

HOW CAN UNDERSTANDING THE MICROECONOMICS OF HOUSING DEVELOPMENT CONTRIBUTE TO THE GENERATION OF MORE AFFORDABLE HOUSING?

by

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ABSTRACT

This project examines how a better understanding of the microeconomics of housing development can contribute to the debate on how to generate more affordable housing. Proforma analysis is used to examine the underlying microeconomics of two potential multi-family residential housing developments at UniverCity on Burnaby Mountain, for ways in which development costs could be reduced or eliminated, thus increasing housing affordability. One housing development is based on two common policy-related mechanisms and the other is based on a Cohousing related model. This research reveals through proforma analysis that decreasing or eliminating soft development costs related to the commodification of housing, such as developer profit, marketing, and luxury finishings, can increase housing affordability more than policy-related mechanisms. This research also demonstrates that a better understanding of the microeconomics of housing development gives housing regulators and housing advocates the tools and language necessary to appreciate the fundamental costs associated with housing development, enabling them to work towards achieving greater housing affordability.

Keywords: Affordable housing; housing affordability; housing market; real estate development; proforma analysis; microeconomics; market-based mechanism; UniverCity

DEDICATION

To Kathryn, Linda and George

Your unwavering love and support made this possible

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TABLE OF CONTENTS

Approval	ii
Abstract	iii
Dedication	iv
Acknowledgements	v
Table of Contents	vi
List of Figures	viii
List of Tables	ix
Introduction: Vancouver’s Housing Affordability Crisis	1
Chapter 1: Research Project overview	5
Chapter 2: Literature Review	10
2.1 Challenges in Creating Housing Affordability	10
2.2 Debating How to Create Housing Affordability – Planning Regulation Verses Land-Use liberalization	15
2.3 Proforma Analysis: Evaluating Housing Development Costs	20
Chapter 3: RESEARCH DESIGN	26
3.1 Using Microeconomics to Understand How to Develop More Affordable Housing.....	26
3.2 Parcel Selection for Microeconomic Analysis of Traditional Market-Based and Affordable Market-Based Housing at UniverCity	31
3.3 Using Microeconomics to Understand How to Develop More Affordable Housing At UniverCity.....	35
Chapter 4: The Proforma Analysis	39
4.1 The Cost of Traditional Market-Based Housing: Parcel 23 Proforma Analysis.....	41
4.2 Examining the Microeconomics of Mixed-Method Market-Based Affordable Housing: Parcel 23 Proforma Analysis	48
4.3 The Cost of Developing Traditional Market-Based Housing: Parcel 27 Proforma Analysis.....	52
4.4 Examining the Microeconomics of the Market-Based Cohousing: Parcel 27 Proforma Analysis.....	57
Chapter 5: Discussion	63
5.1 The Microeconomics of Housing Development and the Debate on How to Generate More Affordable Housing	64
5.2 Utilizing Proforma Analysis as a Tool to Increase Housing Affordability	66
5.3 Unnecessary Housing Development Costs Revealed through Proforma Analysis and Affordable Housing Impacts	67

5.4 Opportunities and Challenges Associated with Using Profoma Based Microeconomic Analysis as a Tool to Aid in the Development of More Affordable Housing	71
Chapter 6: Conclusion and Recommendations	77
Reference List	81

LIST OF FIGURES

Figure 1: UniverCity Masterplan and Phasing	32
Figure 2: Parcel 23	34
Figure 3: Parcel 27	35

LIST OF TABLES

Table 1: Parcel 23 Development Statistics – Traditional Market-Based Build	43
Table 2: Parcel 23 Land Costs - Traditional Market-Based Build	44
Table 3: Parcel 23 Construction Costs - Traditional Market-Based Build	44
Table 4: Parcel 23 Development Costs - Traditional Market-Based Build	46
Table 5: Parcel 23 Financing Costs - Traditional Market-Based Build	47
Table 6: Parcel 23 Total Cost and Profit – Traditional Market-Based Build	48
Table 7: Parcel 23 Development Statistics - Mixed-Method Affordable Housing Mechanism	49
Table 8: Parcel 23 Land Costs - Mixed-Method Affordable Housing Mechanism	50
Table 9: Various options for subsidizing affordable housing on Parcel 23	52
Table 10: Parcel 27 Development Statistics - Traditional Market-Based Build	53
Table 11: Parcel 27 Land Costs – Traditional Market-Based Build	54
Table 12: Parcel 27 Construction Costs - Traditional Market-Based Build	54
Table 13: Parcel 27 Development Costs - Traditional Market-Based Build	55
Table 14: Parcel 27 Financing Costs - Traditional Market-Based Build	56
Table 15: Parcel 27 Total Cost and Profit - Traditional Market-Based Build	57
Table 16: Parcel 27 Development Costs – Cohousing	59
Table 17: Parcel 27 Financing Costs – Cohousing	60
Table 18: Parcel 27 Total Cost, Profit and Equity Investment – Cohousing	62

INTRODUCTION: VANCOUVER'S HOUSING AFFORDABILITY CRISIS

Affordable housing policy should be a top priority for all levels of government, since the state of a city's housing system is a reflection of its health and an indicator of underlying social and economic conditions (Drummond et al., 2003, Hulchanski and Shapcott, 2004). Housing policy that encourages the development and maintenance of a sufficient supply of affordable housing and meets the needs of all citizens has numerous benefits, including: social inclusion; economic well-being; positive health outcomes; stability for individuals and families; and long-term community savings by reducing expensive emergency services and programs (Hulchanski and Shapcott, 2004, Wilkie, 2007). Moreover, investing in and maintaining a diverse housing stock is essential to building a community that is equitable for all citizens, ensuring social, environmental and economic sustainability into the future (Wilkie, 2007).

In Canada, the market is the largest supplier of housing, providing 95% of all shelter, one of the highest percentages of all developed countries (Hulchanski, 2005). While this market-based system has historically been able to supply sufficient housing for a large percentage of the population, an increasing number of citizens are unable to secure adequate housing through this current system. Despite the recognition of a growing housing affordability crisis in many cities across Canada, there is currently little political appetite to reverse the

unsustainable trend of an increasingly expensive housing market (Hulchanski and Shapcott, 2004; Shapcott, 2008; Wilkie, 2007).

Historically, people who could not afford to purchase market housing were able to live in social housing developed by government, or qualified for government housing assistance programs. Since the early 1990s, the Canadian federal government has made massive cuts to social housing funding and development in order to balance budgets and pay down deficits (Shapcott, 2008; Wilkie, 2007). As a result, low and moderate-income households are now finding it increasingly difficult to afford suitable housing in what is currently an almost exclusively market-based housing system.

Over the past decade, the cost of market housing has drastically increased; nowhere is this more evident than in Metro Vancouver. Local, provincial, national and global influences spurring economic, social and political change have affected the housing market in a way that has resulted in decreasing affordability for many Vancouverites. High economic growth, coupled with low levels of unemployment and historically low interest rates have enabled housing markets to boom in recent decades (Yu, 2005). Vancouver recently experienced an extreme housing boom driven by similar characteristics. These factors, along with various others, have caused housing prices to inflate and rise faster than real incomes in Vancouver, as well as across Canada and in number of other developed countries (Yu, 2005). Vancouver's staggering housing market inflation has resulted in middle-income earners finding it ever more difficult to purchase housing that is suitable in size, quality and location.

Vancouver's housing affordability crisis is a radical example of a growing trend, where average housing prices are increasing disproportionately in comparison to average incomes. Based on the most recent Statistics Canada data, the 2005 median family income in Vancouver was \$64,332 (Statistics Canada, 2011). With this income, the average family in Vancouver would qualify for a mortgage of roughly \$260,000 (Canadian Mortgage and Housing Corporation, 2011). According to the Real Estate Board of Greater Vancouver the average house price in Metro Vancouver in February 2011 was \$507,118. As such, the average family would have to double its income to afford to buy a home in Metro Vancouver. These overwhelming numbers illustrate the depth of Vancouver's housing affordability crisis.

In light of Vancouver's housing affordability crisis, government, housing advocates and academics are searching for new ways to address this growing issue. Historically issues of housing affordability have been address through top-down macroeconomic approaches, such as social housing development and rent control. In recent years, attention has switched to market-based approaches to increase the supply of affordable housing, such as inclusionary zoning and density bonusing. While these market-base approaches have been relatively successful in application, they have not generated sufficient housing units to have a significant impact on housing affordability.

As a result of the limited success that these top-down macroeconomic and market-based approaches have had in addressing the growing problem of housing affordability, this project will examine how a better understanding of the

microeconomics of housing development can contribute to the debate on how to generate more affordable housing.

CHAPTER 1: RESEARCH PROJECT OVERVIEW

As noted in the introduction, Vancouver's housing affordability crisis is no longer only affecting lower income individuals. Middle-income groups, such as would-be first time homebuyers and a growing number of young middle-class families, are finding it increasingly difficult to afford a home in Vancouver. To date, most research in the area of affordable housing has focused on housing market issues, affecting the poor and low-income, such as developing low-income and social housing. Substantially less research has been conducted on how housing affordability is affecting moderate-income individuals and middle-class families, and what can be done to address this growing problem. With this in mind, the objective of this research project is to examine how a better understanding of the microeconomics of housing development can contribute to the development of more affordable housing for the growing number of middle income groups having difficulty obtaining suitable housing in Vancouver.

As will be revealed in this research project, the debate regarding how to create affordable housing no matter the income group is largely between those who believe planning regulations can be used to increase housing affordability, and those who believe that liberalizing land-use policies in favour of a completely market based housing system would spur the development of more affordable housing. Both of these arguments, however, focus on the macroeconomic forces affecting housing affordability, neglecting to take into consideration the

underlying microeconomics of housing development and how they can be better understood and improved upon to create more affordable housing. As such, this research project examines the underlying microeconomics of housing development for ways to potentially decrease development costs, thus increasing housing affordability.

Proforma based analysis is used in this research project to examine the various microeconomic costs associated with housing development, and how the costs can be reduced to make housing that is being generated more affordable. Construction, permitting, marketing and financing costs are just a few examples of the numerous microeconomic housing development costs that are explored using proforma analysis in this research project. These and other various development costs are examined for potential cost efficiencies in order to help increase the affordability of the housing being developed. The cost effectiveness required to make the housing being developed more affordable can be achieved in a number of different ways. Finding construction efficiencies and changing government policy to facilitate the development of more cost effective housing are just a few examples of the different ways in which housing development costs can be improved upon. Examining the microeconomic costs associated with housing development also opens up these development costs to debate with different parties not usually involved in the development process, such as academics and housing advocates, who can potentially help to improve development cost efficiencies by bringing in new perspectives and creative ideas. In the end, the intent of conducting this research is to examine the

microeconomics of housing development in a way that has yet to be explored, with the aim of uncovering new ways to help address Vancouver's growing housing affordability crisis.

The proforma analysis conducted as part of this research project investigates the viability of utilizing both policy-related and market-based mechanisms to generate market-based affordable housing at UniverCity, a new residential community currently being built next to Simon Fraser University's Burnaby Mountain campus. Proforma analysis was selected as the analytical framework for this research project to provide the economic data necessary to explore how housing generated by each of the two different mechanisms is made increasingly affordable in comparison to traditional market-based housing development. The objective of this research is to not only examine the ability of each mechanism to generate market-based affordable housing, but also to explore the use of proforma analysis as a tool to examine the various microeconomic costs associated with housing development. Proforma analysis highlights and examines all of the individual costs which make up a housing development, from construction to profit, opening up expensive status quo building practices and policy inefficiencies to debate and encouraging them to be improved upon with the objective of making housing more affordable.

UniverCity is a compact, mixed-use, transit-oriented community, presently being developed adjacent to Simon Fraser University's Burnaby Mountain campus. Founded on the four cornerstones of sustainability: Equity, Economy, Education, and Environment, *UniverCity* is envisioned as a model community

and as a testing ground for innovative sustainable development strategies (SFU Community Trust, 2009). Some of the of projects, policies, and programs which have already been implemented at *UniverCity* include comprehensive green building requirements, a community transit pass program, innovative stormwater management, and initiatives to maintain housing affordability (SFU Community Trust, 2009). *UniverCity* is currently home to roughly 3,000 residents and is estimated to have a population of 10,000 people at full build-out. Revenues from the development of *UniverCity* are placed in an endowment fund used to support teaching and research at SFU.

UniverCity was selected to explore the potential of using proforma based microeconomic analysis of housing development as a tool to facilitate the generation of affordable housing for a number of reasons. SFU Community Trust, unlike traditional developers, has been mandated to create a cutting-edge sustainable community, a sort of 'living laboratory' where new approaches to urban issues, such as affordable housing, are to be applied and tested. What is learned at *UniverCity* is meant to serve as model of sustainable development, which can be replicated by other decision makers in different communities attempting to address similar issues. In light of the SFU Community Trust's mandate, if the findings of the research project are favourable they may be implemented at *UniverCity*, providing much needed affordable housing in the community, as well as serving as a real-life model which can be reproduced by other municipalities across the Metro Vancouver attempting to generate more affordable housing. In addition, the development parcels at *UniverCity* have

already been individually zoned for building form and density, providing the framework necessary for in-depth proforma based microeconomic analysis of each potential housing development. What is more, as an employee of the SFU Community Trust, I have access to information, data and expertise that is integral to completion of this research. Without access to these resources this project would not be possible.

In the end, the final results of the proforma analysis conducted for this project are not the most integral component of this research. While it is valuable to understand the final estimated cost of housing built utilizing market-based mechanisms, the most useful information gained from this research project comes from understanding all the individual inputs and resulting costs which make up the proforma analysis built to estimate the cost of building market-based affordable housing at UniverCity. Understanding the necessary inputs and underlying costs of housing development provides real insight into how housing affordability can be created. Academics, housing advocates and developers can then capitalize on the potential savings highlighted through proforma analysis in order to create more affordable housing. Understanding the microeconomics of housing development enables those interested in generating more affordable housing to do so in any type of environment, whether or not it is similar in situation to UniverCity, the test location used for this research project.

CHAPTER 2: LITERATURE REVIEW

The literature review for this research project discusses the major challenges in creating housing affordability, explores the debates on how to create housing affordability, examines how to evaluate housing affordability, and suggests the unexplored alternative of using microeconomic analysis of housing development as a tool to aid in generation of more affordable housing.

2.1 Challenges in Creating Housing Affordability

Vancouver's housing crisis, characterized by the growing need for more affordable housing, is an unintended symptom of numerous political policies and economic regulations, often favouring wealthier citizens. The most significant political and economic challenges to creating affordable housing include: globalization which has created growing income disparities; federal government withdrawal of housing funds; the unprofitability of building affordable housing under the current housing market, and; the commodification of the housing market. In discussing the economic challenges in creating housing affordability, this literature review establishes in general which macroeconomic obstacles to creating housing affordability are currently insurmountable, while exploring opportunities associated with utilizing microeconomic analysis of housing development to aid in the growth of more affordable housing.

One of the most fundamental macroeconomic challenges to increasing housing affordability is our current economic system, which “results in a very uneven distribution of wealth, leaving many with inadequate incomes to pay for the necessities of life at their cost of production” (Marcuse, pg 1, 2004).

Economic restructuring associated with globalization has seen highly skilled service sector jobs increase while formerly well-paid manufacturing jobs have been replaced with low-waged unskilled and semi-skilled jobs, which are often part time (Bunting et al., 2004). Associated with this loss of middle-income jobs, is the disappearance of the family-supportive wage where the head of the household earned enough money to support an entire family (Bunting et al., 2004).

Numerous academic sources have established that income inequality and the growing gap between the rich and poor, both of which have continued to grow over the past twenty years, are a significant contributor to the housing affordability crisis (Hulchanski, 2005; Marcuse, 2004; Moore and Skaburskis, 2005; Wilkie, 2007). Growth in income inequality is especially significant in relation to housing affordability because income is particularly important with regards to home purchasing power and mortgage assessment (Dalton, 2009). With lower, moderate, and middle-income families earning less and housing costs continuing to rise, the issue of growing income inequality caused by globalization presents a huge macroeconomic challenge for the development of more affordable housing.

Another significant macroeconomic challenge in developing more affordable housing is a lack of funding from senior levels of government. During the 1990s the Canadian federal government made massive cuts to housing funding in order to balance budgets and pay down debt (Shapcott, 2008; Wilkie, 2007). Decreased funding for social housing development is accentuated by the growing number of lower income household currently in need of this housing (Bunting et al., 2004). Further exacerbating affordability issues in Vancouver in particular, is the fact that British Columbia has the lowest per capita government spending on social housing of any province in Canada (Shapcott, 2008). While in 2009 and 2010 the government of British Columbia committed \$333.4 million to purchase and renovate 14 buildings creating 1,575 new social housing units, these were one-time budget expenses and on-going social housing still remains underfunded (BC Housing, 2011). Meanwhile, Statistics Canada data reveals that Vancouverites are also more likely than any other Canadians to exceed the affordability benchmark know as core housing need, an affordability benchmark highlighting households that spend more than 30% of their income on shelter. According to the 2006 Statistics Canada data, an unprecedented 17% of the overall population are living below the core housing need affordability benchmark in Vancouver (Vancouver Foundation, 2011). With currently little to no funding from senior levels of government, and no increases in funding expected in the near future, the only viable alternative for generating the necessary amount of affordable housing is through the private housing market.

Another macroeconomic issue, which also presents a significant challenge to the development of more affordable housing, is the housing market itself. Developers do not build affordable housing under the current market system because it is not profitable (Hulchanski, 2005). Most often developers seek to maximize their profits; therefore, tending to build product suited towards the highest end of the housing market, a location will permit. As a result, low and middle-income households with little wealth to stimulate demand for housing are largely ignored by the housing market (Hulchanski, 2005). For example, The Canadian Centre for Policy Alternatives (CCPA) highlights that during Vancouver's recent residential construction boom, most new development was aimed at the high end of the market, thus serving to intensify the affordability crisis (Lee et al., 2008). Higher-income groups, such as dual income households, drive up demand for luxury residential units, compounding affordability issues throughout the housing market (Bunting et al., 2004). What is more, affordable housing units are disappearing as it becomes more profitable to redevelop or renovate older low-cost urban housing, converting it into condominiums (Bunting et al., 2004). As a result of the unprofitability of affordable housing under the current market system, Vancouver is left with an incomplete housing system characterized by an insufficient amount of affordable housing.

Closely associated with the issues surrounding profitability of the housing market, the commodification of housing also presents a significant challenge in relation to housing affordability. Commodification of housing occurs when a

home is purchased for investment purposes rather than shelter. After the sharp downward correction that occurred in the international equity markets in 2000, private investors have been increasingly attracted to the property market, as it has been seen as less volatile and risky in comparison to the stock market (Yu, 2006). Commodification of the housing market is deepening as outside actors, such as foreign investors and market speculators, seek a quick profit (Marcuse, 2004). Housing affordability has been negatively impacted by commodification, resulting in a “housing industry and a housing system geared to meet the needs and preferences of those willing and able to pay the most, and uninterested in the needs of those unable to pay even the least, not compensated by the very limited role of government in meeting those housing needs that the provisions of housing through a profit-driven market cannot supply” (Marcuse, pg 2, 2004).

Condo speculation, international investment and the purchase of vacation or secondary properties are all examples of the types of housing commodification that has pushed housing prices out of the reach of many Vancouverites (Rothberg, 2008). As such, the commodification of Vancouver’s housing market has created housing that is desirable for investors, but not necessarily suited to or affordable for residents who work and live in the city.

While it is important to acknowledge their effect on housing affordability, globalization, growing income disparities and a lack of federal housing support are macroeconomic issues requiring complex policy initiatives by federal and international governments. Presently these macroeconomic challenges offer few

opportunities for addressing housing affordability in Vancouver and are therefore not pursued further in this paper.

2.2 Debating How to Create Housing Affordability – Planning Regulation Verses Land-Use liberalization

The debate regarding how to create market-based housing affordability has largely been between those who believe that strengthening planning regulations is the most effective way to generate affordable housing, and those who contend that liberalizing current land-use policies and planning regulations with more reliance on the market will ultimately make housing more affordable. At the crux of this debate is a disagreement over whether or not the housing markets require more or less regulation to facilitate the development of more affordable housing. On the one side of the argument, stronger market-based planning regulations, largely based on the urban containment principals known as Smart Growth, are currently being implemented to address issues of housing affordability. Smart Growth theory, principals and regulations are informed by the best practices in planning and focus on controlling growth, encouraging urban revitalization, land preservation, bettering planning practice, increasing transportation choices and creating affordable housing (Howell-Moroney, 2008). Alternatively, land-use libertarians argue that unfettered markets allocate resources, such as affordable housing, most effectively and that increased regulation will lead to higher housing costs.

While their views on implementation differ, both increased regulatory planning supporters and land-use libertarians focus on the private housing

market to deliver affordable housing. The debate between these two groups centres mainly on how much the housing market should be regulated in order to create more affordability. The problem is, by focusing on larger scale issues related to the supply and demand of housing, this debate fails to take into consideration how the actual cost of producing housing affects affordability, and what can be done to construct housing more efficiently so that the end product is more affordable. This third point of view, which focuses on creating more affordable housing by uncovering efficiencies thorough the development process, is currently missing from the debate on how to create housing affordability. As such, this research project focuses on exploring the use of proforma based microeconomic analysis to reveal unknown housing development efficiencies in an attempt to facilitate the generation of more affordable housing.

It is well established that those in favour of liberalizing land-use policies believe that planning regulations restrict the supply of land for new development, therefore increasing the cost of housing (Cox, 2008; Demographia, 2008; O'Toole, 2000; O'Toole, 2007). On the other hand, those in favour of implementing stronger lands-use polices and planning principals contend that planning regulation, such as density bonusing and inclusionary zoning, can generate increased value, a portion of which can be captured and used to fund the development of more affordable housing (Adin and Buchan, 2008; Alexander and Tomalty, 2002; Boyle et al, 2004; Gurran, 2008; Ho, 2006; Howell-Moroney, 2008; Johnson and Talen, 2008; Larsen, 2005; Sewell et al., 2003). While access to new exurban land may provide slightly cheaper suburban housing, it

does little to provide affordable housing in pricier centrally located neighbourhoods, where this type of housing is needed the most. In comparison, planning regulations have been used in different locations and situations to increase density, while also generating affordable housing, which otherwise would not have been developed. While current planning regulations, as they have been implemented to date, have been successful in generating housing affordability for the growing number in need, their effect has not been widespread. As such, this research project takes a bottom up approach, exploring how the root costs and underlying microeconomics of housing development can be improved upon to generate more affordable housing.

Opponents of stronger planning regulations and the implementation of urban containment boundaries argue that housing price inflation is the result of the imposition of restrictive land-use regulations (Dawkins and Nelson, 2002). These regulatory detractors believe that land use regulations, such as urban growth boundaries, create an artificial shortage in land, resulting in land rationing, leading to increasing housing costs (Cox, 2008; Demographia, 2008; O'Toole, 2000; O'Toole, 2007). They also argue that urban containment regulatory measures, such as Smart Growth, fail to permit an increase in the supply of housing necessary to keep housing costs from escalating (Cox, 2008; Demographia, 2008; O'Toole, 2000; O'Toole, 2007). However, this argument makes the case that the supply of land and resulting price of land are the most significant determinants in relation to housing price, failing to take into consideration the other numerous cost which affect housing prices.

Regulatory planning critic Randal O'Toole blames Metro Vancouver's affordable housing crisis on the region's growth plan and associated land-use restrictions (2007). However, O'Toole overstates the influence Metro Vancouver's growth plan has had on housing affordability. During early implementation of the growth plan many Metro Vancouver municipalities fought hard against tougher growth restrictions. As a result of negotiations, the plan's regulations were watered down to satisfy all parties involved, and what was adopted ended up deviating only slightly from projected growth trends, which regional planners originally identified as unfavourable (Tomalty, 2002). Similarly, other urban containment detractors have argued that Smart Growth planning policies are responsible for higher housing costs in Portland (Demographia, 2008). However, Dawkins and Nelson found that regional economic conditions had a much larger effect on the housing market than constraints imposed by Oregon's urban containment policies (2002). In fact, the rapid rise seen in Portland's housing costs can be attributed to increased employment and income growth, and thus are not related to the implementation of Smart Growth regulations (Dawkins and Nelson, 2002). Also not considered by those in favour of liberalizing land-use policies is the complexity of the housing market. Housing markets are made up of numerous submarkets. The cost of housing in a centrally located neighbourhood is not likely to be affected by the supply of cheaper suburban housing (Gurran, 2008). As such, an increased supply of new housing on the urban fringe is unlikely to affect the price of the entire housing market. With this in mind, the microeconomic housing analysis conducted as

part of this research project takes a holistic approach to understanding housing affordability, exploring all of the costs that make up a housing development for ways in which they can be improved upon, and not just focusing on the supply of developable land and how it affects housing prices.

Liberalization of land-use policies and regulations increases sprawl as developers capitalize on cheap land at the urban fringe, turning it into suburban housing. The problem is, in the long term, urban sprawl has a negative effect on the affordability of housing by increasing transportation costs, reducing diversity of housing choice, inefficient use of lands and increasing infrastructure costs to taxpayers (Alexander and Tomalty, 2002; Gurrán, 2008; Ho, 2006). Moreover, those in favour of softening land-use policies and planning regulations often neglect to state the negative effect land speculation has on housing affordability. By purchasing large swaths of rural land surrounding cities and holding onto it for long period of time, sometimes more than a decade, development corporations drive up the cost of land, decreasing affordability for prospective buyers (Sewell et al., 2003). Rather than building outwards in a futile attempt to create affordable housing, municipalities are realizing they can utilize Smart Growth principals and innovative zoning mechanisms to address the issue of housing affordability. For example, the City of Burnaby has had great success using density bonusing, permitting developers to build bigger and more profitable projects in exchange for the provision of affordable housing (Ho, 2006). In a similar manner, proforma based microeconomic analysis can be used to explore

how other policies, similar to density bonusing, can be implemented to facilitate the development of more affordable housing.

Planning systems are often used to provide what markets cannot, such as affordable housing (Beer et al., 2007). In other words, “planning is a reaction to market failures, particularly in relation to externalities (costs and benefits), provision of quasi-public goods and problems of disequilibrium” (Beer et al., pg 18, 2007). Moreover, “markets cannot guarantee efficiency nor can they be relied upon to make judgments about fairness and equity” (Beer et al., pg 18, 2007). As such, a range of regulations and incentives are both justified and necessary to ensure the development of affordable housing (Beer et al., 2007). It is well established in this literature review that both current market conditions and planning regulations have been unable to generate a sufficient amount of affordable housing, as is evidenced by Vancouver’s current housing crisis. With this in mind, this research project focuses on how in-depth examination of the microeconomics of housing development by local governments, and various other stakeholders, can uncover efficiencies in the market not currently being utilized, which can be capitalized upon to ensure the development of a sufficient and equitable supply of more affordable housing.

2.3 Proforma Analysis: Evaluating Housing Development Costs

As noted in the beginning of the literature review, there are a number of significant political and economic challenges, such as globalization and growing income inequality, that are extremely hard to overcome when attempting to create more affordable housing. It has also been noted, that the current debate

on how to create more affordable housing, which focuses on how to best regulate the housing market, while is the most viable option at this time, is limited by its macroeconomic focus and reliance upon the supply and demand of the housing market. As such, the final section of this literature review highlights how proforma based economic analysis is used to calculate and evaluate the costs associated with housing development, and illustrates how this type of analysis can be used to help generate more affordable housing.

Given that the private housing market is so deeply ingrained in our society, the question is, how can a better understanding of the microeconomics of housing development, which determines the base costs of the housing market, contribute to the debate of how to generate more affordable housing? For the purpose of this paper, the microeconomics of housing development is defined as the smaller individual costs, which collectively make up the total cost of developing housing. For example, construction, permitting, marketing, financing and profit are just a few of the many different microeconomic development costs that collectively make up the final consumer price of market-based housing. As such, this research project uses proforma bases analysis to examine various microeconomic costs associated with the development of housing at UniverCity. Each cost is examined to see how it can be improved upon in the attempt to make the housing that is being built more affordable. Construction efficiencies and policy changes are just a few examples of the many initiatives that can be implemented to reduce various housing development costs in order to increase overall housing affordability.

In addition to revealing different efficiencies that can be improved upon to make housing more affordable, examining the various microeconomic housing costs associated with housing development also opens up these costs to debate with different stakeholders who are not usually directly involved in the development process. Housing advocates, academics and concerned citizens are just a few examples of various stakeholders who are not typically directly involved in the development process. These diverse stakeholders could bring new and innovative points of view to the debate on how to generate more affordable housing, if they were more informed of the varied microeconomic costs which form the foundation of housing development, and how these costs affect housing prices and affordability. It should be noted, that microeconomic proforma analysis of housing development has traditionally been the sole domain of developers, whom have used this tool to assess the profitability of building new housing. With this in mind; it is the intent of this research project to examine the microeconomics of housing development through the lenses of affordability, rather than for traditional developer profit, with the aim of uncovering new and innovative ways to assist in the generation of more affordable housing.

While macroeconomic issues, such as the commodification of housing, are next to impossible to stop due to their entrenchment in housing the market, which is supported by our current economic and political systems. If more groups beyond those directly involved in the real estate industry begin to have better understanding of the underlying microeconomics economics of real estate development and investment, there is an opportunity to increase the affordability

of new developments by focusing on the cost effectiveness of housing development rather than profitability.

In the development world proforma analysis is used to conduct a detailed breakdown of the all the hard and soft costs associated with the construction of new market housing. Hard costs are expenses associated with land acquisitions and construction; soft costs are expenses associated with design, financing, permitting and regulatory approvals. To determine the economic feasibility of a housing project all hard and soft costs are put into a proforma, an economic model that estimates entire cost of the project - usually expressed as price per square foot. Developers then use the estimated price per square foot of the project to determine if they can build the new housing project at a cost less than market value, sell it, and make an acceptable profit. In the case of developing affordable housing, a proforma can be used to determine if a project can be built at a cost less than market value and sold below market price. Due to the dynamic nature of housing development proformas are site; time; and supply and demand specific. As such, the results of each individual proforma analysis cannot be duplicated in different locations, but can provide valuable economic data when compared to other proformas for the same development.

After conducting an extensive search I was unable to find examples in either the academic literature or non-academic literature of research projects having used proforma analysis to explore the costs associated with the development of market housing or affordable housing. This is likely due to the fact the development industry itself conducts most of the economic analysis

necessary for new housing projects. Often times expert consultants are employed by developers to carry out this type of economic housing analysis, depending upon the level of sophistication the developer requires for the project in question. In light of the costs associated with carrying out this type of housing development related economic analysis, the data generated from most proforma analysis is not readily available to the general public. The development industry tends to guard access to their proforma analysis to defend against the average citizens, governments and competing interests from finding out how much profit developers are making from new housing developments in order to maintain their competitive advantage. In spite of this, during my research I was able to track down a few examples of development proformas through my work at the SFU Community Trust. What is more, one of my colleagues put me in contact with a land economist who is an expert in building proformas. I worked with this consultant to create my own development proformas, which I have use as part of my research project to analyze the feasibility of constructing market-based housing and affordable market-based housing at UniverCity. It is my intent to reveal how proformas can be used as a tool by governments, non-profits, academics, and those people outside the development world to better understand the microeconomic of housing development in order to facilitate the debate on how to create more affordable housing. In the end, a better understanding of the underlying economics of housing development by all parties involved directly and indirectly in the development process will facilitate the

construction of more efficient buildings, thus enabling the development of more affordable and sustainable housing.

CHAPTER 3: RESEARCH DESIGN

3.1 Using Microeconomics To Understand How To Develop More Affordable Housing

As explained in the introduction, the intent of this research project is to examine how a better understanding of the microeconomics of housing development can contribute to the debate on how to generate more affordable housing. The feasibility of analysing the microeconomics of housing development to aid in the generation of more affordable housing is explored in this research project by conducting proforma based analysis of the soft and hard costs associated with building housing at UniverCity. Soft costs are related to the planning, design, financing and marketing of housing development. Hard costs are associated to the actual construction of housing.

Four proformas were built for this research project to facilitate a comparative analysis between the various microeconomics at work during the development process with the intent of uncovering how affordability is created. The first of the four proformas constructed for this research project is based on a housing development employing two common policy-related affordable housing mechanisms. The second proforma is based on a purely market-based affordable housing mechanisms inspired by Cohousing. The two remaining proformas are based on status quo housing development, utilizing the same form and development sites as the first two proformas, providing the comparative

analysis necessary for this research project. For this research project, market-based mechanisms are defined as policies or initiatives which are completely reliant on the market to generate more affordable housing, not requiring funding or subsidies from governments, charities or other revenue sources for implementation. The policy related affordable housing mechanisms selected for the analysis portion of this research project are density bonusing, joint partnership and resale price restrictions for the first site, and a purely market-based affordable mechanism inspired by Cohousing for the second.

In order to determine the microeconomics at work in association with each market-based mechanism, each is individually analyzed in comparison to a traditional status-quo market-based housing development. To achieve this, a proforma consisting of identical and comparable attributes has been constructed for each market-based affordable housing mechanism, in order to determine the projected cost of housing built under each mechanism, while also allowing for comparative analysis between each mechanism. Two additional proformas were also constructed in order to estimate the cost of developing traditional status-quo market-based housing. These additional proformas allow for further comparative analysis between the housing developed using market-based mechanisms and traditionally developed housing. All four of the proformas created for this project are based on parcels of land at UniverCity that have been zoned for specific densities, but which have not yet been constructed upon. The success of each mechanism will be determined by its ability to deliver housing which the collective costs less than traditional market-based housing built at UniverCity. However, it

is not the success of each mechanism to produce more affordable housing which is the main focus of this project, but what can be learned from a better understanding of the different microeconomics processes that facilitated this affordability, and how these processes can be learned from, expanded upon and applied in different situations to generate more affordable housing.

The first mechanism that was selected for use in the feasibility analysis section of this research project is a mixed-method, policy-related affordable housing mechanism consisting of density bonusing, joint partnership and resale price restriction mechanisms. This mixed-method mechanism capitalizes mainly on the increased value associated with up-zoning and densification to generate more affordable housing. The mixed-method mechanism was created and selected for use as part of the feasibility analysis portion of this research project as it reveals a number of ways housing can be made more affordable. Firstly, the mixed-method mechanism has already proven to be very successful in developing more affordable housing, a direct result of capitalizing on three different but complementary approaches to improving affordability. Moreover, the mixed-mechanism was selected because it is primarily based upon density bonusing, which has been successfully used for decades to generate community amenities such as affordable housing (CMHC, 2007; Curran and Wake, 2008). What is more, the province of British Columbia already has density bonus regulations in place, making it cost effective to use (Government of B.C., 2004). Furthermore, density bonusing encourages developers to build more affordable housing, as the extra density they receive in exchange makes their development

even more profitable, a portion of which is used to develop more affordable housing (CMHC, 2007; Curran and Wake, 2008). The joint partnership aspect of this mix-method mechanism is most often used to decrease upfront land costs, reduce the cost of development cost charges and streamline the development application process, helping enable the development of more affordable housing (Curran and Wake, 2008, Government of B.C., 2004; Government of B.C., 2005). Finally, the mixed-method mechanism also uses resale price restrictions to maintain over time the affordability that was created by the other two mechanisms (Adin and Buchan, 2008; Curran and Wake, 2008; Government of B.C., 2005).

The second mechanism selected for use as part of the analysis portion of this research project was inspired by Cohousing, a cooperative form of housing development that utilizes joint resources and a non-profit development model, and is based on philosophical ideals about community participation and communally focused urban design. (Cohousing Assn. of USA, 2009; CMHC, 2005; Williams: 2008). The Cohousing mechanism was chosen, not for its philosophical underpinnings, but for the way it reveals a number of different ways housing can be made affordable. Firstly, Cohousing relies completely on the market and existing land-use regulations to deliver more affordable housing, so it requires no additional funding to implement. What is more, by lowering or removing traditional development costs, such as marketing costs, financing costs and profit, Cohousing developments can be significantly more affordable than traditional housing developments (CMHC, 2005; Williams: 2008). In addition,

Cohousing is also a bottom-up means of creating affordable housing where individuals can utilize their joint equity to construct housing that is more affordable than traditional developed market-based housing (CMHC, 2005; Williams: 2008).

Market-based mechanisms and policies have been and can continue to be successful used to create more affordable housing. However, this paper will demonstrate that understanding the microeconomics of housing development, as illustrated by examining each of the market-based mechanisms described above, gives all parties involved the tools and language necessary to appreciate the fundamental costs associated with housing development, enabling them to work towards achieving greater housing affordability. In the end, it is the process of understanding how housing can be developed more efficiently that is most important to the creation of more affordable housing. Once revealed, these development efficiencies can in turn be use to inform polices and develop initiatives necessary to facilitate the development of more affordable housing on a larger scale.

Based upon the results of the analysis section of this research project, this paper concludes with a series of recommendations highlighting the successes and challenges associated with using proforma based microeconomic analysis to aid in the development if more affordable housing. Organizations of all sizes, from the federal government and local municipalities to non-profit housing organizations and other housing advocacy groups, can use the findings of this report and its recommendations to help increase the supply of more affordable

market-based housing in their communities. Moreover, this research also contributes to the market-based affordable housing literature and can be used by other academics attempting to find answers to similar urban housing problems currently plaguing our cities.

3.2 Parcel Selection for Microeconomic Analysis of Traditional Market-Based and Affordable Market-Based Housing at UniverCity

Parcels 23 and 27 are located within phase 3 of UniverCity's East Neighbourhood, the next phase of the project planned for development (Figure 1). Both parcels 23 and 27 were selected as testing grounds for the mixed-method and Cohousing market-based mechanisms being examined as part of this research project, as they are two of only three pieces of land targeted for development at UniverCity in 2011 (SFU Community Trust, 2010).

Figure 1: UniverCity Masterplan and Phasing



2011, SFU Community Trust

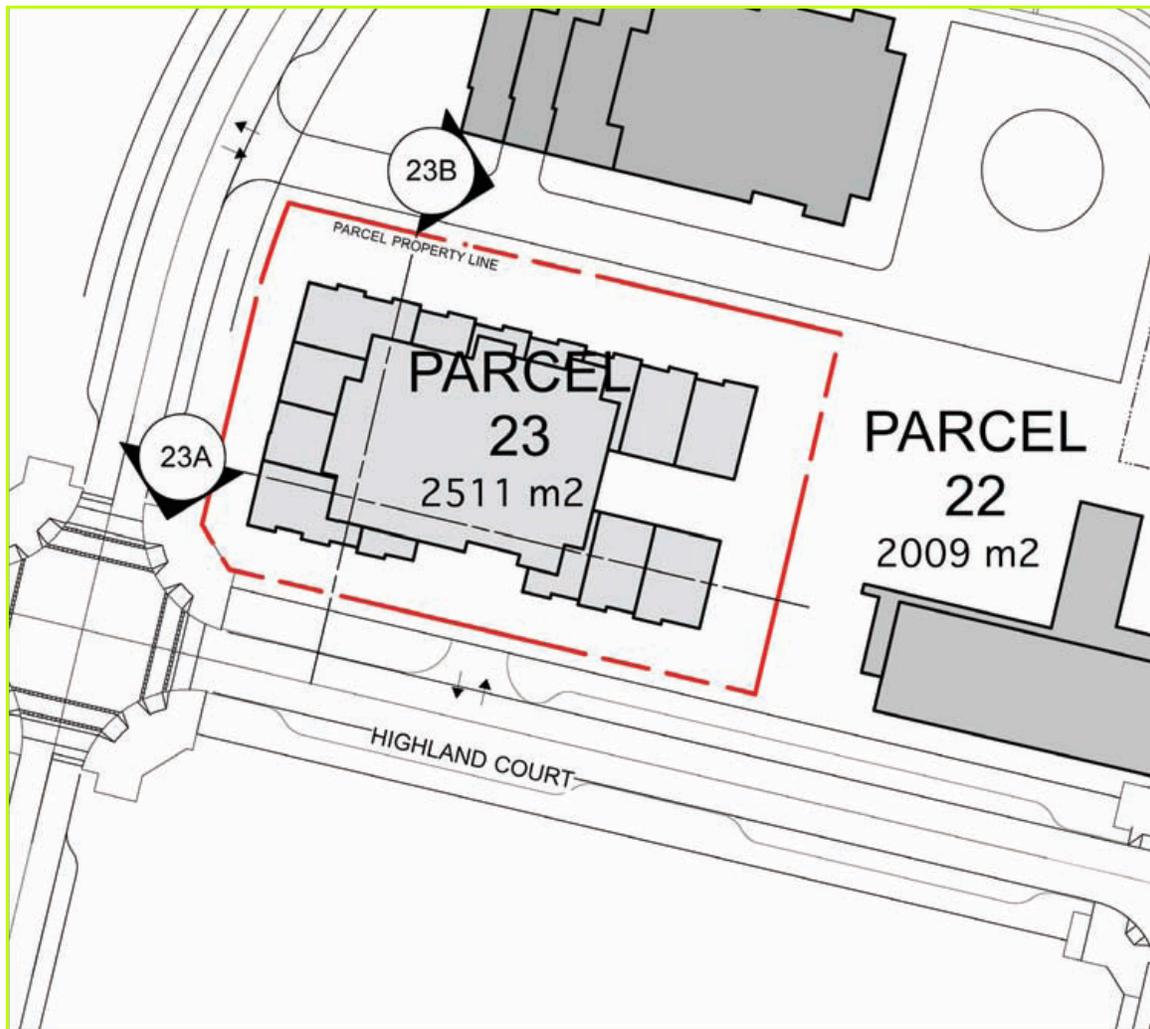
A conscious decision was made to focus on parcels of land at UniverCity scheduled to complete construction around the time this research project was completed. This timing allows for the findings of this research project to be analyzed in comparison with the housing that is eventually developed on parcels 23 and 27. Not only would this comparison test the validity of the data gathered for this research project, but would also provide valuable real world data that could be used to help improve housing affordability at UniverCity and across Metro Vancouver.

For this research project, each market-based mechanism being utilized was paired with a piece of land at UniverCity suitable for developing the appropriate housing type, ensuring accurate results based on real world

opportunities, constraints and regulations. As such, parcel 23 at UniverCity was selected to explore and examine the mixed-method affordable housing mechanism, while parcel 27 at UniverCity was selected to explore and examine the Cohousing mechanism.

Parcel 23, located at the northeast corner of University Crescent and Highland Court, was deemed to be the most appropriate option for testing the mixed-method market-based mechanism for a number of different reasons (Figure 2). Most importantly, parcel 23 is zoned for the construction of a residential tower. The ability to build a high-rise residential tower is essential to enabling the use of density bonusing, on which the mixed-method mechanism relies upon to increase developer's profit, some of which is in turn used to facilitate the development of more affordable housing. Parcel 23 is a good candidate site for increased density as it is located near the centre of the East Neighbourhood, allowing it to take on the extra height required by density bonusing without affecting the views and property values of any other towers built along University Crescent. Finally, building a residential tower on parcel 23 will allow for the construction of smaller more affordable units suitable for students, young couples and elderly singles, many of whom are finding it increasingly difficult to afford suitable housing.

Figure 2: Parcel 23

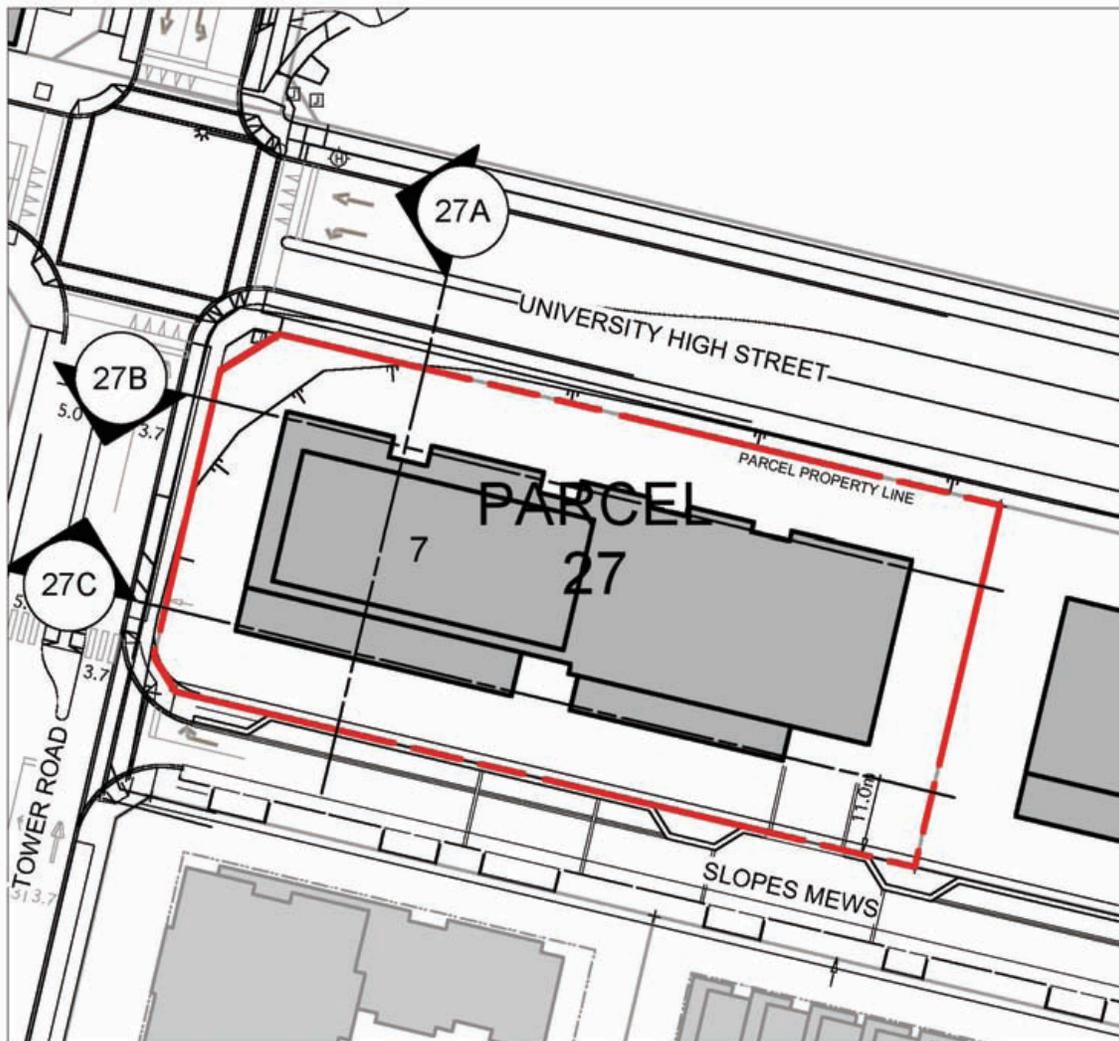


2011, SFU Community Trust

Parcel 27, located at the southeast corner of Tower Road and University High Street, was selected as the most fitting option to test the Cohousing market-based mechanism for a number of different reasons (Figure 3). Firstly, parcel 27 is zoned for the construction of a mid-rise residential building. Cohousing complexes are most suitably built as mid or low-rise building forms to accommodate the required joint facilities and larger common areas. Secondly, mid-rise residential buildings also have the ability to be built with a larger variety of unit sizes suitable for singles, couples and families. This variety of unit type is

essential in attracting the diverse community desirable in most Cohousing communities. Finally, mid-rise buildings can be built using wood frame construction or concrete. Using wood frame construction rather than concrete will help to further increase the affordability of a Cohousing project on parcel 27.

Figure 3: Parcel 27



2011, SFU Community Trust

3.3 Using Microeconomics To Understand How To Develop More Affordable Housing At UniverCity

Proforma based analysis is used extensively throughout the development industry to determine the economic feasibility of constructing new housing and other types of buildings. In order to help create the development proformas required for this research project, I was put into contact with the principal land economists of a Vancouver based consulting firm which provides services to clients involved in land-use planning, real estate investing and real estate development. Through consultation with this land economist, and my colleges at the SFU Community Trust, I was able to determine which construction, development and financing cost inputs needed to be included in the proformas created for this research project in order to accurately evaluate the costs and feasibility of constructing both affordable market based housing and traditionally developed housing at UniverCity.

The remaining data inputted into the proformas constructed for this research project was collected from a number of different sources. The general construction and development data required for the proformas was established in consultation with the land economist and my colleges at the Trust. The UniverCity site specific construction and development data necessary for each proforma was determined through discussions with fellow Trust staff, in addition to consulting UniverCity's design guidelines, planning and policy documents. Site-specific data required by local bylaws and other policy regulations was established by referencing City of Burnaby and Metro Vancouver planning and policy documents. Data related to financing was determined by contacting a cost

consultant at a local development management firm, and by reviewing Bank of Canada's interest rates, as well as other major Canadian financial institutions interest charges.

The data collected for this research project is presented throughout the analysis section of this paper. The results revealed in the analysis section are then reviewed in the discussion section of this project. Both the analysis and discussion sections review the quantitative data generated by the four different proformas constructed to evaluate the economic feasibility of developing affordable housing at UniverCity. The analysis and discussion portions of this research project are guided by a series of questions which were used to explore and examine this quantitative data. The questions that were used to guide the analysis and discussion sections of this research project are:

- How can a better understanding of the microeconomics of housing development contribute to the debate on how to generate more affordable housing?
- Can utilizing proforma-based analysis to examining the underlying microeconomics of housing development reveal ways to decrease housing development costs, thus increasing housing affordability?
- Can the removal of soft development costs related to the commodification of housing uncovered through the proforma analysis of housing development facilitate the development of more affordable housing in comparison to more commonly used policy-related mechanisms?

- How do the removal of soft development costs related to the commodification of housing uncovered through the proforma analysis of housing development compare to more commonly used policy-related mechanisms in creating affordable housing?
- What are the opportunities and challenges associated with using profoma based microeconomic analysis as a tool to aid in the development of more affordable housing?

CHAPTER 4: THE PROFORMA ANALYSIS

As explained in the literature review, there are two distinct groups with differing opinions on how to create housing affordability. The first camp believes that strengthening planning policy and regulations will enable government and planners to facilitate the development of more affordable housing through the housing market. By contrast, the other group deems that liberalizing land-use planning policies, allowing for a less encumbered housing market, will increase the supply of housing resulting in improved affordability. The problem with both of these arguments is that they focus predominantly on how macroeconomic issues are impacting the cost of housing, while failing to consider how the underlying microeconomics of housing development also affect housing affordability. With this in mind, the analysis and discussion portions of this research project focus on exploring a how a better understanding of the microeconomics of housing development can be used to improve the efficiency of housing development, facilitating the creation of more affordable housing.

Understanding the financial nuts and bolts of housing development is critical in creating more affordable housing. The cost of housing is determined by two factors, the collective cost of developing the housing, and the profit a developer can sell the finished housing for. Building costs consists of the total expenditures required to construct a new home, including everything from land purchase and construction costs, to professional consulting services and

financing. Developer profit is the difference between the cost to complete construction of the home, and what the developer is able to sell that finished home for. While these are the two most important factors in determining the cost of housing, they are seldom thoroughly examined or rigorously explored by either market-fundamentalists or regulatory champions in their research and writing on housing affordability. As such, if affordable housing advocates, belonging to disciplines outside the development industry, were more aware of the actual underlying microeconomics costs of building housing, they would be able to aid in the development of more affordable housing by suggesting more efficient means of construction, or supporting the implementation of policies which enable housing to be built at lower costs. With this in mind, the following sections of this research paper explores the use of proforma analysis as a tool to better understand and reveal the cost of traditionally developed housing, as well as housing developed using market-based affordable housing mechanisms. Used as a tool in this way, the goal is to reveal how proforma analysis makes the development process more transparent to those outside the industry, facilitating dialogue, and bringing new ideas into the industry that can be used to facilitate the development of more affordable housing.

It should be noted that the complexity of housing development results in proformas are site, time, and supply and demand specific. As such, the findings of the individual proformas constructed for this research project cannot be duplicated in different situations. What is more, the proforma analysis conducted for this research project is a theoretical exercise, meant to demonstrate how this

type of analysis could be used to create more affordable housing using realistic examples from our region.

4.1 The Cost of Traditional Market-Based Housing: Parcel 23 Proforma Analysis

The following section of this research project uses proforma analysis to establish the cost of building traditional market-based housing on parcel 23 at UniverCity. Parcel 23 is zoned to accommodate a single 12-storey residential tower sitting on a double fronting townhouse podium base (SFU Community Trust, 2010). To build a proforma that will accurately estimate the costs, revenues and profitability of constructing a traditionally built 12-story tower on parcel 23 a number of different development parameters and statistics need to be taken into consideration. First, both the site area and floor area ratio (FAR) need to be established in order to determine what size of building can be constructed. Multiplying the site area by the floor area ratio determines the maximum gross building area a developer can legally construct. In the case of parcel 23, the site area is 27,029 sq. ft. and the FAR is 2.34, which when multiplied together allows the developer to construct a gross building area of 63,248 sq. ft. (Table 1). This simple equation illustrates how FAR is used by planners and governments to control the size and density of new buildings and neighbourhoods.

To examine the feasibility of building a tower on parcel 23 the developer must utilize the proforma to establish a building's sales income, which is based upon the building's saleable area, and is in turn dependent upon a building's

efficiency. Building efficiency for developers is the percentage of floor space in the building that is saleable for profit, and not dedicated to common spaces and infrastructure, such as: hallways, elevator shafts and mechanical rooms (Urban Development Institute, 2009). A higher building efficiency translates into a more profitable building for the developer. Architecture, building setback regulations, and floor plate restrictions are a few of the many factors that can affect a building's efficiency. It is generally accepted in the development industry that concrete high-rise towers should achieve a building efficiency of 87% to remain profitable (Urban Development Institute, 2009). In the case of parcel 23, an 87% building efficiency would allow for 55,026 sq. ft. of saleable area (Table 1). Based upon previous unit sales at UniverCity, the current resale market at UniverCity, and discussions with the Trust's planning staff, it was determined that units in a concrete high-rise tower on parcel 23 would sell for an estimated \$485 per square foot. As such, at \$485 per square foot, with 55,026 sq. ft. of saleable area, a 12-story tower on parcel 23 would gross an estimated \$26,687,435. After subtracting \$800,623 from the gross sale price to account for a 3% cost in sales commissions, net sales income from the building would be \$25,886,811 (Table 1).

Table 1: Parcel 23 Development Statistics – Traditional Market-Based Build

Site Area	27,029 sq. ft.
Floor Area Ratio	2.34
Maximum Gross Building Area	63,248 sq. ft.
Building Efficiency	87 %
Saleable Area	55,026 sq. ft.
Parking Requirement	1.1 Stalls/unit
Number of Units	95
Total Parking Stalls	105
Average Unit Size	579 sq. ft.
Price/sq. ft.	\$485
Price/Average Unit	\$280,920
Gross \$'s	\$26,687,435
Sales Commission (3%)	\$800,623
Net Sales Income	\$25,886,811

After establishing the potential sales income for parcel 23, the developer then needs to use the proforma to determine the estimated costs of constructing the tower to fully evaluate the profitability and feasibility of the project. There are four groups of costs that need be included in a proforma when evaluating the feasibility of constructing a new building: land costs, construction costs, development costs and financing cost.

The estimated cost for a developer to purchase parcel 23 is \$1,524,327 (Table 2). This price was established in consultations with the Trust, which is responsible for setting all UniverCity's land lease prices, and is based up previous land sales at UniverCity, as well as the current real estate market. A sale price of \$1,524,327 for parcel 23 also includes the Province's property transfer tax, as well as other closing costs.

Table 2: Parcel 23 Land Costs - Traditional Market-Based Build

Price/sq. ft.	\$55
Land Purchase Price	\$1,486,595
Land Price/Unit	\$15,648
Property Transfer Tax	\$27,732
Other Closing Costs	\$10,000
Total Land Costs	\$1,524,327

Constructing a 12-storey tower on parcel 23 is estimated to cost \$13,981,106 (Table 3). This price is based upon a construction cost of \$210 per sq. ft., which was established in consultation with a land economist and my colleagues at the SFU Community Trust, and includes a 5% contingency of \$699,055 to protect the developer against cost overruns.

Table 3: Parcel 23 Construction Costs - Traditional Market-Based Build

Construction cost/sq. ft. (concrete)	\$210
Building Cost	\$13,282,051
Contingency (5%)	\$699,055
Total Construction Costs	\$13,981,106

There is a significant number of development costs associated with constructing a new residential tower on parcel 23. These costs range from project management and consulting fees, to permit and servicing fees (Table 4). For the proformas created for this research project, most development management and consultant fees are calculated as a percentage of construction costs. For example, construction management for parcel 23 is estimated to cost \$419,433, which is 3% of construction costs (Table 4). Other development fees,

such as building permits, sewer development cost charges and public art contributions, are set by Metro Vancouver, the City of Burnaby, and the Trust. Table 4 highlights the development costs which were included in the proforma that were used to accurately estimate the cost of building a traditional market-based concrete tower parcel 23. While there are additional development costs that could also be included in the proforma to aid in more precisely estimating the cost of building a tower on parcel 23, the level of sophistication contained in Table 4 is more than sufficient for this research project as all major development costs are accounted for, creating a strong basis from which to evaluate the microeconomics of the housing project. Moreover, all four proformas created for this research project include identical development costs, allowing each proforma to be accurately compared and analyzed with one and other. In the end, through proforma analysis it was estimated that there would be \$4,717,719 of development costs associated with building a market-based residential tower in parcel 23.

Table 4: Parcel 23 Development Costs - Traditional Market-Based Build

Construction Project Management (3% of construction costs)	\$419,433
Development Project Management (4% of construction costs)	\$559,244
Architect fees (3% of construction costs)	\$419,433
Engineering fees (2% of construction costs)	\$279,622
Other Consultants (2% of construction costs)	\$279,622
Research and Appraisal	\$15,000
Survey	\$10,000
Accounting	\$7,500
Legal (1,000 per Unit)	\$95,000
Insurance (\$1.25 per gross buildable sq. ft.)	\$79,060
Finance Fee (0.8 % of project costs)	\$172,075
Preliminary Plan Approval (\$2.05/\$1000 of construction costs)	\$28,661
Building permit fees (City of Burnaby rate)	\$120,645
Metro Vancouver Sewer Development Cost Charges (\$1,082/unit)	\$102,790
Public Art Contribution (\$1/gross sq. ft.)	\$63,248
Community Transit Pass Subsidy (\$405/unit)	\$38,475
Neighbourhood Utility Service Fee (\$1/gross sq. ft.)	\$63,248
Utilities During Construction	\$10,000
Property Taxes (City of Burnaby rate)	\$20,849
Advertising/Promotion/Show Suite (0.02% of gross revenue)	\$533,749
New Home Warranty, Homeowner Protection (\$1,750/unit)	\$166,250
Post Construction Strata Fee (\$1,000/unit)	\$95,000
Post Construction Customer Service (\$1,500/unit)	\$142,500
Corporate Overhead (2% of total project costs)	\$430,188
Miscellaneous Development Costs (2% of development costs)	\$94,354
Contingency (10% of development costs)	\$471,772
Total Development Costs	\$4,717,719

Financing and interest costs are a significant expense for most development projects. The financing costs for parcel 23, as calculated through the proforma analysis, equal \$1,286,265 (Table 5). Financing costs are dependent upon interest rates, which may fluctuate over time, and the length of time a developer needed the loan. If lenders perceive a project as lower risk, and the developer is well established in the industry, interest rates will be lower - translating into fewer borrowing costs for the project. If the developer is new, or

takes longer than planned to complete construction of a project, interest costs will increase. Both proformas completed for parcel 23 maintained the same interest rates, a planning time of 12 months and a construction schedule of 18 months, all of which are acceptable industry averages, in order to facilitate a fair comparative analysis between a traditionally built market-based tower and one build based on the mixed-method market-based mechanism. The financing costs for parcel 23 also takes into consideration an opportunity cost of \$683,668, which is the 8% interest a developer would have made on the \$5,758,436 equity used to fund the project should it have been invested conservatively. The developer expects to make this money back on top of an overall profit that equals at least 15% of the total project costs.

Table 5: Parcel 23 Financing Costs - Traditional Market-Based Build

Land Loan: Loan to Value Ratio	50%
Land Loan: Interest Rate	5.00%
Construction Loan: Loan to Cost Ratio	75%
Construction Loan: Interest Rate	3.75%
Interest on Equity (opportunity cost of equity)	8.00%
Interest Cost, Equity Investment	\$683,668
Interest Cost, Land Financing	\$109,561
Interest Cost, Construction Financing	\$493,035
Total Interest Costs	\$1,286,265

In the end, after taking into consideration all applicable costs, it was established through the proforma analysis that it would cost roughly \$21,509,416 to build a traditional 12-story concrete tower on parcel 23 (Table 6). Subtracting the total cost of production from the estimated net revenue for the project of \$25,886,811, would leave the developer with a profit of \$4,377,395, which is

20.35% of total project costs. Most developers use a benchmark minimum of 15 to 20% profit as a percentage of total project costs as the basis of whether or not to proceed (Urban Development Institute, 2009). With this in mind, the proforma analysis of parcel 23 has revealed it to be a very attractive opportunity for developing traditional market-based 12-storey high-rise tower.

Table 6: Parcel 23 Total Cost and Profit – Traditional Market-Based Build

Total Project Costs	\$21,509,416
Total Project Costs/gross sq. ft.	\$340
Total Project Costs/saleable sq. ft.	\$391
Profit: \$'s	\$4,377,395
Profit: % of Project Costs	20.35%
Total Equity Investment	\$5,758,436
Return to Equity Investment	76.02%

4.2 Examining the Microeconomics of Mixed-Method Market-Based Affordable Housing: Parcel 23 Proforma Analysis

Through proforma analysis, the next section of this research project examines the cost of building mixed-method market-based affordable housing on parcel 23 at UniverCity, establishing how and why it is less expensive for prospective owners to purchase than traditional market-based housing.

Implementation of the mixed-method market-based mechanism, in exchange for providing affordable housing on parcel 23, would allow a developer to take advantage of a density bonus, increasing the allowable density on parcel 23 from 2.34 to 2.6 FAR. Utilizing this increased density, the developer would make an estimated total profit of \$5,070,036, which is 21.40% of the total project cost (Table 7). In total, by utilizing the mixed-method market-based mechanism and

capitalizing on the density bonus the developer is able to increase the profitability of the project by \$692,641, which is 15.82% more profit than a traditional market-based housing development built on parcel 23 would generate.

Table 7: Parcel 23 Development Statistics - Mixed-Method Affordable Housing Mechanism

Site Area	27,029 sq. ft.
Floor Area Ratio	2.6
Maximum Gross Building Area	70,275 sq. ft.
Building Efficiency	87 %
Saleable Area	61,140 sq. ft.
Parking Requirement	1.1 Stalls/unit
Number of Units	109
Total Parking Stalls	120
Average Unit Size	561 sq. ft.
Price/sq. ft.	\$485
Price/Average Unit	\$272,043
Gross \$'s	\$29,652,705
Sales Commission (3%)	\$889,581
Net Sales Income	\$28,763,124

In addition, as part of the mixed-method mechanism, the developer would also enter into a joint partnership with the Trust to facilitate the development of more affordable housing on Parcel 23. As part of this joint partnership the Trust would reduce the purchase price of the land by 20%, increasing the developer's profit by \$409,882 to \$5,479,918. As part of the joint partnership agreement between the Trust and the developer, the money saved by reducing the cost of land to \$44 per square foot would be spent providing affordable housing on Parcel 23 (Table 8).

Table 8: Parcel 23 Land Costs - Mixed-Method Affordable Housing Mechanism

Price/sq. ft.	\$44
Land Purchase Price	\$1,189,276
Land Price/Unit	\$10,911
Property Transfer Tax	\$21,786
Other Closing Costs	\$10,000
Total Land Costs	\$1,221,062

By entering into both a joint partnership with the Trust and utilizing the available density bonus as part of implementing the mixed-method market-based affordable housing mechanism, a developer would see a total profit of \$5,479,918 from developing a residential tower on parcel 23 to, an increase of \$1,102,523 in profit in comparison to building a traditional market-based residential tower on parcel 23. As noted, the \$409,882 generated through the joint partnership between the trust and developer would go directly into funding the development of affordable housing on Parcel 23. By entering into a joint partnership with the developer the Trust is foregoing some of the potential profit it would be making to facilitate the development of more affordable housing at UniverCity. However, if the developer has to forego some of its profit to generate affordable housing, it is only fair that the Trust does the same. With this in mind, the question is, what percentage of the developer's remaining \$692,641 in profit realized as part of the density bonusing agreement should be used to fund the development of affordable housing on parcel 23, and how much affordable housing will that money create?

If the Trust, as part of implementing the mixed-method affordable housing mechanism on parcel 23 stipulated that 30% of the developers increased profit realized by granting the density bonus had to be used to develop affordable

housing on parcel 23, \$207,792 would be available for affordable housing. This would leave the developer with an increase in overall profit of \$484,489, which is an 11% raise in the overall gross profitability of the project. In the end, through use of both the density bonus and joint partnership agreement, \$617,674 would be generated to fund the development of more affordable housing on Parcel 23 by implementing the mixed-method mechanism.

There are a number of different ways the \$617,674 raised by utilizing the mixed-method market-based mechanism could be used to develop affordable housing on Parcel 23. For example, the average price of a 560 square foot bachelor apartment in a residential tower built on Parcel 23 was calculated to be \$272,043. \$617,674 could be used to fully purchase two of these small units, with some remaining funds left over to pay for closing costs, the property transfer tax and other miscellaneous costs. However, since this research project is focused on providing more affordable housing for middle-income groups, of which many are currently struggling to purchase a home in Vancouver, this money might better be utilized by increasing the affordability of a greater number and wider range of units suitable for couples and small families. The following table highlights ways in which the \$617,674 generated through the mixed-method mechanism could be used to subsidize different numbers of affordable housing units in a range of sizes on parcel 23 (Table 9).

Table 9: Various options for subsidizing affordable housing on Parcel 23

Number Of Units	Unit Size	Cost per Unit	Subsidy per unit using \$617,674	Cost Per Unit with Subsidy
7	560 sq. ft. Bachelor Apt	\$272,043	32%	\$184,990
6	700 sq. ft. 1 Bed Apt	\$339,500	30%	\$237,650
4	1000 sq. ft. 2 Bed Apt	\$485,000	32%	\$329,800
3	1200 sq. ft. 2 Bed Den	\$582,000	35%	\$378,300
11	560 sq. ft. Bachelor Apt	\$272,043	21%	\$214,914
8	700 sq. ft. 1 Bed	\$339,500	23%	\$321,415
6	1000 sq. ft. 2 Bed Apt	\$485,000	21%	\$383,150
5	1200 sq. ft. 2 Bed Den	\$582,000	21%	\$459,780

4.3 The Cost of Developing Traditional Market-Based Housing: Parcel 27 Proforma Analysis

The following section of this research project uses proforma analysis to establish the cost of building traditional market-based housing on parcel 27 at UniverCity. Parcel 27 is zoned for the development of a terraced mid-rise residential building, up to 7 stories in height (SFU Community Trust, 2010). As was the case for parcel 23, to build a proforma that accurately estimates the costs, revenues and profitability of constructing a traditional market-based building on parcel 27, a number of different development parameters and statistics need to be taken into consideration. Firstly, a site area of 32,938 sq. ft. and a FAR of 2.25 allows the developer to construct a gross building area of 74,111 sq. ft. on parcel 27 (Table 10). Of this 74,111 sq. ft., taking into consideration a building efficiency of 85% to construct a wood frame building,

62,994 sq. ft. would be saleable building area. Based upon previous unit sales at UniverCity, the current resale market at UniverCity and discussions with the Trust's planning staff, it was determined that units in a wood frame mid-rise building on parcel 27 would sell for an estimated \$440 per square foot. At \$440 per square foot, with 62,994 sq. ft. of saleable area, the development of a mid-rise building on parcel 27 would gross an estimated \$27,717,327. After subtracting \$831,520 from the gross sale price to account for a 3% cost in sales commissions, net sales income from the building would be \$26,885,807.

Table 10: Parcel 27 Development Statistics - Traditional Market-Based Build

Site Area	32,938 sq. ft.
Floor Area Ratio	2.25
Maximum Gross Building Area	74,111 sq. ft.
Building Efficiency	85%
Saleable Area	62,994 sq. ft.
Parking Requirement	1.1 Stalls/unit
Number of Units	95
Total Parking Stalls	75
Average Unit Size	840 sq. ft.
Price/sq. ft.	\$440
Price/Average Unit	\$369,564
Gross \$'s	\$27,717,327
Sales Commission (3%)	\$831,520
Net Sales Income	\$26,885,807

Once the potential sales income from developing a residential building on parcel 27 has been established, a developer would then use the proforma to establish the estimated cost of construction in order to determine the feasibility and profitability of the project. As demonstrated with parcel 23, there are four groups of costs that need be included in a proforma when evaluating the

feasibility of constructing a new building: land costs, construction costs, development costs and financing cost. These four costs are detailed below.

The estimated cost for a developer to purchase parcel 27 is \$2,140,970 (Table 11). This figure was determined using exactly the same method to establish the purchase price of parcel 23, and takes into account British Columbia’s property transfer tax as well as other closing costs.

Table 11: Parcel 27 Land Costs – Traditional Market-Based Build

Price/sq. ft.	\$65
Land Purchase Price	\$2,140,970
Land Price/Unit	\$28,546
Property Transfer Tax	\$40,819
Other Closing Costs	\$10,000
Total Land Costs	\$2,191,789

Constructing a mid-rise residential building on parcel 27 is estimated to cost \$14,432,045 (Table 12). This price is based upon a construction cost of \$185 per sq. ft., which was established in consultation with the Trust, and includes a 5% contingency of \$721,602 to protect the developer against cost overruns.

Table 12: Parcel 27 Construction Costs - Traditional Market-Based Build

Construction cost/sq.ft. (wood frame)	\$185
Building Cost	\$13,710,443
Contingency (5%)	\$721,602
Total Construction Costs	\$14,432,045

As illustrated in the proforma analysis of parcel 23, the same development costs are associated with constructing a new residential tower on parcel 27.

These costs range from project management and consulting fees, to permit and servicing fees (Table 13). The development costs used for parcel 27 were established using the same methodology described for parcel 23, allowing the resulting figures to be easily and accurately compared and analyzed. In the end, through proforma analysis it was estimated that there would be \$4,743,725 of development costs associated with building a market-based residential building on parcel 27.

Table 13: Parcel 27 Development Costs - Traditional Market-Based Build

Construction Project Management (3% of construction costs)	\$432,961
Development Project Management (4% of construction costs)	\$577,282
Architect fees (3% of construction costs)	\$432,961
Engineering fees (2% of construction costs)	\$288,641
Other Consultants (2% of construction costs)	\$288,641
Research and Appraisal	\$15,000
Survey	\$10,000
Accounting	\$7,500
Legal (1,000 per Unit)	\$75,000
Insurance (\$1.25 per gross buildable sq. ft.)	\$92,638
Finance Fee (0.8 % of project costs)	\$180,618
Preliminary Plan Approval (\$2.05/\$1000 of construction costs)	\$29,586
Building permit fees (City of Burnaby rate)	\$124,523
Metro Vancouver Sewer Development Cost Charges (\$1,082/unit)	\$81,150
Public Art Contribution (\$1/gross sq. ft.)	\$74,111
Community Transit Pass Subsidy (\$405/unit)	\$30,375
Neighbourhood Utility Service Fee (\$1/gross sq. ft.)	\$71,111
Utilities During Construction	\$10,000
Property Taxes (City of Burnaby rate)	\$24,764
Advertising/Promotion/Show Suite (0.02% of gross revenue)	\$554,347
New Home Warranty, Homeowner Protection (\$1,750/unit)	\$131,250
Post Construction Strata Fee (\$1,000/unit)	\$75,000
Post Construction Customer Service (\$1,500/unit)	\$112,500
Corporate Overhead (2% of total project costs)	\$451,545
Miscellaneous Development Costs (2% of development costs)	\$94,875
Contingency (10% of development costs)	\$474,375
Total Development Costs	\$4,743,725

Proforma analysis of parcel 23 and parcel 27 clearly illustrates that financing and interest costs are a considerable expense of constructing a residential building. In total, financing and interest costs for parcel 27 equal an estimated \$1,209,642 (figure, 14). Financing costs can vary depending upon initial project equity and the length of time it takes to develop the project. For this proforma, the developer was required to invest \$6,192,255 in initial equity. Planning and construction time was estimated to take a total 24 months, a conservative average for a wood frame building of this size. The financing costs for parcel 27 also take into consideration an opportunity cost \$659,285, which is the 8% interest a developer would have made on the \$6,192,255 equity used to fund the project should it have been invested conservatively. As noted in the proforma analysis for Parcel 23, the developer expects to make this money back on top of an overall profit that equals at least 15% of the total project costs.

Table 14: Parcel 27 Financing Costs - Traditional Market-Based Build

Land Loan: Loan to Value Ratio	50%
Land Loan: Interest Rate	5.00%
Construction Loan: Loan to Cost Ratio	75%
Construction Loan: Interest Rate	4.25%
Interest on Equity (opportunity cost of equity)	8.00%
Interest Cost, Equity Investment	\$659,285
Interest Cost, Land Financing	\$130,137
Interest Cost, Construction Financing	\$420,220
Total Interest Costs	\$1,209,642

After tallying all the applicable costs, it was established through the proforma analysis that it would cost an estimated \$22,577,229 to build a mid-rise residential building wood-frame building on parcel 27 (Table 15). Subtracting the

total cost of production from the estimated net proceeds of the project, \$26,885,807, would give the developer an estimated profit of \$4,308,578, which is 19.08% of the total project costs. As such, through proforma analysis it has been revealed that the construction of a mid-rise residential tower on parcel 27 is a very attractive development opportunity.

Table 15: Parcel 27 Total Cost and Profit - Traditional Market-Based Build

Total Project Costs	\$22,577,229
Total Project Costs/gross sq. ft.	\$305
Total Project Costs/saleable sq. ft.	\$358
Profit: \$'s	\$4,308,578
Profit: % of Project Costs	19.08%
Total Equity Investment	\$6,192,255
Return to Equity Investment	69.58%

4.4 Examining the Microeconomics of the Market-Based Cohousing: Parcel 27 Proforma Analysis

Through proforma analysis, the subsequent section of this research project examines the cost of building a Cohousing project on parcel 27 at UniverCity, exploring whether or not it is less expensive to develop than a comparable traditional market-based housing project. As noted in the previous section, a developer would make an estimated \$4,308,578 in profit constructing a mid-rise traditional market-based residential building on parcel 27. \$4,308,578 is 19.08% of the estimated total project cost of constructing a residential building on parcel 27, well within the 15 to 20% profit as a percentage of project costs benchmark sought by most developers in order to proceed with a new project.

To explore the idea of utilizing or removing developer profit to decrease the cost of housing, the following section of this research project will use proforma analysis to examine the economics of developing a market-based Cohousing project on parcel 27. As noted in the literature review, Cohousing is housing which is collaboratively designed, built, and maintained by its residents (Cohousing Assn. of USA, 2009; CMHC, 2005). Affordability is maintained in Cohousing projects through the removal of traditional developer profit, shared expertise and reduced marketing costs (CMHC, 2005; Williams: 2008).

The hard costs associated with building a Cohousing development on parcel 27 are exactly the same as a traditional market-based housing development. Total purchase price of land would remain the same at \$2,140,970 (Table 11), and the total cost of construction would also remain the same at \$14,432,045 (Table 12).

There are a few significant differences between the soft costs required to develop a traditional market-based housing development on parcel 27 in comparison to a Cohousing project. The development costs associated with constructing a Cohousing development on parcel 27 are estimated to be \$979,934 less than a traditional market-based residential housing development. This cost difference is due in large part to the \$554,347 saved in advertising and the \$474,375 saved on corporate overhead, which would not be required for the construction of a Cohousing development (Table 16). While consultant fees and property taxes would increase the development costs of a Cohousing project on parcel 27 by an estimated \$156,050, due to an increased 12 months in planning

time and 6 months of construction time - based on a presumption of development inexperience among the Cohousing members - this relatively small increase in development costs would be easily offset by the million plus dollars saved in advertising and corporate overhead expenses.

Table 16: Parcel 27 Development Costs – Cohousing

Construction Project Management (3% of construction costs)	\$432,961
Development Project Management (4% of construction costs)	\$577,282
Architect fees (3% of construction costs)	\$432,961
Engineering fees (2% of construction costs)	\$288,641
Other Consultants (3% of construction costs)	\$432,961
Research and Appraisal	\$15,000
Survey	\$10,000
Accounting	\$7,500
Legal (1,000 per Unit)	\$75,000
Insurance (\$1.25 per gross buildable sq. ft.)	\$92,638
Finance Fee (0.8 % of project costs)	\$168,115
Preliminary Plan Approval (\$2.05/\$1000 of construction costs)	\$29,586
Building permit fees (City of Burnaby rate)	\$124,523
Metro Vancouver Sewer Development Cost Charges (\$1,082/unit)	\$81,150
Public Art Contribution (\$1/gross sq. ft.)	\$74,111
Community Transit Pass Subsidy (\$405/unit)	\$30,375
Neighbourhood Utility Service Fee (\$1/gross sq. ft.)	\$74,111
Utilities During Construction	\$10,000
Property Taxes (City of Burnaby rate)	\$36,494
Advertising/Promotion/Show Suite (0.02% of gross revenue)	\$0
New Home Warranty, Homeowner Protection (\$1,750/unit)	\$131,250
Post Construction Strata Fee (\$1,000/unit)	\$75,000
Post Construction Customer Service (\$1,500/unit)	\$112,500
Corporate Overhead (2% of total project costs)	\$0
Miscellaneous Development Costs (2% of development costs)	\$75,276
Contingency (10% of development costs)	\$376,382
Total Development Costs	\$3,763,818

The financing costs related to developing a Cohousing project on parcel 27 are estimated to slightly increase by \$76,422 in comparison to a traditional market-based housing development. This slight increase is a result of the

Cohousing project taking an estimated 18 months longer to plan and construct in comparison to a traditionally built housing project. However, as previously mentioned, a Cohousing project would be able to significantly reduce other development costs by just over a million dollars. These savings would help to offset the \$76,422 in increased interest charges that would have been accrued over the extra year and half required to build the Cohousing project.

One of the largest savings related to financing for the Cohousing project, \$659,285, came from not having to account for the opportunity cost of the equity used to develop the project (Table 17). Development companies not only have to take account what it costs to finance their projects, but also what it costs to use their own money to get the project off the ground, and alternatively how much they would make if they were to invest that money in some other way. Alternatively, Cohousing owners are most interested in obtaining affordable housing for themselves and their families, and not the opportunity cost of their equity being used to fund the project. As such, Cohousing residents are not expecting the same immediate financial returns of approximately 8% on their equity as developers, which in the end enables the development of more affordable housing.

Table 17: Parcel 27 Financing Costs – Cohousing

Land Loan: Loan to Value Ratio	50%
Land Loan: Interest Rate	5.00%
Construction Loan: Loan to Cost Ratio	75%
Construction Loan: Interest Rate	4.25%
Interest on Equity (opportunity cost of equity)	8.00%
Interest Cost, Equity Investment	\$0
Interest Cost, Land Financing	\$191,782
Interest Cost, Construction Financing	\$434,995
Total Interest Costs	\$626,776

Building a Cohousing project on parcel 27 would cost an estimated \$21,014,429, which is \$1,562,800 less than it would cost to build a similar traditional mark-based housing project (Table 18). Furthermore, combined with the \$4,308,578 saved by eliminating the developer's profit from the project, a Cohousing project on parcel 27 would be astounding \$5,871,378 less expensive than a traditional market-based housing project. In the end, the Cohousing project would produce housing that is 26% less costly than a traditional market-based housing development, making it substantially more affordable. The subsequent section will discuss in further detail how decreasing or eliminating soft development costs related to the commodification of housing, such as developer profit, marketing, and luxury finishings, can drastically increase housing affordability in comparison to status quo housing development and housing constructed based on policy-related affordable housing mechanisms.

Table 18: Parcel 27 Total Cost, Profit and Equity Investment – Cohousing

Total Project Costs	\$21,014,429
Total Project Costs/gross sq. ft.	\$284
Total Project Costs/saleable sq. ft.	\$334
Profit: \$'s	\$25,543
Profit: % of Project Costs	00.12%
Total Equity Investment	\$5,801,554
Return to Equity Investment	0.44%

CHAPTER 5: DISCUSSION

Having determined the cost of developing traditional market-based housing, housing based on two common policy-related mechanisms and housing based on a Cohousing model of development at UniverCity, this research project has established through proforma analysis that policy-related mechanisms and market-based affordable housing mechanisms can be used to produce housing that is less expensive than traditionally developed market-based housing. With this in mind, the following section discusses how a better understanding of the microeconomics of housing development can contribute to the debate on how to generate more affordable housing. As such, this discussion will explore how proforma based analysis, when used to examine the microeconomics of housing development, can reveal ways in which to decrease housing development costs, thus resulting in increased housing affordability. Most importantly, this research reveals through proforma analysis that decreasing or eliminating soft development costs related to the commodification of housing, such as developer profit, marketing, and luxury finishings, can increase housing affordability more than policy-related mechanisms. Moreover, this discussion also examines how the removal of unnecessary costs related to the commodification of housing uncovered through the proforma analysis of housing development can be used to create new policies and initiatives to aid in the development of more affordable housing. The discussion section then concludes with a review of the

opportunities and challenges associated with using proforma based microeconomic analysis as a tool to aid in the development of more affordable housing.

5.1 The Microeconomics of Housing Development and the Debate on How to Generate More Affordable Housing

Understanding the microeconomics of housing development can contribute significantly to the debate on how to generate more affordable housing by revealing the total cost of producing housing. This information, which otherwise is very difficult to determine by those outside of the development industry, allows for a comparison between the total cost of producing housing and the final cost a developer is able to sell the housing for. For example, the proforma analysis conducted for this research project revealed that it would cost \$21,509,416 to develop a traditional multi-family building on parcel 23. It is estimated that a developer would make a gross profit of \$4,377,395 developing a housing project on parcel 23. Taking this figure into consideration, the developer is projected to make a 20.35% profit as a percentage of construction costs, which in the industry is considered an average return. What is more, as a large portion of the project would be financed, the developer is projected to make a 76.02% return on the equity originally invested into the project. Given the projected numbers, it is easy to see that the developer of parcel 23 is making a healthy profit, which is adding significantly to the final cost of housing, and in the end is resulting in housing that is less affordable.

Upon first review of the numbers illustrating the potential profit associated with developing housing on parcel 23 at UniverCity, it is easy to blame property developers for increased housing costs and decreasing housing affordability. However, the fact is, developers are only selling their product for what the market will bear, and there are numerous other factors that are influencing prices in the housing market. As this research project has already highlighted, issues such as housing commodification and real estate investment have caused significant inflation in the housing market, drastically increasing housing prices, and negatively affected housing affordability.

Gaining a better understanding of microeconomics of housing development has helped reveal a significant problem within the current housing market - that housing prices are not necessarily related to the cost of producing housing. This disconnect between the cost of producing housing and the price housing is selling for on the market begs the question; even if housing can be built at a lower cost, is the current market-based housing system capable of delivering housing that in the end reflects the affordability made possible by these production efficiencies? So, while proforma analysis can be used as a tool to examine the microeconomics of housing development and aid in the production of less expensive housing, as will be shown in the next section, the larger structural problem that exists between the cost of developing housing and current housing market prices needs to be addressed as part of the affordable housing debate. The research on the microeconomics of housing development conducted as part of this project helps shed light on the disconnect between the

cost of producing housing and the market cost of housing currently missing from the affordable housing debate, which if addressed, can help enable the implementation of more affordable housing created through proforma analysis of the microeconomics of housing development.

5.2 Utilizing Proforma Analysis as a Tool to Increase Housing Affordability

Putting aside the current structural problems of the housing market, proforma based analysis of housing development can be used as a tool to increase housing affordability by opening up discussion on how housing development costs and building regulations are affecting housing prices and how they can be improved upon to facilitate the development of more affordable housing. Used in this way, proforma analysis can help facilitate the development of more affordable housing by shedding light on the numbers behind housing development. By focusing on the microeconomics of housing development, proforma analysis provides the transparency that is currently lacking from the affordable housing debate. Furthermore, opening up discussion on the microeconomics responsible for the cost of housing enables the various stakeholders involved in the affordable housing debate to gain a better understanding of the financial issues associated with housing development, in turn facilitating the exploration and examination of alternative and more affordable means of housing production.

To date proforma analysis has been used, for the most part, by developers to evaluate the feasibility of real estate development. In this case

developers use proformas to calculate the potential profit of their projects, seldom giving much thought to the affordability of housing. To those outside the development industry proformas are a sort of black box, a highly coveted trade secret of numbers and formulas used by developers to determine the feasibility of potential housing projects. As such, developers often use their proforma analysis to negotiate land prices, municipal fees and influence public opinion. By opening the proforma up to discussion by all parties involved in the affordable housing debate there is an opportunity to find ways to make housing more affordable while still maintaining reasonable profit for developers. This is a very important point, as increased transparency is also good for developers, who are often asked by municipal governments and citizens to provide community amenities which at times may not be economically feasible depending on the project.

5.3 Unnecessary Housing Development Costs Revealed through Proforma Analysis and Affordable Housing Impacts

The proforma analysis conducted as part of this research project revealed a number of different areas in the housing production process where soft development costs related to the commodification of housing could be decreased or eliminated to improve the affordability of the projects being developed. For example, one the most striking production costs found during the proforma analysis of both parcels 27 and 23 was the marketing costs estimated for both projects. The cost of marketing estimated for parcel 27 was \$554,347 dollars, and the cost of marketing for parcel 23 was estimated around the same at

\$533,749 dollars. Scaling back or eliminating marketing costs could decrease the cost of a 700 square foot apartment unit in the parcel 23 development priced at \$339,500 by as much as \$6,790, which to a young couple or and elderly single person having difficulty affording a home is a significant amount of money.

Another area of development related to the commodification of housing that could be improved upon to increase affordability is the level of finishings that are selected for use in the housing project. With housing in Vancouver costing so much money, even at the lower end of the market, consumers have come to expect a certain level of finishing in the product they are purchasing. More cost effective finishings, such as arborite countertops and linoleum floors, have been trumped in favour of more expensive, glamorous and marketable finishings such as stone countertops and hardwood floors. Even using finishings which cost collectively as little as 10% less than was estimated for in the construction costs for the parcel 23 development would save roughly \$1,328,205, a significant amount of money which could be used to improve the overall affordability of the project. Looking at this issue from a different perspective, a 10 percent price reduction achieved by using less costly finishings on a 1000 square foot unit costing \$485,000 in the parcel 23 development would translate into \$48,000, a huge savings for a young family looking for a more affordable housing option.

As highlighted in the proforma analysis section, there is an opportunity to make housing extremely more affordable if the most significant cost related to the commodification of housing, developer profit, is completely removed from the process of developing housing. As noted in the proforma analysis section of this

research project, a Cohousing project on parcel 27 would be an astounding \$5,871,378 less expensive than a traditional market-based housing project, a result of removing soft cost such as marketing and profit from the development process. Add to that another \$1,328,205 saved by using less expensive finishing, a Cohousing project on Parcel 27 could be developed for an very significant savings of \$7,199,483 less than a traditional market-based housing project, or 27% less than a traditionally built housing project. This example clearly illustrates the huge potential of removing commodification related soft housing costs to enable the development of more affordable housing.

While marketing budgets and building finishings may be up to the developer to decide upon, governments and regulators can help facilitate the development of more affordable housing by implementing policies that encourage more efficient development practices which have been revealed through proforma analysis. Financing costs make up a sizeable percentage of any development's budget. While the interest charged on a construction loan is agreed upon before development begins, a builder can only estimate how long the loan will be needed for. If the project takes longer than the developer anticipates, financing costs related to the project increase. It is common knowledge that housing developments often take longer that estimated. While project timelines can be extended for any number of reasons, developers often cite difficulties achieving City approvals as a main reason for unanticipated extensions in project schedules. For example, if planning on parcel 23 was extended by six months and construction was delayed by 6 months, the

developer would be charged an extra \$208,430 dollars in financing costs by the bank. However, if the City worked to streamline its approvals process for more affordable housing projects, the developer may be able to achieve or improve upon the estimated construction schedule, keeping to project on budget or even saving money. This is the case in the City of Surrey, which currently has policy in place to fast-track multi-family rental housing projects. By implementing this fast-track policy, Surrey has cut approval timelines in half, helping to reduce developer's carrying costs, and improving the affordability and economic viability of rental project in the City (CMHC, 2011).

In the same way that developers use proforma analysis to negotiate with land vendors, financiers, municipalities and the general public to lower their development costs to increase their profits, proforma analysis can also be used as a tool by housing advocates to lobby for the development of more affordable housing. Having a better understanding of the economics behind housing development gives advocates the language, evidence, and leverage necessary to lobby effectively for the development of more affordable housing in their communities. Often times community organization and other housing advocates come to the table lacking the economic background necessary to ensure that developers are being truthful about the types of affordable housing options that can feasibly be developed. Using proforma analysis, housing advocates can accurately estimate the costs and revenues associated and with a potential housing development, empowering them to lobby for a certain portion of the housing be made affordable, that is if the economics make sense. For example,

an advocacy group with sufficient resources, such as Smart Growth BC - which runs a number of similar community assistance programs related to community planning, could use their expertise to conduct a necessary economic analysis of the housing project in question, using their findings to inform the community in question of the justifiable amount of affordable housing that they should be lobbying for in their neighbourhood. The community can then use this economic knowledge as a tool to negotiate with the developer through the City and the approvals process, ensuring that some portion of the project is made more affordable. It is important to point out that through this process it may be revealed that not every housing development has the financial capacity to include some portion of affordable housing due to the economics of the project, or the fact developers have already committed to funding other community amenities agreed upon with the city and are therefore unable to contribute to the development of more affordable housing. However, if everyone coming to the negotiating table understands the microeconomics behind the project at hand, it is more likely that all parties will go away feeling their concerns have been properly addressed, which in the end helps facilitate the development of more affordable housing.

5.4 Opportunities and Challenges Associated with Using Proforma Based Microeconomic Analysis as a Tool to Aid in the Development of More Affordable Housing

There are a number of different opportunities and challenges associated with using proforma based microeconomic analysis as a tool to facilitate the development of more affordable housing. One of the biggest challenges in using

proforma analysis as a tool to aid in the development in more affordable housing is the fact that it can be complex to understand and difficult to apply, especially for those who are not familiar with using this type of economic analysis. In addition, the average person may also lack the industry knowledge and resources necessary to gather the proper data required to conduct an accurate proforma analysis of the housing development in question. However, if planners, housing advocacy groups and concerned citizens can become properly educated in the ways of conducting proforma analysis, there is real opportunity for these groups to utilize proforma analysis as a tool to lobby, negotiate and work with the development industry to help create more affordable housing. The idea of using proforma analysis as a tool to support the development of more affordable housing is now starting to make its way into the planning literature, as highlighted by Margaret Eberle who recently commented that “the proforma may become part of the planner’s toolkit” in her article *Year-end Thoughts on Housing Affordability* in the December 2010 issue of *Planning West*. In her article, Eberle’s prediction that planners may come to use proformas more often is based on the assumption that local government will come to be relied upon more heavily to facilitate the creation of more affordable housing. With fewer options for funding, municipalities will be required to be more entrepreneurial in their approach in creating housing affordability, forcing them to rely almost exclusively on the private housing market and public private partnerships to fund the development of more affordable housing. By understanding how to use proformas in this market-based environment, as Eberle suggests, there is real

opportunity for planners to use this type of analysis as a tool to aid in the development of more affordable housing, rather than increasing the profitability of housing projects for developers.

It has been proven in this research project that more affordable housing can be developed using proforma analysis, market-based mechanisms, and other affordable housing tools. What is most surprising is that one of the most significant barriers to developing more affordable housing is public opinion. This is due in large part to the stigma property owners often believe will become associated with their neighbourhood should affordable housing, regardless of type or target group, be built near them (Tiesdell, 2002). At the root of this fear of neighbourhood stigmatization is a deep concern of decreasing property values. This phenomenon, which could easily be termed affordable housing NIMBYism, clearly highlights the current disconnect between the cost of producing housing and housing market prices. In this case, property owners fight to maintain a status quo housing market in order to ensure the long-term protection and growth of their investment. The problem is, ever increasing housing prices affects those most in need of affordable housing alternatives, such as moderate-income groups who lack the resources to enter the housing market. However, attitudes towards the development of more affordable housing in Vancouver have been changing in recent years, as more and more people are finding it increasingly difficult to purchase a home in the city. As such, people are becoming more aware and accepting of affordable housing developments which have been built across Metro Vancouver in recent years, realizing that they have not had a

negative effect on property values, and are in fact contributing to a healthier housing system. If the current public attitude towards affordable housing can be overcome, there is a real opportunity to utilize new tools, such as proforma analysis, to increase housing affordability.

In addition to being fearful of the stigma associated with affordable housing, residents are also often sceptical of the policies and mechanisms being used to generate affordable housing, creating another significant barrier to the development of this much needed resource. Utilizing unconventional mechanism, such as Cohousing, to develop affordable housing may cause concern for some potential homeowners and neighbours who are not well informed about this affordable housing mechanism and the degree to which it is applied. As noted earlier in this research project, Cohousing is based on philosophical ideals about community participation and communally focused urban design, which may turn off prospective residents and neighbours interested in a more traditional housing type and lifestyle. As such, it is evident that Cohousing, as a result of its philosophical underpinnings and participatory development structure, is not a cure all for the current housing affordability crisis. Nevertheless, the examination of Cohousing throughout this research project has revealed a number of new and innovative ideas that can be used to help address issues of housing affordability. Most importantly the exploration of Cohousing as part of this research project has exposed the power of removing commodification from housing development process, and capitalizing on joint equity, joint resources and collective initiative to create more affordable housing. The

proforma analysis of a Cohousing project on parcel 27 revealed that by working collectively, pooling resources and removing developer profit, housing could be constructed that is 26% less costly than traditional market-based housing.

Having a better understanding of the economics of housing development and becoming more involved in the provision of our homes can help residents better control the cost of their housing, thus making it more affordable.

While Cohousing in its purest form may only appeal to a limited number of developers and potential homeowners, a hybrid-Cohousing model, which incorporates the efficiencies of the market with the affordability of Cohousing, may appeal to a larger percentage of the population. For example, a developer could significantly reduce the cost of financing a housing project by capitalizing on the joint equity of the individuals who would be purchasing this housing, if they were to invest in the project prior to construction. What is more, by investing their own equity into the housing project and becoming partners with the developer, these future homeowners would be entitled to a percentage of the profit made from the newly constructed housing. As a result, these homeowners would be able to use the profit made by funding the development of their housing to bring down the overall cost of their housing, which would already have been reduced as result of the decreased financing costs made possible by their upfront investment. While the reduction in housing prices may not be as large as the 26% seen by using the Cohousing mechanism, the price reductions achieved by using the hybrid mechanism may actually be more effective in generating

affordable housing, as greater number of people would likely be willing to build and purchase housing being developed in this way.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

Acutely aware of the barriers related to developing affordable housing in Metro Vancouver, the SFU Community Trust has succeeded in facilitating the development of more affordable housing at UniverCity, and continues to strive to implement new and innovative affordable housing measures on Burnaby Mountain. That being said, there may be people who are critical of the research done for this project, stating that the policy-related and market-based affordable housing mechanisms utilized, and the proforma analysis conducted as part of this project would not be effective if applied outside the nurturing confines of UniverCity.

While it is true in some ways that UniverCity is a unique environment, the Trust must still operate and implement planning measure in the same regulatory environment as other municipalities across Metro Vancouver. In fact, local governments have access to more regulatory powers and resources than the Trust. However, often what are lacking is the vision, policy, regulation, initiative and resources needed by these governing bodies to spearhead and implement the development of more affordable housing. With this in mind, the first recommendation I would make on the basis of this research project is that local governments and advocacy groups should take initiative to help foster the development of more affordable housing in their own communities in the same way that the Trust has provided vision, policy and regulation to spur the

development of more affordable housing at UniverCity. For example, municipalities often have surplus lands on which they can partner with developers, leveraging these land assets to help fund the development of more affordable housing, similar to what was done with the mixed-method mechanism reviewed in this research project. Other policy groups, such as the Canadian Centre for Policy Alternatives, can provide research and expertise to local governments helping them to understand how to use new tools, such as proforma analysis, to facilitate the development of more affordable housing in their neighbourhoods. These are just a few examples of various affordable housing initiatives similar to those reviewed for this research project that could be implemented in different settings outside of UniverCity. In the end, the research conducted for this project has revealed that it is not the market environment itself that enables the development of more affordable housing; it is the ingenuity of the group and the innovative tools they utilized that facilitates the creation of more affordable housing.

Reflecting on the research completed for this project on ways to increase housing affordability, I feel the most valuable lesson learned came from the process of conducting my own proforma analysis. Building a proforma gave me a new perspective on housing development by revealing which types of development costs are relatively fixed, and where efficiencies can be improved upon to increase the affordability of housing developments. Prior to this project, I was unable to confirm if the financial numbers I was researching related to housing construction and the housing market were in fact accurate. Learning to

construct my own proforma provided me with a window into the economic world of the developer. I began to identify how financing costs, development cost charges and construction costs made up the total costs of a housing. Understanding the various inputs related to housing development enabled me to comprehend the developer's lexicon of numbers relating to costs, revenues and profit. Utilizing the developer's language empowered me with the tools to counter their financial arguments and push for the development of more affordable housing based on economic facts generated using their own methodology, proforma analysis. In the end, using proforma analysis to gain an understanding of the economics of housing development gave me the knowledge, tools and language necessary to begin working towards uncovering policy driven solutions to the problems around housing affordability, based on economic fact. With this in mind, I would recommend that proforma analysis become a means that planners and housing advocates become familiar with and draw upon, in order to effectively facilitate the development of affordable housing by utilizing policies based upon reasoned economic arguments. Without the proper economic knowledge and tools, planners and housing advocates will continue to lack the power and leverage to ensure affordable housing is developed.

It was noted earlier in this paper that working for the Trust allowed me to have access to resource materials, data and professional expertise essential to the completion of this research project. Based on my experience, I feel that having access to housing related resource materials, data and industry expertise

are an essential component in facilitating the development of more affordable housing. With this in mind, I would recommend the formation of various working groups, steering committees and affordable housing resource centres where different groups could get together to share economic related information, resources and experiences associated with building housing and more affordable housing. Creating housing affordability working groups and resource centres would also help facilitate greater collaboration between housing advocates, developers and regulators, another essential component required for the successful development of more affordable housing.

It is evident from my work on this research project that the development of more affordable housing must continue to focus on market-based solutions. This is due in large part to the fact that there is likely to be very little financial support for the creation of more affordable housing from any level of government in the coming years as a result of cash strapped budgets and ballooning deficits. Using proforma analysis as a tool to increase housing affordability is just one of many possible market-based approaches that still need to be explored in an attempt to address the housing affordability crisis. What makes the use of market-based affordable housing mechanisms so attractive is that they can be implemented with very little cost to a municipality, as highlighted in this research project. With that in mind, it is my opinion that use of market-based microeconomic analysis holds tremendous potential that has not yet been realized; as such I feel that research on the development of more housing affordability should continue and focus in this direction.

REFERENCE LIST

- Adin, Emilie and Rob Buchan. "'1 in 10' Means on the Ground: The City of Langford Affordable Housing Strategy." *Plan Canada* 48(3) (2008): 25-29.
- Alexander, Don and Ray Tomalty. "Smart Growth and Sustainable Development: Challenges, solutions and policy directions." *Local Environment* 7 (2002): 397-409.
- BC Housing, *\$225M In Housing Investments to Create 1,006 New Homes*. (BC Housing, April 20, 2011).
<http://www.bchousing.org/news/news_releases/2010/05/21/5590_1005211604-637>
- Beer, Andrew, Bridget Kearins and Hans Pieters. "Housing Affordability and Planning in Australia: The Challenge of Policy Under Neo-liberalism." *Housing Studies* 22 (2007): 11-24.
- Boyle, Michelle, Robert B Gibson and Deborah Curran. "If Not Here, Then Perhaps Not Anywhere: urban growth management as a tool for sustainable planning in British Columbia's capital regional district." *Local Environment* 9 (2004): 21- 43.
- Bunting, Trudi, R. Alan Walks and Pierre Fillon. "The Uneven Geography of Housing Affordability in Canadian Metropolitan Areas." *Housing Studies* 19(3) (2004): 361-393.
- Canadian Mortgage and Housing Corporation (CMHC), "Alternative Tenure Arrangements." (2005): 1-6.
- Canadian Mortgage and Housing Corporation (CMHC), "Critical Success Factors for Community Land Trusts in Canada." (2005): 1-3.
- Canadian Mortgage and Housing Corporation (CMHC), *Homebuying Tools – Calculators*. (Canadian Mortgage and Housing, April 20, 2011).
<http://www.cmhc-schl.gc.ca/en/co/buho/buho_005.cfm>
- Canadian Mortgage and Housing Corporation (CMHC), *Municipal Planning for Affordable Housing*, 2007.
- Canadian Mortgage and Housing Corporation (CMHC), *Reducing Length of Approvals*. (Canadian Mortgage and Housing Corporation, February 2, 2011). <http://www.cmhcschl.gc.ca/en/inpr/afhoce/tore/afhoid/pore/releap/leap_006.cfm>

- Canadian Mortgage and Housing (CMHC), *The Dynamics of Housing Affordability*, 2007.
- Cohousing Association of USA, "What is Cohousing?" *Cohousing*. (Cohousing Assn. of USA, Feb 20, 2009.).
<http://www.Cohousing.org/what_is_Cohousing>
- Cox, Wendall. "How Smart Growth Exacerbated the International Financial Crisis." *The Heritage Foundation* 1906 (2008): 1-3.
- Curran, Deborah and Tim Wake. *Creating Market and Non-Market Affordable Housing: A Smart Growth Toolkit for BC Municipalities*. Smart Growth BC, 2008.
- Dalton, Tony. "Housing Policy Retrenchment: Australia and Canada Compared." *Urban Studies* 46(1) (2009): 63-91.
- Dawkins, Casey J and Arthur Nelson. "Urban Containment Policies and Housing Prices: An International Comparison with Implications for Future Research." *Land Use Policy* 19 (2002): 1-12.
- Demographia. "The Impact of Smart Growth on Housing Affordability: An Analysis of Metropolitan Markets by Land Use Planning System." 2008: 1-20.
- Drummond, Don, Derek Burleton and Gillian Manning. "Affordable Housing in Canada: In Search of a New Paradigm." *TD Economics Special Report*. 2003: 1-45.
- Eberle, Margaret. "Year-end Thoughts on Housing Affordability." *Planning West*. 52.4 (2010): 4-9.
- Government of British Columbia. "Local Government Guide for Improving Market Housing Affordability." (2005): 1-71.
- Government of British Columbia. "Planning for Housing." (2004): 1-55.
- Gurran, Nicole. "Affordable Housing: A Dilemma for Metropolitan Planning?" *Urban Policy and Research* 26 (2008): 101-110.
- Ho, Cheeying. "Progress in Implementing Smart Growth in the Greater Regional District." *Plan Canada* 46(4) (2006): 40-42.
- Howell-Moroney, Michael. "A description and exploration of recent state-led smart growth efforts." *Environment and Planning C* 26(2008): 678-695.
- Hulchanski, David. "Rethinking Canada's Housing Affordability Challenge." *University of Toronto: Centre for Urban and Community Studies* (2005): 1-14.

- Hulchanski, David and Michael Shapcott. *Finding Room, Policy Options for a Canadian Rental Housing Strategy*. Toronto: University of Toronto Press, 2004.
- Johnson, Jennifer Steffel and Emily Talen. "Affordable Housing in New Urbanist Communities: A Survey of Developers." *Housing Policy Debate* 10(4) (2008): 583 - 613.
- Larsen, Kristen. "New Urbanism's Role in Inner-city Neighborhood Revitalization." *Housing Studies* 20(5) (2005): 795-813.
- Lee, Marc, Erick Villagomez, Penny Gurstein, David Edy, and Elvin Wylly. "Affordable EcoDensity: Making Affordable Housing a Core Principal of Vancouver's EcoDensity Charter." *Canadian Centre for Policy Alternatives* (2008): 1-14.
- Marcus, Peter. "Housing on the Defensive." *American Planning Association* (2004): 1-9.
- Metro Vancouver, "Affordable Housing Strategy." (2007): 1-15.
- Metro Vancouver, *Overview of Inclusionary Zoning Policies for Affordable Housing*. (2007): 1-11.
- Metro Vancouver, *Regional Growth Strategy Backgrounder: Estimated Housing Demand*. (2009): 1-17.
- Moore, Eric and Andrejs Skaburskis. "Canada's Increasing Housing Affordability Burdens." *Housing Studies* 19(3) (2004): 395-413.
- O'Toole, Randal. "Is Urban Planning 'Creeping Socialism'?" *Independent Review* 4(4)(2000): 1-9.
- O'Toole, Randal. "Unliveable Strategies: The Greater Vancouver Regional District and the Livable Region Strategic Plan." *Public Policy Sources* 88 (2007): 1-29.
- Rea, Willa, Jennifer Yuen, John England, and Roberto Figueroa. "The Dynamics of Housing Affordability." *Perspectives - Statistics Canada* 75-001-X (2008): 15-26.
- Real Estate Board of Greater Vancouver, *Monthly Statistical Reports*. (Real Estate Board of Greater Vancouver, March 2, 2011).
<<http://www.rebgv.org/monthlyreports?month=February&year=2011>>.
- Rotberg, Howard. *Exploring Vancouversim: The Political Culture of Canada's Lotus Land*. Vancouver: Canadian Values Press, 2008.
- Sewell, John, Frank de Jong, Bonnie Fenton, and Mark Hornell. "Breaking the Suburban Habit." *Alternatives* 29(3)(2003): 22-27

- Shapcott, Michael. "Wellesley Institute National Housing Card." *Wellesley Institute* (2008): 1-17.
- SFU Community Trust, "Overview." *UniverCity*. (SFU Community Trust, March 1, 2009). <http://www.univercity.ca/about_us/overview.2.html>
- SFU Community Trust, *UniverCity East Neighbourhood Plan: Development Guidelines and Requirements*, July 26, 2010.
- Statistics Canada, *Community Profile: Metro Vancouver*. (Statistics Canada, April 20, 2011). <<http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92591/details/page.cfm?Lang=E&Geo1=CMA&Code1=933&Geo2=PR&Code2=59&Data=Count&SearchText=vancouver&SearchType=Begins&SearchPR=01&B1=All&Custom=>>>
- Tiesdell, Steven. "Integrating affordable housing within market-rate developments: the design dimension." *Environment and Planning B: Planning and Design* 31 (2004): 195-212.
- Tomalty, Ray. "Growth Management in the Vancouver Region." *Local Environment* 7(4) (2002): 431-445.
- Urban Development Institute, *The Numbers Behind Housing Development*, November 2009.
- Vancouver City Planning Commission, "Market Rental Housing in Vancouver" VCPC Report to City Council: September 11, 2008.
- Vancouver Foundation, *Vital Signs for Metro Vancouver: Housing*. (Vancouver Foundation, April 20, 2011). <<http://www.vancouverfoundationvitalsigns.ca/economy/housing/>>
- Wilkie, Karen. "Building the Future: Policy Considerations for Affordable Housing in Canada." *Canada West Foundation* (2007): 1-6.
- Williams, Jo. "Predicting an American future for Cohousing." *Futures* 40(2008): 268-286.
- Yu, Xiaojiang. "'The great Australian dream' busted on a brick wall: Housing issues in Sydney." *Cities* 22(6) (2005): 436-445.