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Dear Ms. Souwand,

On behalf of Continuum Consulting Firm, we would like to thank you and the city of Cambridge for partnering with Wilfrid Laurier University, and in doing so, creating a platform for us to advocate for the future development of Net-Zero Energy projects. Continuum Consulting seeks to encourage development opportunities for Net-Zero Energy under the conditions provided by the City of Cambridge. Enclosed is the final deliverable completed by our firm outlining the plans to implement the development opportunities. Continuum Consulting is comprised of competent team members with multiple skills and varying experiences to contribute to implementing this project.

Our young and innovative team hopes to use the highly efficient and renewable technologies that Net-Zero Energy offers to initiate changes on a local scale within the city of Cambridge. These initiatives aim to meet city goals of promoting conservation and sustainability. The phases proposed address challenges associated with Net-Zero developments such as the high building cost, as well as solutions like potential rebates for developers, and potential/current home buyer incentive programs. Our plan provides a framework for future initiatives carried out by the city, while strongly focusing on collaboration and education between the city and buyers. The energetic and capable team at Continuum Consulting is ready to use their skills to ensure Net-Zero Energy developments are put forth in the most proficient and professional approach.

If you require any further information or have any concerns with the proposal we have put forth, please do not hesitate to contact any one of our team members at continuumconsultingkw@gmail.com or 519-496-5923. Our sincerest gratitude for your consideration, and we hope to work with you in the near future.

Kind Regards,

Continuum Consultants
Jessica Kaatz, Adam Kay, Adriana Fresco, Nicole Lanzo, Cassidy Vlasic

SUSTAINABLE DEVELOPMENT IN THE CAMBRIDGE WEST COMMUNITY: RECOMMENDATIONS FOR IMPLEMENTATION

*CONTINUUM
CONSULTING*



FINAL
DELIVERABLE

NET ZERO
ENERGY



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Meet the Team

All members of **Continuum Consulting** are currently in their final year of completing an Honors BA in Environmental Studies at Wilfrid Laurier University.

Jessica Kaatz: Co-Project Manager, Graphic Designer

Jessica has developed vast interpersonal skills from multiple positions held within the university allowing her to grow tremendously as a leader. She has gained ample knowledge and has a huge passion regarding sustainable development, as well as has experience with graphic design and layout.

Adam Kay: Co-Project Manager, Business Analyst

Adam has direct experience in leading groups in his recurring camp role as Head of Staff. In addition to his occupational experience, Adam has a passion for sustainable development, and is ready to begin a successful career in the sustainability industry.

Adriana Fresco: Sustainability Coordinator

Experience through volunteer initiatives has led Adriana's experience in sustainability within university clubs and outside organizations. She is currently completing a Geomatics Option at WLU where she has gained skills in GIS and mapping software.

Nicole Lanzo: Community Engagement, Policy Analyst

Throughout Nicole's time at Wilfrid Laurier University, she has achieved development in useful skills both academically and socially. Nicole has established the qualities of someone who is able to communicate well with others in a professional manner.

Cassidy Vlasic: Communications and Research Analyst

Cassidy has been able to develop a passion in-depth research regarding sustainability and the environment. Outside of her academic career, experience in customer service has led her to establish a strong set of communication skills.

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Executive Summary

Emerging problems in today's society revolve heavily around the growing impacts of climate change. Fortunately, many cities are addressing this issue and implementing sustainable initiatives such as Net-Zero Energy developments to initiate change on a local scale. These developments work to produce as much energy as they consume by using highly efficient and renewable technologies. Due to objectives in city documents surrounding the promotion of conservation and sustainability, it is evident that Net-Zero developments can be made possible for the City of Cambridge. In order to exceed these objectives, Continuum Consulting proposes a plan focused on education and marketing strategies to make Net-Zero Energy Homes achievable, specifically in the Cambridge West Community.

Strategies for successful implementation of NetZero developments by the City of Cambridge begins with proper promotion and marketing to both potential buyers and developers. This includes a strong social media platform, education and training, and outreach initiatives with nearby academic institutions. To gain insight on how to promote such ideas, continuum consulting chose to analyze both past and present case studies to ensure their framework would be feasible. Surveys were also conducted to analyze the potential for new home buyers in this community, specifically current university students who will be the target market by the time NetZero projects are completed. In conducting surveys and case study research, challenges associated with NetZero developments are better understood. These challenges strongly revolve around the cost of these homes. Several solutions for this are addressed through incentive programs that are being used by numerous cities, as well as Cambridge itself currently. In having such incentive programs, it is important to be able to market them in efficient ways so that residents can be made aware of how these homes can be more affordable, and so developers can fully understand the benefits that NetZero homes bring. To do so, Continuum Consulting proposes seminars for new home buyers, as well as education and training for both builders and developers. An extensive marketing plan is also addressed to spread information efficiently about NetZero homes and the benefits that are offered. By taking an educational approach to implementing NetZero, as well as marketing it in an efficient way, sustainable living can be more attainable for the Cambridge West Community.

Continuum Consulting consists of a strong team of five individuals with an academic background in environmental studies and various work experience that has provided them with the necessary skills to excel in their positions. Through extensive research, this final deliverable presents a detailed framework for the city of Cambridge to successfully implement Net-Zero Energy Homes.

Introduction

Continuum Consulting was established in September 2018, in the beginning stages of the 2018-2019 version of the Capstone Urban Sustainability Project. Following a successfully approved request for proposal (RFP) on November 28th, 2018, the consulting group began their progress on January 7th, 2019, working towards the final deliverables.

With great pleasure Continuum Consulting is proud to present their final deliverables. Explained in depth below is how Continuum Consulting will partner up with the Region of Waterloo in order to implement Net-zero energy developments and environmentally sustainable housing in the Cambridge West Communities. Many of the deliverables which are found below involve topics discussed at length in our Proposal submitted in late 2018. Since the initial proposal, Continuum Consulting has established a greater and more concise approach involving community engagement through surveys (asking various questions to the identified demographic of first-time homebuyers), a two-step process of the marketing and promotion as well as education and training of Net-zero energy developments focusing on potential developers, builders, and clients/customers. Also included are potential barriers and difficulties which Continuum Consulting have predicted for the Region of Waterloo throughout the process of implementation.

Philosophy & Approach

Throughout the basis of the overall approach, Continuum Consultants have positioned themselves to improve the future while preserving the land's history and culture. Through the implementation of Net-zero energy developments and environmentally sustainable housing we have ensured that the identified approach connects well and is supported with the demonstrated objectives:

1. Understand the current requirements of building Net-Zero developments through analysis, reviews, data, and reports.
2. Ensure that Continuum Consulting stays within the guidelines, highlighted by the city of Cambridge, throughout the project
3. Understanding the market for Net-Zero developments and create a framework for educating developers and potential buyers.

With all major objectives in mind and a set approach, connected with Continuum Consulting's unique and distinctive philosophy, the overall approach will be to partner with the city of Cambridge and the region of Waterloo to successfully implement Net-

zero energy developments in the Cambridge West Community through the specific identified approach.

Research Methodology

In order to obtain the information required to give proper recommendations to the city based off data collected and researched, Continuum Consulting completed 4 phases including: Identifying objectives of the Province and City, Outreach, Case Studies and Technologies/Benefits. Each one of these methods as you will read below, gave consultants a clear visual of better implementation strategies. Each phase shed light on a subject that was crucial to bettering the project, aiding to the materials outlined. Outreach was by far the largest and most time-consuming phase, in which students were surveyed, information was collected, and results were concluded. This phase was crucial to getting a better understanding of a glimpse of the populations current knowledge of the developments, including factors such as price and importance of sustainability.

1. Objectives

During the initial phases of the research process, Cambridge and Ontario documents were looked at in order to define the need of Net-Zero Energy developments in the Cambridge West Community. These needs were determined by primarily looking into the objectives of the city, the province and how Net-Zero Energy Homes would contribute to the completion of these goals. The focus of study in this case are sustainable housing and climate change goals. For example, a clear encourager here is within both the Provincial Policy Statement of 2014 and the Growth Plan for the Greater Golden Horseshoe of 2017 that states how important it is to incorporate climate change into land-use planning, managing growth, and planning for infrastructure. The Growth Plan posits that the best way to address this is through the reduction of greenhouse gas emissions and the ultimate goal of net-zero communities (Government of Ontario, 2017).

The City of Cambridge Official Plan of 2018 goes further to define the details of urban design by including a section for sustainable design which includes the encouragement of energy efficiency in neighborhoods, using renewable energies in roof design, and integrating green building technologies and standards (Cambridge Canada, 2018). There are some commonalities between the goals of the Growth Plan and those in the Cambridge Official Plan of 2018 within the housing and urban development sections. For example, it is important that there is room to allow creativity in design expression

allowing for a diverse range of housing options. This can be achieved through NZEHs due to the unique design process and local technologies and materials that go into the making of these homes.

By defining the goals and objectives of the province, the Greater Golden Horseshoe and the City of Cambridge, it shows how NZEHs can help achieve these goals mainly due to the environmental benefits and design associated with these types of homes. In addition, the benefits of Net-Zero Homes also align with the design principles of the Cambridge West Community itself. Many of the principles have to do with the need for an environment that is connected by trails that encourages outdoor activities and interaction through public spaces in view of natural areas, parks, and design that highlights the land's natural features (Cambridge Canada, 2015). The community plan also mentions the use of sustainable design and energy efficiency (Cambridge Canada, 2015). By constructing Net-Zero developments within the community, the environmental benefits will achieve the goals of sustainable housing, and directly align with the values associated with the aspired community feel and natural spaces for social interaction.

2. Outreach

In order to reach out to other professionals in the field and potential future home buyers, outreach was put in place involving the request of interviews and the completion of a separate survey. The developers of the Cambridge West Community and several developers who have developed Net-Zero Energy Homes were contacted and in person or over the phone interview was requested. Unfortunately, most did not respond or were unavailable to meet, therefore all of the focus shifted to conducting a survey for those currently attending university and/or college. By reaching out to this age range of students, it considers the next generation of buyers who will potentially be buying homes when the Cambridge West Community is completed. A seven-question survey was distributed with the questions focusing on what factors would be the most important to them in purchasing their future home, and the knowledge of Net-Zero Energy Homes, the survey design and questions are shown in Appendix B.

A limitation of the study arises from the final sampling techniques used. A random sampling technique was applied, however over 60% of the respondents are from Wilfrid Laurier University due to convenience. The results show that:

- 81% of participants plan on purchasing a single-detached home in their future. This shows that the plan for Net-Zero Energy Homes to be built as such will most likely agree with these trends.
- When asked to rank 10 different factors in order of importance, the results show that out of the 89 participants 86 had price in their top 5, 52 had sustainability of home and 29 had energy efficiency. This shows that overall price is one of the most important factors in home buying, and that there is a potential market for sustainable housing within the next generation of buyers.

- When asked "How much more would you spend on your future home for it to be environmentally sustainable and energy efficient?", 48% said they would spend over \$15,000.
- In addition to this, 73% of people admitted to not knowing what Net Zero energy homes are.

Overall this study shows that in general single-detached homes will still be in demand by the next generation of buyers, that price is a clear determining factor in buying a home, that there is a potential market for sustainable housing in the future based on importance and the amount people are willing to spend, and finally there is a lack of knowledge surrounding Net-Zero homes for potential homebuyers.

3. Case Studies

West 5 Community - London, Ontario

The west 5 community in London is an overall Net-zero mixed use community in the north-west region of London, Ontario. The project was undertaken by Sifton Properties Ltd. With 450,000 square feet of commercial space, a dynamic central park for various leisure activities, and up to 2,000 townhomes, condos, and apartments, this community has a similar implementation plan to the Cambridge West Community, with both lands starting off as agricultural land towards Net-zero energy developments. Because of this the West 5 Community is a great case study to look at throughout the implementation of Net-zero energy developments.

Feasibility Report for NZEH – Canada

Another past development which can be looked at during the implementation of Net-zero energy developments in the Cambridge West Community is the Feasibility Report for NZEH. This report will be great help in terms of the necessary indicators which we will have to meet during the implementation of the developments. The NZEH constructed and sold 26 R2000 Net-Zero energy developments in cities such as Calgary, Ottawa, Guelph, Laval, and Bedford. With a large portion of the developments being built in Guelph, a neighboring city to Cambridge, their techniques will be helpful in educating our builders and developers in how to properly implement the developments.

Feasibility Study: Municipal Tools for Catalyzing Net-Zero Energy Development – Ontario

This study, performed by S2C Technology Inc. in Ontario looks at 8 development projects across Ontario. In particular, it looks to assess the technical, financial, and policy feasibility to determine how to ensure that Net-zero energy developments are feasible in a specific location. This is a great tool which cannot only be used and referenced but also applied to the Cambridge West Community in order to ensure its feasibility in all aforementioned sectors, not just from an environmentally sustainable outlook.

4. Benefits and Technology

Benefits are crucial in order to really sell these developments, and include factors such as:

- Tax incentives (rebate programs)
- Home Orientation (including natural lighting)
- Energy Bill deductions/savings
- Higher Resale Value (home will sell for more)
- Your Ecological Footprint will be reduced
- Budget Flexibility
- Comfort in your living space (isolation from outside noise) (Bone, 2017)

When investing in a net zero home, buyers will want to know the exact whereabouts of their money. What is it going towards? What are the cheapest options to still classify as net zero ready? These are questions that Continuum has taken into consideration, and created a breakdown in terms of just SOME of the technological aspects involved, as well as benefits associated.

Insulation

Insulation is a major factor in Net Zero Homes, as it is crucial to be completed air tight to limit the loss of heat (especially in the winter). Homeowners are less likely to have to worry about common problems such as leaks as they are guaranteed they are strictly paying for what they use, and are built to a higher standard (Bone, 2017)

Solar Panels

A common visual structure that is pictured when the idea of a “smart home” comes to mind. Although different, solar panels are used whereby homeowners sell excess solar energy back to local utilities. Prices differ base on province (Bone, 2017)

Built in Air System

Reduces allergens, dust as dust, and pollen (Bone, 2017)

Addressing Barriers

By finding trends in the survey data and case studies, some common challenges to Net-Zero growth were determined that are important to address and resolve for the successful implementation of Net-Zero Homes in the Cambridge West Community. The three primary challenges revolve around money, a lack of knowledge of Net-Zero Energy Homes, and a lack of motivation and desire. This section serves to further explain these three barriers followed by a brief introduction on how they can be mitigated.

1. Cost

Simply put, it is more expensive to build and buy Net-Zero Energy Homes. On average, it is \$20,000 - \$25,000 more expensive to buy than a regular home (24hplans, 2018). Considering the financial factors are usually the primary determinants of a project's implementation and success, this is the primary issue that needs to be mitigated. A feasible way of reducing these costs for the developers and potential buyers is from incentive programs. These programs differ widely depending on who is applying to them, for example the developers will be applying to programs offered by Cambridge, whereas homebuyers have to opportunity to apply to those offered by the Waterloo Region, Ontario, and Canada. In order to reduce the most costs for the buyers, the focus is shifted towards first-time homebuyers since many programs are offered exclusively to them. Since Cambridge currently has developer incentive programs, the city should also consider looking into other cities' incentive programs to see if something similar is a possibility for Cambridge. These incentive programs are all further explained in the section below.

2. Lack of Understanding

There is a concerning lack of knowledge surrounding Net-Zero Energy Homes for both potential buyers and developers. For people to be interested in either constructing or buying these types of homes, they need to first be aware of what they are generally in order to be intrigued to learn more. To address this issue it is proposed that a team is created to properly administer promotion and marketing of sustainable housing in the Cambridge area. This utilizes the use of local campaign strategies and social media as

a good way to keep the audience informed and up-to-date on the project as well as positively promote sustainable development on a large scale.

3. Lack of Motivation and Desire

With a lack of knowledge comes a lack of motivation to invest in such projects. This motivation cannot simply be created through promotional and marketing techniques, there needs to be more in order to encourage a person to either buy or develop Net-Zero Energy Homes. This can be accomplished by implementing two types of educational programs: One for first-time home buyers, and another for developers. Reasons for a lack of motivation include a general unfamiliarity of sustainable housing, not understanding the direct benefits, and the lack of opportunity and tools to make it happen. Through educational seminars initiated by the City of Cambridge that are continually advertised by the marketing strategies, the goal is that these reasons will no longer be an issue and will be replaced with the motivation and desire to develop and buy Net-Zero Energy Homes.

Overall, the primary needs for making Net-Zero Energy Homes a reality for the Cambridge West Community include well implemented strategies for promotion and marketing and for educational seminars. In terms of who will implement these recommendations, it is ultimately up to the City of Cambridge to utilize the current organizations and/or institutions within the Waterloo Region to create a partnership and designate two teams for promotion and marketing and for leading educational seminars to be held within Cambridge City Hall. Some possible organizations include the Sustainable Waterloo Region through their programs such as the Regional Sustainability Initiative, The Waterloo Region Environmental Network (WREN), and Reep Green Solutions through their business programs such as Workplace Lunch 'n Learns.

Recommendations: Promotion and Marketing

The most efficient way to promote and market Net-zero energy developments and sustainable housing to the specific demographic of first-time home buyers and the new generation of home buyers is through social media marketing and promotional incentives. Overall, promotion and marketing will be used essentially as the first step in the two-step recommendation process, with the latter being education and training. The main function of this portion of the recommendation is to streamline as many potential clients, developers, and interested pupils as possible, pushing them towards educational seminars, incentive plans, and other various educational events, discussed further in the education and training portion of the report.

1. Campaign Strategies

With social media and the idea of marketing and promotion being so vital in the initial steps of implementation, campaign strategies are at the forefront of importance of the development. Continuum Consulting recognizes that the demographics for the people that will be the ones buying these homes are individuals that are most likely currently in and around post-secondary education. As social media is such a popular method of spreading information fast, and to a large volume of individuals, Continuum proposes to partner with universities across Ontario in hopes to spread the idea to large masses of people. Universities and colleges across Ontario are social hub's and have some sort of Sustainability initiative or group that works with implementing sustainable activities around their campus. Laurier, for example, has the 'Eco Hawks' who run events for the entirety of the student population that allow students to engage with sustainability and learn about it more in the real world by hosting events during Orientation Week (to get first year students thinking about this sort of thing). If all universities and colleges across Ontario spread word and create active programming around Net Zero Homes, especially to large groups during big events such as Orientation weeks for first years, the word would get around faster and general understanding would grow.

According to the survey conducted by Continuum Consulting, approximately 73 % of students did not know what net zero homes were. How is proper implementation and selling of these homes suppose to happen when even post secondary students have no idea what it is that's available? Partnering with universities and colleges across Ontario will allow for the spread of knowledge to occur and to get the word out about what exactly these developments are, where they are, what they cost, and what they actually do (especially in a world that is continuing to go green in a lot of sectors). Students are the next generation of homebuyers and Cambridge should take full advantage of creating a type of marketing team that consists of students who understand the platforms and methods associated with reaching an audience and educating others.

2 .Social Media

Social media will be used to promote and market Net-zero energy developments and sustainable housing in the Region of Waterloo. While there are a number of social media networks which can be explored, Continuum Consulting have identified Facebook and Twitter as the two major social networks going forward.

A Facebook page for Sustainable Housing in the Waterloo Region will be implemented in order to market the service to the population of the region. Of course, anyone is able to view and use this Facebook page to educate themselves on the subject and to learn more about what Net-zero energy developments are, however it will be geared to the

specific demographic, with the key intent to create as many potential clients as possible. There are various tools which can be used on Facebook, such as polls, infographics/images, shared articles, and upcoming events. A big reason as to why Facebook was chosen, arguably as the key and central social network, is due to its overall reach throughout the region and province. According to research, conducted by Algonquin College, Canadians are the most active Facebook users in the world, and over 6 million Ontarians are active users on Facebook. In terms of the identified demographic, first-time homebuyers, three out of four people, ages from 18-30, are active on Facebook.

Twitter will also be used to promote and market Net-zero energy developments, with a more informal platform due to twitter's key function. According to the social network itself, Twitter's main use is to connect people with each other through suggested topics, platforms, and 'in-the-moment updates. Unlike on Facebook, which will be used for projecting and presenting general information, Twitter can be used for more of the promotional aspects. These include promotional twitter contests, updates on sustainable housing in the region, and various polls. Polls are a tool which twitter has, which can be used quite flexibly compared to other platforms, such as Facebook. With the surveys on students' knowledge of Net-zero energy developments being such a pivotal area of the established approach, the use of polls on Twitter throughout the promotion and marketing portion of the approach will add a sense of belonging for those involved, as well as them feeling as if they are a part of the evolution of Net-zero energy developments and sustainable housing in the region of Waterloo.

3. Promotional Incentives

As important as social media marketing is to the promotion of Net-zero energy developments and sustainable housing, promotional incentives are the key driver. One of these incentives, created in order to grab the attention of more potential clients is promotional contests on Twitter. These contests for the potential fans and followers are another technique, essentially hoping that those who enter the contest learn more about Net-zero energy developments and stay invested, not just for the potential free products won, but for the interest in the service itself. This technique will also be used for promotional incentives for potential educational seminars. Free entrance, food, and beverages will streamline more potential clients. Similar to the promotional contests, Continuum Consulting do not necessarily want people only coming out to educational seminars for the free goods involved, however if half the heads of those only coming for the free food and beverages can be turned, Continuum Consulting and the Region of Waterloo will see this as a positive, considering the lack of knowledge and awareness revolving Net-zero energy developments in the area.

Recommendations: Education and Training

The below section is designated for discussing the two educational seminars directed towards first-time homebuyers and developers and builders.

1. First-Time Homebuyers

As previously mentioned, educational seminars tailored to first-time homebuyers is the best approach in order to instill a sense of motivation and desire to buy a Net-Zero Energy Home. First-time homebuyers are more likely to accept the help of others in order to find direction and information on how to prepare for buying a home considering they do not have the experience. In addition, there are many incentive programs offered specifically for first-time homebuyers that can be utilized to offset the additional costs of buying a Net-Zero Energy Home. It is also suggested that local real estate agents are invited to attend so that potential homebuyers can have the opportunity to ask more specific questions. A more detailed handout is provided in Appendix B that can be given to attendees of the seminar and/or used to create a presentation. The educational seminar proposed consists of three focus areas: Buying a home, the benefits of NZEH in the community, and incentives.

Introduction to Home Buying

Since the intended audience of these seminars are first-time homebuyers, it is a good idea to market this seminar as both helping them understand how to go about buying a home, and also how buying Net-Zero Energy Homes is beneficial. This expands the goals of the seminar to attract more homebuyers to attend. Since there is a lot that goes into buying a home, this focus area will serve as a brief introduction by defining some key terms such as mortgage brokers, and lenders, identify the benefits of buying versus renting, and additional helpful resources to utilize such as The Canada Mortgage and Housing Corporation and Financial Consumer Agency of Canada. The purpose here is not to go in depth of what is required to buy a home, rather it is to jump start their own research.

Net-Zero Energy Homes Benefits and the Cambridge West Community

This focus is more directed to NZEHs, what they are and the benefits associated with investing in these types of homes in order to create motivation towards buying them. This includes understanding that NZEHs aim to create as much energy as they consume and through this it allows for many environmental benefits such as reducing one's ecological footprint, reducing greenhouse gas emissions, utilizing renewable energy, and more. It also looks at social and financial benefits, understanding some of the technology that goes into these homes, and looks at how current homeowners of NZEHs and other environmentally sustainable homes feel about living in these types of homes. This focus concludes by introducing the upcoming Cambridge West Community.

Incentive Programs Available

The final focus is critical in reducing the upfront costs of buying a Net-Zero Energy Home by understanding the many incentive programs available. Homebuyers will be given a list of all of these programs, a brief explanation and requirements of each, and where/how to apply. These incentive programs include national programs such as the First-Time Home Buyers' Tax Credit (HBTC), provincial programs such as the Ontario Home Ownership Savings Plan, and regional programs such as the Affordable Home Ownership Program.

2. Builders and Developers

Builder Training

When implementing such a technologically advanced project that revolves around sustainability, it is important to ensure that NetZero homes are meeting all necessary requirements during the construction phase. There are multiple platforms that allow for the proper training for NetZero builders. The CHBA (Canadian Home Builders Association) Net Zero home labelling program provides the industry with well-defined requirements that are needed to recognize a home as Net Zero and Net Zero Ready. The program offers three training courses; CHBA Net Zero Building Science Training, CHBA Net Zero Energy Advisory Training and CHBA Net Zero Sales Training. Each course is conducted by CHBA qualified Net Zero service organizations and is led by highly qualified trainers. In doing so, they assist builders and renovators in designing, modeling and inspecting NetZero homes. The Canadian Home Builders Association is an innovative platform for learning within the residential construction industry. With the help of CHBA programs to make sustainability a priority in home buying, it is their goal to ensure that Canadians become leaders in energy efficient housing.

There are also other educational and training opportunities presented by Kortright Innovation Park which is a centre that aims to enhance the use of sustainable buildings within the Canadian residential construction industry. Kortright offers world class NetZero education in a venue equipped for industry training, research, tours and events. This allows for developers, and builders to take a leading role in the introduction of sustainable communities. Kortright has seven demonstration buildings that provide sites for testing innovations, construction methods, materials and technologies. They are designed to meet the needs of the Canadian housing market specifically and have set targets to meet current requirements for sustainability. Real world demonstrations offered at Kortright allow for experiences beyond a classroom such as learning through natural settings, green building tours and interactive displays. Not only does Kortright conduct research on current technologies, it allows for the training of builders and provides ample opportunities for developers and the public to get involved through public programs and events on environmental education.

Developer: Incentives

Incentive programs are designed to encourage the purchase of NetZero homes, and in doing so encourage developers to take on the project. It is important to inform developers of incentive programs through education and training offered by Kortright Innovation Park, so that they can be implemented for buyers. Such plans that already exist in Cambridge are a tax assistance plan and development charge rebate. A tax assistance plan is a partial or complete waiver of the municipal property tax applicable to the site for a fixed period of time. Eligibility for this waiver can be made to meet certain requirements such as committing to energy improvements, connecting to a district energy system, or any aspect that make a home more sustainable. All of these decisions can be up to the discretion of the developer and the desires of municipalities.

The second incentive plan that is being encouraged by the city of Cambridge is a development charge rebate. Development Charges are fees collected from developers to offset the cost of municipal services for a development such as road maintenance, transit, and water and fire policies. Development charge fees can be either fully or partially rebated in exchange for certain features or benefits that are desired by the municipality. With the innovations that NetZero developments put forth, they should essentially cause less strain on municipal infrastructure than other buildings. This allows for development charge fees to also be reduced with the reduction of strain. Incentive programs provide a platform for education when people are willing to make changes in order to save money. This creates discussion and identifies people who are knowledgeable on the subject of sustainability. Not only will this benefit people financially but will promote environmentally friendly living conditions for Cambridge residents.

3. Other Incentives

In addition to the current incentive programs that exist for developers and first-time homebuyers there are those that exist in similar cities that can be used to inspire potential future incentive programs for Cambridge. If there is the financial feasibility to create similar incentive programs then there would be more opportunities for developers and homebuyers to reduce the costs associated with developing NZEHs thus increasing the likelihood that they will feel motivated to develop and buy them. This includes those surrounding property costs such as the Property Tax Exemption offered by Niagara Falls, Peterborough, Owen Sound and more. This reimburses the developer for all or part of the municipal property tax for a certain period of time and can be made specific to Net-Zero developments. If this is not feasible, other incentive programs should be considered such as the Building Permit Rebate offered by Ottawa and Sudbury which is a total or partial refund to the developer for the cost of the building and development permits based on the inclusion of certain design elements (Satnik, 2018). For Cambridge this could be for implementing Net-Zero design technologies that work to meet municipal environmental objectives.

The city of Cambridge currently does not have any incentive programs specifically for environmentally sustainable and energy efficient housing initiatives. For example, the city of Hamilton has a LEED Grant Program which offers grants to subsidize the additional costs of constructing up to the standard of LEED (Hamilton Planning and Economic Development Department, 2018). The amount is calculated based on the level of LEED certification and lasts for five years (Hamilton Planning and Economic Development Department, 2018). Langley has the Langley Green Building Permit program which is similar to Hamilton's in the sense that it provides more financial incentives the more energy efficient the home is. This is based on the home's performance according to its percentage decrease in energy usage and provides more money for homes that meet green building certification including R-2000 and Net-Zero energy (Satnik, 2018). If the city of Cambridge were to adopt these green building incentive programs, it could be made similar so that Net-Zero developments allow for the highest rebates and developers are encouraged to build more sustainably.

Other environmental incentive programs include those specific to the use of renewable technologies, which are utilized by Net-Zero developments. These can be made for homeowners rather than developers and provide loans or rebates depending on how much energy is produced. For example, the Toronto's Home Energy Loan Program (HELP) provides low interest loans to cover the initial costs of installing energy reducing technologies such as solar hot water heaters and solar PV panels (City of Toronto, 2019). In addition, Edmonton has a Solar PV Rebate Program that offers an additional \$0.15 per watt on top of the province's \$0.75 (City of Edmonton, n.d.). Incentive programs such as these can potentially be adopted by the city of Cambridge to encourage homeowners to make their home a complete Net-Zero Energy Home. Since there is an opt-out option for homebuyers not to have the solar

Conclusions

Continuum Consulting strongly believes in the potential for success of sustainable living through realistic implementation strategies of Net-Zero developments in the Cambridge West Community. By focusing on the importance of this kind of development, whilst understanding and working with stakeholders, Continuum Consulting hopes to make this achievable with support from developers and Cambridge residents. This consulting group is proposing a structured approach that encourages a deep understanding of the importance of NetZero projects through marketing it meticulously and providing education where needed. This final deliverable is based off of research from both local housing markets, the needs of the buyers and developers as well as the barriers and advancements of Net-Zero homes. A framework is provided for future initiatives carried out by the city, focusing strongly on proper marketing and education. Moving forward, this approach will be crucial to the city as it details every aspect of the planned implementation of NetZero homes while taking into consideration the ever-changing industry and preferences of the consumers.

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Appendix A: Survey Design

This survey was conducted by Continuum Consulting for University/College students and was intended to determine what factors are most important in home buying for the next generation of buyers.

1. Do you attend Wilfrid Laurier University?
 - Yes
 - No
2. What would be your preferred living space in your future?
 - Apartment / condo
 - Single detached home
 - Townhouse / semi detached
3. What do you think will be most important to you when you pick a home (pick your top five)
 - Location
 - Aesthetic
 - Sustainability of home
 - Price
 - Size
 - Potential future maintenance
 - Energy efficiency
 - Proximity to urban centers
 - Proximity to green space
 - Kitchen layout
 - Other : _____
4. Please rank each factor in order of significance in the selection of a future home
 1. Location
 2. Aesthetic
 3. Sustainability of home
 4. Price
 5. Size
 6. Potential future maintenance
 7. Energy efficiency
 8. Proximity to urban centers
 9. Proximity to green space
 10. Kitchen layout
 11. Other _____
5. Has sustainable living been a previous consideration for you in this selection
 - Yes
 - No
6. Have you heard of Net-Zero Energy Homes?
 - Yes
 - No

7. Net-Zero Energy Homes are a type of home that works to produce as much energy as it consumes. If you had the means, how much more would you be willing to spend on a future home to make it energy efficient and environmentally sustainable? (The average price of a single detached home in Ontario in 2018 was \$578,000)

- \$5,000 - \$10,000
- \$10,000-\$15,000
- \$15,000- \$20,000
- \$20,000- \$25,000
- \$25,000 - \$30,000
- > \$30,000
- Would not be willing to spend more money on a home to make it energy efficient and environmentally sustainable.



Appendix B: Secondary Materials- First-Time
Homebuyers Seminar