

Understanding the Benefits of Community-Focused and Affordable Housing Projects from a 3-  
Pillar Perspective: An Impact Measurement Framework

by

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## Authors Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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## Abstract

Ontario is facing an affordable housing crisis. As of 2021 10.1% of Canadian households were in core housing need with 77% being attributed exclusively to a lack of affordability, 10% attributed to housing inadequacy or unsuitability, and an additional 13% facing a combination of such issues. This is especially prominent in Ontario as 12.1% of households were in core housing need (Gov't of Canada, 2022). Much of the shortage is attributed to an insufficient supply. The project is part of a multi-stakeholder initiative to create an assessment framework to value affordable housing projects, grounded in academic theory and practice. The purpose of this research is to develop a measurement framework to estimate the social, environmental, and indirect economic contributions of affordable and community-focused housing projects. Quantifying the social returns of investments will provide organizations a tool to justify budget allocation decisions and to advocate for government funding support.

The proposed framework is generated using the Common Approach to Impact Measurement (CAIM) Common Foundations, a set of 5 governing practices for developing impact measurements. The Common Foundations were used to select effective impact measurements for a wide range of housing projects. The CAIM is in early stages of development, but will be used by impact investors, social enterprises in Ontario, and is supported by the Canadian Social Finance Fund. The framework was informed by content analysis, a frequency analysis, and semi-structured interviews with professionals. As a proof of concept, the proposed framework was applied to a case study with the United Property Resource Corporation to understand what impact measures are relevant, cost effective to measure, with accessible data. The framework encourages practitioners to interpret the cost-effectiveness of measurement.

The proposed framework and case study application demonstrate the importance of accounting for social returns of affordable housing projects as opposed to simply reporting the economic costs. This research contributes to emerging literature in the areas of affordable housing valuation, social finance, and impact measurement. Future studies should consider gaining feedback from affordable housing tenants and indirect beneficiaries to create a more comprehensive indicator set.

*Key Words:* affordable housing, social return on investment, impact measurement, sustainability

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# Chapter 1: Introduction

## Introduction and Background

Across Canada, individuals are finding it challenging to locate housing that is affordable (Claveau, 2020). This has been exacerbated by increasing costs of living. The increasing costs of living are displayed by the Consumer Price Index, citing a 6.8% increase in expenses year over year when compared to April 2021 (StatsCan, 2022). To highlight this in the housing sector, the city of Kitchener, Ontario was ranked as the 11<sup>th</sup> most expensive place to rent in Canada in a recent report published by an online rental group (Myers, 2022). When compared from 2020 to 2022, Kitchener has faced a 33% increase in rental costs (Myers, 2022). Housing, a basic human right, needs to see increased investment to manage demand (Pomeroy, 2017). Providing increased supply of safe and affordable housing is important. In Canada, approximately one third of renters live in core housing need, indicating it is either too expensive, inadequate, or unsuitable (Claveau, 2020). Impact measurement can be used to assess housing projects with a community-focused emphasis, indicating the housing project prioritizes bettering life within the community for individuals, the environment, or surrounding culture. Such projects may focus on environmental efficiencies or affordability as potential examples. Impact measurement in this context can be used to assess funding allocation, advocate for project changes, or seek additional sustainability-linked pools of funding. Impact measurement is the process of measuring social change including both positive and negative impacts (Muir & Bennett, 2014).

The research project attempts to empower housing practitioners to utilize impact measurement methodologies to enhance the understanding of project impact and encourage stakeholders to prioritize investments based on community impact. This is done by understanding what social, environmental, and economic benefits have been identified historically and utilizing such data to provide a comprehensive framework of indicators as proposed by housing practitioners. A general framework for impact measurement in affordable and community-focused housing was generated. The impact measurements were proposed with a screening methodology to prioritize relevant metrics based on the goals of an organization, increasing the flexibility of the framework. These identified metrics can be effective for housing practitioners who are attempting to build affordability through decreased rental costs or environmental efficiencies leading to lower costs related to energy and water usage. Additionally, impact measurements can aid in the justification of small projects that may not typically be considered due to additional costs, such as the implementation of a community garden on site. By utilizing a general framework for impact measurements, practitioners can estimate and compare potential project benefits when designing project budgets or allocating resources. Additionally, for organizations which have specific social or environmental objectives, measuring impact can help identify whether objectives are



met (Muir & Bennett, 2014). By measuring the impact of projects, practitioners can display evidenced outcomes to funders including government, non-government organizations, or even financial institutions providing social- or sustainability-linked debt instruments. Generally, increasing transparency in the decision-making process may facilitate better social or environmental outcomes for future projects.

The research project focuses on creating an industry-specific indicator set for community-focused and affordable housing projects. However, the applied methodology can be altered to identify impact measurements and create standardization in other social-impact focused industries. A study by Geobey and Callahan (2018) identified the importance of developing new tools to combat subjectivity in decision making. Industry-specific impact measurement frameworks may be an effective tool to help combat subjectivity by helping organizations focus on the impacts a project can provide, while comparing projects on a streamlined set of impacts.

Chapter one attempts to introduce the theoretical and practical basis for creating an impact measurement framework for community-focused and affordable housing projects. To understand the importance of the research project an initial introduction to the affordable housing shortage in Canada is presented. This context is followed by an introduction into the importance of impact measurement and how affordable housing has been valued utilizing impact measurement historically. These concepts are linked as the research project attempts to provide a solution to aid practitioners in the ability to measure impact, with the underlying theory that impact measurement can act as a tool to efficiently allocate funding and potentially increase funding in the sector. To achieve this, the research project explored the benefits of community focused and affordable housing while looking at valuation metrics for interpreting such impact. Further, the project looked to emphasize the importance of selecting appropriate impact measurements based on cost and relevance. Finally, chapter one introduces the research methodology which was a multi-stakeholder initiative to collect and modify existing impact measurements in the sector. The research methodology combines the Common Approach to Impact Measurement Common Foundations as a practical tool for designing impact measures with academic data collection including a structured content analysis, semi-structured interviews, and a case study application.

### Affordable Housing Shortage

In Canada, Bill-C-97 containing the “National Housing Strategy Act” was signed, recognizing housing as a human right (Van Den Berg, 2019). This political move displays a commitment to all Canadians to provide safe, affordable, and adequate housing. Yet, a major gap remains between this human right, and available accommodations. To understand the importance of impact measurement in the sector, this section provides insight into the lack of affordable housing in Canada, relevant drivers for the related shortage, and how impact measurement may act as a tool to help combat this shortage. Pomeroy

(2017) summarized the issues with the current structure of affordable housing, citing the reliance on subsidies as a driver for the lack of housing. Funding to the sector has since increased, with \$1 billion announced in 2020 under the Rapid Housing Initiative to quickly create up to 3,000 new affordable housing units across Canada. A longer-term plan is also in place to invest over \$55 billion over 10 years. This funding is only expected to reduce chronic homelessness by 50% (CMHC, 2020). As displayed by the current shortage, Canadians still lack access to necessary affordable housing. With funding sparse in the sector, it is important to efficiently utilize available funds to address the gap in available accommodations while ensuring to provide high quality housing that focuses on community benefits. Efficient use of funding can maximize the social return from each housing project, facilitating additional benefits for communities. A simple example may include placing affordable housing near public transportation to increase tenant access to needed services, amenities, and potentially job networks (Zhong et al., 2017). Taking impact measures one step further to understand the community impact per dollar invested in a community focused or affordable housing project can be used to further justify the use of funding for additional projects and prioritize existing project funding. In addition to government funding, affordable or community focused housing projects may acquire philanthropic, community-based private sector funding, or other qualifying sustainable investing portfolios.

### Impact Measurement

Measuring key performance indicators is a common practice in organizations (Maté et al., 2012). These key performance indicators can be developed based on organizational strategy, goals, and often financial returns (Eckerson, 2006). This section highlights how impact measurement can help organizations understand and prioritize social returns. Social purpose organizations may have unique key performance indicators, as at least part of the value brought by such organizations revolves around their social and environmental performance, in combination with financial performance (Imperatori & Ruta, 2015). Measuring social and environmental impact through identified performance indicators is the root of social impact measurement. This is often used to report value to stakeholders and shareholders based on the anticipated value the organization brings (Muir & Bennett, 2014). Measuring impact can also lead to an understanding of organizational impact, reassessment of organizational goals, when necessary (Barraket & Yousefpour, 2014), and additional pools of funding from sustainability-linked debt instrument investment portfolios (Vulturius et al., 2022). For sustainability-linked debt instruments, it is required to demonstrate project impact, therefore by measuring impact, such impact can be displayed to financiers.

Practitioners can use impact measurement to make decisions relating to organizational goals and objectives (Barraket & Yousefpour, 2014). Using impact measures can help ensure that the anticipated

benefits of a project are truly seen or help compare different initiatives or projects prior to implementing. Impact measurement is not only used for assessing when the project or initiative is effective. Measurement can also encourage the collection of useful data to allow for more informed decisions in the future. Many impact measurement frameworks exist to help gather information on a project or initiative, over different time frames. These measurements often occur from a forecasted or evaluative perspective, as displayed by the Social Return on Investment (SROI) analysis (Gosselin et al., 2020). This means impact measurement can be forecasted, indicating targets based on assumed project benefits, or evaluative, indicating actual benefits are measured based on assumed project benefits (Gosselin et al., 2020).

In recent years, sustainability-linked debt instruments have become more popular, seeing a 29% increase from 2019 to 2020 (Henze, 2021). Such instruments can include sustainability-linked bonds, green loans, social bonds, or other instruments which emphasize a social or environmental benefit which the undertaken debt will be used for (Redfield, 2022). These instruments are particularly interesting for investors who are attempting to increase the environmental, social, and governance (ESG) aspects of an investment portfolio. Impact measurement can be used to display such ESG impacts, which can broaden the potential pools of funding available to a social purpose organization.

#### Valuing the Impact of Affordable Housing

The affordable housing network in Ontario needs to undergo crucial changes to truly meet the requirements of the population. With 15.3% of Ontarians being in core housing need (Govt of Ontario, 2020), it is clear the existing systems are not satisfactory. Better representing the value of housing projects is one change that can be made to justify the adaptation of projects, for instance, prioritizing environmental efficiency even though there are increased upfront costs (Singh, 2019). This section attempts to display the high-level importance of valuing impact and outlines social return on investment as a historical model used to capture such value. Further, justification for increasing standardization in impact measurement is proposed and the Common Approach to Impact Measurement is used as a tool to create impact measures. By illustrating the value that is provided by community-focused and affordable housing projects, funding can be more efficiently allocated and may result in additional funding opportunities supported by impact measurement.

Social return on investment (SROI) studies have been used to understand the non-traditional value that community focused and affordable housing projects in the environmental, social, and economic domains. For example, a previous SROI study completed by Miller and Offrim (2016) found benefits in all three domains. Environmental benefits were seen from increasing energy efficiency leading to decreased utility costs. Social benefits were captured when highlighting health increases in tenants after

accessing quality housing. Economic benefits such as increased job participation were also noted in the study (Miller & Offrim, 2016). These examples highlight the ability SROI studies have to capture otherwise potentially overlooked benefits. SROI studies have been used to understand the community value of affordable and community focused housing, although most studies are completed on an ad-hoc, project-by-project basis. Each project prioritizes different indicators based on the implementors knowledge of the project and priorities, although often such studies site other housing SROI studies for the development of measurements. It possible for different communities to value different impacts beyond the ad-hoc nature of these studies. Although there is not a single correct version of SROI for housing that can be generated, SROI studies should be representative of the community value of affordable housing projects. With the lack of standardization, it is possible that indicators are overlooked although central to the benefits of the project. Creating a set of impact measures that can be drawn on may alter the impact measures a project attempts to align with.

Even at the level of an individual affordable housing financier, the lack of standardization in impact measurement makes it difficult to make efficient capital allocations within the housing space, aside from typical profitability metrics. Comparing projects against a common set of indicators is useful in understanding the impact a project will have. A study completed by Geobey, and Callahan (2018) identified the importance of developing new tools to combat subjectivity in decision making to truly understand the impacts that a project can provide. A common set of indicators also allows housing professionals emphasizing community benefits to set targets, communicate, and evaluate respective goals. Such standardization can encourage progress in the affordable housing space. Additionally, standardization will be particularly useful in impact investing, a previously identified gap (Geobey & Callahan, 2018).

The Common Approach to Impact Measurement (CAIM) was created to help social purpose organizations measure impact, similarly to SROI (CAIM, 2020). The CAIM encourages the Common Foundations be used when developing impact measurement; a set of 5 essential practices used to define the types of impact measured. The research study employs the CAIM Common Foundations as a new methodology to develop impact measurements for community focused and affordable housing projects or initiatives. The CAIM focuses on making impact measurement easier for social purpose organizations (CAIM, 2020). An individual utilizing the CAIM Common Foundations to develop impact measures could still combine the approach with SROI to represent the displayed data in a per dollar invested in project versus per dollar in community or environmental benefit generated. Therefore, the Common Foundations act as a starting point in the impact measurement process, and what is done with the measured data is dependent on what the goal of measurement is as identified by the individual completing

the study. For instance, an organization may want to evaluate environmental performance by assessing decreased utility usage. This may be measured directly by kilowatt-per-hour usage over time as an impact measure designed utilizing the Common Foundations. However, if the organization has identified decreasing the costs of utilities as a priority, the practitioner may take this indicator set further by assessing the decreased energy costs associated with decreased usage. This information can then be used to calculate the SROI of the project, represented on a dollar invested basis. Practitioners must understand the objectives to define such impact measures and understand the most effective methodology to employ. Throughout the study, 5 essential practices associated with the Common Foundations are referred to and defined. The 5 essential practices are as follows; (1) describe intended change; (2) use indicators; (3) collect useful information; (4) gauge performance and impact; (5) communicate and use results (CAIM, 2021). Future sections of the study refer to the outcomes of each of the essential practices.

### Problem Statement

Ontario has an affordable housing shortage which has been linked to a lack of funding in the sector (Pomeroy, 2017). According to an audit completed by the Office of the Auditor General of Ontario, Ontario has not fulfilled its duty to provide affordable housing in Ontario, with only 2% of housing stock per total population, versus Denmark and England with 8% and 11% respectively (OAGO, 2017). This section outlines the current issues associated with impact measurement in the affordable housing sector while encouraging the streamlining of impact measures as a way to alleviate such issues. Impact measurement can be used as a tool to uniformly value the community benefits of affordable housing projects and encourage additional public or private investment in the industry. Impact measurement can help access sustainability-linked debt instruments as evidence for existing project success or estimations for future projects. Additionally, impact measurement can be used in for-profit housing which emphasizes other external community benefits such as environmental efficiencies, community building, or general tenant well-being.

To help manage broad affordable housing scarcity in Ontario, it is important to efficiently use project funding. Examples of this may be seen through a non-profit considering which project to invest in, a housing provider prioritizing potential projects on site, or investors determining which housing sites should be selected. When determining which projects should receive funding, consideration can be made against several factors including social, environmental, and economic benefits to determine which projects will create the highest community contributions. Research has begun to quantify these benefits, including by the CMHC (2018) which utilizes the SROI methodology to understand the holistic benefits of these projects.

Creating a common set of assessment indicators can be effective in streamlining measurement. To value housing projects with an emphasis on affordability, a common set of indicators may be beneficial. Impact measurement studies attempt to value projects holistically. However, current studies have been primarily completed on a project-to-project basis, often citing other studies as a starting point for analysis. To create an assessment framework that is broadly applicable, it is important to understand what the industry has valued to date, and the frequency such measurements have been valued. Creating a common set of indicators may increase the potential for the framework to be utilized to encourage best practices when building or investing in community focused housing projects. By prioritizing a project based on the social return or community impact, it is possible for practitioners to select housing projects which place increased emphasis on providing safe, adequate, quality housing as represented in the assessment framework.

### Research Purpose, Questions, and Objectives

The purpose of the research study is to understand and value housing projects emphasizing community benefits from a 3-pillar perspective, including social, environmental, and economic indicators. To fulfill this purpose, the research objectives of the study are as follows:

**RO1:** Understand the social, environmental, and economic contributions of implementing community focused and affordable housing projects.

**RO2:** Develop a comprehensive assessment framework which can be used to develop impact measurements and value community-focused housing projects.

To achieve the research objectives, the proposed research aims to address the following questions:

**RQ1:** What are the non-traditional (social, environmental, economic) community impacts of community focused housing projects in Ontario?

**RQ2:** What are the estimated financial proxies for the non-traditional (social, environmental, economic) impacts?

**RQ3:** What impacts are cost-effective to capture and how does assessing them change the valuation of community focused housing projects in Ontario?

### Key Terms

This section defines five key terms used throughout the study; (1) Affordable Housing; (2) Community Focused (3) Social Enterprise; (4) Impact Measurement; (5) Social Purpose Organization. A summary table can be found in Appendix 1.

According to the Canada Mortgage and Housing Corporation, housing is considered affordable when it costs less than 30% of an individual's income (CMHC, 2018). For the purpose of the research

study, a broader definition of affordable housing will be used to highlight the flexible nature of the final framework. The Ontario government notes:

“Affordable housing generally refers to housing for low-to-moderate-income households, priced at or below the average market rent or selling price for comparable housing in a specific geographic area” (Ontario Gov’t, 2018, pp. 173).

When referring to affordable housing within the research paper, this definition will be broadly used to indicate housing which is more affordable for tenants, although, not always falling within 30% of a tenant’s income. Housing projects that build affordability into the housing model may include those which emphasize environmental efficiencies leading to lower costs for tenants or decreased rental costs.

Community focused housing projects refer to those which do not need to inherently focus on unit affordability to create community impact. This broadly refers to projects which attempt to go beyond providing adequate housing by considering the impact on the tenant and surrounding community. This may include projects that focus on environmental efficiencies on the property, regardless of the cost impact for the tenant (i.e., reusing rainwater). This can also be for-profit developers focused on building community space or events to encourage socialization. At its core, this definition recognizes that impact can be created even in market value rental properties. Such benefits would be recognized and promoted by the project facilitator or funders.

Throughout the study the research highlights the applicability of such framework to Social Purpose Organizations and Social Enterprises. A social enterprise can be defined as an organization with blended goals to generate revenue while also attempt to achieve other social or environmental goals (Elson & Hall, 2012). Therefore, it is possible for Social Enterprises to be profitable while contributing positively to social and environmental domains. Social Purpose Organizations are not inherently profitable and may have other ways of generating income to sustain operations. Such organizations can include non-profits and charities in addition to social enterprises or other profitable organizations with a social mission (Ramp, 2019). Due to the broad nature of the final framework, this definition was left general as there continues to be a wide range of housing organizations which may emphasize community benefit projects.

The research study refers to the concept of impact measurement. Impact measurement has been defined by the Global Impact Investing Network as:

“Identifying and considering the positive and negative effects one’s business actions have on people and the planet, and then figuring out ways to mitigate the negative and maximize the positive in alignment with one’s goals” (GIIN, 2018).

This broad concept of impact measurement will be used throughout the study to display the goals of impact measurement, in an attempt to capture business impacts.

### Significance of Study

By illustrating the economic value that is facilitated by community focused housing projects, key stakeholders can identify where resource reallocations from aligned areas can be made to enhance the impacts of affordable housing or meet other community priorities. This section highlights the significance of developing an impact measurement framework for the community-focused and affordable housing sectors. In particular, investors in the housing space or municipalities comparing projects can utilize the framework to compare projects against a common baseline. For smaller projects, impact measurement can be used to justify allocation of funding towards initiatives such as implementing community gardens or other workshops. Creating an assessment framework will encourage stakeholders to incorporate metrics in decision making which may otherwise go overlooked. The assessment framework will allow impact investors to more efficiently allocate their limited investment funds. With tangible metrics, investors can assess projects from a holistic perspective creating additional benefits in the surrounding community, while simultaneously meeting impact measurement expectations for impact investment.

Previous research used to value affordable housing projects has frequently used SROI methodology (CMHC, 2018; Miller, 2016; CHA, 2014; Kempton, 2011). The newly developed Common Approach to Impact Measurement (CAIM) Common Foundations has not been used to develop impact measurements in this context. The CAIM Common Foundations are a set of essential practices which can be used to develop impact measurements from a holistic perspective, within Social Purpose Organizations. The Common Foundations essential practices fulfills the requirements of other impact measurement guidelines, such as SROI, Theory of Change, or Demonstrating Value (CAIM, 2020). It has taken such requirements to provide additional information to the user of the framework, centering Social Purpose Organizations in all documentation. This increases the usability of the framework, to help with the unique challenges Social Purpose Organizations face. Additionally, it allows for increased flexibility in the impact measurement development process, which is necessary in the ever-changing affordable housing industry. The CAIM is a standard which has been promoted by the Ontario Non-Profit Network (ONN, n.d.).



The CAIM methodology may best support the needs of an assessment framework to value affordable housing projects because of its focus on flexibility, while encouraging standards, and meeting the requirements of other impact measurement frameworks for practitioners and investors (CAIM, 2019). Housing focusing on building affordability and community benefits can be complex and can take several different forms. By utilizing the CAIM Common Foundations, the assessment framework can take into consideration the different facets of such potential projects while developing a thorough set of impact measurement indicators. As the first known housing assessment framework to utilize this methodology, the indicators may be more comprehensive, while being grounded in both theory and practice. Further, by utilizing this methodology the indicators that are developed are supported by a feedback process with key stakeholders. This ensures that the assessment framework will be accepted by stakeholders who intend to use the framework in practice. Additionally, the essential practices adhere to the practices of other impact measurement standards, which reduces the risk of implementing a newly developed framework. The Common Foundations are centered around Social Purpose Organizations, which may make it easier to alter measurement indicators as expectations within the industry shift. Individuals who implement the assessment framework can refer to the Common Foundations for guidelines on how to alter and develop measurement indicators which best align with their organization.

The project aims to add to existing literature seeking to value community focused housing projects, emphasizing those which create additional affordability for tenants. The developed framework will attempt to verify the significance of existing documented indicators, and add additional indicators outlined by key stakeholders from the industry. By utilizing a new methodology for selecting indicators, project indicators can be assessed in a new context, delivering additional information relevant to the development of impact measurement in community focused and affordable housing. Further, the research will display the most appropriate data to measured, to effectively assess housing projects and initiatives from a holistic perspective while encouraging standardization. Although interview data collection is focused on Ontario, Canada, information gained from the assessment may be applicable across Canada and beyond. When utilizing the framework outside of Ontario, it may be important for practitioners to ground the selected indicators in the context of the respective region, eliminating indicators which are not applicable to the locale.

### Overview of Research Methodology

The research study is a multi-stakeholder initiative which attempts to understand key impact measurements which can be utilized in the context of community focused housing, with an emphasis on affordable housing. The research methodology applies a series of stages to align with the Common Approach to Impact Measurement (CAIM) Common Foundations, a set of 5 essential practices for

developing impact measurement indicators in Social Purpose Organizations. To apply both academic theory and practical knowledge of impact measurement, the Common Foundations were applied. Academic data collection occurs through a content analysis of existing indicators, semi-structured interviews with affordable housing professionals, and a final case study verification of the framework. To adhere to the Common Foundations, the practical application of the framework also involved developing a Theory of Change model and outlining stages for framework use. Table one displays a high-level overview of how the academic theory and practical impact measurement tool align to create the underpinning methodology for the study.

### Methods Used in Study

The research study adheres to the overarching CAIM Common Foundations, in an attempt to align academic theory with a practical standard for impact measurement. The Common Foundations involves a series of 5 Essential Practices, all which are employed throughout the research project. The main data collection for the research project occurs while performing Essential Practice 2 (Using Performance Measures) and 4 (Gauging Performance and Impact). This section highlights the data which was collected while performing these two essential practices. Table 1 highlights the relationship between the academic methodology, framework development components, and the common foundations essential practices.

*Table 1: Overview of the relationship between the Common Foundations Essential Practice, academic methodology used for data collection and verification, and the framework development components.*

<b>Framework Development Stage</b>	<b>Common Foundations Essential Practice Alignment</b>	<b>Common Foundations Essential Practice Description</b>	<b>Academic Methodology</b>	<b>Framework Development Components</b>
1.1 Pre-planning	Essential Practice 1	Planning intended change		Theorized potential change, reflected in Theory of Change model for project.
2.1 Evidence collection	Essential Practice 2	Using performance measures	Completed structured content analysis of existing literature related to benefits of affordable and community focused housing	
2.2			Completed frequency analysis on impact measurements found in the literature	
2.3			Completed semi-structured interviews with affordable housing professionals. Presented content	

			analysis findings for verification and supplementation.	
3.1 Framework development	Essential Practice 3	Collecting useful information		Developed methodology for weighting and prioritizing indicators. Proposed potential considerations when determining relevance of impact measures.
4.1 Practical Application	Essential Practice 4	Gauge performance and impact	Completed case study with affordable housing provider, the United Property Resource Corporation.	Documented results related to framework use.
5.1 Communicate	Essential Practice 5	Communicate results		Reflected on the use of the framework. Framework to be made available in the future.

Essential Practice 2 (Using Performance Measures) includes 2 key data sets. First, an initial structured content analysis was completed on relevant literature discussing affordable housing benefits, valuation indicators, and related financial proxies. This included existing SROI and general impact measurement studies. Once the data was collected, analyzed, and mapped to the respective categories (environmental, social, and economic categories), it was presented to 7 key industry professionals. During this stage professionals identified the effectiveness and relevance of the indicators and highlighted gaps in measurement where applicable.

Essential Practice 4 (Gauging Performance and Impact) involved completing a case study with the United Property Resource Corporation (UPRC), where the proposed framework is implemented in a practical setting. During this case study, indicators were proposed from a pragmatic perspective, taking into consideration the potential costs of measurement. Additionally, the case study looked to understand what indicators to adopt based on project and organizational priorities and feedback from UPRC as housing practitioners.

Human Research Ethics Clearance

This research has received ethics clearance from the University of Waterloo Office of Research, Ethics number 43479 for human participation.

## Chapter 2: Literature Review

### Introduction

Techniques for impact measurement were developed as a way to supplement traditional economic processes to understand the impact on a community from a given project or organization (Maas & Liket, 2011). Impact measurement can take many forms, with multiple standards and guidelines emerging to manage this organizational process (Emerson, 2003; Nicholls, 2009; Auerswald, 2009). As impact measurement has become more popular, the use case for impact measurement has also increased, particularly for organizations which provide value through social and environmental changes (Doherty et al., 2014). In the affordable housing industry, impact measurement has been used to value projects and understand the associated community benefits (CMHC, 2018; CCEA, 2015; Miller & Robertson, 2018). This section attempts to define impact measurement, the use cases for impact measurement, and existing methodologies for impact measurement. Further, this section highlights benefits identified in community focused and affordable housing, the costs associated with impact measurement, and how bounded rationality can impact the ability to measure impact.

### Defining Impact Measurement

There is no single way impact measurement is defined in the literature. Impact measurement broadly can be defined as the measurement of social change for a particular group, associated with targeted activities from a project, involving either positive or negative impacts (Buckland & Hehenberger, 2021; Muir & Bennett, 2014). Within the literature, this concept has been applied using several different terms including social accounting (Nicholls, 2009), social value (Auerswald, 2009; Santos, 2012), social return or social return on investment (Maier, 2014; Emerson et al., 2000; Nicholls et al., 2012). Although each term has a unique perspective on the subject, each broadly encompasses the concept of measuring social and environmental value created through organization objectives, not typically captured in traditional accounting models. For the purpose of the literature review, any definition which attempts to capture the social and environmental value created through businesses will be considered.

### The Use Case for Impact Measurement

Impact measurement is used in the literature to justify a variety of business decisions. The following section outlines the importance of impact measurement as understood for social purpose organizations, the relevance of impact measurement when considering impact investments, and other external factors leading to an uptake in impact measurement.

### Importance

Measuring value has long been an important concept for decision making in many organizations, regardless of industry (Berry & Aarum, 2006). In social purpose organizations, that value is in part the

social and environmental contributions to society as outlined by organizational mission and objectives (Doherty et al., 2014). Therefore, it is a natural progression to expect the value created by social purpose organizations to be measured. The Guide to Social Impact Measurement published by the Centre for Social Impact (2014) outlines the importance of impact measurement as to clarify goals, how to achieve them, and analyze when and where they are occurring (Muir & Bennett, 2014). It is important for organizations with a social purpose to measure impact as it is included in the value the organization brings to all stakeholders and shareholders, aligning with the goals of the organization (Porter & Kramer, 2019). When data is not appropriately measuring social impact, any results obtained from them may have little validity (Rawhouser et al., 2017). These ideas are mirrored in a study completed by Barraket and Yousefpour (2014) which outlines the perceived value of impact measurement in organizations as, sharing achievement and knowledge with stakeholders, benchmarking programs for advancement based on measurement findings, and understanding long-term impacts.

Studies have noted potential consequences when not measuring the impact of a social purpose organization. A study completed by Ormiston and Seymour (2011) recognized that social entrepreneurship ventures may have a disconnect between outlined social mission, and the impacts that are measured in the organization, coining this as the ‘measuring impact and mission measurement paradox’. Social purpose organizations could focus more on growth metrics related to expanding, rather than impact measurements that assess the successfulness or programs related to the organization mission (Ormiston & Seymour, 2011). By avoiding impact measurement, it is also possible to overlook potential unintended negative impacts of the organizational projects or goals (Maas & Liket, 2011). Social purpose organizations can overlook negative impacts of the organization under the assumption that they are doing good (Jepson, 2005).

### Impact Investing

Impact investing is an emerging investment methodology which attempts to seek both social and financial return (Combs, 2014). In essence, impact investing attempts to make a profit while still encouraging social and environmental change through funding measures (Bugg- Levine & Emerson, 2011). However, the core concept of businesses having a responsibility to provide more than just financial returns, can be attributed to Porter and Kramer (1999) on the concept of creating shared value in business. This emerging field has had significant traction and by 2018, Canada reported approximately \$14.75 billion in impact assets under management (RIA, 2019). To select investments that meet the goals of providing social and environmental benefits alongside financial return, methodologies must be employed to accurately assess the impact of such projects. This desire to measure the impact of social and environmental benefits is a focus of impact investing (Reeder & Colantonio, 2013).

Impact investing has no single way to assess projects or organizations to determine the social and environmental returns alongside the financial, although several measurement systems have evolved to aid in the process (Reeder & Colantonio, 2013). However, at the core, some level of impact measurement is utilized to justify returns to stakeholders. Agrawal & Hockerts (2018) outline the common stages used when assessing potential impact investments, outlining the need for researchers to conduct studies to compare different impact measures to quantitatively relate social and environmental outcomes.

Reeder & Colantonio (2013) outline potential strategies for determining whether to invest in an impact investment, outlining the importance of impact measurement based on an organizations data, publicly available information such as interviews, and use this information to determine whether to invest. A study completed by Chen & Harrison (2020) looks to understand what practitioners are truly implementing when quantifying and maintaining impact for impact investment, finding 4 categories; (1) Appraising investment; (2) Track performance; (3) Strategize decision-making; (4) Report impact.

#### Understanding external factors

Organizations are facing a shift which encourages consideration for environmental and social impacts. Freeman's (2009) Stakeholder Theory underpins this societal shift, understanding that businesses should create value for customers, suppliers, employees, and communities alongside shareholders. This desire to create value can be supported by impact measurement. Understanding the impact that has been made by investing in a project or organization may be important for shareholders, when evaluating if the investment was justified (Schiff et al., 2016). Through impact measurement, organizations and investors can efficiently allocate project funding where impact is greatest. This section highlights the external pressures associated with increased impact measurement such as increased societal pressures and increased expectation of reporting.

Other standards, frameworks, and certifications have evolved to support societal changes in considering social and environmental impact. The Global Reporting Initiative has created a standard for measuring and reporting on certain organization impacts such as GHG emissions, providing common language to report such results (GRI, 2021). This standard has been widely adopted to report and measure impact of organizations globally. The Carbon Disclosure Project (CDP) is another framework which was created to help organizations understand and measure environmental impact (CDP, 2021). BCORP is a certification program for organizations to consider, measure, and report impacts against, to prove that the organization is measuring the social and environmental impact of the organization (BCORP, 2021). Recently, the US Securities and Exchange Commission (SEC) has mandated certain disclosure of Environmental, Social, Governance (ESG) information (EY, 2021). These external organizations and

governing bodies are placing pressure on organizations to ensure impact is being considered, measured, and reported against.

Impact measurement is becoming increasingly important for organizations which claim to have significant social and/or environmental impacts. A relevant example is Tesla, an organization known for creating Electric Vehicles and zero-emission products. Although it is widely accepted that zero-emission products have positive benefits on the environment, Tesla was recently kicked out of the S&P 500 ESG Index (Fox, 2022). This Index scores organizations on environmental, social, and governance dimensions with the goal of integrating ESG indices into core investments (SP Global, 2022). Different concerns including business ethics and a lack of low-carbon strategy, ultimately led to a score which had Tesla removed from the index (Fox, 2022). This example displays that there are external factors including investors, analysts, and stock exchanges which require Tesla to report and measure the impact of the organization. Without sufficient proof that the organization is causing positive changes in the areas of social and environmental impact, the organization faced repercussions leading to their removal from the index.

## Existing Methodologies for Impact Measurement

Social impact measurement at its core is about measuring the social change associated with targeted activities from a project, both positive and negative (Buckland & Hehenberger, 2021). Standards, frameworks, and processes have evolved to help effectively measure the impact of a project or organization. The following section will outline related methodologies used to measure and quantify the impact of a particular project or organization including an overview of separate related methodologies, and more specific explanations of the Theory of Change, Social Return on Investment, and the Common Approach to Impact Measurement due to their applicability in the affordable housing industry.

### Overview of Methodologies

Several methodologies have been employed within the literature to value the impacts of projects or organizations across different industries. It is important to note the potential methodologies that can be used to measure impact. These examples include the blended value approach (Emerson, 2003), Triple bottom line accounting (Slaper & Hall 2011), social accounting (Ramanathan, 1976), and the SIMPLE methodology (McLoughlin et al., 2009). These methodologies have been used throughout the literature, although, no literature was found applying these concepts to the evaluation of affordable housing projects. This section will highlight three potential impact measurement models including The Theory of Change (SoPact, 2020), Social Return on Investment (SROI) (Emerson et al., 2000), and the CAIM (Common Approach, 2021). Each methodology has unique aspects, including how to develop metrics, different measurement options, and overall processes. Theory of Change has been historically used to understand



what a project will attempt to achieve and is often used as a starting point for understanding impact while utilizing other measurement frameworks including social return on investment and Common Approach to Impact Measurement. SROI is used to understand the amount of social value generated from a project per dollar invested (Emerson, 2000). The CAIM is a new framework which can be used to develop and understand relevant impact measures (Common Approach, 2021) and can be used in combination with the Theory of Change (to understand project impacts) and SROI (to represent the value per dollar invested into a project). Each of the three discussed methodologies can be used in strategically different ways depending on the project goals.

### Theory of Change

The Theory of Change model is a method that attempts to document the impact an organization or project will attempt to achieve, while including the immediate and long-term steps and activities necessary to achieve such goals. This includes five components; (1) Inputs; (2) Activities; (3) Outputs; (4) Outcomes; and (5) Impact (SoPact, 2020). This theory has been applied to help determine the impact of a project or organization, prior to attempting to calculate the benefit. By monitoring and measuring the outputs and outcomes in a theory of change, impact measurement can be calculated (Rogers, 2014). A paper by Jackson (2013) outlines that the Theory of Change model in impact measurement is an essential practice, further stating that implementing such model and making it public to all stakeholders can encourage better results, by understanding at a fundamental level what a project is trying to achieve.

Other measurement methodologies encourage the use of the Theory of Change model to determine the relational impacts of a project, including both Social Return on Investment (Social Value UK, 2020) and the Common Approach to Impact Measurement (Common Approach, 2020). Although Chen & Harrison (2020) through a set of informed questionnaires found that practitioners are often not utilizing the Theory of Change Method for measuring impact related to impact investment.

### Social Return on Investment

The concept of social return on investment was developed by the Roberts Enterprise Development Fund in 2000, with the goal of measuring social benefits generated through enterprises' by investigating outcomes (Emerson et al., 2000). Since the initial development of the SROI methodology, Social Value UK has created documentation and standards to help implement the initial concept (Social Value UK, 2012). It is now widely accepted that there are 6 principles of SROI; (1) Establishing scope and identifying stakeholders; (2) Mapping outcomes; (3) Evidencing outcomes and giving them a value; (4) Establishing impact; (5) Calculating the SROI; (6) Reporting, using, and embedding (Nicholls et al., 2012).



Since development, SROI has been used by social purpose organizations, public and private sectors, and both for profit and non-for-profit organizations (Nicholls et al., 2012). In the area of affordable housing such examples include the Housing Research Report by the Canada Mortgage and Housing Corporation (2018), BC Housing SROI Analyses (Constellation Consulting, 2016; Constellation Consulting 2018), or the Cunninghame House Association (2014) report on the regeneration of an affordable housing project. SROI has widely been adopted in the area of affordable housing to calculate the social impact of projects.

### Common Approach to Impact Measurement

The Common Approach to Impact Measurement is a flexible, community-driven impact measurement standard which was created to make impact measurement easier for social-purpose organizations. The standard was developed as an initiative of the Ontario Social Enterprise Strategy. This led to the Social Enterprise Management Task Force, which recognized a need for a flexible impact measurement plan, leading to the development of the CAIM (Common Approach, 2021). The standard recognizes that Social Purpose organizations have different needs related to impact measurement; (1) Effectively allocate resources to social value creation; (2) Be successful in pursuing social mission; (3) Increase internal and external collaboration; (4) Capture evidence to support activities (Beer, 2021). Due to the unique challenges and social lens such organizations have, the CAIM attempts to focus on these key challenges.

The CAIM emphasizes that there is no single way to identify impact measurement indicators, rather, it is important to remain flexible to select the right indicators for an organization's specific challenges. Remaining flexible is core to the development of the standard, to ensure adoption can occur. To achieve these goals, the standard has developed a library of supporting documents including standards, tools, and documentation to help with the implementation (Common Approach, 2021).

At the time of writing, the CAIM Common Standards are still under construction. Currently, The Common Foundations (a minimum standard for "how" to measure impact), and the Common Impact Data Standard (a system for organizing impact data) are complete. In progress is The Common Form (form outlining the essential components of an impact report), and The Common Framework (outline for organizations to choose the most important measurements) are still under construction (Common Approach, 2021).

The Common Foundations are a set of 5 essential practices which should be used to develop a set of impact measurements for social purpose organizations (CAIM, 2020). The 5 essential practices align with other standards such as Social Return on Investment, Theory of Change, and Demonstrating Value.

However, the Common Foundations documentation attempts to streamline these practices, in a way which is most applicable to Social Purpose Organizations by centering all documentation around the unique perspectives of these organizations (CAIM, 2020). The Common Foundations implement these practices in a way that is flexible while still encouraging a standard. By implementing the Common Foundations, an organization has fulfilled the requirements for many of the other standards, which may increase buy-in of the standard from interested stakeholders. The Common Foundations can also be used in combination with other impact measurement standards such as the Global Reporting Initiative, the Impact Measurement Project, or B CORP certifications. By implementing other standards such as SROI, the Common Foundations Essential Practices may have been fulfilled. However, the Common Foundations have not been used, so implementing such practices as outlined by the CAIM may lead to different results due to the existing differences within each impact measurement tool. Additionally, the documentation for the Common Foundations makes it easy for the practitioners to understand, implement, and adhere to such practices in relation to organization goals. Such documentation can be found on the CAIM website, presented in an easily accessible format for all individuals completing impact measurement studies (CAIM, 2020).

### Identified Benefits of Affordable Housing

Providing affordable housing has the potential to generate benefits that are often not captured in typical cost-benefit analysis. This section highlights potential benefits that have been historically identified when projects build additional affordability when compared to market rate rental housing projects. The additional benefits may be driven by additional initiatives implemented at the project site. Such benefits are not likely to occur in every affordable housing project and it is assumed that a qualified practitioner has assessed the benefits prior to identifying and measuring within the literature. As housing prices increase across Canada (Moore, 2022), these benefits will become increasingly important. To understand these impacts, initial literature scans were completed to understand where impacts can be seen in the community. During this process, studies that were considered included academic and grey literature which emphasized benefits of adequate, affordable, and environmentally conscious housing. These studies ranged from academic studies on specific aspects of housing to general SROI studies which measured benefits of affordable housing. The identified benefits found in the literature are grouped into 3 categories; (1) Environmental indicators; (2) Social indicators; (3) Indirect economic indicators. Benefits focus on changes that can occur within housing projects, ideally those that can be measured or quantified in some way. The following sections outline key areas of impact for environmental, social, and indirect economic indicators, respectively. A summary of the literature and sub-categories is provided in Table 2. Many studies included in Table 2 have several (10+) indicators and categories tracked. The table is not a

comprehensive representation of every noted benefit in the study, rather, a highlight of the general literature findings and categories.

Table 2: Literature Review, affordable housing benefits overview

Category	Subcategory with Citation
Environmental Indicators	Energy and greenhouse gas efficiencies within the property (Pullen et al., 2010; CHA, 2014; CMHC, 2018)
	Water efficiencies (Pullen et al., 2010; Brod et al., 2020)
	Green design, construction, and retrofitting strategies (CMHC, 2017; Tsenkova & Youssef, 2012; Pullen et al., 2010)
	Ecology of site and the inclusion of urban agriculture in planning (Puri & Smith, 2019)
	Energy Production (The Good Economy, 2020; Puri & Smith, 2019)
Social Indicators	Health benefits (CMHC, 2018; CHA, 2014; Miller & Ofrim, 2016; Zon et al, 2014; Bowen & Quintiliani 2019)
	Crime and Safety (CMHC, 2018; CHA, 2014; Miller et al., 2018)
	General child welfare (CCEA, 2015; Constellation Consulting, 2019; ERHA, 2013; Frontier Economic, 2014; Miller et al., 2018; Suttor et al., 2015; VWHA, 2010) children’s confidence (CCEA, 2015; Constellation Consulting, 2019; The Good Economy, 2021), children’s mental health (Miller et al., 2018; VWHA, 2010) access to youth and family support programs (ERHA, 2013, Mackinnon & Alolo, 2015).
	Educational attainment and performance (CMHC, 2018; Miller et al., 2018; Think Impact, 2016)
	Enhanced stability (CMHC, 2018; Miller & Ofrim, 2016; CHA, 2014; Miller et al., 2018; VWHA, 2010; ERHA, 2013, Mackinnon & Alolo, 2015).
In-Direct Economic Indicators	Personal Financial improvements; increased savings or disposable income (CMHC, 2018; Miller et al., 2018; Ravi & Reinhardt, 2011; Think Impact, 2016) potential to repay debt (Fujiwara, 2013; Hightown, 2019)
	Employment gains (Constellation Consulting, 2019; Think Impact, 2016; Mackinnon & Alolo, 2015; CHA, 2014) Increased job readiness and training (CHA, 2014; Kraatz & Thomson, 2017)
	Decreased costs on public services; reduced welfare costs (CMHC, 2018; Think Impact, 2016) strain on health, justice, and

	emergency services to support crisis situations (Hightown, 2019; Miller & Robertson, 2014; Suttor et al., 2015)
	Job creation (Miller & Ofrim, 2016; CCEA, 2015; Zon et al., 2014)

Environmental Indicators

Environmental benefits within affordable housing projects have been identified by several studies (CMHC, 2018; CMHC, 2017; Miller, 2016; Pullen et al., 2010; Bradshaw et al., 2005). Efficiency has been recognized as a broad approach to indicator measurement. Greenhouse gas emissions have been noted as a key target that can be quantified in terms of economic benefit by directly measuring the potential savings (CMHC, 2018; Pullen et al., 2010; CHA, 2014). Pullen et al. (2010) identifies water efficiency savings as an economic value that can be quantified within affordable housing units. Other studies also highlight water efficiency (Brod et al., 2020; Kraatz & Thomson, 2017). Design, construction, and retrofit strategies have also been identified as a key determinant for economic benefits (CMHC, 2017; Tsenkova & Youssef, 2012; Pullen et al., 2010).

Research completed by the Canada Mortgage and Housing Corporation (CMHC) (2016) outlines energy savings at a case study property, Bois Ellen Co-operative Residence, in Quebec. The case study project focused on designing a property that is low-energy and suitable for affordable housing. The project focused on 4 criteria to inform sustainability decisions in the building including: energy efficiency, comfort for residents, durability of building, and resilience of building. The results included a 42% reduction in energy use and 70% reduction in heating energy use. The paper did not place emphasis on the economic value of these contributions, although it was recognized for its cost savings (CMHC, 2016). This study highlights the benefits of implementing additional environmental sustainability measures in housing projects, recognized by the cost savings.

A study completed by Puri & Smith (2019) focuses on more general benefits of greening in affordable housing projects such as the surrounding ecology of the building and how it is utilized, access to greenspace and increasing biodiversity, the integration of urban agriculture on site, and responsible water use. Such indicators were outlined for the potential environmental benefits associated with the programs, without emphasizing an economic value of such projects. Puri & Smith (2019) and The Good Economy (2020) further seek to encourage energy production in affordable housing projects to decrease costs over time, while providing additional clean energy sources.

Social Indicators

Social indicators have been a major focus across many studies which attempt to value affordable housing projects non-traditionally (CMHC, 2018; CHA, 2014, Think Impact, 2016). Social indicators can

vary greatly depending on the project interventions; therefore, this section highlights potential benefits although such benefits would not exist in every housing project. It is assumed that benefits were identified using adequate underlying research and practical project knowledge. A study completed by the Constellation Consulting Group (2019) investigated the social impact from a shelter located in Calgary. This study utilized a SROI methodology to collect, interpret, and value the social returns. The study concluded that for every dollar invested into operating the shelter, close to five dollars in social and economic value was generated. This is not including several indicators which the study identified but could not assign a financial proxy to quantify (Constellation Consulting, 2019). This value displays the economic return from non-traditional indicators which are indirectly generated by affordable housing, while also highlighting that not all benefits have identified financial proxies and can be valued economically.

A general theme was identified across several studies, noting health benefits as one economically valued social indicator (CMHC, 2018; CHA, 2014; Miller & Ofrim, 2016). Such benefits vary on a project-to-project basis, depending on the specific project goals, initiatives, and target populations (Think Impact, 2016; Miller et al., 2018; Constellation Consulting, 2019). This is further supported by Bowen and Quintiliani (2019) which identified a relationship between socio-economic status and overall health. Health benefits are often valued by the decrease in spending on health associated with having access to better housing (CMHC, 2018; CHA, 2014). Other health indicators include decrease in social services and medical spending (CMHC, 2018; Miller & Ofrim, 2016), decrease in substance abuse (Constellation Consulting, 2019; Miller & Ofrim, 2016), increase in health quality from increased living standards (CMHC, 2018; Miller & Ofrim, 2016), and mental health benefits (Zon et al, 2014; Constellation Consulting, 2019). However, the cost of measuring such benefits may be costly as it requires surveying tenants and self-reporting existing health metrics.

Social indicators have the largest quantity of non-traditional indicators that can be economically valued, as seen across several studies (CMHC, 2018; Zon et al., 2014; Miller et al., 2018). Some of the commonly noted non-health related benefits include: increased stability for adults and children (CMHC, 2018; Miller & Ofrim, 2016; CHA, 2014), decrease in child welfare involvement (Miller et al., 2018; Miller & Ofrim, 2016), decrease in crime and increased safety (CMHC, 2018; CHA, 2014; Miller et al., 2018), access to transportation (CMHC, 2018; Think Impact, 2016), and improved education and literacy (CMHC, 2018; Miller et al., 2018; Think Impact, 2016).

Across the literature an emphasis was placed on the social benefits associated with providing families and children access to affordable housing (CCEA, 2015; Constellation Consulting, 2019; ERHA, 2013; Frontier Economic, 2014; Miller et al., 2018; Suttor et al., 2015; VWHA, 2010). This emphasis

highlights children of tenants in affordable housing can see additional benefits from having access to affordable, quality housing, which may impact the long-term success of such children. Such benefits include increase in children's confidence (CCEA, 2015; Constellation Consulting, 2019; The Good Economy, 2021), improved mental health (Miller et al., 2018; VWHA, 2010), and increased access to youth and family support programs (ERHA, 2013, Mackinnon & Alolo, 2015).

#### Indirect Economic Indicators

Indirect economic indicators are difficult to identify due to the overlap in categories. Indicators that directly impact the economics of the individual or community were identified as economic indicators. Benefits can vary greatly depending on the project goals; therefore, it is assumed that such consideration was made prior to utilizing the metric in existing studies. This section emphasizes those which have already been identified by housing professionals. Commonly identified indicators include: increase in disposable income in the community (CMHC, 2018; Miller & Ofrim, 2016; Suttor, 2015), increase in full time and part employment (Constellation Consulting, 2019; Think Impact, 2016; Mackinnon & Alolo, 2015; CHA, 2014), improved job readiness and training (CHA, 2014; Kraatz & Thomson, 2017), reduced welfare costs (CMHC, 2018; Think Impact, 2016), and increase in operational and management jobs (Miller & Ofrim, 2016; CCEA, 2015).

A study completed by Zon et al. (2014) analyzed the macroeconomic benefits of affordable housing in Ontario. The study uses economic multipliers to display the benefits that investing in affordable housing has. The study evaluated the residential building and construction investment and found that for every 1 dollar invested it generated an increase in overall gross domestic product by 1 dollar and 52 cents as the investment proceeds through the economy (Zon et al., 2014).

Many indirect economic indicators focus on housing as the first step required to help increase the financial situation of low-income individuals. Firstly, noted is the decrease cost of rent, leading to increased savings or disposable income (CMHC, 2018; Miller et al., 2018; Ravi & Reinhardt, 2011; Think Impact, 2016) and potential to repay debt (Fujiwara, 2013; Hightown, 2019). After accessing housing, studies have found that tenants and children of tenants may pursue further education, increasing job readiness (CHA, 2014; Kraatz & Thomson, 2017; Zon et al., 2014). Other studies have further noted that increased participation in workforce may ensue after accessing housing, either at a part-time or full-time rate (Barnes et al., 2018; Cohen & Wardrip, 2011; SVA, 2014).

Although not all individuals who access affordable housing are homeless, those which emphasize housing projects for homeless and underhoused individuals may create additional indirect economic benefits because of the increased social cost of homelessness. Such costs include increased strain on

health, justice, and emergency services to support crisis situations (Hightown, 2019; Miller & Robertson, 2014; Suttor et al., 2015). These costs are increased when considering family homelessness, further including the long-term impacts of youth incarceration (Suttor et al., 2015; Think Impact, 2016) and preventative healthcare (CMHC, 2018; Enterprise, 2010; Zon et al., 2014).

### Current SROI in Community Focused and Affordable Housing

Affordable housing projects were traditionally evaluated without comparing the additional community benefits of social or environmental indicators (Buzzelli, 2009). However, in recent years the literature has shifted to include more holistic indicators for the valuation of affordable housing projects utilizing tools including social return on investment (CMHC, 2018; Kraatz & Thomson, 2017; Kempton & Warby, 2011). This transition reveals that the literature has begun to recognize that non-traditional indicators can lead to valuable benefits that should be quantified when assessing community focused and affordable housing projects. Although indicators are particularly relevant to those projects which build affordability in housing, community focused indicators can also be valued when attempting to initiate new projects or initiatives which emphasize benefits outside of direct economic return.

The Canadian Mortgage and Housing Corporation (2018) has completed an initial valuation utilizing SROI methodology. The study analyzed existing indicators and financial proxies from other studies which employed the SROI methodology. Further, they developed a ranking system to assess the existing studies on the research type, method, usefulness, reliability, and efficacy. The study resulted in the development of an initial framework to be used for quantifying social, environmental, and economic indicators relevant to the affordable housing network. The employed methodology is strong; however, many limitations were identified. One major limitation is the financial data used to quantify the value of affordable housing projects. The study notes that the financial indicators did not have a strong basis and were narrow in design. Additionally, the study lacked long-term financial indicators (CMHC, 2018). Finally, as not all benefits can be easily quantified economically, intended benefits may be overlooked.

Most literature attempting to value affordable housing projects while including non-traditional or social indicators utilize the SROI framework (CMHC, 2018; Miller, 2016; Think Impact, 2016; CHA, 2014). However, other methodologies have been employed, some focusing on specific benefits of affordable housing projects. Pullen and colleagues (2010) develop an assessment framework for affordable and sustainable housing, highlighting how affordability can be built into housing projects by prioritizing environmental efficiencies. Mueller and colleagues (2007) focus on the benefits of affordable housing on health and education. Crowley (2003) narrows in on the impacts of moving to locate affordable housing and the developmental impacts this has on children.



Much of the literature intended to value affordable housing focus on regions outside of Canada. Kraatz & Thomson (2017) focus on valuing affordable housing in Australia. Kempton & Warby (2011) focus on a specific housing model in Scotland. The Cunninghame Housing Association (2014) focus on a particular project located in the United Kingdom. Think Impact (2016) look at women's community housing in Australia. Although these indicators are strong for the geographical context they are exploring, further examination is necessary to determine which are relevant in the context of Ontario, Canada.

The value of affordable housing projects is often categorized by a combination of 3 factors: social, environmental, and indirect economic indicators (CMHC, 2018; Miller & Ofrim, 2016; CHA, 2014). The three categories are in line with the SROI guidelines as outlined by Lingane & Olsen (2004). However, other analyses have been completed which focus on one of the factors. These analyses tend to focus on a more comprehensive valuation of the specific project or initiative (Copiello, 2015; Pullen et al., 2010; Mueller et al., 2007; Crowley, 2003). This highlights the variety of community benefits which can be seen from implementing community focused and affordable housing projects.

### Cost of Impact Measurement in Community Focused and Affordable Housing

Traditional accounting measures can be considered a costly, but necessary expense for business due to regulations such as those implemented through the Canada Revenue Agency (Gov't of Canada, 2021). Impact measurement has often been compared to traditional cost-benefit analysis, as it attempts to value the organization including valuation metrics that are not captured in traditional structures (Maas & Liket, 2011). However, impact measurement costs for social purpose businesses have not been extensively explored.

A theory which can help understand the costs associated with measurement is Transaction Cost Economics, initially developed by Ronald Coase (1937), later popularized by Oliver Williamson (1981). The theory explains that transaction costs are those costs associated with selling a product. Within the housing industry, impact measurement can be considered a transaction cost when assessing the effectiveness of project goals or initiatives. This can become a transaction cost when the assessment is used to improve housing quality, attempt an increase investment in the industry, report value to stakeholders or institute new programs based on findings. This is because the cost of measurement must be internalized to the organization in the process of extracting information (Williamson, 1981). However, some costs are not limited to the organization. An example is data collection from tenants, although data collection has a cost, there is an additional cost on the tenant when giving up private information.

Cost of measurement in affordable housing is often overlooked. It is unclear whether the cost of measuring a particular impact was considered when determining which indicators were relevant to SROI



studies in the affordable housing space (CMHC, 2018; Constellation Consulting, 2016; CHA, 2014). It may be particularly important for non-profit and social purpose organizations, due to potential resource constraints associated with the business model (Hall et al., 2003). When assessing indicators for impact measurement, the cost of collecting such data can be considered to minimize the resources associated with collection, potentially leading to more efficient funding usage. It is important to consider such additional costs and ensure the value of measuring the impact is identified prior to attempting to measure impact.

### Bounded Rationality in Impact Measurement

Social impact measurement can be defined as the measurement of social change for a particular group, associated with targeted activities from a project, involving either positive or negative impacts (Buckland & Hehenberger, 2021). When applied to areas relating to social or environmental change, we can assume that our traditional economic structures are not equipped to fully encapsulate the benefits drawn from such project (Maas, 2008). Impact measurement can bridge this gap by considering non-traditional (social, environmental, indirect-economic) benefits (Cohen & Serafeim, 2020).

The theory of Bounded Rationality proposed by Simon (1972) can be applied to the area of impact measurement. Bounded rationality at its core explains that humans are bounded by the information that we can access, creating a system in which it is difficult to make fully rational decisions. Fundamentally, determining all information necessary to make a wholly rational decision could be extremely costly (Simon, 1972). When applying such logic to business decisions, it is assumed we cannot make wholly rational decisions because the incurred cost of measurement to fully evaluate such decision, may outweigh the benefits associated with the additional information.

Standardizing the impact measurement process may increase the rational decision-making power of businesses, particularly social enterprises. Creating standards which outline potential benefits and areas to consider gives a baseline for rational decision making aligned with the theory of bounded rationality (Simon, 1972). Further, it may mitigate some of the potential costs of measurement associated with bounded rationality in decision making. By outlining best practices for what can be measured, organizations can determine the cost-effectiveness of collecting such data. Brian Arthur (1992) investigates the relationship between innovation and bounded rationality, explaining that it is not realistic that individuals can produce repeated results due to unknowns in the decision-making process. Recognizing how this can impact the development of impact measurements on a project-to-project basis is important, as each organization may prioritize different results, making it difficult to compare. This application of bounded rationality displays the importance of understanding the cost of measurement as an input when determining impact measurements, to narrow the scope of analysis and collect the most information possible (Arthur, 1992).

## Literature Gaps

Although there are several different methodologies that are used for valuing the impact of affordable housing projects, the most common application is SROI in affordable housing (CMHC, 2018; Kraatz & Thomson, 2017; CHA, 2014; Kempton & Warby, 2011). With the area of impact measurement constantly evolving, it is important to apply other methodologies to understand if key valuation concepts are being overlooked. The newest methodology found in the literature is the Common Approach to Impact Measurement, Common Foundations. Such methodology was developed for social purpose organizations, of which, affordable housing is considered. No literature was found applying the Common Foundations in affordable housing or parallel fields. To expand the potential valuation literature on affordable housing, the Common Foundations can be applied.

Across the literature, no single standard for impact measurement in affordable housing was found. The Canada Mortgage and Housing Corporation has attempted a general overview of potential impact measurements that can be considered (CMHC, 2018). However, the list is not comprehensive for different types of affordable housing projects and has listed limitations in development related to the outlined financial evaluation methods (CMHC, 2018). Typically, SROI studies on affordable housing are completed on a project-to-project basis, citing similar projects as the justification for decision making (Miller & Robertson, 2018; Miller & Offrim, 2016; Think Impact, 2016). Among these projects, it is difficult to understand if metrics are selected due to best fit as determined by practitioner, or due to access of applicable metrics. No single bank of potential valuation metrics exists, leading the individual implementing the study to parse through many studies until they are satisfied with the indicator valuation set. Expanding the literature available to practitioners to include a comprehensive set of valuation indicators may increase the calculated impact, enhance the relevance on a project basis, and improve the number of valuation assessments that are completed on affordable housing projects.

Throughout the affordable housing valuation literature, there appears to be a lack of consideration for the cost of measurement associated with impact measurement. It is unclear as to whether cost was a determining factor when assessing potentially relevant indicators. Several studies have implemented tenant surveys to gain an understanding of the impact of implementing affordable housing (Think Impact, 2016; Miller & Robertson, 2018; Mackinnon & Alolo, 2015). However, surveys can be costly to implement and may involve significant personal data from tenants, such as the Women's Property Initiative which asked tenants to respond to questions on health, socialization, safety, and children (Think Impact, 2016). The information provided by tenants to respond to such requests involves providing personal information, which may come at a cost. An important consideration in determining which metrics to measure should be the cost on the housing provider and the individual whose data is being

collected. An area of literature that should be enhanced is the cost of such metrics, how to identify which are too costly, and the rationale for making such decisions.

## Chapter 3: Methodology

The research study is a multi-stakeholder initiative which attempted to utilize multiple data collection methodologies to create a comprehensive set of impact measurement indicators related to the housing industry. To align with academic theory and practical theory on impact measurement, the study implemented the CAIM Common Foundations, a set of 5 Essential Practices when developing impact measurements for social purpose organizations. The Common Foundations have yet to be used in this context, therefore, it is possible the results may differ from existing impact measurement studies in affordable housing. The following section outlines the research methodology, the CAIM Common Foundations, how data collection aligns with each of the 5 Essential Practices, and an overview of the data collected at each stage.

### Paradigms, Epistemological and Ontological Considerations

The study acknowledges the philosophical assumptions that form the basis on the study methodology. The project is transformative in design, focusing on changing the way that housing projects are valued, and how funding is allocated in the sector. This conforms to the expectations of the transformative worldview according to Creswell (2018). The project has a direct focus on human rights and social justice as anticipated by the transformative worldview (Mertens, 2009). Further, the study holds an ontological realism design, which is an accepted practice in line with the applied worldview (Romm, 2015). This is due to the focus on determining a more holistic valuation methodology, with the goal of improving decision making in the sector. Overall, the project supports social transformation, which is fundamental in the design (Romm, 2015).

### Summary of Research Methodology

Previous studies which have attempted to value non-traditional indicators in affordable housing have primarily utilized the SROI methodology (CMHC, 2018; Miller et al., 2018; Miller & Ofrim, 2016). The research completed in the context of Ontario is limited, lacking a clear set of common indicators which can be used to value projects. Research completed by Zon et al. (2014) focuses on the justification for investing in affordable housing in Ontario, rather than providing an assessment framework for municipalities. No assessment framework for the province of Ontario was found within the literature.

The applied methodology will align with the CAIM, Common Foundations which involves 5 essential practices. Throughout each of the 5 essential practices, relevant methodological considerations will be outlined. Not all essential practices involve data collection, however, those that do are listed to outline how such data aligns with the Common Foundations. The data collection applied throughout the essential practices include implementing a Theory of Change, semi-structured interviews, and a case

study to verify the results. The following section will further outline the Common Foundations Essential Practices, the benefits with utilizing them, and the data collection associated with each Essential Practice.

#### Overview of CAIM Common Foundations

The research will be aligned with the CAIM Common Foundations for impact measurement. The foundations utilize similar principles as the SROI methodology, focusing on five essential practices that are necessary for social purpose organizations. However, the Common Foundations may have additional benefits including increased stakeholder engagement, flexibility, and an increased focus on impact measurement (CAIM, 2019). By implementing the Common Foundations, the framework is adhering to the practices of SROI and other impact measurement frameworks. A comparison can be seen in Table 3 displaying how the Essential Practices can be mapped to the stages of SROI.

The benefits outlined in Table 3 may increase the reliability and strength of the overall housing impact measurement framework. The differences will be outlined in the discussion section to understand if additional benefits were seen from the anticipated flexibility, stakeholder engagement, and emphasis on metric development. Further, the CAIM approach was created and intended for driving impact measurement within social purpose organizations, of which, this research intends to impact.

To address the proposed research questions, the project will use the CAIM Common Foundations minimum standard for impact measurement, as outlined in the Common Foundations of Impact Measurement (CAIM, 2019). This framework involves 5 essential practices; (1) planning intended change; (2) using performance measures; (3) collecting useful information; (4) gauging performance and impact; and (5) reporting on results. Each stage involves different research goals.

*Table 3: CAIM versus SROI mapping*

CAIM	SROI	Potential Benefits/ Differences
Describe Intended Change	Identifying Key Stakeholders	CAIM begins by seeking to understand how and what change is being attempted and mapping such outcomes. Combining these stages may be beneficial for determining stakeholders and mapping inputs, outputs, and outcomes when compared to SROI. The flexibility in this stage may allow for more holistic findings.
	Mapping Inputs, Outputs, and Outcomes	
Use Indicators	Measuring and Valuing Outcomes	After expected values have been understood, CAIM attempts to develop indicators for measurement. During this stage CAIM encourages consultation with those impacted to develop indicators and the use of existing ones. CAIM attempts to keep the development of indicators flexible while providing guidance on the types of indicators that should be prioritized. SROI uses similar practices in the following stage have has less flexibility and guidance built into documentation.
Collect Useful Information	Establishing Impact	Both SROI and CAIM attempt to determine how to collect data in this stage. CAIM guidance encourages developing indicators with clear data collection methods which can be measured year over year to assess progress. Both achieve similar goals although CAIM provides more guidance on how and what data to collect.
Gauge Performance and Impact	Calculating SROI	CAIM offers general guidance on how to review and assess performance. Until the common framework is finalized, SROI analysis will be applied by practitioners (deadweight, drop off, displacement, attribution), in-line with the flexible guidelines provided by CAIM. This will ensure performance is not over-valued in the calculations, while also using the CAIM to draw conclusions.
Communicate and Use Results	Reporting and Embedding	Both SROI and CAIM use similar guidelines for reporting on the findings. CAIM gives additional guidance on reevaluation of data and tailoring for your audience.

To implement the Common Foundations as a basis for the research methodology, each essential practice was outlined with applicable data collection or practical applications. The essential practices with applicable data collection were then further outlined to elaborate on data collection methodology. A methodology is also proposed to prioritize indicators, as the full set of impact measurement indicators are not meant for use in each affordable housing study.

The first essential practice, planning intended change, involved developing a theory of change (TOC) model. This model attempts to illustrate the expected relationships between affordable housing valuation indicators and the economic benefits of said indicators. Further, this model outlined the overall scope of the project.

The second essential practice, using performance measurements, includes a structured content analysis of relevant literature discussing valuation indicators and related financial proxies. This stage began to address the research questions by seeking to understand what the social and environmental benefits of community focused and affordable housing projects are and what the associated economic value is. Once the data was collected, analyzed, and mapped, it was presented to a set of 7 key industry professionals. The information was presented in a set of semi-structured interviews to determine the effectiveness and relevance of these indicators. This was done to ensure the indicators can be

implemented. Further, the interviews involved feedback to supplement the identified indicators to highlight any gaps from the perspective of the housing professional. Information from these interviews was coded and represented in the initial indicator list.

The third essential practice, collecting useful information, involved creating a weighting methodology to understand the relevance and effectiveness of the indicators from a professional standpoint. A process was proposed to define the weighting based on the cost-effectiveness of collecting the data.

The fourth essential practice, gauge performance and impact, proposed a process to collect, fill-in, and analyze data at the municipal level. This stage involved inputting data from stages one to three in an accessible format. Further, this stage attempted to address the research question which seeks to understand how valuing non-traditional indicators change the valuation of affordable housing projects. The process was verified using a case study from the United Property Resource Corporation.

The fifth essential practice, communicate results, involved developing a technical document to explain the process and encourage practitioners to replicate these results on independent projects. The technical document includes items such as the document outlining the indicators and financial proxies, information on how to use the documents, explanation of indicator selection, and information about the CAIM framework.

## Theory of Change

The TOC Model is a 5-step process used for impact measurement, with the goal of understanding social and environmental issues, and how they can be impacted by a particular organization or project (SoPact, 2020). The 5 stages of Theory of Change include mapping (1) Inputs; (2) Activities; (3) Outputs; (4) Outcomes; (5) Impact. Throughout the process, the goal is to understand the impact and measure the changes that occur. The Theory of Change has been accepted as a key method to use when attempting to measure the impact of a particular project (Jackson, 2013).

The CAIM Common Foundations, Essential Practice 1 involves *Describing Intended Change*. This practice involves specifying how and why a project or organization will make certain social and environmental changes. During this stage, the Common Foundations recommends a variety of options on how to complete this stage including describing such change through a paragraph, impact thesis, or diagram. Further, outlining the Theory of Change as an option to map outcomes and understand the impact of the project prior to implementing. Therefore, for the initial stage, due to the accepted interest in the Theory of Change model for impact measurement (Jackson, 2013) and the explicit encouragement

from the Common Foundations, Essential Practice 1 was completed utilizing the Theory of Change model for community focused and affordable housing.

### Content Analysis

Practice 2 of the CAIM Common Foundations is Using Performance Measures. This stage recommends the development of indicators as an essential practice of impact measurement (CAIM, 2021). This research stage begins to address the research question, “What are the non-traditional (social, environmental, and economic) contributions of affordable housing projects in Ontario, and how have they been valued in the literature?”. To understand how projects are valued in the literature, a structured content analysis was used. The content analysis highlights existing projects valuing affordable housing projects.

### Search Parameters

The structured content analysis employed the following search parameters, utilizing google scholar as the primary search engine. Due to the nature of SROI studies, both academic and grey literature were considered for this project:

- Impacts from affordable housing
- “Economic benefits” of affordable housing projects
- “Social benefits” of affordable housing projects
- “Environmental benefits” of affordable housing projects
- Social return on investment affordable housing
- Social return on investment social housing

The initial search found 50 pieces of relevant literature. The research project considered literature which highlighted benefits, even when it lacked a financial proxy or metric to value the indicator. These were kept supplementing the findings with feedback from affordable housing practitioners, who may have insight for how to value such indicators.

After determining which articles would be included in the content analysis, each article was reviewed to extract all indicators, measurements, and financial proxies used to measure the economic benefits of affordable housing projects. A sample can be seen in Figure 1.

Impact to be Measured	Metric	Financial Proxy (\$)	Citation
Healthcare Utilization	Money saved, redirected (opportunity gain), disease count changes, prevalence utilization	General practitioner, emergency room, and hospitalization costs (depending on region)	(CMHC, 2018)

Figure 1: Example indicator, metric, and financial proxy finding from reviewed document.



## Data Collected

The impact, metric, and where applicable, potential financial proxy information was noted for each of the 50 reviewed studies. If a study was missing financial proxies for the metric, the field was left blank. Once all documents were reviewed, the indicators were assigned a category; social; environmental; or economic. These groupings were used to sort similar indicators. An explanation of the three categories and an example can be seen in Figure 2.

Domain	Explanation	Example
Social	Metrics impacting the greater good, without a focus on the environment. This can include impacts to individuals, families, or communities.	"Number of tenants reporting improved health; number of tenants in a warmer, drier, and less crowded house"
Environmental	Metrics which focus primarily on the benefits to the environment.	"Number of tenants reporting a shorter commute to work and shorter distances to amenities"
Economic	Metrics which focus on direct costs associated with a benefit. This may also include direct revenue benefits for government or property owners.	"Revenue from local permits, taxes, etc. during construction or renovations"

Figure 2: Overview of social, environmental, and economic domains.

Once indicators were mapped by social, environmental, and economic domains, similar metrics were grouped into categories. When multiple unique metrics or proxies were noted, multiple rows were used to display the differences between citations. When indicators were similar, only noting minimal phrasing differences, indicators were merged and summarized. Some metrics were merged when discussing comparable ideas that were covered by related financial proxies. Other metrics were summarized to represent both ideas if needed. Indicators which were missing financial proxies but had similar indicators or metrics were also merged. Figure 3 displays an example of merged indicators.

Impact Type	Impact to be Measured	Metric	Financial Proxy (\$)	1	2	3	4	5	6	7	8	9	10	11	12	13
Economic	Increased Participation in Work Force	Increased employment rates and earning potential at part time	Improved earning potential as measured by part-time employment rates at minimum wage	(Ravi & Reinhardt, 2011)	(Zon et al., 2014)	(CMHC, 2018)	(VWHA, 2010)	(CCEA, 2015)	(miller et al., 2018 (1))	(constellation consulting, 2019)	(SVA, 2014)	(Fujiwara, 2013)	(Frontier Economics, 2014)	(ERHA, 2013)	(Barnes et al., 2018)	(Cohen & Wardrip, 2011)
		Number of tenants who found full time employment while in housing	1 year of full time minimum wage income for one person	(Mackinnon & Aloilo, 2015)	(VWHA, 2010)	(CCEA, 2015)	(miller et al., 2018 (1))	(Cohen & Wardrip, 2011)								

Figure 3: Example of similar indicators grouped, with differing metrics and financial proxies.

Upon finishing the groupings, 56 unique impacts were determined, 95 unique metrics, and 91 unique financial proxies. An additional 10 indicators lacked financial proxies in the final stage of review. Once groupings were finalized, a frequency analysis was used to determine the relevance of indicators.

## Frequency Analysis

Each pairing of indicator, metric, and financial proxy were analyzed to determine the number of citations which utilized similar content. This was completed to categorize each grouping as “niche”, “common” or “foundational”. These groupings help to determine whether the indicators are likely to be relevant to a new project. This is not to say that niche indicators are not going to be relevant, rather, to

discuss which ones are most likely to be relevant based on existing SROI studies. In the context of the framework, all indicator groupings can continue to be analyzed for relevance on a project-to-project basis.

The number of citations per indicator, metric, financial proxy grouping was used to create categories based on how common the indicators were. Three categories were determined, including “Foundational”, “Common”, or “Niche” as displayed in Figure 4.

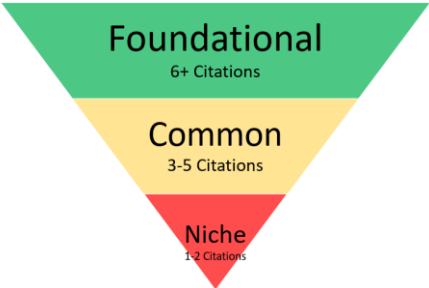


Figure 4: Frequency analysis categories

After the categories were determined, each indicator grouping was categorized as “Foundational”, “Common” or “Niche”. Figure 5 outlines the categorization findings of the 91 unique pairings. To explore each individual indicator grouping to understand the categorization, refer to Appendix 2.

Categorization	Number of Citations Required	Number of Pairings Identified
Niche	1-2 Citations	33
Common	3-5 Citations	33
Foundational	6+ Citations	24

Figure 5: Categorization of indicator pairing, summary table

**Interview Participation**

As part of Essential Practice 2, after finalizing the content analysis findings, virtual interviews were used to verify findings and supplement areas that were lacking literature. A semi-structured interview format was used to address 2 main interview questions over a period of 1.5-2 hours.

*Question 1: Does the participant believe the findings are relevant in Ontario and are there ways to increase the strength of the indicators?*

*Question 2: Are the measurements effective in understanding the value of the indicator?*

Each interview participant was given the comprehensive set of indicators as determined from the content analysis stage to review prior to the interview. During the interview, a set of approximately 10 indicators at a time were placed on the screen and discussed using the 2 question prompts. These questions were exploratory in nature, encouraging housing professionals to discuss their experiences with the benefits that are noted in the literature. This led to participants proposing additional benefits, requesting changes to center the indicators more directly to data available in Ontario, and highlighting benefits that they challenged. Once complete, personal information was stripped from interviews and the data was coded using the Nvivo software. A total of 22 coding categories were identified. A comprehensive list of the categories can be seen in Appendix 3.

Potential interview participants were identified in different geographical areas across Ontario and different roles within affordable housing. This includes individuals who maintain and manage affordable housing, invest in affordable housing, or research affordable housing. To assemble the list of potential participants, individuals were identified from online searches of publicly available information, using job titles as a guide to identify those who were considered professionals. This included online searches on Google, LinkedIn, and other publicly available websites found from Google Searches. To ground the research in geographic scope, research participants were limited to those employed in affordable housing work in Ontario. Participants were from both rural and city locations. The search resulted in a total of 74 individuals emailed, 9 responded with interest and 4 responded declining participation. The overall participation rate was low throughout the email campaign. In total, 7 individuals participated in the semi-structured interview phase with a participation rate of approximately 9%. The initial interview goal was 10 professionals, but due to a lack of participation only 7 housing professionals agreed. 2 additional participants agreed but did not attend the interviews as expected. The lack of participation in the interview stage is noted as a limitation of the study.

### Case Study: UPRC

Practice 4 of the CAIM Common Foundations is gauge performance and impact. For the research study, this involved proposing a process to collect, fill-in, and analyze the data at an organizational level. After understanding how to assess an organization using impact measurement, a case study was employed to test the results. This involved prioritizing and selecting impact metrics that were relevant to a community focused housing provider.

To select a housing provider for the case study, it was necessary the organization adheres to the following qualifications: the housing provider must focus on community benefits within the provided housing; there must be an emphasis on affordability of units; and data must be available to complete the analysis.

The United Property Resource Corporation (UPRC) was selected for the case study portion of the research study after confirming the identified criteria. UPRC is a social purpose organization with the goal of providing affordable housing for all. UPRC will build new mixed-income housing properties. UPRC's mission is to build high-quality, sustainable, mixed-income housing across Canada. The case study analyzed all identified impact measurements, then prioritized them against the identified weighting criteria. This involved assessing indicators based on the relevance to the organization, cost of measurement, and the ability to collect data. UPRC is still in development stages, therefore measuring the true impact in an evaluative format will be the responsibility of UPRC in the future. The study proposes indicators which can be used as forecasted or evaluative metrics based on the use case of the organization.

# Chapter 4: Research Results

## Introduction

The research project utilized the CAIM Common Foundations 5 essential practices as a baseline to create a data collection methodology. This was done to develop an assessment framework for affordable housing practitioners to understand potential impact measurements in the industry. The study design involved an initial TOC model, structured content analysis, interview data, and an applied case study. The following section outlines the research findings, highlighting potential advantages and disadvantages of the data collection methodology. The section highlights the Common Foundations Essential Practice associated with the data.

### TOC Statement: Essential Practice 1

The TOC statement focuses on implementing a housing project focused on increased affordability, environmental efficiency, and other social initiatives to maximize the benefit seen by stakeholders. This is based on a theoretical situation and should be altered when focusing on a specific project. This is not to propose that all projects focusing on affordability and community benefits will see such benefits.

<p><b>Mission Statement:</b></p> <p>The mission of the research project is to empower stakeholders in community focused and affordable housing to complete impact measurement studies on relevant projects, with the goal of encouraging efficient funding allocation and increasing investment. This is done to positively impact housing supply and increase additional benefits for tenants and communities.</p>
<p><b>TOC Model Statement:</b></p> <p>It has been assumed that increasing access to adequate affordable housing through the model may lead to financial benefits from affordability, increased sense of community and related benefits, sustainability gains, and the possibility of expansion with project success.</p> <p>This will be seen through; (1) decreased costs of rentals; (2) improved social wellbeing among tenants; (3) reduced environmental impact seen through lower maintenance costs (i.e., electricity and water usage); (4) project analysis and expansion overtime.</p>

## Problem

<p><b>Short-term:</b></p> <p>The cost of housing across the housing continuum in Ontario is steadily increasing, exacerbating affordability issues for individuals.</p>
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**Long-term:**

Access to affordable housing is lacking across Ontario. A lack of adequate affordable housing can impact a variety of community health metrics. For example, having access to secure affordable housing can lead to increased participation in the workforce (Zon et al., 2014) or stronger educational performance in children (Miller et al., 2018). Without accessing affordable housing, it may be more challenging for an individual to reach their full potential. Improving the availability of affordable housing can impact individual tenants as well as increase the resiliency of a community.

As our cities continue to grow (StatsCan, 2020), the importance of securing adequate affordable housing at the individual level is extremely important for our communities. A lack of access may result in declining community resilience in other areas, including but not limited to workforce participation, education, and safety. Although there is no one solution to address issues across the broader housing continuum, increasing the availability of adequate affordable housing can help strengthen the rental market.

### Justification of the Problem

According to Statistics Canada in 2018 3% or approximately 165,000 households in Ontario were on a waitlist to access affordable housing (StatsCan, 2019). This highlights an issue between affordable housing supply and demand in Ontario. Additionally, housing prices have been increasing for both renters and buyers across the province (Readman & Dever, 2020). As prices continue to rise, affordable housing is extremely important to fill the gap between market rates and individual income.

For example, in the city of Kitchener, average rent increased by 41% between 2009 and 2019. The average cost of a house increased 104% in that same period. Much of the increase in concentrated between 2016-2019, displaying a worsening issue (Readman & Dever, 2020). Affordability issues are exacerbated by the current covid-19 pandemic (BDO, 2021).

**The increasing costs can lead to:**

- Higher cost to purchase homes, leading individuals to rent for longer or indefinite time frame.
- Higher cost of rent pricing people out of the region or a lack of security of tenure.
- Lower security of tenure leading to other concerns including those associated with employment, health care, and security.

### Vision of Change

The vision of change highlights potential benefits that can be seen from increasing affordability of housing in a community. These benefits are linked to specific project indicators and are not likely to be seen by each tenant moving into a community focused or affordability focused housing project. The benefits may be a combination of changes in mind, action, or community, or any combination of these. This is to say changes in mind may not always lead to changes in action or community. The chart highlights potential changes that can occur with adequate interventions. Such changes can vary based on the target population and project goals.

<b>Topic:</b>	<b>Changes in Mind (values, knowledge, etc.)</b>	<b>Change in Action (Behaviour, policy, etc.)</b>	<b>Changes in community</b>	<b>Supporting Literature</b>
Affordability/ Financial management	Increased financial management skills and freedom to make financial decisions	Increased job readiness and workforce participation leading to additional income and stability	Decreased costs of social services use after housed (healthcare, justice system, financial support services)	Miller et al., 2018; Mackinnon & Alolo, 2015; Suttor et al., 2015
Affordability/ Rental costs	Value change, rent should be affordable and good quality for everyone, regardless of income	Increase in the number of affordable properties, increase in the number of households accessing affordable housing	Region becomes more affordable to live in (less than 30% of income) encouraging a more diverse population	<insert CMHC 30% rental affordability citation>
Job Creation	Value of having decent work and being employed, leading to financial freedom	Individuals employed within the community, providing decent work	Jobs created to maintain, build, and renovate the property. Jobs created to maintain influx of tenants in the neighbourhood	Miller & Ofrim, 2016; CCEA, 2015; Zon et al., 2014
Mental health/ wellbeing	Decreased levels of stress, overall increased mental health, and wellbeing	Increase in personal care leading to better wellbeing	Improved social empowerment and involvement in the community	Miller & Ofrim, 2016; Zon et al, 2014; Constellation Consulting, 2019
Social wellbeing	Recognizing the value of socialization and maintaining relationships	Improved relationships leading to increased socialization and social empowerment	Increased value of a connected community with social support	Boyle et al., 2016; Miller & Robertson, 2014; Kempton & Warby, 2011
Education	Increased participation in education (secondary and post secondary), prioritization of knowledge	Enhanced education performance for children of housing tenants	Higher rates of high school completion, avoiding the public costs of dropping out of high school	CMHC, 2018; Miller et al., 2018; Think Impact, 2016
Safety	Increased feeling of safety for self and family	Decreased harm from abusive situations on individual and family. Increased feeling of safety within the neighbourhood.	Decreased cost of crime and criminal activities, lower rates of crime in the community	CMHC, 2018; Hightown, 2019; CHA, 2014

Environmental efficiencies	Increased understanding of the importance of environmental efficiencies in the home based on cost savings	Increase in environmental performance of units (water and energy efficiency, construction materials)	Reduced contribution to climate change	Brod et al., 2020; Puri & Smith, 2019; Tsenkova & Youssef, 2012;
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Broad TOC

A broad TOC model was developed to highlight the inputs, activities, outputs, and outcomes necessary to achieve the goals of the research project. The theory of change was completed after initial literature scans and is not meant to be a comprehensive representation of the benefits from affordable housing. However, it does highlight the importance of engaging with tenants to maximize the benefits that affordable housing projects have on a community. This could include discussing potential initiatives to focus on the interests and concerns of the tenants to create specific interventions. For instance, a housing project for seniors may not include interventions to increase participation in the workforce unless this was highlighted by tenants. Facilitating the purchase or development of affordable housing is likely to benefit the surrounding community; however, implementing additional environmental retrofits or facilitating programs for personal development may further benefit the surrounding community and maximize the impact of the investment. Figure 6 outlines the inputs, activities, outputs, and outcomes necessary for an affordable housing project.



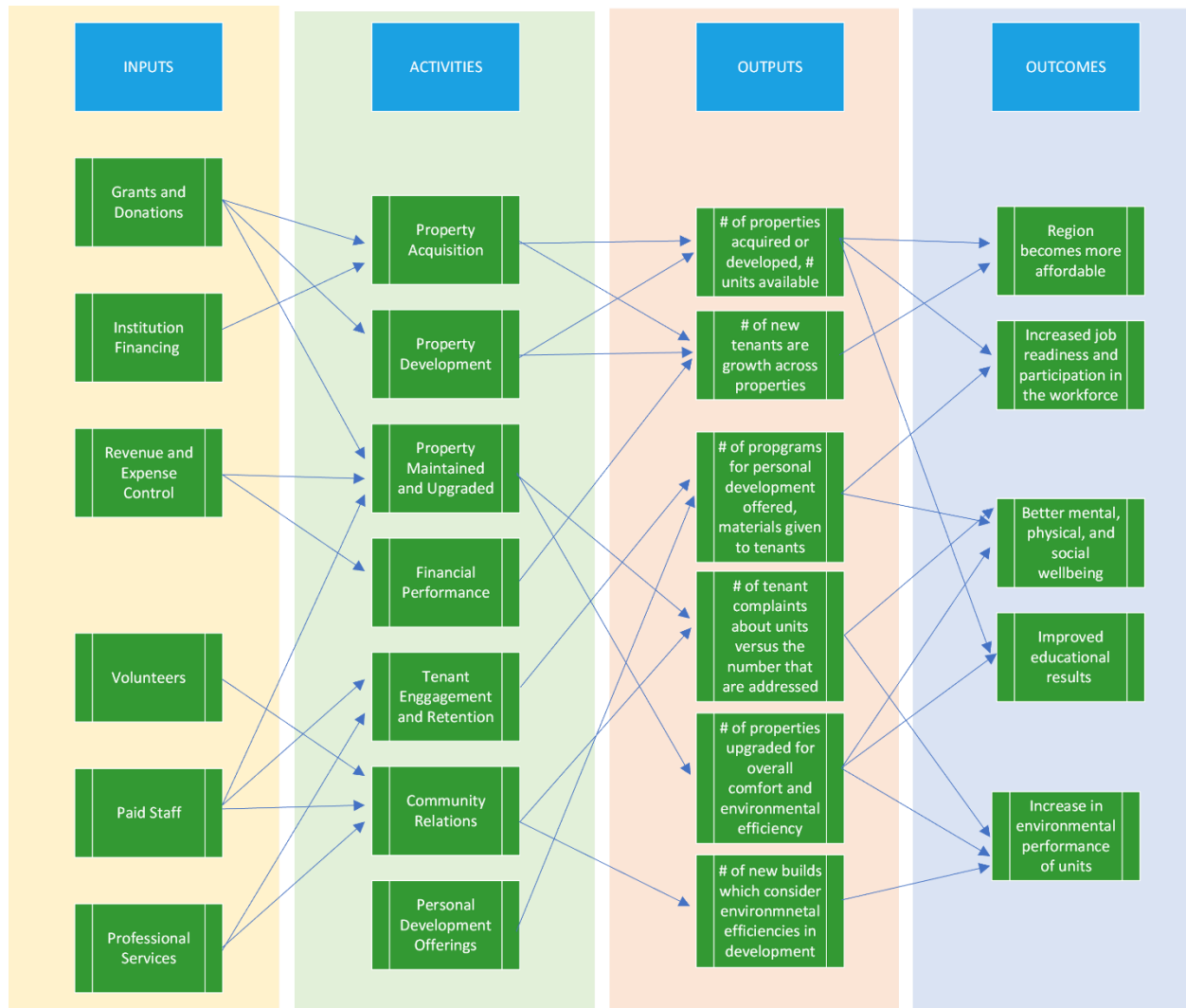


Figure 6: Theory of Change mapping diagram; inputs; activities; outputs; and outcomes from implementing affordable and community based housing projects.

## Content Analysis: Essential Practice 2

The initial data collection involved a structured content analysis of existing literature to extract all potential impact measurements. The collected data included the area of impact, the associated metric, and any potential financial proxy information. The initial search returned 50 pieces of literature, determined to be relevant to affordable housing impact measurement. This information was then sorted to align similar areas of impact and align metrics and proxies quantifying similar aspects.

The initial content analysis was used to understand a baseline of what other studies in the industry were quantifying. Within the field of impact measurement as a whole, and within the CAIM Common foundations essential practice 2 (CAIM, 2021), it is encouraged that studies utilize existing indicators. Therefore, the first stage of the research study attempted to understand what impact measurements have existed in historical studies of similar nature. This led to an extensive list of potential impact

measurements, indicating benefits in a broad range of areas including areas such as health (Miller & Robertson, 2014; Suttor et al., 2015; CMHC, 2018), education (Miller & Offrim, 2016; CHA, 2014), financial health (Fujiwara, 2013; Barnes et al., 2018), safety (Kempton & Warby, 2011; Herbert et al., 2014), green design and construction (CMHC, 2016; Puri & Smith, 2019), and transportation access (Enterprise, 2014; EHRA, 2013).

Designing the study to incorporate an initial content analysis helped understand what other practitioners have determined to be important to stakeholders. Although projects will have different benefits and priorities, it is likely that some alignment exists across projects. Identifying impact measurements that are important to other studies may help practitioners with similar studies understand what is relevant to applicable stakeholders. Additionally, many of the analyzed studies included feedback from additional stakeholder groups in the development of the indicators. For instance, some studies interviewed or surveyed tenants to determine how they felt about the impact of affordable housing (Miller et al., 2018; Think Impact, 2016). The research study was limited in capacity and did not include feedback from tenants as a key stakeholder group, therefore, incorporating studies which included this stage may help ensure the perspective of this group is represented.

#### Frequency Analysis

The frequency analysis was completed to understand and categorize the indicator, metric, and potential financial proxy groupings attempted to discover which groupings were the most likely to be relevant to a new community focused or affordable housing project. This had both advantages and disadvantages for the first iteration of the assessment framework. Advantages include initial insight into what has been prioritized in previous studies, what stakeholders have considered important in previous studies (stakeholder feedback), and what aspects were measurable. Disadvantages include the global perspective of the study and important themes changing over time. Regardless of categorization, it is critical that the individual assesses the indicator to ensure relevance to the project. This is not to claim that because an indicator is foundational, that it is going to be relevant to every study. Rather, a foundational claim highlights that this has been looked at historically several studies. For instance, with environmental efficiency, although it has been cited across many studies, it is only relevant if the project emphasizes such goals.

#### *Advantages*

The initial frequency analysis provided insight into what indicators have been prioritized historically. By categorizing impacts based on how important other studies have considered them, it gives a baseline for what indicators should initially be considered. When an indicator is ranked as “foundational” there is a higher chance it will be relevant to a new project. This is compared to “niche”

indicators, which may not be considered for a standard comparison unless such indicators are part of the project goals. Figure 7 displays an example of a niche indicator, that may only be used based on project priorities.

Impact to be Measured	Metric	Financial Proxy (\$)	Class of Metric	1	2
Improved overall health	Improved health during pregnancy from accessing housing	Value of improved health during pregnancy and healthy babies born, yearly additional costs of premature babies	Measure with Survey	(miller et al., 2018 (1))	(Miller & Robertson, 2014)

Figure 7: Example of a niche indicator, metric, and financial proxy grouping

In the example from Figure 7, such benefits may only be considered if the project places emphasis on housing women or families. Alternatively, if a project was housing seniors, this indicator may not be as critical since few seniors are pregnant. This may imply the indicator is less likely to be foundational, rather, dependent on specific project priorities. This does not indicate that this impact is unimportant, only that it is less likely to be recognized as a benefit across all projects.

Another advantage of performing the frequency analysis is additional insight into stakeholder feedback on the indicators. SROI studies require stakeholder feedback in the process. Although the level of stakeholder engagement varies between each study, by incorporating the frequency analysis on the content analysis, we can assume that the more studies that have included the citation, the more likely the benefit is widely applicable. This may also indicate that such groupings are more important to industry professionals and tenants in affordable housing, placing additional emphasis on them in the study.

The frequency analysis also may give insight into what type of information housing providers have access to. This helps to ground the assessment framework in a pragmatic lens. If historically housing providers have been able to collect such information, it can be assumed that other stakeholders may have access to such information. Figure 8 displays an example of an indicator that is foundational.

Impact to be Measured	Metric	Financial Proxy (\$)	Class of Metric	1	2	3	4	5	6	7	8	9
Green Design and Construction	Energy efficiency for sustainable housing	Average annual cost of utilities	Project Specific	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Pullen et al., 2010)	(The good economy, 2020)	(Brod et al., 2020)	(Shrestha et al., 2019)	(Poor et al., 2018)	(Puri & Smith, 2019)	(Hightown, 2019)

Figure8: Example of a foundational indicator, metric, and financial proxy grouping

In the example displayed in Figure 8, it is likely that a stakeholder would have access to the average annual cost of utilities at the building. This figure can be compared to neighborhood averages to determine the environmental efficiency of a building. However, this is only relevant if the individual completing the study is confident that there will be environmental efficiencies implemented within the

building. The foundational categorization helps us understand that this is data that is more likely to be accessible and pragmatic to measure.

*Disadvantages*

The priorities found in the content analysis may be ever changing in nature. For instance, in recent years more emphasis has been placed on sustainable and environmentally efficient housing. However, there appears to be a limited number of metrics which quantify the environmental returns. Of the 12 metrics that were categorized as environmental benefits, only 6 had outlined financial proxies for measurement. Some emphasis was placed on the environmental efficiency of the apartment, but only in terms of green design and construction. It is possible that as priorities in housing shift over time, the initial frequency analysis will not capture the most up to date priorities. An example can be seen in Figure 9.

Impact Type	Impact to be Measured	Metric	Financial Proxy (\$)	Class of Metric	1	2	3	4	5	6
Environment	Transportation Emissions	Number of tenants reporting a shorter commute to work and shorter distances to amenities	Time and carbon emissions costs of car travel saved per year	Measure with Survey OR Statistic	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Puri & Smith, 2019)	(Enterprise, 2014)	(EHRA, 2013)	
Environment	Green Design and Construction	Constructing buildings with passive approaches to low-energy affordable housing	Benefits of greening (rate subsidies, property value, responsible materials, etc.) subtract the cost of greening.	Project Specific	(Pullen et al., 2010)	(CMHC, 2017)	(CMHC, 2016)	(Bradshaw et al., 2005)	(Bardhan & Debnath, 2016)	(Puri & Smith, 2019)

Figure 9: Foundational indicator pairing versus common indicator pairing

In figure 9, the impact of green design and construction is considered foundational due to having 6 citations. However, transportation emissions only have 5, categorizing it as common. It is possible that green design and construction is considered foundational because the metric has been quantified for a longer period of time, because of the potential for immediate economic benefit that is caused by environmental efficiencies. Whereas transportation emissions, although potentially important to quantify, has a newer set of citations. This could indicate that over time, priorities have shifted to begin considering other environmental impacts in such SROI studies. This may cause the frequency analysis to place emphasis on indicators which are no longer prioritized or lack emphasis on key indicators.

The categorization highlights a reliance on the underlying studies. It is assumed that existing studies have understood the relevance of such indicators when assessing community focused and affordable housing projects. Such categorizations help us broadly understand the frequency of which these indicators are used, however, it is still up to the individual completing future studies to assess whether the metric is relevant to a future study. With the example of environmental efficiency, although foundational, it is not inherently relevant, rather, has often been a foundational consideration in the past studies.

## Semi-Structured Interviews: Essential Practice 2

Interviews were used to supplement and verify the findings from the content analysis. Discussing with key stakeholders is a crucial component of the CAIM Common Foundations. For the purpose of this project, only professionals were interviewed. This was in part due to project constraints. Additionally, due to the nature of the content analysis data collection, many stakeholders were considered in the initial development of previous SROI studies. This interview process focused more on creating a standard that is pragmatic in focus, and therefore focused the interview stage on professionals who would use the assessment framework. Future iterations should consider consulting with tenants in affordable housing as they are a major stakeholder in developing new emerging indicators.

Interviews help to mitigate some of the potential limitations of the content analysis. This helps to capture new and emerging priorities, understand current issues with impact measurement, determine what is relevant from different perspectives, and ground global studies in the context of Ontario. By including interviews, a deeper understanding of the interviews is understood, giving context into what indicators should be prioritized on a project-to-project basis.

The following sections outline interview findings including a broad overview of framework recommendations, participant agreements, what indicators should be left out of decision making, and discrepancies among participants.

### Framework Recommendations

Interviews were coded to highlight consistencies among the participant feedback. Interview coding led to a total of 22 categories. Each coded quote was analyzed to determine whether a change to the framework could be noted. In total, 48 recommendations were made to enhance the framework. Each recommendation was analyzed and categorized to determine whether it was within scope. The categories are noted in Table 4. When necessary, additional information is noted in the categorization to highlight reasoning.

*Table 4: Interview recommendation categories.*

<b>Categories:</b>	<b># Instances</b>
This is a sensible alteration within the current scope.	31
Diverges from the purpose of indicators.	8
This is included in another section (section is noted).	5
This is outside the scope of the current project.	4

Of the 48 recommendations, 31 were implemented in the assessment framework and 5 were already included in later sections but proposed at a different point in the interview. Another 8 were determined to diverge from the purpose of the assessment framework. An additional 4 recommendations were considered out of scope and were not implemented. Refer to Appendix 4 to view each of the recommendations. The final set of indicators including alterations from the interview stage can be viewed in Appendix 6.

### Participant Priorities

Participant priorities were outlined while reviewing each indicator during the interview stage. On key themes, participant responses and overall sentiment towards the indicators were grouped based on similarity among participants. This helped to identify themes which are consistent and contentious based on the group responses. Once grouped, 3 categories were assigned to key themes; (1) Common Agreements; (2) Some Avoidance; (3) Contention. Table 5 displays a summary of how categorizations were applied.

*Table 5: Explanation of categorization of interview findings*

<b>Category</b>	<b>Overview</b>
Common Agreement	This category indicates all interview participants that commented on the indicator theme were similar in consideration. This could indicate that all participants have a positive or negative sentiment, although, the participants are in common agreement on the indicator.
Some Avoidance	This category indicates that participant(s) had some hesitancy to include the indicator in the study. This does not indicate that the benefit is not present, however, could indicate an issue of privacy or other concern with data collection. This grouping indicates participant(s) encourage caution when applying such indicators in an effective way.
Contention	This category indicates that there is some discrepancy among participants regarding the sentiment an indicator is attempting to convey. This does not indicate that an indicator will be removed from the study, rather, that differing viewpoints were noted during the interview stages. Discrepancies are highlighted to display differing viewpoints and final decisions were made to include or exclude based on all perspectives.

Upon reviewing the list of indicators, all interview participants had universal agreement on a variety of impact areas. On a high-level, avoided costs once housed, economy and workforce benefits, green buildings, and health benefits were universally accepted as important metrics in the industry. Some variations existed within the feedback on each of these metrics, however, it was always noted that these sections are important to track and measure. Key themes can be seen in Table 6 based on interview participant feedback.

Table 6: Overview of interview participant feedback themes.

Theme	Feedback
Avoided Costs Once Housed	Common Agreement
Economy and Workforce Benefits	Common Agreement
Green Building Design	Common Agreement
Health Benefits	Common Agreement
Access to Transportation	Common Agreement
Surrounding Ecology of Location	Some Avoidance
Reduced Turnover Rate	Some Avoidance
Indicators that require significant personal information	Some Avoidance
Policing and Crime	Some Avoidance
Maintenance Requests	Contention
Tenant Finances	Contention
Workforce Participation	Contention
Safety and Crime	Contention

#### *Avoided Costs Once Housed*

All participants agreed that placing individuals in stable housing from potentially unstable housing (either due to financial risks such as eviction driven by high costs, substandard quality housing, or currently not living in a stable home) will lead to economic benefits for the individual, community, and government. Participants emphasized a variety of metrics or indicators when discussing these ideas. Such metrics included decreased costs of healthcare, education, and crime. Although different metrics were emphasized, it was universally accepted that a transition to stable housing would benefit these general areas. While all participants believed these metrics are important to track, some participants raised concerns with the ability to track the data at the housing provider level.

#### *Economy and Workforce Benefits*

All participants acknowledged that creating and maintaining affordable housing would have some benefits on the workforce and economy. The benefits highlighted ranged from GDP and government revenue, job creation, and workforce participation. Although each participant noted the benefits in at least one of these areas, what was highlighted varied by participant. GDP and government revenue was

acknowledged as an economic benefit that should be mentioned, but that policies should change to help decrease the cost of taxes in affordable housing properties. Increased job readiness and workforce participation was seen as important but was dependent on the demographic that will inhabit the property. For example, a property focusing on housing seniors, which is mainly a retired demographic, would not prioritize this benefit.

#### *Green Building Design*

Green building design was viewed by all participants as important to maintain long-term affordability and increase cost savings. Metrics that were highlighted included passive building design on new construction, retrofitting of existing buildings, and responsible water use in buildings. Although participants acknowledged that these are important, two participants noted concerns about initial costs. These participants believed that because of the state of affordable housing, it is hard to prioritize the additional costs necessary to accomplish these metrics upfront, even though they would lead to long-term benefits. This highlights a potential issue between housing providers preferences and the financial capacity to attain these goals.

“The affordable housing sector is full of people that really care about social issues, and they care about the environment, but we're in such a state of crisis at the moment that everything is broken down into an economic issue.” Participant 1.

#### *Health Benefits*

Universal agreement between all interview participants that providing adequate, stable, housing to an individual who lacks such resources can lead to health benefits. The participants acknowledged health benefits that are both mental and physical, and indicated that providing housing can impact a variety of metrics related to overall health such as reduced emergency services usage, decrease disease counts, overall wellbeing increases, mental health benefits, and improved socialization. Further, participants acknowledged that these benefits may be difficult to measure but are still important to track. This displays housing providers understand that these benefits occur but are concerned about the ability to track data at the housing provider level. Standard baseline metrics may be necessary to estimate such data.

#### *Access to Transportation*

All interview participants believed that access to transportation impacts individuals in affordable housing. 1 participant acknowledged that affordable housing tends to get placed in areas away from transportation, increasing the difficulty of accessing other amenities. Other participants acknowledged the economic and environmental benefits that exist from being able to access different forms of transportation including active or public transportation. To utilize such benefits, shorter commutes and closer access was also highlighted, indicating that the location of housing is an important factor if prioritizing these benefits.



However, participant 3 recognized that there are barriers to measuring the driving factors for these benefits. For example, an individual in affordable housing may have an economic barrier to owning a car and being close to transportation may not have been the driving factor. However, it is important to note that the benefits will still exist, but the underlying factors are difficult to determine.

#### What Matters Detract from the Primary Housing Goals?

This section will highlight indicators which were flagged as potentially detracting from the primary housing goals. These participants did not believe these indicators should be removed, rather, that prioritizing such indicators should only be done once the primary goals of housing were provided. The primary goals of housing were not defined for the participants, therefore, answers about the primary housing goals vary based on individuals. The following interview data highlights issues with the prioritization of indicators based on other constraints housing providers have found.

Interview participant one brought a unique perspective to the interview. Participant one believes that the primary goal of the affordable housing industry right now is to increase supply due to existing resource constraints driving the affordable housing crisis. Participant one acknowledged that other indicators are important but effectively exist because the housing was provided. Further, because of the supply constraints being driven by a lack of funding, that other metrics and indicators should not be prioritized over increasing supply. The perspective that participant one brought is that the primary goal of the affordable housing industry as it stands is to increase supply as rapidly as possible, potentially limiting some of the additional long-term economic benefits. A clear example would be that prioritizing the upfront costs of green design and construction may be not possible, rather, that less expensive building designs should be prioritized, even if a long-term payout may occur. However, participant one believes green design and construction is important, although we must begin to mitigate the current crisis with supply, first.

Participant 2 acknowledged that many related benefits occur from accessing housing. However, the participant acknowledged that this is not reflected in the existing funding structure of affordable housing.

“When I'm building Community Housing and somebody is being supported, I know that their savings in other areas, but we don't see those savings back into affordable housing, right? All the money that we've saved the emergency room by housing somebody who was using the emergency room 7 times a month and now hasn't used it in seven months. We don't see that back into our pockets to help with more supplies, so yeah.” – Participant 2

This indicates there may be a disconnect between the goals of housing providers, and the funding structures that support them. In the example provided, if a housing provider is supporting an individual leading to decreased pressure on the healthcare system, reinvesting the money into housing would allow for further support. Otherwise, the goals of the housing provider will need to shift over time due to expense issues, leading to further strain on the healthcare system. Now, if a housing provider can access additional funding, they can expand the programs and services they provide. In sum, the primary goals of housing providers can vary depending on access to funding.

Surrounding green space and the ecology of a location were considered a secondary priority when compared to other housing priorities. Interview participant 1 noted that these concepts are not typically the priority for housing workers. Participant 2 mirrored similar ideas, noting that these metrics are usually dealt with by city planning departments rather than housing providers. Other interview participants were interested in how the green space on the property was utilized, whether it could be converted into community gardens or increasing biodiversity. Participant 5 highlighted that the importance of the green space is also dependent on what the surrounding neighborhood has, i.e., if there are parks within walking distance, perhaps greenspace on the property can be deprioritized. Overall, the surrounding greenspace is typically considered a secondary project goal after housing objectives can be met, although benefits of such are still acknowledged.

Participant 4 noted that reduced turnover rate should not be a driving factor for affordable housing properties. This participant highlighted that it is more important to understand why a person is leaving affordable housing. For instance, a tenant may pursue a different job, leading to a higher income, no longer qualifying them for affordable housing. Therefore, turnover may be a positive metric if they are leaving the property to enter market-rate housing. Further, participant 4 indicated that turnover rate is not something that housing managers are concerned about in terms of vacancy, because there are currently many people waitlisted, lining up to access the unit upon vacancy. Participant 4 did acknowledge that if vacancy is occurring because of eviction, it can be a long, costly process. If measuring avoided evictions is possible, this indicator may be more impactful for housing stakeholders.

#### Measures to be Avoided

While interviewing participants, some indicators were noted as not relevant for decision making for various reasons. These indicators have been highlighted to display the participant reasoning for not including such indicators. This section does not include indicators which some participants believed were extremely important, while others thought they were detrimental as these are considered contentious measures. The section will only highlight specific indicators which were thought to have potential issues for decision making.

Participant 3 acknowledged that certain indicators should not be used for decision making because of the potential issues with tracking data. For example, a metric around the benefits associated with decreased human trafficking once housed. Although these benefits may be quantified, it would be necessary to survey tenants to get an accurate measurement. This indicator in particular has the potential to retraumatize a victim of sexual assault. Due to this concern, this metric should not be prioritized. Further, any metric which needs survey data to measure but may lead to the identification of any housing tenant should not be used for decision making at the housing provider level. This is because tenants deserve privacy from their landlords, and this may lead to unfair eviction processes or retaliation measures in the future.

Participant five flagged issues with valuing neighborhood safety with effective policing. This is because police doing a good job in a neighborhood is a subjective measurement which is stacked against marginalized communities. It is possible that police will unfairly persecute certain demographics, making it challenging to truly understand what “police doing a good job” means. This indicator may also be unfairly applied depending on the lens of the individual measuring it has. To ensure that the indicators are fairly applied to all individuals in the neighborhood, this indicator should not be used to measure neighborhood safety. Other measurements will be proposed to track neighborhood safety at the individual level.

### Contentious Measures

This section will highlight indicators which were noted by the majority of participants, of which, were not in universal agreement. Further, any contentious indicators are explained to display the differing opinions of the housing professionals. No final determinations or recommendations on the indicators based on these thoughts will be made in this section.

### *Maintenance Requests*

Most interview participants highlighted the importance of having quality housing. When participants discussed the ability to measure such benefits, two participants focused on tracking maintenance requests as inputted by tenants. Participants discussing this believed that by understanding if tenants had complaints, how quickly they were addressed by building management, and what resolution existed would help determine the quality of housing. Further, this would help empower tenants in their homes.

“...something where you know you could try to see the number of complaints or requests that they get every month. And you know, maybe they compare that to previous year to see whether they're actually improving in terms of resident satisfaction. But it has to be completely honest and transparent. They can't not respond to any of them and say we haven't had any.” – Participant 5

Participant four discouraged this practice. This participant highlighted challenges that have existed in properties they managed, where tenants lack of cooperation would lead to either issues going unreported or not permitting maintenance in the apartments to fix such issues. In their experience this led to longer maintenance times.

“You know, every time I hear that as a landlord, I would just want to lay on the floor and scream because I'll get calls, like property standards at the city used to hate me. But how many are for MPP's or from social workers? And I'll be like, this is the first I'm aware of the issue. I've sent my-- Or I've sent my contractor six times. They've been denied access. I can't do a blatant notice because there's, you know, a big dog. There's a child with mental health issues...” – Participant 4

To combat these issues, it will be necessary to consistently track the times in which a request is reported, how long it has existed, and the time and dates where maintenance attempted to schedule or rectify this issue. Further, the resolution must be accurately reported.

#### *Tenant finances*

Four of six participants emphasized that decreased rental rates would improve tenant finances. However, the extent of which these benefits occur was controversial. Three of the four participants believed that the increased money per month would allow the tenants to improve their financial situation or increase their monthly spending on items, based on the decreased spending. Participant four noted that these benefits are typically temporary for individuals who seek to improve their general financial situation upon entering affordable housing. The example provided was of tenants who enter affordable housing, successfully improve their situation by accessing better jobs, job training, or education, leading to a higher salary. Once their salary increases, the cost of housing is subject to potential increases, leading to a possible offset of such benefits. To combat this conceivable scenario, it is important to calculate such benefits over the short-term i.e., six months to a year. This will help more accurately estimate the benefits although financial situations are constantly changing.

#### *Workforce Participation*

Participant 6 highlighted a key difference in their experience of community housing compared to other interview participants. They noted in their experience that most people in community housing are accessing some form of government assistance and are not employed. However, this participant noted that their experience is primarily with the senior demographic. Further, this participant noted that in private affordable housing more impact would be likely on the areas of job creation and workforce participation. It is acknowledged that in affordable housing catering to an older demographic, these indicators are likely to have a lower impact.

### *Safety and Crime*

5 of 6 participants acknowledged the safety and crime indicators. Of the 5 participants, 4 believed it is important to discuss safety and crime near affordable housing properties. There was some discrepancy around how this can be measured. 2 participants acknowledged that measuring police doing a good job has potential issues considering aspects such as how police are involved, who is reporting crime, and the unfair treatment of marginalized communities by police. This raises concerns about the accuracy of measurements and the potential for this measurement to be unfairly stacked against different communities.

Of the participants that acknowledged safety and crime, 1 of the 5 did not believe this was relevant to affordable housing projects. This participant highlighted experiences they had while working in affordable housing.

“I would think neighborhood safety is not again the priority because you know, ironically there was a little bit of gang stuff that happened, and they weren't really wanting to protect from another gang either.” – Participant 4

This participant highlighted that in their experience many people on the property were involved in illegal activities, so safety was not a concern for these individuals. However, it is important to note that this participant later highlighted that these individuals were evicted from the property for safety issues, helping them increase the safety of the property. Regardless of whether the incident was an isolated experience, the participant still had the goal of increasing safety on site.

### *Culturally Rich and Vibrant Communities*

5 of 6 participants highlighted the importance of community building, particularly culturally rich and vibrant communities. There was some discrepancy around how this can be measured within the affordable housing communities. Participant 5 suggested broadening the scope of metrics to include other community events that occur with the example of community picnics. Participant 3 also indicated the broadening the scope of indicators to include more diversity in terms of race, religion, and cultural background. They suggested incorporating metrics which investigate these general areas to ensure that housing is not made up of exclusively one demographic of people. Participant 2 noted that measuring the number of times people are accessing community resources such as a recreation center would also indicate how vibrant a community is.

### *Implementing the Framework and Prioritizing Indicators: Essential Practice 3*

For practitioners who are utilizing the assessment framework, it is important to prioritize and implement indicators that are relevant to the organization or project goals. In the full set of indicators, not all will be relevant to an organization. For example, an organization providing reduced rate housing to

seniors would not measure indicators such as increased job readiness, as there may be less seniors looking for employment in these buildings. A single organization may have different project priorities depending on the location. A housing project in a rural community may not prioritize increased access to transit, while this may be a key indicator for a project in a city.

Although an organization could theoretically track each indicator in the framework, the Theory of Bounded Rationality supports the decision to reduce the indicator set to those of which you can control. The theory states that we are bounded by the information we can access (Simon, 1972), therefore, it is fair to assume those indicators which data cannot be easily acquired, can be eliminated. It may be possible, although costly, to expand to the impact measurement within the organization. In these instances, it is important to consider organization goals. Within Transaction Cost Economics, impact measurements can be considered a type of transaction cost (Coase, 1937; Williamson, 1981).

To adapt the framework to current organization or project goals, indicators can be weighted against 3 targets; (1) Relevance to organization priorities and goals; (2) Cost of measurement; and (3) Ability to collect data. By ranking indicators against these priorities, the framework user can help to align project goals to organizational goals, while ensuring the costs remain low, and can continue to be measured. Further explanation of ranking categories can be seen in Table 7.

Table 7: Indicator ranking explained

<b>Ranking Category</b>	<b>Explanation</b>	<b>Scale</b>
Relevance to organization priorities and goals	This ranking seeks to understand whether the organization is taking steps to achieve this target. This initial screening will help align measurement with internal projects and goals. The lower the ranking the less likely that the project will see such impacts.	1-5
Cost of Measurement	This ranking looks to capture the costs associated with the collection of data and measuring the indicator. Costs are not limited to those which the organization is responsible for. The potential costs on tenants can be high if asking for sensitive or private information. A lower ranking indicates the cost of collecting data internal or external to the organization is lower.	1-5
Ability to collect data	This ranking aims to recognize indicators which cannot be measured due to data being unavailable. A lower ranking would indicate that the data is not available, whereas a mid-level ranking may indicate that an alternative data point is available. For instance, reduced energy consumption per unit. You may have energy consumption on a per unit basis (ranking this high), on a building level (ranking this mid-level), or not at all (ranking this low).	1-5

When an organization decides to utilize the framework, the weighting system will allow for the selection of the top indicators relevant and useful to the organization. Although there is no hard stopping rule in terms of what an organization can measure, these considerations will help to ground the project pragmatically. Additionally, the weighting will help minimize the unnecessary use of resources, specifically money, time, and tenant personal information, unless there is sufficient justification through project goals.

## Case Study: UPRC

### Introduction to UPRC

The United Property Resource Corporation (UPRC) is a for profit organization branched from the United Church of Canada, to fulfill the churches' goal of providing affordable housing for all. Utilizing United Church of Canada property, UPRC will build new mixed-income housing properties. UPRC's mission is to build high-quality, sustainable, mixed-income housing across Canada. Further, the organization is placing an emphasis on family-sized rentals. The properties are integrated mixed-income housing, indicating the properties are made up of both market rate and affordable (below market rate) rental units.

For this case study, mixed income is defined as a "deliberate effort to construct and or own a multifamily development that has a mixing of income groups as a fundamental part of its financial and operational plans" (Brophy & Smith, 1997, pp. 5).

UPRC employs a unique model within the housing space. The ownership of the properties will remain with the United Church of Canada, with 100% of the units being rentals. Within each building, 69% will be market rate rentals and 31% will be reduced rate market rentals. Market rate rental costs will be listed below comparable properties in the area to ensure that market rate rental costs are not driven up in the area. Reduced rate affordable units will be listed at 79% of the CMHC median market rent.

UPRC is attempting to target the 'Missing Middle' of affordable housing, targeting low to middle income individuals. When considering the housing continuum (Figure 10), the mixed-income units will target two distinct areas; (1) Affordable rental housing (reduced rate units); (2) Market rate rental housing.

**THE HOUSING CONTINUUM**



Figure 10: The housing continuum (CMHC, 2018).

**Theory of Change**

The broad Theory of Change as developed for the general research project was adapted to reflect the project specific goals of UPRC. The following section outlines the expected project benefits from implementing mixed-income affordable housing within UPRC’s business model.

*Mission and Model Statement:*

<p><b>TOC Mission Statement:</b></p> <p>The mission of the United Property Resource Corporation is to build new mixed-income affordable housing buildings across Canada. The organization is prioritizing high-quality, environmentally sustainable, family-sized units.</p>
<p><b>TOC Model Statement:</b></p> <p>It has been assumed that increasing access to adequate affordable housing through the mixed-income model will lead to financial benefits from affordability, increased sense of community and related benefits, sustainability gains, and the possibility of expansion with project success. This will be seen through; (1) decreased costs of rentals; (2) improved social wellbeing among tenants; (3) reduced environmental impact seen through lower maintenance costs (i.e., electricity and water usage); (4) project analysis and expansion overtime.</p>

*Problem*

<p><b>Short-term:</b></p> <p>The cost of housing across the housing continuum in Ontario is steadily increasing, exacerbating affordability issues for individuals.</p>
<p><b>Long-term:</b></p> <p>Access to affordable housing is lacking across Ontario. This is true for both market rate and reduced market rate rentals. A lack of adequate affordable housing can impact a variety of community health metrics. For example, having access to secure affordable housing can lead to improved overall health (CMHC, 2018; Miller &amp; Ofrim, 2016) or stronger educational performance in children (Miller et al., 2018; Zon et al., 2014). Without accessing affordable housing, it may be more challenging for an individual to reach their full potential. Improving the availability of affordable housing can impact individual tenants as well as the broader health of the community.</p>



As our cities continue to grow (StatsCan, 2020), the importance of securing affordable housing at the individual level is extremely important for our communities. A lack of access may result in declining community health in other areas, including but not limited to health, education, and safety. Although there is no one solution for the housing continuum, increasing the availability of market rate and affordable housing can help strengthen the broader community.

### *Justification of the Problem*

According to Statistics Canada in 2018 3% or approximately 165,000 households in Ontario were on a waitlist to access affordable housing (StatsCan, 2019). Housing prices have been increasing for both renters and buyers across the province (Readman & Dever, 2020). As prices continue to rise, affordable housing is extremely important to fill the gap between market rates and individual income. Maintain a strong market-rate rental supply is also important to prevent increased costs, with the Federation of Rental Providers of Ontario identifying 7,000 to 10,000 new rentals need to be created per year to maintain demand (Kalinowski, 2019).

For example, in the city of Kitchener, average rent increased by 41% between 2009 and 2019. The average cost of a house increased 104% in that same period. Much of the increase in concentrated between 2016-2019, displaying a worsening issue (Readman & Dever, 2020). Affordability issues are exacerbated by the current covid-19 pandemic (BDO, 2021).

Aside from affordability issues, we continue to manage a climate crisis globally, emphasizing the importance of environmentally efficient properties (Colenbrander & Barau, 2017).

#### **The increasing costs can lead to:**

- Higher cost to purchase homes, leading individuals to rent for longer or indefinite time frame.
- Higher cost of rent pricing people out of the region or a lack of security of tenure.
- Lower security of tenure leading to other concerns including those associated with employment, health care, and security.

UPRC Specific TOC Model:

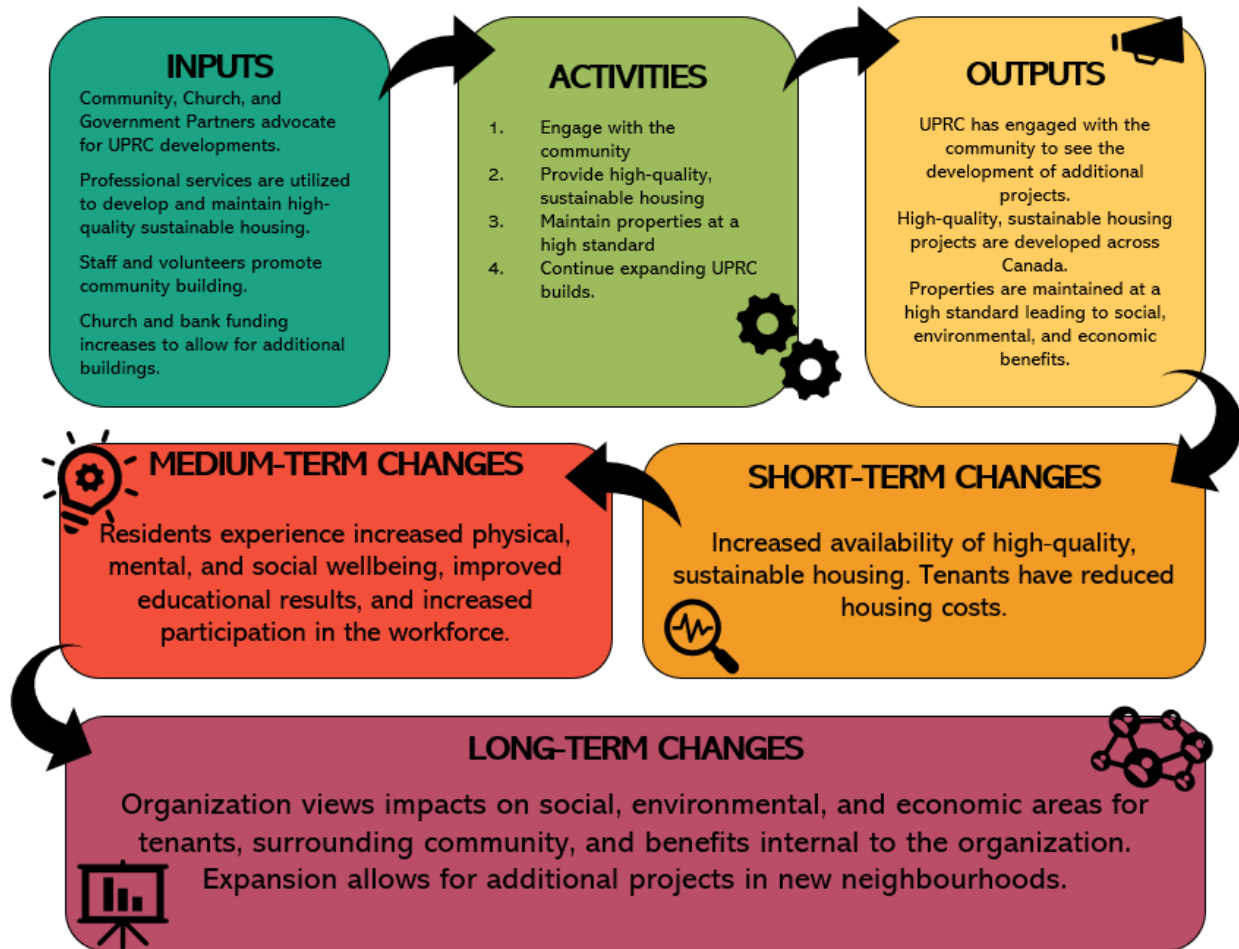


Figure 11: UPRC TOC model

Indicator Prioritization: Weighting

The proposed assessment framework has been adapted to the UPRC model to display the indicators that are relevant to the organizational goals. The full impact measurement list was analyzed, weighting each measurement set based on the 3 proposed targets; (1) Relevance to organization priorities and goals; (2) Cost of measurement; and (3) Ability to collect data. By ranking impact measurements against these priorities, the framework user can help to align project goals to organizational goals, while ensuring the costs remain low, and can continue to be measured. The following section outlines the broader impact area and why it was prioritized. Refer to Appendix 5 to view the impact measures set with each ranking. A total of 4 environmental indicators, 5 in-direct economic indicators, and 4 social indicators were prioritized. Within the general framework, 59 indicators were not utilized as determined through the implementation of the weighting methodology. UPRC has yet to begin accepting tenants in the properties at the time of writing, and therefore all proposed metrics are based on forecasted benefits.

Once UPRC has begun housing individuals, the impacts should be reassessed to determine whether benefits are truly identified in these areas.

*Prioritized indicators:*

Environmental Indicators

This section highlights the environmental impact measurements that are prioritized by UPRC with justification. Appendix 5 can be viewed to see fully defined impact measurements. UPRC is focused on providing quality, environmentally sustainable, affordable housing. Although this may lead to increased costs (Singh, 2019), the organization continues to prioritize environmental efficiency. UPRC highlights increased environmental efficiency in units, onsite energy production in the form of solar panels, and locations with high walkability. This information was used to prioritize environmental indicators, which can be seen summarized in Table 8. The final set of indicators can be viewed in Appendix 5 with specific outlined impacts.

*Table 8: UPRC specific environmental prioritized indicators*

Impact Summary	Relevance	Cost	Collection	Reasoning
Transportation Emissions	5	3	3	UPRC selects sites based on walkability, prioritizing sustainable transportation access. Collection of data on this could be difficult as it requires surveying tenants. This cost may be infrequent, but costly. However, utilizing standard proxies to estimate benefits may be an effective way to mitigate costs.
Green Design and Construction	5	4	3	UPRC has prioritized environmental efficiencies in the building emphasizing green design and construction in the development stage. Collection of data may be as simple as gaining consumption data from billing. If the organization does not have access to this data, it may be difficult to collect.
Energy Production	5	5	5	UPRC intends to produce energy on site using solar panels. Therefore, we may see additional affordability through decreased grid reliance. This data will be readily available within the organization as the success of the solar panels will be assessed. This will have minimal additional costs to the organization.
GHG Reductions	5	3	3	UPRC is minimizing the GHG footprint of buildings by prioritizing sustainable design and energy production. However, estimating the reduction amount may be costly, and collecting data may involve significant estimates.

Social Indicators

This section highlights the social impact measurements that are prioritized by UPRC with justification. Appendix 5 can be viewed to see fully defined impact measurements. UPRC intends to promote a high-quality standard in all mixed-income affordable housing units. This includes the location of the property, the unit quality, and maintenance quality. Mixed-income housing has potential additional benefits associated with the de-concentration of poverty (Herring, 2019) and available resources in higher-income neighbourhoods (Glover et al., 2017). This is combined with benefits from renting the property at a decreased rate. This high-level information was used to prioritize indicators based on project goals in Table 9. The final set of indicators can be viewed in Appendix 5.

Table 9: UPRC specific social prioritized indicators

Impact Summary	Relevance	Cost	Collection	Reasoning
Improved overall health	4	3	3	UPRC promotes high-quality housing which can lead to health benefits for tenants who are leaving inadequate housing (potentially due to costs). Estimating impacts on health is possible, although collecting personal information from the tenants may be costly and somewhat difficult to implement using a tool such as a survey.
Improved social wellbeing	5	3	2	UPRC intends to maintain community space and facilitate community events. This is to help achieve improve social wellbeing. Collecting data on the number of tenants with improved socialization may be difficult as it is self reported. Estimating these benefits will be easier, but less reliable. Measurement may be costly if implementing a survey or similar tool.
Families able to stay together	5	2	2	UPRC will place an emphasis on family-sized rentals. This may encourage families to stay together with decreased housing costs allowing multiple bedrooms and adequate space. Estimating these benefits may not be costly, however, collecting such data from tenants directly may put significant costs on the tenant if they do not want to disclose such information. Therefore, collecting the data may also be difficult.
Neighbourhood satisfaction	5	3	3	UPRC is prioritizing the appearance of the property, ensuring where possible to include community outdoor space. Collecting data from tenants may involve a survey which can be somewhat costly and time consuming, although minimal information is needed from the tenant related to how they feel about the neighbourhood.

Economic Indicators

This section highlights the economic impact measurements that are prioritized by UPRC with justification. Appendix 5 can be viewed to see fully defined impact measurements. UPRC’s goal of providing mixed-income affordable housing may have positive impacts on indirect economic indicators. UPRC is ensuring to provide reduced rental rates, promote high-quality housing which can lead to decreased costs in other areas (Zon et al., 2014), and encourage the utilization of other programs to help increase the financial independence of tenants long-term. It is important to recognize that community focused initiatives and reduced rate affordable housing will not alleviate poverty alone, rather, it is important to understand the root cause of poverty to tackle systemic barriers (Levy et al., 2013). This information was used to prioritize economic indicators, leading to the selection of 5 in-direct economic indicators for measurement as seen in Table 10. The final set of indicators can be viewed in Appendix 5.

Table 10: UPRC specific economic prioritized indicators

Impact Summary	Relevance	Cost	Collection	Reasoning
Enhanced education performance for children	4	3	3	UPRC is placing an emphasis on providing family units and may initiate programs to engage children in homework help programs. This may increase the impacts on educational performance for children. Collecting data on the number of high school graduates may be costly and involve information tenants do not want to provide. However, estimating these benefits may be sufficient based on the number of children in the building.
Increased job readiness	4	3	3	UPRC intends to promote external programs to tenants, to help increase skill building etc. This can involve additional job training programs through places like the YMCA. Collecting data on the number of attendants may be difficult as it would require tenant surveying. However, estimated impact based on the number of tenants has decreased costs.
Decreased cost of health services	5	3	3	UPRC focuses on providing high-quality housing which could lead to decreased costs associated with living in lower-quality housing (mould, damp, etc.). This requires information from the tenant upon intake, to understand the living conditions prior. This information may not be costly to disclose, though, it would require a survey upon intake and a financial proxy can be applied to understand the reduced cost of the services based on response.
Cost of transportation	5	3	3	UPRC is selecting properties with high walkability scores and access to transit. The location may promote additional use of sustainable transportation over vehicle ownership. Disclosing the information may not be costly to tenants, although, this will still require surveying or other methods to collect the

				data. This would indicate if tenants cost of transportation has decreased due to location.
Increase in disposable income	5	5	5	UPRC is providing reduced rate rental housing. To set the unit price, data will be collected on the average market-rate rental in the area. To calculate this indicator will be lower-cost and easy to collect within the organization, as this information will be collected for other reasons.

Summary

Overall, a total of 13 metrics were prioritized based on UPRC organizational goals. A total of 59 metrics were removed from UPRC priorities by utilizing the weighting methodology. The prioritized metrics can be assessed to calculate the social impact of the project. Currently, UPRC is in development stages and properties are incomplete. Therefore, these metrics (as seen in Appendix 5) can be implemented using forecasted benefits, based on financial proxies where applicable. Data collection is primarily assessing the potential number of tenants that are impacted, based on existing literature and practitioner estimates. Once the developments are completed, UPRC can consider an evaluative study which will involve additional data collection, primarily from tenants. An important consideration throughout the prioritization process was how data can be collected for both forecasted and evaluative assessments, to ensure tracking can be maintained after development is complete. This will allow UPRC to set goals and make changes to the indicator measurements when needed. The forecasted values can be used to set goals, while maintaining measurement after implementation will allow UPRC to understand if the forecasted benefits are accurate and alter them if necessary.

## Chapter 5: Discussion

### Study Design

The design of the research project revolved around the CAIM Common Foundations 5 Essential practices. This led to a multi-staged research project involving data collection from a content analysis, interviews, and a case study. This led to a comprehensive indicator set which can be applied to different affordable housing projects, with the ability to prioritize indicators based on project understanding. Understanding the nature of the ever-changing impact measurement standards and an evolving understanding of affordable housing benefits, it was important to build in flexibility in the design of the framework. The first iteration of this framework is a starting point for practitioners attempting to identify impact measurements for an organization. However, it is still important for practitioners to wholly understand the goals of the respective organization, and supplement indicators with those which are especially important or relevant. It is possible with the changing landscape, that findings from the study can become outdated. To highlight this possibility, an example could include a changing understanding of what is needed to create quality housing. As our knowledge of potentially dangerous chemicals used in the building process continues to evolve, perhaps the usage of certain materials will be restricted. This has happened historically with lead paint (Schwartz & Levin, 1991).

The first stage of data collection was a content analysis. During this stage, it was quickly understood that many studies exist which have attempted to quantify the benefits of affordable housing projects using impact measurement methodologies (CMHC, 2018; Kraatz & Thomson, 2017; CCEA, 2015). However, it appears as though many projects applied some unique and some existing impact measurements, while missing potentially relevant ones. Each impact measurement was applied on a project-to-project basis, typically citing a few other similar studies in the justification for selecting the measurement. In the process of understanding the content analysis results, it became apparent that it may have been common practice within the studies to select impact measurements found in other studies and supplementing with additional relevant indicators where possible. This is not true for all studies that were reviewed but was seen as a possibility in many studies. Ultimately, the practitioner knows the project priorities and goals best, and should determine the impact measurements for the study. However, a comprehensive set of indicators may give practitioners which are selecting indicators primarily from existing studies, encouragement to use additional indicators which otherwise may have been overlooked. This has the potential to lead to more robust studies which are centered around the project itself, rather than existing studies with unique goals.

During the interview stage, participants were difficult to secure. The study received approximately a 9% participation rate. During this stage, it was clear that each participant brought a unique perspective

leading to the development of new indicators, by relating the understanding they had from previous experience. This made it clear that although a common set of indicators can be created and applied in different contexts, each practitioner may have different indicators that should be prioritized based on the context of the study. Creating a standard set of indicators as a baseline was important to increase the number of indicators that were considered on a project-to-project basis. However, understanding that each project is unique also increase the importance of creating space for flexibility in the framework. Practitioners that use the framework are encouraged to consider relevant indicators which are specific to the goals of the project. This will also help as new priorities evolve in the affordable housing space. Even with the low participation rate in the interview stage, 31 alterations were made to the framework. Since this is a first iteration of a framework for affordable housing, it is particularly important to supplement findings with existing project knowledge. Having a single location where such benefits can be proposed and discussed may be helpful due to the evolving understanding of the industry.

## Case Study: UPRC

### Prioritization Process: Effectiveness

In order to prioritize indicators related to the UPRC strategic objectives, the assessment framework was screened using the proposed weighting methodology. This involved assessing each indicator based on the 3 proposed targets; (1) Relevance to organization priorities and goals; (2) Cost of measurement; and (3) Ability to collect data. UPRC is still in development stages, so the prioritized indicators are based on the theoretical implementation of the framework. This led to a total of 4 environmental indicators, 5 in-direct economic indicators, and 4 social indicators selected as impact measurements for the organization.

Prioritizing indicators from the assessment framework is an important consideration. With up to 72 indicators that could be selected, it is important for an organization to recognize what impacts can be measured and impacted. This decision is supported by the theory of bounded rationality, as we can assume it would be expensive for an organization to collect and make decisions based on large amounts of data (Simon, 1972). In the affordable housing industry this may be particularly true, as funding is often scarce (Zon et al., 2014; Pomeroy, 2017).

Prioritizing indicators based on relevance to the organization was helpful in determining which impact measurements can help the organization achieve strategic goals. This may help organizations decide which indicators are worth the cost of measuring. In the context of UPRC, this led to certain indicators such “cost of homelessness” indicators being deprioritized. In the context of UPRC, because the affordable housing units are reduced market rate, it is likely that people coming to live in these properties will already have employment and living arrangements prior to moving in. Otherwise, they



may not be able to afford the rental costs. Although this may not be true for every tenant, these indicators are less likely to be impactful at the organization. Other indicators were prioritized such as those related to “green design and construction” as these indicators are strategically aligned with the priorities of the organization. Prioritizing based on the relevance was particularly important because the assessment framework has indicators which would fit a wide range of affordable or social housing types.

Prioritizing indicators based on the cost of measuring data may be an important and potentially overlooked area when determining impact measurements. By using this screening, organizations can eliminate indicators with particularly high measurement costs, unless the benefit to the organization outweighs such costs. Prioritizing indicators based on cost to collect the data was difficult in the stage of development that UPRC was in at the time of completing the study. This may lead to costs being overlooked and therefore the cost of measurement being undervalued. It acts as a good starting point to consider the costs of measurement, although, it is possible that our estimations will not capture the full cost of tracking the data. Although all costs of measurements may not have been considered, it is still an important consideration and may lead to indicators being eliminated which have high costs for otherwise overlooked groups, such as tenants. An example of this may be health related impacts on tenants. It may be considered costly to provide personal health data to a housing provider, with little to no benefit for the tenant. On indicators which do have high costs to tenants, it is possible to eliminate them, with potential exceptions if it is integral to the organization strategy or if generalized data can be used in place of direct data from tenants.

Considering the ability to collect data was an effective way to eliminate indicators that are not maintainable overtime. This may help organizations reprioritize indicators or restructure them in a way which they are able to collect. For instance, an organization may not have access to electricity bills on a household level if each tenant has the bill registered in their name. Instead, the organization may be able to access building wide data at a high-level. By understanding the data that can be collected, indicators can be reprioritized or restructured if necessary. In the context of UPRC, this led to indicators such as “basic needs met” being deprioritized. This data is difficult to collect and may change on a week-to-week basis depending on the financial situation of the tenant. The data required to accurately track this would be difficult to gather and interpret. With this in mind, the indicator was deprioritized.

### Learnings for Organizations

Selecting impact measurements can be challenging for any organization. Impact measurement may be one piece of a larger social impact strategy. In the context of URPC, the organization had clearly identified the strategy and goals prior to selecting impact measurements. By ensuring the organizational goals were understood prior to implementing the framework, the impact measurements were aligned with

the strategic goals of the organization. This can mitigate the potential costs of tracking and maintaining data for indicators that are not relevant to the organization. Additionally, this may help prevent organizations from aligning the strategic mission of the organization based on incomplete metrics. If an organization intends to utilize the impact measurement process without having a strategic mission, it is important to consider what it may be throughout the development process. This may involve consulting additional stakeholders to determine what the core concepts will be. For instance, if “green design and construction” indicators will be prioritized, it may be important for the organization to make decisions to positively impact the environmental sustainability of the building. This may lead to increased construction costs. This decision may not be aligned with the broader goals of the organization and could lead to increased costs in the construction process that stakeholders are not prioritizing.

Impact measurement can be costly and although standardizing the process can help reduce costs, it is still an important factor to consider. In the affordable housing industry, it is clear that funding may be difficult to get, and resources are scarce (Zon et al., 2014; Pomeroy, 2017). Therefore, incurring costs of measurement without any plan to utilize the data may be an ineffective use of funding. Prior to outlining potential impact measurements, it is important to consider how the data will be used, who the audience is, and how the data will be maintained overtime. For instance, is the goal to determine which property to invest in? In this example, data will likely be forecasted to estimate benefits. The organization may want to maintain tracking the success of these indicators to understand if the selection process was effective and make alterations for future projects. By determining what the goal of tracking this information is, the organization can make decisions for what to track and length of time.

Many indicators require data from tenants to assess progress. It is possible to estimate benefits without surveying tenants by using estimations from previous studies which quantify these benefits. If an organization intends to select indicators that requires data from tenants, it is important to consider whether tenants will be surveyed directly or if estimations will take place instead. If the organization decides to facilitate surveys, consideration should be made for how information can be kept private in relation to sample size. For instance, if there is a small sample size (perhaps only 10 tenants) it is possible that even with personal identifiers stripped from the survey, that an individual could still be identified by their results. Extra caution should take place to ensure that personal information is kept separate from the housing provider. An example of why this may lead to future issues could be if one person identifies they are addressing mental health concerns after accessing stable housing, then soon after they are evicted due to acting in a potentially erratic way, it may be assumed that they were evicted because of the mental health concerns as identified in the survey. The personal information provided by tenants should be carefully extracted, interpreted, and stored.

Prioritizing more indicators is not always better. In the context of UPRC, 13 indicators were prioritized. Depending on the organization goals, this number can be increased or decreased. It is not necessary for an organization to track impact across every indicator which can be applied to the organization. This may increase the costs unnecessarily without adding additional benefit. Organizations may consider tracking indicators which the organization can impact based on the strategy and goals outlined internally.

### Key Takeaways

Impact measurement can be an effective way to help practitioners efficiently allocate funding, strategically align project priorities, and seek increased funding in the affordable housing space (Muir & Bennett, 2014; Barraket & Yousefpour, 2019). By facilitating access to a comprehensive set of impact measurements for practitioners to use, they can review the indicator set as a relevant document for prioritizing projects based on the benefits that will be brought to the community. An example of this could be comparing which property to purchase to convert to housing, while assessing the access to transportation and amenities, the environmental efficiency, and access to greenspace. While these characteristics do not directly contribute to additional units, they can help increase the benefit each unit may bring. Additionally, with new build properties, impact measurement can help estimate the benefits of different priorities such as the additional cost to create environmental efficiencies, or the additional cost of locating near transit. This is especially relevant in the affordable housing industry as there is an existing issue of supply and demand, and a general lack of funding in the industry (Zon et al., 2014). If the affordable housing supply that is created can prioritize projects that are seeking higher social return, the benefits to the community can attempt to be maximized. In existing affordable housing projects, impact measurement can help organizations strategically align project priorities with organizational priorities. An example of this could be determining where to allocate project funding when assessing what to do with project funding, increasing the biodiversity on the property greenspace, adding a community garden, or maintaining the existing grass and maintenance jobs associated with it. By implementing impact measurement in existing affordable housing projects, practitioners can understand the impact of the projects in a measurable way, by utilizing baseline measurements and setting targets. With this in mind, an organization can take steps to further impact these targets. This could lead to more holistic planning in affordable housing. Armed with this data, practitioners or non-for-profits can advocate for additional funding in the industry by accessing certain sustainability-linked debt instruments. Often these portfolios require data to categorize the organization as a sustainable investment, therefore, acquiring such data can be of use in this capacity. Additionally, by displaying the social impact of such projects, other entities such as governments, non-profits, and other philanthropic funders may be interested in supporting such organizations.

All individuals and organizations are bound by the information we are aware of, according to the theory of bounded rationality (Simon, 1972). When applying this concept to impact measurement, it is assumed that it would be too costly for an organization to truly understand all impacts related to be measured related to the organization. Therefore, to increase the knowledge of potential impact measurements, may make it easier for practitioners to calculate the potential impact of a particular affordable housing project. By providing an initial iteration of the assessment framework, the project seeks to increase the accessibility of knowledge related to potential project benefits. This may increase the number of impact measurement studies that are completed and has the possibility of positively impacting the quality and amount of affordable housing available, over time.

There are many existing studies that attempt to quantify the impact of affordable housing projects using impact measurement. However, as noted, many of these studies are completed on a project-to-project basis rather than a single framework which can be altered depending on project priorities. This may lead to relevant impact measurements being missed in the study. Additionally, information can often be difficult to acquire within academic literature due to potential paywalls (Foley, 2021). Existing studies also appear to have often overlooked the cost of measuring such indicators, which may lead to measurements that expensive to track. Creating an easily accessible set of impact measurements may make completing such studies more accessible. This may be true due to the reduced cost of resourcing necessary to develop the indicator set and the indicator weighting process which places emphasis on the cost of measurement.

### General Framework Findings

Standardizing impact measurement methodology in the affordable housing industry may enable greater impact by increasing the potential considerations housing practitioners have and helping to arm them with the associated data to support their claims. Much interest was displayed in the interview stage, noting a tool to aid in the process would allow professionals to complete these types of studies. After reviewing the documents which underpin the study, it was made clear that impact measurements are developed on a project-to-project basis, making it increasingly difficult to compare multiple projects. Additionally, many of the indicators are developed by citing other studies, which does not always involve a comprehensive review of the literature. By creating an assessment framework used for valuing such projects, it will be easier to compare projects on a similar basis while also looking for best practices in the industry. It may also help ensure the most relevant and cost-effective measurements are selected for the project. It is easy to pick out particular benefits from a housing project and calculate the benefits that may occur if the project meets expectations. However, by completing analyses in this way, it is difficult to understand where the most efficient allocation of resources will be. Even at the level of an individual

affordable housing financier, the lack of a standard framework makes it difficult to make efficient capital allocations within the space using metrics other than the profitability of each investment when constructing an impact investment portfolio. By standardizing the process, additional investors may consider the community focused or affordable housing projects as eligible for sustainability-linked debt instruments. By completing the first iteration of the assessment framework, an initial attempt at standardization is made. Investors or other project stakeholders can compare projects based on a set of indicators which also operates as a set of industry best practices. This will allow them to understand which projects can be prioritized based on the value of impact measurement on the property. This is not to indicate that social return is the only consideration when comparing projects, however, it does give professionals a baseline to complete such study and compare these types of benefits.

### Reflective Praxis: Utilizing the CAIM Common Foundations

The study employed the CAIM Common Foundations Essential Practices. When the study was designed, it was known that the Common Foundations are a minimum standard for impact measurement, designed for social purpose organizations. The Common Foundations fulfill the SROI requirements, with the potential advantage of being more flexible in the development stages (CAIM, 2020). Upon reflecting at the end of the study, it is possible that implementing the SROI framework may have resulted in a similar set of impact measurements, if the same data collection steps had occurred. However, the Common Foundations may have made it easier to design the multi-tiered data collection. To truly understand this, a similar SROI study would need to be completed. However, the study only implemented the Common Foundations, one of a suite of impact measurement documentation and tools provided by the CAIM. It is possible that when the full suite of CAIM tools is completed, that it may have additional advantages for data collection and storage, as other components of the CAIM focus on these areas.

The essential practices appear to be easier to use and implement, allowing for easy framework adjustments on a per-project basis when compared to the SROI practices. When the practitioner utilizing the framework reviews the Essential Practices as outlined by the Common Foundations, it will be clear on how to implement additional impact measurements as related to the project. The Common Foundations outline clear guidelines when developing such measurements, helping organizations understand what important considerations in the development stages are (CAIM, 2020). Although these considerations are applicable outside of the CAIM Common Foundations, the clear documentation makes it easy to understand and implement.

Since the CAIM is still new and under construction, it is possible that organizations will want to shift to adhere to the CAIM as the development is finished. Particularly in Ontario, as the CAIM is promoted by the Ontario Nonprofit Network (ONN, n.d.). Once the full suite of products is finalized,

impact measurements can be calculated using data management tools provided within this suite. With this in mind, by employing the CAIM Common Foundations organizations can easily facilitate many existing methodologies for impact measurement such as SROI, Theory of Change, or Demonstrating Value (CAIM, 2020), with the possibility of shifting to the CAIM once the full suite is finalized.

### Study Limitations

The proposed project will align with the CAIM Common Foundations as a new minimum standard for developing impact measurements. The CAIM is still in development stages, and therefore does not have a completed methodology for calculating impact measurements. Therefore, although the assessment framework will align with the Common Foundations, it is recommended that the impact measurement is calculated using the SROI methodology. Once the CAIM Data Standard is complete, individuals implementing the framework can determine which measurement tool to utilize.

Valuing affordable housing to include social, environmental, and economic indicators is still a new area of research. Given the scale of the proposed research project, sections of the project rely on previously published academic and grey literature which attempt to value affordable housing projects. The project is therefore restricted by the amount of literature that is published in the area. To take this into consideration, the project utilizes global impact measurement studies, which was evaluated by practitioners in the context of Ontario. The scope of the assessment framework was focused specifically on Ontario as a starting point, and it is expected that the adaptation of this work to other jurisdictions would require appropriate incorporation of local contextual metrics.

The study does not take into direct feedback from all relevant stakeholders, with the absence of direct input from current or potential affordable housing tenants being the most notable gap. Due to the study foundation considering previous affordable housing SROI studies, it is known that tenants have been consulted in-directly for many of the foundational components. However, such a filtering of tenant interests through other stakeholder is necessarily going to leave valuable insights left behind. Additionally, the interests of nearby neighbours in the areas containing affordable housing are not incorporated either, even though they are key for the maintenance of a positive community around the housing and its tenants.

The interview stage of the research project was limited in scope. The participation rate for the interview was (7/74 participants) approximately 9%. The goal for the project was 10 interviews. Due to the project scope only including Ontario participants, the number of participants is lower than preferred.

The study focuses on providing a general assessment framework which can be used to understand and measure impact in affordable housing. The interview data participants were exclusively participating

from Ontario, limiting the knowledge that the participants have to Ontario employers. It is assumed that the knowledge the participants bring is generalizable outside of Ontario, although, when implementing the framework this is a consideration that practitioners outside of Ontario should have. This is an issue of project scope which may be a limitation of the assessment framework. However, future iterations of the framework should consider broadening the scope to consider a wider range interview participants from other regions, to add additional robustness to the framework. Broadening the scope to consider other regions may need additional baseline measurements by region and a filtering system to prioritize indicators based on the potential needs of the region.

### Utilizing Impact Measurement in Affordable Housing

The study utilized the CAIM Common Foundations to create an assessment framework which housing practitioners can use to understand and measure the impact of an affordable housing project. Within the industry, several affordable housing impact measurement studies have been completed (CMHC, 2018; Miller & Robertson, 2018). By creating this framework, the goal is to increase access to knowledge and therefore increase the frequency that impact measurement occurs in these organizations. When applying the theory of bounded rationality, it is understood that knowledge can be expensive to acquire, and that it is unlikely an organization can acquire all the information necessary to make a wholly rational decision (Simon, 1972). Keeping this in mind, creating this framework will increase the accessibility of knowledge while decreasing the costs associated with developing impact measurements.

Maintaining impact measurement information for an organization may also help increase access to sustainable investment portfolios (Reeder & Colantonio, 2013), philanthropic funding which aligns with the project goals, and other government and nongovernment funding. Utilizing impact measurement in affordable housing may empower practitioners to advocate for additional funding in the sector because of the potential of decreased costs across other institutions such as healthcare (Miller & Offrim, 2016; Herbert et al., 2014) and education (CMHC, 2018; Ravi & Reinhardt, 2011).

Impact measurement in affordable housing may help stakeholders align the goals of the organization with measurable targets. This may help organizations understand the true impact of the project, avoiding potential costly investments which do not deliver on these goals (Porter & Kramer, 2019). By providing a list of potential impact measurements, the framework may also act as a set of best practices for affordable housing organizations. An example may be if a project funder is analyzing potential options for affordable housing and was not aware of the potential benefits associated with locating housing near transportation. By referring to the assessment framework and determining what impact measurements are relevant, the organization may provide more impactful housing.

## Opportunities for Future Research

The first iteration of the assessment framework for affordable housing was completed during the research project. However, the research on affordable housing benefits should not stop here. Future research should consider applying the framework across different types of affordable housing projects, while making improvements to the indicators which are measured. By applying the framework to a broader range of projects, indicators which were not considered in this study may emerge. Additionally, indicators can be assessed to determine what types of affordable housing projects are more likely to see certain costs and benefits, which may positively impact the way stakeholders prioritize affordable housing projects. Internally, this information can be useful for other organizations when trying to align impact measurement with organizational strategy.

The research project proposed an initial weighting methodology which considered the costs of measurement as a potential way to prioritize indicators while reducing the cost of measurement. Future studies should consider tracking the costs of measurement more holistically to determine what costs are associated with tracking that may otherwise be overlooked. This can help organizations increase understanding on what each measurement truly costs to track, prior to making decisions. Further, this information can be integrated into the framework to justify which indicators are reasonable to measure. Additionally, future studies should consider the time scale of both benefits and costs of impact measurement. Exploring this area can help practitioners understand if there are increased or decreased costs associated with measurement over a longer time horizon. This can help in the prioritization process. By understanding this, practitioners may avoid unexpected increased costs associated with measurement. As well, by understanding what benefits emerge over a longer-time horizon, practitioners can capture more holistically the benefits of the program. For instance, there could be potential benefits that emerge after 5 years or more which would not be captured in a short-term study.

The research project has claimed that providing the assessment framework will help practitioners develop an impact measurement strategy, which may encourage additional funding from sustainable investing portfolios, philanthropic funding, governments, or other NGOs. Future studies should investigate this claim, in an attempt to understand how having this impact measurement information truly impacts organizations acquiring funding. For instance, did having such information allow for increased access to sustainable investing portfolios? Or did it attract additional philanthropic funders? Gaining this understanding will help organizations justify the additional costs of impact measurement on the organization.

This study was limited in scope and therefore did not interview tenants, a key stakeholder for impact measurement in affordable housing. Literature which was used in the content analysis did involve



tenant surveys, however, future studies should place more emphasis on understanding the key costs and benefits that tenants experience. It is important to understand tenants' feelings towards providing information to housing providers, as it possible they feel obligated to participate in the study. Further, the benefits seen by tenants from accessing affordable housing may be overlooked. As such a critical stakeholder, affordable housing tenants should be incorporated into future iterations of the assessment framework.

The study implemented a first iteration of a standard assessment framework for affordable housing, to increase access to knowledge and encourage practitioners to complete impact measurement studies. Future research should consider completing such studies in other industries which are social purpose in focus. By increasing the standardization of this process, while incorporating flexibility into the framework, other industries can benefit from impact measurement work.

### Contributions to the Literature

The research project has led to a first iteration of an assessment framework used to understand impact measurement in affordable housing. This on its own has literature contributions broken into theoretical contributions, applied contributions, and policy contributions. In addition to these broader concepts, supporting literature which focuses on standardizing impact measurement in an industry may lead to similar studies in other industries. By increasing access to knowledge, costs of impact measurement can be reduced, and holistic planning can be increased. The theory of bounded rationality explains that we are bound by the knowledge we can access and accessing large amounts of knowledge can be costly (Simon, 1972). By standardizing the process and creating an assessment framework, institutions may be more likely to complete such studies. Other researchers may consider instituting the methodology in other industries.

### Theory Contributions

The research project contributes to the literature as it was the first known project to utilize the CAIM Common Foundations as a basis for designing impact measurements. Although similar methodologies have been used in the past, investigating impact measurement in affordable housing from a new lens may help alter the results. The reflective praxis completed after implementing the framework highlights the flexibility as one advantage to following the Common Foundations. However, it is possible that the study could have been designed in a similar way using other methodologies. The CAIM Common Foundations appeared to be easier to use, which may encourage practitioners to continue adding to the field of research by making alterations to the framework. Therefore, over time utilizing the Common Foundations may have additional benefits.

The research study contributes to the literature by encouraging practitioners completing impact measurement studies to screen studies to consider the costs of impact measurement. These costs have historically been overlooked, and by creating a weighting methodology which considers this aspect may encourage practitioners to focus on indicators which are less costly to measure. In particular, the costs that fall out of the scope of the organization such as providing personal data to a housing provider is something that has not been discussed extensively in the literature. By creating the weighting methodology practitioners are encouraged to act responsibly when considering intrusive data collection.

### Applied Contributions

The research project provided a first iteration of an assessment framework which can be used to understand the impact of affordable housing projects on communities. This has many practical applications for practitioners in affordable housing, financiers, and developers of affordable housing. For practitioners, the framework provides insight into the impact of projects. This can be used to alter programs and maximize the benefits on the community. Further, this information can be used to advocate for additional funding in the industry, after gaining an understanding of the project impacts. Financers of affordable housing can use the assessment framework as a potential list of best practices when investing in affordable housing or comparing projects. With this in mind, financers can assess which project will have a higher community benefit per dollar invested if they are utilizing impact measurement calculations. This may lead to more efficient allocation of funding. Affordable housing developers may also utilize the assessment framework to understand and compare affordable housing projects. If used as a potential set of best practices, developers may consider prioritizing the development based on the impact it has on the community. Further, this information may be used to justify additional costs of development associated with implementing programs such as the implementing green design and construction into the development process.

The research project proposes a methodology which can be used to prioritize indicators within the assessment framework. These act as considerations that should be made when determining which impact measurements are relevant to an organization. Suggesting that practitioners consider the cost of measurement, relevance to the organization, and ability to collect data, will help prevent organizations from selecting indicators based on historical implementation of the impact measurement process. Although in the impact measurement field it may be important to pull from existing literature, this suggestion can help organization cater the information to specific project benefits and reduce potential unnecessary costs.

Practitioners utilizing the assessment framework may be able to encourage residents of the area to support affordable housing projects if they are able to understand the benefits of the project. By

implementing an impact measurement plan, data can be shared within the community. Further, utilizing the framework to support feedback from residents and prioritize impact measurement may help gain additional support if residents are made aware that the project will be well maintained to provide adequate housing in the community as well as provide broader community benefits.

### Policy Applications

The research study proposed a new assessment framework which can be used to measure impact in affordable housing. This information may be relevant to policy makers, as understanding the benefits of affordable housing may alter affordable housing policy. If policy makers have increased understanding of the holistic nature of impact measurement, and the impact that providing affordable housing can have on other areas, policy may change to support this understanding. This can lead to increased funding in affordable housing, as it continues to display benefits to other institutions such as healthcare (CCEA, 2015; Suttor et al., 2014; Miller & Robertson, 2014), education (Miller & Offrim, 2016; CHA, 2014; Zon et al., 2014), and other emergency services (Barnes et al., 2018; Suttor et al., 2014; Zon et al., 2014).

Supporting research in the area of impact measurement has additional benefits for the industry. By increasing the access to impact measurement literature, we may see an increase in the frequency of impact measurement that is occurring for social purpose organizations. This can lead to additional policy decisions to support holistic planning grounded in academic theory and practical knowledge. Impact measurement has the ability to bridge the gap that currently exists when analyzing a project based on traditional economic systems. Overtime, the application of impact measurement can lead to a shift in the way all community-based projects are implemented, focusing less on the cost of implementation, shifting towards the potential benefits such projects can bring. Impact measurement may have the ability to integrate more traditional knowledge in the planning phase of projects, placing more emphasis on how a project will lead to positive change in the community.

### Conclusion

The research project explored how impact measurement can aid in efficiently allocating funding and prioritizing projects in community-focused and affordable housing. The purpose of the study was to understand how community-focused and affordable housing can be valued to consider social, environmental, and economic impact measurements. This information was used to generate a framework which practitioners operating in community-focused or affordable housing can use to select relevant impact measurements based on the parameters of their project. To achieve this, flexibility was built into the framework by providing a wide range of impact measures across the three categories, and encouraging practitioners to review the comprehensive list prior to prioritization. Considering the lack of

standardization in impact measurement, the framework attempts to bridge the gap between the desire to measure impact, and the need to select relevant impact measures which can be compared across projects. It was recognized that the prioritization of indicators can be difficult when comparing potential project benefits to other existing impact measurement focused studies. To aid in this process, the research project proposed 3 potential screening criteria including project relevance, cost effectiveness, and ability to collect data. These criteria will help practitioners focus on the main project impacts while avoiding unnecessary data collection. The research project utilized the CAIM Common Foundations to develop the impact measures, while relying on historically published impact measures and supplementing findings with interviews with practitioners. Future research projects may consider altering the existing impact measurement framework as new benefits are understood.

The overall research project focused in the community-focused and affordable housing sector. However, the lack of standardization in impact measurement is an issue across social purpose organizations and spans industries. With this in mind, learnings from developing the framework can be used across industries to promote impact measurement and a deeper project understanding. Where relevant, future projects may consider applying the research methodology to other industries to increase impact measurement standardization.

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## Appendices

### Appendix 1: Key terms overview

Term	Definition
Affordable Housing	According to the Canada Mortgage and Housing Corporation, housing is considered affordable when it costs less than 30% of an individual’s income (CMHC, 2018). For the purpose of the research study, a broader definition of affordable housing will be used to highlight the flexible nature of the final framework. The Ontario government notes “affordable housing generally refers to housing for low-to-moderate-income households, priced at or below the average market rent or selling price for comparable housing in a specific geographic area”. When referring to affordable housing within the research paper, this definition will be broadly used to indicate housing which is more affordable for tenants, although, not always falling within 30% of a tenant’s income.
Social Purpose Organization	Social Purpose Organizations are those which seek to create positive impacts on social or environmental domains. Such organizations are not inherently profitable and may have other ways of generating income to sustain operations. Such organizations can include non-profits and charities in addition to social enterprises or other profitable organizations with a social mission (Ramp, 2019). Due to the broad nature of the final framework, this definition was left general as there continues to be a wide range of affordable housing organizations.
Social Enterprise	A social enterprise is a type of social purpose organization that can be defined as an organization with blended goals to generate revenue while also attempt to achieve other social or environmental goals (Elson & Hall, 2012). Therefore, it is possible for Social Enterprises to be profitable while contributing positively to social and environmental domains.
Impact Measurement	The research study refers to the concept of impact measurement. Impact measurement has been defined by the Global Impact Investing Network as: “Identifying and considering the positive and negative effects one’s business actions have on people and the planet, and then figuring out ways to mitigate the negative and maximize the positive in alignment with one’s goals” (GIIN, 2018). This broad concept of impact measurement will be used throughout the study to display the goals of impact measurement, in an attempt to capture business impacts.

Appendix 2: Indicator Set (91 pairings) before interview edits

Impact Type	Impact to be Measured	Metric	Financial Proxy (\$)	Citation															
Environment	Responsible Water Use	Minimize waste and the use of potable water while avoiding downstream impacts and pollution	-	(Puri & Smith, 2019)															
Environment	Transportation Emissions	Number of tenants reporting a shorter commute to work and shorter distances to amenities	Time and carbon emissions costs of car travel saved per year	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Puri & Smith, 2019)	(Enterprise, 2014)												
Environment	Green Design and Construction	Constructing buildings with passive approaches to low-energy affordable housing	Benefits of greening (rate subsidies, property value, responsible materials, etc.) subtract the cost of greening.	(Pullen et al., 2010)	(CMHC, 2017)	(CMHC, 2016)	(Bradshaw et al., 2005)	(Bardhan & Debnath, 2016)	(Puri & Smith, 2019)										
		Responsible sourcing, support sustainable extraction of materials, transparent labelling, support local businesses	-	(Puri & Smith, 2019)															
		Energy efficiency for sustainable housing	Average annual cost of utilities	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Pullen et al., 2010)	(The good economy, 2020)	(Brod et al., 2020)	(Shrestha et al., 2019)	(Poor et al., 2018)	(Puri & Smith, 2019)								
		Water usage for sustainable housing	Average annual cost of water	(Pullen et al., 2010)	(Brod et al., 2020)	(Puri & Smith, 2019)	(Kraatz & Thomson, 2017)												
Environment	Waste Management	Does the housing provider give information on recycling etc.? Are services provided?	-	(The good economy, 2020)	(Puri & Smith, 2019)														
Environment	Ecology of Location	Project takes steps to encourage ecological regeneration and enhanced function of the communities and places where projects are built, including other species	-	(Puri & Smith, 2019)															
Environment	Green Space	Is there a strategy to increase the amount of greenspace and biodiversity near homes?	-	(The good economy, 2020)															
Environment	Energy production	Total potential production of all installed energy sources	Calculation of the total potential production of energy	(The good economy, 2020)	(Puri & Smith, 2019)														
Environment	Urban Agriculture	Project integrates connecting the community to locally grown food or provides the ability to grow food	-	(Puri & Smith, 2019)															
Environment	GHG Reductions	Average spend per year, tonnes average per year	Energy costs by FCI building condition	(CMHC, 2018)															
Economic	GDP Generated	GDP generated through the development of the housing property	\$1 invested to increase residential building construction generates an increase in overall GDP by \$1.52	(Zon et al., 2014)															
Economic	Increased government revenue from taxes	Property taxes paid	The cost of property taxes paid on the property	(Miller & Ofrim, 2016)															
		Revenue from local permits, taxes, etc. during construction or renovations	Estimated amount returning to the government in fees during construction.																
Economic	Reduced social services support cost from employment	Annual tax revenue generated through employment and avoided welfare costs	Tax based on income average and avoided costs of welfare (Total support costs including GST, child tax benefit etc. before employment versus after)	(Think Impact, 2016)	(VWHA, 2010)	(Miller & Robertson, 2014)	(Kraatz & Thomson, 2017)	(Zon et al., 2014)	(CHA, 2014)	(CMHC, 2018)									
Economic	Reduced housing provision cost	Annual savings experienced by the department of housing from avoided housing provision costs	Net recurrent costs of providing assistance excluding capital costs	(Think Impact, 2016)															
		Savings from housing refugees in affordable housing versus alternatives such as hotels	Difference in cost of affordable housing versus hotel in the region	(Union, n.d.)															

Economic	Increased access to education leading to higher salary	Number of tenants able to access education due to their tenancy at the project	Earnings premium for an individual with a post-secondary education compared to high school graduate (Miller & Ofrim, 2016)	(VWHA, 2010)	(Zon et al, 2014)	(Ravi & Reinhardt, 2011)	(CMHC, 2018)	(Kraatz & Thomson, 2017)	(CHA, 2014)	(Enterprise, 2014)
Economic	Enhanced education performance for children of community housing tenants	Increased earning potential as a result of greater educational attainment	Annual additional earning potential for year 12 graduates compared to those with grade 10 or less (Ravi & Reinhardt, 2011)	(Miller et al., 2018)	(VWHA, 2010)	(Zon et al, 2014)	(CMHC, 2018)			
		Higher school completion rates	Earnings premium difference between post-secondary and high-school graduate (CMHC, 2018)	(CCEA, 2015)						
		Decreased Behavioural Issues	Public costs of dropping out of high school avoided (Miller & Robertson, 2014)	(Miller et al., 2018)						
Economic	Increased Job Readiness	Cost of increased access to schooling for tenants	Average cost of attending a certificate program (Think Impact, 2016)							
Economic	Increased Participation in Work Force	Increased employment rates and earning potential at part time	Improved earning potential as measured by part-time employment rates at minimum wage (Ravi & Reinhardt, 2011)		(Zon et al, 2014)	(CMHC, 2018)	(VWHA, 2010)	(CCEA, 2015)	(Miller et al., 2018)	
		Number of tenants who found full time employment while in housing	1 year of full time minimum wage income for one person (MacKinnon & Alolo, 2015)	(MacKinnon & Alolo, 2015)	(VWHA, 2010)	(CCEA, 2015)	(Miller et al., 2018)			
Economic	Job Creation	Number of superintendents who report improved income	Annual superintendent salary (MacKinnon & Alolo, 2015)	(MacKinnon & Alolo, 2015)						
		Number of jobs created by increased local spending due to increased density	Median income (CMHC, 2018)	(Miller & Ofrim, 2016)	(Miller et al., 2018)	(Enterprise, 2014)				
		Number of jobs supported by local spending during development/upgrades	Average income in construction in the region (Miller & Ofrim, 2016)	(Miller & Ofrim, 2016)						
		Number of labour staff employed on an ongoing basis at project location	Project annual operational spend on maintenance/ repair workers (Miller & Ofrim, 2016)	(Miller & Ofrim, 2016)	(CHA, 2014)					
		Is the employer a living wage employer?	Difference between minimum wage and living wage (The good economy, 2020)	(The good economy, 2020)	(Puri & Smith, 2019)					
Economic	Cost of crime	Money saved and redirected, crime counts saved	The cost of an average stay in a correction facility, crime cost by violation, and justice system resources (CMHC, 2018)	(Think Impact, 2016)	(CCEA, 2015)	(Miller et al., 2018)	(Miller & Ofrim, 2016)	(CHA, 2014)	(VWHA, 2010)	(Zon et al, 2014)
		Improved education resulting in lower crime rates	1% increase in high school completion reduces the cost of crime by approximately \$1.4 billion per year or \$353.51 USD per person (Zon et al, 2014)	(Zon et al, 2014)						
Economic	Cost of homelessness	Number of tenants reporting they would have "no where else to live" if they didn't live at the property	Cost of services (health, justice) for the "at imminent risk of homelessness" population (Miller & Ofrim, 2016)	(Miller & Ofrim, 2016)	(Think Impact, 2016)	(Miller et al., 2018)	(CHA, 2014)	(Miller et al., 2018)	(Miller & Robertson, 2014)	
		Annual savings experienced by the government as a result of reduced youth homelessness	Includes avoided health and justice costs of youth homelessness (Think Impact, 2016)	(Think Impact, 2016)						
		Decreased experiences of family homelessness among housing clients (resulting in decreased justice system, health system, and emergency system use)	Cost of family homelessness in region (CCEA, 2015)	(CCEA, 2015)	(Miller et al., 2018)					
		Avoided costs of transitional housing	Reduced rates of transitional housing use when provided stable housing (VWHA, 2010)	(VWHA, 2010)	(MacKinnon & Alolo, 2015)					
		Reduced health cost from quality housing	Health costs of inadequate housing (cold, damp, mould, accessible etc.) dwellings (CHA, 2014)	(CHA, 2014)	(Kempton & Warby, 2011)	(Enterprise, 2014)				
		Reduced health cost from being housed compared to homeless	Cost of health care while homeless (CHA, 2014)	(CHA, 2014)	(Kraatz & Thomson, 2017)	(Ravi & Reinhardt, 2011)	(Miller et al., 2018)			

Economic	Decreased cost of health services	Decreased emergency services use for health reasons due to increased access to appropriate health services	Number of adult/ child shelter clients with changes in emergency health service x the cost of one emergency room visit	(CCEA, 2015)	(Zon et al, 2014)													
		Annual savings experienced by the department of health from reduced mental health costs	Reduced hospitalizations due to better mental health. Average cost per patient per day in the region x national average length of stay	(Think Impact, 2016)														
Economic	Cost of child welfare involvement	Number of clients with foster care involvement	sense of belonging worth .06% of property value (.06% average rent per year)	(CCEA, 2015)	(Miller et al., 2018)													
Economic	Cost of transportation	Number of tenants who report avoiding use of cars/ cabs	Difference between cost of transit and cost of maintaining and owning a vehicle annually	(Miller & Ofrim, 2016)	(Think Impact, 2016)	(Enterprise, 2014)												
		Higher neighbourhood value from walkability	-	(Gilderbloom et al., 2015)														
Economic	Increase in disposable income	Newly housed residents	Difference between rent in social housing and market rent for similar unit	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Ravi & Reinhardt, 2011)	(Think Impact, 2016)	(Miller et al., 2018)	(VWHA, 2010)	(Zon et al, 2014)	(The good economy, 2020)	(Kraatz & Thomson, 2017)	(CCEA, 2015)	(Miller & Robertson, 2014)	(Union, n.d.)	(HCA, 2013)		
		Additional disposable income allows people to invest in their health	An average of the difference in the annual expenditure per household on healthcare between the lowest and second income quintiles, and between the second and third income quintiles	(Zon et al, 2014)	(Ravi & Reinhardt, 2011)	(CMHC, 2018)												
Economic	Positive impact on tenant finances	Number of tenants who cite better financial management skills	Cost of operating a bank account subtracted from the cost of cashing checks per year	(MacKinnon & Alolo, 2015)														
Economic	Rental Income	Rental income from housing tenants	Amount paid by tenant to stay on the property	(VWHA, 2010)														
		Reduced turnover rates in rental property	Reduction of void rent loss from x to y %. Cost of eviction	(CHA, 2014) (CMHC, 2018)	(CCEA, 2015)													
Economic	Sale of Property	Property value at end of project	Estimated market value at end of social housing term	(VWHA, 2010)														
Economic	Effective Service Provision	Maintenance expenditure per social housing dwelling	Cost of substandard housing quality; dampness, poor lighting, etc.	(Kraatz & Thomson, 2017)	(The good economy, 2020)	(CHA, 2014)												
Economic	Increased contribution to affordable housing developments from other sources	Debt and philanthropic funding development and ongoing activities	Total amount of philanthropic funding	(VWHA, 2010)														
Environment	Energy efficiency for sustainable housing	Average annual cost of utilities	Difference in energy costs due to energy efficiencies (depending on project specifically)	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Pullen et al., 2010)	(The good economy, 2020)	(Brod et al., 2020)	(Shrestha et al., 2019)	(Poor et al., 2018)	(Puri & Smith, 2019)	(CHA, 2014)	(Enterprise, 2014)					
Economic	Water usage for sustainable housing	Average annual cost of water	Decrease in water use costs without greening	(Pullen et al., 2010)	(Brod et al., 2020)	(Puri & Smith, 2019)	(Kraatz & Thomson, 2017)	(Union, n.d.)	(Enterprise, 2014)									
Economic	Cost of property	Cost of converting a property versus reutilizing existing spaces	Difference in cost of new building versus repurposing	(Union, n.d.)	(Union, n.d.)													
		Money saved, redirected (opportunity gain), disease count changes, prevalence utilization, increased safety and avoidance of accidents (decrease in hospital costs)	General practitioner, emergency room, and hospitalization costs	(CMHC, 2018)	(Kempton & Warby, 2011)	(Enterprise, 2014)												
		Number of tenants reporting improved health; number of tenants in a warmer, drier, and less crowded house	Value of housing quality indicator from improved quality housing	(CHA, 2014)	(Miller & Ofrim, 2016)	(CMHC, 2018)												



Social	Improved overall health	Subjective well-being	Dollar value of having control over life, confidence, self reported health improvement, reduced stress from tenure security	(Kraatz & Thomson, 2017)	(Miller & Ofrim, 2016)					
		Increased overall wellbeing, including positive change in physical and mental health	Valuation: Change from rough sleeping to secure housing or temporary housing to secure housing	(Miller et al., 2018)	(CCEA, 2015)	(Enterprise, 2014)				
		Improved physical health: Equivalent to a yearly gym membership	Weekly cost x 52 months a year, cost of diabetes	(Think Impact, 2016)		(Miller & Robertson, 2014)				
		Improved health during pregnancy from accessing housing	Value of improved health during pregnancy and healthy babies born, yearly additional costs of premature babies	(Miller et al., 2018)		(Miller & Robertson, 2014)				
Social	Improved Mental Health and Wellbeing	Number of people with increased sense of wellbeing, number of people with new friends	Value of better mental health - Revealed preference: Cost of counselling session	(Miller & Robertson, 2014)	(Kempton & Warby, 2011)					
		Number of people addressing mental health concerns	Psychiatric admission to the hospital cost	(Miller & Robertson, 2014)						
			The statistical value of a life year adjusted for the loss of attributable to mild depression with a disability weighting of .15	(Think Impact, 2016)						
		Improved wellbeing from housed, number of people/ families housed	Wellbeing valuation: Temporary accommodation to secure housing for families	(CCEA, 2015)						
		Decrease in substance use once housed, number of people	Health and justice costs, personal costs, lost productivity	(Miller & Robertson, 2014)	(CCEA, 2015)	(VWHA, 2010)	(Miller et al., 2018)	(Kraatz & Thomson, 2017)		
			Number of pregnant clients addressing substance use, the value of a health pregnancy including reduced substance use	(CCEA, 2015)		(Miller & Robertson, 2014)				
Increased self-esteem: Number of people with increased sense of wellbeing, number of women with new friends	Quality of adjusted life year, average spending on personal care	(Miller & Robertson, 2014)	(CHA, 2014)	(Think Impact, 2016)						
Social	Financial Stress Reduction	Newly housed residents	Well-being value for people lifted out of debt, being able to afford housing, having financial comfort	(CMHC, 2018)	(Enterprise, 2014)					
Social	Improved Social Wellbeing	Improved relationships with family, friends, community, neighbours	Wellbeing valuation: Socialization	(Kempton & Warby, 2011)	(CCEA, 2015)	(Miller et al., 2018)	(CMHC, 2018)	(CHA, 2014)	(Miller & Robertson, 2014)	
			Average cost of counselling x 5 sessions	(Think Impact, 2016)	(Miller & Robertson, 2014)	(CHA, 2014)				
		Social empowerment, involvement in the community	Dollar value for being active in tenant group, cost of city recreational pass, valuation of the hours spent in activities at minimum wage	(Kraatz & Thomson, 2017)	(Miller & Ofrim, 2016)	(Ravi & Reinhardt, 2011)	(Think Impact, 2016)	(Miller et al., 2018)		
Social	Families able to stay together	number of clients with active or potential children's services involvement	Wellbeing valuation: ability to stay together as a family	(CCEA, 2015)	(Miller et al., 2018)	(Miller & Robertson, 2014)	(VWHA, 2010)			
Social	Neighbourhood Safety	Safety associated with living in a safer area	Wellbeing value from living in an area with less vandalism and crime, police doing a good job, feeling safe while walking	(CMHC, 2018)	(CHA, 2014)	(Kempton & Warby, 2011)	(Kraatz & Thomson, 2017)	(MacKinnon & Alolo, 2015)		
			Value of having no problem with anti-social behaviour (HACT social value bank)	(CHA, 2014)	(CMHC, 2018)					

			Revealed preference valuation: cost of professional property management	(Miller & Ofrim, 2016)						
Social	Personal Safety	Safety from domestic violence. Equivalent to three times the cost of domestic violence experience by survivors based on the study the cost of violence against women and children	in 2022 the cost to survivors of domestic violence will be \$3,883 million with an estimate 385,426 victims (\$10,075 per person) brought to present value	(Think Impact, 2016)	(CCEA, 2015)	(Miller et al., 2018)	(Miller & Robertson, 2014)			
		Safety from sexual violence. Number of clients avoiding sexual violence due to shelter stay	personal cost of pain and suffering due to sexual assault	(CCEA, 2015)	(CCEA, 2015)	(Miller et al., 2018)				
		Number of clients with children who might otherwise be exposed to violence or abuse	Personal cost of child abuse to survivors	(CCEA, 2015)	(Miller et al., 2018)	(Miller & Robertson, 2014)				
		Decreased harm from involvement in sex trade activities	Number of clients avoiding sexual exploitation due to housing, direct and indirect personal cost of involvement in the sex trade	(CCEA, 2015)	(Miller et al., 2018)					
Social	Cost of Crime	Number of shelter client children who might be involved in criminal activities while on the street	Personal opportunity cost to youth of involvement in crime	(CCEA, 2015)						
Social	Culturally Rich and Vibrant Communities	Opportunities to participate in sports and recreation activities	Number of people participating in a sport at least once a month	(Kraatz & Thomson, 2017)	(CMHC, 2018)					
Social	Access to Greenspace	Positive impact on health including: enhanced personal and social communication skills, increased physical health, enhanced mental and spiritual health, ability to assert personal control and increased sensitivity to ones own well-being	Value for access to greenspace	(Herbert & Dale, 2017)	(Mitchell & Popham, 2008)	(Twohig-Bennett & Jones, 2018)	(Puri & Smith, 2019)			
Social	Neighbourhood Satisfaction	Quality and appearance of local area	Average annual spend on repair and maintenance of home, dollar value associated with living in a "good" neighbourhood	(CMHC, 2018)	(CHA, 2014)	(Kraatz & Thomson, 2017)	(CCEA, 2015)	(Miller et al., 2018)		
Social	Indoor environmental quality	Ability to be comfortable temperature year round, health improvements from indoor quality, increased daylight in apartment	-	(Bhikhoo et al., 2017)	(Brod et al., 2020)	(Puri & Smith, 2019)	(Bennet & O'Brien, 2017)	(Soebiyanto, 2018)	(Kraatz & Thomson, 2017)	(Edwards and Torcellini, 2002)
Social	View and Acoustics	Internal acoustics as it relates to the health of the individual living in the unit, views and sound from windows	-	(Alonso, 2019)	(Bennet & O'Brien, 2017)					
Social	Resident Satisfaction	Housing provider "resident satisfaction" indicator, Complaint handling, support for residents	-	(The good economy, 2020)						
Social	Community Pride/ Spirit	Number of tenants reporting increased pride, number of tenants that are reprimanded to maintain their home/ garden	Value of living in a good neighbourhood (HACT Social Value Bank)	(CHA, 2014)						
		Number of residents reporting reduced anti-social behaviour, reduced number of police incidents	Average cost of 1 community mediation per month	(CHA, 2014)	(MacKinnon & Alolo, 2015)					
		Number of tenants who cite improved sense of belonging to a community	Sense of belonging worth .06% of property value (.06% average rent per year)	(MacKinnon & Alolo, 2015)						
Social	Improved Independence	Purchase of cars, learnt to drive, managing resources etc., managing emotions	-	(VWHA, 2010)	(Miller & Robertson, 2014)	(CHA, 2014)				
		Number of people improving anger management	Cost of pain and suffering due to assault	(Miller & Robertson, 2014)						
Social	Improved access to services and amenities	Number of residents with access to internet (and other services), access to community spaces	Wellbeing value for access to internet, other services, and community spaces	(CMHC, 2018)	(Think Impact, 2016)	(Miller & Robertson, 2014)				

Social	Basic Needs Met	Individuals are able to meet their basic needs because of housing access	Cost of basic needs in the region	(CCEA, 2015)			
Social	Youth/ Family support programs	Residents who "know where to get help"	Well-being value for "going to youth clubs"	(CMHC, 2018)			
		Number of tenants who report seeking city and public community services	Minimum wage x the number of volunteer hours spend one-on-one support with tenants to capture the value of mentoring	(MacKinnon & Alolo, 2015)			
Social	Children: Overall well-being	Positive increase in children's confidence, academic performance, physical and mental health and family relationships	Number of children housed, Cost of individual CBT for children,	(VWHA, 2010)	(CCEA, 2015)	(VWHA, 2010)	(Miller et al., 2018)
Social	Children: Improved mental health from support access	Children of clients have decreased ongoing behavioural issues and increased access to supports for positive mental health	Cost of a comprehensive psychological assessment	(CCEA, 2015)	(Miller et al., 2018)	(VWHA, 2010)	
Social	Housing Quality Increased	Change in Facility Condition Index (FCI)	Quality adjusted life years (QALYS per change in FCI.	(CMHC, 2018)			
Social	Socio-economic determinants of health (SEDH)	Changes in SEDH, such as income, education	QALYS per change in SEDH	(CMHC, 2018)			

Appendix 3: Content analysis coding categories

Category	Code
Environment	Community Engagement in Building Process
Environment	Green Building
Environment	Supply Chain
Environment	Surrounding Environment
Environment	Transportation Emissions
Environment	Waste Management
Social	Access
Social	Community
Social	Family Dynamic
Social	Health
Social	Labor Practice
Social	Marginalization and Diversity
Social	Quality Housing
Social	Safety and Crime
Social	Tenant Financial Health
Economic	Avoided Costs from Access
Economic	Avoided Costs from Adequate Housing
Economic	Avoided Costs once Housed
Economic	Economy and Workforce
Economic	Government Revenue
Economic	Property Expenses
Economic	Tenant Finances



Appendix 4: Framework alterations based on interview feedback

Indicator Broad category	Indicator Specific (keep?)	Suggested Changes	Evaluation of changes
Avoided costs from Access	Increased access to education leading to higher salary	Include high school graduation rates among tenants (currently just children), as well as high school to post secondary	- This is a sensible alteration within the current scope.
Avoided costs from access	Cost of Transportation	Include the costs of not having transportation, i.e., in rural areas what is the cost of not having public transportation?	-This is included in another section. Indicator is covered by calculating the alternative cost of owning a vehicle. Phrasing will be updated to better reflect this suggestion.
Avoided costs from access	Increased job readiness	Include the barriers of improving life, education etc. (programs that help facilitate these??)	- Diverges from the purpose of indicators.
Avoided costs from access	Cost of transportation	Ability to carpool with other tenants	- This is a sensible alteration within the current scope. Include a consideration for carpooling in alternative forms of transportation. On its own it diverges from the purpose of the indicators.
Avoided costs from access	Decreased costs of health services	Emphasize preventative health care. Change phrasing D41 to include “preventative” as well as appropriate	- This is a sensible alteration within the current scope.
Avoided costs from adequate housing	Health costs of inadequate housing	Include landlord maintenance considerations	-This is included in another section. Potential to quantify the value of not addressing such issues, causing later damage.
Avoided costs once housed	Avoided welfare costs	Also include avoided healthcare costs	- This is Included in another section
Avoided costs once housed	Costs of homelessness	Include housing and homelessness plan, metric: a decrease in levy dollars from service managers when there's more affordable housing	- This is a sensible alteration within the current scope.
Avoided costs once housed	Justice Costs	Probation and numbers of people on probation that are down in certain areas where you put up a lot of affordable housing	-Outside of the scope of the current project. This has the potential to be a future measurement.
Avoided costs once housed	Costs of homelessness	A decrease in the people that are on the by name homelessness list.	- Diverges from the purpose of indicators.
Avoided costs once housed	Enhanced education performance for children	Tenant children school attendance rates	- Outside of the scope of the current project. This indicator is not cost-

			effective to measure, may make for an interesting future measurement.
Economy and workforce	Job Creation	Track time frame of job, are these temporary or contract workers?	- Diverges from the purpose of indicators.
Economy and workforce	Job Readiness	Cost of community programs to increase job readiness such as the YMCA	- This is a sensible alteration within the current scope.
Economy and workforce	Job creation	What extent of the funding for the project is locally sourced?	- Outside of the scope of the current project. An interesting future metric if you can calculate the value of local funding. Indicator will be added without a financial proxy.
Economy and workforce	Job creation	Ratio of salary, lowest to highest paid employee	- Diverges from the purpose of indicators.
Economy and workforce	Job creation	Value of volunteer hours put into the project	- This is a sensible alteration within the current scope.
Economy and workforce	Rental income from tenants	Include breakdown between amount paid by tenants versus paid by government programs	- This is a sensible alteration within the current scope.
Economy and workforce	Government revenue	Amount of money received from government to support the project	- This is a sensible alteration within the current scope.
Economy and workforce	Rental income	Cost of rent, before and after unit turnover	- Diverges from the purpose of indicators.
Economy and workforce	Tenants citing better financial management skills	Remove cost of operating a bank account as financial proxy. Perhaps something around budgeting instead – reduced debt?	- This is a sensible alteration within the current scope.
Green design and construction	Water use	M <sup>3</sup> per person, water use	- This is a sensible alteration within the current scope. To be added as an alternate option.
Green design and construction	GHG Reductions	Cost per ton of GHG emissions from building	- This is a sensible alteration within the current scope.
Green design and construction	GHG Reductions	Social cost of carbon by emissions	- This is a sensible alteration within the current scope.
Green space	Green space	Costs associated with increased/ decreased maintenance based on use case (Decreased lawn to mow)	- This is a sensible alteration within the current scope.
Green design and construction	Environmental efficiency	Breakdown costs by month instead of year	- This is a sensible alteration within the current scope. May be more expensive to track monthly data. Both will be included.

Sustainable sourcing	Local sourcing	Cost benefits from reduced transportation costs from local sourcing	- This is a sensible alteration within the current scope.
Green space	Green space	Is green space part of the official plan?	- This is included in another section
Green space	Urban agriculture	Value of food grown by lbs in community garden (if possible). # Of people who would be more food secure from using garden	- This is a sensible alteration within the current scope.
Green space	Green space	Instead of greenspace on site, proximity to greenspace (encourages densification while ensuring access within walking distance)	- This is a sensible alteration within the current scope.
Waste management	Waste management and recycling	How much waste/ recycling/ etc. is taken away each month/ year? What are the associated costs? What are the associated GHG emissions?	- This is a sensible alteration within the current scope.
Waste management	Waste management and recycling	Is waste management and recycling available in the region? Is information provided about it? (Some places don't have access)	- This is a sensible alteration within the current scope. Indicator will be added without a financial proxy.
Access	Access to services and amenities	Access to phone and internet	-This indicator exists in another section.
Access	Access to services and amenities	Access to services based on location, what exists within 2km?	- This is a sensible alteration within the current scope.
Access	Access to transportation	Include many forms of transportation: add bike and car sharing options	- This is a sensible alteration within the current scope.
Access	Improved independence	Number of tenants with driving licenses	- Diverges from the purpose of indicators.
Access	Access to services and amenities	Number of tenants using community services, cost of these services, benefit of these services	- This is a sensible alteration within the current scope.
Community	Organizational engagement	Engagement or participation in organizational governance matters	- This is a sensible alteration within the current scope. Indicator will be added without a financial proxy.
Community	Culturally rich and vibrant communities	Measure more than just sports i.e., any event that is hosted in the community for a group of people (churches etc.). Measure tenant participation at events	- This is a sensible alteration within the current scope.
Health	Mental health and connectivity	Cost of maintaining phone/internet to stay connected to friends and family	- This is a sensible alteration within the current scope.
Health	Children of tenants	Decreased sick days from school. Cost of missing a day.	- This is a sensible alteration within the current scope. Difficult to measure or

			track. Include if a baseline study can be found.
Health	Preventative health care	Value of taking preventative healthcare measures once housed. Potential cost of having a paramedicine program on site?	- This is a sensible alteration within the current scope.
Health	Counselling psychiatric treatment	Cost of counselling session compared to average income	- Diverges from the purpose of indicators.
Labour practices	Hiring practices	Equity seeking hiring practices?	- This is a sensible alteration within the current scope. Indicator will be added without a financial proxy.
Marginalization and diversity	Marginalization and diversity	Is marginalization and diversity considered in the housing process?	- This is a sensible alteration within the current scope. Indicator will be added without a financial proxy.
Safety	Maintenance safety checks	Fire alarms, HVAC, CO2 detectors, are they maintained regularly?	- This is a sensible alteration within the current scope. Financial proxy around the potential cost of not maintaining these.
Resident Satisfaction	Complaint handling	# Of complaints, % addressed	- This is a sensible alteration within the current scope. Potential to quantify the value of not addressing such issues, causing later damage.
Personal safety	Employee Training on crisis	Are employees trained on crisis situations? Who do they call? Potential to track the cost of crisis training versus the reduced services usage.	- Outside of the scope of this project. Potential to be a future indicator if you can calculate the potential decrease from emergency crisis services use.
Personal safety	Crime	Cost of police services in a region versus cost of health care etc.	- Diverges from the purpose of indicators.

Appendix 5: UPRC metrics with prioritization explanation

Impact to be Measured	Metric	(desired) Financial Proxy (\$)	Relevance	Cost	Ability to Collect	UPRC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Transportation Emissions	Number of tenants reporting a shorter commute to work and shorter distances to amenities	Time and carbon emissions costs of car travel saved per year	5	4	3	Y - UPRC prioritizes high walkability scores on properties they intend to convert into housing.	(Miller & Ofrim, 2016)	(Puri & Smith, 2019)	(Enterpris e, 2014)	(EHRA, 2013)											
Green Design and Construction	Constructing buildings with passive approaches to low-energy affordable housing	Benefits of greening (rate subsidies, property value, responsible materials, etc.) subtract the cost of greening.	5	3	4	Y - UPRC prioritized sustainable design over cost.	(Pullen et al., 2010)	(CMHC, 2017)	(CMHC, 2016)	(Bradshaw et al., 2005)	(Bardhan & Debnath, 2016)	(Puri & Smith, 2019)									
Energy production	Total potential production of all installed energy sources	Calculation of the total potential production of energy	5	5	5	Y - UPRC intends to generate energy on site.	(The good economy, 2020)	(Puri & Smith, 2019)													
GHG Reductions	Cost per ton of GHG emissions from building	Total GHG emissions reductions x social cost of carbon	5	3	3	Y - UPRC will have lower GHG emissions due to sustainable design and energy production.	INTERVIEW DATA.														
Enhanced education performance for children of community housing tenants	Increased earning potential as a result of greater educational attainment	Annual additional earning potential for year 12 graduates compared to those with grade 10 or less	4	3	3	Y - no strategy, this is general. However UPRC is focusing on family sized rentals.	(Ravi & Reinhardt, 2011)	(miller et al., 2018 (1))	(VWHA, 2010)	(Zon et al., 2014)	(CMHC, 2018)	(SVA, 2014)	(Suttor et al., 2015)								
Increased Job Readiness	Cost of increased access to schooling or training for tenants	Average cost of attending a training program at the YMCA	4	3	3	Y - UPRC to encourage tenants to participate in external programs	INTERVIEW DATA.														
Decreased cost of health services	Reduced health cost from quality housing	Health costs of inadequate housing (cold, damp, mould, accessible etc.) dwellings	5	3	3	Y - UPRC is focusing on providing high quality housing.	(CHA, 2014)	(Kempton & Warby, 2011)	(Enterpris e, 2014)	(Barnes et al., 2018)											
Cost of transportation	Number of tenants who report avoiding use of cars/ cabs from better access to sustainable forms of transportation	Difference between cost of transit and cost of maintaining and owning a vehicle annually	5	3	3	Y - UPRC prioritizes high walkability scores.	INTERVIEW EDIT.	(Miller & Ofrim, 2016)	(Think Impact, 2016)	(Enterpris e, 2014)	(Gilderblo om et al., 2015)										
Increase in disposable income	Newly housed residents disposable income	Difference between rent in social housing and market rent for similar unit	5	5	5	Y - Reduced market rate rent for affordable housing tenants	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Ravi & Reinhardt, 2011)	(Think Impact, 2016)	(miller et al., 2018 (1))	(VWHA, 2010)	(Zon et al., 2014)	(The good economy, 2020)	(Kraatz & Thomson, 2017)	(CCEA, 2015)	(Miller & Robertson, 2014)	(Union, n.d.)	(HCA, 2013)	(Enterpris e, 2010)	
Improved overall health	Number of tenants reporting improved health; number of tenants in a warmer, drier, and less crowded house	Value of housing quality indicator from improved quality housing	5	3	3	Y - UPRC is focusing on providing high quality housing	(CHA, 2014)	(Miller & Ofrim, 2016)	(CMHC, 2018)	(The good economy, 2021)	(Fujiwara, 2013)	(Frontier Economic s, 2014)	(Miller et al., 2018 (2))	(Suttor et al., 2015)	(Barnes et al., 2018)	(Wood et al., 2016)	(Kraatz & Thomson, 2017)	(The good economy, 2020)	(CHA, 2014)	(HCA, 2013)	
Improved Social Wellbeing	Improved relationships with family, friends, community, neighbours	Wellbeing valuation: Socialization	5	3	2	Y - UPRC is focusing on community space and community building on site	(Kempton & Warby, 2011)	(CCEA, 2015)	(miller et al., 2018 (1))	(CMHC, 2018)	(CHA, 2014)	(Miller & Robertson, 2014)	(The good economy, 2021)	(Fujiwara, 2013)	(Frontier Economic s, 2014)	(Boyle et al., 2016)	(ERHA, 2013)				
Families able to stay together	number of clients with active or potential children's services involvement	Wellbeing valuation: ability to stay together as a family	5	2	2	Y - UPRC focuses on reduced market rate rentals for families	(CCEA, 2015)	(miller et al., 2018 (1))	(Miller & Robertson, 2014)	(VWHA, 2010)	(constellation consultin g, 2019)	(Fujiwara, 2013)	(Suttor et al., 2015)	(Barnes et al., 2018)	(CCEA, 2015)	(miller et al., 2018 (1))	(constellation consultin g, 2019)				
Neighbourhood Satisfaction	Quality and appearance of local area	Average annual spend on repair and maintenance of home, dollar value associated with living in a "good" neighbourhood	5	3	3	Y - UPRC has strategically selected "good" neighbourhoods	(CMHC, 2018)	(CHA, 2014)	(Kraatz & Thomson, 2017)	(CCEA, 2015)	(miller et al., 2018 (1))										

Appendix 6: Final framework

Impact to be Measured	Metric	(desired) Financial Proxy (\$)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Environmental Indicators																					
Transportation Emissions	Number of tenants reporting a shorter commute to work and shorter distances to amenities	Time and carbon emissions costs of car travel saved per year	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Puri & Smith, 2019)	(Enterprise, 2014)	(EHRA, 2013)														
Green Design and Construction	Constructing buildings with passive approaches to low-energy affordable housing	Benefits of greening (rate subsidies, property value, responsible materials, etc.) subtract the cost of greening.	(Pullen et al., 2010)	(CMHC, 2017)	(CMHC, 2016)	(Bradshaw et al., 2005)	(Bardhan & Debnath, 2016)	(Puri & Smith, 2019)													
	Responsible sourcing, support sustainable extraction of materials, transparent labelling, support local businesses	Cost of transportation from local sources versus cost from non-local sources	(Puri & Smith, 2019)	INTERVIEW DATA.																	
	Energy efficiency for sustainable housing	Average annual or monthly cost of utilities versus averages	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Pullen et al., 2010)	(The good economy, 2020)	(Brod et al., 2020)	(Shrestha et al., 2019)	(Poor et al., 2018)	(Puri & Smith, 2019)	(Hightown, 2019)	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Pullen et al., 2010)	(The good economy, 2020)	(Brod et al., 2020)	(Shrestha et al., 2019)	(Poor et al., 2018)	(Puri & Smith, 2019)	(CHA, 2014)	(Enterprise, 2014)
	Water usage for sustainable housing	M <sup>3</sup> usage per unit, compared to neighbourhood averages.	INTERVIEW DATA.	(Pullen et al., 2010)	(Brod et al., 2020)	(Puri & Smith, 2019)	(Kraatz & Thomson, 2017)	(Pullen et al., 2010)	(Brod et al., 2020)	(Puri & Smith, 2019)	(Kraatz & Thomson, 2017)	(Union, n.d.)	(Enterprise, 2014)								
Waste Management	How much waste/ recycling/organics	Waste type x the cost	INTERVIEW DATA.																		
Green Space	Value for increased/ decreased maintenance based on greenspace strategy (i.e. less grass to mow leading to lower costs)	Cost of maintaining surrounding yard, versus cost of maintain surrounding yard with greenspace accounted for	INTERVIEW DATA.																		
Energy production	Total potential production of all installed energy sources	Calculation of the total potential production of energy	(The good economy, 2020)	(Puri & Smith, 2019)																	
Urban Agriculture	Project integrates connecting the community to locally grown food or provides the ability to grow food	Value of the food in pounds, either potential based on garden sq. ft. or amount weighed from project x the dollar value of the food.	(Puri & Smith, 2019)	INTERVIEW DATA.																	
GHG Reductions	Average spend per year, tonnes average per year	Energy costs by FCI building condition	(CMHC, 2018)																		
	Cost per ton of GHG emissions from building	Total GHG emissions x social cost of carbon	INTERVIEW DATA.																		
Economic Indicators																					
Increased government revenue from taxes	Property taxes paid	The cost of annual property taxes paid on the property	(Miller & Ofrim, 2016)	(Cohen & Wardrip, 2011)																	
	Revenue from local permits, taxes, etc. during construction or renovations	Estimated amount returning to the government in fees during construction.	(Miller & Ofrim, 2016)	(Cohen & Wardrip, 2011)																	
Reduced social services support cost from employment	Annual tax revenue generated through employment and avoided welfare costs	Tax based on income average and avoided costs of welfare (Total support costs including GST, child tax benefit etc. before employment versus after)	(Think Impact, 2016)	(VWHA, 2010)	(Miller & Robertson, 2014)	(Kraatz & Thomson, 2017)	(Zon et al., 2014)	(CHA, 2014)	(CMHC, 2018)	(SVA, 2014)	(Fujiwara, 2013)	(Suttor et al., 2015)	(Barnes et al., 2018)								
Reduced housing provision cost	Savings from housing refugees in affordable housing versus alternatives such as hotels	Difference in cost of affordable housing versus hotel in the region	INTERVIEW DATA.																		
Increased access to education leading to higher salary	Number of tenants able to access education due to their tenancy at the project	Earnings premium for an individual with a post-secondary education compared to high school graduate	(Miller & Ofrim, 2016)	(VWHA, 2010)	(Zon et al., 2014)	(Ravi & Reinhardt, 2011)	(CMHC, 2018)	(Kraatz & Thomson, 2017)	(CHA, 2014)	(Enterprise, 2014)	(The good economy, 2021)	(SVA, 2014)	(Fujiwara, 2013)								
		Annual additional earning potential for year 12 graduates compared to those with grade 10 or less	INTERVIEW EDIT.																		
Enhanced education performance for children of community housing tenants	Increased earning potential as a result of greater educational attainment	Annual additional earning potential for year 12 graduates compared to those with grade 10 or less	(Ravi & Reinhardt, 2011)	(Miller et al., 2018 [1])	(VWHA, 2010)	(Zon et al., 2014)	(CMHC, 2018)	(SVA, 2014)	(Suttor et al., 2015)												
		Earnings premium difference between post-secondary and high-school graduate	(CMHC, 2018)	(CCEA, 2015)	(SVA, 2014)	(Miller et al., 2018 [2])	(Suttor et al., 2015)														
	Higher school completion rates	Public costs of dropping out of high school avoided	(Miller & Robertson, 2014)	(Miller et al., 2018 [1])	(The good economy, 2021)	(Frontier Economic, 2014)	(Barnes et al., 2018)														
Increased Job Readiness	Cost of increased access to schooling or training for tenants	Average cost of attending a certificate program	(Think Impact, 2016)	(Suttor et al., 2015)	(SVA, 2014)																
		Average cost of attending a training program at the YMCA	INTERVIEW DATA.																		



Increased Participation in Work Force	Increased employment rates and earning potential at part time	Improved earning potential as measured by part-time employment rates at minimum wage	(Ravi & Reinhardt, 2011)	(Zon et al, 2014)	(CMHC, 2018)	(VWHA, 2010)	(CCEA, 2015)	(miller et al., 2018 (1))	(constellation consultin g, 2019)	(SVA, 2014)	(Fujiwara, 2013)	(Frontier Economic s, 2014)	(ERHA, 2013)	(Barnes et al., 2018)	(Cohen & Wardrip, 2011)	
	Number of tenants who found full time employment while in housing	1 year of full time minimum wage income for one person	(Mackinnon & Alolo, 2015)	(VWHA, 2010)	(CCEA, 2015)	(miller et al., 2018 (1))	(Cohen & Wardrip, 2011)									
Job Creation	Number of jobs supported by local spending during development/ upgrades	Average income in construction in the region x # of jobs	(Miller & Ofrim, 2016)	(Cohen & Wardrip, 2011)												
	Number of labour staff employed on an ongoing basis at project location	Project annual operational spend on maintenance/ repair workers	(Miller & Ofrim, 2016)	(CHA, 2014)	(Cohen & Wardrip, 2011)	(Mackinn on & Alolo, 2015)	(CMHC, 2018)	(Miller & Ofrim, 2016)	(miller et al., 2018 (1))	(Enterpris e, 2014)	(Suttor et al., 2015)	(ERHA, 2013)	(Cohen & Wardrip, 2011)	(Enterpris e, 2010)		
	Is the employer a living wage employer?	Difference between minimum wage and living wage	(The good economy, 2020)	(Puri & Smith, 2019)												
Cost of crime	Money saved and redirected, crime counts saved	The cost of an average stay in a correction facility, crime cost by violation, and justice system resources	(CMHC, 2018)	(Think Impact, 2016)	(CCEA, 2015)	(miller et al., 2018 (1))	(Miller & Ofrim, 2016)	(CHA, 2014)	(VWHA, 2010)	(Zon et al., 2014)	(constella tion consultin g, 2019)	(SVA, 2014)	(Boyle et al., 2016)	(Barnes et al., 2018)		
Cost of homelessness	Number of tenants reporting they would have "no where else to live" if they didn't live at the property	Cost of services (health, justice) for the "at imminent risk of homelessness" population	(Miller & Ofrim, 2016)	(Think Impact, 2016)	(miller et al., 2018 (1))	(CHA, 2014)	(miller et al., 2018 (1))	(Miller & Robertson, 2014)	(CCEA, 2015)	(constella tion consultin g, 2019)	(Hightow n, 2019)	(Suttor et al., 2015)	(CHA, 2014)	(Kraatz & Thomson, 2017)	(Ravi & Reinhardt, 2011)	(miller et al., 2018 (1))
	Annual savings experienced by the government as a result of reduced youth homelessness	Includes avoided health and justice costs of youth homelessness	(Think Impact, 2016)	(Suttor et al., 2015)	(CCEA, 2015)	(Frontier Economic s, 2014)	(Boyle et al., 2016)	(Suttor et al., 2015)								
	Avoided costs of transitional housing	Reduced rates of transitional housing use when provided stable housing, difference in costs	(VWHA, 2010)	(Mackinn on & Alolo, 2015)	(Barnes et al., 2018)											
Decreased cost of health services	Reduced health cost from quality housing	Health costs of inadequate housing (cold, damp, mould, accessible etc.) dwellings	(CHA, 2014)	(Kempton & Warby, 2011)	(Enterpris e, 2014)	(Barnes et al., 2018)										
	Decreased emergency services use for health reasons due to increased access to appropriate preventative health services	Number of adult/ child shelter clients with changes in emergency health service x the cost of one emergency room visit	(CCEA, 2015)	(Zon et al., 2014)	(Barnes et al., 2018)											
	Annual savings experienced by the department of health from reduced mental health costs	Reduced hospitalizations due to better mental health. Average cost per patient per day in the region x national average length of stay	(Think Impact, 2016)	(Barnes et al., 2018)	(Wood et al., 2016)											
Cost of transportation	Number of tenants who report avoiding use of cars/ cabs from better access to sustainable forms of transportation	Difference between cost of transit and cost of maintaining and owning a vehicle annually	INTERVIEW EDIT.	(Miller & Ofrim, 2016)	(Think Impact, 2016)	(Enterpris e, 2014)	(Gilderblo om et al., 2015)									
Increase in disposable income	Newly housed residents disposable income	Difference between rent in social housing and market rent for similar unit	(CMHC, 2018)	(Miller & Ofrim, 2016)	(Ravi & Reinhardt, 2011)	(Think Impact, 2016)	(miller et al., 2018 (1))	(VWHA, 2010)	(Zon et al., 2014)	(The good economy, 2020)	(Kraatz & Thomson, 2017)	(CCEA, 2015)	(Miller & Robertson, 2014)	(Union, n.d.)	(HCA, 2013)	(Enterpris e, 2010)
	Additional disposable income allows people to invest in their health	An average of the difference in the annual expenditure per household on healthcare between the lowest and second income quintiles, and between the second and third income quintiles	(Zon et al., 2014)	(Ravi & Reinhardt, 2011)	(CMHC, 2018)	(Enterpris e, 2010)										
Positive impact on tenant finances	Number of tenants who cite better financial management skills, value of reduced debt	Value of paying an additional \$100 to debt, interest calculation	INTERVIEW DATA.	(Mackinn on & Alolo, 2015)	(Fujiwara, 2013)	(Hightow n, 2019)	(miller et al., 2018 (2))	(Boyle et al., 2016)	(Barnes et al., 2018)	(Enterpris e, 2010)						
Rental Income	Rental income from housing tenants	Amount paid by tenant to stay on the property, amount paid by government to stay on the property	INTERVIEW DATA.	(VWHA, 2010)	(Think Impact, 2016)											
	Reduced turnover rates in rental property	Reduction of void rent loss from x to y %.	(CHA, 2014)	(CCEA, 2015)	(Cohen & Wardrip, 2011)											
		Cost of eviction	(CMHC, 2018)	(Cohen & Wardrip, 2011)												
Increased contribution to affordable housing developments from other sources	Debt and philanthropic funding development and ongoing activities	Total amount of philanthropic funding	(VWHA, 2010)													

Volunteering to maintain project	Value of volunteer hours put into project	# hours x minimum wage x # of volunteers	INTERVIEW DATA.																		
Cost of property	Cost of converting a property versus reutilizing existing spaces	Difference in cost of new building versus repurposing	INTERVIEW DATA.																		
Social Indicators																					
Improved overall health	Money saved, redirected (opportunity gain), disease count changes, prevalence utilization, increased safety and avoidance of accidents (decrease in hospital costs)	General practitioner, emergency room, and hospitalization costs X tenant	(CMHC, 2018)	(Kempton & Warby, 2011)	(Enterprise, 2014)	(constellation consultin g, 2019)	(Boyle et al., 2016)	(Suttor et al., 2015)	(Barnes et al., 2018)	(Wood et al., 2016)											
	Number of tenants reporting improved health; number of tenants in a warmer, drier, and less crowded house	Value of housing quality indicator from improved quality housing	(CHA, 2014)	(Miller & Ofrim, 2016)	(CMHC, 2018)	(The good economy, 2021)	(Fujiwara, 2013)	(Frontier Economic s, 2014)	(Miller et al., 2018 [2])	(Suttor et al., 2015)	(Barnes et al., 2018)	(Wood et al., 2016)	(Kraatz & Thomson, 2017)	(The good economy, 2020)	(CHA, 2014)	(HCA, 2013)					
	Subjective well-being	Dollar value of having control over life, confidence, self reported health improvement, reduced stress from tenure security	(Kraatz & Thomson, 2017)	(Miller & Ofrim, 2016)	(The good economy, 2021)	(constellation consultin g, 2019)	(SVA, 2014)	(Boyle et al., 2016)	(ERHA, 2013)	(Wood et al., 2016)											
	Increased overall wellbeing, including positive change in physical and mental health	Valuation: Change from rough sleeping to secure housing or temporary housing to secure housing	(miller et al., 2018 [1])	(CCEA, 2015)	(Enterprise, 2014)	(constellation consultin g, 2019)	(Fujiwara, 2013)	(Frontier Economic s, 2014)	(Suttor et al., 2015)	(Think Impact, 2016)	(Miller & Robertson, 2014)	(CCEA, 2015)	(The good economy, 2021)								
	Preventative healthcare increases	Cost of an onsite paramedicine program to address health concerns	INTERVIEW DATA.																		
Improved Mental Health and Wellbeing	Number of people with increased sense of wellbeing, number of people with new friends	Value of better mental health - Revealed preference: Cost of counselling session	(Miller & Robertson, 2014)	(Kempton & Warby, 2011)	(Herbert et al., 2014)	(miller et al., 2018 [2])															
	Number of people addressing mental health concerns	Psychiatric admission to the hospital cost	(Miller & Robertson, 2014)	(Wood et al., 2016)																	
	Number of people addressing mental health concerns	The statistical value of a life year adjusted for the loss of attributable to mild depression with a disability weighting of .15	(Think Impact, 2016)	(Boyle et al., 2016)	(Wood et al., 2016)																
	Decrease in substance use once housed, number of people	Health and justice costs, personal costs, lost productivity	(Miller & Robertson, 2014)	(CCEA, 2015)	(VWHA, 2010)	(miller et al., 2018 [1])	(Kraatz & Thomson, 2017)	(constellation consultin g, 2019)	(Boyle et al., 2016)	(Suttor et al., 2015)	(Barnes et al., 2018)	(Wood et al., 2016)									
	Increased self-esteem: Number of people with increased sense of wellbeing, number of women with new friends	Quality of adjusted life year, average spending on personal care	(Miller & Robertson, 2014)	(CHA, 2014)	(Think Impact, 2016)	(Boyle et al., 2016)															
Financial Stress Reduction	Newly housed residents	Well-being value for people lifted out of debt, being able to afford housing, having financial comfort	(CMHC, 2018)	(Enterprise, 2014)	(Hightow n, 2019)	(Boyle et al., 2016)	(Suttor et al., 2015)	(Barnes et al., 2018)													
Improved Social Wellbeing	Improved relationships with family, friends, community, neighbours	Wellbeing valuation: Socialization	(Kempton & Warby, 2011)	(CCEA, 2015)	(miller et al., 2018 [1])	(CMHC, 2018)	(CHA, 2014)	(Miller & Robertson, 2014)	(The good economy, 2021)	(Fujiwara, 2013)	(Frontier Economic s, 2014)	(Boyle et al., 2016)	(ERHA, 2013)								
		Average cost of counselling x 5 sessions	(Think Impact, 2016)	(Miller & Robertson, 2014)	(CHA, 2014)																
	Social empowerment, involvement in the community	Dollar value for being active in tenant group, cost of city recreational pass, valuation of the hours spent in activities at minimum wage	(Kraatz & Thomson, 2017)	(Miller & Ofrim, 2016)	(Ravi & Reinhardt, 2011)	(Think Impact, 2016)	(miller et al., 2018 [1])	(Frontier Economic s, 2014)	(Boyle et al., 2016)												
Families able to stay together	number of clients with active or potential children's services involvement	Wellbeing valuation: ability to stay together as a family	(CCEA, 2015)	(miller et al., 2018 [1])	(Miller & Robertson, 2014)	(VWHA, 2010)	(constellation consultin g, 2019)	(Fujiwara, 2013)	(Suttor et al., 2015)	(Barnes et al., 2018)	(CCEA, 2015)	(miller et al., 2018 [1])	(constellation consultin g, 2019)								
Neighbourhood Safety	Safety associated with living in a safer area	Wellbeing value from living in an area with less vandalism and crime, feeling safe while walking	(CMHC, 2018)	(CHA, 2014)	(Kempton & Warby, 2011)	(Kraatz & Thomson, 2017)	(Mackinn on & Alolo, 2013)	(The good economy, 2021)	(constellation consultin g, 2019)	(Fujiwara, 2013)	(Suttor et al., 2015)	(Barnes et al., 2018)									
		Value of having no problem with anti-social behaviour (HACT social value bank)	(CHA, 2014)	(CMHC, 2018)																	



Personal Safety	Safety from domestic violence. Equivalent to three times the cost of domestic violence experience by survivors based on the study the cost of violence against women and children	in 2022 the cost to survivors of domestic violence will be \$3,883 million with an estimate 385,426 victims (\$10,073 per person) brought to present value	(Think Impact, 2016)	(CCEA, 2015)	(miller et al., 2018 (1))	(Miller & Robertson, 2014)	(Herbert et al., 2014)	
Culturally Rich and Vibrant Communities	Opportunities to participate in community activities	Number of people participating in community events x cost per ticket for event	(Kraatz & Thomson, 2017)	(CMHC, 2018)	(Herbert et al., 2014)	(Fujiwara, 2013)		
Access to Greenspace	Positive impact on health including: enhanced personal and social communication skills, increased physical health, enhanced mental and spiritual health, ability to assert personal control and increased sensitivity to ones own well-being	Value for access to greenspace (within 2km)	(Herbert & Dale, 2013)	(Mitchell & Popham, 2008)	(Twohig-Bennett & Jones, 2018)	(Puri & Smith, 2019)	(Herbert et al., 2014)	INTERVIEW DATA.
Neighbourhood Satisfaction	Quality and appearance of local area	Average annual spend on repair and maintenance of home, dollar value associated with living in a "good" neighbourhood	(CMHC, 2018)	(CHA, 2014)	(Kraatz & Thomson, 2017)	(CCEA, 2015)	(miller et al., 2018 (1))	
Resident Satisfaction	Housing provider "resident satisfaction" indicator, Complaint handling, support for residents	Value for handling household maintenance issues in a timely manner	(The good economy, 2020)	(Miller et al., 2018 (2))				
	Are fire alarms, HVAC, CO2 detectors, maintained regularly?	Potential costs if not maintained.	INTERVIEW DATA.					
Community Pride/ Spirit	Number of tenants reporting increased pride, number of tenants that are reprimanded to maintain their home/ garden	Value of living in a good neighbourhood (HACT Social Value Bank)	(CHA, 2014)	(The good economy, 2021)	(Boyle et al., 2016)			
	Number of tenants who cite improved sense of belonging to a community	Sense of belonging worth .06% of property value (.06% average rent per year)	(Mackinnon & Aloio, 2015)	(constellation consulting, 2019)	(ERHA, 2013)			
Improved access to services and amenities	Number of residents with access to internet (and other services), access to community spaces within 2km.	Wellbeing value for access to internet, other services, and community spaces	(CMHC, 2018)	(Think Impact, 2016)	(Miller & Robertson, 2014)	(Miller et al., 2018 (2))		
	Cost of maintaining phone/ internet to stay connected	Cost of average phone or internet service x number of households	INTERVIEW DATA.					
Basic Needs Met	Individuals are able to meet their basic needs because of housing access	Cost of basic needs in the region	(CCEA, 2015)	(constellation consulting, 2019)				
Youth/ Family support programs	Number of tenants who report seeking city and public community services	Minimum wage x the number of volunteer hours spend one-on-one support with tenants to capture the value of mentoring	(Mackinnon & Aloio, 2015)	(constellation consulting, 2019)	(ERHA, 2013)			
		Number of tenants using services x cost of services	INTERVIEW DATA.					
Children: Overall well-being	Positive increase in children's confidence, academic performance, physical and mental health and family relationships	Number of children housed, Cost of individual CBT for children,	(VWHA, 2010)	(CCEA, 2015)	(VWHA, 2010)	(miller et al., 2018 (1))	(The good economy, 2021)	(constellation consulting, 2019)
Children: Improved mental health from support access	Children of clients have decreased ongoing behavioural issues and increased access to supports for positive mental health	Cost of a comprehensive psychological assessment	(CCEA, 2015)	(miller et al., 2018 (1))	(VWHA, 2010)			
Housing Quality Increased	Change in Facility Condition Index (FCI)	Quality adjusted life years (QALYS per change in FCI.	(CMHC, 2018)					
Socio-economic determinants of health (SEDH)	Changes in SEDH, such as income, education	QALYS per change in SEDH	(CMHC, 2018)					