



BAKER DISTRICT REDEVELOPMENT ONE PLANET ACTION PLAN

Prepared by Windmill Development Group in Partnership with the
City of Guelph
May 2020

© 2020, Windmill Development Group. All rights reserved.

This plan was prepared by Windmill Development Group with assistance from the Green Municipal Fund, a fund financed by the Government of Canada and administered by the Federation of Canadian Municipalities. Notwithstanding this support, the views expressed are the personal views of the authors. Neither the Government of Canada nor the Federation of Canadian Municipalities claims ownership of, or accepts any responsibility for, these views.

What's Inside?

- i. **A message from the City of Guelph**

- 1. **Chapter 1: The Baker District Redevelopment**
What makes this development so special?

- 5. **Chapter 2: Understanding this document**
What are outcomes, indicators and targets?

- 7. **Chapter 3: Guelph's ecological footprint**
How are we doing on sustainability?

- 11. **Chapter 4: Baker District One Planet Action Plan**
How can we live within the limits of our resources?
 - 13. 4.1 Local and Sustainable Food
 - 15. 4.2 Zero Carbon
 - 17. 4.3 Travel and Transport
 - 19. 4.4 Health and Happiness
 - 20. 4.5 Equity and Local Economy
 - 21. 4.6 Culture and Community
 - 22. 4.7 Land Use and Wildlife
 - 23. 4.8 Sustainable Water
 - 24. 4.9 Sustainable Materials
 - 25. 4.10 Zero Waste

- 27. **Chapter 5: Baker District One Planet Action Plan**
What's next?

- 31. **Appendices**
 - 32. Appendix A: Performance Requirements
 - 36. Appendix B: Glossary



Guelph City Hall (Source: Guelphtoday.com)

A message from the City of Guelph

The Baker District is an exciting new City of Guelph development project. It will transform a vacant downtown parking lot into a unique mixed-use development that includes a Central Public Library, something the citizens of Guelph have been anticipating for more than a decade.

This is no ordinary development. By pursuing international endorsement as a **One Planet Living community**, the Baker District is aiming to become one of the world's most sustainable communities. If endorsement is achieved, the Baker District will become only the second One Planet Living community in Canada and the third One Planet Living Community in North America.

One Planet Living is an international planning and sustainability framework that aims to reduce the negative environmental and social outcomes associated with the way we design, build and interact with our communities. Its vision is of a world where people enjoy happy, healthy lives within the environmental limits of our one and only planet.

To help us in this ambitious quest, in 2018, the City of Guelph selected **Windmill Development Group (Windmill)** to lead the redevelopment of the Baker District. Windmill shares our commitment to environmental, social and economic responsibility, and we are excited to collaborate with them on this groundbreaking project.

As part of the One Planet Living mandate, Windmill has prepared this document, the **Baker District One Planet Action Plan**. This Plan outlines the anticipated outcomes and targets for the Baker District. It will act as our sustainability roadmap across the life of the project. It is a living document that will evolve throughout and beyond the design phase to include strategies that address the Baker District's construction, operations and community life.

Establishing a One Planet Living community in the heart of downtown Guelph is important to the City. Not only will it take us one step closer to reaching our goal of becoming a net zero carbon city by 2050, it will also foster a more sustainable food economy and a more efficient and energy-conscious transportation system offering alternative ways of moving.

To that end, the Baker District is the first of its kind in Canada to use **ecological footprinting** to inform the strategies that will reduce the project's overall impact. You can learn more about this interesting sustainability tool and Guelph's ecological footprint in the report that follows.

By developing this One Planet Action Plan, both the City of Guelph and Windmill hope to inspire other municipalities and developers across Canada to step up and deliver equally ambitious measures within their own new development projects.

Perhaps more importantly, we aim to inspire the citizens of Guelph to become partners in the City's sustainability journey. The City can and will provide the framework and the tools; it can and will lead by example through developments like the Baker District. But in the end, our success will depend on the collective commitment and efforts of our residents.

As climate change continues to dominate headlines, and as Canada's Paris Accord targets appear increasingly out of reach, collaborations like the Baker District will become even more important. Developments like the Baker District push us to find innovative ways to meet our local and international sustainability obligations, ensuring a healthy, happy future for generations to come.

Name
Title



THE BAKER DISTRICT REDEVELOPMENT

1.0 The Baker District Redevelopment

What makes this development so special?

The Baker District Redevelopment represents an opportunity to reshape Guelph's downtown. To inject a new sense of possibility. Following in Guelph's 'green' tradition, the transformative redevelopment of the Baker District will be a model of urban intensification, showcasing sustainability and civic participation.

A transformative development.

The redevelopment of Baker Street will transform the existing parking lot and properties situated on the north end of Wyndham Street North into a vibrant mixed-use development that contributes to the economic revitalization of downtown Guelph.

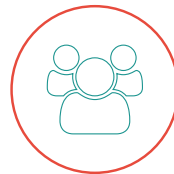
The redeveloped Baker District will include a new central library for the Public Library of Guelph, as well as residential, commercial and institutional space, public parking, and an urban square.

A model for urban intensification.

The Baker District redevelopment is being designed to achieve the following seven urban planning goals:



1. Attract more visitors to the downtown



2. Increase the downtown residential population



3. Improve connectivity for pedestrians, cyclists, and visitors



4. Establish new architectural landmarks



5. Add more public parking



6. Offer affordable housing



7. Incorporate best practices in environmental design

A One Planet Living community.

The Baker District is pursuing international endorsement as a One Planet Living community.

One Planet Living is a planning and sustainability framework that guides developers and municipalities on how to reduce the negative environmental and social impacts associated with the way we design, build and interact with our communities.

One Planet Living is one of the most holistic sustainability frameworks available around the globe. By encouraging projects to consider sustainability from a **triple bottom line perspective – people, planet and prosperity** – and across all project phases – design, construction, operation, community living – One Planet Living helps create thriving, ecologically responsible communities.

We have used One Planet Living and its 10 principles as the framework for the design of the Baker District. To help us determine which among the One Planet Living's 10 principles can deliver the deepest impact for the development and the City of Guelph as a whole, we have also used a process called **ecological footprinting**. This is a first for a Canadian development of this type. We explain ecological footprinting and the results of our work in Section 3.

One Planet Living's 10 guiding principles.





A group of Guelph organizations and volunteers planting Guelph's first Community Food Forest (source: www.guelphtoday.com)

An opportunity for Guelph's citizens to do their part.

Achieving One Planet Living is a journey that requires the collective efforts of an entire community, from policymakers and city planners, to developers and citizens.

In this One Planet Action Plan, you will learn about the objectives and targets we have identified to ensure that the Baker District is designed to be built and operated in a way that reduces its ecological footprint.

While the Baker District will champion best practices in sustainable design, the impact of the district is largely dependent on the lifestyle choices of its residents and visitors. For this reason, the project is fortunate to be located in the City of Guelph, a Canadian leader of climate action.

We hope our commitment to sustainability inspires you to join us in creating a more sustainable future for the Baker District, the City of Guelph and our planet.

UNDERSTANDING THIS DOCUMENT

The Baker District One Planet Action Plan addresses each of the 10 One Planet Living Principles with outcomes, indicators and targets.



2.0 Understanding this document

What are outcomes, indicators, and targets?

This plan includes outcomes, indicators and targets.



Project Outcomes. These are broad statements that express a desired condition to be achieved for the specific local context.



Indicators. These are performance metrics which the Baker District will track to monitor progress and successes.



Targets. These are the desired level of performance associated with each indicator.

Contributions from many people.

This Plan reflects input and ideas from many different people. The outcomes were identified early in the process and are largely based on engagement with the City, consultants and the citizens of Guelph.


The targets were informed by the results of the ecological footprinting study as well as the combined knowledge of Windmill, sustainability consultants Urban Equation, and the design team.

A living plan.

This One Planet Action Plan is the guiding document for the Baker District redevelopment. It will be used throughout the development process to check that sustainability goals for the development are meaningfully addressed.

This document is a living Plan. The outcomes and targets noted in this Plan are aspirational goals that the Baker District will strive to achieve. As the Baker District design progresses, the outcomes and targets may evolve to reflect new opportunities and constraints. The Plan will also be adapted over time to reflect new thinking, technological innovations, and emerging local and global trends.

As the project moves beyond the design phase, the Plan will also evolve to include strategies that address the Baker District's construction, operations and community life.



GUELPH'S ECOLOGICAL FOOTPRINT

True sustainability will be achieved when every person can maintain a high standard of health and wellbeing while using only their fair share of the Earth's resources. This is what One Planet Living is all about.

3.0 Guelph's ecological footprint

How are we doing on sustainability?

By understanding the ecological footprint of Guelph, we can better determine what it takes for residents of the Baker District to truly achieve One Planet lifestyles.

The resources we use versus the resources we have.

The measure of the resources we use compared to the resources we have available on this planet is what we call our **ecological footprint or ecofootprint**. Our ecofootprint gives us a good indication of how sustainable our lifestyles are in the long run.

The Intergovernmental Panel on Climate Change's (IPCC) Special Report on Global Warming of 1.5°C, released in October 2018, is an important document for our planetary future. That report included more than 450 lead authors, 800 contributing authors and over 2500 scientific expert reviewers. It has two primary conclusions:

- the effects of climate change are already being felt, and
- without rapid and far-reaching transitions in land use, industry, transport, food systems and lifestyle choices, those effects will continue to worsen.

The IPCC is clear: If we are to protect the health and wellbeing of people, communities and ecosystems, global warming must not exceed 1.5°C. This will require reaching net zero carbon by 2050, alongside meaningful and fundamental changes to the way we live.

True sustainability will be achieved when every person can maintain a high standard of health and wellbeing while using only their fair share of the Earth's resources. This is what One Planet Living is all about.

50%

Globally, we are currently consuming the Earth's resources 50 per cent faster than the planet can replenish.

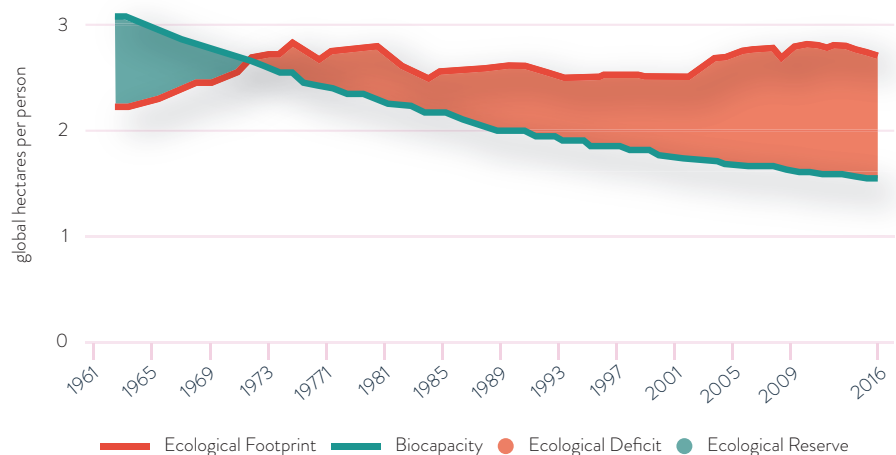
5 x



Consumption in North America is higher than in many other regions around the world. If everyone lived like the average North American, we would require five planets' worth of resources to keep going.

Ecological Deficit

The Earth is experiencing an increasing ecological deficit—and we are the cause. As depicted in the chart to the right, people consume the Earth's resources on a global scale at a faster rate than the planet can replenish. This process, referred to as 'ecological deficit', leads to degradation of the environmental resources and ecosystems we depend upon. By changing our consumption habits, we can address this ecological deficit.



Source: Global Footprint Network, 2019 National Footprint Accounts

2.7x

Guelph's ecofootprint is around 2.7 times higher than the global target, which leaves lots of room for improvement.

Our ecological footprint and community design.

The idea that we should consider our ecological footprint when designing a community is relatively revolutionary. The Baker District presented an opportunity to pursue this idea.

To determine an approach to sustainability for the Baker District that would reduce the ecological footprint of its residents and visitors specifically, we first needed to understand Guelph's overall ecological footprint.

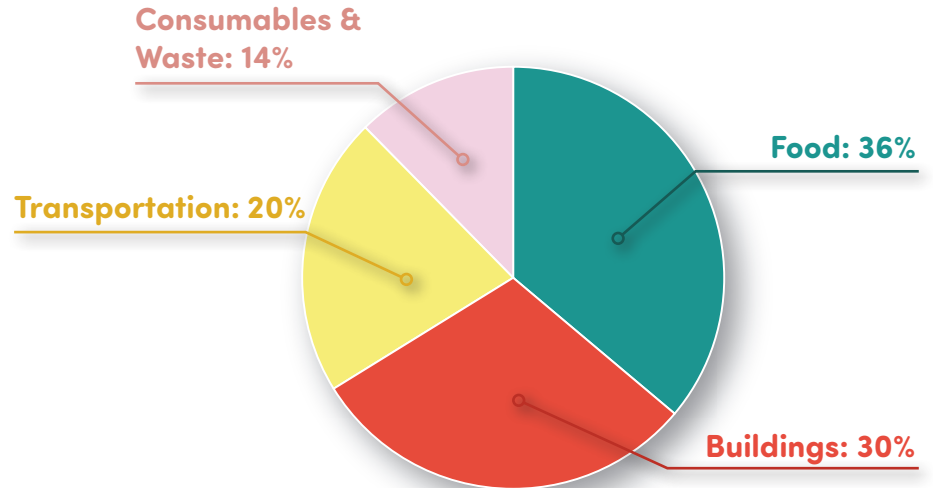
The ecofootprint baseline analysis was carried out by the team of Urban Equation and Cora Hallsworth Consulting using the ecoCity Footprint Tool developed by Dr. Jennie Moore. It revealed that the City of Guelph's ecofootprint is just under 4 global hectares (gha). That means that the average citizen of Guelph uses 4 gha's worth of resources. To meet the needs of all 135,000 Guelphites, the City would need an area twice the size of Wellington County.

How does that compare with the ideal target footprint for living sustainably within the one and only planet we have?

To live within our one planet's worth of resources, the target footprint per person is approximately 1.5 global hectares (gha)¹. This is based on the fact that, on average, there is about 1.7 gha of ecologically productive land available for each person. However, this number is constantly decreasing due to population growth, changes in land use, and increasing consumption, which is why the target footprint is 1.5 gha.

¹Based on a preliminary footprint analysis by Cora Hallsworth Consulting. This is subject to change. This analysis will be finalized for the final One Planet Action Plan report.

Guelph's baseline ecofootprint breakdown.²



What does Guelph's ecofootprint mean for the Baker District?

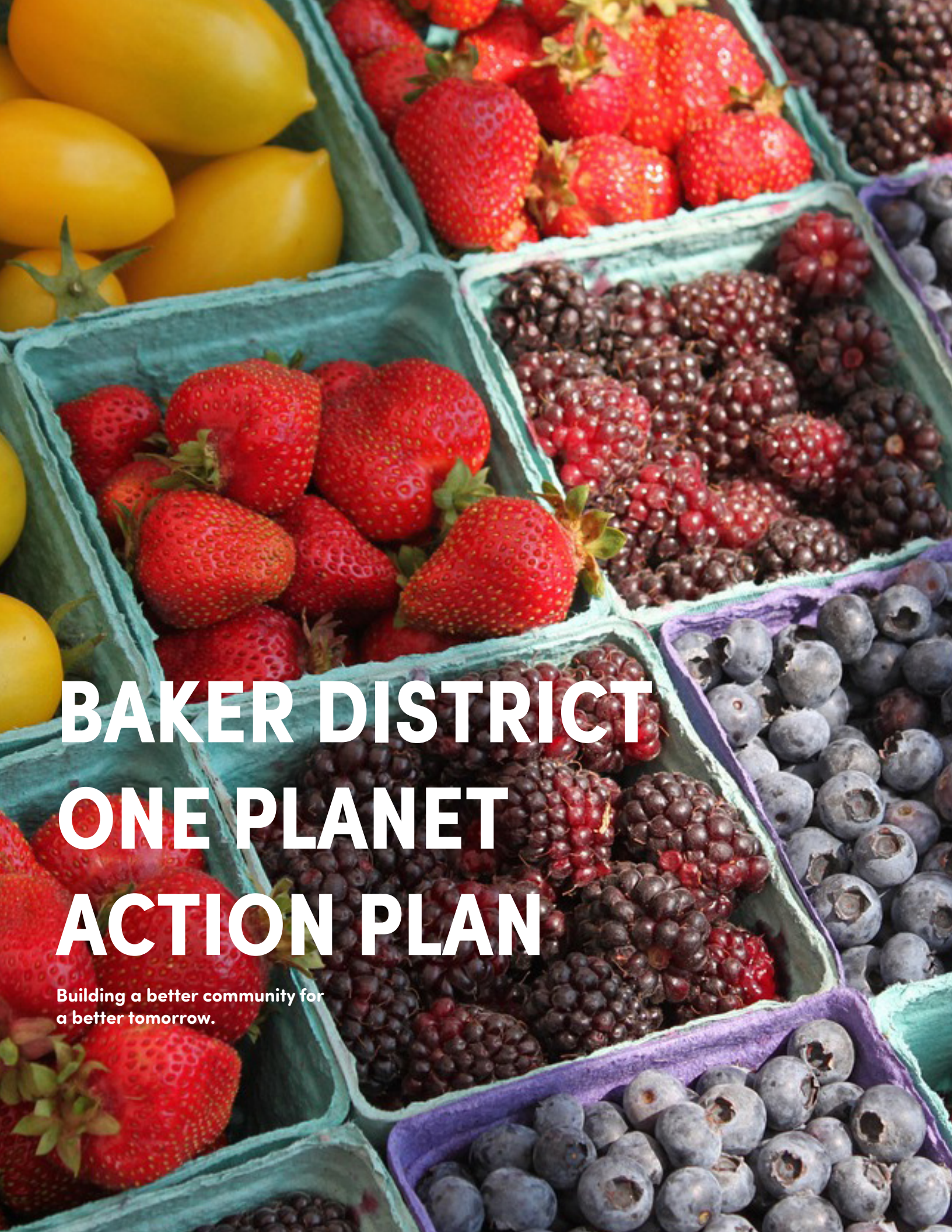
As you can see from the pie chart, food consumption and buildings contribute the most to the City of Guelph's ecological footprint. Food consumption accounts for 36% of the overall footprint, while buildings account for 30%. Transportation is next at 20%, followed by consumables and waste at 14%.

Understanding Guelph's ecofootprint was invaluable to the development's designers and sustainability consultants. This information allowed us to identify which of the One Planet Living's 10 principles could deliver the greatest sustainability impact.

By developing strategies to reduce the strain placed on the environment at Baker District by buildings, food systems and transportation, we can reduce the ecological footprint of the development's residents and visitors – ideally to the global target of 1.5 global hectares. We are calling these three areas Priority Principles.

For purposes of having this Plan endorsed by One Planet Living, we refer to these three impact areas by their One Planet Living Principle names: Local and Sustainable Food (page 13), Zero Carbon (page 15) and Travel and Transport (page 17).

² Source: Cora Hallsworth Consulting



BAKER DISTRICT ONE PLANET ACTION PLAN

Building a better community for
a better tomorrow.

4.0 Baker District One Planet Action Plan

How can we live within the limits of our resources?

The following One Planet Action Plan includes our aspirational outcomes, indicators and targets for the Baker District. These outcomes, indicators and targets will guide our design work. While we will strive to achieve these outcomes and targets where possible, we acknowledge that some may be deemed unfeasible as the project progresses. The Action Plan is a living document that will be continually updated as the project evolves. The OPL principles are addressed in the following order:



Priority Principle #1: Local and Sustainable Food



Priority Principle #2: Zero Carbon



Priority Principle #3: Travel and Transport



Health and Happiness



Equity and Local Economy



Culture and Community



Land Use and Wildlife



Sustainable Water



Materials and Products



Zero Waste

PRIORITY PRINCIPLE #1

Guelph's ecological footprint:

Food: 36%

- Total gha: 183,000
- Total gha/ca: 1.4

Buildings: 30%

Transportation: 20%

Consumables & waste: 14%

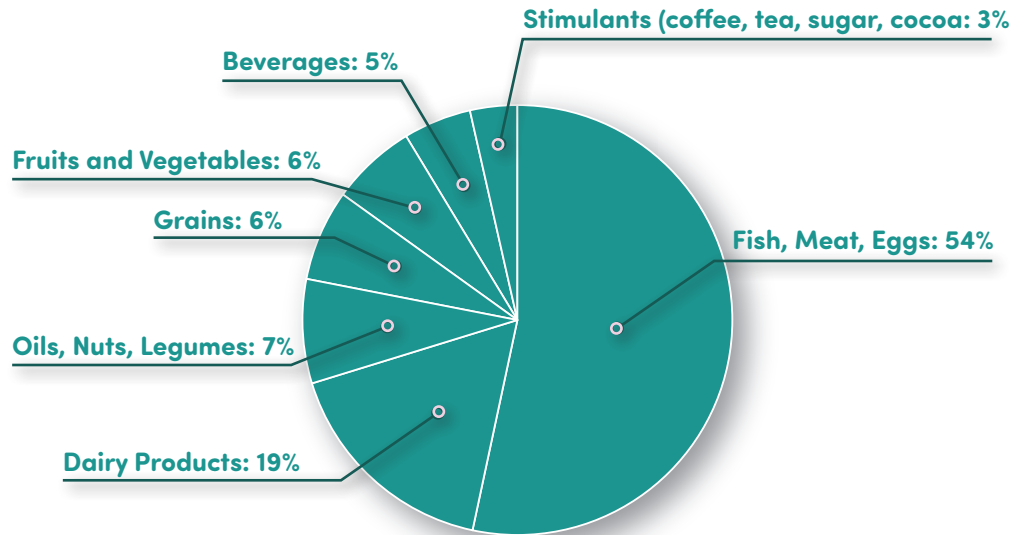
4.1 Local and Sustainable Food.

Promoting sustainable, humane farming and healthy diets that are high in local, seasonal, organic food and vegetable protein.

Food is a Priority Principle for the Baker District.

Local and Sustainable Food is one of the 10 One Planet Living Principles we have identified as a Priority Principle for the Baker District. That's because, as shown on the graph on page 10 food makes up 36% of Guelph's ecofootprint.

Of that 36%, meat consumption makes up just over half of the ecofootprint, followed by consumption of dairy products. In particular, red meat and cheese dominate the environmental impacts related to meat and dairy consumption. The following chart shows the breakdown of Guelph's food ecological footprint⁴.



Aligning with the City of Guelph's goals.

This Principle aligns with Guelph's smart city initiative, Our Food Future, which seeks to create the first circular food economy in Canada. The project will leverage the resources and energy from Guelph's dynamic food community to make the Baker District a hub for urban agriculture and food responsibility.

To select the indicators and targets for this Priority Principle, we drew on world-renowned research and global best practices and leveraged the work of the many local food experts in Guelph.

⁴ Source: Cora Hallsworth Consulting



Outcome



Indicator



Target

LF1

Baker District provides on-site local food production opportunities to improve healthy food accessibility and foster community spirit.

of on-site food growing strategies demonstrated and accessible to residents and the public

At least one strategy accessible to residents and the public, respectively

LF2

Baker District supports sustainable and local agriculture in Guelph/Wellington.

% of Baker District residents whose food purchases (by value) include at least 25% organic, local, sustainably grown or fair trade items

>70%

LF3

Baker District aligns human food consumption with the Planetary Health Diet to reduce on-site food-related emissions.

of annual activities on-site that promote the Planetary Health Diet

At least one

LF4

Baker District helps to create a sustainable, nutritious and accessible food system in Guelph by supporting local food-related businesses/ organizations.

of partnerships with local agri-businesses and food-related organizations

At least one

LF5

Baker District produces less food waste.

% reduction in avoidable household food waste (compared to current Guelph average of 2.98 kg)

50%

PRIORITY PRINCIPLE #2

Guelph's ecological footprint:

Food: 36%

Buildings: 30%

- **Total gha: 149,000**
- **Total gha/ca: 1.1**

Transportation: 20%

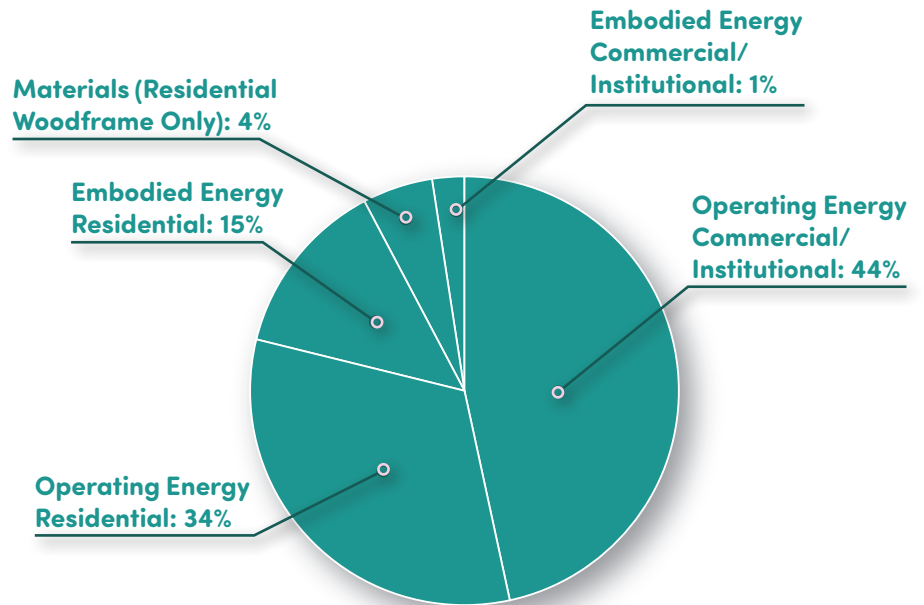
Consumables & waste: 14%

4.2 Zero Carbon.

Making buildings energy efficient and supplying all energy with renewables.

Zero Carbon is a Priority Principle for the Baker District.

Zero Carbon is one of the 10 One Planet Living Principles we have identified as a Priority Principle for the Baker District. That's because the carbon footprint associated with buildings makes up 30% of Guelph's overall ecofootprint. The ecofootprint of buildings in Guelph is dominated by operating energy, followed by embodied carbon. The following chart shows the breakdown of Guelph's buildings' ecological footprint⁶.






Aligning with the City of Guelph's goals: Aiming for zero carbon.

The City of Guelph plans to be a zero-carbon community by 2050. We are striving to make the Baker District a zero-carbon community and are exploring all opportunities to do so. The outcomes, indicators, and targets for the Zero Carbon Principle have been developed with this goal in mind. As the design of Baker District evolves, our understanding of the feasibility of creating a zero-carbon district—a highly ambitious undertaking—will become much clearer.

⁶ Source: Cora Hallsworth Consulting

What is a zero carbon district?

To align with industry, we use the definition outlined in the Canada Green Building Council's (CaGBC) Zero Carbon Building (ZCB) Standard. The CaGBC ZCB Standard defines a zero-carbon building as a highly energy efficient building that produces onsite, or procures, carbon-free renewable energy or high-quality carbon offsets in an amount sufficient to offset the annual carbon emissions associated with building materials and operations.

 Outcome	 Indicator	 Target
ZC1 Baker District uses passive measures to manage building heat loss and cooling loads.	Thermal Energy Demand Intensity (TEDI) for all buildings (kWh/m ² /yr)	34 kWh/m ² /year
ZC2 Baker District is a Zero Carbon District.	GHG emissions from all buildings	0 Net Emissions*
ZC3 Baker District reduces embodied carbon.	Total Global Warming Potential, GWP, (in kg CO ₂ e) for each building based on all envelope and structural elements	1 Embodied Carbon Report to inform future development

Net emissions will depend on the final system selection, and acceptance/support from the City of Guelph.



PRIORITY PRINCIPLE #3

Guelph's ecological footprint:

Food: 36%

Buildings: 30%

Transportation: 20%

- **Total gha: 87,000**
- **Total gha/ca: 0.7**

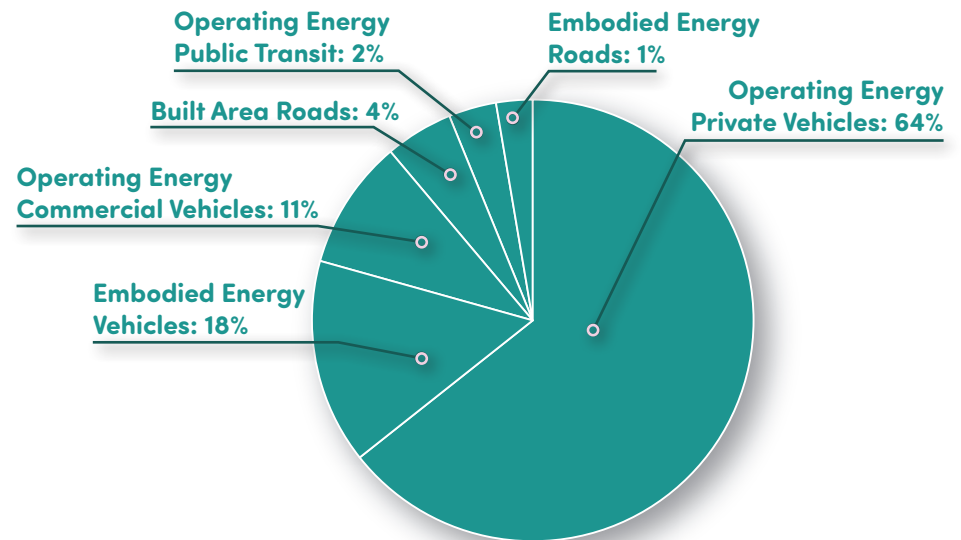
Consumables & waste: 14%

4.3 Travel and Transport.

Reduce the need to travel, and encourage walking, cycling and low carbon transport.

Transportation is a Priority Principle for the Baker District.

Travel and Transport is one of the 10 One Planet Living Principles we have identified as a Priority Principle for the Baker District. That's because, at 20%, transportation is the third highest consumption area in Guelph's ecofootprint. The following chart shows the breakdown of Guelph's transport ecological footprint⁵.



Aligning with the City of Guelph's goals.

The Baker District seeks to address many of the City's and the public's transportation priorities, including:

- promoting active transportation;
- encouraging the use of public transit;
- reducing traffic congestion; and
- providing adequate parking for both residents and visitors to the Baker District.

The transportation outcomes for the Baker District are designed to achieve these priorities while also enabling truly transformative and sustainable transportation practices.

⁵ Source: Cora Hallsworth Consulting



Outcome



Indicator



Target

TT1

Baker District enables non-auto and active transportation trips.

% of trips made by residents using non-carbon modes of transport

70%

of secure bicycle parking spots

250

TT2

Baker District provides parking infrastructure that is adaptable and flexible for future re-use and growth.

% of parking spots designed to be EV-ready

80%

% of parking spots equipped with EV charging stations

20%

TT3

Baker District enables 'micro transit', including carshare and rideshare.

% of dwelling units within 400 meters' walking distance of at least one vehicle in a vehicle-sharing program

100%

TT4

Baker District includes public transit connections to, from, and within the area.

% of visitors arriving and departing the site by transit

TBD by City of Guelph (Higher than the city-wide and downtown statistics).



4.4 Health and Happiness.

Encouraging active, social, meaningful lives to promote good health and wellbeing.

 Outcome	 Indicator	 Target
HH1 Baker District residents and workers are happy.	% of residents and workers who say they're 'happy' with their lives	75%
HH2 Baker District residents are among the most physically active in Canada.	# of recreational facilities on site and/or within an 800 meter walking distance	At least 1
HH3 Baker District residents and workers enjoy high levels of social, mental, and emotional well-being.	% of residents and workers who indicate an overall satisfaction with their health	85%



4.5 Equity and Local Economy.

Creating safe, equitable places to live and work which support local prosperity and international fair trade.

Outcome	Indicator	Target
EE1 Baker District includes affordable housing. ³	% of total residential units that are affordable housing units	12%
EE2 Baker District is integrated into the local community. There are opportunities for local businesses and social entrepreneurship.	% of retail space allocated to independent, local, and/or ethical businesses	50%
EE3 Baker District residents, workers and visitors practice environmentally and socially responsible procurement practices.	% of residents, workers and visitors who report purchasing from sustainable sources, such as Rainforest Alliance Certified, Fair Trade, or the Forest Stewardship Council	50%
EE4 Baker District is a mixed-use, intergenerational community. It is safe and accessible, and it attracts a diverse mix of residents.	Simpson Diversity Index (measures diversity of housing types)	0.3 to 0.6

³The final affordability component will be a function of successfully working with various programs and advisors, including the City and other housing providers.



4.6 Culture and Community.

Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living.



Outcome



Indicator



Target

CC1

Baker District creates an identity and sense of place by acknowledging Guelph's cultural heritage, history, and the sense of a community of neighbourhoods.

of publicly open events and/or classes held per year within community spaces

12

CC2

Baker District promotes a sense of belonging and inclusion, regardless of physical ability, ethnic origin, age, or economic means.

% of residents actively involved in their community

>70%

CC3

Baker District's design incorporates beauty.

of design features intended solely for human delight

3

CC4

Baker District nurtures a culture of sustainability that values environmental and social advocacy, participation, and volunteerism.

% of workers and residents who report increased awareness of sustainability issues

>80%



4.7 Land Use and Wildlife.

Protecting and restoring land and marine systems for the benefit of people and wildlife.

Outcome	Indicator	Target
LN1 Baker District contributes to improved biodiversity in downtown Guelph.	% of the site with native, adapted (non-invasive) or drought-tolerant vegetation and pollinator species	10%
LN2 Baker District helps reduce the impact of the heat island effect on human and wildlife habitat.	% of roof surfaces that meet initial surface reflectivity requirements of SRI > 82 OR are vegetated	75%
LN3 Baker District includes multifunctional spaces that enhance wellbeing and provide access to biodiversity.	% of site area dedicated as open and multifunctional space % of residents who report increased time spent outdoors when surveyed	TBD 50%
LN4 Baker District helps minimize the effects of light pollution.	Uplight and Light Trespass Specifications for Exterior areas	Meet LEED v4 Rating System



4.8 Sustainable Water.

Using water efficiently, protecting local water resources, and reducing flooding and drought.

 Outcome	 Indicator	 Target
SW1 Baker District residents and businesses use less indoor potable water usage.	% reduction in potable water consumption (compared to baseline)	40%
SW2 Baker District uses non-potable water for non-food landscaping.	% of non-potable water used in non-food landscaping	100%
SW3 At Baker District, groundwater and surface water resources are protected from contamination.	% reduction in Total Suspended Solids in stormwater leaving the site	80%
SW4 Baker District nurtures a connection to water through engagement and education.	# of water features on site	At least 2



4.9 Materials and Products

Using materials from sustainable sources and promoting products which help people reduce consumption.



Outcome



Indicator



Target

MP1 Baker District uses materials, products and services with positive social and environmental benefits.

% of permanent building materials (by cost) that are at least one of: extended producer responsibility, bio-based materials, wood products, materials reuse, recycled content, and/or local

25%

MP2 Baker District promotes reduced consumption and sharing of resources.

of programs implemented to encourage the sharing of resources

1



4.10 Zero Waste.

Reducing consumption, reusing and recycling to achieve zero waste and zero pollution.

Outcome	Indicator	Target
ZW1 Baker District residents, workers and visitors generate less waste.	% reduction in total solid waste	50%
ZW2 At Baker District, reuse, recycling and upcycling is used to divert residential and institutional waste from landfills.	% of commercial / institutional waste diverted from landfill % of residential waste diverted from landfill	75% 75%
ZW3 At Baker District, the amount of demolition and construction waste sent to landfills is minimized through reducing, reusing, recycling, and refurbishing.	% of construction waste diverted from landfill (by weight or value) % of concrete and asphalt demolition waste diverted from landfill (by weight or value)	75% TBD



WHAT'S NEXT?

The beginning of a journey.



4.0 Baker District One Planet Action Plan

What's next?

The City of Guelph and Windmill recognize that this One Planet Action Plan for the Baker District is just the beginning of a much longer journey. While we aspire to achieve the outcomes identified in this report, much work remains.

Performance requirements will inform the Baker District's design.

To meet the specific targets under each Principle, Windmill has identified a set of performance requirements. These performance requirements will help inform the design of the Baker District. As the project progresses through its other stages – construction, operations and community life – similar performance requirements will be developed and confirmed.

The performance requirements outlined in Appendix A are based on input from the community, from Windmill's experience developing precedent-setting sustainable communities and from best practices in sustainable design. The performance requirements are intended to keep the Baker District on track in realizing its broader sustainability objectives.

While we will strive to achieve the performance requirements herein, we appreciate that the feasibility of certain performance requirements will become clearer as the project's design evolves.

One Planet Living endorsement will reward our efforts.

The Baker District is pursuing international endorsement as a One Planet Living community. This report will be submitted to Bioregional, the third-party verifier of One Planet Living community plans, who will evaluate Baker District's outcomes, indicators, targets and performance requirements.

If Bioregional endorses the project's One Planet Action Plan, Baker District will become only the second One Planet Living community in Canada and the third in North America.

Submitting this report for endorsement is not an end in itself. Rather, it sets up a relationship with Bioregional, giving the Baker District team access to Bioregional's expert knowledge on how leading sustainable communities are being developed across the globe. Throughout the endorsement process, Bioregional will share feedback and recommendations on how the Baker District One Planet Living Plan can be improved to further its impact.

Be part of our One Planet Living journey.

The Baker District One Planet Action Plan is a living Plan. Once the Urban Design Master Plan has been approved, this Plan will be updated to include technical performance requirements for the construction, operations and community life stages of the development. We will also continue to update the One Planet Action Plan as new thinking, technological innovations, and local and global trends emerge. In this way, we will ensure the Plan stays meaningful, relevant and impactful.

More exciting to us than creating the Baker District One Planet Action Plan is the collaborations it is fostering and the actions it is inspiring in everyone involved.

The project team has set the conditions to create an ecologically responsible, thriving community at the Baker District. But truly achieving One Planet Living is dependent on the lifestyle choices of those who will work, live and play within the community.

We hope this Plan inspires innovators, businesspersons, civic and community actors, and all the citizens of Guelph to join us in delivering a model sustainable community at the Baker District. Together, we can live happily, healthfully and sustainably.

Equity + Local Economy

Creating safe, equitable places to live and work which support local prosperity and international fair trade

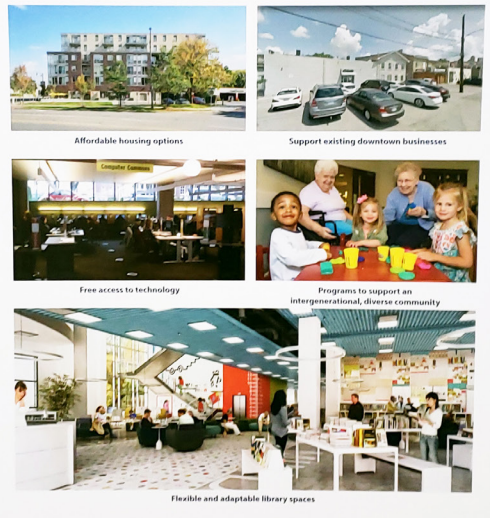
Goal statements

Vote for your favourite!
Use a sticky note provided.

- Develop innovative housing to meet affordable housing for all socio-economic groups
- Integrate Baker District in to the local community and increase economic opportunities for local businesses
- Create opportunities to advance social entrepreneurship by creating flexible and adaptable spaces to support programming for not-for-profit organizations
- Engage the users of the site, including residents, visitors and employees in environmentally and socially responsible procurement practices
- Create a mixed-use, inter-generational community that is accessible, and encourages a diversity of residents

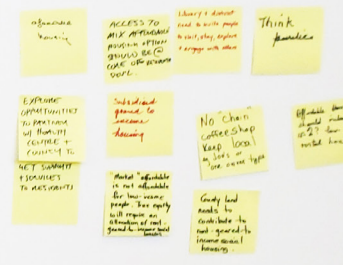
Equity + Local Economy

The images below represent potential strategies to meet the draft goal statements. They are meant to inspire your feedback and imagination.



Equity + Local Economy

What did we miss? What are your ideas for equity and local economy at Baker District?
Record your feedback below!

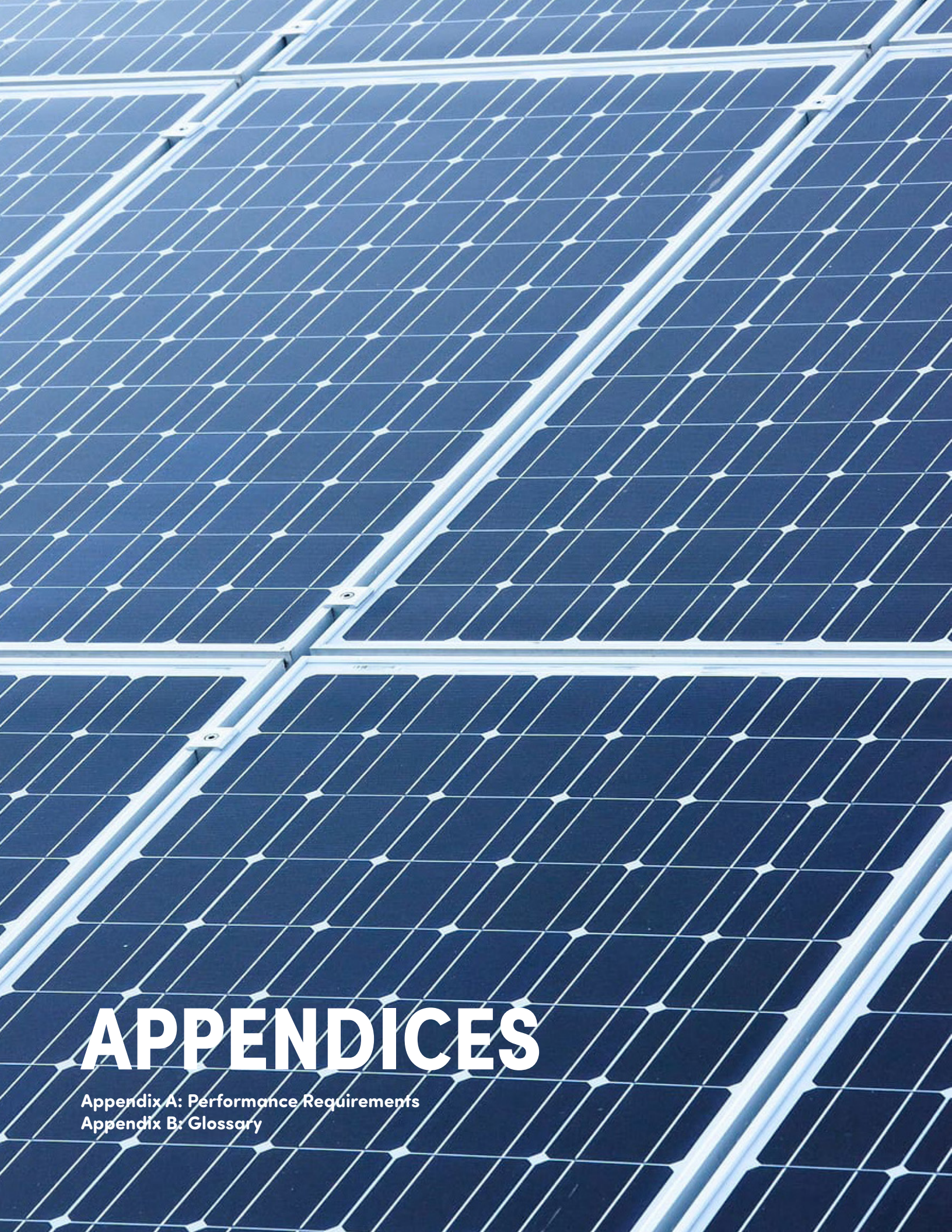


Results from our first One Planet Living public engagement session held January 15th, 2019.

Stay up to date. Have your say.

You can stay current on the Baker District's development process and the One Planet Living journey in particular at: <https://www.mybakerdistrict.com/>.

We would also love to hear your feedback on this Plan. To do so, please send your comments via Guelph's public engagement website: haveyoursay.guelph.ca.



APPENDICES

Appendix A: Performance Requirements

Appendix B: Glossary

Appendix A

Performance Requirements

OPL Principle	Intent	Requirement	Responsibility
H&H	Provide publicly accessible water supply	Install 1 universally designed drinking water fountain in the public square.	City of Guelph/Landscape Architect
H&H	Provide access to fitness amenities	Provide fitness amenities on site.	Architect/Windmill
H&H	Provide enhanced daylight access	Optimize light penetration in at least 75% regularly occupied areas for residential, commercial and institutional buildings.	Architect
H&H	Ensure exceptional air quality to indoor spaces	MERV 13 filters on ventilation systems that supply outdoor air to occupied spaces.	Mechanical Engineer
H&H	Capture particulates from occupant shoes at all regularly used entrances to the project	Install permanent entryway systems at least 3 meters long in the primary direction of travel, at all regularly used exterior entrances. These can include grates, grilles, rollout mats, etc.	Architect
H&H	Minimize the leakage of combustion gases into the occupied space of the home	Do not install any fireplaces or woodstoves.	Windmill
E&E	Ensure retail strategy complements the existing business community	1 x Retail Strategy.	Windmill
E&E	Provide 12% of all suites in the project as affordable	12% of all suites in the project as affordable. The final affordability component will be a function of successfully working with various programs and advisors to incorporate this affordability objective, including working with City Programs and other housing providers.	Windmill/City of Guelph
E&E	Include a sufficient variety of housing sizes and types in the project	Design to achieve a Simpson Diversity Index score of >0.3 to <0.6 (Current design is compliant).	Architect
E&E	Make it difficult to carry out inappropriate activities	Incorporate the principles of Crime Prevention Through Environmental Design Principles (CPTED).	Architect/Landscape Architect
C&C	Design spaces to support permanent and rotating public art installations	Endeavor to provide public art on site.	City of Guelph
C&C	Promote walkability, increase transportation efficiency, and reduce vehicle distance traveled by developing near existing infrastructure	Achieve a minimum of 4 diverse uses within 800m.	Windmill
C&C	Provide cultural event space that supports programming for all ages, including children, youth, adults, and seniors	Locate 90% of planned residential entrances within a 400 metres' walk of at least one civic and passive use space that is at least 0.067 ha.	Architect
C&C	Promote indoor and outdoor opportunities to engage formally or informally, such as benches, picnic tables, and/or lobby seating	Landscape design strategy.	Architect/Landscape Architect/Library

OPL Principle	Intent	Requirement	Responsibility
LW&W	Integrate native plants and bird houses into landscape design	Restore at least 10% of the site with native, adapted (non-invasive) and/or drought tolerant vegetation and pollinator species.	Landscape Architect
LW&W	Protect and restore natural habitat	Plant only native, adapted (non-invasive) or drought-tolerant vegetation and pollinator species.	Landscape Architect
LW&W	Plant trees along street frontages	Plant trees along street frontages. Where possible provide 30m ³ of soil per tree. If this is not possible, due to interference, provide a minimum of 10 m ³ of soil per tree.	Landscape Architect
LW&W	Reduce heat island effect through roof design strategies	Use a combination of a green, cool roof or solar PV for at least 75% of Available Roof Space.	Architect
LW&W	Reduce heat island effect through non-roof design strategies	Treat at least 75% of the site's non-roof hardscape through a combination of strategies such as: <ul style="list-style-type: none"> - Option A - High-albedo paving materials with an initial solar reflectance of at least 0.33 or SRI of 29 - Option B - Open grid pavement with at least 50 % perviousness - Option C - Shade from existing tree canopy or new tree canopy within 10 years of landscape installation - Option D - Shade from architectural structures that are vegetated or have an initial solar reflectance of at least 0.33 at installation or and SRI of 29 - Option E - Shade from structures with energy generation. 	Landscape Architect
LW&W	Reduce light trespass and night sky pollution	Exterior Lighting to be Dark Sky Compliant, and/or meet uplight and light trespass requirements of LEED BD+C v4.1: <ul style="list-style-type: none"> - Maximum allowed percentage of total luminaire lumens emitted above horizontal: 1.5% - Maximum vertical illuminance at lighting boundary: 0.10 fc (1 lux) 	Landscape Architect
LW&W	Extend usefulness of landscaping throughout the year	Design landscaping for all seasons to provide opportunities for interaction with nature.	Landscape Architect
LW&W	Reduce bird/building collisions	Employ strategies to reduce bird collisions at the buildings, such as: <ul style="list-style-type: none"> - treating at least 95% of all exterior glazing within the first 12 m above grade with bird friendly glazing, - using visual markers applied to glass with a maximum spacing of 100 mm x 100 mm, or - Fly-through conditions treated at all heights of the buildings with visual markers at a spacing of no greater than 100 mm x 100 mm <p>NOTE: Fly-through conditions are created when architectural elements provide a clear line of sight to birds to sky or vegetation on the other side or where clear glass corners meet. Glass corners must be treated for 5m extending on each side away from the corner. Parallel glass is glass installed at any height that is parallel at a distance of 5m or less such as a clear glass corridor or bridge.</p>	Architect
SW	Eliminate potable water use for irrigation (excluding any areas reserved for growing food)	Eliminate potable water use for irrigation, beyond a two-year establishment period.	Landscape Architect
SW	Reduce pollutants in stormwater outflow	Remove 80% of Total Suspended Solids from all runoff leaving the site using low impact development measures such as tree pits, filter strips, and bioretention cells.	Civil Engineer
SW	Leverage water features, such as stormwater, as educational opportunities	Include educational signage identifying native vegetation in public square, or other LID features.	Landscape Architect
SW	Use low-flow water fixtures	Specify low-flow water fixtures, such as toilets, urinals, private lavatory faucets, and showerheads, that reduce potable water usage by 40% using the LEED WEp2 Calculator.	Mechanical Engineer
SW	Install efficient appliances	Specify appliances that are compliant with EnergyStar or WaterSense efficiency-equivalent labelling (i.e. dishwasher, water heater, laundry machine).	Mechanical Engineer
MP	Demonstrate leadership in material extraction	Aspire to source products that meet at least one of the criteria below for at least 25%, by cost, of the total value of permanently installed building products in the project. <ul style="list-style-type: none"> - Extended producer responsibility - Bio-based materials - Wood products - Materials reuse - Recycled content - Locally sourced 	Architect

OPL Principle	Intent	Requirement	Responsibility
ZW	Provide space for the collection of hazardous waste and e-waste	Provide space onsite for residents to dispose of hazardous waste and e-waste.	Architect
ZW	Provide opportunities for residents to donate/swap goods	Provide opportunities for residents to donate/swap household items, furniture and appliances in good condition via programming, message boards, and/or other tactics.	Windmill
ZW	Provide public waste collectors	Provide public waste collectors, such as street side bins, for both recyclable materials and waste.	Architect/City of Guelph
L&SF	Reduce food waste ending up in landfill through waste collection	Design waste collection system for on-site buildings to comply with city standards.	Architect
L&SF	Reduce food waste ending up in landfill through waste collection	One bi-sorter for garbage and compost and one chute for recycling.	Architect
L&SF	Centralize waste storage to reduce trips required for pick-up	A centralized waste pick-up for each of the two blocks.	Architect
L&SF	Encourage public events around food on site	Design Library Lane and Plaza to anticipate hosting public events, including food-related events.	Architect
L&SF	Increase access to sustainable food retailers	Seek on-site retailers that align with project goals.	Windmill
L&SF	Provide opportunities for food growth onsite - Resident Garden	Provide planter plots to residents that are accessible from amenity space (for rent or purchase).	Architect/Landscape Architect
L&SF	Provide opportunities for food growth on site - Balcony Planters	Design individual balconies to accommodate planters.	Architect/Landscape Architect
L&SF	Provide opportunities for food growth onsite - Community Garden	Encourage a publicly accessible community garden to be developed in conjunction with the library.	Architect/Landscape Architect
L&SF	Encourage residents to grow their own food - Equipment storage	Design place to store food growing equipment.	Architect/Landscape Architect
L&SF	Provide space for food related events for residents	Provide communal kitchens in residential common areas.	Architect
L&SF	Provide space for food storage in residential space	Provide functional kitchens that allow for adequate food storage.	Architect
ST	Reduce parking requirements	Unbundled parking (parking spaces not bundled with unit purchase or sale).	Windmill
ST	Increase alternative modes of transportation	Provide bike share and/or car share opportunities within a reasonable distance.	Windmill/ Partner
ST	Increase active transportation - cycling	Provide a minimum of 250 bicycle parking spaces for the site.	Architect
ST	Increase active transportation - walking	Pedestrian connections.	Architect
ST	Increase comfort at transit stops	Provide pathways and transit stops.	Architect
ST	Encourage rideshare over personal vehicle ownership	Design for rideshare passenger pick-up / drop-off.	Architect
ST	Increase active transportation - walking	Install wayfinding signage.	Architect
ST	Provide a bicycle repair station	Provide an on-site bicycle repair bench.	Architect
ST	Design parking levels to be adaptable for future uses	Design parking facilities with future adaptive reuse in mind, such as flat floors, especially at the first level of below-grade parking.	Architect

OPL Principle	Intent	Requirement	Responsibility
ZC	Optimize WWR to reduce energy use	50% Window to Wall Ratio for Residential Components.	Architect
ZC	Optimize glazing type to reduce energy use	Enhanced Thermally Broken Glazing Assembly (U-0.335, SHGC 0.35).	Architect
ZC	Use well-insulated roof assembly	R-40 Roof for Residential Components.	Architect
ZC	Use well-insulated wall assembly	R-15 Walls for Residential Components.	Architect
ZC	Optimize WWR to reduce energy use	50% Window to Wall Ratio for Building B.	Architect
ZC	Optimize glazing type to reduce energy use	Enhanced Double Glazing for Building B.	Architect
ZC	Use well-insulated roof assembly	R-50 Roof for Building B.	Architect
ZC	Use well-insulated wall assembly	R-20 Walls for Building B.	Architect
ZC	Optimize WWR to reduce energy use	Less than 70% Window to Wall Ratio for Library.	Architect
ZC	Optimize glazing type to reduce energy use	Double Glazed Curtain Wall (U-1.65, SHGC 0.5).	Architect
ZC	Use well-insulated roof assembly	R-50 Roof for Library.	Architect
ZC	Use well-insulated wall assembly	R-30 Walls for Library.	Architect
ZC	Install low-carbon systems	All Electric or other low/zero carbon sources, such as pellets, for HVAC and Domestic Hot Water.	Mechanical Engineer/ Energy Provider
ZC	Install electric appliances in residential spaces	Electric Appliances (Stove, Range, Dryer, etc.) in Residential Components.	Mechanical Engineer
ZC	Generate renewable energy	210 to 242 kW PV Array.	Mechanical Engineer

Appendix B

Glossary

Bioregional

Bioregional is the creator of the One Planet Living framework and the third-party verifier of One Planet Living development plans.

Circular Food Economy

A circular food economy is a food system that designs out waste, reuses materials and food products, and regenerates natural and agricultural systems, as defined by the Ellen MacArthur Foundation (EMF). A circular economy challenges the current “take-make-waste” model that dominates our global economic system.

Ecological Footprint or Ecofootprint

The Footprint Network defines “ecological footprint” or “ecofootprint” as the measure of how much area of biologically productive land and water an individual, population or activity requires to produce all the resources it consumes and to absorb the waste it generates, using prevailing technology and resource management practices. We measure the Ecological Footprint in global hectares.

Embodied Carbon

Embodied carbon refers to the GHG emissions associated with building construction. This can include the extraction, manufacturing and transportation of construction materials, as well as the construction process itself. Embodied carbon is distinct from the GHG emissions in operating a building.

Guelph-Wellington Smart City

In May 2019, Guelph-Wellington was awarded \$10 million by Infrastructure Canada to create Canada’s first circular food economy. The Smart Cities Challenge, led by Infrastructure Canada, is a nation-wide competition that incentivizes communities of all types to leverage innovation, data and connected technology to improve community wellbeing. Guelph-Wellington successfully won the Challenge in the category for cities with populations under 500,000.

LEED

Leadership in Energy and Environmental Design (LEED) is a certification process for buildings and communities.

One Planet Living

One Planet Living is an international planning and sustainability framework that aims to reduce the environmental and social impacts associated with the way we design, build and interact with our communities. Its vision is of a world where people enjoy happy, healthy lives within the environmental limits of our one and only planet.

Zero Carbon / Net Zero Carbon Building

The CaGBC ZCB Standard defines a zero-carbon building as a highly energy-efficient building that produces on site, or procures, carbon-free renewable energy or high-quality carbon offsets in an amount sufficient to offset the annual carbon emissions associated with building materials and operations.





BAKER DISTRICT REDEVELOPMENT ONE PLANET ACTION PLAN

Prepared by Windmill Development Group in Partnership with the
City of Guelph
May, 2020
Draft 1