Sightline INSTITUTE

SIGHTLINE REPORT

Slowing Down

Greater Vancouver's smart-growth leadership slips

May 2008

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SUMMARY

- British Columbia's government has set ambitious goals for reducing climate-warming emissions in the province. Because the transportation sector is British Columbia's largest single source of emissions, **channeling new growth into compact, walkable communities that allow residents to drive less** is critical for meeting the province's emissions goals.

- **Somewhat surprisingly, Greater Vancouver's leadership in compact growth *slipped* during the last census period, compared with the previous decade.** From 2001 through 2006, the share of new urban and suburban growth that went into compact communities declined, and the amount of land developed to accommodate new residents increased, compared with the two previous census periods.

- However, **the cities of Vancouver and North Vancouver have seen notable success in fostering walkable, pedestrian-friendly neighbourhoods.** Between 2001 and 2006, for example, Vancouver's pedestrian-oriented neighbourhoods flourished, with net growth of more than 27,000 residents–which is about four-fifths of the net population growth that occurred within city limits.

- If **current trends continue—and particularly if Greater Vancouver's smart-growth record continues to slip—the region will face greater challenges** in curbing climate-warming emissions in the coming decades. However, if BC's municipalities follow the lead of Greater Vancouver's most successful smart-growth neighbourhoods, they could set the province on course for substantial long-term emissions reductions from the transportation sector.

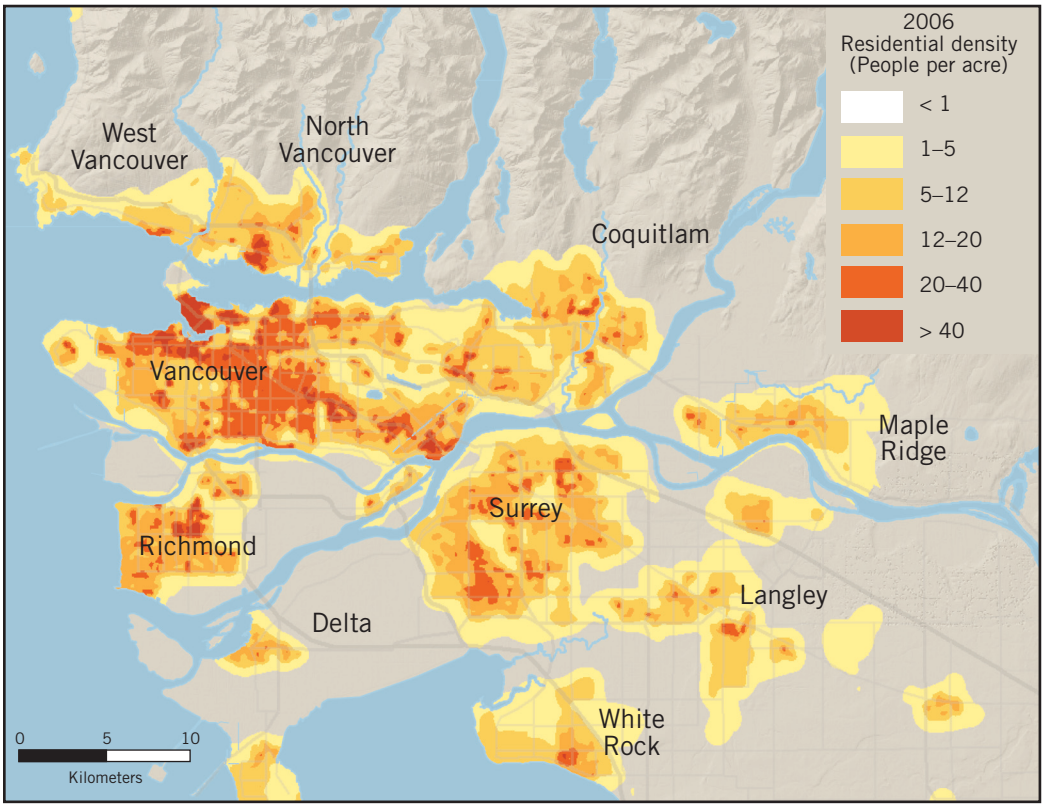
WHY WORRY ABOUT SPRAWL?

The troubling scientific consensus about global warming has prompted bold moves by British Columbia's provincial government to curb climate-changing emissions—including a provincial goal of cutting such emissions by one-third by the year 2020, and a proposed carbon tax that some have hailed as one of the most far-reaching climate protection policies in the world. Further changes are on the drawing board, including recently introduced legislation, Bill 27, that would require municipalities to set greenhouse gas emissions targets in their local growth plans.

Yet if the province is going to meet its aggressive goals for reducing emissions, it must find ways to address the substantial global warming contribution from the province's transportation system, which is far and away the largest source of climate-warming emissions in the province. Reducing transportation emissions will require not only substantial improvements in vehicle fuel economy, but also—and perhaps more crucially—substantial progress in creating compact, transit- and pedestrian-friendly neighbourhoods that ease car dependence for BC residents.

Extensive research, both in North America and globally, has confirmed that urban form is closely correlated with energy consumption. Sprawling land use patterns separate jobs, stores, and services from residential areas, thereby increasing the

GREATER VANCOUVER POPULATION DENSITY, 2006



Map 1. *Vancouver's compact urban core provides transportation choices that aren't available in the more sprawling, car-dependent suburbs.*

distance that residents must travel to meet their daily needs. Residents of sprawling areas rarely find walking, biking, and transit convenient; most trips require a car. In these ways, sprawl boosts fuel consumption and the attendant climate-warming emissions from daily travel.

Compact, walkable development, on the other hand, can put residents much closer to everyday destinations, and can give people the option of walking, biking, or using transit for many trips. Living in a compact neighbourhood lets residents meet their daily travel needs while consuming less gasoline and releasing less climate-warming pollution.

Residential density also serves as a rough proxy for other impacts of housing development. Person for person, low-density suburbs create more pavement and impervious surface, and affect more of the landscape, than do compact neighbourhoods. For example, at densities of one house per acre (a low-density suburb), impervious surface typically covers from 10 to 15 percent of the landscape—a level at which stream quality begins to deteriorate. The sensitive coho salmon rarely inhabit watersheds where impervious surface exceeds this level.

METHODS

To analyze compact development trends in British Columbia, Sightline analyzed data from the 1991, 1996, 2001, and 2006 Canadian censuses. For each census period, Sightline divided the landscape of Greater Vancouver into a 30-by-30 meter grid. For each location in that grid, Sightline calculated the population density of the smallest circle centered on that location containing at least 500 residents—a rough proxy for a residential neighbourhood.

Based on this fine-grained dataset of neighbourhood densities, Sightline determined the number of residents living in each density grouping: rural, suburban, compact neighbourhood, and pedestrian-oriented neighbourhood. These density classes do not necessarily correspond to particular transportation outcomes; yet they do provide a consistent gauge against which the smart-growth performance of different jurisdictions can be judged.

OVERVIEW

From 1991 through 2006, the municipalities and districts that make up Greater Vancouver added some 516,000 new residents—a population increase of nearly one-third in just 15 years. The region's population grew most rapidly between 1991 and 1996; slowed somewhat from 1996 to 2001; and slowed yet again between 2001 and 2006 (see Figure 1). Still, the pace of recent population increases has created strains for the region, ranging from rising

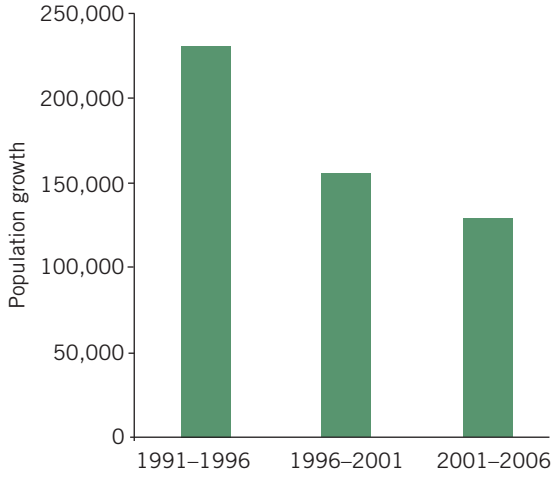


Figure 1. *Population growth has slowed in Greater Vancouver since the early 1990s.*

traffic congestion to new pressures to expand the highway system in the Lower Mainland to new threats to the limited supply of farmland remaining in the lower Fraser Basin.

Compared to many US cities, Greater Vancouver's growth since 1991 has been fairly compact. A combination of factors—including topographic constraints, British Columbia's province-wide farmland protection policies, political leadership committed to preserving a "livable region," and a less extensive highway system than is found in many parts of North America—helped to channel much of Vancouver's new growth into already-developed areas. These factors limited (but did not eliminate) the sort of low-density sprawl that marred many comparably sized US cities during much of the 1990s (see map of Greater Vancouver, page 2). By channeling growth into a more compact form, Metro Vancouver spared farmland and open space from development, while providing opportunities for residents to choose more fuel-efficient transportation options, such as transit, bicycling, and walking.

Yet there are signs that Greater Vancouver's smart-growth leadership may be slipping. The region marked its clearest smart-growth successes before 2001. Somewhat surprisingly, the pace of compact growth slowed over the most recent census interval.

GREATER VANCOUVER'S RECORD SLIPS

One way to gauge the pace of compact development and to compare different municipalities and metropolitan areas is by looking at the share of total urban and suburban growth that can be attributed to neighbourhoods with "compact" and "pedestrian-oriented" densities (see sidebar, "Defining Density").

Between 1991 and 2001, Greater Vancouver's cities and suburbs grew by nearly 381,000 residents. Over that period, the net growth in neighbourhoods with at least 20 residents per acre—"compact" densities—totaled some 255,000 new residents. Thus, the net growth in compact and pedestrian-oriented neighbourhoods accounted for about 67 percent of all urban and suburban growth during the 1990s.

However, between 2001 and 2006, Greater Vancouver's progress in channeling growth into compact neighbourhoods slowed, with compact neighbourhoods accounting for just 56 percent of new urban and suburban development—a disappointing decrease (see Figure 2).[1]

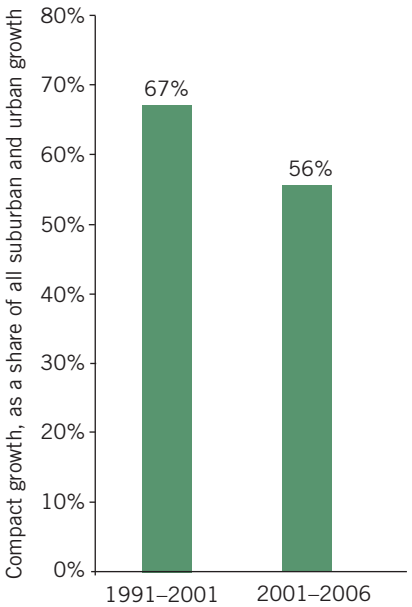


Figure 2. *In Greater Vancouver, the pace of smart growth has slowed.*

1 Note that some population growth in compact neighbourhoods was really the result of existing lower-density neighbourhoods adding just enough new residents to be considered "compact." If a neighbourhood with 15 residents per acre added 5 additional residents per acre, the net "compact" growth would be 20 residents per acre.

Likewise, by another key measure of sprawl—the acreage of newly suburbanized land per 100 new residents, which provides a proxy for the spread of sprawl— Greater Vancouver's performance also declined.[2] Between 1991 and 2001, this figure stood at 4.8 acres per 100 new residents in Metro Vancouver; that is, for every 100 new urban and suburban residents in the metropolitan area, about 4.8 acres of previously "rural" land (i.e., with less than one resident per acre) reached "suburban" or "urban" densities. However, from 2001 through 2006 this figure rose to 6.9 acres per 100 new residents—a 45 percent increase compared with the preceding decade (see Figure 3).

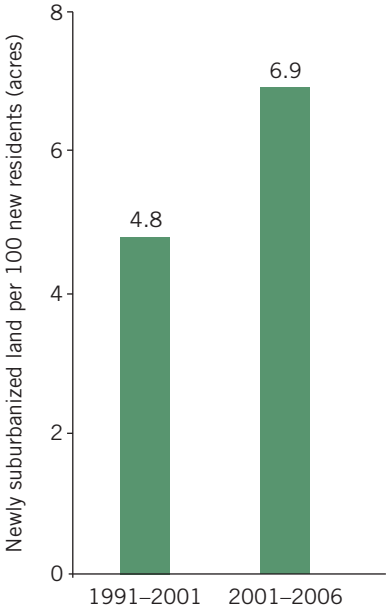


Figure 3. *Person for person, the acreage affected by Greater Vancouver's new development increased over the last census interval.*

2 Some caution should be exercised in interpreting this figure. Based on Sightline's methods, some agricultural land or other open space that is adjacent to suburban and urban development may be classed as "suburban." However, this complication is comparable among all cities Sightline has studied to date; and we believe that this statistic provides a useful comparison among different cities, or for the same city in different time periods.

DEFINING DENSITY

Description	Population density	Typical housing
Rural	Less than 1 person per acre	Houses on lots larger than 5 acres
Very low-density suburb	1–5 people per acre	Houses on lots of 1 to 5 acres
Low-density suburb	5–12 people per acre	Houses on lots of 0.2 to 0.5 acres
Medium-density suburb	12–20 people per acre	Detached houses on small lots, plus some townhouses, duplexes, condominiums, and accessory apartments
Compact neighbourhood	20 or more people per acre	Some detached housing, but townhouses and multifamily housing are common
Pedestrian-oriented neighbourhood	40 or more people per acre	Principally multifamily housing, with some attached housing and a few detached houses

Table 1. *For this report, residential zones in Greater Vancouver were classified in this manner.*

COMPARING GREATER VANCOUVER'S MUNICIPALITIES

The differences between Greater Vancouver's municipalities were stark. Some jurisdictions, particularly those close to the urban core of Vancouver itself, grew compactly, while the more rural and suburban jurisdictions farther from the urban core tended to sprawl. Some rural districts, not surprisingly, have relatively few residents in compact neighbourhoods.

Many of the differences among jurisdictions stem from quirks of history, geography, economics, and political boundaries. Yet differences among municipalities may also reflect differences in political and planning successes in channeling new development into compact neighbourhoods.

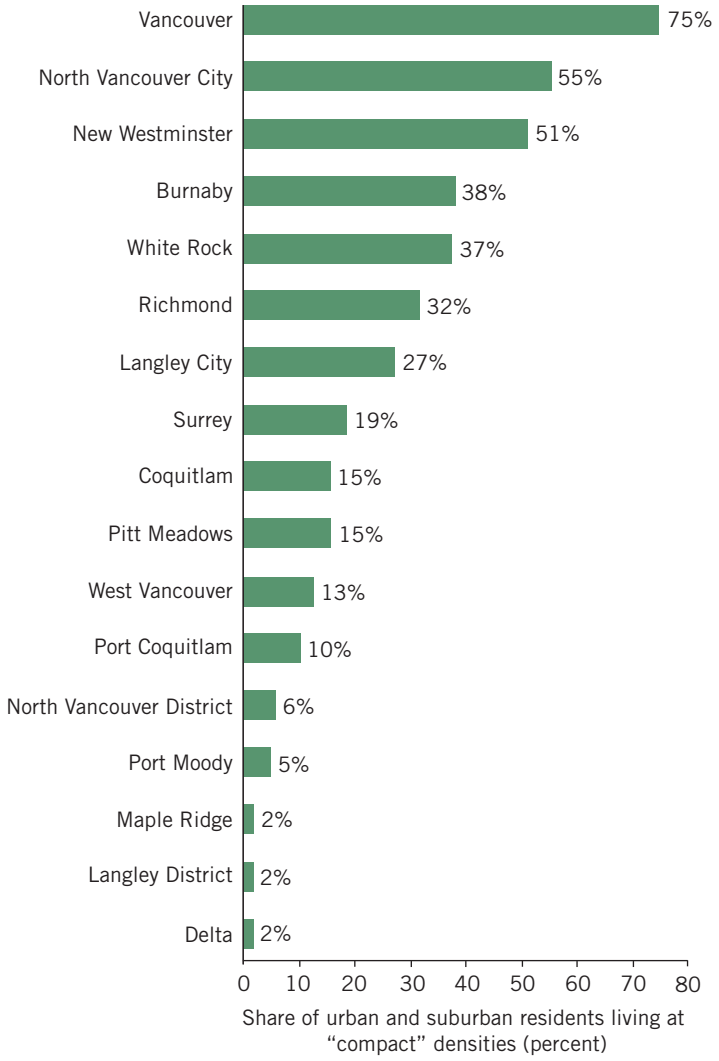


Figure 4. *Greater Vancouver's municipalities show stark differences in residential density.*

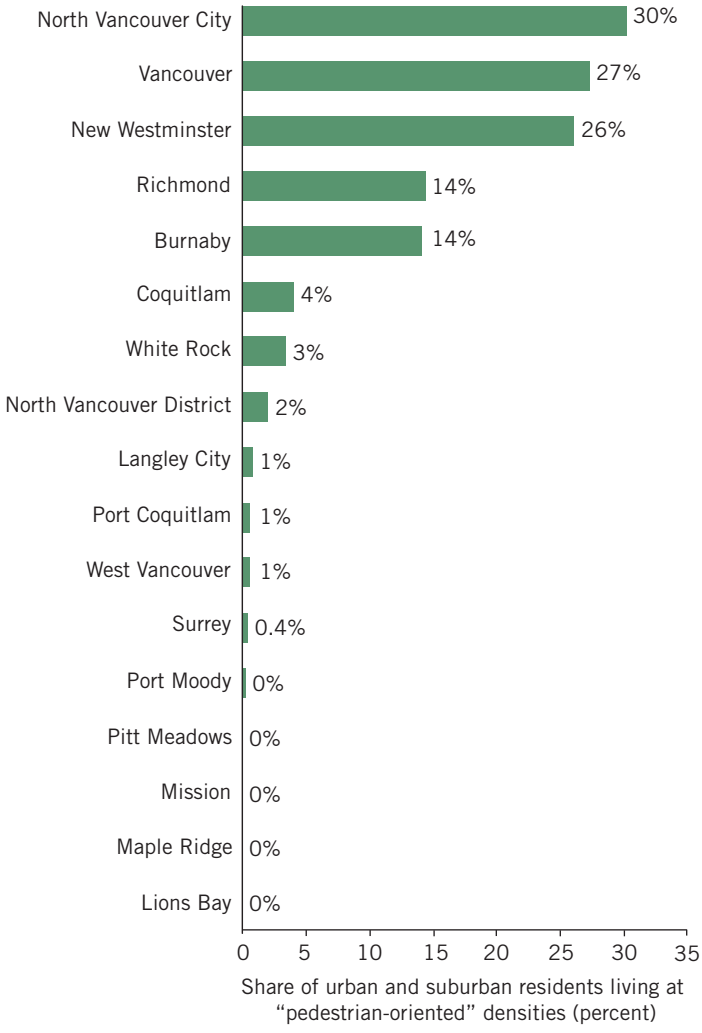


Figure 5. *The city of North Vancouver boasts the greatest share of residents at very compact, pedestrian-oriented densities.*

On the most basic measurement of compact development—the share of residents living in neighbourhoods with at least 20 residents per acre—the city of Vancouver led the way, with three out of four residents living at such "compact" densities as of 2006. Likewise, four other jurisdictions—White Rock, Burnaby, New Westminster, and the city of North Vancouver—could claim at least one in three residents at such densities (see Figure 4.) Virtually every municipality in Greater Vancouver has at least some pockets of compact development.

In some ways, though, a threshold of 20 residents per acre sets a low bar. International research suggests that travel on foot and bicycle truly begins to flourish when urban densities exceed 40 residents per acre. In these walkable neighbourhoods, residents are less likely to own cars; and they drive less, rely more on transit and walking, and consume far less fuel per person. "Pedestrian-oriented" neighbourhoods may thus represent a better model for reducing car-dependence and limiting fossil-fuel emissions.[3]

In Greater Vancouver, about one out of every eight residents now lives in a neighbourhood with "pedestrian-oriented" densities. The city of Vancouver is home to nearly two-thirds of them. Yet measured as a share of total population, several other municipalities also excel. In fact, the city of North Vancouver boasts a slightly greater share of its residents living at pedestrian-oriented densities than does Vancouver itself (see Figure 5).

Still, the city of Vancouver deserves special note for its success in promoting pedestrian-oriented neighbourhoods. By 2006, more than 1 in 4 city residents—or nearly 160,000 Vancouverites—lived in neighbourhoods with pedestrian-oriented densities. Moreover, the net increase in residents of Vancouver's pedestrian-oriented neighbourhoods represented fully *84 percent* of the city's overall population growth from 2001 to 2006, a substantial increase from previous census periods (see Figure 6). Without Vancouver's stellar record, the metropolitan area overall would have marked far less progress in boosting walkable, pedestrian-friendly neighbourhoods.

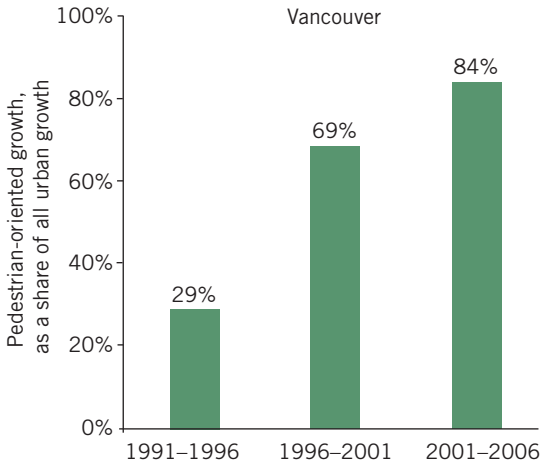


Figure 6. *Pedestrian-oriented development has skyrocketed in the city of Vancouver.*

3 Note that many neighbourhoods can be pedestrian-friendly—with good sidewalks and a good mix of stores and services—without being classified as having "pedestrian-oriented" densities. As was noted earlier, the density classifications used in this report do not necessarily correlate directly with particular transportation outcomes. Still, the "pedestrian-oriented" designation is consistent with a large body of international research on urban structure and transportation mode choices.

CONCLUSIONS

Greater Vancouver remains one of the smart-growth leaders of the west coast of North America. But if British Columbia is truly to meet its climate targets and reduce the substantial greenhouse gas emissions from its transportation sector, the province's largest metropolitan area must do better. Although a number of municipalities in Greater Vancouver have succeeded in fostering compact, walkable neighbourhoods in recent years, the overall declines in smart growth over the last census interval should serve as a warning signal for policymakers.

For Greater Vancouver to maintain its smart-growth leadership, meet the province's ambitious commitments to greenhouse gas reductions, and preserve its reputation as one of the world's most livable metropolises, the region can focus its efforts on four key policy areas:

- **Transportation investments. Greater Vancouver** owes much of its smart-growth success to the fact that—unlike most North American cities—it is not traversed by a major highway. But recent highway expansion proposals in the Lower Mainland—particularly the twinning of the Port Mann bridge and the widening of Highway 1—could further jeopardize the region's smart-growth successes. Highway expansions tend to increase traffic volumes and climate-warming emissions; foster low-density development at the urban fringe; weaken city centers; and increase development pressures on agricultural lands. (For more information, see Sightline's analysis of the climate impacts of highway expansion.)

- **Public health**. Walkable neighbourhoods can provide significant health benefits to the residents of Greater Vancouver, particularly as the population ages. Fostering pedestrian-oriented development can help residents remain physically active, reducing rates of obesity and cardio-vascular diseases, and related health care costs. (For more information, see Sightline's Cascadia Scorecard 2006: Focus on Sprawl and Health.)

- **Energy and climate policy.** With British Columbia's newly introduced carbon tax and soaring gas prices, building more compact, transit- and pedestrian-oriented neighbourhoods will help residents meet their daily travel needs with less impact on the climate and less strain on their wallets. (For more information, see Sightline's climate policy series.)

- **Regional Planning.** The stark differences in compact growth patterns among Greater Vancouver's member municipalities point out the need for better-coordinated regional planning. Regional growth strategies can be essential in developing a coordinated, region-wide response to the pressures of a growing population. (For more information, see Smart Growth BC's comments on Metro Vancouver's Regional Growth Strategy, and its submission to the provincial Climate Action Team.)

ACKNOWLEDGEMENTS

Josh Livni of Umbrella Consulting conducted the GIS analysis and created the maps in this report. This work draws from previous efforts by Tim Schaub, Chris Davis, and Matt Stevenson, formerly of CommEn Space.

Sightline is grateful for the assistance of the staff of Smart Growth BC, particularly Cheeying Ho and Alice Miro, for invaluable insights into smart-growth planning in Greater Vancouver. This work was made possible by a generous gift from the Endswell Fund at Tides Canada Foundation and the Contorer Foundation.