



The Evergreen on Blackburn

One Planet Living® Leadership review
July 2024



THE
**EVER
GREEN**
ON BLACKBURN

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Report overview

Report overview

Scheme:

The Evergreen on Blackburn, Ottawa, Canada

Developer:

Windmill Developments

Project type:

Real estate

Description:

The project consists of a 10-storey residential building, totalling 121 units, with associated amenities, and two levels of below-grade parking. Evergreen is located in the Sandy Hill Neighbourhood of Ottawa, Canada.

Evergreen is part of the [One Planet Living Real Estate Fund](#) portfolio.

Reviewer:

Nicole Lazarus

One Planet Living Board sign-off and quality review:

Sue Riddlestone

Date of review:

July 2024



Leadership status:



One Planet
Living®

Global
Leader 2024

Bioregional and One Planet Living

Bioregional and One Planet Living

About Bioregional

Bioregional is a purpose-led, international sustainability consultancy. It has worked in over 20 countries on sustainable development, working with local communities, cities, and companies.

Bioregional devised the One Planet Living framework, based on our experiences creating the multi-award-winning BedZED in South London, the UK's first large-scale sustainable community. One Planet Living has guided the development of real estate across the world, shaping exemplar communities that enable sustainable living.

About One Planet Living

One Planet Living® is a vision of a world where it is easy and attractive to live happy, healthy lives within the limits of our Earth's resources.

We need this vision because if everyone lived like the average Canadian, we would need nearly five planets to support us. The measure of this is called 'ecological footprinting'. Meanwhile, many lack what they need for a good life, and wildlife is being pushed out to make room for our demands.

The One Planet Living framework consists of 10 principles which cover the activities that drive resource consumption, and the elements that form the basis of a good life for everyone. The principles are used to identify the needs in a local area, to relate these to the planetary bottom-line, and then to structure responses to those needs.

	Health and happiness	Encouraging active, social, meaningful lives to promote good health and wellbeing
	Equity and local economy	Creating safe, equitable places to live and work which support local prosperity and international fair trade
	Culture and community	Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living
	Land and nature	Protecting and restoring land for the benefit of people and wildlife
	Sustainable water	Using water efficiently, protecting local water resources and reducing flooding and drought
	Local and sustainable food	Promoting sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein
	Travel and transport	Reducing the need to travel, encouraging walking, cycling and low carbon transport
	Materials and products	Using materials from sustainable sources and promoting products which help people reduce consumption.
	Zero waste	Reducing consumption, re-using and recycling to achieve zero waste and zero pollution
	Zero carbon energy	Making buildings and manufacturing energy efficient and supplying all energy with renewables



What is a One Planet Living Leadership review?

One Planet Living Leaders are outstanding projects that showcase the very best use of our One Planet Living framework and a gold standard in placemaking. There are hundreds of One Planet Living projects around the world, but only the very best achieve Leadership recognition.

A Leadership review involves opening your action plan to scrutiny from a suitably qualified expert from Bioregional (or one appointed by us). It will include:

- Reviewing the action plan as a whole and providing advice and suggestions on how it might be improved.
- Evaluating it against several criteria including impact, systems change, ambition and delivery.
- Assessing the action plan against the One Planet Living goals and guidance and local industry best practice.
- You can then discuss whether your action plan could be a candidate for leadership recognition.



About this Leadership review

About this Leadership review

This document reviews the Evergreen Preliminary One Planet Action Plan (OPAP) along with supplementary documents including:

- Drawings and landscape plans
- Preliminary Energy Modelling Report
- Windmill Impact Standard - Project Tracker
- A presentation by the Windmill team on the emerging strategy for Community Benefits, OPL Lifestyles and post-occupancy monitoring
- Windmill's Design and Contractor Guidelines
- Windmill's One Planet Living Carbon Specification
- Evergreen Landscape Design Brief

Windmill has established an OPL Lifestyles Working Group to identify a strategy to provide post-occupancy support for all developments in the OPL Fund portfolio, including Evergreen. The work of this group is underway with a strategy already presented in February 2024. The strategy includes:

- the use of a website or resident portal to provide information for all incoming residents, including resources to facilitate sustainable behaviour
- plans for incorporating OPL approaches into the governance arrangements of each scheme where possible, i.e., through the future Condo Board
- incentives such as introductory subscriptions to sustainable food providers, mobility providers, and / or public transport passes
- plans for post-occupancy monitoring and resident surveys
- an eco-concierge service to support active engagement with residents.

Also under development is a Community Benefits package for Evergreen, due for completion during 2024 and expected to identify:

- appropriate equity-seeking groups and how the scheme will deliver benefits to them
- measures to embody indigenous wisdom and oral history into the project
- economic and cultural development opportunities for targeted equity-seeking groups
- jobs targets.

For the purposes of this review, details of the OPL Lifestyle and Community Benefits packages are listed as opportunities for future editions of the OPAP.



Review summary and highlights

Leadership review summary

As part of the OPL Fund portfolio, Evergreen is part of a process to make aspirational One Planet Living a standard and consistent way of delivering communities.

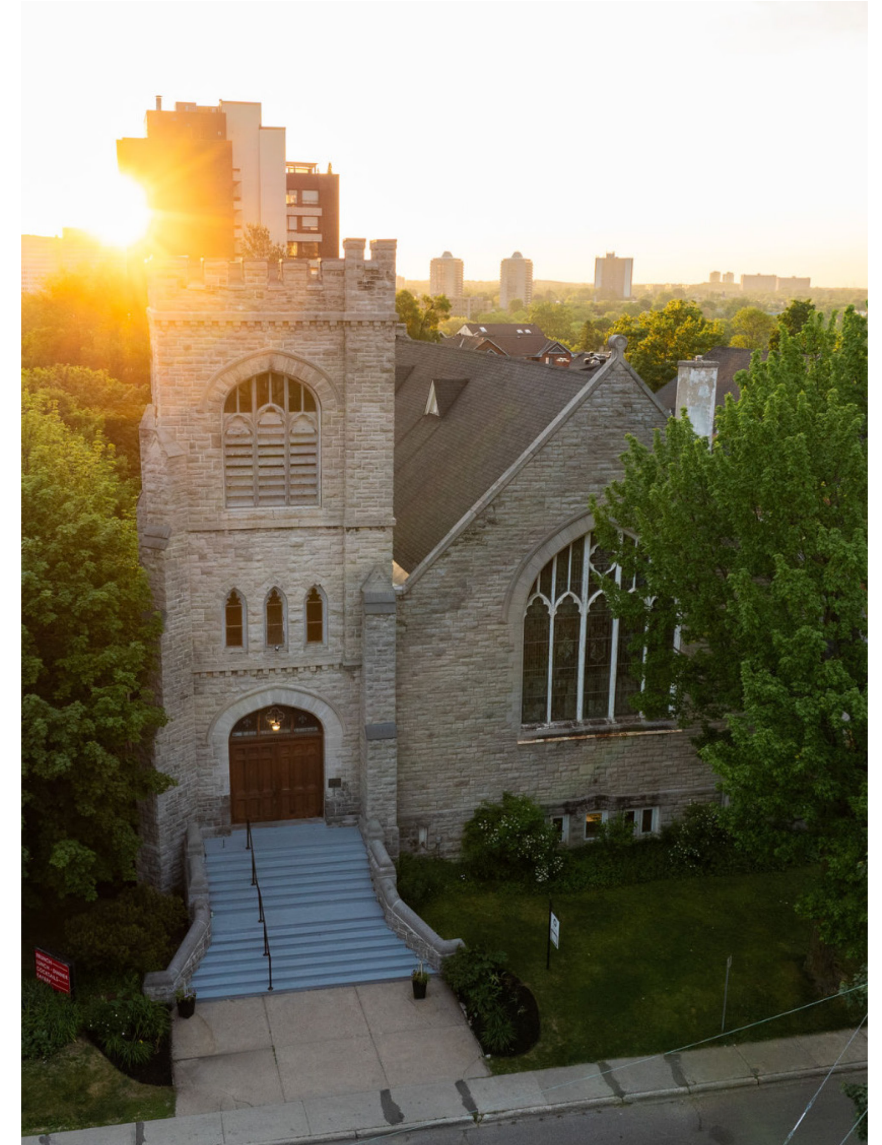
The ambitions in the action plan are comprehensive, with robust KPIs across all 10 principles. Design stage and construction stage measures are well addressed in the documents provided. The upcoming OPL Lifestyles and Community Benefit support packages will be important next steps in the coming year.

The outcome of this review is to recognise Evergreen as a One Planet Living Global Leader 2024.



One Planet
Living® | Global
Leader 2024

Ongoing Global Leadership recognition for 2024 and beyond is conditional on delivery of the OPL Lifestyle Strategy and Community Benefits package due to be launched in the coming year.



Leadership review highlights

Evergreen has come about through an exciting partnership with a community-based endeavour to retain an historic church in the Sandy Hill neighbourhood of Ottawa, Canada.

When the Anglican Church decided to sell All Saints Church in 2014, the community stepped in to save it and to reclaim it as an inclusive space. A partnership of local residents and business investors managed to buy it, and guided by the community group's priorities, have created a restaurant and event space, and formed a new community anchor.

The partnership then also created the opportunity for much needed new homes and has partnered with Windmill Developments to deliver the zero carbon Evergreen community, a One Planet Living Global Leader.

- ❑ Evergreen is in an excellent location, contributing to high density urban renewal, with superb transit and active travel provision.
- ❑ Evergreen offers residents great quality of life features including thermal comfort and use of high-quality outdoor roof and balcony spaces.
- ❑ Despite the high density, Evergreen will provide ample nature friendly landscaping space, with best practice in native planting, bird-safe design, and non-toxic pest control.
- ❑ Evergreen is designed to achieve LEED Platinum and Ottawa High Performance Building Standard Tier 2. Evergreen will be net-zero carbon with no fossil-fuel combustion on site, excellent building fabric, geothermal energy supply and excellent water efficiency measures.

- ❑ As a single block scheme, Windmill will have no ongoing presence at the Evergreen building, so post-occupancy engagement and performance tracking present challenges. Despite this, and recognising the importance of these whole life considerations, Windmill is addressing them at a group-wide level, with an intention to develop:
 - A Community Benefits plan to identify specific areas of need, gaps in local service provision, and identifying how equity-seeking groups could benefit from the project.
 - An OPL lifestyles package.
 - A post-occupancy monitoring plan and resident survey monitoring for energy and water, travel habits and possibly greenhouse gas (GHG) savings due to more plant-based diets. The length of this engagement is under consideration, and may differ between rental and condo, where the opportunities for monitoring may be limited to one year.

When these measures are in place, and if post-occupancy monitoring can be extended beyond one year, this will demonstrate exemplary post-occupancy commitment for schemes of this scale.

Action plan summary

Bioregional uses a simple red/amber/green traffic-light approach to indicate how well the action plan addresses the One Planet Living principle and their goals. More detailed comments and recommendations are in the 'detailed review' section.

- 5 Well addressed
- 4 Well addressed but additional suggestions provided
- 3 Partly addressed but additional content needed
- 2 Not adequately addressed
- 1 Not addressed



Well-structured resident surveys for at least one year comparing health and wellbeing indicators with local baselines. Active travel provision is excellent. Thermal comfort, healthy materials, and exposed timber surfaces. Use of private and shared outdoor spaces.

5



Evergreen supports the financial viability of the new allsaints enterprises now providing amenities and enabling the historic church building to be retained. Community Benefits Plan and OPL Lifestyles package are currently under development. No affordable housing is provided on this scheme though.

3



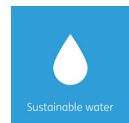
Evergreen helps to retain a precious heritage building whilst also providing new facilities and much needed homes. It also includes resident amenity spaces throughout, such as a lounge/library, quiet work area, and community terrace. Community Benefits and OPL Lifestyles packages are currently under development.

3



The design targets an increase in biodiversity, using best practice details such as bird-safe design, native species, dark sky compliance, heat island reductions and non-toxic pest control. An innovative deep root cell system will allow new trees to reach full height. All dwellings will have unobstructed, quality views outdoors.

5



Excellent water efficient specification with zero mains water for irrigation. Stormwater runoff to be reduced by infiltration. There is an intention to monitor site-wide water use, but residents do not have the benefit of individual water meters. A water bottle refill station will be provided.

4

Action plan summary

Bioregional uses a simple red/amber/green traffic-light approach to indicate how well the action plan addresses the One Planet Living principle and their goals. More detailed comments and recommendations are in the 'detailed review' section.

- 5 Well addressed
- 4 Well addressed but additional suggestions provided
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There is an intention to promote plant-based diets through engagement with residents and to track any reductions in meat and dairy consumption using post-occupancy surveys. However, the sustainable food strategy is still under development, being part of the OPL Lifestyles package.

3



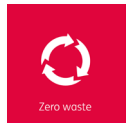
Excellent location for minimising car dependency, with convenient access to buses, light rail, active travel routes, and most retail and service needs. Car parking <0.5 spaces per dwelling with ample EV charging. Walkscore ratings of 85 and cycling scores of 99. There is bike storage and electric bike charging facilities but no bike maintenance area proposed.

5



Evergreen attempted to pioneer the use of cross-laminated timber (CLT) in mid-rise construction in Ottawa but this proved commercially too difficult. Instead, Windmill will revert to their usual specifications which typically achieve embodied carbon levels of ~420kgCO2/m2, based on a concrete frame. Specifications include local sourcing, responsible extraction, and environmental product declarations. The OPL Lifestyle package will encourage low impact resident consumption habits.

4



Targeting >90% construction and demolition waste diversion. Design reuses heritage stone and other demolition materials. It includes space for communal recycling and bulky waste item collection areas, special collection areas e.g. batteries, and waste segregation in each dwelling. Windmill is currently developing a methodology for monitoring resident waste.

5



The project is targeting zero carbon and will be combustion free in operation. Evergreen has excellent building fabric specification with Thermal Energy Demand Intensity (TEDI) target <30kWh/m2. Space heating and cooling are met using ground source heat pumps. Energy use intensity models give 90kWh/m2. Windmill envisages post-occupancy energy monitoring for at least one year. Clean grid electricity results in a small residual GHG intensity of <4.5kgCO2/m2, to be offset in line with CaGBC standards.

5

Overall Leadership qualities

Overall leadership qualities

	Highlights	Opportunities
Scope	The action plan addresses all 10 principles. It considers all the direct impacts and opportunities associated with delivering the development and most indirect impacts. The plan targets design, construction, operation and future resident behaviour, and even marketing/sales processes. The team intend to monitor performance through metering and to continue resident surveys beyond the first year of occupation using a resident opt-in approach. This will provide precious learning to inform future OPL Fund schemes as well as the wider industry. The action plan contains an excellent context analysis which sets the scene for all the proposed strategies. Future weather scenarios due to climate change have been addressed with a passive house standard building envelope and with stormwater management strategies to reduce flooding.	The detailed scope of the OPL Lifestyle package, the Community Benefit and Friendship Agreements are yet to be reviewed.
Transformation	The Evergreen project shows industry leadership in many ways. As part of the OPL Fund portfolio, it has an impressive approach to standardising high performance One Planet Living solutions. Evergreen is particularly special in showing how an historic building can be retained, restored and its uses evolved in partnership with the local community in a self-financing way.	The upcoming OPL Lifestyle package has the exciting potential to show innovative leadership in post-occupancy follow up for schemes with no onsite developer presence after one year.

Overall leadership qualities

	Highlights	Opportunities
Ambition	The outcomes are comprehensive and their level of ambition aligns with the goals in the OPL framework. The outcomes are particularly well crafted for the context, with topic areas to illuminate the intentions of the outcomes. Each outcome is accompanied by at least one indicator with ambitious targets set. Evergreen is designed to meet LEED Platinum and Ottawa High Performance Building Standard Tier 2.	
Implementation		Design and construction stage actions are mostly well developed with any exceptions highlighted in the detailed section of this report.

Appendix

Detailed review



The Evergreen on Blackburn One Planet Living Leadership review – Detailed review



Health and happiness

Health and happiness

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

Outcomes:

- ☐ Residents are among the most physically active in Canada
- ☐ Residents are among the happiest in Canada
- ☐ Indoor and outdoor spaces are healthy, welcoming and comfortable

Topic	Highlights	Opportunities
Physical health Happiness and wellbeing	Post-occupancy resident surveys will ask standardised questions on self-reported health & happiness. The project aspires to score much better than the Ottawa baseline. The project provides excellent active travel provisions (See Travel and transport below). The resident survey will ask about residents' physical activity and aspires to a 20% improvement on the Ottawa baseline of 150 minutes per week. The project makes use of biophilic design principles by featuring exposed wood surfaces. The project specifies 100% compliance with LEED low emitting material requirements. To maintain thermal comfort, the buildings are designed to remain below 26°C in summer conditions. Passive features that help achieve this include a high thermally efficient building envelope, a window to wall ratio of <30%, and thermally efficient glazing. Active cooling is then provided from the ground source heat pump system. Daylighting meets LEED standards through strategic window placement, with increased	A Resiliency Planning Checklist is under development. No external shading options are mentioned. Opportunity to identify more health and well-being measures for construction staff when contractors are appointed.



	windows in living rooms but decreased overall window to wall ratios. Many dwellings have private outdoor balconies or terraces. And all residents have access to a shared rooftop terrace. In order to protect the health and wellbeing of construction workers, dust management, good ventilation and low emitting materials will ensure good construction stage indoor air quality.	
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Equity and
local economy

Equity and local economy

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

Outcomes:

- Economic development opportunities are available to equity-seeking groups
- The project delivers local economic benefits

	Highlights	Opportunities
Diversity and equality of opportunity	Evergreen's action plan has a topic area of Universal Design. The project includes 15% accessible units. The accessibility strategy goes beyond what is dictated by the building code.	Evergreen does not include any affordable housing units. There is currently no financial government support for them. However, Windmill is addressing this important issue at a portfolio level with a target of 10% affordable housing across the OPL Fund portfolio. In late 2023, the OPL Fund portfolio reported 16% affordable housing, exceeding its target. The Fund's affordable housing strategy is due to be complete by Q2 2024. A group wide Community Benefits Agreement is currently being developed for Windmill. This will identify what equity-seeking groups will be targeted for Evergreen, what economic development opportunities will be made available and also jobs and apprenticeship targets. The aim is



		to define these measures for Evergreen by end of Q2 2024.
Vibrant local economy	The development of the Evergreen condo building supports the financial viability of the new allsaints enterprises that are enabling the historic church building to be retained. The commercial success of the allsaints initiative in turn supports the economic vibrancy of the Sandy Hill neighbourhood.	Opportunity for the OPL lifestyle package to promote local sustainable businesses and service providers.
Fair international trade		Opportunity for the OPL lifestyle package to address this.


 Culture and
community

Culture and community

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

Outcomes:

- There is a culture of sustainability that is rooted in indigenous knowledge and wisdom
- All residents feel a sense of belonging, regardless of physical ability, ethnic identity, age or economic means
- The design embodies local culture and/or history to reveal its narratives

	Highlights	Opportunities
Sense of place and belonging	The design includes strategically placed amenity spaces throughout the building. Ground floor amenities include a lounge/library, quiet work area, and terrace with access from Laurier Ave. Common shared terraces on the rooftop provide further opportunities for community activities or informal interaction.	



Local culture & heritage	Evergreen is a superb example of how precious heritage buildings can be retained whilst also moving forward to provide new facilities and much needed homes. The historic church is being restored and imaginatively transformed into an event space available for hire. A café/restaurant has also been opened providing a meeting place for the neighbourhood. Evergreen's architecture sensitively retains and enhances the historic church building. It reuses heritage limestone in the landscape that has been salvaged on site to match the church materials. The residential area is connecting itself to the existing church facade retaining the beauty and history which will be visible in the building's lobby.	A Community Benefits Plan and Friendship Agreement will be developed for Evergreen by the end of Q2 2024. The project is also exploring options of integrating local artists to create art in the project. The exact type of art installation is yet to be determined.
Active citizenship and sustainability culture		The OPL lifestyles package will embed a holistic culture of sustainability, through provision of an eco-concierge engaging with residents and with an online resident portal. This package is under development but will be ready for first incoming residents. The treasured history of the site will also be communicated with residents.



Land and nature

Land and nature

Protecting and restoring land for the benefit of people and wildlife

Outcomes:

- ☐ The natural cycles and resource flows of the local ecosystems are respected and regenerated
- ☐ Connections to the surrounding natural beauty and landscape create a love of nature

	Highlights	Opportunities
Positive contribution to local biodiversity Enhance ecosystem services	The project's land use credentials are excellent, redeveloping an urban site, providing high quality environments for people whilst densifying an urban area. In doing so, the project helps to meet housing need without impacting natural areas elsewhere. Evergreen incorporates lots of best practice building details such as bird-safe design, dark sky compliance, heat island reductions and non-toxic pest control. The landscape brief requires an increase in biodiversity. A wide range of purely native, wild flowering, and fruit-bearing species and grasses will create sanctuaries for local wildlife including bird species. New large canopy trees will benefit from an innovative deep root Sylva Cell System, providing adequate soil volumes for the trees to reach maximum growing potential. The zoned green roof will include a full array of colourful, low to tall sedums, flowers, native low-growing grasses and a few broad leaved non-succulent perennials.	It is important that all OPL Leaders demonstrate improved biodiversity. There are already mature trees around the perimeter of the site. So as many of these as possible should be retained. The OPAP should include a comparison of biodiversity features before and after construction to illustrate in broad terms how we know there is a biodiversity improvement. The OPAP should describe what specific local species will be benefitted by the choice of landscaping.
Engage people in the value of nature	Evergreen is located just short walking distances from excellent greenspaces, including Strathcona Park, Sandy Hill Park, MacDonal Garden Park, and Riverrain Park. It is very close to the Rideau river and canal.	



	Every Evergreen dwellings will have openable windows and most will have unobstructed, quality views outdoors.	
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Sustainable water

Sustainable water

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

Outcomes:

- ☐ Residents use less potable water
- ☐ Water is celebrated as the source of life
- ☐ Groundwater and surface water are protected

	Highlights	Opportunities
Water efficiency	Water efficiency measures are excellent, with low flow/flush fixtures and fittings. The project is targeting 98 litres per person per day mains water consumption, less than half the local baseline. Outdoor water needs will be minimised through native and adapted planting and minimal turf grass. No potable water will be used for irrigation. A water bottle filling station will be provided in a common shared space.	The upcoming OPL Lifestyle pack will have the opportunity to provide information on water saving behaviours and steps residents can take to prevent water pollution. The metering strategy is under development. Ideally, whole-project water usage data will be tracked for at least a five-year period. If dwellings could be metered individually, residents would have the ability to be informed about their water consumption and adopt more water efficient behaviour.
Surface water management	Rainwater will be retained and stored in an underground cistern, for use in irrigation. This reduces stormwater runoff by half and reduces the flood risks for the site and the surrounding neighbourhood. The project follows Wet Weather Flow Management Guidelines to	A Resiliency Planning Checklist is under development.



	reduce the quantity and improve the quality of stormwater runoff.	
Runoff during construction	An Erosion and Sedimentation Control plan is specified and will be final be finalised at construction stage.	

Local and
sustainable food**Local and sustainable food**

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

Outcomes:

- ☐ Residents and visitors have access to affordable, healthy, local food
- ☐ The carbon footprint associated with food is minimised
- ☐ Community spirit is fostered through food

	Highlights	Opportunities
Fresh, local, seasonal, healthy produce Diets high in vegetable protein Promote sustainable, humane farming Eliminate food waste	There is an intention to promote plant-based diets through engagement with residents and to track any reductions in meat and dairy consumption using post-occupancy surveys. A municipal segregated organic waste collection service will be provided	The sustainable food strategy is in development. The tenant engagement budget will be used to deliver sustainable food initiatives. The upcoming OPL Lifestyle package will have the opportunity to address sustainable food choices, reducing food waste and provide ideas for food-based community activities, through direct engagement with an eco-concierge and also using an online resident portal.



Travel and transport

Travel and transport

Reducing the need to travel, encouraging walking, cycling and low carbon transport

Outcomes:

- ☐ Low-carbon transportation options are the primary means of transport for residents
- ☐ Parking infrastructure is adaptable and flexible for future re-use and growth

	Highlights	Opportunities
Reduce car dependence and the need to travel Promote walking and cycling Promote car sharing and public transport	Evergreen is located just short walking and cycling distances from a great range of services and facilities. The site has a “very walkable” walk score of 85 and a “biker’s paradise” bikescore of 99. It is served by 5 frequent bus routes, one from directly outside the site, the others on Rideau St, just 5 minutes’ walk away. The uOttawa light rail transit station is just 16 minutes’ walk away. Evergreen has easy access to the ground floor bike storage room plus additional racks outside to the south, east and north. There is provision for one secure bike space per dwelling, with e-bike chargers available. Parking provision <0.5 spaces per dwelling, in line with city requirements. Parking is compact, using an underground car park. Contractors have a voluntary requirement to reduce and track transport-related emissions.	Resident surveys should include questions on travel modes to understand how effective the measures have been and ideally to assess modal share. Evergreen could find space for a bike maintenance area with communal tools and perhaps a bike wash facility.
Promote low/zero carbon vehicles	100% of parking spaces are EV ready with 25% fitted with level 2 chargers. Space is provided for other micro-mobility devices.	
Raise awareness of the impacts of, and promote		The upcoming OPL Lifestyle package has the opportunity to educate on the impacts of flying and to provide resources.



alternatives to, air travel		so residents can consider alternatives.
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Materials and products

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

Outcomes:

- ☐ Embodied carbon is reduced
- ☐ Building materials are culturally appropriate and provide healthy indoor environment for all occupants
- ☐ Materials for building construction and operations are selected to minimise their lifecycle impact

	Highlights	Opportunities
Reduce consumption of materials and products	Durability of building components is maximised through good practice moisture control.	Opportunity for the upcoming OPL lifestyles package to highlight the impacts of material consumption habits and promote alternatives.
Choose materials and products with minimum impact	Evergreen attempted to pioneer the use of cross-laminated timber (CLT) in mid-rise construction in Ottawa but this proved commercially too difficult. Instead, Windmill will revert to their usual specifications which typically achieve embodied carbon levels of $\sim 420\text{kgCO}_2/\text{m}^2$, based on a concrete frame. The project is including the heritage apse wall of the church within the project's lobby space, making the external wall of the church the internal wall of the building. This makes for a gentle transition from the existing church to the new development, preserving and accentuating the historic character of the church. The project will use salvaged limestone heritage stonework from Bate Hall in the	Reuse opportunities for the demolition of Bate Hall are being discussed with the general contractor.



	landscaping to blend with the existing church. The LEED-based design specification targets include: ☐ 100% timber to be nontropical, reused or reclaimed, or certified by the Forest Stewardship Council, or USGBC-approved equivalent ☐ local material where possible ☐ 25% responsible extraction criteria ☐ 20 products with environmental product declarations The project team intend to include a survey question on whether residents purchase sustainable products, targeting 75%. This will raise awareness.	
Nontoxic materials and products	The project team aim for zero added urea formaldehyde. 100% of building materials meet the VOC requirements of the LEED rating system.	At this time, it has not been possible to procure kitchen unit doors within budget that are free of urea formaldehyde.



Zero waste

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

Outcomes:

- ☐ Residents generate less waste
- ☐ The construction process generates less waste
- ☐ A sharing culture is developed and supported by residents

	Highlights	Opportunities
Reduce wasteful consumption	The action plan covers both construction and occupation phase waste. It includes initiatives to promote a sharing culture amongst residents.	Windmill intends to set targets for resident waste per person per year. The team are currently developing a methodology for tracking this KPI.



Upcycling, reuse and recycling Zero waste to landfill	The plan targets >90% construction and demolition waste diversion from landfill, with a construction & demolition waste management plan Actions include: ☐ designing for communal recycling and bulky waste item collection areas, ☐ additional storage and collection arrangements for batteries, mercury-containing lamps or electronic waste, ☐ waste segregation facilities in each dwelling for recyclables, organics and garbage ☐ A water bottle filling station will be provided in a common shared space, reducing the need for plastic water bottle purchases. Windmill intends to establish a partnership with a local organisation to collect items for donation.	The action plan doesn't currently mention encouraging a culture of upcycling and reuse, avoiding wasteful consumption. This is an opportunity for the upcoming OPL Lifestyles package.
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Zero carbon energy

Zero carbon energy

Making buildings and manufacturing energy-efficient and supplying all energy with renewables

Outcomes:

- ☐ There are zero operational greenhouse gas emissions
- ☐ Building occupants enjoy superior indoor thermal comfort year-round

	Highlights	Opportunities
Energy efficient buildings	The project is targeting zero carbon and will be combustion free in operation. The project targets LEED Platinum and OHPDS Tier 2. As such, measures include air tightness testing, tracking of energy and water consumption, a commissioning plan,	Mechanisms for dealing with the small quantity of residual operational carbon emissions



100% renewable energy	smart metering and future climate resiliency planning. It uses a passive house level prefabricated envelope. Limits have been set on Global Warming Potential (<50) and Ozone Depletion Potential (zero). The project uses geothermal energy via ground source heat pumps for space heating and for cooling. Domestic hot water is fed from the geothermal loop with a water-to-water heat pump with electric boilers for auxiliary heating. Design stage energy modelling: □ EUI 89.5 kWh/m² □ TEDI 27.1kWh/m²/yr □ Air tightness 2l/s/m²(at 75Pa) □ GHGI 4.5kgCO₂/m² □ Heat pump coefficients of performance 3.2 (space heating), 4.1 (cooling), and 4.6 (domestic hot water). This electrical demand will be supplied by Ottawa Hydro, generated almost entirely from hydro, nuclear and renewables with gas used for peak loads. Its carbon intensity is very low at 25gCO₂/kWh and will result in emissions of around 43,270 kgCO₂/yr.	are being discussed.
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