Renowned scientists suggest that we have as little as 3,000 days before we witness irreversible effects of climate change. We are already experiencing devastating impacts: severe storm events worldwide, an American city destroyed, $90 billion economic losses in BC due to the pine mountain beetle infestation. In Vancouver, Stanley Park and our beloved seawall have been repeatedly assaulted by increasingly harsh seas and winds, resulting in extended closures every year.

If we do not act immediately with decisive action, we will let the process of climate change proceed unabated. Addressing climate change is so important that it bridges all ages, races, and political stripes. Our debate must be clear and concise; we must act.

The EcoDensity Charter addresses the impacts of climate change. How far is Vancouver willing to go? How far do we need to go?

We have as little as 3,000 days before we witness irreversible effects of climate change.
Vancouver is projected to grow by nearly 100,000 citizens in the next 25 years. In the same timespan the region will grow by nearly 1,000,000. Our population is aging, creating greater need for diverse housing types and amenities. If EcoDensity is successful, Vancouver’s population projection could easily double, reducing suburban growth in the periphery of the region as a result of more affordability in our city.

It is inevitable that Vancouver will increase in density. We are bounded by geographical and political borders that guarantee this. The graph below disputes fears that density directly leads to diminished livability. With the current projected growth, Vancouver will be nearly as dense as Zurich in 25 years, and, in 50 years, it will approach the density London has today.

Using greenhouse gas (GHG) emissions to measure our impact on climate, Vancouver is near the top of the class in North America. However, when compared to livable, dense, and leading-edge cities like Oslo, Norway, we can do much, much better. Cities throughout the European Union are working towards reducing their GHG emissions to average 2.5 tonnes per person per year - a reduction scientists agree could shift the tide of climate change.

The primary sources of GHG in Vancouver are buildings (54%) and transportation (30%). How and where we live has a dramatic impact on our individual GHG emissions. Generally, efficiency increases with proximity to the downtown core and with denser buildings that share resources.

Density is unrelated to livability

In 50 years, Vancouver will have the density London has today.
Busby Perkins+Will strongly endorses the EcoDensity Charter.

Areas to Strengthen the Charter:

- Use LEED as an enforceable standard
  LEED is the industry standard for evaluating environmental performance in buildings. LEED has been the currency for change in design and construction and continues to evolve, moving to performance-based targets and simplified accreditation.

- Prioritize density adjacent to transit
  Transportation is the second largest source of GHGs. Creating density around transit is an extremely effective means of creating synergies between multi-family housing and mass transit, reducing the reliance upon the car and reducing GHG emissions.

- Aggressive retrofit programme for existing buildings
  The vast majority of our GHGs are emitted by existing buildings. We cannot expect to reduce overall emissions to target levels without an aggressive retrofit programme for existing buildings.

Areas to Clarify the Charter:

- Shift perceived focus away from single family zones
  Increasing density sensitivity in single family zones can retain the character of our neighbourhoods but does not yield large numbers. An optimistic estimate would be 10% of the projected growth over 25 years. Alternatives to low density approaches are required to accommodate the projected growth.

- Use carbon footprint as a measurement tool
  Carbon footprint is an easily calculated assessment of the GHGs we emit. This simple measure can be used to measure environmental performance of transportation and buildings, our major sources of GHGs.

- Strategically assess locations for densification
  Strategically locate density along transit corridors and at nodes where transit lines intersect. Encourage density at nodes where the greatest number of people will access the public transport system.

EcoDensity currently proposes measuring our ecological footprint, which measures the amount of land required to support the way we live. This measurement tool is very complicated and is extremely difficult to quantify accurately. We propose using carbon footprint, a much simpler, more realistic, and commonly used measurement tool of greenhouse gas emissions.

We Need to Explore ALL Options in ALL Locations in the City

Options for one year’s growth in Vancouver:
1. Low density options (i.e. coach houses on 20% of city lots)
2. Four-storey arterial mixed-use development
3. Six-storey courtyard mixed-use development
4. 25-storey towers

We will need all options in appropriate locations in all areas of the city.

It would take 380 neighbourhood blocks for the coach home option to absorb one year of projected growth
Cities are the most important opportunity to fight climate change. 80% of Canadians live in our 25 largest communities. Cities contain the majority of our buildings, provide our water, collect the garbage and recycling, run our transit, build our roads, collect and treat our sewage, regulate building design and construction, and set patterns of land use, zoning, and density.

Following the recent $1.48 billion Provincial announcement of transportation infrastructure, it is clear that our city and region will be developed around the expansion of transit infrastructure. EcoDensity proposes a similar, progressive policy at the municipal level.

Busby Perkins+Will views the development of cities as the most integral strategy to reduce our impact on climate change. We need density adjacent to new transit to reduce GHG emissions from buildings and transportation. Vancouver will be improved by using transit as the obvious catalyst to development. Transit-related development should strive to:

1. **Create balanced communities**
   - Balanced communities create a healthy mix of housing and jobs as well as adequate public amenities, green spaces, services, and access to public transportation, all within walking distance. Not all residents will work within their neighbourhood but by providing a better balance between jobs and housing fewer people will need to travel. A greater diversity in dwelling types in all neighbourhoods will create more housing options and greater affordability in the city.

2. **Leverage civic amenities from developments**
   - In the past, Vancouver has engaged developers in the process of building the city by leveraging significant contributions in their rezonings and developments. In the future, this will be done on smaller parcels in a coordinated effort. Whereas in the past, new amenities needed to be built, future contributions will be the enhancement and upgrade of existing facilities as well as new construction.

3. **Facilitate deep green development**
   - The economies of scale for balanced communities such as Dockside Green in Victoria allow for integrated waste water treatment; the community’s waste being turned into fuel for heating and for sale. By utilizing synergies between the wastes of one process and the feedstocks of another, district infrastructure is able to eliminate waste altogether, transforming waste products into useful outputs, and resulting in a dramatically improved urban energy pattern.

Existing zoning largely unchanged for 30 years

New transit infrastructure:
Existing and proposed transit lines and primary transit nodes

New development patterns:
Major traffic routes and secondary nodes for development

Development along the Canada Line can respond to the existing context. Densification will be appropriate for each node/station.

Developments should respect the unique character and fabric of existing neighbourhoods.
The immediate opportunity is the Canada Line. Primary nodes along this line (Broadway, 41st, and Marine Drive) can establish a pattern of development that encourages a more dispersed density within the city. These are located at the intersection of existing and planned transit routes. Secondary nodes along the line can establish a system of balanced, walkable communities gradually increasing the density along the line while providing more amenities and improving the quality of life for the citizens of Vancouver. Looking forward, we should be planning for the east/west Broadway line and the new bus line along 41st immediately.

All Vancouver neighbourhoods need a balance of jobs and residences as well as a walkable system of public amenities. This balanced mix brings out the best in neighbourhoods and promotes affordability and diversity. Balanced neighbourhoods can accommodate a student living in a studio apartment, a young couple saving to buy a first condo, a growing family needing a larger home, and a retiree downsizing.

Nodal development will provide:

- Mix of jobs and housing
- Improved public amenities
- Diversity of dwelling units
- Diversity of open space
- Contextual massing and heights

Vancouver can become a nodal city, a system of interconnected nodes, from east to west, all providing easy and convenient access to jobs, public amenities, and transit.

Nodal development promotes walkability:
Orange represents a 5-10 minute walk around transit nodes

Imagine finding everything you need within a 20 minute walking distance

An example of nodal development at a transit station. In 25 years, density has increased as amenities have improved. A mix of housing and jobs with new parks, schools, community centres create a walkable “village” in the city.

Balanced communities should be achieved through thoughtful incremental growth
Vancouver's current policies place it amongst the leaders in North America. Our carbon footprint is strikingly low compared to some of our Canadian neighbours. However, we need to do more. To remain at the forefront, we can look to Europe for guidance and target 2.5 tonnes per person per year as a realistic goal. This means reducing our footprint by half!

### RESULTS

To shift the tide of climate change, we need to reduce our carbon footprint by half

Vancouver’s current policies place it amongst the leaders in North America. Our carbon footprint is strikingly low compared to some of our Canadian neighbours. However, we need to do more. To remain at the forefront, we can look to Europe for guidance and target 2.5 tonnes per person per year as a realistic goal. This means reducing our footprint by half!

#### Existing zoning compared to a nodal approach:

creates a reduction from 5 tonnes of GHG emissions per year to 2.5 by 2031.

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<th>City</th>
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#### Existing GHG Emissions of Selected Cities

To shift the tide of climate change, we need to reduce our carbon footprint by half

Through the development of balanced communities and increased proximity to transit, EcoDensity in a nodal form could reduce Vancouver’s transportation GHG emissions by nearly half of our current levels.

#### Buildings

Development of an aggressive retrofit programme for existing buildings and enforcement of a LEED Gold standard for new buildings would significantly reduce the GHG emissions attributed to buildings. When combined with balanced communities that incorporate district infrastructure, we could reduce our building-related emissions by nearly a third of our current levels.

#### Overall GHG

A nodal approach to EcoDensity would yield significant results. An overall reduction of half of the total GHG emissions per capita could be achieved by 2031. This reduction would require strong policy from the City and a change in the way we view the plan of the city.

This will keep Vancouver one of the most livable cities in the world and make it one of the most sustainable.
Typically, we think of cities as mono-centric, radiating from a central downtown core that provides our services and amenities. Our current zoning supports this view, our GHG use per household increasing as it radiates from the core. An alternative vision that defines Vancouver as a field of successful, balanced, amenity-filled nodal neighbourhoods will see a reduction of GHG emissions across the city, not just in areas of increased density. In a nodal Vancouver it will be more convenient to walk to the store, library, park, or transit stop. We will live in a more compact, more livable, more interconnected, more diverse city.

Council and City Planning need to lay out a grand new vision for the future of Vancouver that is livable, sustainable, affordable, and part of the solution for global warming.
The City of Vancouver's EcoDensity initiative proposes that high quality and strategically located density can make Vancouver more sustainable, livable, and affordable. Following the release of its draft Charter in November 2007, the City's Director of Planning asked Busby Perkins+Will to offer feedback and insight that could increase the initiative's effectiveness.

The firm launched into a comprehensive evaluation of EcoDensity, examining ways that Vancouver can accommodate its projected growth, maintain its reputation for livability, and encourage affordability. Furthermore, Busby Perkins+Will laid out a vision where Vancouver, by implementing a nodal EcoDensity, can reduce the city’s GHG emissions dramatically enough to help mitigate the effects of global warming.

The evaluation process began with ensuring concurrence of the scope and intentions of the Charter and Actions. This was followed by a presentation to the development community to understand the motivations that would best lead to sustainable development. The meeting was valuable in exploring the potential of levies to enhance community amenities and reinforced the need to express the social, as well as environmental, merits of EcoDensity.

A final presentation was made as part of a seven night Council meeting to solicit public feedback. A 16 page booklet elaborated on the facts and figures of the firm’s research and approach as well as the resulting vision for EcoDensity as a nodal development strategy for the city.

The results of the firm’s critique have become part of the planning department’s vision for EcoDensity and have garnered attention from municipalities across the Greater Vancouver region. Data gathered by the firm has been invaluable in understanding how a city’s land use strategy can foster deep green development, district infrastructure, and community amenities.

The EcoDensity study has also been the impetus for related activities firmwide by establishing metrics and a process for conducting similar studies, most notably the Plan for Carbon Neutrality for Abu Dhabi, UAE. The study also resulted in a replicable model that has since been used by several of our firm’s other offices to lobby municipal governments across North America, most notably the success in the Cities of Los Angeles and Boston.