide this level of sustainability voluntarily, the project still offers a lot of lessons for planners to learn. Even in other cases where the land value is not cheap or subsidize, some strategies can be used to ensure that sustainability can be applied with certain levels of feasibility. Another point to make is that sustainability is a problem whose brunt should not be borne by developers alone. It should rather be collaboratively tackled by policy-makers, professionals and academics.

City administrators have a key role to play, not only in managing development but collaborating and listening to developers and consultants to understand the challenges and risks that come with pursuing sustainability in practice and find ways that incentivize these projects while also guaging their expectations. Further more, innovation in sustainability needs to be more widely accepted and legitimacy around such innovations should be built while also defining new contractual agreements that relook at the relationship between infrastructure, public services and private development.

This study also points to the complexity of urban development and the importance of finance and real estate development for mobilizing city building. When it comes to sustainability in particular, the problem becomes more complex because sustainability is rather vague and cannot be fully achieved without certain compromises. Moreover, sustainability (social, environmental and economic) is a social norm that seeks the public interest, but the costs of implementing it are private. Therefore, even a developer with the best will and intentions in the world cannot pursue sustainability if it increases costs up to a point where the developer's return is not sufficient enough or where the market will not absorb what they build. Furthermore, pursuing sustainability often includes complicated risks through cutting edge building techniques, design and social engineering that developers have to weigh against the potential benefits.

In short, one of the key problems is that society and policy makers expect private developers to bear these burdens. It is only if clear sustainability criteria are imposed on the real-estate market as a whole that the playing field will be leveled, and all participants (which includes purchasers and investors) will adjust their expectations from what developers will deliver and how much they can pursue the requirements of sustainability.

Until then, planners should steer away from ideals and be more in touch with what happens on the ground. This would not only help develop practical and rational expectations from real estate development, but help ensure that development pursues the benefit for the environment, economy and society as a whole.

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