Sustainable Housing Initiative

A Step-by -Step Guide to Developing Affordable Housing

Developed By:

The Sustainable Housing Initiative (SHI)

An Initiative of the Alberta Rural Development Network (ARDN)

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*The opinions and interpretations in this publication are those of the author and do not necessarily reflect those of the Government of Canada or CMHC

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PREFACE

Alberta Rural Development Network (ARDN):

The ARDN is a not-for-profit partnership of nine of Alberta's colleges and universities. The ARDN uses the combined expertise of its member institutions to support rural development in Alberta and help rural communities grow through research and learning. ARDN members work together to support and enhance the well-being of individuals and the vibrancy of communities.

Beginning in 2013, the ARDN entered into a one-year agreement (followed by a five-year agreement in 2014) to be Alberta's Rural and Remote Community Entity for the Government of Canada's Homelessness Partnering Strategy. Through this program, we have been responsible for administering about $4.5 million over the past five years, which funded 32 projects focused on homelessness prevention and reduction outside the seven major cities in Alberta. During the same period, we recognized some common themes around the challenges of building affordable housing. It became evident that not only is there a lack of resources allocated to affordable housing, but there is also a lack of industry knowledge on how to best develop affordable housing that is sustainable to operate long term without ongoing government funding.

Although each community is faced with a lack of resources and capacity, their needs are unique. For example, in a resource-driven community with many workers coming from out of town, local residents struggle to find affordable housing. Or, in a community with a tourism-based economy, lower wage earners can't compete for higher-priced accommodations. Regardless of the community's need, navigating the process from start to finish remains daunting.

We quickly recognized that it can be overwhelming for an organization or community to try to figure out how to navigate the complex maze of consultants, regulations, approvals, funders, and contractors necessary to take your idea and turn it into a completed housing project. In an attempt to address these barriers, the ARDN created the Sustainable Housing Initiative. Over the past two years, our initiative has helped raise more than $41 million in capital funding for affordable housing. During that time, our team experienced first-hand the challenges of developing affordable housing. We realized the value of this experience and the need to transform this challenging process into a guiding document so that others could benefit from our lessons learned and some best practice.

In February of 2018, the ARDN was funded in part by the Government of Canada's Homelessness Partnering Strategy to create the first version of this guide that will be updated once we complete the first batch of projects. These projects include the ones announced for capital funding from the Government of Alberta, Whitecourt and Banff. The lessons and information that ARDN has gained by working on these projects has been used to build this document so that communities across Canada can learn how to develop affordable housing and know what to expect.

As the housing development initiative of the ARDN, the Sustainable Housing Initiative's (SHI) goal is to redefine how people create affordable housing.

Shelter is a basic human need. Where homes are located – and how they are designed, built, operated, and maintained – is interconnected with the community they're developed in and the environment around them. Sustainable housing should be seen as an opportunity to improve quality of life, social cohesiveness, climate resilience, and environmental stewardship.

Program Director - Sustainable Housing Initiative

Date

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The ARDN gratefully acknowledges the contribution of all those who provided their expertise, guidance, feedback, and time in the development of this document.

Volunteer Members of the National Advisory Committee:
The National Advisory Committee (NAC) was crucial to the successful creation of this step-by-step guide on building cost-effective and sustainable affordable housing. The NAC consists of a diverse group of volunteers working together to address housing and homelessness issues in Canada. The role of the NAC included providing feedback on the process and approach identified in the guide as well as identifying priority needs, with respect to building sustainable affordable housing.

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In memory of Brad Kennedy, who dedicated his life to family, friendship, and faith. Through architecture, he opened the door to endless possibilities. Brad's legacy lives on all around us, in the communities he served.

LEGAL DISCLAIMER

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This Guide is not intended to replace the judgment and experience of consultants and professionals that may need to be retained by you when undergoing an affordable housing development project. Due to the uniqueness of each development, there may be additional activities and considerations that have not been mentioned or included in this Guide. Additionally, this guide is not intended for redevelopment or renovation of an existing building(s).
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INTRODUCTION

1.0 The Purpose of the Guide

The purpose of this Guide is to be a resource for individuals and groups who want to develop, build, and operate affordable rental housing. As the "developer" of the land, before initiating a project, it is recommended you and/or your team gain a basic understanding of the processes– as well as legal and regulatory frameworks–that surround land development, affordable housing, and sustainable development in your community. This Guide specifically explores the process of developing affordable rental housing due to our experience in development or rental units and due to the demand that we observed from within communities. Although its intent is to help provide direction to those new to the field, the timing of the various steps and tasks will be unique to your project and some may occur simultaneously.

2.0 Intended Audience

The Guide has been developed for multiple audiences such as not-for-profit organizations who:

- Want to develop housing but do not know where to start or what steps to take;
- Have land or a project concept, but are wondering what the next steps are;
- Would like to better utilize their available land inventory;
- Want to assist families who cannot afford the cost of housing;
- Need to respond to market pressures and/or housing need.

External consultants are also an important audience group for the Guide. The way the Guide divides the process of putting together a land development strategy will allow external consultants to use the Guide to help prepare organizations to take on the more complex phases of development.

While this guide has many aspects that may be relevant to developing housing for and by Indigenous communities, we recognize and acknowledge that this guide does not currently include First Nations, Métis, or Inuit cultural perspectives on housing, including but not limited to design and ceremony. It's our hope that this Guide can eventually be utilized in the future to create a step-by-step guide to building affordable housing in Indigenous communities that will be developed by Indigenous people, for Indigenous people.

3.0 Using the Guide

This guide uses many terms and phrases that may be unfamiliar to you. If you come across a new term in bold, refer to *Section F 1.0* for a glossary of terms.

Using this Guide, you can either work through each step of the process from the beginning, or jump ahead to any point in the process. We recommend starting from the beginning, however, as the information gathered during the first steps of the process will help shape decisions made in the later stages. Your organization can either use this document independently, or with guidance from external professionals.
Each phase contains information on the various processes involved in developing affordable housing. It is not necessary to read the Guide cover-to-cover, but it will be helpful for some readers to review the full content in the early days of initiating your project. The information is accompanied by worksheets and templates which can be worked through to develop the required documentation for the project.

Once this work is complete, you should have a good understanding of what has been accomplished and the next steps required to advance your project. The documentation produced will not only be critical to the success of your project but can also provide valuable information that can be shared with various stakeholder groups such as your board, external professionals, funding bodies, and your local community.

4.0 Guide Organization

The Guide has been organized into four key phases to help manage the life cycle of your project: Initiation, Planning, Execution, and Closure. The document is structured to highlight the milestones at the beginning, middle, and end of projects. Throughout the Guide, references to templates and worksheets are provided to support your work and keep the project organized and documented from the early concept to completion.

4.1 Initiation

The Initiation phase is where your organization's capacity is assessed, your development idea is explored, and the feasibility of your project is tested and evaluated through a series of exercises. In this phase, the needs, goals, priorities, and scope of your project are defined and your team will decide if you are able to advance to the Planning phase. You will also explore funding opportunities and start building relationships in the community. This Guide is structured to intentionally limit the financial exposure of your organization during the Initiation phase. The major expenditure is your organization's time and effort. However, external support from consultants may be necessary during this phase, depending on your needs.

4.2 Planning

Once the business case and scope are approved, you move into the Planning phase. This is where you break down the larger project into smaller, manageable tasks by developing a project plan and work schedule. With some level of funding available to support your growing list of project tasks, you will begin engaging - or procuring - the services of consultants and/or specialists to help advance your project through detailed design. During this phase, your team will need to work closely with architects, planners, and engineers in the private and public sector. Acting as the project manager, you will coordinate and participate in meetings to ensure the consulting team is clear on the scope of your vision, needs, schedule, and budget. This is an exciting phase where you see the project take shape and the level of engagement deepens within your community.

4.3 Execution

This phase turns your activities, plans, and hard work into affordable, sustainable housing. Throughout construction, the project management team will monitor construction activities. This may include regular meetings on the job site, monitoring change orders, and tracking the progress of the project relative to the schedule, which includes the budget and construction documents.

4.4 Closure

This final phase involves a major transition from developing affordable housing to operating affordable housing. There will be deliverables and analysis of the project performance, and reporting to your funders, partners, or project sponsors. Reporting on the operations, maintenance, and management of an affordable housing development typically includes a post-occupancy review. If reporting on a building's energy performance, this may occur up to a year after the building is occupied.

The Key Steps in Developing an Affordable Housing Project

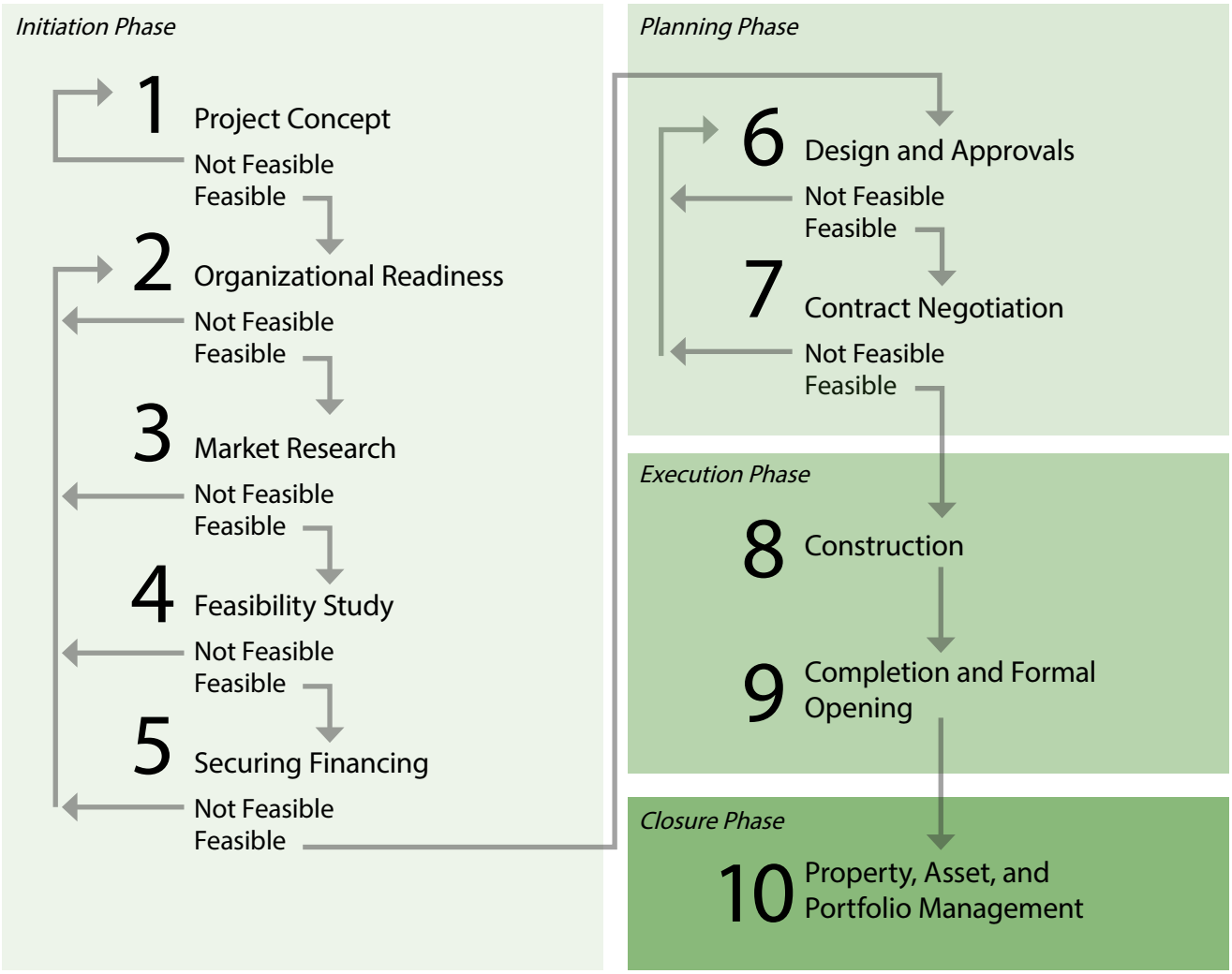
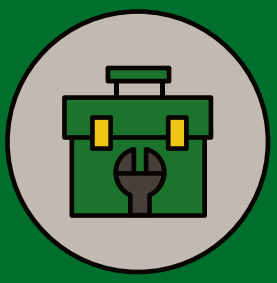


Figure 1.

"Toolbox", "Sidebar", and "Planning and Action"

The following call-out boxes are included throughout the Guide. The information is intended to introduce helpful terms and frequently encountered concepts in developing affordable, **sustainable housing**.



The "**Technical Toolbox**" highlights some of the common technical considerations related to land use regulations, design, development, and construction.

The "**Soft Skills Sidebar**" will provide tips and advice on working with various stakeholders to build the network and relationships that are crucial for project completion.

The "**Planning in Action**" boxes provide examples of the variety, challenges, and successes of providing affordable housing in Canada.

For ease of reference, a glossary of terms is provided at the end of the document and is colour-coded by phase.

5.0 Limitations

This Guide is not intended to be a substitute for, or replace, the experience and judgment of consultants and design professionals. Due to the uniqueness of each development, there may be additional activities and considerations that have not been mentioned or included in this guide. It is recommended to defer to the appropriate qualified experts and professionals for advice and guidance. Additionally, this guide is not intended for redevelopment or renovation of an existing building(s).

6.0 Future Amendments

This step-by-step guide will be periodically updated as necessary. It is a living document that is subject to change in order to keep pace with current laws, technologies, and practices. The most up-to-date publication will be available for download in English and French at www.housingredefined.org.

1.0 Project Concept & Organizational Readiness

1.1 Developing the Project Concept

If your organization is thinking about developing affordable housing, there is a good chance that some form of housing need has already been identified. Whether the identified housing need is based on anecdotal evidence or substantiated through research and data analysis, most organizations begin the process with an idea for the type of development that they think will best address the identified housing need. Note that there is funding available specifically for this phase of development, refer to *Section B, 5.1: Securing Funding for Pre-Development* for more details.

At this stage, it is important to capture your organization's idea or project concept so that you have a reference point or benchmark to refer back to throughout the development process. This first step will act as the foundation for your organization's development plan. However, be prepared; your organization's concept may change as new information and/or constraints are identified and as you receive input from the community. Non-profit or social enterprise organizations may find it useful to review the case studies of the "Social Purpose Real Estate Collaborative", available via the following link: https://www.socialpurposerealestate.net/case-studies-list. Also note: if you are seeking public funding for your project, this Initiation section will become a fundamental component in meeting government funding requirements and criteria.

What is the Housing Continuum?

Image: The Housing Continuum, CMHC.

The housing continuum is the spectrum of housing that ranges from the provision of emergency housing all the way to market home ownership. Each step of the continuum services a particular need. Given this wide range, it is important to clarify the focus of your project in terms of which form of housing in the housing continuum you wish to develop.

Defining this early on when developing the scope and concept of your project will help later on when further project details are being explored.

Please note that this guide focuses on the development of Affordable Rental Housing.

The development of the project concept should not be done in a vacuum. It is recommended that the executive/management team start the process off by completing *Worksheet #1: Preliminary Project Concept Worksheet* in the Toolkit Workbook. This should help identify the who, what, where, when, and why of your concept. When filling out this worksheet, it's important to think long-term and take into account future implications of your decisions and how this can directly impact project costs'. In addition, note that revisions do happen and this worksheet should be updated accordingly. Once complete, it is recommended to review this with staff and board members for feedback.

1.2 Assessing Organizational Readiness

Once the project / management team have developed the preliminary details of the project concept, your organization can begin to assess if it is ready to move forward with the proposed concept. The first step in the organizational assessment process is to review your organizational structure, financial position, leadership, and administrative capacity (see *Worksheet #2: Organizational Assessment and Process Notes Worksheet* in the Toolkit Workbook). Once complete, you can determine the impact that this project will have on your organization and then present the findings to staff, and then to the board. It's suggested that this be done in two separate facilitated strategic planning sessions.

Once you have captured the entire organization's feedback and there is strong consensus that your organization is ready to take on an affordable housing project, it is recommended to start presenting the details of the project concept to community members and stakeholders to get different perspectives and insight on the preliminary vision – again, this can be done in a facilitated consultation session or theater-style presentation

1.2.1 Reviewing Organizational Structure

It is important to consider your organization's mission, objectives, and strategic priorities to ensure they are in line with your decision to develop affordable housing. Review your organization's structure and get a clear picture of its ability to undertake a development project. What is your corporate status? Do you have a strategic plan in place? Does your organization have an active membership and do they support housing activities? What is your management structure and corporate liability? See *Section 1 of the Organizational Assessment Worksheet.*

Governance Structure: Co-Operatives

Your project can choose from many kinds of governance structures. One governance structure which has worked well in affordable housing projects is the co-operative (co-op) model. In a co-op, residents are also members who have a say on how the co-op functions. The members elect and give direction to the Board and the Board oversees the management of the co-op.

For more information on how to set-up a co-op, refer to the following link: https://canada.coop/en/programs/co-op-development/how-start-co-op

1.2.2 Evaluating Organizational Leadership and Administrative Capacity

Understanding your organizational structure and individual roles and responsibilities is important at this stage of the project. This will help you understand what support you might have available for a potential project and who might make up the project team. Gaining support from the leadership team will be essential to successfully undertake a development. Consider your board's composition and capacity, and whether they have professional skills directly relevant to housing development. Does your staff have adequate skills and training to manage housing, fundraise, oversee design and construction, and manage the property? Do you have connections with, or access to, external experts who can assist you? See *Section 2 of the Organizational Assessment Worksheet.*

1.2.3 Reviewing Financial Position and Capacity

Reviewing your organization's financial position and capacity to take on a new development is essential. Consider whether your organization has a diversified and stable funding base for operations. Do you have adequate cash to pay bills most of the time, and do you have the capacity to quickly raise capital for projects? Do you have existing housing inventory, and is it producing positive cash flow and paying management fees? See *Section 3 of the Organizational Assessment Worksheet.*

1.2.4 Reviewing Project Planning and Management

Understanding the market your proposed project wants to capture and analyzing your organization's ability to service it is important for any project. Consider how well you understand the market and competition, whether your selection process for projects is thorough enough or not, if you have processes in place for planning and managing a project, how your relationship with the local community is and if you have adequate experience in operating a development of this kind. See *Section 4 of the Organizational Assessment Worksheet.*

The Importance of Documentation

From the outset of the project, even in the Initiation phase, it is a good idea to develop consistent project management habits, which include taking meeting minutes. Throughout this project, you will have many responsibilities and meetings. Decisions are made in these meetings, and those decisions take time and money. Recording what was discussed and decided, what actions must be taken and by whom, is incredibly valuable and helpful information for you, your team, and anyone working on the project in the future. Here are the meeting minute basics:

- Date, time and location of the meeting
- Meeting purpose and (desired) outcome
- Names and titles of attendees and regrets (those who were invited but did not attend)
- Agenda items
- Decisions that were made
- Actions to be completed, with a deadline and who it was assigned to
- Follow up meeting plans

Prepare your minutes by writing down what you know beforehand, such as date, time, location, purpose and agenda items. During the meeting, you will only need to write down things you discussed, outcomes, and action items.

2.0 Market Research: Need and Demand Assessment

Need is a dynamic concept that cannot easily be determined without a thorough and in-depth analysis of the community. It is entirely possible that analysis will confirm the idea of need that you had when you started the project, however, it is also possible that the analysis will instead show that the community has different needs than you initially thought.

For example, consider a project wanting to address the need for an emergency shelter in a community. This project might've been planned to be a shelter for women fleeing domestic violence and was therefore planned to provide studios and one-bedroom units. However, after a Needs Assessment was conducted, it was found that many of these women also have children. Given this new information, it is more appropriate for the shelter to provide two and three-bedroom units than what was previously planned - a change in the project concept.

Need can also cross into different types of housing in the continuum. Take an example where the proponent believes the same as the previous example, that an emergency shelter for women fleeing domestic violence is required. But after the need is investigated, it turns out that these women are best served by transitional housing. As in this example community, the women are able to flee safely into emergency shelters already but do not have access to accommodations which include supports and wrap around services which they require.

The purpose of the Need and Demand Assessment is to prepare a report that identifies the need in a designated community or multiple communities. The importance of the document is multi-faceted and it gives an overview of various important metrics, helping the Housing Developer identify or confirm the need in their community and serving as evidence that need exists in the community. It will also help you determine if your perceptions of the community's needs are correct or if the needs are different than what you anticipated. It is important to carefully consider the results of the Need and Demand Assessment, and reassess your project concept if the evidence shows different need than what the project was initially addressing.

Typically, this document should be prepared by an experienced party, so a consulting firm is recommended. The firm should work closely with the Housing Developer's project lead to ensure the quality of the document. A template (*Worksheet #3: Template: Need and Demand Assessment* in the Toolkit Workbook) is provided in this Guide that will help you understand what information is available in a Need and Demand Assessment and can be used as a starting point to develop an assessment. Confer with your municipality as it may be possible that a Need and Demand Assessment already exists for your community or region. In regards to engaging a third party to develop the Need and Demand Assessment for you, we recommend consulting with experts on this and potentially issuing a **Request for Proposals** for this work to ensure that you get a good value.

There are key sources of information you will want to ensure is referenced and incorporated in this research:

- Statistics Canada (StatCan) data (population, income, housing costs, etc.). For more information refer to the following link: https://www.statcan.gc.ca/eng/start
- Rent & vacancy data, either from CMHC or another source more local to the region (if in Alberta, the Apartment Vacancy and Rental Cost Survey is an example). For more information refer to the following link: https://www.cmhc-schl.gc.ca/en/data-and-research/data-tables/rental-market
- Affordability thresholds (maximum rental rates for housing) as defined by local, provincial, or federal government
- Existing local/regional waiting lists for affordable and/or **social housing**
- Strategic Plan for the local municipality
- Health data from the appropriate source given your location (for example, Alberta Health data in Alberta) in relevant areas such as population projections, deaths, births, etc.
- Information provided by the local community, especially those working in social services
- Local municipal land use planning information
- Waiting lists for existing similar housing (affordable housing in the area)
- Research reports that talk about population projections and housing needs specific to your target group

Understanding Need

It is also important to understand that a single project is likely not going to be able to address all the need that exists in the community. For example, a Needs Assessment might show that the need in the community is distributed amongst young families, singles, lone parents and seniors. It is not realistic to assume that a single project will address all of that need, for example, the seniors might require transitional housing, the lone parents might require shelter and the young families might require affordable housing. Instead, after the need is identified, it is important to focus on the specific need that you want to address. This might be the need that best aligns with your organization's mandate, is the most prevalent in your community, has funding allocated for it, is politically favorable etc.

Lastly, keep in mind that sometimes even if you're addressing an identified need properly there may be issues due to preference. This means that even though the need exists and the development properly addresses the need, sometimes the in-need population prefers not to live in the development. For example, consider a development made to address the need of lone seniors in the community. This development focused on providing studio units for the seniors because it was the most appropriate unit type given the need. However, seniors in this community did not like living alone in studios and therefore, did not move into the development. This in turn can cause high vacancy and subsequently, project failure.

To mitigate this, it is important to understand the need for **consultations**, where qualitative data can be collected to complement the quantitative data of a Needs Assessment. For more information on consultations, refer to *Section B, 3.5 Public Consultation Plans.*

Here are the various sections of the Needs Assessment accompanied by explanations:

Study Area & Regional Context Section: This section provides a summary of important demographic information that helps producers and reviewers of the Needs Assessment to understand the background and context surrounding the community, which will in turn support the development of the case. The section describes the following metrics:

- Location of the community
- The local economy
- The local housing situation
- Population
- Mobility status (i.e. how many people have moved into the area over a certain timeframe)
- Population growth and age distributions
- Distribution of household types
- Household income
- The largest industries in the area and the fields in which community members have taken secondary education.

The Housing Supply analysis section: This section describes various metrics of the housing supply, such as the community's diversity of unit type, rental market statistics, etc. The purpose of this section is to provide detailed information regarding the housing situation in the area to the reader. It describes the following metrics:

- The proportion of owners in the community vs. renters
- Structure or building types in the community, including their physical condition
- The functionality or suitability of the existing affordable housing stock, if available
- Rent and vacancy Rates
- Income thresholds for affordability

The Importance of Gathering and Analyzing Data

Data is critical to confirming the anecdotal evidence gathered by community members. Funding bodies and governments will want to see research and data to back the need for affordable housing. While anecdotal evidence can be helpful to start the process of exploring the need for housing, sometimes once the data is examined, it can tell a very different story than what the anecdotal evidence suggests.

Data can either confirm or refute your thoughts on what the need for housing is in your community, and might lead to a new discovery altogether. It can also help refine conclusions on what type of housing is most needed and the number of units. You will have to develop a case for the need for housing from both your observations and the data, and this research will allow you to prove your thoughts with statistical evidence to then share with stakeholders and funders to give them confidence that your project has a proven need. Beyond researching need yourself, you can also search for previously conducted research and see how other providers have served the need in your community.

The Housing Needs analysis section: This section describes statistics for housing adequacy, suitability, and affordability. The purpose of this section is to provide the reader information regarding the status of the housing supply in the area. It describes the following metrics:

- Housing adequacy (age of housing and major repairs required)
- Housing suitability (the rate of overcrowding)
- Housing affordability (the rate of overpaying for housing)
- Homelessness counts and shelter occupancy rates
    - If this information is not available, consider conducting a Homelessness Estimation Count or Point-in-Time Count for your community. For more information on this, please refer to www.housingredefined.org.
- Core Needs Estimation (to estimate how many homes would be needed to eliminate the identified need in the community)

Gap analysis section: This section quantifies the need in the community for a range of different housing types. It defines the existing housing inventory in the community and determines the difference between what is needed in the community and what already exists. It is recommended to determine the gaps in all types of housing as well as by demographics (seniors, families, etc.).

2.1 Worksheets, Forms, Templates:

- Worksheet #3: Template: Need and Demand Assessment

Thinking About Wrap-Around Services

One thing to think about including in your project is wrap-around services. These are services that would assist the residents with services that they need that aren't available readily in the community. Including this aspect in your project does require work and planning, but can help address the need in your community and strengthens your project. For more information on wrap-around services, refer to *Section E, 3.4 Wrap-Around Support Services.*

3.0 Project Feasibility

3.1 Introduction

Project feasibility is one of the most important parts of land development and must be constantly evaluated throughout the project's timeline. For the project to be **feasible** it means that the project–in regards to whatever metric is being considered–could theoretically be viable and successful. Stakeholder groups and funders will not support a project if they do not think it's **feasible** (due to their own potential for losses), so it's important to be able to "prove your project".

In order to do so, there are various types of feasibility that need to be considered:

- Financial Feasibility
- Land Feasibility
- Option Feasibility
- Community Feasibility

Note: Financial Feasibility and Land Feasibility should be conducted concurrently. This is important as they are dependent on each other and the lack of information on one side will produce inaccurate results in the other.

3.2 Analysis of Financial Feasibility

A *Financial Model* is used to assess the financial viability of the project (i.e. whether the project can be developed and operated on budget). It helps the body responsible for developing the housing - the Housing Developer - by delivering detailed financial information about the proposed project and testing its feasibility. This document should be prepared by an experienced party, so a consulting firm is recommended; *it is not recommended that this step be undertaken without expert guidance*, as it could call into question the reliability of the analysis (and therefore, feasibility of the project). Your project lead should provide information to the consultant to ensure accuracy.

One important aspect of financial feasibility is ensuring the accuracy of estimations. It is important to cross-check your financial model's results and ensure that it is producing an accurate estimation for your project. One measure of measuring accuracy is a Quantity Survey (QS) report. QS reports are prepared by expert consultants and range from Class E (worst) to Class A (best). It is recommended to order QS reports multiple times during your project, as it will allow

Mixed Developments

One method that can be used to improve project feasibility and can be the difference between a successful and unsuccessful project is to have a mixed-development project instead of just an affordable housing development. This means to have a development with several different types of housing, such as both market units and affordable units, or even including commercial units.

A mix like affordable and market can be greatly beneficial for the financials of the building, as the rents collected from the market units can help subsidize the affordable units. Also, mixed-income models help promote positive views on affordable housing and often receive less stigmatization.

What is Land Development?

Land, housing, or real estate developers are the people, organizations, or companies who facilitate the development process from vision to reality. Developers are the visionaries of the project: they purchase land, negotiate terms, and direct and/or build projects. They manage the entire process so that the original concepts are successfully executed. They also assume the greatest risk.

Developers of any housing development will work with key players over the course of the entire development process, including (but not limited to): architects, planners, engineers, environmental consultants, surveyors, and lawyers. Factor in the development of affordable housing, and the partnerships expand even further to potentially include all orders of government, various community partners, community members, and private industry. All partners work together to fund, design, build, and operate affordable housing.

you to be sure that your financial estimations are in-line with what the actual costs will be. QS reports are also often mandatory criteria for securing funding.

It is important that the Financial Model includes all the key metrics listed below and is also presented in a clear and concise way. The model will be reviewed by funders, governing bodies, and other key stakeholders (in conjunction with the Business Case, refer to *Section B, 4.0 Business Case* to assess the worthiness of the project. It is essential that the model demonstrates that the project can feasibly operate at the desired level. For most projects, this means to operate without deficit after paying debt fees year by year. It is also where the metrics of construction cost, project equity, project debt, and operating expenses can be found in more detail.

A template is provided (*available on the Housing Redefined website*) that will help explain how a Financial Model works and can be used as a starting point to develop a model. This model uses costing gathered from CMHC and the Altus Group Cost Guide. *This should not be used as a formal financial analysis of your project. It instead provides a rough estimate of how much the project may cost and what the operating budget may look like.*

Sections included in the model are:

3.2.1 Summary Page:

This page would be a summary of the model that highlights the key points quickly. It includes: the total number of units (or beds) to be built, total square footage (sq ft.) of units, sq ft. of modules (if using modular construction), gross residential sq ft. (the square footage of all units including walls, corridors, etc.) and total sq ft. of the development. It allows for a quick overview of the finances in a summarized format. The following metrics are described:

- Costs summary: The total soft costs (legal fees, taxes, permits, etc.) and hard costs (landscaping, foundation, servicing, etc.) of the building, the total overall cost of the project, and the cost of the land.
- Capital summary: The amount of equity and the amount of required investment from various funding bodies, such as all levels of government and private investors. This section will also include the amount of debt that the project will have to take from various financial institutions.
- Rent roll summary (in year 1): The overall monthly rent, the monthly rent annualized, and the rent per square foot.
- Operating summary: The potential gross income (before vacancy loss is taken into consideration), the effective gross income (after vacancy loss is taken into consideration), the operating expenses, the operating expense ratio (effective gross income divided by operating expenses), the net income (effective gross income minus operating expenses), the debt-coverage ratio (net income divided by yearly debt payment in year 1), and the cash flow (net income minus yearly debt payment in year 1).

Refer to Figure 2 for an example summary page.

Client Name	Sample Financial Model	
Project Details	-	
Contract Number	-	
Version	-	
Data	February 8, 2019	
PROGRAM SUMMARY		
Total Units	25	
Total Square Footage of Units	12,710	
Total Number of Modules	82	
Gross Residential SF	13,818	
Total SF of Building	15,131	
UNIT TYPE SUMMARY		
Affordable Units	Studio	6
	One Bedroom	5
	Two Bedroom	5
	Total	16
Market Units	One Bedroom	5
	Three Bedroom	4
	Total	9
COSTS SUMMARY		
Total Soft Cost	$995,761,97	
Total Hard Cost	$3,302,241.10	
Total Development Cost	$5,298,003.08	
Cost of Land	$1,000,000.00	
CAPITAL SUMMARY		
Total Project Cost	$5,298,003	
Proponent Equity Including Land	$1,500,000	
Required Contribution	$1,062,721	
Provincial Government Loan	-	
Federal Government Grant	$853,458	
Federal Government Loan	-	
0% Loan	-	
Municipal Grant	$500,000	
Financing Required	$1,381,824	
Loan to Cost	26.08%	
RENT ROLL SUMMARY*		
Overall Monthly Rent	$23,403.00	
Annualized	$280,836.00	
Rent per SF	$1.84	
OPERATING SUMMARY*		
Potential Gross Income	$280,836	
Effective Gross Income	$265,587	
Operating Expenses	$150,016	
Operating Expense Ratio	56.48%	
Net Income	$115,571	
DCR	1.10	
Surplus	$10,665	

* Calculated on an annualized basis

Figure 2. Summary Page of the Financial Model

3.2.2 Building Program:

This section outlines the project scope, which is also known as the functional program. It includes key indicators about the actual development such as:

- Type of units
- Number of each type of unit
- Square footage of the individual units
- Total number of modules (if modular construction is used, the number of "modular units" the building contains)
- Total square footage of the units
- Total square footage of the building
- Total square footage of the development

The program is important as it determines what form the proposed project will follow by outlining the goals, conditions, and objectives of the project (i.e. how many rooms, what size, which kind, etc.)

Refer to Figure 3 for a building program example

3.2.3 Tabulation of Hard and Soft Costs:

Hard costs relate directly to the physical construction of a building and are easier to recognize and identify. Typical hard costs include grading, carpentry, drywall, concrete, site evacuation, landscaping, etc.

On the other hand, soft costs are not directly related to the labour or physical building materials and are less obvious than hard costs. Typical soft costs include engineering, architecture, legal fees, inspection, insurance, etc. In addition, soft costs can continue even after a project has been completed (e.g. building and property maintenance). Take note that some funding streams are specific to either hard costs or soft costs, for more information refer to *Section B, 5.0 Securing Funding*.

Soft and hard costs are tabulated together to form a total development cost. The tabulation is important as it provides a benchmark cost for the proposed project that can be presented to different funding bodies and stakeholder groups.

Refer to Figure 4 for an example tabulation of costs.

What are Development Rights?

Development Rights, or what's called "as-of-right" development, simply means that you have the right to develop your property as you see fit, as long as your development complies with the zoning regulations that apply to the site. These regulations will impact your building program and financial analysis. This 'as-of-right' removes the legal requirement for public consultation, though you may choose to undertake community engagement efforts. A rezoning of land usually triggers a formal public consultation process.

Zoning typically regulates the maximum number of dwelling units allowed, maximum floor area, maximum building height, and minimum landscaping requirements. Additional regulations, such as land use, lot dimensions, building setbacks, and maximum floor area ratios (FAR) may apply. For more information, review *Section C, 2.0: The Development and Building Process*. Much of this information is available online, or by contacting your municipality. Some plans, bylaws, and regulations are firm, while others may be varied if there is a good justification. Developing a positive working relationship between municipal staff and your team of professional architects, planners, and engineers will improve understanding and reduce unforeseen issues that can result in costly delays.

In municipalities, development permit approvals must be obtained for new construction, renovations, businesses, and changes of use to existing buildings. A development permit is written approval from the municipality that your plans are in accordance with the applicable zoning regulations. A development permit approves the use of a site, as well as the size and location of any buildings or structures.

Preliminary Construction Program

The "Construction Program" of a project refers to how many units there will be and which type of units they will be. It also describes the square footage of units, the rent per unit, and the rent per square foot of units. Below you can see the described metrics and more. "Total Rent" is the total rent of a certain unit type given how many units there are. "Total SF" is the total square footage of a certain unit type give how many units there are. "Number of Modules" is the total number of modules required for a unit type given how many units there are.

TYPE OF UNIT	BEDROOM TYPE	NUMBER OF UNITS	SF PER UNIT	RENT PER UNIT	RENT PER SF	TOTAL RENT	TOTAL SF	NUMBER OF MODULES
Affordable Units	Studio	6	310	$680.00	$2.19	$4,080.00	1,860	12
	One Bedroom	5	645	$780.00	$1.68	$3,900.00	2,325	15
	Two Bedroom	5	620	$990.40	$1.60	$4,952.00	3,100	20
	Subtotal	16			$5.47	$12,932.00	7,285	47
Market Units	One Bedroom	5	465	$975.00	$2.10	$4,875.00	2,325	15
	Three Bedroom	4	775	$1,399.00	$1.81	$5,596.00	3,100	20
	Subtotal	9			$3.90	$10,471.00	5,425	35
	Total	25				$23,403.00	12,710	82

SQUARE FOOTAGE OF INTERNALS AND EXTERNALS	
Total Square Footage of Units	12,710
Total Including Stairs and Corridors	14,023
Total Number of Modules	82.00
SF for Leasable Units	12,710
Gross Residential SF	13,818
Stairs & Corridors & Administration & Reception	1,313
Total Square Footage of Building	15,131
Parking Stalls	25
Parking and Curbing SF	2,775

The table on the left describes some totals for the building. "SF for Leasable Units" is the same as the Total Square Footage of Units. It is the amount of square footage that can generate revenue by being rented.

"Gross Residential SF" adds the square footage of leasable units with parts of the building that cannot be leased, like gaps between rooms. Adding Gross Residential to the square footage of things like stairwells and corridors gives us the total square footage of the building. For parking, 1 stall per unit is assumed.

Figure 3. Building Program Example

Costing Your Project

Estimating project costs is essential to gauging the feasibility of your project and presenting a realistic concept of the project to stakeholders and funders. Accurate costing requires research and is entirely dependent on the specifics of your project, such as location, build form, scope etc.

There are different methods which can be used to estimate the cost of your project. One is to see the cost of similar developments and use that information to estimate the cost of your project.

Another method is to use available resources which present ranges and estimates on the costs of different types of projects. An example is the Altus Cost Guide published by Altus Group. Note that these costs often do not include soft costs, required infrastructure development, permit fees, offsite levies etc. It is possible to substantiate some of this missing information by adding costs based on specific quotes or estimated ranges. (The Financial Model Template provided with this document follows this method. Both soft and hard costs based on different resources are included and spaces are available for additional / specific costs.)

The most accurate method is to acquire specific quotes for each of the project's cost items. This will ensure that you account for project-specific costs and produce an estimate that is closest to the actual price of construction.

To learn more about the Altus Cost Guide, refer to the following link: https://www.altusgroup.com/canadian-cost-guide-2019/#close

Preliminary Tabulation of Costs

Tabulation of Costs is a breakdown of the costs of the project. There are two main categories: soft costs and hard costs. Soft costs are costs related to the building but not actually construction work, whereas hard costs are costs directly related to construction. We have used averages in this sheet to reflect approximate costs. If you have specific costs you have numbers for, insert them below.

SOFT COSTS	% OF TOTAL	COST	COMMENTS
Cost of Land	18.88%	$1,000,000.00	
Consultants (Arch. & Eng.)	3.48%	$184,391.89	6% of relevant costs
Others (GeoTech/Traffic/Enviro/Well Building)	1.29%	$68,453.13	
Pre-Development Costs	1.13%	$60,000.00	To be Confirmed
Marketing	0.02%	$1,250.00	To be Confirmed
Financing Fees	1.98%	$104,905.23	
Project Management Fee	0.87%	$46,174.13	To be Confirmed
Development Permit	0.01%	$500.00	To be Confirmed
Building Permits	0.15%	$8,000.00	To be Confirmed
Legal	0.38%	$20,000.00	
Contingency	3.86%	$204,666.81	5% of Relevant Costs
Insurance	0.19%	$10,000.00	To be Confirmed
Taxes	3.68%	$194,920.77	Estimated
Demolition	0.00%	-	Site Dependant
Appraisal	0.09%	$5,000.00	
Off site Levies	0.00%	-	Site Dependant
Transformer	0.47%	$25,000.00	To be Confirmed
ARDN Total Fee	1.18%	$62,500.00	$2,500.00 per Door
TOTAL SOFT LESS LAND	18.80%	$995,761.97	

HARD COSTS			% OF TOTAL	COST
General Conditions Cost	4.00%	of Hard Constr. & Parking	1.86%	$98,524.56
Winder Conditions			0.28%	$15,000.00
Hard Construction Costs	$150.00	per SF	42.84%	$2,269,657.75
Net Zero Implementation	$35.00	per SF	10.00%	$529,586.81
Foundation and Services	$35.00	per SF	3.65%	$193,456.37
Landscaping and Sidewalks	$5.32	per SF	1.52%	$80,497.19
Hard Surface Parking and Curbing	$15.00	per SF	0.79%	$41,625.00
Construction Management Fee	3.00%	of Hard Constr. & Parking	1.39%	$73,793.42
TOTAL HARD COST			62.33%	$3,302,247,10

TOTAL DEVELOPMENT COSTS	$5,298,003.08	$350.14	per SF

Figure 4. Tabulation of Costs Example

3.2.4 Capital Budget

This section contains all the details of the financing of the development. It includes:

- The equity available for the project and the type;
- Requested government funding (does not have to be confirmed);
- The mortgage financing (if any), as well as the rate, loan-to-cost (LTC) and amortization.
- Any other funding sources and details.

The Budget provides information on how the project will be funded and serves as a benchmark for how much money is required from funders, versus how much can be taken as a mortgage.

Refer to Figure 5 for an example capital budget.

Preliminary Capital Budget

The Capital Budget breaks down how the project is funded. There are two main sources: Equity and Debt. Equity is funds provided by government, grants, the client, or other sources not requiring payments. Debt is usually a bank loan or loans from other lending organizations. If you have available equity for the project such as land or cash, insert the values below.

PROJECT COST		
Land Cost	$1,000,000	
Construction Costs (hard costs)	$3,302,241	
Construction Costs (soft costs)	$995,762	
TOTAL PROJECT COST	$5,298,003	

EQUITY AVAILABLE		
Land Value (if owned)	$1,000,000	18.88%
Required Contribution	-	0.00%
Provincial Government Loan	-	0.00%
Federak Government Grant	$853,458	16.11%
Federal Government Loan	-	0.00%
Proponent Equity	$500,000	9.44%
0% Loan	-	0.00%
Municipal Grant	$500,000	9.44%
TOTAL EQUITY AVAILABLE	$2,853,458	53.86%
Required Contribution	$1,062,721	

MORTGAGE FINANCING		
Total Project Cost	$5,298,003	
Total Equity Available	$3,916,179	
Financing Required	$1,381,824	0.00%
LTC	26.08%	
Interest Rate	4.50%	
Amortization	20	
Annual Debt Payment	$104,905	

Figure 5. Preliminary Capital Budget Example

Proportions of Debt

The amount of debt that a project should take on is an important discussion and will both determine the feasibility of the project as well as the eligibility of funding. While it is tempting to ask for the majority of the project costs from funders, it is unlikely to happen and does not convey the image of a sustainable project.

Funders are more likely to fund a project which shows that it is sustainable without an overly large contribution. This means that, all else equal, a project which can support 50% of its development cost as debt is more attractive to funders than a project which can only support 5% of its development cost as debt.

Increasing the amount of debt that your project can carry is a function of various other metrics such as rent, construction costs, operational costs etc. The project should be revised and reformed to ensure that the most amount of debt possible can be supported. As an example, for previous ARDN housing projects, the goal has been to see projects require less than 30% of its total development cost in capital funding. The remaining 70% should be allocated between guaranteed equity sources and debt.

In order to ensure your project's funding structure is feasible as per available funding, it is recommended to discuss the project's funding plan with professional consultants.

3.2.5 The Projected Rent Roll

The section contains the rental details of the development. It includes:

- How much rent do different unit types collect?
- How many of the planned units are there?
- How much rent do they collect (individually and collectively)?
- What is the total rent per month? Per year?
- What is the rent per square foot?

The Rent Roll provides information on how much the proposed project will generate in revenue and at what rates.

Refer to **Figure 6** for an example rent roll.

Preliminary Projected Rent Roll

The "Rent Roll" is a description of the rental revenues of the project. As certain units are discounted from market rates, the table below lets you change how heavily discounted you want something to be.

Affordable: Average % Below Market Rate	20%
Market: Average % Below Market Rate	0%

CALCULATION OF MONTHLY RENT

TYPE OF STRUCTURE	UNIT TYPE	NUMBER OF UNITS	RENT PER SF	RENT PER UNIT	RENT PER SPACE	TOTAL RENT
Affordable Units	Studio	-	$ -	$ -	$ -	$ -
	One Bedroom	-	$ -	$ -	$ -	$ -
	Two Bedroom	-	$ -	$ -	$ -	$ -
	Subtotals	-	$ -	$ -	$ -	$ -
Market Units	One Bedroom	-	$ -	$ -	$ -	$ -
	Two Bedroom	-	$ -	$ -	$ -	$ -
	Subtotals	-	$ -	$ -	$ -	$ -

OVERALL MONTHLY RENT	
Annualized	$ -
Total Number of Units	$ -
Residential Size (SF)	$ -
Rent per SF	$ -

Figure 6. Preliminary Projected Rent Roll Example

3.2.6 The Operating Statement

The section contains the operating statement for the first year of operations. It includes:

- The revenue details:
  - Revenues collected under 0% vacancy and the potential gross income (PGI).
  - Revenues lost due to the assumed percentage of vacancy (based on data from government sources)
  - The effective gross income (EGI) which is PGI minus the amount lost to vacancy.

- The expense details:
  - The different kinds of expenses and their cost.
  - The total expenses.
  - The expenses as a percentage of EGI and PGI.
  - The Net Operating Income (NOI), which is determined by subtracting all expenses from the EGI.

The Operating Statement serves as both financial information and a test, seeing if the revenues of the project can support the expenses.

Refer to **Figure 7** for an example operating budget.

3.2.7 Sensitivity Analysis

This section contains information on break-even levels for a variety of metrics. It also returns different Debt-Coverage Ratios (DCR)s given hypothetical levels for the different metrics. The metrics in question are:

- Vacancy
- Rental Revenue
- Construction Cost
- Required (Additional) Contribution
- Operating Costs

The sensitivity analysis allows for seeing at which points the project becomes infeasible and how the project would change given change in the above metrics.

The information in this sheet is important as it presents the stress levels the project can take before bankruptcy. For example, the sensitivity analysis might reveal that a 14% vacancy rate is the point at which the project becomes infeasible.

Refer to **Figure 8** for an example sensitivity analysis.

Preliminary Operating Statement

The "Operating Statement" breaks down the revenues and costs related to operating the building. Rents are an example of operating revenue and salaries are an example of operating expenses.

PROJECTED OPERATING STATEMENT - REVENUE

RESIDENTIAL INCOME	25	VACANCY RATE	UNIT/ MONTH	PER SF
Residential Revenues	$280,836	0%	$936	$22.10
Laundry	$ -		$ -	$ -
Interior Parking	$ -		$ -	$ -
Exterior Parking	$ -		$ -	$ -
Miscellaneous Income	$ -		$ -	$ -
Other Income	$ -		$ -	$ -
Potential Gross Income	$ 280,836			
Vacancy Loss: Res Revenues	-$11,037	3.93%		
Vacancy Loss: Laundry	$ -	0.00%		
Vacancy Loss: Parking	$ -	0.00%		
Vacancy Loss: Other Income	$ -	0.00%		
Vacancy Loss: Bad Debts	-$4,213	1.50%		
Total Loss due to Vacancy	-$15,249			
Effective Gross Income (EGI)	$265,587			

PROJECTED OPERATING STATEMENT - EXPENSES

RESIDENTIAL INCOME	25	% OF EGI	UNIT/YEAR	PER SF
Taxes	$ -	0.00%	$ -	$ -
Insurance	$5,550	2.09%	$222	$0.44
Backup for Heat & Electricity	$13,875	5.22%	$555	$1.09
Water & Sewer	$19,500	7.34%	$780	$1.53
Electricity	$ -	0.00%	$ -	$ -
Heat	$ -	0.00%	$ -	$ -
Maintenance & Repairs	$23,750	8.94%	$950	$1.87
Superintendent	$15,000	5.65%	$600	$1.18
Management Fees	$10,623	4.00%	$425	$0.84
General & Admin	$2,656	1.00%	$106	$0.21
Replacement Reserve	$5,312	2.00%	$212	$0.42
Housekeeping	$ -	0.00%	$ -	$ -
Direct Operating Costs	$ -	0.00%	$ -	$ -
Advertising and Promotion	$1,250	0.47%	$50	$0.10
Garbage/Snow/Landscaping	$2,500	0.94%	$100	$0.20
Wages & Benefits (Property Manager)	$50,000	18.83%	$2,000	$3.93
Professional Fees	$ -	0.00%	$ -	$ -
Elevators(s)	$ -	0.00%	$ -	$ -
Miscellaneous	$ -	0.00%	$ -	$ -
Total Expenses	$150,016	56.48%	$6,001	$11.80
Total Expenses as % of EGI	56.5%			
Total Expenses as % of PGI	53.4%			
Res. Net Operating Income (NOI)	$115,571		$4,623	$9.09

Figure 7. Preliminary Operating Statement Example

Preliminary Sensitivity Analysis - Vacancy

Sensitivity Analysis is when you want to know how a value changes when a related value changes. Here we will do a sensitivity analysis of DCR by vacancy. This analysis will tell us how well or unwell we can cover debt at different levels of vacancy. In the table following, the top left number is the "break-even number" and describes the value of the metric at which the DCR is 1.

VACANCY	VACANCY LOSS	EGI	SURPLUS	DCT IN YEAR 1
7.73%	$21,702.16	$254,921.30	$0.00	1.00
AVG	-$11,036.85	$265,586.61	$10,665.31	1.10
0.0%	$ -	$276,623.46	$20,929.58	1.20
2.0%	-$5,616.72	$271,006.74	$15,706.03	1.15
4.0%	-$11,233.44	$265,390.02	$10,482.48	1.10
6.0%	-$16,850.16	$259,773.30	$5,258.94	1.05
8.0%	-$22,466.88	$254,156.58	$35.39	1.00
10.0%	-$28,083.60	$248,539.86	-$5,188.16	0.95
12.0%	-$33,700.32	$242,923.14	-$10,411.71	0.90
14.0%	-$39,371.04	$237,306.42	-$15,635.26	0.85
16.0%	-$44,933.76	$231,689.70	-$20,858.81	0.80
18.0%	-$50,550.48	$226,072.98	-$26,082.36	0.75
20.0%	-$56,167.20	$220,456.26	-$31,305.91	0.70
22.0%	-$61,783.92	$214,829.54	-$36,529.46	0.65
24.0%	-$67,400.64	$209,222.82	-$41,753.01	0.60
26.0%	-$73,017.36	$203,606.10	-$46,976.56	0.55
28.0%	-$78,634.08	$197,989.38	-$52,200.11	0.50
30.0%	-$84,867.52	$192,372.66	-$57,423.66	0.45
32.0%	-$89,867.52	$186,755.94	-$62,647.21	0.40
34.0%	-$95,848.24	$181,139.22	-$67,870.76	0.35
36.0%	-$101,100.96	$175,522.50	-$73,094.31	0.30
38.0%	-$106,717.68	$169,905.78	-$78,317.86	0.25
40.0%	-$112,334.40	$164,289.06	-$83,541.41	0.20
42.0%	-$117,951.12	$158,672.34	-$88,764.96	0.15
44.0%	-$123,567.84	$153,055.62	-$93,988.51	0.10
46.0%	-$129,184.56	$147,438.90	-$99,212.06	0.05
48.0%	-$134,801.28	$141,822.18	-$104,435.61	0.00
50.0%	-$140,418.00	$136,205.46	-$109,659.16	0.05

Figure 8. Preliminary Sensitivity Analysis Example

3.2.8 Mortgage Summary

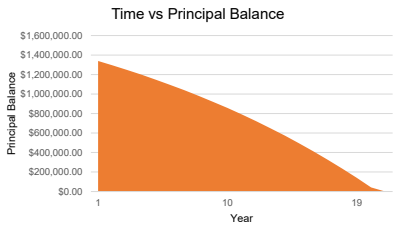
The mortgage summary provides financial information regarding the mortgage for the modeled project based on all of the information and assumptions inputted into the model. It provides some financial ratios as well as a break-down of the mortgage in terms of interest vs principal payments. The full list of metrics in the mortgage summary are:

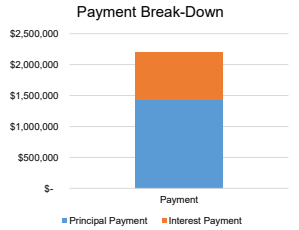
- Debt / Yield: This is the NOI in a certain year divided by the principal mortgage amount in the same year.
- Debt / Equity: This is the mortgage amount in a certain year divided by the amount of equity in the project.

- Loan-to-Value (LTV): This is the mortgage amount in a certain year divided by the project's valuation in the same year.
- Mortgage Amount: The starting mortgage amount for the project.
- Number of Payments: The total number of payments to be made on the mortgage (in years).
- Total Principal Payment: The total amount of principal paid on the mortgage.
- Total Interest Payment: The total amount of interest paid on the mortgage.
- Total Cost: The sum of "Total Principal Payment" and "Total Interest Payment".
- Mortgage Summary: This table breaks down how much interest and principal are paid every year. It also shows how the balance of the mortgage changes as the payments are made.

FINANCIAL RATIOS	
Debt/Yield in Year 1	8.36%
Debt/Equity in Year 1	0.35
LTV in Year 1	68.75%
Debt/Yield in Year 11	20.51%
Debt/Equity in Year 11	0.18
LTV in Year 11	28.03%

MORTGAGE DETAILS	
Mortgage Amount	$1,381,824
Number of Payments	20
Total Principal Payment	$1,443,321
Total Interest Payment	$759,688
Total Cost	$2,203,009





MORTGAGE SCHEDULE

YEAR	STARTING BALANCE	PAYMENT	INTEREST PAID	PRINCIPAL PAID	NEW BALANCE
0	$1,381,824.00	$104,905.21	$62,182.08	$42,723.13	$1,339,100.87
1	$1,339,100.87	$104,905.21	$60,259.54	$44,645.67	$1,294,455.20
2	$1,294,455.20	$104,905.21	$58,250.54	$46,654.73	$1,247,800.47
3	$1,247,800.47	$104,905.21	$56,151.02	$48,754.19	$1,199,046.28
4	$1,199,046.28	$104,905.21	$53,957.08	$50,948.13	$1,148,098.15
5	$1,148,098.15	$104,905.21	$51,664.42	$53,240.79	$1,094,857.36
6	$1,094,857.36	$104,905.21	$49,268.58	$55,636.63	$1,039,220.73
7	$1,039,220.73	$104,905.21	$46,764.93	$58,140.28	$981,080.45
8	$981,090.45	$104,905.21	$44,148.62	$60,756.59	$920,323.86
9	$920,323.86	$104,905.21	$41,414.57	$63,490.64	$856,833.22
10	$856,833.22	$104,905.21	$38,557.49	$66,347.72	$790,485.51
11	$790,485.51	$104,905.21	$35,571.85	$69,333.36	$721,152.14
12	$721,152.14	$104,905.21	$32,451.85	$72,453.36	$648,698.78
13	$648,698.78	$104,905.21	$29,191.44	$75,713.77	$572,985.01
14	$572,985.01	$104,905.21	$25,784.33	$79,120.89	$493,864.13
15	$493,864.13	$104,905.21	$22,223.89	$82,681.33	$411,182.80
16	$411,182.80	$104,905.21	$18,503.23	$86,401.98	$324,780.82
17	$324,780.82	$104,905.21	$14,615.14	$90,290.07	$234,490.74
18	$234,490.74	$104,905.21	$10,552.08	$94,353.13	$140,137.61
19	$140,137.61	$104,905.21	$6,306.19	$98,599.02	$41,538.60
20	$41,538.60	$104,905.21	$1,869.24	$103,035.97	$ -

Figure 9. Example Mortgage Summary

Beyond the above metrics, this section also provides graphs which detail information regarding the project's mortgage. The graphs are:

- Time vs Principal Balance: This is how the principal balance of the loan changes over time.
- Payment Break-Down: This graph breaks down how much interest in paid out of the "Total Cost" of the mortgage vs how much principal is paid.

Refer to **Figure 9** for an example proforma.

3.2.9 Long Term Proforma

A "proforma" is a projection into the significant future that demonstrates the long-term feasibility and strength of the development. It is effectively an operating statement from the first year of operations to a later year of operations, typically covering a 25 or 50 year span. In addition to the details from the operating statement, the proforma also includes:

- The Debt Coverage Ratio: This is determined by dividing the Net Operating Income (NOI) by debt payments and it tells the reader whether or not the revenues are covering debt expenses.
- The Cash Flow: This is NOI minus the debt payments. It is the amount of cash left on hand at year end.
- Asset Value: This describes what the development is worth by year end.
- The Total Accumulated Replacement Reserve: The amount of money put aside for building maintenance. Calculated by adding all previous reserve contributions to the new year's reserve contribution.
- The Total Ending Surplus: The cumulative cash on hand. This is calculated by adding cash flows from all previous years to the current year's cash flow.
- The Ending Reserve and Surplus: The sum of the accumulated reserve and the total ending surplus.
- The Growth in Revenues and Expenses: Describes the assumed growth of revenues and expenses.

This section provides both projections on the development's operations in the future as well as a feasibility test for the proposed project. As the section calculates DCR, the debt coverage ratio, it can be determined if the project is feasible throughout the years.

Refer to Figure 10 for an example proforma.

This is a detailed breakdown of financials from the first year of operations to the fifth year. The revenues and expenses are projected to grow at 2.5% per year.

PRELIMINARY YEAR 1 TO 5 PROFORMA

REVENUE	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Residential Revenues	$280,836.00	$287,856.90	$295,053.32	$302,429.66	$309,990.40
Potential Gross Income (PGI)	$280,836.00	$287,856.90	$295,053.32	$302,429.66	$309,990.40
Vacancy Loss: Res. Revenues	$(11,036.85)	$(11,312.78)	$(11,595.60)	$(11,885.49)	$(12,182.62)
Vacancy Loss? Bad Debts	$(4,212.54)	$(4,317,85)	$(4,425.80)	$(4,536.44)	$(4,649.86)
Total Vacancy Loss	$(15,249.39)	$(15,630.63)	$(16,021.40)	$(16,421.93)	$(16,832.48)
Effective Gross Income (EGI)	$265,586.61	$272,226.27	$279,031.93	$286,007.73	$293,157.92

OPERATING EXPENSE	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Taxes	$ -	$ -	$ -	$ -	$ -
Insurance	$5,550.00	$5,688.75	$5,830.97	$5,976.74	$6,126.16
Backup for Heat & Electricity	$13,857.00	$14,221.88	$14,577.42	$14,941.86	$15,315.40
Water & Sewer	$19,500.00	$19,987.50	$20,487.19	$20,999.37	$21,524.35
Electricity	$ -	$ -	$ -	$ -	$ -
Heat	$ -	$ -	$ -	$ -	$ -
Maintenance & Repairs	$23,750.00	$24,343.75	$24,952.34	$25,576.15	$26,215.56
Superintendent	$15,000.00	$15,375.00	$15,759.38	$16,153.36	$16,557.19
Management Fees	$10,623.46	$10,889.05	$11,161.28	$11,440.31	$11,726.32
Superintendent	$2,655.87	$2,722.26	$2,790.32	$2,860.08	$2,931.58
Replacement Reserve	$5,311.73	$5,444.53	$5,580.64	$5,720.15	$5,862.16
Housekeeping	$ -	$ -	$ -	$ -	$ -
Direct Operating Costs	$ -	$ -	$ -	$ -	$ -
Advertising and Promotion	$1,250.00	$1,281.25	$1,313.28	$1,346.11	$1,379.77
Garbage/Snow/Landscaping	$2,500.00	$2,562.50	$22,626.56	$2,962.23	$2,759.53
Wages & Benefits (Property Manager)	$50,000.00	$51,250.00	$52,531.25	$53,844.53	$55,490.64
Professional Fees	$ -	$ -	$ -	$ -	$ -
Elevators(s)	$ -	$ -	$ -	$ -	$ -
Miscellaneous	$ -	$ -	$ -	$ -	$ -
Total Expenses	$150,016.06	$153,766.46	$157,610.63	$161,550.89	$165,589.66
Total Expenses as % of EGI	56.48%	56.48%	56.48%	56.48%	56.48%
Total Expenses as % of PGI	53.42%	53.42%	53.42%	53.42%	53.42%
Res. Net Operating Income (NOI)	$115,570.54	$118,459.81	$121,421.30	$123,456.83	$127,568.25
Annual Debt Payment	$104,905.23	$104,905.23	$104,905.23	$104,905.23	$104,905.23
Debt Coverage Ratio (DCR)	1.10	1.13	1.16	1.19	1.22
Surplus	$10,665.31	$13,554.57	$16,516.07	$19,551.60	$22,663.02
Asset Value	$2,009,922.48	$2,060,170.55	$2,111,674.81	$2,164,466.68	$2,217,578.35

Growth in Residential Revenue (Per Yr)	2.50%
Growth in Expenses (Per Yr)	2.50%

Total Accumulated Replacement Reserve	$5,311.73	$10,756.26	$16,336.90	$22,057.05	$27,920.21
Total Ending Surplus	$10,665.31	$24,219.88	$40,735.95	$60,287.55	$82,950.57
Ending Reserve and Surplus	$15,977.04	$34,976.14	$57,072.85	$82,344.60	$10,870.78

Figure 10. Example Pro Forma

3.3 Finding a Suitable Site (Land Feasibility)

Finding a suitable site to develop affordable housing is often a significant hurdle for many communities. Land in the private market may be difficult to purchase due to competition and high costs, and cheaper land may be located at the edge of the municipality in undeveloped or unserviced areas (known as "greenfields"). On the other hand, some lands in former industrial areas may contain contamination, resulting in higher costs to remediate or clean up for redevelopment (known as "brownfields").

Unless a community already owns a suitable site or has the financial resources to purchase suitable land, many affordable housing projects end before they start. When taking into account a suitable location for affordable housing, it is recommended to consider the following factors:

- Size of the proposed development;
- Parking requirements;
- If the proposal is in line with the community's Municipal Development Plan, and/or Land-Use Bylaw (and if not, if the area will require re-zoning);
- Development constraints (i.e. steep terrain, flood plains, wildlife corridors, etc.);
- Relationship to adjacent properties, land uses, and build form;
- A purchase price that makes the project feasible;
- Consideration of public impact and community consultation;
- Availability of servicing (roads, water mains, electricity, sewer lines).

When researching and evaluating potential sites, it is recommended to work with a realtor and verify the available site information with a land use planner and/or engineer. For example, it is good to know if a site is already serviced with water, power, or sewer lines. Refer to *Section C, 5.3 Energy* for more information. You may wish to explore land that is already owned by non-profit operators, church groups, or philanthropists.

It is also worthwhile to understand the development rights available on "infill" sites. Infill development simply refers to the development of vacant or under-used sites within existing urban areas that are already largely developed. Depending on the urban context, infill sites may allow for higher density (i.e. more people living in a smaller area), mixed-use development (i.e. areas that blend affordable housing, market residential, commercial, cultural, institutional, entertainment, etc.), or more creative design solutions

Planning for Resiliency

Setting out to build an affordable housing project in Canada should include planning for resiliency. The concept of resiliency means anticipating the greatest challenges your development could face and building to withstand those conditions. Extreme weather occurrences are increasing in frequency and intensity. Being prepared for change will support your residents in bouncing back from adversity and will protect your investment.

Resiliency starts with careful site selection. Does the location make your project susceptible to flooding, heavy rains or mudslides, heavy snow loads, extreme humidity, storm surges, tornadoes, heat, drought, or wildfires? The can be especially true with aging storm water and sewer infrastructure.

In most cold climates, staying warm during a power outage is a primary concern and there are many sensible approaches you can discuss with your design team in the Planning phase, such as increased insulation, airtight building envelopes, and other thermal strategies that could help a building retain heat until power returns. Resilient design considerations are broad and complex, and should be discussed with professionals.

or architectural styles if that is the type of development desired by the municipality in that particular location. Infill sites are typically already serviced and can provide decent access to transit, employment, and services.

There are often challenges when locating affordable housing in small communities. Often, people living in these communities are reliant on automobiles (due to limited or non-existent public transportation). Seniors, children, or low-income individuals may need to rely on walking or the limited existing public transportation (such as seniors' buses) to get around town or to work. As a result, the separation of residential and commercial/industrial development that are characteristic in low-density rural communities can present challenges to residents, especially those who don't have personal transportation and live in a community that may not have a bus system.

When considering land choice, it is important to take note of:

- Proximity to transit, services (hospitals, schools, grocery stores, etc.), and employment opportunities;
- Access to nature or recreation, such as trails, parks, or sports facilities;
- Context of adjacent buildings in terms of land use (commercial, industrial, etc.) and building height (e.g. shading).

3.4 Securing Land

Once a suitable site is selected within a feasible price range, take note of all the relevant factors, as noted above. It's important to understand the background history in regards to any prior studies completed on the proposed site (i.e. environmental assessments) and the history of ownership (i.e. Certificate of Title). Take note that this process of securing land is intended for new construction, not redevelopment.

Securing land is very rarely a linear process and there's often a lengthy time frame to acquire funding from multiple sources, as well as to obtain the necessary approvals. For example, rezoning a parcel of land to fit your intended purpose can take at least six months. This process can have sudden changes, can develop into different directions at the same time or cross several stages at once. As a result, the processes involved in securing land should be done in parallel.

Sites that have historically contained residential development will generally be considered suitable for further residential and/or commercial development. However, sites with a history of commercial or industrial uses will be subject to a desktop-level environmental site assessment (ESA) to determine if the site warrants further investigations or soil testing for safety and suitability. A desktop review means reviewing documentation via online or physical records concerning the past environmental and social history of your site as it relates to your proposed operations. After checking with the seller and realtor, if appropriate, contact the local planning authority to confirm. This knowledge will help with scheduling and budgeting. For example, if it is suspected that the soil may be contaminated, an environmental engineering firm will be required to study the site further and produce a report assessing the suitability of the site for residences or remediation of the soil. You may also be able to negotiate the price down based on some of this information.

Another option for securing land is engaging with your local municipality and seeing if they can contribute land to the project or sell land at a discounted rate. Often, municipalities will prefer this form of contribution towards a project instead of providing funds or loans.

Before purchasing a property or engaging in long-term lease options, your lawyer should be completing legal searches. Every transaction and site is unique, an inspection will usually uncover any third-party rights over the property (e.g. public or utility right-of-way, or a restrictive covenant or caveat on land title). The seller may not be required to tell you about any defects or issues with the current state of the property. The risks associated with development should be clearly identified in order to accurately assess potential costs throughout the project life cycle. If the risk is too high, it can be necessary to walk away from making an offer that is not in your best interest.

3.5 Public Consultation Plans

Consultation is a broad term and is often a regulatory process. Your project team is seeking the public's input on matters affecting them and their community. This allows for detailed feedback to be captured that can inform many aspects and stages of the process. It also mitigates risk in regards to project delays. If the community feels they have not been sufficiently consulted before and during the project's development, the approving authority (Council or Administration) may delay, defer, or even reject your application.

In some instances, your team may be sharing information with the community about your plans, your project, or a specific process. This could be as simple as installing a sign

on the site or mailing out a letter. At the other end of the spectrum is a deeper level of engagement. Some engagement plans will include collaborative brainstorming and decision-making – for example, through facilitated roundtable sessions or workshops. There are communications with the public that may be legally required by your municipality, and there are engagement sessions that may be offered as gestures to build goodwill and understanding in the community. In any event, it is important that your team determines what you are hoping to gather as feedback and how that information will be used. This needs to be communicated to participants so they understand what level of influence their comments have, how information will be used, and how any follow-up information will be shared.

Involving the community tends to build acceptance by the community and create meaningful relationships with your affordable housing project. Considering how your development may serve the broader community, perhaps for seniors or youth or skills training is a positive way to support social cohesion for those living in your development.

The format of the session needs to be carefully considered and planned out based on the expected size of the group or number of interested individual and parties and the type of engagement you have planned. This includes the time of day of the meeting, the location, whether refreshments are provided, the facilitation process, and how room set-up and materials utilized (i.e. sign-in sheets, forms, presentations, display boards) will support the type of feedback or discussion you are seeking.

There should be multiple consultations at various stages of the project to ensure that relevant information is gathered at key points in time. This is also to ensure that the relationship with the community is nurtured and maintained throughout the project's life. When this relationship is strained, it puts the project at risk. The following consultation recommendations will help nurture this relationship during the development phase of your project. For more information on maintaining this relationship after the project is built and occupied, refer to *Section E, 2.2 Community Relations and Outreach*.

The number of consultation or engagement events will depend on the type and scale of the project. Below is a sample list of five sequenced consultation sessions your team should consider for suitability. Once your project team has drafted a rough plan and schedule of potential engagement sessions, it is recommended to meet with your local municipality. Most municipal planning departments will be able to provide you with their **public consultation** requirements. There are different regulatory processes involved in **rezoning** a site, amending a neighbourhood plan, applying for a **development permit**, or seeking a variance. Discussions with municipal planning staff will help to refine your **public consultation** plans and schedule, as well as understand what kind of resources you may need.

This is an important part of the project to plan and manage. The project lead and consultant(s) should discuss steps and stages, and clarify the purpose and outcome of each engagement session. For the most unbiased reporting, an experienced public engagement specialist or consultant is recommended, particularly if there appears to be significant concern or opposition from municipal staff, local politicians, or the public.

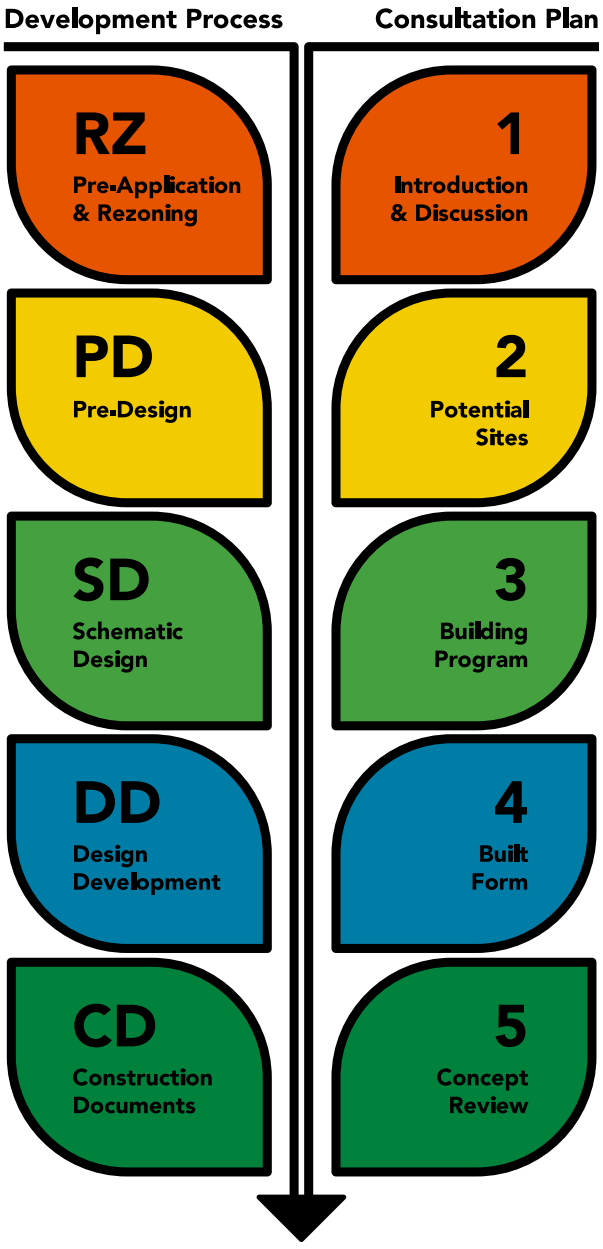
The following Options Analysis modules listed in *Section B, 3.6 Options Analysis* will create and develop the information and materials typically presented and reviewed at public consultation events. These materials are also useful for other audiences, such as investors, potential community partners, and the municipality.

Five proposed consultation sessions are listed below. Each includes a short description of the purpose and sample templates are provided. Note that these are optional or supplemental to the public engagement sessions that may be required by the municipal authority:

Consultation #1 – Introduction and Discussion about Affordable Housing: The purpose of this first engagement is to familiarize the community with affordable housing and why it is needed in the community. This consultation will allow your team to share objective information about affordable housing, address common concerns and misconceptions, and ensure that the concerns of engaged community members are heard and recorded. As decisions are being made throughout the development of the project, seek to understand how you may address the feedback you have gathered. This exercise may help avoid opposition and pushback that could delay or halt the project later on (sometimes referred to as "NIMBYism" or "Not In My Back Yard"). Refer to *Worksheet #4: Consultation #1 Process Notes* in the Toolkit Workbook for more information.

Consultation #2 – Feedback on Potential Project Sites: If your team is evaluating a number of potential sites, this consultation discusses the merits of the sites that have been identified. This gives the community a chance to provide their feedback and identify the pros and cons of each site. The results are two-fold: first, it ensures community members feel their concerns are being heard and taken into consideration; second, it gives the project team the opportunity to identify any potential issues they may not have been aware of. Refer to *Worksheet #5: Consultation #2 Process Notes* in the Toolkit Workbook for more information.

Consultation #3 – Building Program: This engagement session is to discuss the proposed project details, such as the overall site plan, number and type of units (i.e. seniors, family, one-bedroom, etc.), and the proposed accessory uses (i.e. office, daycare, etc.) based on proven need. This consultation allows the community to provide their initial feedback on the selected site and the proposed development. This type of session may be held with municipal staff, which can give them an opportunity to answer questions about the approval process, parking requirements, or building limits. Refer to *Worksheet #6: Consultation #3 Process Notes* in the Toolkit Workbook for more information.



Consultation #4 – Built Form: This consultation discusses with the community the proposed built form of the project – what the building design will look like and its design with the surrounding community. The goal is to capture the community's feedback and ensure that their comments and questions are understood and efforts have been made to appropriately address public feedback. Refer to *Worksheet #7: Consultation #4 Process Notes* in the Toolkit Workbook for more information.

Consultation #5 – Review of Recommended Concept: The goal of this consultation is to gather feedback from the community on the entire project concept that the project team has developed. Having gone through consultations at each step of the process, this session is designed to update the community on the decisions and revisions that have been made throughout the process and the near-final design of the project. Refer to *Worksheet #8: Consultation #5 Process Notes* in the Toolkit Workbook for more information. Also note, even if the project falls through, the community should be informed on what has happened with the project.

Each of the five consultation events generally aligns with the steps and stages of design and municipal processes. It is far more nuanced than this and dependent on the specific timing, scale, and context of your project. Seek out the input of several community (stakeholder) groups to aid in refinement. Ongoing communications are important to maintain these community relationships throughout the development process, through construction and once the building is occupied with residents and if applicable, businesses. If the feedback gathered from consultations has modified your development plans, your team should communicate and show the community that their time and feedback has resulted in a tangible change to the proposal.

3.6 Options Analysis

The Options Analysis is a method of planning, design, and architectural analysis, broken into modules or activities, for making choices for your project in areas where different options are available. In order for your team to advance the production of Options Analysis, it is necessary to engage an architect and/or urban planner, depending on your needs (see below).

Each module will yield an outcome based on analysis, typically in the form of statistics, reporting, or graphic illustrations or visualizations. These modules allow for customization of your project to suit your needs, budget, context, and timelines. They also enable expedited and straightforward comparisons, evaluation, and decision-making. The examples that follow allow you to have an informed discussion with an architect about what sort of deliverables you need and what to expect.

Land use and regulatory review, site selection, project massing, built form and functional space programming provide the metrics necessary to advance the project and develop the business case. Illustrations through various mediums (e.g. landscaping plans, 3D massing models, photorealistic renderings) provide the community or review committees with a visual representation of the proposed development in its existing surroundings. These visuals can assist in advancing the proposal to the next stage, as well as to engage the community. *Refer to the following in Section C: 2.0 The Development and Building Process, 4.0 Working with a Consulting Team, and 5.0 Designing Sustainable Housing for more information on the Development Process, Assembling a Consulting Team, and*

Designing and Programming Sustainable, Affordable Housing. These sections will provide some background information on the land development process and support your discussions with consultants.

You may need to evaluate the merits of multiple sites, or you may have only one site available for your project. The one site you have may need to be **rezoned** to allow for your project to align with the results of the needs analysis. If there is a vacant lot next door, it may be worthwhile to explore the cost or benefit of purchasing and consolidating the spaces together. Alternately, you may have ultimate flexibility in terms of what you can build on a site, and having too many options can result in indecision.

At the end of these Options Analysis modules, the key advantages, disadvantages, costs, and scheduling constraints will be largely uncovered. They then all be considered to achieve your original project vision. This is where experience, creativity, and professional skill come together to address constraints, solutions, and opportunities.

If you are evaluating a number of sites and there is a high likelihood of community opposition, hiring an urban planning consultant, in addition to an architect, is advisable. If only one or two sites are available, then an architect with an ability to understand surrounding context, adjacencies, and municipal regulations should be sufficient.

For the most part, hiring a firm to perform this work can be as easy as getting a recommendation from a trusted source or contacting a few local firms with registered architects and planners. Once a common understanding is achieved of what you need, your organization should request a fee letter, which outlines project understanding, scope of work, deliverables, timelines, and fees. The following list of modules are intended to serve as high-level activities that can be produced reasonably quickly with some basic information.

What is Zoning

Zoning is a planning control tool for regulating the **built environment**. It does so by dividing the land of a local authority into sections, permitting particular land uses on specific sites to shape the layout of towns and cities and enable various types of development. The zone that a particular property is located in determines what can be built on that property.

Consult with your municipal planning staff or a **Land Use Planner** for information on the zoning and any statutory plans that may apply to any parcels of land you are considering for development. It is also wise to understand what is and what may be developed next to that parcel of land. Zoning and plans may be amended, but it is a process that often requires the involvement of a **Registered Professional Planner** or an architect with **rezoning** experience.

3.6.1 Site Zoning Analysis for Selected Sites

A written report providing technical, policy, and stakeholder information. This includes applicable statutory planning and zoning bylaw review (parking requirements, setbacks, design, density, etc.), technical and infrastructure analysis, and the identification of required sub-consultants. This information is provided in conjunction with a detailed site evaluation, site design objectives, and a physical context assessment. The report identifies stakeholders and develops a public involvement framework. For additional information, refer to the following in *Section C: 2.0 The Development and Building Process, 4.0 Working with a Consulting Team, and 5.0 Designing Sustainable Housing.*

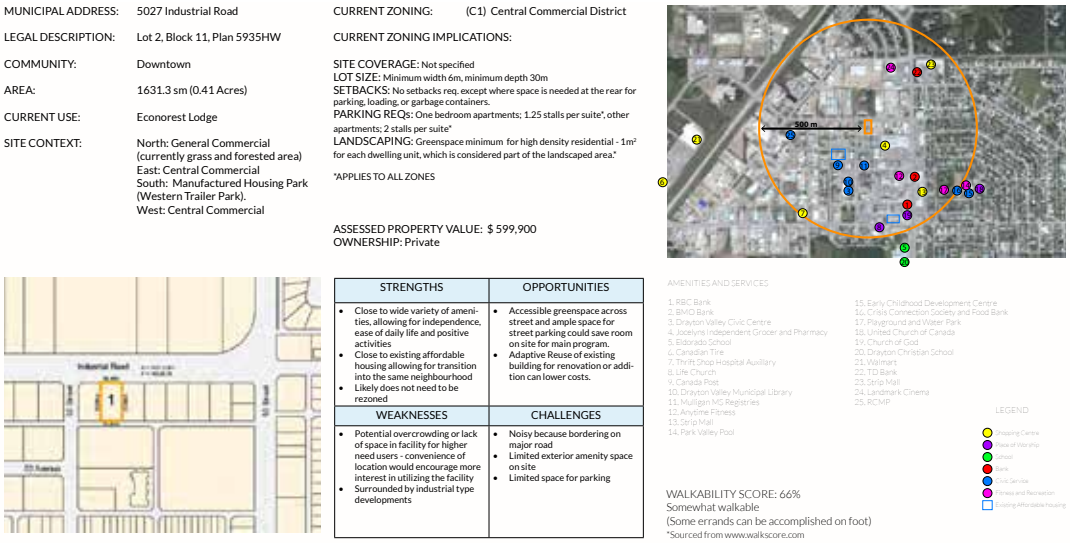


Figure 11.

3.6.2 Functional Site Analysis

Development of a site plan that identifies: site schematics, proposed vehicular and pedestrian access points, site circulation, waste collection and storage, suggested building location and orientation, and parking layout. This plan also allocates areas for landscape treatment and outdoor amenity spaces, such as play areas. Communicate with the designer any special considerations for the future occupants, such as access to nature, on-site gardening, a need for commercial, office, or childcare spaces, etc.

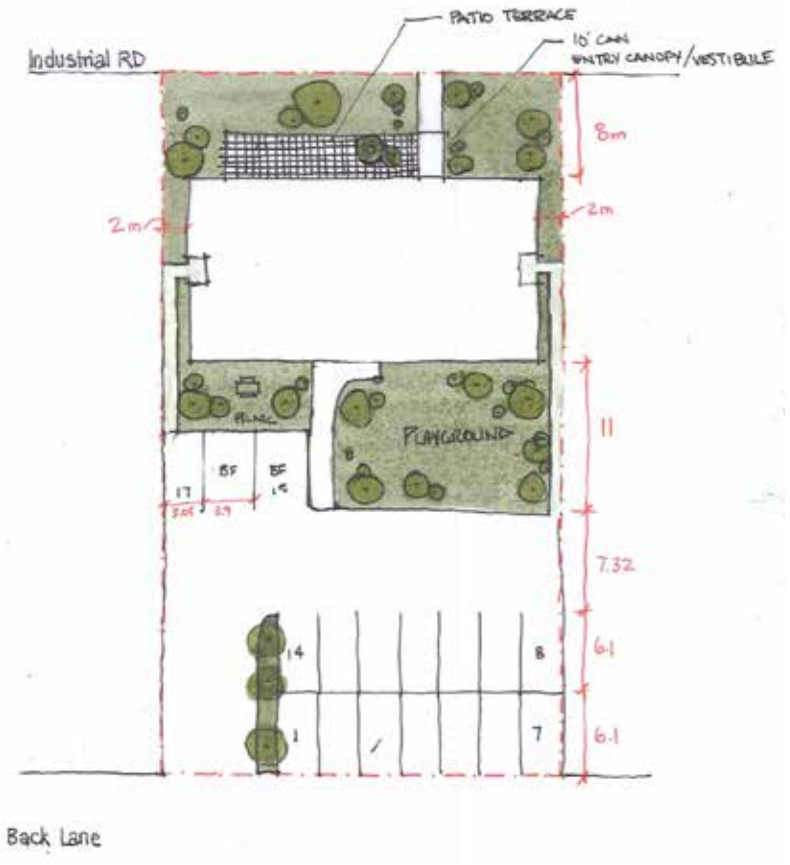


Image: Functional Site Analysis, KENNEDY

What is Floor Area Ratio (FAR)?

Floor area ratio is the measurement of a building's floor area in relation to the size of the lot or parcel of land that the building is located on. It is calculated by dividing the total area of the building by the total area of the land parcel. It provides an idea of the mass or bulk of the building and is often used in the bylaws in conjunction with other regulations to limit building size.

Some municipalities offer incentives for affordable housing in exchange for increased floor area or dwelling unit density. This is known as a "density bonus". You can ask the local planning staff or your architect if any such incentives are available for affordable housing development in your community.

3.6.3 Recommendation of Building Form

A 3D **massing** model is created to show the visual representation of the volume of the proposed building form. The building form is based on the parameters and analysis from the Site Zoning and the Functional Site Analysis. This is a useful tool for stakeholders to visualize the project design in terms of the surrounding environment within your specific site. Refer to ***Section C.5.0 Designing Sustainable Housing*** for information on designing sustainable housing.

Image: 3D Massing Model, KENNEDY

3.6.4 Additional Site Analysis

This module takes the above-mentioned items and enables the creation of comparisons to allow for a straightforward evaluation of options on design and site location.

Image: Comparative Site Analysis, KENNEDY

3.6.5 Functional Planning Precedents Research

This module includes the development of a report that explores and highlights examples of similar projects in order to compare alternative approaches to functional planning and determine the most appropriate way forward. A review of successful examples and lessons learned helps to expedite the design process.

Image: Functional Planning Precedent Research, Adobe Stock

3.6.7 Precedent Projects

This report provides a selection of photographs, renderings, or perspective drawings of similar building typologies, comparable construction methods, comparable construction costs, and examples in similar climatic conditions. This document is used to evaluate and support discussions about the overall design direction and aesthetics ("look") of the building.

SIDING TYPES

OUTDOOR BENCHES

BUILDING FORM TYPES

Images: Precedent Projects, Adobe Stock

3.6.8 Sustainability Analysis

A report detailing the specifics of a number of applicable sustainable strategies to meet the performance aspirations of the development team, future owners and occupants. The approach is contingent on location-specific conditions and outlines a list of applicable green strategies and initiatives. Energy, water, indoor environmental quality, materials, and resource strategies are reviewed, in addition to other opportunities that may contribute to efficient operations and maintenance in the long term. For more information, review *Section C, 5.0 Designing Sustainable Housing*.

3.6.9 Landscape Design – Schematic

An overall landscape design approach and associated components would be developed based on the site plan and site-specific context considerations (privacy screening, delineation of spaces, pedestrian and vehicle circulation, hard or soft landscaping, outdoor furnishings, etc.). Often, municipalities will require your final landscape plan be prepared by a registered landscape architect. For more information, review *Section C, 5.0 Designing Sustainable Housing*.

Image: Schematic Landscape Plan, KENNEDY

3.6.10 Impact Analysis in 3D

This module would serve as an expansion to the Functional Site Analysis Module. A computer-generated illustration of the proposed design will demonstrate the potential visual impact on the neighbourhood and highlight interaction, security, and public access needs. In addition, the heights of buildings and placement of trees will determine the amount of shade the area receives.

Image: 3D Impact Analysis, KENNEDY

3.6.11 Elevation Study & Photorealistic Rendering

This is a sketch-style drawing conveying the essence of the design direction, which can be useful for consultation events (like community consultations) as it highlights the characteristic style elements (i.e. roof types, finishes, openings, and proportions).

A computer-generated rendering then shows the proposed design in context. Based on the Elevation Study, this is a coloured perspective image of the proposed new project represented in three dimensions.

3.6.12 Presentation Materials for Marketing and/or Consultation

Visual communication materials that present a clear and easy-to-understand picture for the community and other project partners where the schemes are proposed. Refer to ***Section B, 3.5 Public Consultation Plans*** for more information.

Image: Elevation Sketch and Computer Generated Rendering, KENNEDY

Image: Presentation Materials, KENNEDY

3.6.13 Community Consultations

Invitations, handouts, information boards, graphics illustrating processes or timelines, and slideshow presentations are often used at consultation events. Frequently, site maps, plans, sketches, and 3D models or photorealistic renders are included in the presentation materials. A consultant and the municipality will help to guide your team in deciding on how much detail to provide at different stages of design. For additional information on how to guide community consultations, refer to the following link: https://www.communityplanningtoolkit.org/sites/default/files/Engagement.pdf.

For any consultations you do, be sure to differentiate between optional and regulatory events. Consultation events that are required by the municipality will likely have specific rules about what information is on the mailout, how the event is organized, what the format will be, and which administrative staff may need to be present. In any event, be sure to have a clear plan, format, and process for gathering feedback and connecting back with the community on the information you gather.

For an example of this form of community consultation, refer to the Londonderry Social Housing Project, available via the following link: http://www.itstartswithhome.com/community-engagement.

Worksheets, Forms, Templates:

- Financial Viability Calculator is available for download at www.housingredefined.org

4.0 Business Case

Introduction:
Once an organization has narrowed its development options to a single concept that passes all the feasibility measures mentioned earlier, it is necessary to develop a detailed plan of the chosen project concept. The way to do this is to prepare a Business Case.

This document summarizes all previous documentation to present an overall case for the project. This document should contain an accurate summary of all discovered information and present a powerful, convincing narrative for the project. It is used to present and introduce the project to funders, governing bodies, partners, and other key stakeholders. Note that this document should be prepared after the Market Research and Project Feasibility has been conducted.

Due to its importance and experience required, it is recommended to engage a consultant to create the case. The consultant should be in contact with the Housing Developer's project lead to ensure that all required information is added to the case. A template (*Worksheet #9: Template: Business Case in the Toolkit Workbook*) is provided that will help you understand what information is available in a Business Case and can be used as a starting point to develop a case. *This should not be used as the formal Business Case for your project. It instead provides a rough guideline for what information a formal Business Case should contain.*

It is of utmost importance that this case has enough information, presented in a clear and concise way, that if another party received only the Business Case, they would be able to understand the overall project, including but not limited to the need and project's viability. In terms of acquiring funding and support for the project, the Business Case is the most important document created in the Initiation Phase of the project.

The typical activities conducted in this stage are:

- Activity 1: Business Case Activities
  - Review and collect all important information regarding the Housing Developer;
  - Summarize the key points from the Need and Demand Assessment and Community Consultation;
  - Summarize the Options Analysis process and include a summary of the functional and financial pros and cons of each option;
  - Make a case for the chosen option and mention the priorities the project will support (environmental, social, economic etc.);
  - Either confirm or make a recommendation on one of the options;
  - Summarize the construction procurement process (for more info on Procurement refer to *Section C, 4.3 The Consulting Team*) and delivery timeline (from the project work plan);
  - Identify and summarize the intended operation model.
- Activity 2: Apply for grant funding and loan funding from relevant funding bodies
- Activity 3: Secure debt financing from the bank

Outcomes/deliverables completed in this phase:

- Business case/plan produced
- Financing & funding secured

The main parts included in the business case are:

Corporate Profile: The 'Corporate Profile' should provide the mission, values, and ethics that guide the Housing Developer. It should be clear to the reader who the Housing Developer is, and what they currently do. An organizational chart outlining the structure of the organization should be included. The key parts are:

- History
- Mandate
- Organization chart

Portfolio Profile: 'Portfolio Profile" details the current programs, projects, facilities, and other work of the Housing Developer. Ideally, this section is as detailed as possible. For example, if the Housing Developer manages social housing, details of the whereabouts, number of units, and targeted demographic of the housing should be included. The metrics are:

- Operations
- Programs

Institutional Context: The purpose of this section is to review the role of the Housing Developer and define the Housing Developer's stakeholder relationships.

Role in Providing Housing: The role that the Housing Developer plays in providing housing.

Stakeholder Relationships: A review of some of the relationships that the Housing Developer has and how the relationships operate.

Plan Development: This section should include a description of the overall process the Housing Developer followed in developing its business case and associated input (i.e. the community and its members; key stakeholders, including government; internal consultation and approvals). The Housing Developer should identify the major internal policy and planning documents (a strategic plan, meeting minutes etc.) that informed the business case and outline the internal approval process that was followed before the business case was finalized.

Environmental Scan: The purpose of this section is to lay out and organize the information captured in the Need and Demand Assessment. The important metrics discovered in the assessment should be presented in the case in order to showcase the need that exists in the community.

The Development: The purpose of this section is to detail the plans for various aspects of the project. It should contain the following information:

- Construction & Management Plan
- Preliminary Project Schedule
- Property and Program Management
- Preliminary Marketing Strategy

Financial Plan and Forecasts: This section summarizes all the information from the Financial model. There should be a review of the type and number of units, project cost, DCR, etc., as well as any special caveats there might be in the occupancy of units or rent payments (what is included in the rent: cable, parking etc.).

4.1 Worksheets, Forms, Templates:

- Worksheet #1: Preliminary Project Concept Worksheet
- Worksheet #2: Organizational Assessment and Process Notes
- Worksheet #9: Template: Business Case

5.0 Securing Funding

Securing funds for your project is an essential, critical part of ensuring project success and should be considered constantly while working on all prerequisites. There are several types of funding and streams which you can pursue. The type of funding best suited for your project will depend on several factors such as how appropriate it is to your project, if it's feasible, and if your project can meet all the conditions required by funders. Funding can be obtained for specific stages in a project's life. This allows for you to be able to find funding specifically for what you need it for.

5.1 Securing Funding for Pre-Development

The pre-development phase includes many steps, from creating a project concept to finalizing a Business Case. As recommended previously, a significant portion of this work should be done by a consultant with expertise in the field. Even without a consultant, several hundred hours of work will have to be dedicated to pre-development for the preparation of all necessary materials. Often, the cost associated with pre-development can quickly add up to the hundreds of thousands of dollars. Alternatively, a pro-bono organization that provides this type of support can be engaged, which can help reduce the costs at this stage.

Programs are available to affordable housing developers to help with the costs associated with the pre-development phase. Some potential funders include the federal government (Refer to Seed Funding in the List of Funding Bodies Resource Sheet available on the SHI website, HousingRedefined.org), the provincial government, not-for-profit organizations, private investors, and businesses. Local governments or businesses may also have funding available for this part of a project.

5.2 Securing Capital Funding

After the completion of the pre-development phase, the next step in the project is obtaining funding for the construction of your project. This is what most affordable housing funding programs allocate funds for. It should be noted that obtaining capital funding from any funder is often a thorough and drawn-out process that often includes a comprehensive application (sometimes numerous applications), multiple reviews, several changes, various requirements, and legal obligations. Above all this, securing capital funds is a competitive field and your project will have to compete against others.

This difficult and lengthy process is partly due to the amount of funding that is usually released through capital funding channels. The amount that can be obtained in capital funding can reach millions of dollars in grants, loans, repayable contributions, etc. This will also be the bulk of funding that you will have to gather for your project. It is important to note that this will not usually pay for the entirety of your project, and any outstanding amount will have to be made up for.

Equity

The primary part of the capital funding you want to secure is equity funding. Equity is often preferable to debt because repayment is usually not an issue. However, certain equity contributions might require some form of repayment or have requirements that make them less appealing than debt. Some types of equity funding you may see are:

- Grant: a direct contribution without any repayment
- Repayable contribution: a contribution with a **covenant** stating that some or all of the amount must be repaid at a later date, similar to an interest free loan
- In-kind contribution: usually a form of contribution where fees or **permits** are waived, this type of contribution is usually from the local municipality
- Land equity: the contribution of land towards the project
- Investment: a form of equity where the funder will take a share in the project and be entitled to ownership rights.

While it is tempting to want to accept any offer of equity, it is important to carefully analyze and evaluate the pros and cons of each offer. As stated before, some requirements might not be possible, **feasible**, or even desirable for your project and/or project timeline, and simply acquiring debt may be a preferable option.

Debt

Usually the second option, debt is also a major part of capital funding. Traditionally, debt funding comes in the form of a

Leveraging Funding

One aspect of financing a project that should be learned early on is the ability to leverage your existing assets. This means to use an asset such as land or a grant to use as **collateral** for additional funds. Leveraging assets allows you to collect funding more readily as funders will be more comfortable releasing funds to a party with existing assets than one without any. Depending on your organization's **risk tolerance**, you can even use existing assets as **collateral** for a loan or repayable contribution.

As a result, the hardest part of funding is often just obtaining the first funder, especially if your organization does not have access to many existing assets. In this case, **acquiring land** is often the first asset your organization should pursue. Land is an asset that funders will consider important and one that will frequently cause them to be more open to providing funding. Often, funding cannot be accessed at all if land is not confirmed. Acquiring the land for your project early on will make gathering additional funds easier and faster.

The key takeaway: no matter how small, confirmed funds can be leveraged to obtain additional funds. This is crucial to consider when gathering funding for any stage of your project; it can be the difference between a successful and unsuccessful project.

mortgage. However, there are some different types of debt funding that operate differently than a typical mortgage. Some types of debt funding you may see are:

- Traditional Mortgage: a standard mortgage, usually paid annually.
- Loan specifically for affordable housing development / social enterprise: a mortgage but at a discounted interest rate or higher amortization than standard, usually only available to groups developing affordable housing.
- 0% loan: sometimes considered a form of equity, a loan which requires payback but at a rate of 0%. Repayment may be annual or in lump sum depending on the loan's criteria.

Like any other source of funding, debt funding has a set of requirements that must be fulfilled before funds are released. These requirements are usually concerned with the feasibility of the project and may include covenants as well, but will depend on the nature of the loan and the specific lender.

Note: Even when capital funding is secured, your project will likely require construction financing. This is financing to pay for the construction of your project. The reason that this financing is required is because funders will likely want to see substantial completion before releasing funds. These funds can then be used towards repaying the construction financing. For more information on construction financing, please refer to Section D.

CASE STUDY: Sustainable Housing Initiative

The Sustainable Housing Initiative (SHI) provides an example of successfully leveraging funding. The SHI started with seed funding from the Canada Housing and Mortgage Corporation (CHMC) in the amount of $10,000 to provide communities with pre-development materials for affordable housing projects. That seed funding was leveraged to obtain access to $10 million from CMHC to develop affordable housing in several communities. That $10 million was again leveraged to access a total of $42 million in capital investment in affordable housing.

The key takeaway: no matter how small, confirmed funds can be leveraged to obtain additional funds. This is crucial to consider when gathering funding for any stage of your project; it can be the difference between a successful and unsuccessful project.

5.3 Securing Operational Funding

While most project teams will be done with collecting funding after they obtain capital funding to develop their project, some projects require ongoing operational funding to remain feasible or to provide all promised services. This is usually associated with developments that offer emergency shelters, transitional housing, or supportive housing, or developments with heavily discounted rental rates.

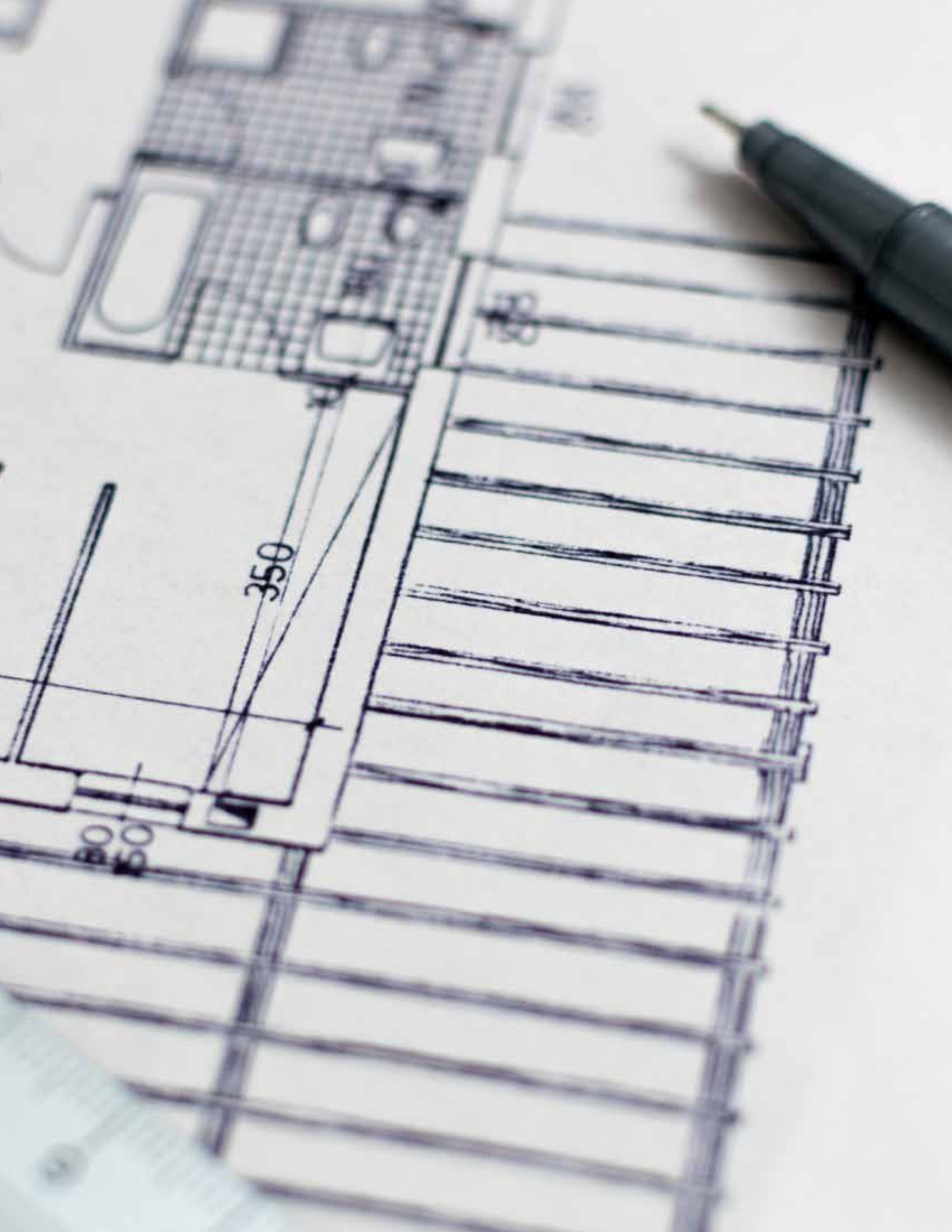
Operational funding is usually distributed by government, either provincial or federal, and comes with a set of requirements that proponents must adhere to. In more recent years, governments tend to prefer giving one-time capital contributions to projects rather than ongoing operational funding. However, funding streams for operations still exists, particularly for emergency shelters, transitional housing, or supportive housing.

The fact that governments now prefer to give one-time capital contributions feeds into the importance of ensuring your project is both feasible and sustainable, as that will help distinguish your project when it's being compared competitively to other projects.

5.4 List of Funding Bodies

A list of federal and provincial/territorial funding bodies has been provided in a resource guide titled "List of Funding Bodies", available on the SHI website: HousingRedefined.org

Note that the "List of Funding Bodies" resource guide is not comprehensive and will be updated continuously with both existing and new funding programs for affordable housing.


350
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1.0 Planning

1.0 The Project Planning Process

The purpose of the Planning Phase is to confirm the quality and completeness of the existing project information in an effort to develop and organize the design and delivery of the project before construction begins. This phase offers guidance for your team to effectively navigate the dynamic processes involved in land development. A great deal of preparation and legwork is required for new builds before any soil is even turned on site. The visible construction on a site accounts for less than half of a project's duration; much of the time is spent on planning, financing, approvals, and documentation.

The good news is that once the Planning phase begins and the consulting team is assembled, the demands on your team will be significantly reduced. The primary responsibilities will involve responding to questions, evaluating design options and cost implications, and managing changes in scope.

Advancing your project concept for sustainable, affordable housing with the guidance of professionals is exciting. The content in this section will provide you with a starting point for fruitful discussions with architects, building specialists, and construction teams. It provides high-level information on some of the typical stages, practices, and terms in the development process. Your organization and consulting team will also be engaging with administrators from relevant municipal agencies and other stakeholders, such as politicians and the general public. With more people involved, good communications are key.

The development of a Project Charter will act as your guide, clarifying the project vision and connecting the project goals with the work completed in the Initiation phase of your project with the Planning phase. A Project Charter template is available as *Worksheet #10: Project Charter Template* in the Toolkit Workbook. The project team should revisit the documents produced in the Initiation phase regularly, in part to revise as the project evolves and to help bring focus to planning and development. There will often be changes throughout the life cycle of a project, including changes of scope, schedule, budget, resources, and risk. It is the responsibility of the team managing the project to develop a thoughtful and clear understanding of the project goals and needs. The end result of your project should align with your original scope. The facility should match your team's expectations, and it should function as it was intended to function, even with modifications.

The foundation for pre-delivery planning has been laid with the project initiation activities outlined in Phase 1: the Project Concept and Organizational Readiness, Market Research and Feasibility study. With the creation of the Business Case, and identification of the project scope and key partners, your team may be ready for the pre-delivery planning stage. At this stage, your team should have the majority of funding sources identified and confirmed, and a development-ready site confirmed before proceeding. This information is necessary to advance the project and form a larger project team of skilled professionals.

2.0 The Development and Building Process

The purpose of this section is to provide a high-level overview of some of the typical processes involved in developing land into a finished building. Your team is not expected to have land use planning expertise, but it is helpful to familiarize yourself with the basics as this will help to develop your Project Charter and work plan in *Section C, 3.0 Creating a Project Charter and Work Plan.*

Receiving Land Approval

Provinces have created a legislative framework that provides direction about the rights, responsibilities, and powers of municipalities including their role in land use planning and the development of land. Municipalities include cities, towns, villages, summer villages, municipal districts or specialized municipalities.

The applicable municipal plans and bylaws direct development and use of the land in rural and urban areas. Land Use Planning is a means to achieve the orderly, economical, and beneficial development and use of land without unduly impacting private land ownership rights.

Plans and bylaws applicable in your municipality must conform to the broad requirements of the MGA; however, the province does not review or approve individual municipal plans and bylaws – this is the role of locally elected councils. The MGA grants authority to City or Town Councils to approve land use planning instruments through Statutory Public Hearings. Examples include Statutory Plans (which can apply to a region, area or neighbourhood), Zoning Bylaw, and Road Closures.

Municipal Administration is given the responsibility of reviewing and approving land development applications through Subdivision Authority and Development Authority. Each step in the process, whether a plan amendment, rezoning proposal, or development permit has a process to follow. These processes take time to follow through to approval, so it is important to identify what plans or regulations apply to your parcel of land. The process varies by municipality, but this diagram from the City of Edmonton provides a good visual overview.

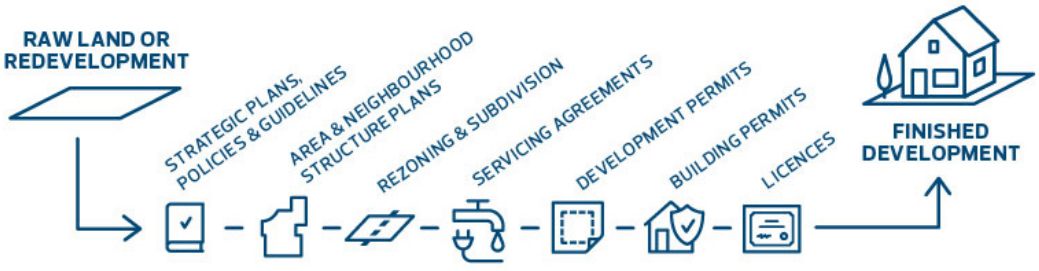

Figure 13. Development Process Steps

Source: https://www.edmonton.ca/city_government/urban_planning_and_design/development-process.aspx

Land use planning and development issues can vary significantly between projects and between municipalities. It can be a challenge to find an architect who is experienced and familiar with the technical issues and public consultation required for rezoning or redevelopment projects. Some architects are well-versed in land use planning, but it may be necessary to work with a land use planning consultant or urban planner, depending on a number of factors. The help of the municipal staff and the support of your consulting team will help navigate the various steps and stages of development. Often, the municipal staff will advise your team or request that your team engages an urban planner if necessary. Keep in mind that not all municipal planners will be able to help you throughout your project. Hiring a planning consultant may be necessary to keep your schedule on track.

The urban planner will typically shepherd the rezoning or other application processes through the city, negotiate servicing agreements on your behalf, work with the architect, assess lot consolidation options if available, and craft, support, or facilitate your public consultation plans. These services can keep the project on its proposed timeline and prevent unintended consequences in later stages of the development.

Getting City Hall on Side

Understanding the processes that apply to your project will help identify the relevant approving authority. The approving authority, whether it is a Council or Administration, becomes an audience and a stakeholder you must take into consideration. It can be helpful in development projects to initiate discussions early on in the process. If done through proper channels and in an ethical manner, this effort can result in better understanding of your proposal and collaboration with decision-makers. These decision-makers can also provide useful information to help you advance your project. With every interaction you have, be curious with your questions and take plenty of detailed notes for future reference. The following is a list of recommended actions in cases where plan amendments or a rezoning is required:

1. Engage a broad spectrum of the community from the outset to gain insights about local priorities and concerns and general attitudes toward development.
2. Gather information about the community and from the municipality that will provide you with a basic understanding of current community consultation approaches and expectations.
3. Educate yourselves about civic processes. Administration is part of the town or city corporation. Council acts like a board of directors. Knowing how ideas get considered and translated into approvals or programs can be helpful when trying to promote new ideas.
4. Research the work underway by municipal departments. Look for allies on staff who can support your initiative. See if it is possible or makes sense to build on municipal initiatives in the early planning stages.
5. Build allies for your project within the community. Politicians and administrative staff often value and respect such support. Approach the administration before the politicians.
6. Look for a political champion for your project. Demonstrate the extent of community support you have for the development.

Reference: Roseland, Mark. 2005. Toward Sustainable Communities. New Society Publishers

3.0 Creating a Project Charter and Work Plan

The Project Charter is a tool that helps project organizers identify the activities and resources required to complete the project. *Worksheet #10: Project Charter Template* in the Toolkit Workbook will get you started.

The Project Charter is an agreement that: outlines what the project is; refines the project goals and objectives, scope, cost/budget and schedule that were established during the Initiation phase; and identifies significant additional parameters such as special technical considerations, performance targets or public engagement plans.

The 'agreement' is between the organization committed to developing the building and a client who requests the development. In some circumstances, these could be one and the same. There could be any number of parties involved – for example a non-profit housing provider and a charitable foundation such as a church. Your team should begin a draft version of your Project Charter before contacting an architect, urban planner, or external project manager, as necessary. Much of this information was already produced in Phase I. Now, it is largely an exercise of consolidating relevant information into one document, reviewing for accuracy, and identifying the gaps in information.

The Project Charter is usually managed by two people: the project manager and the project sponsor (the project initiator). The project initiator is committed to providing all information required (background, support, and approval) and signing the Charter. The project manager is committed to developing and submitting the completed Charter to the project sponsor.

The process can be divided into the following two stages:

- Creating which involves gathering all information required, analyzing requirements, and submitting a sample of the document.
- Signing which involves providing initial data for a new project, setting a list of project requirements, approving the received sample of the document, and signing the final edition of the document.

In a situation where government funding is provided, the Project Sponsor may be responsible for both submitting all necessary documentation to the organization providing funding, as well as signing the Charter.

If you are unfamiliar with project planning, it is recommended to seek out help from any available resources within your community. Individuals with experience or training in Project Management processes will be particularly helpful. At a later date, the document can be refined or an addendum can be added with additional information from your consultant team. The Project Manager and Project Sponsor should reach an agreement on significant changes.

The follow-up document is the Work Plan. The plan should detail all of the required project activities and outline how the project is to be executed, monitored, and controlled during the delivery stage. It is a helpful reference and communication tool for your team because it outlines key meetings, deliverables, deadlines, and who is responsible for what aspects of the project.

The Work Plan can be highly detailed, or it can be as simple as a schedule. This may be produced in a standard spreadsheet or created in project management software. This will largely depend on the complexity of your project and the project architect you have selected. As your prime consultant, the architect will provide and gather a great deal of this information with support from the consulting team. The schedule could be solely

provided by the architect or it could be in combination with any special timelines from your own organization, such as funding deadlines or key decision dates for land purchase. At a basic level, your team should have an idea when you are ready to start and able to pay consultants and when you would like to finish. The consultants will work with you to fill in the blanks

4.0 Working with a Consulting Team

4.1 Prime Consulting Services

Any residential building having five or more dwelling units will require the professional involvement of a Registered Architect. Each province has an architectural association that provides a complete listing of all registered architects in the province, which is a great starting point. You can also ask your network of contacts for references. Confirming your architect as prime consultant can be as simple as choosing who to hire and signing a contract. Alternatively, you may need to follow a formal procurement process and issue a **request for proposal** and formally interview and evaluate candidates. This will depend on a number of factors, including your organization's budget, funding sources, project scale, project goals, capacity, external partnerships, and provincial/federal regulations.

Have your program of site options, unit count and size, budget, and schedule ready for discussion. A Project Brief will help to gather key information before approaching an architect. Based on the information in the business plan and assessment, you will have an estimate of the number and type of units necessary to make the project **feasible** (one bedroom, two bedroom, shared units, common areas, etc.), as well as the types of amenities within the building you would like to provide to residents. A Project Brief worksheet is available as ***Worksheet #11: Project Brief Worksheet*** in the Toolkit Workbook. *Review **Section C, 5.0 Designing Sustainable Housing** for additional considerations on accessible design, green building strategies, sustainable community design, and funding requirements.*

An architect with local knowledge and familiarity with municipal processes is very helpful. When speaking with architectural firms, ask them to provide you with their past experience for residential projects of your size and construction type (if that has been determined), what services they provide, their fees, and the schedule for their work. Refer to ***Worksheet #12: 20 Questions to Ask Architects*** in the Toolkit Workbook before signing a contract with an individual architect or a firm.

Once the architect has been selected and some initial design concept is reached, work with them to select the remainder of the consulting team. Assuming your team is inexperienced in construction management, the timely engagement of a construction manager (CM) is advisable shortly after the architect is confirmed. The CM is able to inform your team about the cost implications of design and construction decisions at an early stage.

4.2 Programming

Start regular meetings with the architect to develop a project schedule and your design to the point where your group is satisfied with the concept (architects typically refer to this stage as 'Schematic Design'). The architect will help you to refine your overall programming based on the site, zoning regulations, building code, and any other metrics such as **sustainability** targets that are deemed important through your discussions.

Based on the work and studies completed during the Initiation stage (***Section B, 3.6 Options Analysis***), your team has likely determined the construction type (wood frame, concrete, steel frame, modular construction of wood or shipping containers, etc). Construction type should be decided upon in order to move the design forward when working with the architect, but various options can be explored at the front end of the design process and could depend on the project's schedule.

The number of units should have been agreed upon and now a closer look into the types of units should be investigated. The project location, building height, parking solutions of either surface or underground or a combination of both, and character or style of the building should be roughly known. The building height is something that often remains flexible until the final site is determined as the zoning of the site may affect this decision. Parking requirements and layout will be affected by the unit count, zoning and size of the land, and the budget of the project, so this too remains flexible until the final site has been determined. However, if underground parking is something that is a priority, for example, then communicate it as a requirement. The amenities within the building could include a meeting room, exercise room, a games room, visitor's suite, etc. (or conversely, none at all). Early discussions of sustainable design targets, programs, and certifications is necessary at this stage in the process. *Refer to Section C, 5.0 Designing Sustainable Housing for more information.* To get a better understanding of how sustainable design elements are incorporated in a design concept, a quick case study of the Inner Portland Infill Site is available via the following link: https://design.ncsu.edu/ah+sc/wp-content/uploads/2013/06/ACME_PortlandCountyard.pdf

Some funders and grants may require **sustainability** initiatives in order to be eligible for funding. Understanding your funding requirements and efficiently incorporating them into your project can be half of your project success. *Refer to Section B, 5.0 Securing Funding for more information.*

The character or style of the building may be determined by architectural controls for the neighbourhood, but if there are no restrictions on the site, then your preferences should be noted. Architectural controls often regulate design features in order to achieve a certain architectural style or aesthetic within a certain area or neighbourhood.

The primary objective is to arrive at a clearly defined, **feasible** concept while exploring the most promising alternative design solutions. The architect will prepare a series of rough plans, known as schematics, which show the general arrangement of rooms and the building on site. Models and illustrations are prepared to help visualize the project as necessary. The project proceeds to the next phase (Design Development) when the Owner approves this Schematic Design. The Schematic Design Report is a culmination of the process and work completed to the end of this first phase of the design process, known as Schematic Design. The report summarizes the design of the **building envelope** and interior layout. In addition to this report, a full set of Schematic Design drawings are typically completed that delineate the scope of work and the building requirements, and are presented to the **Project Manager** and Project Sponsor.

Seeking Out Legal Advice and Expertise

It is good practice to seek out expert legal review of the process and documents associated with consultants and construction contracts for development and execution. A law firm with experience in land development and construction law matters is advisable.

Project Development
Lawyers can provide assistance with various matters relating to land acquisition, planning matters, and implementation of construction projects and developments. This includes appearances before regulatory bodies.

Construction Contracts
Lawyers can assist in the drafting and negotiation of construction contacts. These contracts may include any of the Canadian Construction Contract Documents (CCDC) forms of construction contracts, supplementary conditions, joint venture **agreements**, design service, and supply service contracts for small or large projects.

Tendering
Lawyers can assist in matters relating to the procurement and tendering process. Advising on legal issues arising from the preparation of **tender** and bid responses, and analyzing duties and obligations arising out the **tender** and procurement process.

What are an Architect's typical design phases?

Most architects use a standard design process to complete design services for your project. If you are familiar with the basics, the process will seem less complicated.

1. Schematic Design (SD) usually involves understanding your goals and requirements. The architect generally starts with a rough drawing that illustrates the basics of the design concept. This often includes the basic scale and forms, and spatial relationships with certain features or adjacent sites. Schematic Design usually includes deliverables, such as rough site plan drawings, preliminary floor plans, elevations and illustrative sketches, or 3D massing models. At this stage, the site to be developed is usually confirmed, and development rights and restrictions are known. Your project may be in a Rezoning process at this point or the team will be preparing to submit a development permit.

2. Design Development (DD) advances the results from the SD phase. This will typically involve finalizing the design and specifying certain features, such as materials, window and entrance locations, and more general structural details. The deliverables produced in SD will be developed in more detail and typically 'hardlined' in a computer-aided design (CAD) program with dimensions. Given the work involved, if you require a rezoning, it would be beneficial to have approval from Council. Further, the DD stage drawings are usually sufficiently detailed to submit a Development Permit package to the municipal authority or authority having jurisdiction (AHJ). By the end of this phase, the client should have a very good idea of what their project will look and feel like.

3. Construction Documents (CD) occur when the architect, client, and other stakeholders are comfortable with the drawings produced in DD – meaning there are no major changes expected to the drawings, units, or details after this point. Changes at this stage can be costly and time-consuming, as your project is already being worked on by a number of professional engineers and other specialists.

As the name suggests, these construction documents are used to construct your project. The drawings include specifications for construction details and materials. Once the CDs are complete, they are sent to construction teams / contractors for pricing or bidding. This is also known as the tender process. These drawings are also sent to the municipality's building department for building permit approvals. The CDs often are a complete set of architectural drawings (site plan, floor plans, sections, elevations, and details) that are then combined with structural, mechanical, and electrical drawings. All together, there is enough detail here for the municipality to approve your project and for the contractor to build your project.

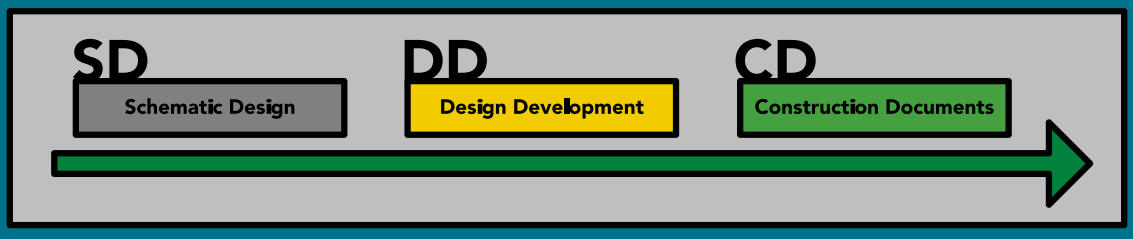

Figure 14. An Architect's Design Phases

4.3 The Consulting Team

The consulting team may consist of many people including but not limited to: architects, designers, land-use planners, professional engineers, building specialists, energy modellers, contractors, and sub-contractors.

The architect shall refine the client's Project Brief and combine it with advice of other consultants to meet the requirements of building regulations, sustainability, and aesthetics. This includes the applicable zoning, architectural controls, as well as meeting municipal, provincial, and federal regulations such as building codes, fire codes, and national energy codes. Building specialists cover an array of subjects including the building envelope, acoustics, and lighting, as well as any additional considerations such as sustainability targets required to obtain government funding.

The professional engineer shall be responsible for civil, structural, mechanical, and electrical safety and security, to name a few. The construction manager, contractors, and sub-contractors should become involved in cost analysis, value engineering, and construction methodology.

There are a number of approaches to obtaining professional services. Some organizations will opt to put out an Expression of Interest (EOI) as part of a multi-stage procurement process. This is where there is no obligation or intent to engage the consultant to perform work as a direct result of the EOI process. Following this, there would be a Request for Qualifications (RFQ). The RFQ is a step sometimes used in the formal process of procuring a product or service. It is used as a screening step to identify a pool of potential vendors, who are then eligible to submit a Request for Proposal (RFP). The RFQ process will not include specific details on pricing, whereas the RFP process will include more detail on the scope of work to be performed as well as a fee proposal or pricing. If you choose to issue an EOI and/ or RFQ, you must take into account your schedule and resources, as well as the length of time each step takes, before you can advance to the RFP process.

It is important to evaluate the qualifications of the consulting team through interviews and a Request for Proposal (RFP) process with a minimum of at least three applicants. Depending on your funding sources, there may be minimum requirements for the number of applicants your project requires to obtain funding. For example, publicly funded projects may have specific procurement guidelines or legal obligations for contracts over a certain threshold to satisfy competition laws, or trade agreements may be in place. Refer to the following link for more information: http://www.newwestpartnershiptrade.ca/pdf/13-08-21_Procurement_Guidelines_final%20for%20distibution.pdf

Funds can come in many different forms: grants, donations, investments, promissory notes, and/or loans; additionally, funders may include lenders and financial institutions.

Templates for a Request for Proposals (RFP) and a Request for Quotations (RFQ) are provided as *Worksheet #13:Request for Proposals (RFP) Template* and *Worksheet #14: Request for Quotations (RFQ) Template* respectively in the Toolkit Workbook. **Request for Proposals** are used in situations where the client does not define the scope of work either because their situation is unclear or factors such as their time or expertise is lacking. A **Request for Quote** is used for clients seeking pricing information for a defined Scope of Work that involves clear specifications. The standard RFP/RFQ process generally follows four steps:

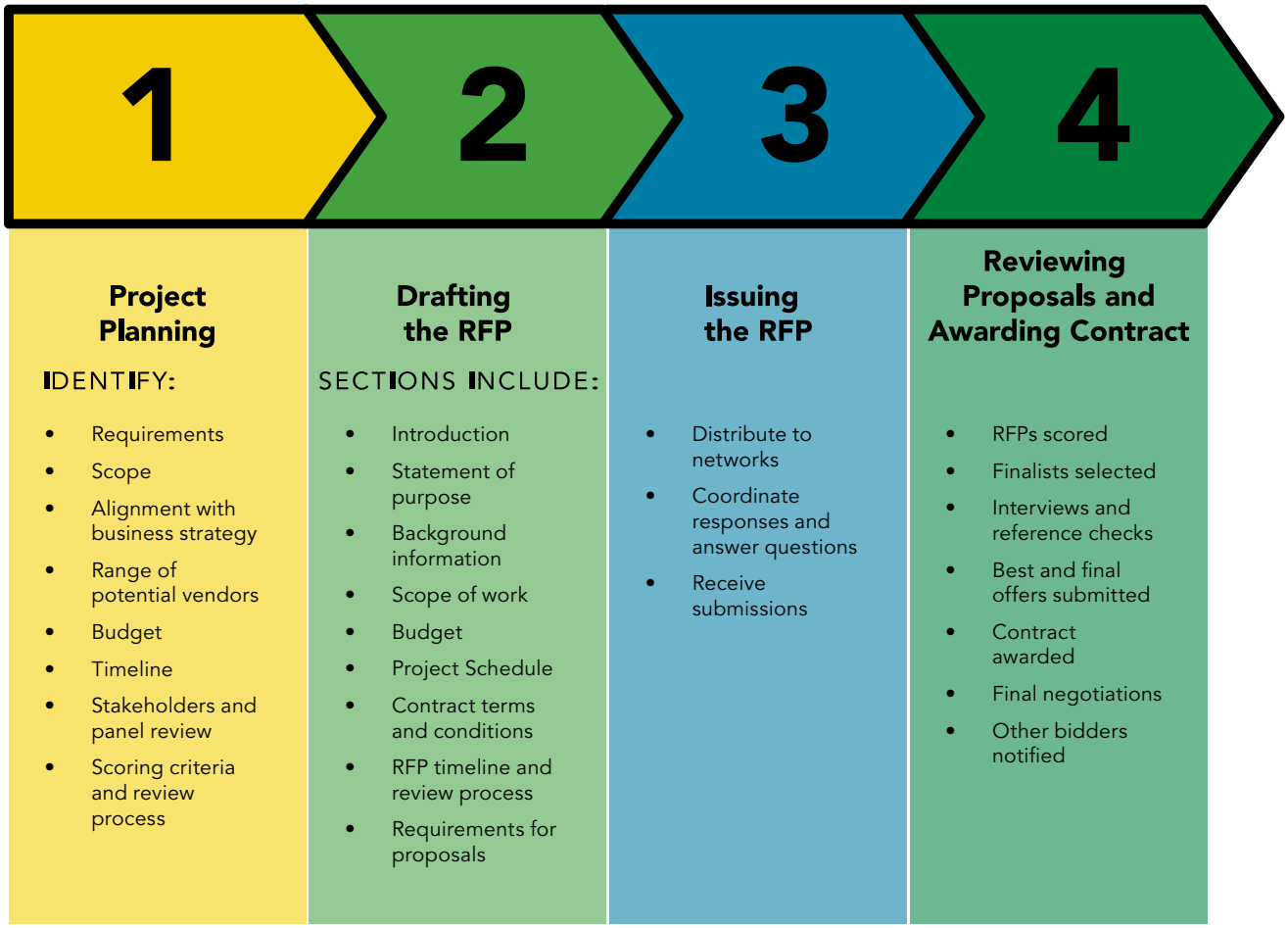

Figure 15. Standard RFP Process *Source: https://www.smartsheet.com/request-for-proposal*

4.4 Construction Delivery Methods

There are a number of construction delivery methods available, but it is recommended you discuss this with your architect to determine what is appropriate for your project. Generally speaking, if you are new to development and construction, working with a construction manager (CM) is the preferred method. Three other delivery methods are briefly introduced.

In ideal circumstances, the CM gets involved at the point of engaging the consulting team. This method is best for projects with a broad scope and pressure to finish at a certain time. Some of the benefits include early cost estimating and advice on the means and methods of construction, as well as incremental budgeting. This reduces unwanted surprises down the road. There is also a set guaranteed maximum price for your organization, which includes the CM's fee and the costs of labour and materials. The process is that the CM bids openly to all of the sub-trades to provide comparisons based on cost and relevant project experience to make their selection. This information is shared with the client. The client is also able to contribute to the selection process and make suggestions on sub-trades. With this method, the owner/project manager is a crucial voice on the team.

An organization could also use a Design, Bid, Build (DBB) construction delivery method. It is supposed to be the most cost-efficient construction delivery method; however, with this method, the design is completed in the absence of contractor review. Once the project is fully designed, it is tendered to multiple general contractors who give you a single fee for a set of drawings. This delivery method can work for an experienced team, provided there is no conflict between the design documents and the constructibility of the project. The owner/project manager usually does not have any involvement or receive any information on the contractors, sub-trades, or pricing. This method tends to have cost overruns and quality control issues.

Design-Build (D-B) is another delivery system where the design and construction services are contracted by a single entity known as the design-build contractor. The lead design professional is typically retained directly by the contractor. DB is useful when the schedule is critical and the budget is not yet known.

Integrated Project Delivery (IPD) is a newer delivery method that is gaining in popularity. It involves all parties signing a contract at the beginning of the project. Effectively, risk associated with meeting project deadlines, budgets, performance requirements etc. is shared between the construction manager, owner, and architect/engineer. This method may be something to consider once you have a few development projects under your belt, but it is likely too ambitious for less experienced teams.

Whichever construction delivery method your team chooses, be sure to discuss the roles and responsibilities of the procurement management process and understand where you have some decision-making responsibility or influence. For the most part, your team should find a reputable CM or GC who will be diligent about contract management and project management while providing you with documentation that may be required for reporting. Members of your consulting team can provide advice or guidance on this topic. Seeking out expert legal review of your draft contracts is advisable to ensure your interests are protected.

4.5 Construction Management and Procurement

When a construction manager is hired early in the pre-construction (planning) phase, they will provide advice on the constructability of the design concept, materials pricing, and provide helpful information on the methods of construction and delivery (also during the winter cycle), evaluation of structural systems, cost estimates, and value engineering the project.

In addition to working with the architect, a CM will also lead the construction team that includes the general contractor. Generally speaking, the general contractor is chosen through a bidding process and becomes involved during the construction phase, not earlier during the design of the project when you are working with the architect.

During pre-construction, there are four main processes involved in project procurement:

1. The Planning Process
2. Selection
3. Administration
4. Closing

The planning process for procurement deals with and considers what standard contracts shall be used. The Canadian Construction Documents Committee (CCDC) provides a variety of guide documents and contract forms that are available for purchase. For more information refer to the following link: http://www.ccdc.org/documents/

These include forms for a number of different construction delivery methods such as Construction Management Contract for Services and Design-Build Stipulated Price Contract. CCDC also has contract templates for project financial information, design services, and trade contractors. The selection stage determines the best pricing or value through construction bids and tenders. Administration is focused on the adherence to the contracts and managing any changes that arise. Closing is meant to ensure that any changes have been agreed to and that the project or work is delivered as expected. *More information on Administration and Closing and the construction phase are discussed in Section D.*

To provide some clarity around what is included in these contracts, some contracts are fixed price, meaning no matter how much time or effort goes into them, the client always pays the same. Some contracts are cost-reimbursable. This is where the contractor charges you for the cost of doing the work plus a fee or rate. The third kind of contract is time and materials. That is where the client pays a rate for the time spent working on the project and also pays for all the materials used to do the work. Different contracts will be used for different kinds of work, such as electrical, plumbing and framing. It will depend on the project and will be influenced by the experience and availability of the various contractors in addition to other factors. These discussions will arise in advance of construction starting.

5.0 Designing Sustainable Housing

In this guide, sustainability refers to meeting the needs of today without compromising any future or long term needs. With regards to housing, this is most often thought of as an environmental consideration, but it also can have an impact on the long term health of tenants, the financial implications of operating a building, and the degree to which the building fits into the community. Sustainable housing can also refer to how self-perpetuating the development process is: once your organization has successfully developed housing, any subsequent projects can benefit from your organization's' experience.

Delivering sustainable housing is an integrated design process. The site design, programming, and architecture must work together to achieve a variety of sustainable criteria that is practical and affordable. The practices presented here are by no means exhaustive, but should be discussed with your team and will require evaluation for suitability. Certain practices are required under zoning and any building code and energy code in your region, while other initiatives are optional. Optional initiatives are often worth including, not only because they might lessen a building's impact on the surrounding area, but because it can benefit building operations financially (for instance if a building is highly energy efficient), and even open up certain funding sources that could be available if your project meets certain sustainable design criteria.

All approaches to sustainable design may not be suitable for your site or within your budget. It is necessary to evaluate the upfront costs against the ongoing operations and maintenance of the site and building as this impacts affordability. Essentially, there is often a trade off in upfront costs which translate into significant savings down the road. Given the variety and range of sustainability initiatives and measures, what follows is intended to spur discussions between your teams. The following categories will start the discussion on which type(s) of sustainability strategies or certification programs your team may wish to pursue. This information is broken into three parts to simplify the content, though this is a very complex topic that requires the involvement of experts, preferably early in the schematic design process *(see Section C, 4.0 Working with a Consulting Team)*.

5.1 Environmental Impacts

A holistic approach to **sustainability** and environmental impacts involves acknowledging the interconnectedness of decisions as they affect the environment in any development process. Sustainable development needs to consider the natural, social, economic, and cultural aspects of creating healthy, equitable communities.

In *Section B, 3.3 Finding a Suitable Site (Land Feasibility)*, we reviewed some of the considerations for finding a suitable site. The location of the site and its surroundings has implications for the environmental impacts of your project. An environmental scan performed by your architect or planner will assist in understanding the physical aspects of your site location and sensitivities or conflicts that may be present.

The physical environment around your site may include natural and/or ecologically sensitive features such as rivers or streams, wildlife corridors or a tree stands. This presents excellent access to nature, but the development must be planned so as to not negatively stress these natural areas. An example may be a large tree stand that may impact solar availability for passive heating or for active photovoltaic power generation. Understanding the implications of a shady tree stand on your planned solar panels, or whether a wildlife corridor is suitable to serve as an **amenity** (e.g. walking trails or picnic areas) is important to overall planning. Reducing the energy demand of your project is an excellent goal, but that must be evaluated against the natural value of the tree stand and any wildlife that may be disturbed as a result of your project.

Another aspect of the environment to discuss with your team are opportunities for locally sourced materials and labour. Look into the options for availability of new or used local materials and the availability of local workers and **trades**people for various stages of site preparation and construction.

Things to Consider to make a Community Environmentally Sustainable

Water Performance
Reducing fresh water demand can be achieved by installing low-flow fixtures, using native and drought tolerant species in landscaping, and incorporating rainwater capture systems for irrigation purposes or other needs.

Material Choice
The type of material used in a building project can significantly impact the environment. Consider using natural, local materials, and those with a high recycled content. Air quality is extremely important in residential environments so choose low volatile organic compound (VOC) materials for all interior finishes.

Waste Reduction
Waste during construction and throughout ongoing building operations can be reduced given the appropriate planning. During the design phase, develop a construction waste management plan and understand where construction waste will be sent. During operations, create a waste recycling and composting area in the building for residents to easily access.

Climate Resilience
Consider what the predicted climate change impacts will be for your building location. In Canada, hotter days, extreme heat, forest fires, flooding, and extreme rainfall events are becoming more common, as are power outages during extreme cold. What conditions will extreme weather events create for residents? How can your building support and protect residents through the worst of it? Heating and cooling mechanical systems, thermal insulation, generators and even shady trees and cool basements are all ways to create a more resilient building for future residents through difficult conditions. Discuss your options with your team.

5.2 Designing for Health and Wellbeing

Ultimately, you are developing a home, so the livability and experience of residents should be top of mind in your discussions with designers. According to Environment and Climate Change Canada, Canadians adults are spending over 90% of their time indoors, so there is a great deal of work aimed at creating healthier indoor environments. Site planning and design should consider the long-term impacts and positive change that safe and healthy housing can provide to future tenants. Complementary supportive services (called Wraparound Services, see *Section E, 3.4 Wrap Around Support Services*), businesses, and amenities should be considered in terms of how they can benefit residents and the community. The development of a healthy and safe environment should help people stabilize their lives, and if applicable to the type of affordable housing you are providing, support them moving on to more permanent housing. Discuss with your consulting team how the design of the building - on both the inside and outside - promotes wellbeing for residents. The home is a very important environment for our health. It is where people often feel their most restored and are able to remove themselves from everyday stress.

There are resources available for improving livability within buildings and within the community, a few of which are provided here:

5.2.1 Universal Design

Universal Design is the design of environments to be usable by all people. For example, automated sinks allow for washing by many, regardless of age or disability. In the early planning stages, and throughout the design process, it's important to consider your future residents, including age, gender, cultural, and socioeconomic status and the practical implications of your site (i.e. accessibility). If many of the residents are families, consider their needs including space for strollers, walkers, etc. Depending on your needs, you may wish to consult with a specialist in Universal and Barrier Free Design. If issuing a Request for Proposal or Request for Quote for consultation services, you may wish to communicate that you plan to incorporate accessible design principles into your project. For more information refer to the following link: http://www.wbdg.org/design-objectives/accessible/beyond-accessibility-universal-design.

5.2.2 The WELL Building Standard

The International WELL Building Institute has produced a WELL Building Standard that places people's health and wellness as the center of design. A building that pursues certification through WELL will incorporate strategies to promote better physical and mental health for residents. This can translate into residents taking better care of the building, ultimately resulting in lower operating costs. Healthier residents will also be more likely to "graduate" out of an affordable housing development and move further along the housing continuum. Consider incorporating some aspects of the WELL Building Standard into your housing project (regardless of whether you apply for full certification through the WELL Building Institute). More details can be found here: https://v2.wellcertified.com/v/en/overview.

5.2.3 Fitwel Certification System

Fitwel is a certification system that focuses on creating buildings that improve the health and wellbeing of residents and the surrounding community. The certification is intended to optimize health within a building through consideration and evaluation of 55+ evidence-based design and operational strategies that address a broad range of health behaviours and risks. More details can be found here: https://fitwel.org/

5.2.4 Happy Homes Toolkit

This toolkit and policy guideline aims to help developers, architects, and planners boost social wellbeing and affordability in multi-unit housing. The toolkit includes 47 design, programming, and policy actions that can be implemented through different stages of the design, construction, and operational phases to improve future residents' lives. The toolkit leverages community assets to build more affordable and socially connected neighbourhoods. More details can be found here: https://thehappycity.com/resources/happy-homes/

5.2.5 Radon Mitigation

Radon is an odorless, colorless, and tasteless radioactive gas created by the breakdown of naturally-occurring uranium in soil, rocks, and water. It enters buildings through cracks or holes in the foundation. Radon is the second leading cause of lung cancer after smoking in many regions of Canada. Long-term exposure can cause lung cancer and Health Canada stresses testing in all residential applications (https://www.canada.ca/en/health-canada/services/radon.html). Radon can be mitigated in the construction process. Resources such as radonaware.ca can be used to prevent radon from becoming a problem. Additionally, after construction, testing can be done by building management or by hiring a certified professional and should be completed prior to occupancy and after any major alterations to the Building or Site.

What makes a Community Healthy?

Design for Accessibility

Accessibility (https://www.cmhc-schl.gc.ca/en/developing-and-renovating/accessible-adaptable-housing)is an important consideration when taking into account the barriers residents might encounter. Planning for all bodies, all ages, and all physical and mental abilities can seem challenging at first, but there are resources available (https://www.cmhc-schl.gc.ca/en/developing-and-renovating/accessible-adaptable-housing/universal-design-in-new-housing) to help you through tailoring the site for specific users or groups. Examples of specific user groups may include seniors, children, veterans, people with disabilities, or those with sight, hearing, or sensory challenges or trauma. Your architect will be able to discuss this with you to ensure different user groups are accommodated through the building, interior finishing, and landscape design.

Design with Nature

Connecting building occupants with nature can be an excellent way to improve quality of life. Natural light can benefit both people and provide savings on energy bills. A good ventilation system can help remove carbon dioxide and other pollutants within a building that not only affects a home's efficiency, but also improves the occupants' health and safety. Permeable ground cover provides natural water filtration. Providing bicycle storage and opportunities for physical activity will support the mental, social, and physical well-being of residents. The design should also contemplate the experience of residents in winter (https://www.edmonton.ca/city_government/documents/PDF/WinterCityDesignGuidelines_draft.pdf). Short days, darkness, cold temperatures, snow and ice call for sturdy and colourful plants, warm lighting, and even comfortable places to sit outside when the sun comes out (preferably south or west facing).

Design for Social Interaction

Design has a direct impact on a community's sociability (https://thehappycity.com/wp-content/uploads/2018/11/Designed-to-Engage-report.pdf). Key design principles that increase social connection include access to nature, mixed-use environments that encourage walking, and public spaces (e.g. parks and recreational facilities).

5.3 Energy

The total energy demand of your building is influenced by a number of factors, such as: size; type (i.e. apartment, single-family detached, duplex, townhome, etc.); number of residents; type and number of appliances; and the quality of the building's insulation. Effectively, improving the energy efficiency of a building and reducing consumption will help to reduce the energy demand of a building. Minimizing the share of non-renewable energy during the building's life cycle and maximizing the share of renewable energy should be assessed. Some of the challenges that could affect the implementation of sustainable design include budget, timelines, regulatory requirements, and available grants.

When evaluating the feasibility of your project during project initiation and during early planning, your engineering consultants will identify how your site will be serviced by available infrastructure, including water, sewers, and electricity. This should factor into your site selection process as well. Communities that have low population densities can have direct impacts on the availability and cost of energy. It is advisable to understand the availability of lower-cost energy infrastructure in relation to your site (i.e. natural gas pipelines and hydroelectric facilities). Once you understand where your energy is coming from, you can then have a discussion about your options.

In the Northwest Territories and Nunavut, electricity prices are much higher than the rest of Canada. Households in those areas pay more than 30 cents per kilowatt hour (kW.h) for electricity, whereas the average Canadian electricity price is 12.9 cents per kW.h[1]. Many of these projects are heated with fuel oil instead. Under these circumstances, a 'Passive House' design approach (as described below) may serve your project well. In an area where energy is readily available, "Net Zero" practices may be a good choice. If your project is energy-efficient and able to utilize renewable energy forms, such as solar, wind, or geothermal power, you may even have the opportunity to contribute excess energy back to the grid (which is known as "Net Positive").

Efficiently producing and using electricity reduces the amount of fossil fuels needed to generate electricity (in regions where coal and natural gas are used for electrical generation). As a result, Net Zero and Net Positive buildings can reduce the amount of greenhouse gases and other air pollution that are released as a result. Electricity generated from renewable sources such as solar, geothermal, and wind generally does not contribute to climate change or local air pollution since no fuels are combusted.

Energy codes are a requirement in most areas of Canada, however it is the strategies to meet the code's performance requirements that determines the degree of energy efficiency, and in turn, cost effectiveness. Ideally, these energy efficiency measures should be incorporated into a building during the initial design phase and implemented during construction. It is much more expensive to retrofit buildings later; this is particularly true for the building envelope. CMHC has produced an illustrative brief that explores the opportunities available in achieving high-performance multi-unit residential buildings. In addition, CMHC has also provided a guide on how to design, install, and operate heat recovery and energy recovery ventilation systems in high rises: https://eppdscrmssa01.blob.core.windows.net/cmhcprodcontainer/sf/project/cmhc/pdfs/content/en/hrv-erv-guide-multi-unit-residential-buildings.pdf

Your architect and building/sustainability specialists will be able to discuss the national, provincial, and municipal code requirements for your building's energy performance and thermal insulation. Refer to the following link for more information: https://www.nrc-cnrc.gc.ca/eng/publications/codes_centre/codes_guides.html

The energy efficiency of the windows, building envelope, insulation, electrical systems, and mechanical systems are all part of the equation. The various codes specify the technical requirements for the energy-efficient design and construction of new buildings.

[1] *https://www.neb-one.gc.ca/nrg/ntgrtd/mrkt/snpsht/2017/02-03hghcstpwr-eng.html?=undefined&wbdisable=true*

5.3.1 A sample of sustainable building design programs and certifications:

Passive House
Passive House is a voluntary standard that results in ultra-low energy buildings that require little energy for heating or cooling. It is internationally recognized. Passive House can make up the cost of construction through reductions in operation costs. Refer to the following link for more information: https://www.passivehousecanada.com/

Case Study Examples:
https://www.rdh.com/case-studies/ronald-mcdonald-house/
https://www.rdh.com/case-studies/ramona-apartments/
https://www.rdh.com/case-studies/north-park-passive-house/
https://www.passivehousecanada.com/projects/the-heights/

Net Zero
Net Zero Homes is a sustainable option that is up to 100% more energy efficient than typical new homes and use renewable energy systems to produce the remaining energy they need. For example, utility bills stay low all year round. Refer to the following link for more information: https://www.chba.ca/CHBA/BuyingNew/Net-Zero-Homes.aspx/

Case Study Examples:
https://zeroenergyproject.org/case-studies/fink-simko-zero-net-energy-deep-energy-retrofit/
https://zeroenergyproject.org/case-studies/giordano-smeltz-residence/

Leadership in Energy and Environmental Design (LEED)
LEED® certification provides third-party verification that a building, home, or community was designed and built using strategies aimed at achieving high performance in key areas of human and environmental health such as: location and transportation, sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. Refer to the following link for more information: https://www.cagbc.org/CAGBC/Programs/LEED/LEED_Certification_Process.aspx

R-2000
R-2000 certified homes are high energy-efficient buildings that are constructed by trained builders evaluated, inspected and tested by an independent third-party inspector certified by the Government of Canada. In a typical R-2000 home you will find high insulation levels in walls, ceilings and basements, high-efficiency windows and doors, high-efficiency heating, whole-house mechanical ventilation, minimal air leaking from the house, and water-conserving fixtures such as taps and showerheads.

What is Energy Modelling?

A virtual simulation of building models that that are used to assess how different combinations of solar exposure, thermal insulation levels, window characteristics, mechanical system efficiencies, electrical system efficiencies, occupancy patterns result in different annual energy consumption. Outputs include: monthly consumption estimates, greenhouse gas emissions, and other technical and economic conditions at play. It's important to review energy modelling in the preliminary design stages (i.e. initial sketches) in order to maximize energy and cost savings, and to consider how they will be achieved through design and construction modifications.

Benefits of Energy Modelling:

- Allows for the optimization of a project given various priorities such as energy efficiency and affordability. It is key to informed decision making.
- Qualifies projects for CMHC funding and incentive programs;
- Reduces operating costs and be in compliance with Building Code requirements;
- Reduces a building's carbon footprint

For more information and resources on Energy Modelling: https://www.nrcan.gc.ca/energy/software-tools/7417

Built Green
Built Green Canada is an industry-lead non-profit organization committed to working with builders interested in responsible sustainability practices in the residential building sector. Builders can apply for programs for single family and high density projects, as well as renovations, in order to fund a local project under development.

Energy Star
Is a trademarked program run by the U.S. Environmental Protection Agency (EPA) and U.S. Department of Energy (DOE) that promotes energy efficiency. Energy Star provides information on the energy consumption of products and devices, using standardized methods. Elements of the Energy Star Program have been adopted in the European Single Market as well as Canada. In North America, the Energy Star label is also shown on the Energy Guide appliance label of qualifying products. Refer to the following link for more information: https://www.energystar.gov/

Green Globes
Green Globes is structured as a self-assessment to be done in-house using a project manager and design team. This self-assessment is essentially an online rating system that provides guidance on green building design, operation, and management. The system is questionnaire-based with pop-up tips, which show the applicable technical tables that are needed to reply to the questions. Users can see how points are being awarded and how they are scored. An online manual is also available. Refer to the following link for more information: http://www.greenglobes.com/home.asp

5.4 Life Cycle Cost

A life cycle cost analysis (LCCA) is a useful tool in assessing the total cost of facility ownership. When making a purchasing decision, you account for all of the one-time (non-recurring) costs and the recurring costs over the full life span or a specified period of time. The costs include purchase price, operating costs, maintenance, replacements, and the residual or salvage value at the end of ownership or its useful life. LCCA is especially useful when you need to compare the net savings of project alternatives that fulfill the same performance requirements, but differ with respect to initial costs and operating costs. This can be fairly straightforward to understand when purchasing a washing machine or even a car, but assessing the life cycle costs of a multi-residential building is far more complex.

Some of the considerations will include estimating the energy and water usage of occupants or the timing and costs of major replacements (parking garage decks, balconies, elevators, etc). If your team is aiming for LEED or similar certification, then you must factor in where your materials are coming from and their associated transportation costs. For example, do you order bathtubs from Asia or shower stalls from the USA? Do you spend more upfront on installing cast iron pipes, or save money on plastic pipes which may need to be replaced more frequently?

There are many costs associated with acquiring, operating, maintaining, renewing and disposing of a building or a building system. Building-related costs usually fall into the following categories:

- Initial Costs—Purchase, Acquisition, and Construction Costs
- Fuel Costs
- Operation, Maintenance, and Repair Costs
- Replacement Costs
- Residual Values—Resale or Salvage Values, or Disposal Costs
- Finance Charges—Loan Interest Payments
- Non-Monetary Benefits or Costs

A basic LCCA is typically produced by your consulting team as part of value engineering. There will be cases

where relatively higher initial costs will reduce future cost obligations and yield greater comfort for occupants. It is also suitable for the evaluation of building design alternatives that satisfy a required level of building performance (to meet a certification requirement) but may have different initial investment costs, as well as different operating, maintenance, and repair costs. LCCA provides a better assessment of the long-term cost-effectiveness of a project than alternative economic methods that focus only on initial costs or on short-term operating expenses.

This is not a simple exercise to undertake. It takes experience and expertise that may not be readily available, particularly if you wish to have your building certified. The extent and scope of the work is broad and is usually based on detailed construction drawings combined with details of interior finishing (down to the paint, flooring, lightbulbs, and window coverings). Have an early discussion with your architect and engineers to determine if and when a specialist is necessary.

In the discussion process, you may find the following links helpful in familiarizing yourself with an LCCA:

https://www.toolkit.bc.ca/tool/life-cycle-costing

https://www.encpc.org/download/testing/services/1524140831-Life%20cycle%20costs%20.xlsx

https://projectclearinghouse.ucsc.edu/?q=life-cycle-cost-analysis-tool

https://www.fhwa.dot.gov/infrastructure/asstmgmt/lcca.cfm

If a property manager is hired on (refer to *Section E, 2.0 Property Management and Leasing*), have a discussion with them about your needs for monitoring and reporting on various systems in the building.


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1.0 Construction Delivery

At this stage, the **construction documents** (CD) have been finalized and the municipal authority has approved the **building permit** (BP) submitted by the consulting team. There are no further consultation sessions required by the municipality, though you may wish to meet with community members during construction to be a good neighbour. The construction team has been assembled, the contractors have been hired and scheduled according to a construction sequence, and the team is just about ready to break ground.

As described earlier in *Section C, 4.4 Construction Delivery Methods*, the construction delivery method you choose will impact your level of involvement, responsibility, and risk before and during construction. Construction managers (CM) and **general contractors** (GC) are largely responsible for management in a new construction project, and that involves contract management. Your role will involve answering questions and providing input on decision-making. Ask clarifying questions for understanding when you are being asked to make decisions.

Most teams will have a site startup meeting. This is to confirm the scope of work, identify any delivery challenges (for example, timing of construction components or materials in remote areas) and to determine overall timelines. In this meeting, the team establishes the formal lines of communication and approval processes. It is recommended to establish any follow-up meetings. Some teams will have bi-weekly meetings scheduled for the duration of the project to ensure the project is progressing and goals are being met. Ultimately, this is dependent on the project, location, and how the team is structured. The programming of the meetings and management of the contracts and contractors should still be filtering through the architect and/or **project manager** or construction manager, assuming this was included in the scope of work you agreed to. An overview of CCDC contracts is introduced in *Section C: 4.3 The Consulting Team* and *4.4 Construction Delivery Methods*.

The following is a description of the general responsibilities for a CM, GC, and Construction Administrator (CA).

Time, Quality, Cost

Trade-offs are inherent in any construction project, and the team managing the project and/or controlling the finances will be called upon from time to time to not only make decisions, but make decisions quickly. The three primary forces to evaluate your decisions on are:

- Time
- Quality
- Cost

Time reflects the amount of time available (or required) to complete an individual task or the project as a whole. Quality represents the criteria the project must meet to be a success. Finally, cost is the amount of money or resources available to complete the project.

Many seasoned project managers will say you have to choose two of these at the expense of another. For example, paying more for faster completion and higher quality, or sacrificing quality for faster completion at a reduced cost. It is often a challenge for all three to work in your favour. When faced with complex choices, it's important to ask the team for their recommendations, determine how much time you have to research, evaluate your options, and make your decision without holding up work on-site.

1.1 Role of the Construction Manager

Throughout the design process, the construction manager will have been testing material pricing, considering schedule and cost impacts (such as winter cycle heating costs), and value engineering options. They are also responsible to tender the project and close tender for sub-contractors for construction.

The construction manager sets the budget and work plans to complete construction. They collaborate with engineers and architects, and hire specialized trades such as framers and plumbers. Part of this work is communicating and providing guidance on contracts with sub-contractors and the client. See *Section D, 3.0 Briefing and Reporting*.

1.2 Role of the General Contractor

General contractors (GC) are largely focused on the daily activities and provide direction on construction sites. If the GC is not involved in the pre-construction planning, they may require the engineers and architect to modify their plans for constructability. The GC is involved in reviewing construction diagrams and contract terms, as well as selecting bids on different aspects of the job, such as foundation contractors, electrical work, or mechanical trades.

1.3 Role of the Construction Administrator

During the construction of a project, supervision and coordination is required between the project owner, the design and engineering consultants, the CM and/or GC, and the various contractors. This service is known as construction administration (CA). The CA oversees the contractor's work to ensure proper construction techniques, materials, equipment, and personnel are employed throughout the duration of the project. They monitor the contractor's progress and compliance with the construction documents (CD). This service is necessary to verify the contractor's sequence of operations and work progress, as well as ensure successful and timely completion of the project. They also manage any change requests from the project owner or design team, and determine if the changes are implementable, cost-effective, or warranted.

Preparing for Completion

Your team should determine if your organization has the capacity to manage the operations, maintenance, and leasing of your project once it is move-in ready.

Approximately six months in advance of construction completion, your project team should begin another process, aimed at renting out residential units and leasing out commercial spaces. *Refer to Section E for more information on transitioning your project, property management, cost planning, and operations.* Members of your consulting team or people in your community may be able to offer referrals if you are unsure how to find these services. Remember to ask a lot of questions about fees, services, and terms of contracts, so you are clear on what you are paying for and what you are getting in return.

2.0 Managing a Budget

The construction manager and/or **general contractor** will create a multi-level budget, taking your desired ultimate budget and dividing it into portions based on the construction components (concrete, steel, wood, tiles, etc.). They will also include a responsible contingency for unforeseen expenses.

The budget should be updated periodically, with monthly budget updates being fairly common. The construction manager, construction administrator, architect, and engineers review, monitor, and verify requests for **change orders** prior to approval. The review process is to send out requests to sub-trades who come up with pricing and submit the quote back to the team. A decision is then made on whether to proceed.

Some of the budgetary / financial information the team will receive from the construction administrator include:

- Certify contractor's application for **progress payments** in appropriate amounts;
- Review and take appropriate action on contractor's submittals (invoicing and **change orders**);
- Provide assistance in the review of the contractor's request for change orders;
- Prepare **change orders** for the owner's approval;
- Prepare revised contract drawings to illustrate and document approved change;
- Assist the owner in checking drawings of completed work (these are called 'as-built') in order to certify progress payments;
- Certify final payment to the contractor when the requirements of the contract milestones have been met;
- Provide milestone schedule to be submitted on a monthly basis prior to final construction payment application.

An important discussion to have with your construction manager and team is the approximate payment amounts and when they will likely be due, so you can effectively coordinate your financing and avoid construction delays. Knowing when payments will be due will also help you avoid **builder liens**, where a builder can file a lien if their company has done work and/or provided materials on a job site and have not been paid.

3.0 Briefing and Reporting

The project team should identify the reports that must be submitted throughout the construction process to keep you informed and the frequency of updates. The reporting typically relates to timing, budget, **value engineering**, and product evaluations. Ensure the desired objectives at the beginning of construction are clear and detailed so that effective accountability can be monitored and evaluated with your team.

Some of the typical **Construction Administration** responsibilities include:

- Establish and maintain a tracking system for all project construction records (**change orders**, requests for information, architect site instructions);
- Chair meetings scheduled by the owner/project team and provide minutes;
- Represent the owner/project team during the construction phase, advising and consulting accordingly;
- Review the contractor's project schedule, **schedule of values**, **submittal schedule**, list of equipment needed, and list of proposed **subcontractors**;
- Review periodic updates of all schedules with owner and contractor;
- Visit the site at regular intervals (typically once each week during construction) to observe progress and assess work quality;
- Ensure consultants visit the site at regular intervals (to observe progress and quality of the work pertaining to the consultant's expertise);
- Submit written reports of site visits and meetings (aka "field reports") and communicate the progress and work quality observed;
- Notify the project team and contractor in writing of any work that does not conform with the **Construction Documents** (regarding the scope or intent of the project);
- Make recommendations for the correction of deficiencies or defects;
- Prepare an agenda, conduct, and provide minutes for monthly meetings with all parties attending;
- Respond to contractor's inquiries and questions, and provide supplemental information as appropriate;
- Prepare, assemble, and distribute the official **punchlist(s)**;
- Review contractor's guarantees and warranties;
- Review as-built documents for completeness at **Substantial Completion** and Final Completion for occupancy to take place;
- Review the Record drawings prepared by the Architect, Building Owner's instructions, and all other close-out documentation (see next section);
- Assist the project team in reviewing all relevant activities and advise on scheduled progress;
- Advise project team on warranty items, inspect warranty work, and participate in one-year warranty review after construction is completed. *Refer to **Section E** for more information*.

Have a discussion with your CM or GC to develop an understanding of the reports or submissions that are intended for the managing project team, and which documents are subject to municipal approval. The municipal submissions and associated review or inspection times will impact your occupancy date(s) and impact your project cash flow. The following certificates and security deposits are good examples to discuss with the team.

3.1 CCC / FAC

The Construction Completion Certificate (CCC) and Final Acceptance Certificate (FAC) procedure is the process the local authority uses to sign off on all work that falls under the classification of 'municipal improvement'. In order to ensure the quality and the standard of infrastructure throughout a municipality, local authorities will conduct regular inspections and visits throughout construction culminating in the sign-off and approval of each item in the **municipal improvement agreement**. Depending on the size, scale, and location of your project, the list of municipal improvements and the associated construction/ design standards that will apply will vary. As a general rule, municipal improvements can be thought of as work that is completed 'off site' and is most commonly new or improved service connections to Sanitary, Storm, Sewer, or Water facilities. Fundamentally, the CCC and FAC process is a legal transfer of responsibility for municipal improvements completed as part of the project or development process. The form is completed by your consulting engineer and approved by the local engineering services authority.

3.2 Landscaping Security Deposits

A **Landscape Security** Deposit is a common method of ensuring completion of work to the standard approved by the local authority. This monetary deposit is collected as a condition of issuance of a **Building Permit**. This process is meant to allow for phased completion of work; meaning your building could receive an occupancy permit prior to completion of landscaping. This is helpful during cold weather months, as construction or occupancy will carry on, but landscaping would likely be on hold. To receive 100% of your security, inspectors will require full completion and correction of any deficiencies.

4.0 Authority to Occupy

A certificate of occupancy proves that, according to law, a house or building is in liveable condition and is in compliance with building codes. This certificate is necessary to occupy a portion of or all of the structure for everyday use. It is also a requirement, if you need to sign a contract to sell all or a portion of the space, or close on a mortgage.

A certificate of occupancy is evidence that the building complies with the **building permit** (BP) that was originally filed by your consulting team. The local authority approved certain plans and specifications and they need to confirm the construction adheres to the regulations, provisions, codes, and laws that apply to the site and the building before it is sold or occupied. The professionals of record for your project (architect/engineers) must submit reports before the occupancy inspection to indicate their satisfaction with work relating to areas of the building to be occupied. This is part of the **construction administration** (CA) briefing and reporting in *Section D, 3.0 Briefing and Reporting*.

Depending on your project size, scale, or mix of uses, you may wish to request a permit to allow a portion of the unfinished building to be occupied. This is applied for after consulting with a municipal building inspector that the building is ready for a partial occupancy permit. Your team may need to consult with other inspection agencies, such as fire services or the electrical safety authority. Commercial spaces, including child care and new businesses, will need to arrange for a business licence after they have received their occupancy permit. This is all in the interest of life safety, so it is necessary to follow the required process.

Once the building construction is finished and occupancy is approved, the work is not completely done. However, your team should take a moment to celebrate this milestone. The construction phase is really just the beginning of a building's new life as a home.

1.0 Introduction

The Closure phase is the last phase in this Guide. The transition from developing a project to managing an affordable housing property is a significant achievement. This section provides a review of the common processes and considerations for project closing, reporting to funding sources, property management, and facilities management.

1.1 Project Closing

In this phase, you will formally close your project, identify lessons learned and best practices for future projects, and report the overall level of success to your stakeholders. This includes reporting to any number of funders or agencies that have specific reporting requirements.

Project Closure involves a procedure called the Project Closure checklist. It ensures that all loose ends are tied up, providing a sense of security to your project management team.
Here's a complete checklist of all the necessary steps taken to ensure successful project closure:

1. Deliverables
   The first step in Project Closure is signing off your deliverables to the stakeholder or client.

2. Documentation
   Many documents have been created throughout the course of the project. Each document should be organized and signed by the appropriate person, including the date it was issued.

3. Financials
   You've initially budgeted a certain amount of money and now it's time to cancel supplier or other ongoing contracts. All invoices should be paid off and archived for future reference.

4. Project Reports
   Finalize any project reports you've been reporting on throughout the course of the project. This includes the evaluation of your team, the Post Implementation Review (*Section E, 1.1.3 Post Implementation Review*), and other reports that have monitored your project's performance through its life cycle. Archive for future reference.

5. Transition
   Assign someone who will provide support and take over the management process after the project is complete. This may be within your organization or an external property management service.

6. Resources
   Release project resources: people and equipment.

7. Celebrate
   Celebrate what you and your team have accomplished. Your team includes consultants, contractors, funders, government regulators, social agencies and tenants, etc. and they should be acknowledged for what they have achieved. This step is important for encouraging buy-in and boosting performance for future projects. A crowd opening can also be included in this, to share the progress and celebration with the community.

1.1.1 Construction Operation and Maintenance Manual

As noted in *Section D, 3.0 Briefing and Reporting*, aside from constructing buildings, construction management teams are responsible for producing a great deal of reporting and documentation, including inspection reports, occupancy permits, and as-built drawings for the various building systems (i.e. electrical, mechanical, civil, structural, architectural). A part of the documentation required to complete the transition and turnover of the project includes a manual that will be an Operation and Maintenance (O & M) manual assembled by the CM or GC. The O & M manual is effectively a book of instructions for the ongoing maintenance and operations of the building and site. It is a good idea to arrange an orientation session and walk-through for the facilities management team or building manager for familiarization.

Everything installed and used in the building and site comes with manufacturer information, from HVAC systems to irrigation systems. This will include specifications, warranties, and operation and maintenance information. This information is for the new owner to have and to be aware of. This information will also assist in developing the maintenance fund discussed in *Section E, 3.0 Cost Planning and Maintenance*, as the manual will include a maintenance schedule.

Here is a general guide of the information provided for each item in an O&M manual:

- item description;
- manufacturer's operation and maintenance information, product data sheets, specifications, safety data sheets and drawings;
- installation details including location and any installation drawings;
- information from the testing and commissioning of each item;
- warranty information;
- manufacturer and supplier details;
- a maintenance matrix that sets out a maintenance schedule in a table for easy use.

1.1.2 Reporting to Funders

An important part of operations is ensuring that all the criteria that funders put forward when releasing funds for your project are met. The criteria for reporting should be in the funding agreement between you and the funding body. Failure to hold to these criteria can lead to legal and financial ramifications such as the funder withdrawing all allocated funding. The requirements in reporting and the form of reporting will differ between funders and they will also often provide their own forms to submit. It

CASE STUDY
on Funding Requirements:

The Banff Courtyard Project (http://ywcabanff.ca/courtyardproject/) was funded in part by contributions and loans from CMHC. This funding came with its own set of requirements in terms of what must be reported back to CMHC.

Requirements included quarterly reports on the progress of eligible activities, as well as a schedule outlining the timeframes for the completion of the next quarter's activities, updates on accomplishments made on the activities since the last report, and a detailed account of any existing or possible challenges that can or have delayed the completion of the project.

will also differ between the different types of funding (i.e. grant, loan, investment etc.) These criteria should be well understood and agreed to before any funding agreement is signed. For more information on funding, refer to *Section B, 5.0 Securing Funding*.

There will likely be requirements for reporting during construction as well as during operations. During construction, funders will likely ask for updates on construction progress, timelines, etc. The exact metrics to be reported, as well as the frequency of these reports, will be provided in the funding agreement. These reports should be prepared by the Construction Manager for the project. Ensure that the reporting process is built into the RFP / RFQ issued for the project.

The requirements for reporting during operations will likely include financial statements, operating budgets, cost analysis, and other metrics that demonstrate financial feasibility. The funder will specify in the funding agreement how long reporting must continue before it is no longer required, as well as how frequent the reporting must be. In most cases, the funder will require reporting on an annual basis. Loans will likely require reporting for the duration of the amortization period, whereas an investment would likely require reporting for the life of the development. This is however, as stated before, completely dependent on the exact criteria the funder puts forward, which is affected by a variety of factors.

Since the reporting will likely be regarding the financial feasibility and performance of the development, the reports should be prepared by whatever party handles the finances of the development. The same documents this party would prepare for internal review, such as financial statements and cost analysis, are similar to if not the same documents that funders will likely require. However, in the case that this party is employed by your organization, the funder might ask that an independent third party provide the reporting (much like financial audits).

1.1.3 Post Implementation Review

Between one and six months after the project has been closed and the building is occupied with residents, you need to complete a *Post Implementation Review,* available as *Worksheet #15: Post Implementation Review* in the Toolkit Workbook. This review is intended to identify the level of success of the project, key project achievements and milestones, and any lessons that can be applied to future projects. This document links back to the Project Charter your team produced in the Planning phase.

How to Review

Define the Scope: Your intentions and objectives should be made clear, ensuring that your projects' deliverables can be accurately assessed and that your project team is honest about their experiences.

Review Key Documentation: Collect all relevant project documents needed to assess deliverables.

Consider Independent Reviewers: External reviewers who were not directly involved in the process can give an unbiased, objective opinion of your project. This can offer new perspectives, constructive criticism, and unbiased judgment.

Use Appropriate Data Collection: Choose a data collection method that is practical for your project. This can be collected through many forms, including interviews and surveys.

Deliver Appropriate Reports: Your results should be reported and publicized as this will help project managers be accountable and deliver more effective projects.

Present Recommendations: Your detailed and comprehensive list of recommendations should be presented to the organization, residents, stakeholders, and project managers. It is recommended to include as many applicable people as possible, as these recommendations will serve as best-practice information that can be applied to future projects.

2.0 Property Management & Leasing

For your project to be financially self-sustaining, steps must be taken to create a stable revenue stream, build and manage a budget, and maintain a positive cash flow.

2.1 Managing Vacancies

Creating a stable revenue with a multi-residential rental property will involve leasing rental units, and possibly, leasing commercial space. Effectively managing vacancies is key to the financial viability of a for-profit or non-profit housing development. To avoid vacancy, your team should begin a tenant search process as early as possible. Remember to review and understand any eligibility criteria that has arisen as a result of the funding your project has received. By starting the process early, you will have the necessary time to find applicants and/or tenants and to advertise available units in your development as needed. If units are left unoccupied, the overall rental income declines. Meeting financial obligations and maintaining the building to an acceptable standard will become a challenge. Depending on the size of your project, you may wish to enlist the services of a residential or commercial **leasing agent**. Often, property management companies and commercial real estate firms provide these services.

Advertising and creating your waiting list should occur six months before the anticipated **completion date**. By the time the construction phase is completed, your new housing development should be fully rented out.

Once the community is aware of your new affordable housing project, the owner can create a waiting list for prospective tenants. Again, be sure to review the eligibility requirements that are required of tenants when renting out affordable housing units. Especially if your development has received government funding, it is important to fully understand requirements of applicable government assistance programs and subsidies. CMHC has a number of lease and rental agreement templates available to download via the following link:
https://www.cmhc-schl.gc.ca/en/rental-housing/i-want-to-rent/lease-and-rental-agreements

Recommended Best Practices Taken 6 Months Prior to & During the Rent-up Period:

- Developing your final operating budget at least six months prior to occupancy
- Employing applicable staff and contractors
- Advertising your project and location via signage, public notices, online marketing, etc.
- Have sample unit layout plans for prospective tenants
- Finalize monthly rents, considering factors such as bedroom size, leasing stages, square footage and eligibility requirements of government funding
- Determine the maximum income range in accordance with federal or provincial funding
- Creation of lease agreements
- Information package for residents outlining fire and safety procedures, applicable contact information regarding operations (maintenance, waste disposal, support services ,etc.), and tenant amenities such as parking, laundry, etc.
- If government assistance is received, establish communication protocols for media information and events

2.2 Community Relations and Outreach

Affordable housing and associated services for low- and moderate-income individuals and households can be met with local opposition. Even if you engaged in a thorough public consultation process from start to finish, and even if your project is well-designed and nicely finished, this can still occur. Obviously, this is disheartening because a lot of work goes into developing these projects. Common concerns include: negative impacts on property values, an increase in crime, loitering, a reduction in privacy, concerns about traffic, or the scale and character of the structure(s). While it's important to engage in discussions with the community leading up the approvals and construction of your project, it's important to manage the image of your project after occupancy. Deep-rooted opposition may never be completely resolved, but it is deeply satisfying when a well-managed affordable housing development acts as a good neighbour.

Building community acceptance and the ability for your tenants to integrate into the community will depend on nurturing positive relationships with adjacent landowners, residents, and businesses. There are options to engage the community with outreach programming and other social activities. Providing a range of support services in-house or in the community for residents may include mentorship, peer-support, and opportunities for life skills development. There are many approaches that could be considered, depending on need and suitability.

Explore ways to share the sustainable features of your project with the community and any social or environmental initiatives with the public and business community. If you have a mixed-income or a mixed-use development, a positive image and reputation in the community will enhance your ability to attract and retain market-priced units and commercial tenants.

3.0 Cost Planning and Maintenance

3.1 Cost Planning

Planning and estimating maintenance costs is a form of **risk management**. There are two common types of maintenance:

1. **Planned and Preventative Maintenance**, which aims to prevent major issues or breakdowns to ensure the building operates at peak efficiency through regular inspections and maintenance. This typically includes cleaning, repairs, treatment, or replacement to prevent deterioration.
2. **Corrective or Unplanned Maintenance**, which is reactive and usually due to a failure or premature failure of preventative maintenance, or may be caused by accidental damage or an emergency.

Consistently operating a housing development on a reactive or "unplanned" basis is not ideal. Only fixing things once broken can cause severe financial burdens. It is recommended that a replacement reserve be established to account for various building and site assets based on their lifespan. Generally, the maintenance plan should account for the need to replace items within, over, and outside a 10-year timeframe. Building owners and managers often will hire a professional firm to conduct a **Building Condition Assessment** to analyse a facility in terms of age, design, construction methods and materials. A building or facility assessment is intended to identify and forecast possible future maintenance or repairs. This allows the building manager to plan for the financial cost of future replacements and spread the large costs over a long period of time. In addition, it's important to note that most funders will require a maintenance reserve fund as part of the budget. For more information on establishing a Capital Reserve Fund and Planning, the Co-operative Housing Federation of Canada has developed a guide. Refer to the following link for more information: https://www.agency.coop/media/422/download

Capital Reserve Plan and Fund

Something you might want to consider for your building is a capital reserve fund and a capital reserve plan. A capital reserve plan will help ensure that the building has enough money in its capital reserve fund for major replacements such as roofs, plumbing etc. by telling you how much money should be put into the capital reserve fund every year. The plan will even include information on when the money should be spent. For more information on capital reserve plans and funds, please refer to the following link: https://www.agency.coop/media/422/download

The following steps are recommended:

1. Identify the Critical Assets of your Facility: ensure parts that are integral to building operations can be replaced quickly with minimal disruption. A Replacement Plan for key elements should be implemented for major building components (i.e. roof, heating, etc.) For more information, CMHC has developed a step-by step manual on Capital Replacement Planning available via the following link: https://eppdscrmssa01.blob.core.windows.net/cmhcprodcontainer/sf/project/cmhc/pdfs/content/en/63171_en_w_acc.pdf
2. Conduct a Risk Assessment: this is designed to identify potential hazards or threats to the operation of your building (i.e. fire, flood, vandalism, smoke damage, etc.)
3. Protect Critical Assets: determine the necessary responses and controls that are required to manage and protect your critical assets (i.e. alarms, detectors, security systems).

Ongoing Testing & Maintenance

It is good practice to schedule ongoing testing and risk-specific maintenance into your standard building management and maintenance work plan. There are a number of key building functions and common risks that should be prioritized when assessing current and future safety for building residents and visitors.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colourless, and poisonous gas created any time fuel is burned (i.e. fireplaces, vehicle engines, stoves, etc). It can accumulate due to improper ventilation and lead to serious injury or death. To reduce the risk, make maintenance of heating systems and all fuel-burning appliances a priority and schedule routine testing of alarms and monitors in the building and enclosed and underground parking garages.

Radon Testing

Radon is an odorless, colorless, and tasteless radioactive gas created by the breakdown of naturally-occurring uranium in soil, rocks, and water. It enters buildings through cracks or holes in the foundation. Long-term exposure can cause lung cancer and Health Canada stresses testing in all residential applications. Testing can be done by building management or by hiring a certified professional and should be completed prior to occupancy and after any major alterations to the Building or Site.

Fire Protection

Maintaining reliability of your fire and smoke warning and suppression systems ensures that your system is ready to perform in the case of a fire. Periodic testing of each system component – from smoke detectors to manual fire alarms and sprinkler systems – should be tested at a frequency as advised by the local authority. Visual inspections can be done more frequently and deficiencies or failures addressed in addition to preventative maintenance done at a prescribed frequency. It is important to note that any building modifications or occupancy changes will have an impact on your fire system.

3.2 Operations and Maintenance

Depending on the scale of your development, the intended use of each self contained space (eg. daycare, coffee shop, workshop, art space, etc.), and your own organizational capacity, you may enlist the services of a part-time or full-time facilities manager, a property manager, or an operations manager. The property manager may be an individual providing the service in-house or contracted by an external service provider.

In any event, this is the point of contact that coordinates and controls the operational aspects of the building to ensure a well-maintained environment that is safe, secure, and improves the quality of living for its residents. The on-site property manager is responsible for delivering services such as cleaning, repairs, property maintenance, snow removal, and security etc. They should be able to identify areas to reduce cost, improve efficiency, minimize risk, or increase property value. The property manager should also be familiar with the Operations and Maintenance Manual referenced in *Section E, 1.1.1 Construction Operation and Maintenance Manual* to understand the maintenance requirements and warranties that apply to the building systems and components.

Multi-unit residential facilities face their own set of unique challenges due to the increased capacity and proximity of residents. These facilities operate 24 hours a day, 7 days a week and often involve concerns and requests from multiple users. For in-house property managers, ongoing training and continuous learning should be accessible in order to expand their skill set and diversify their knowledge, which can result in more services performed 'in-house'.

Typical Services a Property Manager Would Perform in a Multi-unit Residential Building:

- Maintaining security for residents and building assets
- Asset management (mechanical services, etc.)
- Maintenance planning (equipment, etc.)
- Building management control systems
- Upholding a building's identity and image
- By-laws and Regulatory Compliance
- Record-keeping (legal requirements, monitoring, etc.)
- Building repairs and maintenance
- Reducing operational impacts and life-cycle costs
- Cleaning and general maintenance
- Responding to complaints and feedback
- Undertaking larger capital or maintenance projects
- Essential Services provision (fire extinguisher, etc.)
- Stakeholder engagement
- Gardening and grounds maintenance
- Waste management
- Optimizing building performance
- Contract management
- Sustainability initiatives and implementation
- Energy and water management (lighting use, etc.)
- Tracking and recording energy & water consumption
- Concierge, mail, and other 'soft' services
- Conserving asset value

Since facilities rely on contracts and outsourcing, negotiation and management skills are necessary qualities of a property manager. The services required from a typical residential building are fairly predictable, and in turn, have predictable pricing.

A contract relationship has two categories, each with various pros and cons:

Traditional Procurement	Alliance/Partner Contract
• A specific service or scope of work • Variation in contract is low • Low risk of failure	• Undefined scope of service • Greater flexibility • Incentives based on performance • Higher risk and uncertainty

When developing contracts, remember to include the following provisions:

1. Scope of Work: define the technical specification and requirements expected from contractors.
2. Evaluation: Assess their work based on established criteria.
3. Management: Develop a Service Level Agreement (SLA) based on their performance of established targets.

It is a valuable resource to learn and share any knowledge gained from external service providers.

Building Owners and Management Association Certifications

The Building Owners and Management Association (BOMA) offers certifications to developments based on environmental performance and management. These certifications range from Certified to Platinum and is determined by meeting a list of criteria. For more information on these certifications, please refer to the following link: http://bomacanada.ca/bomabest/aboutbomabest/levels/

3.3 Consumption and Sustainability

In terms of energy and water consumption and waste generation, the property manager should be able to optimize building performance by having a good understanding of usage patterns, specifically how and where energy and water are consumed and waste is produced. Refer to Section C, 5.4 Life Cycle Cost.

Data relevant to monitoring on a monthly basis:

Energy	Water	Waste
• CO2 emissions produced • Total energy use • Purchased and renewable energy consumption	• Total water use • Sourced water use • Recycled water use	• Total waste produced • Non-recyclable waste produced • Recyclable waste produced

Properly managing waste within multi-unit residential buildings has a direct impact on reducing costs and becoming more environmentally responsible. The property manager plays a key role in how waste is reduced by implementing the following measures:

- Separate waste storage and recycling spaces;
- Charity bins in waste rooms or car parks;
- Managing the correct disposal and separation of waste;
- Monitoring waste disposal;
- Promoting waste reduction techniques to residents;
- Ensure recycling streams are followed appropriately by cleaners and subcontractors.

It is advisable to have a meeting with your property manager and relevant members of your consulting team to discuss the coordination of any reporting that may be required for applicable building certification programs. For example, LEED, NetZero, and WELL often require a report to be submitted one year after a building is occupied in order to obtain certification.

Establish a system that will measure consumption against a baseline target. Research different systems for monitoring and reporting on consumption. This can either be developed or purchased, and would essentially collect, analyze, and report on the building's energy and water consumption. This will allow you to track changes, reveal performance trends, and record any changes associated with implementing new improvement measures.

It is important to communicate the existing energy efficiency features in your new building and discuss any new initiatives you wish to undertake with residents. They may come up with creative ways to implement improvements.

3.4 Wrap-Around Support Services

Wrap-around support services assist individuals with multiple, complex, and ongoing barriers to obtaining or maintaining stable housing. Often the services and supports that are needed by this vulnerable segment of the population are simply not available in their communities, and involves accessing multiple agencies at different locations. As a result, wrap-around services is composed of a collaborative team of agencies, service providers, professionals, and resources that work together to provide a wide array of services in-house (or externally), overcoming many of the inherent barriers residents have in accessing these services. These wrap-around services will help sustain tenancies within the building, ensuring that the resident has the available resources needed to be successful. Wrap-around services go beyond just ensuring basic housing needs are met, but also work to address personal, social, and financial issues that have been the main contributors to their housing instability.

The Five Social Determinants of Health as described by the Office of Disease Prevention and Health Promotion in the US are available via the following link: https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health

1. Economic Stability:
    - Employment
    - Food insecurity
    - Housing instability
    - Poverty
2. Education:
    - Early childhood education and development
    - Enrollment in higher education
    - High school graduation
    - Language and literacy
3. Social and Community Context:
    - Civic participation
    - Discrimination
    - Incarceration
    - Social cohesion
4. Health and Health Care:
    - Access to health care
    - Access to primary care
    - Health literacy
5. Neighbourhood and Built Environment:
    - Access to foods that support healthy eating patterns
    - Crime and violence
    - Environmental conditions
    - Quality of housing

Wrap-around support services assist individuals and families in addressing the Five Social Determinants of Health by providing the resources necessary to finding employment, obtaining education, dealing with addiction or mental health, accessing transportation and recreational opportunities, etc. Providing wrap-around services not only produces better outcomes than conventional services, but supports the individual's long-term ability to thrive by minimizing service costs.

To be successful, wrap-around support centres involve a high degree of coordination and collaboration among service agencies, providers, and key stakeholders within a community (e.g. families, community representatives). These organizations must work together to ensure that the services address the needs of the target demographic are readily available to residents and are supported by the community.

Wrap-around services are beneficial to the tenants of affordable housing because it improves residents' access and engagement in care, ultimately improving their mental health and their capacity to successfully maintain

their tenancies. Without wrap-around services, vulnerable tenants are more likely to face barriers related to social determinants that could negatively impact health and wellbeing and result in the end of their tenancy, potentially leading to homelessness.

In addition, wrap-around services are community based, individualized, and family-centered, ensuring that an individual with mental health issues and their families are supported by a network of both professionals (such as a psychiatrist, mental health counselor, etc.), as well as non-professionals (such as family, community members, volunteers, etc.) in a non-clinical, community setting such as home or school.

An effective method for organizations is building community connections with other resources ensuring that staff are knowledgeable about the services within their community. It's recommended that your organization complete a Needs Assessment, which will help accurately assess the local context and demographics of the area that will be providing affordable housing. As a result, you will gain a greater understanding of what services and resources are most needed by your prospective tenants. In addition, the Needs Assessment will also help you understand what other needs are present beyond housing. This does not necessarily mean that you should be providing these services, but it's important to establish working relationships with those services so that the right information is available and can be provided to your residents. For more information on Needs Assessments, refer to *Section B, 2.0 Market Research: Need and Demand Assessment*.

The social return on investing in wrap-around services can prove to have significant impacts on the success of your project, and has direct effects on residents' ability to retain their housing, move up the housing continuum, improve their quality of life, and become active members of their community. For more information on social investment, CMHC has created a housing research report on "Measures for Calculating Social Return on Investment for Affordable Housing" available via the following link: https://eppdscrmssa01.blob.core.windows.net/cmhcprodcontainer/sf/project/archive/research_2/measures_for_calculating_sroi_.pdf

It's important for an organization to understand the needs of their tenants and build connections around those needs. A common practice is bringing community organizations in-house to learn about their services, the barriers those organizations face and how their services meet the needs of their residents. Depending on the local context of your affordable housing development, it's important to understand some of the resources, service agencies, programs and strategies that can be implemented within your affordable housing development.

Here are some of the basic wrap-around services and strategies that your organization can implement:

- Food Security: food banks are typically the first point of contact in this area, but the reality is that food banks often cannot offer all the resources someone needs to be food-secure. Therefore, it's important to research what a community has available for food services beyond just food banks – for example, family cooking classes through family centers, and discounted food suppliers (e.g. WeCanFoods). For more information, refer to the following link: http://wecanfood.com/?page_id=4
- Education: for many people who access affordable housing, traditional education is not affordable or accessible. You should gain an understanding of what educational resources are available within your community, as well as collaborating with other agencies to overcome the barriers that a resident may face when trying to access education.
- Mental Health Services: examples include on-site mental health and addictions counsellors who can offer counselling, education, referrals, and advocacy in regards to addictions, domestic violence, trauma, etc.; access to psychiatrists; and access to support groups.
- Medical Services: examples include nursing services for minor treatment and emergency cares; nursing services available for the community on a walk-in basis; harm reduction supplies, education, and advocacy; primary healthcare; clinic or home-based visits; supervised injection services; on-site

opiate replacement therapy; hepatitis/HIV treatment; diabetes education and treatment; birth control options and education; smoking cessation help; and other specialty services such as acupuncture, chiropractors, optometrists, pediatricians, foot care, dental services, etc.

- Family Services: examples include family outreach programs that focus on supporting families and their children with life skills, parenting skills, and early childhood development; support services for pregnant women and new parents; and literacy centres.
- Youth Services: examples include youth-unit drop-in services that provides relationship-based support and advocacy in finding housing, a source of income and assisting with the transition into adulthood; high-risk youth services would provide resources focused on self-care and harm reduction; and drug education.
- Employment Services: examples include employment readiness programs that support resume building, safety ticket accreditation, trade literacy, job searches, and access to work gear.
- Transportation Services: examples include winter emergency response bus services that offers rides to shelters, basic needs, referrals to community services, and a space to warm up and connect with support workers.
- ESL Programming: programs that support non-native English speakers in developing their language and communication skills.
- Spiritual Programming: programs that cater to the spiritual practices of a specific culture or religion (e.g. Indigenous spiritualities, Christianity, etc.)
- Cultural Perspectives: Having knowledge of community services that offer cultural programming is important and especially valuable in having staff gain the perspectives of other cultures to reduce stereotypes/assumptions made.

CASE STUDY: Ambrose Place, Edmonton, Alberta

Ambrose Place provides housing and support services within a culturally sensitive environment to Indigenous individuals and couples who have not been successfully housed in existing facilities. It has several on-site services and it collaborates with other organizations, in order to operate harm reduction strategies that improve outcomes surrounding drug use, alcoholism, or mental illness. These services are focused on improving an individual's quality of life and health through education about options available, enabling them to thrive based on their own decisions.

Ambrose Place also integrates supportive and affordable housing units within the same building. This allows residents the opportunity to move up the housing continuum from supportive housing to independent living while retaining residency within the same community. For more information on Ambrose Place, refer to the following link: https://niginan.squarespace.com/welcome-to-ambrose-place

CONCLUSION

It is our hope that by reading this guide, you are able to better equip yourself to overcome some of what once seemed like formidable hurdles. We hope that the roles of consultants, regulators, funders, and contractors is clearer, and most importantly, we hope that your role as the driving force behind your future project, is clearer.

You, the reader, have something to offer to the process that no one else on the team has: an understanding of the contextual needs of your community or future clientele, and a vision for a project. No one can (or should) offer you a one-size-fits-all solution, because if that existed, every municipality in Canada would have housing for all their residents. Therefore, you know whether your community is a boom-and-bust resource town, an agricultural center, a tourism-based hub, a bustling bedroom community or large metropolitan centre.

You are the champion of your project, and every small step forward should be celebrated.

Thank you for reading. You have now taken the first of many steps in what we hope will result in an affordable housing development that is sustainable to operate long term.

1.0 Glossary Terms

For additional terms you may encounter that are not found in this document, please refer to the Canada Mortgage and Housing Corporation's "Glossary of Housing Terms". This can be accessed at the following url: http://publications.gc.ca/collections/collection_2014/schl-cmhc/NH15-159-2013-eng.pdf

Accessibility: creating a building that is user-friendly to people of all ages and abilities. For example, wide doors and stairs, low windows, and easy-to-grasp lever handles benefit children and the elderly alike.

Affordable Housing: rental or ownership housing that requires government money to build or operate. Affordable housing has rents or payments below average market cost, and is targeted for long-term occupancy by households who earn less than the median income for their household size.

Agreement: means this Agreement, including any schedules hereto, as amended, amended and restated, varied, supplemented, restated, renewed or replaced in its entirety from time to time.

Amenity: when applied to residential development, an amenity or more commonly an amenity area is a space either private or shared that is provided for active or passive recreation. An amenity area may include indoor or outdoor space.

Amortization: the number of payment periods (usually years) before a debt obligation is fully paid.

Architect: a person who plans, designs and oversees the construction of buildings. Those registered under The Architects Act are known collectively as "authorized entities". An "authorized entity" is defined in section 1(c) of the Act as a "registered architect, architects corporation, architects' and engineers' firm, visiting project architect, restricted practitioner, licensed interior designer, interior design corporation and visiting project interior designer". It is these individuals, partnerships and corporations and only these that are entitled to practice architecture in Alberta.

Barrier-free Design: design that provides alternative methods of access for those with physical or mobility disabilities; for example, ramps to access a building, or elevators to move within a building.

Builder Lien: The lien is a registered legal interest against the property that a construction company can file if they are not receiving payment. Also known as construction or mechanic liens in some parts of Canada.

Building Condition Assessment: a study that provides comprehensive building deficiency information, including an examination and evaluation of all building systems and their condition in the building, and forecasts possible future maintenance requirements.

Building Envelope: refers to the barrier or physical separation between indoor and outdoor environments of a building. Generally the building envelope comprises the foundation, wall assembly, roofing system, windows, and doors.

Building Permit: an official approval issued by the local governmental agency that allows you or your contractor to proceed with a construction or remodeling project on your property. It is intended to ensure that the project plans comply with applicable local standards for land use, zoning, and construction.

Built Environment: refers to the human-made environment and infrastructure (e.g. roads, parks, buildings) that demonstrate the physical character of a community.

Built Form: refers to the function, shape and configuration of the building, and its relation to the street/sidewalk network and open/public spaces.

Business Case: the Business Case for a project is the rationale behind the initiation of a new building project. It may consist solely of a reasoned argument. It may contain supporting information, financial appraisals or other background information. It should highlight initial considerations for the Project Outcomes. In summary, it is a combination of objective and subjective considerations.

Change Order: means work that is either added or removed from the original scope of work in a contract, however, depending on the degree of changes, it has the potential to alter the contract amount and/or completion date

Climate Change: a change in global weather patterns, in particular a change apparent in recent decades, attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels.

Collateral: means the Proponent's interest in the Ground Lease for the Property, the Project (whether completed or not) and any other undertaking, assets and property, real or personal, tangible or intangible, now existing or hereafter acquired by the Proponent relating to the Ground Lease and the Project (whether completed or not).

Communication: means any notice or other communication required or permitted to be made or given in connection with this Agreement.

Completion Date: means the date on which: (i) substantial completion of the Project has been achieved, as confirmed by the Quantity Surveyor to CMHC by delivery to CMHC of a Certificate of Construction Completion; and (ii) written authorization by the Town or Municipality, permitting occupancy of the Project.

Construction Administration: involves decision-making and the timely flow of information and decisions to ensure contract requirements are met to enable project completion

Construction Documents: CDs are the vehicle through which design decisions are communicated to others including permitting authorities, lenders, and builders. A set of construction documents will include specifications (the project manual), drawings, interior details, schedules, and products. The CDs should be complete, concise, and coordinated before they are put out for a tendering process.

Construction Manager: coordinates and supervises the project; working closely with contractors, workers and consultants. Duties include: reviewing plans and specifications, negotiation, scheduling workers on site, determining costs (e.g. materials, labour), monitoring, etc.

Contract Documents: are legally binding documents between the Owner and Contractor that define the roles, responsibilities and a detailed description of the work (e.g. drawings, specifications, procedures, etc.).

Cooperative Housing: co-op housing is collectively owned and managed by its members (the people who live there). Co-op members actively participate in decision-making and share the work involved in running the housing community. Members of a co-op must volunteer and take part in the management of the building.

Covenant: a term used to describe restrictive limitations that may be placed on property and its use, as a condition for holding a title or lease. Typically intended to either restrict a lot to a certain use or to preserve the physical nature and character of the development etc.

Debt Coverage Ratio (DCR): the ratio of a developments net operating income in a given year divided by its debt payment(s) for the same year. A DCR of less than 1 indicates that the project is unable to sustain its debt obligations for that year.

Development Permit: a written approval from the municipality that your plans are in accordance with the applicable zoning regulations and statutory plans. You are required to have a valid development permit before you can apply for a building permit to construct a building or structure, or to apply for a business license.

Engineering: the legal definition in the Engineering and Geoscience Professions Act states that the practice of engineering means:

(i) reporting on, advising on, evaluating, preparing plans and specifications for or directing the construction, technical inspection, maintenance or operation of any structure, work or process

(A) that is aimed at the discovery, development or utilization of matter, materials or energy or in any other way designed for the use and convenience of humans, and

(B) that requires in that reporting, advising, evaluating, designing, preparation or direction the professional application of the principles of mathematics, chemistry, physics or any related applied subject (Engineering and Geoscience Professions Act, Section 1, Pg. 8).

Equity Housing Co-op: members purchase a unit or a "membership share" which they can sell when they move out. Some are limited equity co-ops: when members sell their unit, the co-op receives a portion of the profit.

Facilities Manager: A facilities manager is a job role that is responsible for making sure that buildings and their services meet the needs of the people that live in them. Facilities managers are accountable for services such as cleaning, security and parking, to make sure the surrounding environment is in a suitable condition to live in. They also manage any building maintenance with things like heating and air conditioning, to maintain the living environment.

Feasible: the ability to be accomplished in a successful manner within a reasonable timeframe taking into account environmental, economic and social factors.

Feasibility Studies: studies undertaken on a given site to test the development feasibility

on a specific site or in a specific context and to consider how site-wide issues will be addressed.

Functional Space Programming: are effective design solutions developed between the Architect and Client that a building must satisfy in order to support or improve human activity.

General Contractor: a GC is responsible for the day-to-day operations of the construction site, management of vendors and trades, and the communications of all involved parties; properly licensed individual having primary responsibility of the work. The sub-contractors form agreements with the contractor, not with the customer and have specialized construction skills.

Hazardous Materials: means any contaminant, pollutant, waste or substance that is likely to cause immediately or at some future time harm or degradation to the surrounding environment or risk to human health; and without restricting the generality of the foregoing, including any pollutants, contaminants, waste, hazardous waste or dangerous goods that are regulated by any Requirements of Environmental Law or that are designated, classified, listed or defined as hazardous, toxic, radioactive or dangerous or as a contaminant, pollutant or waste by any Requirements of Environmental Law.

Housing Continuum: the housing spectrum is a scale of affordable housing options that range from short term accommodations such as shelter spaces to market rental housing and ownership.

Inclusive Design: Design that considers the full range of human diversity with respect to ability, language, culture, gender, age and other forms of human difference.

Examples include Habitat for Humanity, Rent Supplement, Co-operative Housing and Social Housing programs.

Landscape Security: a monetary deposit collected by the municipality following the approval of a Development Permit as a condition prior to issuing a Building Permit. The deposit helps the municipality ensure that landscaping for a development is completed to the standard that was approved by Council or administration during the Development Permit process. The deposits are generally required for all development permit applications. Landscape security deposits are a common practice in Canadian municipalities. The deposit will be returned once the landscaping is completed to the standard presented in the Development Permit plans.

Land Use Planner: land use consultants create programs and plans for land development and usage. They will usually meet with a developer, public official, or community to discuss a particular piece of land and what their client wishes to accomplish with it.

Leasing Agent: leasing agents work with property owners to find suitable tenants for their buildings. This could be single-family homes, apartments, or businesses. Leasing agents handle the signing of leases, and act as a landlord for property owners.

Lien: means (i) a lien, charge, mortgage, pledge, security interest or conditional sale agreement; (ii) an assignment , lease, consignment, trust or deemed trust that secures payment or performance of an obligation; (iii) any other encumbrance of any kind; and (iv) any commitment or agreement to enter into or grant any of the foregoing.

Life Cycle Cost Analysis: Life-cycle cost analysis (LCCA) is a method for assessing the total cost of facility ownership from the beginning to end of its lifespan. It accounts for total costs of building, owning, and demolishing a building. LCCA is especially useful when you need to compare the net savings of project alternatives that fulfill the same performance requirements, but differ with respect to initial costs and operating costs.

Loan-to-Cost (LTC): the percentage of total construction cost that is accounted for by the loan the project is undertaking. Calculated by: Project Loan divided by Total Project Cost.

Massing: is an architectural term used to describe the size of the building, as well as the general shape and form.

Municipal Improvement Agreement (MIA): servicing agreements make provision for construction of municipal improvements such as water mains, storm and sanitary sewers, roads, sidewalks, curbs and gutters, power, street lighting, landscaping and various other items. Sometimes referred to as a "servicing agreement" the MIA is a legal contract between the developer (or property owner) and the municipality which outlines the terms and conditions, financial and otherwise, which must be met and agreed upon prior to development proceeding.

Net Operating Income: The total revenue a development generates in a given year subtracted by the expenses it incurred in the same year. Calculated by: Total Revenue minus Total Expenses.

Net Zero: describes a building that will generate the same amount of energy (or surpass) annually when compared to the annual energy usage of the base building systems, typically achieved through a mixed use of efficiency, and renewable sources of energy.

Net Positive: describes a building that will generate surplus energy annually.

Operations Manager: responsible for managing daily operations, often for many properties. Performs regular inspections of structure and systems to ensure optimum levels of mechanical operation and energy conservation, as well as ensuring compliance with all applicable building codes, acts and regulations

Permits: means all permits, licenses, authorizations, orders, approvals or consents necessary from or in respect of any applicable Governmental Authority to permit the development and operation of the project, including demolition, excavation and foundation and final building and occupancy permits.

Programming: short for Architectural Programming, this is the process of determining and organizing the use of a building. This is the research and decision making process that identifies the design approach and required components or facilities.

Progress Payments: means partial payments that cover the amount of work completed during several stages of a project.

Project Charter: a primary document that states initial requirements for the project to meet the expectations of stakeholders.

Project Costs: means all soft costs including architectural and engineering costs, legal

fees and disbursements, insurance, leasing costs and other like costs and all hard costs, being all costs other than soft costs in each case incurred in connection with the Project, as provided in the Project Budget.

Project Manager: is the person responsible for planning and organizing a project from inception to execution. This involves recruiting and building project teams, managing resources, ensuring good practices, etc.

Property Manager: is the person responsible for operations and maintenance on behalf of the Owner; in charge of the day-to-day functioning of the building.

Public Consultation: is a regulatory process that involves the public providing their feedback and input on development proposals.

Registered Professional Planner (RPP): is the term for a registered urban planner in some Canadian Provinces. These people are permitted to offer their professional services directly to the public.

Request for Proposal (RFP): have strict procurement rules for content, timeline and vendor responses and are used when the request has a specific project or problem. The requestor specifies a scope of work that needs to be performed (the RFP) and solicits in response to a Proposal from the vendor describing how they would go about executing the project – including pricing information.

Request for Quote: commonly used when a requestor knows what they want but need information on how vendors would meet the requirements and/or how much it will cost.

Rezoning: a process in which Council reassigns an existing parcel of land or property to a different category of restrictions based on land use and building type. For example, residential to commercial zoning.

Risk Management: planning for possible risks and considering optional contingency plans and mitigation strategies.

Risk Tolerance: an investor's ability to endure the potential loss of money in an investment.

Schedule of Values: is a comprehensive, itemized list of all work items on a project (either completed or to be completed). The entire contract sum is allocated among various portions of work.

Security: means the lender debenture and all other present and future security from time to time held by or on behalf of the lender from the proponent (or any other person) as security for the obligations together with any instruments evidencing any of the obligations.

Seed Funding: is a type of equity-based funding in which an investor invests capital in a business in exchange for an equity stake in the company.

Site Information: specific Project Information in the form of specialist surveys or reports relating to the project or site-specific context.

Social Housing: rental housing provided on a rent-geared-to-income basis for long-term occupancy by very low-income households who are capable of independent living without a need for support services on-site.

Soft Costs: generally includes architectural and engineering, financing fees, permits, legal, advertising, leasing and real estate commissions, and other pre- and post-construction costs.

Stakeholder: means a person, group, or organization that has interest or concern in a business or organization and is affected by their decisions, policies, actions or objectives.

Sub-contractor: a General Contractor will hire a Sub-contractor to perform a specific task. For example, the electrical wiring of a building that a contractor is responsible for and cannot do themselves. This includes: electrical, concrete, carpentry, plumbing, sheet metal work, roofing, concrete, etc.

Submittal: In construction management, submittals are drawings, materials data, samples, and product data. The architect and engineer will primarily use submittals, to verify that the correct products will be installed on the project

Submittal Schedule: can take many forms, such as shop drawings, physical samples of materials and data about the items delivered to the design professional (e.g. architect or engineer) for review and action as required by the contract documents.

Substantial Completion: is a term commonly used in construction contracts, in which the building is fit for occupancy and can be utilized for its intended purpose, despite some tasks that still need to be completed or corrected.

Support Services: services directed at supporting individuals and families with daily living (e.g., referrals, individual case management, personal identification, transportation, legal/financial assistance and child care).

Supportive Housing: rental housing for less than median income households in which staffed, on-site support services (e.g. building security and mental health services) are provided through government subsidies to enable long-term occupancy. Examples include seniors' lodges, assisted living and enhanced living facilities.

Sustainability: means meeting the needs of the present without compromising the ability of future generations to meet their own needs; maintaining ecological balance by avoiding the exploitation of natural resources. It can also refer to a process that is self-perpetuating.

Sustainable housing: homes that are designed to reduce the overall impact on human health and the environment and increase the efficiency of building operations in terms of water, energy, waste and materials. Housing can also be considered sustainable if an organization has learned enough from an initial development to be equipped to undertake subsequent developments more easily.

Tender: in the Tender process (also known as a Request for Tender) businesses are publicly invited to bid on the opportunity to provide specific goods or services. Bids must meet certain mandatory requirements and then are evaluated either completely or substantially based on price (the lowest price bid is awarded the contract). In addition to price, other

evaluation criteria such as past performance or references may be used if the tender is not preceded by a prequalification process.

Trades: trades essential to the construction and finishing of buildings, including but not limited to: carpentry, bricklayer, plumber, roof tiler, painter, electrician, etc. In addition, general contractors often employ these trades, which are then known as "sub-trades" to perform a specific task.

Universal Design: a process that enables and empowers a diverse population by using design to make environments usable by all people, improving human performance, health and wellness, and social participation.

Vacancy Loss: When operating a rental development, there is a yearly gap between potential revenue if the building was fully occupied vs the actual revenue given actual occupancy. The difference between these two is called vacancy loss - the amount of the potential revenue uncaptured due to vacancies in the development.

Value Engineering: in construction, this is a system of evaluating the availability of materials, transportation costs and issues, construction methods, site limitations or restrictions, costs, planning and organization. The benefits that can be achieved include reduced life-cycle costs, reduced environmental impacts, improved quality and improved functionality.

Vendor: means one that sells materials or equipment not fabricated to a special design.

Work Plan: listing the entire schedule of the activities and detailing their sequence and implementation. Spelling out the breakdown of the project into tasks and sub-tasks.

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