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Vancouver's Built Environment Initiatives

Citation: Clark, Jordan. 2011. "Vancouver's Built Environment Initiatives." Sustainable Cities Policy Project, www.davidjhess.org.

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The city of Vancouver has consistently been ranked as one of the most livable cities in the world (Gulliver, 2011). A coastal metropolis nestled in a natural setting, the unique environment of the community is telling of its prime livability. In addition to its atmosphere, Vancouver is also known for a dynamic culture of health and sustainability. Indeed, by the year 2020, the community plans on being not only the most livable but also the greenest city on the planet.

The city of Vancouver has historically been progressive in the field of local sustainability. In fact, the ambition of the community is so renowned that it has spawned the nickname "Vancouverism" (Wikipedia, 2011). This ideology of livability, sustainability, and efficiency has shaped Vancouver into one of the most advanced communities of the twenty-first century. Through the innovative efforts of city leaders, business, and citizens, Vancouver has become a world leader in local sustainability with notable advances in urban design and green space.

In this study, an overview of the Greenest City 2020 plan will first be discussed, then we will look specifically at Vancouver's efforts to integrate green space within the

city. Finally, a critique of the plan as well as an analysis of its future and portability will be provided in the conclusion.

Greenest City 2020

In a 1975 document called “The Downtown Official Development Plan,” Vancouver policymakers outlined specific goals addressing urban sustainability such as efficient land use, eco-density, public space, and pollution control (City of Vancouver, 1975). These measures made strategic city-planning a priority for the city and laid the groundwork for future green initiatives. In 2010 the people of Vancouver ratified the “Greenest City 2020” proposal, a new, comprehensive sustainability plan that mapped out the next decade of development (GCAP, 2011).

The “Greenest City 2020 Plan” has the stated objective of making Vancouver the greenest city in the world by the end of the decade, with ten specific strategies to make that goal a reality. Each strategy, divided into subgoals and benchmarks, targets an issue within the city (Vancouver, 2011). In general, these strategies can be divided into addressing one of three areas in the city: energy, economics, and the environment.

Energy. Economists and analysts often refer to energy as the “master resource.” In the agrarian economies of the past, a community was only as good as its soil; the dirt from which crops grew was the foundation of the entire society. During the industrial revolution of the twentieth century, however, electrical and transportation innovations led to an explosion in demand for affordable sources of energy. A new gold rush was born in the form of cheap fossil fuels, and the world economy quickly shifted its dependence from physical land to its underground products.

Vancouver is located in the southwest corner of the Dominion of Canada, bordering the warm water currents of the Pacific Ocean. Because of its unique location, Vancouver has historically possessed an advantage in energy production, primarily through access to hydroelectricity. The benefits of this advantage are twofold: the energy economy is less dependent on unsustainable fuels, and both the citizens and city leaders are open to more progressive policy. These two factors, particularly the latter, help make Vancouver a leader in the green cities movement of this century.

In terms of creating a more sustainable energy infrastructure, the city of Vancouver separates its initiatives into two sectors: energy production and energy savings (Talk Green, 2011). The former is accomplished through direct investment and development of renewable sources of energy, whereas the latter deals with the efficient use and distribution of that energy. Seeing both sides of the coin in this sense empowers city officials to focus on innovation from both ends of the energy spectrum.

The hydroelectric systems surrounding Vancouver already provide close to eighty percent of the city's energy; however, there is a movement within the municipality to replace environmentally destructive dams (Green City Times, 2009) with more localized forms of creating energy. An example of this effort is the increasing investment in solar power. Unlike other cities that rely largely on external solar fields, Vancouver aims to transform buildings from energy users to energy producers through a combination of energy savings and independent solar production. A provincial program called Live Smart BC incentivizes solar production by providing professional audits, subsidies and installations of household systems (Livesmartbc, 2010). Overall, Vancouver has remarkable flexibility and private-sector cooperation in its energy initiatives.

Perhaps greater than energy production, energy savings is also a priority among Vancouverites. The most prominent project Vancouver has promoted is a renewable heating system called Neighborhood Energy Utility, or NEU for short. In the neighborhood where NEU was tested, a sewage treatment plant was converted into a source of heat and warm water for local homes. The program has been called a tremendous success, as one analysis claims that there has been an over seventy percent energy savings in the neighborhood (Challenge Series, 2010). Likewise, public-private partnerships have also produced retrofit campaigns, green project funds, electric fleet conversions and energy efficiency software in newer buildings (Vancouver, 2011).

Green Economics. As F.W. Geels notes in his study, “The Dynamics of Transitions in Socio-technical Systems,” no sustainable sociotechnical transition can occur without essential economic conditions such as affordability, practicality, and a wide variety of options. In effort to stimulate green economic development, the city of Vancouver engages in a number of activities and partnerships with private institutions. The two major economic emphases of the Greenest City 2020 plan are a) building a green enterprise economy and b) investing in local food (Talk Green, 2011).

The long term goal stated in the Vancouver plan is to “gain international recognition as a mecca of green enterprise,” (GCAP, 2011) with the benchmark of doubling the number of green jobs in the city by 2020. With special focus on technological development, the city government makes direct investments in upgrading infrastructure and partnering with businesses to advance energy efficiency research. One such example is Pulse Energy, a firm that was contracted to develop energy auditing software for community buildings. After significant investment by the city, today Pulse

provides sophisticated computer programs that monitor building efficiency and increase energy awareness (Pulse Energy, 2010).

In addition to creating new opportunities on a business level, Vancouver is also making significant investments in the local food economy of the city. Community gardens, rooftop agriculture and farmers' markets are the primary areas of focus in the 2020 local food plan. City officials aim to carefully develop these regions of the plan through a combination of job creation, policy change, education, and access initiatives. For instance, one of the proposed objectives is to "ensure that a majority of residents live within a five minute walk of ... fresh produce." (Talk Green, 2011)

Non-profit organizations are also heavily involved in the development of Vancouver's local food economy. One such organization, called City Farmer, sponsors a program called Sharing Backyards in Greater Vancouver, which attempts to foster urban agriculture by connecting resident gardeners with local resources. The Sharing Backyards site features an interactive map of the city that can be used to both locate and publicize shared garden space. Additionally, residents can freely post notes expressing interest in sharing land and contributing to existing projects (City Farmer, 2011). It is this type of innovative approach that facilitates the grassroots base of a local food economy.

Environmental Policy. As Vancouver continues to develop, it is clear that its environment must be strategically preserved. Normally, as a city urbanizes, waste and pollution expand and the natural environment deteriorates; however, the Greenest City 2020 plan aims to reverse this trend. Indeed, as Vancouver continues to grow, it is actively working to expand its natural environment while eliminating waste and fossil fuel emissions altogether. (Vancouver, 2011) To augment the total living atmosphere of

the community, the 2020 plan addresses both the natural and the built environment of the city.

Issues of both space and pollution can be addressed with strategic waste management. For this reason, an increasing number of communities are choosing to recycle and reuse salvageable materials. Vancouver, in what is referred to as a 'closed-loop' strategy, aims to become a zero-waste community by reducing landfill use by fifty percent before the year 2020. Organic waste is a major target in the 2020 plan as the city plans to "make organics collection mandatory for apartments, condos, businesses and institutions by 2015" (Talk Green, 2011). So far, the city is making strides. In 2009, the government of Vancouver signed a contract with a local soil company to collect kitchen waste from the metropolitan area. The business, Fraser Richmond Soil, converts the organic waste into compost, which is distributed back to the city accordingly (CBC, 2009). Recycle and reuse are also priorities for Vancouver, as fifty-five percent of its non-organic waste is already reclaimed or recovered. (Talk Green, 2011)

Another environmental strategy of Vancouver is its active mitigation of traffic on city roads. Preventing a massive influx of commuter cars reduces pollution and promotes a livable urban environment. Vancouver actively reduces the need for individual vehicles through public transport systems, namely light rail and rapid-transit buses. The former, operated by Translink Skyrail, transported over 400 thousand commuters daily in the middle part of 2011 (APTA, 2011). Equivalent measures in bus transit are currently still in development, but a Vancouver Vision group has already acknowledged that "a free and frequent service around the downtown core could really reduce traffic congestion if planned correctly" (Vision, 2005).

Along with investments in public transport, Vancouver also encourages alternative forms of personal transport such as biking and walking. In many parts of the city, designated bike lanes are facilitated with physical barriers. A tangible divide between bikers and drivers creates an autonomous, safe route for both mediums of transportation (Vancouver, 2011). Similar measures are being taken with pedestrian traffic, as wider sidewalks and open streets create a more walkable city. Long strips of curb-side grass often separate walkers from the road (Urban Toronto, 2011). City sidewalks are also constantly renovated and redesigned. In one noteworthy experiment, recycled tires were used to construct new sidewalks after concrete ones had cracked due to shifting soil. (CTV, 2011).

Along with efforts to reduce waste and pollution, Vancouver city planners also aspire to increase significantly the green space within the city. By planting 150 thousand trees in the next decade—90 thousand of which on city-owned land—and investing in local parks, greenways and gardens, the 2020 plan aims to place every citizen within a five-minute walk from nature (Talk Green, 2011). This ‘urban forest’ strategy is unique to Vancouver, and is possibly the most innovative policy in its plan.

Evaluation. The most common criticism of the Vancouver plan is that it is almost lyrical in rhetoric but lacking in practicality, especially in terms of the economic impact of such immense investments. Some analysts who oppose the plan even claim that the government of Vancouver may be using the popularity of the green trend as a vehicle to commandeer the local economy (Enchin, 2011). Additionally, one of the largest criticisms of the plan is that, as of 2011, there has been no known budget projection for

the Greenest City initiatives (Wood, 2011). With ambiguous costs to Vancouver residents, there will clearly be significant hurdles in executing the ambitious 2020 plan.

Because of the high costs of sustainable policy, there are concerns that in becoming the world's greenest city, Vancouver may inadvertently become its most expensive city as well. Vancouver is among the most costly places to live on the planet, and it already tops the list for North America cities. (Vomm Hove, 2008). Gentrification is a real obstacle in rapid community development. Even before the 2020 plan, there existed widespread concern over class segregation in Canadian cities (Stoffman, 2006). One recent report that analyzed development in a targeted Vancouver neighborhood noted, "No housing is proposed for people living in poverty below the low-income cut off line, which consists of about 70% of those living in the Downtown Eastside" (Stanislavski, 2010).

On balance, Vancouver's sustainability plan is notably extensive, addressing issues of energy, the economy, and environment while outlining specific strategies and procedures to achieve its goals. However, there is much work to be done, especially with the financial projections of the plan and its impact on the cost of living. It is possible that there is an 'E' missing from the plan in the form of equality, a significant problem that has yet to be confronted. If issues of finance, classism, and land value are properly addressed—and the plan redressed—Vancouver could very well lead the world as its greenest city and remain a livable city for all residents.

Best Practice: Livable Urban Design

Vancouver employs a number of strategies to become a more sustainable community; nevertheless, its most innovative practice is the integration of green space and urban design to create a dense yet livable modern environment. As previously mentioned, eco-density and the preservation of nature have been goals of the city circa three decades. Moreover, the unique culture of both the people and policymakers of Vancouver has cultivated a collective desire to maintain a deep connection with nature as the metropolis continues to develop. As a result, the communal vision of the future city looks less like a concrete jungle than it does the urban forest described in its 2020 plan.

In this section, I will conduct a brief case study over the strategy and execution of Vancouver's vision for a green metropolis. First, the city's built environment will be discussed, then an overview of its integration of green space will be given. Finally, we will look at some potential challenges to these respective goals and what an urban forest might look like in the future.

Vancouver's "view corridors" are exemplary of its advanced urban planning. The primary strategy for improving the urban environment of the city involves creating certain "cones" of panoramic scenery that dictate the height of downtown buildings to preserve landmark views. These paths of visibility are built into the city zoning plan adopted in 1978 (City of Vancouver, 1978). The goal of this policy is to maintain a pleasant urban atmosphere in the presence of dense development. Over the years, Vancouver's view corridors have caught the attention of other cities and even inspired some to suggest similar policy in their own communities (Chappell, 2003).

Another notable policy outlined by the Downtown Development Plan is the promotion of mixed-use buildings. In fact, the 1978 plan specifically directs the city to

increase the amount of residents in the downtown region (City of Vancouver, 1978). Such a goal is quite unconventional compared to traditional zoning mentality which separates homes from businesses. Nonetheless, residential areas in the metro area promote the idea that Vancouver is designed for its citizens first, even as the business sector continues to expand.

To further augment the livable environment of the metropolitan area, Vancouver officials plan to expand significantly the green space within the city. As previously mentioned, the 2020 plan defines two benchmarks addressing green space: one being a five-minute walk for every resident to a natural area, the other being a minimum of 150 thousand more trees planted over the next decade. Naturally, with such substantial envisaged expansion, limited space inevitably raises challenges. Vancouver meets the issue of land use with emphases not just on parks and greenways, but also creating green space within the city through community and rooftop gardens (Talk Green, 2011).

Community gardens are common among sustainable-minded communities. Not only do they create green space and stimulate the local food economy, they have also been shown to promote a sense of community and even decrease crime in some cases (ACGA, 2010). In Vancouver, the Board of Parks and Recreation oversees garden development on city land. Through education, policy and startup investments, the board hopes to utilize the 3200 acres of park land to create hubs of green space and produce for their surrounding neighborhoods (Board of P&R).

Because Vancouver encourages downtown residency, green space must be created within highly developed regions. Obviously, new parks cannot be built in such areas. A

proposed solution to the space predicament is an increased investment in rooftop gardens, i.e. patches of vegetation and produce that grow atop city buildings (Vancouver, 2011).

Aside from the traditional benefits of a community garden, rooftop gardens offer additional advantages to building efficiency like water absorption and building insulation (Peck, 2008). For this reason, many private organizations have partnered with the government of Vancouver to sponsor independent rooftop gardens. One of the earliest examples of a successful garden project was implemented by the YWCA of Vancouver on the roof of St. Paul's Hospital. According to a blogger from the cultural magazine *Granville*, the 2000-square-meter area of public green space atop the hospital has fashioned strong intercultural bonds among local employees, patients and constituents (Laidlaw, 2010). If the St. Paul partnership serves as an example of a successful rooftop garden, then it is likely that other similar projects can also make positive impacts on the livability of Vancouver.

Criticisms. Community gardens undoubtedly promote a more livable community, but one study published by New York University showed that urban infill often inflates the land value for surrounding properties (Been & Voicu, 2006). At first glance, higher property value may seem desirable to the city; however, the issue of gentrification arises once again when local demographics change because of steeper prices. Because community gardens create more valuable neighborhoods, it is possible that they might isolate certain demographic groups instead of uniting them. The biggest fear among critics is that ubiquitous gardens could drive out lower-income residents as more affluent citizens buy up neighboring property (Anonymous, 2010).

Although there is significant support for inner-city agriculture in Canada, some citizens question whether rooftop gardens are practical enough to implement on a large-scale. In an assessment of the feasibility of urban rooftop gardening, analyst Joseph St. Lawrence calls it an “impractical idea,” writing: “There are too many technical barriers to make gardening a convenient and inexpensive undertaking on most roofs” (St. Lawrence, 1996).

Overall, Vancouver is unquestionably a world leader in terms of livable urban design. Challenges exist, however, in the forms of social impact, practicality, and cost. Ambitious investments require extensive funding, and there is increasing debate over where those funds should come from. Though the city claims to have consulted with citizens in its planning phase, it has not been transparent in its budget nor the potential consequences for tax-paying Vancouverites (Marshall, 2011). There are undeniable issues with financing these measures, and these must be addressed before any major changes are carried out.

Conclusion

Vancouver has proven to be a world leader in sustainability and effective community planning. With a unique populace and progressive policy-making, Vancouver has met goals that would take some cities years to achieve. There is no shortage of support among Vancouverites for greening programs; nevertheless, it is possible that the ambitions of the 2020 plan outrun the means by which they can be accomplished. Budgeting is arguably the most prominent issue, for the city has yet to accurately project the costs of its sustainable investments (Marshall, 2011). There are also many questions

about the true economic impact of such a rapid transition on lower-income Vancouverites. All of these matters must be addressed if the 2020 plan is to be successful over the next decade.

In terms of portability, the culture of Vancouver gives it an advantage over less progressive regions of the world, such as the more conservative political climates of many American cities. The overall ambition of the community, however, is indeed replicable. Other city governments could certainly emulate similar goals as Vancouver, such as a zero-waste society and significant growth in green space. Transportation reform, in general, is also a reputable strategy for any major city. There is no doubt that the world can learn from Vancouver's efforts, even if it cannot reflect immediately the level of enthusiasm for such policy.

Whether or not Vancouver will become the greenest city on Earth by 2020 remains to be seen. There is much work to be done within the city, and other progressive communities could clearly surpass Vancouver given the right socioeconomic factors. One thing is certain, though: as of 2011, the city of Vancouver has one of the most ambitious sustainability plans in the world, and so far it shows signs of progress in obtaining its objectives. If city officials respond to the challenges facing the plan—finances, practicality and equality—it is likely that Vancouver will indeed achieve its goal as a metropolitan mecca for sustainable cities. Even if it does not finish first, however, Vancouver will always claim that it started the race to the greenest city title. And regardless of the outcome, the Greenest City 2020 plan will likely serve as a model for other communities for years to come.

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