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Unlivable Strategies: The Greater Vancouver Regional District and the *Livable Region Strategic Plan*

by Randal O'Toole

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Executive Summary

The Greater Vancouver Regional District (recently renamed "Metro Vancouver") published its *Livable Region Strategic Plan* in 1996 with the goal of maintaining the livability of the Vancouver metropolitan area. A decade later, it is clear that the plan contains serious flaws that are actually making the region less livable each year.

In writing the plan and the plan's predecessors, the region's leaders could have focused on reducing the impacts of growth through technical solutions, such as controlling auto emissions, and through user fees and incentives that ensure people pay the full costs of their housing, transportation, and other choices. Instead, planners focused on efforts to change people's behaviour by manipulating and strictly regulating land uses.

District planners narrowly focused on two goals: avoiding urban sprawl and minimizing automobile driving. Not only are these the wrong goals, the tools they chose to accomplish these goals will have minimal effects on driving and are not needed to protect British Columbia's farms, forests, and open space. Density, housing types, and the balance of jobs and labour—the tools emphasized in the plan—have only marginal effects on the amount of driving people do.

On the other hand, the plan has significant adverse effects on housing affordability, mobility, and, in all likelihood, pollution and energy efficiency. Thanks to the plan and its predecessors, Vancouver has the least affordable housing and some of the worst congestion in Canada. Congestion, in turn, wastes fuel and generates more pollution.

There is little evidence that district planners made a serious effort to identify and evaluate alternatives or assess the tradeoffs inherent in their plan.

- In the name of protecting open space, the plan prohibits development in 70 percent of the region, even though much of that land is not particularly valuable for agriculture or other purposes.
- In the name of offering more housing "choice," the plan accepts (and, in fact, relies on) dramatically unaffordable housing prices.
- In the name of "building complete communities," the plan is destroying the unique character of communities in the Vancouver region.
- In the name of offering "transportation choice," the plan calls for building and operating an extremely inefficient and wasteful transportation network.

The urban planners who wrote the plan relied heavily on urban design as a tool for accomplishing their goals, when in fact design only has a minimal effect on driving and livability. Planners also unduly worried about means to ends rather than the ends themselves. For example, instead of finding the most efficient way to reduce pollution and other harmful effects of the automobile, they simply decided to try to reduce driving.

All of these problems were predictable and predetermined by the decision to treat the region's problems through a central planning process, a decision originally made in the 1960s and affirmed by the 1995 provincial Growth Strategies Act. That act designated a process that was focused on urban design, sprawl, and driving rather than on real measures of livability such as congestion, pollution, affordability, and easy access to urban open space. Unfortunately, an urban region like Vancouver is simply too complicated to plan, and any effort to do so will necessarily produce the serious problems that this plan is causing.

In 1973, when the Greater Vancouver Regional District was writing its first plan for the region, it hired an internationally known planner named Hans Blumenfeld to review its ideas. Blumenfeld warned then that an obsessive focus on protecting open

space would make housing unaffordable and was not needed to protect farms and forests. He also warned that efforts to reduce auto driving were both futile and would impose high costs on the region's residents. His predictions have proven accurate but his advice was ignored.

The solution to the problems identified in this report is not a better plan, but something completely different from planning. This report recommends:

- The province and region should rely on technical solutions to the negative effects of sprawl and driving, such as improving auto emission controls, rather than trying to curb sprawl and driving themselves;
- The region and cities in the region should allow people to make their own choices about housing and modes of transportation, but should ensure that people pay the full costs of their choices;
- The province should break up the Greater Vancouver Regional District into a set of agencies, each of which are focused on a specific mission, such as water, sewage, or parks. As far as possible, such agencies should be funded out of user fees that link producers to consumers. None of these agencies should attempt to do comprehensive planning for the region.
- Most of these agencies, including those focusing on water, sewer, and parks, should be further broken up into smaller geographic units, each serving a portion of the region.
- The province should also create a regional tollroads authority that can sell bonds, build new transportation facilities, and pay for those facilities out of tolls.
- Transit should be managed by one or more agencies that have incentives to find the most cost-effective forms of transit for each subregion or corridor. This will probably mean a heavier emphasis on bus service and no new rail construction. Transit subsidies should be given to transit users in the form of vouchers rather than to transit bureaucracies.
- Cities in the region should either disband their planning offices or transform them into agencies that seek incentive- and user-fee-based solutions to problems rather than design-based solutions.

Introduction

The Greater Vancouver Regional District (recently renamed "Metro Vancouver," but referred to elsewhere in this paper as "the District") adopted the *Livable Region Strategic Plan* ("the LRSP" or "the plan") in 1996 to guide the future growth of Vancouver, British Columbia and the region that surrounds it. Although the plan claims to be a comprehensive growth-management plan, it really only covers four items:

- "Protect the Green Zone," land that encompasses some 70 percent of the region;
- "Build complete communities," meaning communities that have a balance between labour and housing;
- "Achieve a compact metropolitan region," focusing growth on a "growth concentration area"; and
- "Increase transportation choice," placing an emphasis on transit, biking, and walking (GVRD, 1996, p. 9).

The Greater Vancouver region has been the focus of urban and regional planning for many decades. As early as 1914, a Greater Vancouver Sewerage and Drainage District was created to handle regional sewage and runoff problems. A Greater Vancouver Water District was formed in 1926 (Oberlander, 2006).

In 1949, the BC legislature followed the example of the British parliament (which passed a Town and Country Planning Act in 1947) by passing a Town Planning Act. This law created a Lower Mainland Regional Planning Board that had planning authority over the Vancouver region and other parts of lower BC. Its plans were "mandatory," meaning the cities and towns in its jurisdiction had to follow them (Oberlander, 2006). By today's standards, however, the initial plans were minimally restrictive, and the planning board mainly concentrated on things like locating airports and industrial areas (Archives and Records, 2006, pp. 11-12). However, the planning board's 1966 *Official Regional Plan* was much more restrictive as it greatly limited the amount of land available for future housing in the region.

In 1965, the legislature passed the Municipal Act, which divided the province into regional districts. The Greater Vancouver Regional District was formed in 1967 to take over the planning tasks of the Lower Mainland Regional Planning Board for the Vancouver region. The district soon merged with the sewer and water districts, a regional parks district, and eventually took over social housing, air pollution, and other functions as well (Oberlander, 2006).

In 1983, the conservative (Social Credit) government responded to a depressed economy by stripping the district of its planning authority. With the voluntary approval of the municipalities in the region, it continued to plan anyway (Oberlander, 2006).

In 1990, the district published *Creating Our Future: Steps Towards a More Livable Region*, a "vision" for the future. Planners proudly noted that this document was prepared with input from 4,000 people, about one-quarter of 1 percent of the region's 1990 population.

Perhaps inspired by this document, a more liberal (NDP) government restored the district's planning authority in 1995, and further authorized the district to do "growth management planning" in order "to promote human settlement that is socially, economically, and environmentally healthy and that makes efficient use of public facilities and services, land, and other resources." The 1995 Growth Strategies Statutes Amendment Act ("the act") specifies that the plan should "work towards" fourteen goals, the first two of which are "avoiding urban sprawl" and promoting "settlement patterns that minimize the use of automobiles and encourage walking, bicycling, and the efficient use of public transit." The other

goals include such things as efficient transportation, reducing pollution, ensuring affordable housing, efficient energy usage, and supporting the unique character of communities (BC Legislature, 1995).

The BC legislature passed the Growth Strategies Act in May 1995. Having already gone through its *Creating Our Future* process, the district was ready to publish its *Livable Region Strategic Plan* just eight months later, in January 1996. This plan, however, failed to address many of the fourteen goals specified by the act. Instead, the plan focuses almost completely on the first two goals of the act—avoiding sprawl and reducing driving—and does not necessarily use the right tools to achieve these goals. The plan also did not consider any alternatives that might have achieved some or all of the goals better than the proposal outlined by *Creating Our Future* (GVRD, 1993).

The plan argues that the historic "pattern of growth meant a gradual loss of available farmland and green space, reduced air quality, ever-increasing distances between where we live and work, and increasing reliance on the automobile." To counter this, the plan adopted its four basic policies: protect open space, build complete communities, compact development, and increased transportation choices.

Through these policies, planners want to control where people live, the kind of housing they live in, where they work, and how they get to work. While individuals in the Greater Vancouver Region may not feel they are personally being manipulated, when planners set goals of, say, decreasing the percentage of families who live in single-family housing or the percentage of commuters who drive to work in single-occupancy vehicles, they are closing options and increasing costs for hundreds of thousands of people in the region. This paper will show that the impacts of these decisions fall hardest on low-income families.

At no time in the Greater Vancouver Regional District's 40-year history has the district considered alternatives to regulatory land-use planning. For example, Canada has achieved astounding success at reducing air pollution by controlling tailpipe emissions. By contrast, attempts to clean the air by reducing driving via land-use policies have been a miserable failure. Yet the district persists in following this course.

To analyze the plan, this report relies on data gathered by Statistics Canada, Transport Canada, and other federal agencies; the province of British Columbia, the Greater Vancouver Regional District, the Greater Vancouver Transportation Authority, and other regional and municipal agencies. This paper also reviews the plan's predecessors, starting with the 1996 regional plan published by the Lower Mainland Regional Planning Board.

Based on these data, this paper will review the four major parts of the plan and show that the plan is not meeting many of the goals established for growth-management plans by the Growth Strategies Act. The paper will then show that the approach the government should have taken to regional problems is very different from growth-management planning: it should focus instead on a combination of user fees, market incentives, and technical solutions to specific problems. This approach will also require very different institutional structures, so this paper will recommend a restructuring of the Greater Vancouver Regional District.

The Livable Region Strategic Plan

In 1995, the British Columbia legislature passed a Growth Strategies Act that gave Greater Vancouver Regional District planners fourteen goals:

a. Avoid urban sprawl and ensure that development takes place where adequate facilities exist or can be provided in a timely, economic, and efficient manner;
b. Settlement patterns that minimize the use of automobiles and encourage walking, bicycling and the efficient use of public transit;
c. The efficient movement of goods and people while making effective use of transportation and utility corridors;
d. Protecting environmentally sensitive areas;
e. Maintaining the integrity of a secure and productive resource base, including the agricultural and forest land reserves;
f. Economic development that supports the unique character of communities;
g. Reducing and preventing air, land, and water pollution;
h. Adequate, affordable, and appropriate housing;
i. Adequate inventories of suitable land and resources for future settlement;
j. Protecting the quality and quantity of ground water and surface water;
k. Settlement patterns that minimize the risks associated with natural hazards;
l. Preserving, creating, and linking urban and rural open space, including parks and recreation areas;
m. Planning for energy supply and promote efficient use, conservation, and alternative forms of energy;
n. Good stewardship of land, sites, and structures with cultural heritage value (BC Legislature, 1995b).

Despite this wide-ranging list of goals, the *Livable Region Strategic Plan* has only four parts:

- Protect the Green Zone
- Build complete communities
- Achieve a compact metropolitan region
- Increase transportation choice

Protect the Green Zone

The Green Zone covers about 205,000 hectares, or 72 percent of the Greater Vancouver District. This includes 53,700 hectares in the province's agricultural land reserve (less than 40,000 hectares of which are actually agricultural lands), 91,970 hectares that are protected habitat areas, and 11,714 hectares of regional parks (some of which may also be protected habitat) (GVRD, 2004, p. A9; GVRD, 2003a, pp. 9, 14).

The main purpose of keeping the Green Zone off limits to development is to promote the act's goal of avoiding urban sprawl. It could also be argued that it meets the goals of protecting environmentally sensitive areas, the resource base, and open space.

Annual reports published since 1996 indicate that a few hectares of the Green Zone have been developed each year. As of 2005, for example, property owners had been permitted to remove a total of 276 hectares of land from the agricultural land reserve, and presumably many of these hectares have been developed. Otherwise, it is likely that almost all development in the region has been concentrated outside of the Green Zone.

Unfortunately, protecting the Green Zone and the third policy of achieving a compact region both conflict with the act's goal of ensuring affordable housing. In their zeal to avoid urban sprawl, planners have produced an artificial land shortage in a region that has some of the lowest population densities in the world: only 14 of 230 nations in the world have lower densities than British Columbia's average density of 4 people per square kilometre (United Nations, 2004). This land shortage has contributed

to Vancouver becoming the least affordable housing market in Canada.

Build complete communities

This policy aims to support the act's goal of reducing automobile driving. Planners believe, without much evidence, that "complete communities" will allow people to walk, bicycle, and ride transit more and drive less. Complete communities means communities that have:

- A diversity of housing types, including rowhouses and apartments;
- A diversity of housing tenures, including both rental and owner-occupied housing, in each part of the region;
- Mixed-use developments, i.e., developments that include both residential and retail or commercial uses; and
- A balance of jobs and labour, so that everyone who lives in a community can potentially work in that community.

Surveys show that more than 70 percent of Canadians aspire to live in a single-family home (RBC, 2007, p. 13). But a community consisting mainly of single-family homes is not good enough for planners, who consider such homes undesirable because they tend to be too low in density to support high levels of walking, cycling, and transit riding. In 1961, 58 percent of all new dwellings built in the Vancouver region were single-family homes. By 2005, planners successfully reduced this to 26 percent (GVRD, 2006a). Policies promoting multi-family housing at the expense of single-family homes effectively deny up to 32 percent of the region's families from achieving their aspiration.

Planners hope that people living in apartments will be less likely to drive than those living in single-family homes. They place even greater faith in mixed-use developments, which allow people to simply walk downstairs from their apartments to shop or eat in ground-floor retail stores or restaurants.

Planners also hope that a balance of jobs and labour will allow people to travel shorter distances to work. Achieving this goal will be difficult. Burnaby, for example, has 16 percent more jobs than it has workers, so the city will have to slow the growth of employment to achieve its balance (City of Burnaby, 2003, p. 3). Surrey, meanwhile, only has 0.55 jobs per worker, so it will have to gain 160,000 new jobs to achieve a balance by 2021 (City of Surrey, 2003, p. 283).

The policy of providing a balance of rental units and owner-occupied housing will not do much for reducing driving. For example, some municipalities such as Lions Bay are almost entirely made up of single-family homes that are mainly owner occupied. This goal pressures the community to rewrite its zoning codes to allow homeowners to build and rent apartments (sometimes known as "granny flats") in or adjacent to their homes. Such apartments increase density, but will do little to reduce driving.

Achieve a compact metropolitan region

This policy is aimed at both avoiding sprawl and (because planners believe that higher densities lead people to drive less) reducing driving. To achieve this objective, the plan calls for most growth to take place in a growth concentration area. This area (sometimes called the GCA) includes Vancouver, Burnaby, New Westminster, Coquitlam, Port Coquitlam, Port Moody, Anmore, Surrey, and the northeast corner of Delta. It excludes Pitt Meadows, Maple Ridge, Langley, North and West Vancouver, Richmond, Belcarra, most of Delta, and all of the unincorporated areas of the district (known as Electoral Area A) except the University of British Columbia area (GVRD, 1996, p. 12).

In 1991, 65 percent of the region's population lived in the GCA. The plan's goal is to increase this to 70 percent by 2021 (GVRD, 1996, p. 12). So far, the region has made little progress toward this goal; the

2006 census revealed that only 65.2 percent of the population lives in the GCA. To reach the 70 percent goal, 80 percent of the population growth over the next fifteen years must be within the GCA (GVRD, 2006d, p. 6).

Increase transportation choice

This policy aims to reduce driving by providing more transportation choice including walkways, bike routes, and transit lines. According to the plan, the region's transportation goal is to "reduce automobile dependence." Meanwhile, the region's road network is to be managed "to achieve LRSP [*Livable Region Strategic Plan*] objectives" (GVRD, 2006b, p. 15). One of the objectives is to "discourage the single-occupancy vehicle" (GVRD, 1996, p. 13). This means that new road construction priorities will be, first, high-occupancy vehicles, goods, and interregional travel, and last, single-occupancy vehicles (GVRD, 1996, p. 23).

The vast majority of travel in the Greater Vancouver Region is by automobile. According to data collected by the Greater Vancouver Transportation Authority (TransLink), more than three out of four regional trips are by automobile (GVTA, 2005, pp. 25-27).

The census reveals that the vast majority of commuting is by single-occupancy automobile. Data are not yet available from the 2006 census, and the 2001 census was skewed by a transit strike. The 1996 census found that 64 percent of commuting in the Vancouver region was by single-occupancy auto, while 13 percent was by carpool, 14 percent by transit, and 6 percent on foot.

By their choices, these commuters are saying that the most efficient way for them to get to work is by single-occupancy automobile. But planners want to discourage single-occupancy driving, and planners apparently believe that this objective outweighs the act's goal of "efficient movement of goods and people."

Predecessors to the plan

The *Livable Region Strategic Plan* is a refinement of several previous plans that have been written for the region. These plans include:

- The *Official Regional Plan* approved by the Lower Mainland Regional Planning Board in 1966;
- The *Livable Region 1976/1986*, approved by the Greater Vancouver Regional District in 1976; and
- *Creating Our Future Steps: Towards a More Livable Region*, published by the GVRD in 1990.

The 1966 *Official Regional Plan*

Like the present plan, the 1966 plan attempted to control sprawl. However, in the 1960s sprawl had a very different definition from the one commonly used today. Today, sprawl refers to low-density development. In 1966, the worry was over "leapfrog development," i.e., development taking place far from the urban fringe.

Land for Living, a 1963 report published by the Lower Mainland Regional Planning Board, included maps showing that development was taking place on small parcels all over the Lower Mainland, often separated from one another by kilometres of undeveloped land. The result, the planners worried, was that residents were getting inadequate urban services. "*All new residential land should first be adequately serviced*," the document proposed; "conversely, *no new urban development should be allowed unless adequate services are first provided*" (emphasis in original) (LMRPB, 1963, p. 2).

The idea that government should have a major role in controlling growth was very new in 1963. People accepted zoning, which cities began using after World War I, as a way to protect neighbourhood property values. But until the 1960s, undeveloped areas were either not zoned or placed in some low-density "holding zone" until the owners were ready to develop the property. If there was any zoning at all, municipalities readily agreed to the rezoning requested by the landowners and developers.

In about 1963, the executive director of the Lower Mainland Regional Planning Board explained the need for planning to a community workshop by reciting a poem. The poet built a house on "a quiet street" and established a garden around the house. But to his dismay, one next-door neighbour turned his land into a used car lot, while another neighbour built a high-rise apartment building whose shade "ruined half my garden." "I'm moving out tomorrow," concludes the poet, "my house I cannot sell. I wish they'd planned the city, I wish, I wish, oh hell!" (Parker, 1963).

The simple zoning that was prevalent in the 1960s was designed to prevent what lawyers call a nuisance and what economists call an externality. A neighbourhood of single-family homes can maximize the value of all properties in the neighbourhood if everyone maintains their home. But if one landowner builds an apartment building in the neighbourhood, that owner can increase the value of their property at the expense of reducing the value of their neighbours' properties. Potentially, the total loss in neighbouring property values could be greater than the increased value of the apartment property. In 1927, the US Supreme Court specifically used this possibility as a justification for using zoning to prevent nuisances or externalities (US Supreme Court, 1926).

However, it is a huge step to from using zoning to prevent nuisances to using planning and zoning to prevent development of some people's property solely to enhance the value of other people's property. This was a step that the Lower Mainland Regional Planning Board took in 1966.

The *Official Regional Plan* of 1966 was, in essence, a series of maps that placed all lands in the Lower Mainland into one of five basic categories: urban, rural, industrial, park, and reserve. All agricultural lands were "reserved for agricultural production." Other undeveloped land was to be urbanized "only as development trends warrant." Steep slopes, floodplains, and isolated lands were to be reserved "until such time as detailed studies document the need for more intensive use of these areas" (LMRPB, 1966, p. 6).

Significantly, the plan did not identify how many acres were included in each category or estimate how much land would be needed for development in future years. Thus, decision makers and other reviewers had no idea whether the plan provided

enough land for urban development to allow for the growth of the region.

The GVRD takes over

The 1966 plan was the last hurrah of the Lower Mainland Regional Planning Board. A 1965 act had replaced regional planning boards with smaller regional districts. The Lower Mainland Region was divided into four districts: Greater Vancouver, Central Fraser Valley, Dewdney-Alouette, and Fraser-Cheam.

A 1973 article in *Canadian Public Administration* approvingly describes the creation of the GVRD as a way of imposing a consolidated metropolitan government on the Vancouver region without making it appear that such a metropolitan government was being created. Since a previous attempt to consolidate Vancouver with its suburbs had failed, this "was a deliberate policy adopted by Municipal Affairs Department strategists in the mid-1960s even though for several years the Minister publicly argued that the regional district was not a metropolitan government." The institutional structure was considered "unique" for Canada even though the result was the same as in other urban consolidations: it put central planners in control of an entire metropolitan area (Tennant and Zirnhelt, 1973).

The GVRD's planners were governed by a board made up of elected officials representing the various municipalities in the district. But those officials had their own agendas that biased the plans prepared by the GVRD. As Surrey Mayor Doug McCallum observes, GVRD board members "don't make decisions on what is good for the region. Instead, they decide on what is good for their cities" (Ferry, 1998).

As the GVRD started exercising its authority in the early 1970s, it was clear that there were serious problems with the regional plan. Developers were running out of land, and land and housing prices were rising rapidly. The 1961 and 1971 censuses had found that the price of an average single-family home in the Vancouver metropolitan area was about 2.5 times average family incomes (Statistics Canada, 1963a, tables 73 and 74; Statistics Canada, 1963b, tables 60 and 66; Statistics Canada, 1973a, tables 34 and 37; Statistics Canada, 1973b, tables 34 and 37). Depending on interest rates, this meant that an average family could afford to buy a home and devote 25 to 30 percent of its income to paying off the mortgage in 15 to 20 years. This 2.5 home-value-to-family-income ratio was about average for Canadian metropolitan areas in those years.

During the 1970s, however, Vancouver housing prices had soared well above those in the rest of Canada. By 1980, the average home cost 5.7 times the average family income, making it the nation's least-affordable housing market (Statistics Canada, 1983a, table 7; Statistics Canada, 1983b, table 19). Considering the high interest rates at the time, this meant that an average family would have to devote more than 70 percent of its income to pay off a mortgage on an average home in 30 years.

These trends were already apparent in 1974, when the young GVRD published a policy paper on "housing, land supply, and land prices." The policy paper noted the "housing crisis" in the region was partly due to increased construction costs and higher interest rates. "But the major factor in rapidly increasing house prices is the cost of raw land," said the report (GVRD, 1974). Left unsaid was the fact that raw land prices were high because the regional plan the GVRD had inherited from the regional planning board excluded so much land from development.

The transfer of planning authority from the Lower Mainland Regional Planning Board to the GVRD created an opportunity to change course. A lot of land was not permanently excluded from development by the planning board's regional plan, but only deferred pending "detailed studies." The GVRD could have done those detailed studies. Or it could have revisited the regional plan's blanket permanent exclusion of farmlands and other lands from

development. But it did neither of these things; in fact, though the policy paper mentioned above included a long list of things the region could do to relieve the housing crisis, that list did not include making more land available for development.

One reason for this was the incentives facing GVRD board members. This was pointed out by Hans Blumenfeld, a consultant hired by the GVRD to review its plans in 1973. Blumenfeld was an internationally known planner who had helped write Toronto's regional plan and was the author of the 1967 book, *The Modern Metropolis: Its Origins, Growth, Characteristics, and Planning*. In a series of memos written in 1973, Blumenfeld identified many weaknesses in the regional plan.

For one thing, Blumenfeld noted, most GVRD board members had an inherent conflict of interest about the future growth of the region. "It is no secret," Blumenfeld wrote, that concerns about urban sprawl were partly "motivated by fiscal considerations, forced on the municipalities by their almost complete dependence on the 'real property' tax." People who own homes outside of a city do not pay taxes to that city. By restricting rural development, the officials who approved the regional plan were enhancing the revenue base for their cities.

Blumenfeld also noted that, since expensive homes pay more tax than inexpensive ones, cities had an incentive to approve expensive housing and discourage affordable housing. The result, said Blumenfeld, was "oligopolistic high land prices." Such high prices "are usually blamed on speculators and large-scale developers," observed Blumenfeld. But in fact, they are "created by municipal policies" (Blumenfeld, 1973a, pp. 5-6).

In another memo, Blumenfeld commented on the policy of protecting farmlands and steep slopes from development. "Generally, the land best suited for urban development is also best suited for agriculture," he noted. "It is therefore frequently advocated that urban development should be kept out of this land." But many countries that are short on land extensively farm "land which in Canada is not considered for agriculture." Examples include terraced hillsides in China and Japan and reclaimed tidal flats in the Netherlands. "If farmland should ever become equally scarce in Canada, we could and no doubt would enlarge it by similar measures" (Blumenfeld, 1973b, p. 4). Of course, farmland is not scarce in Canada or even British Columbia.

Blumenfeld suggested that it would be less expensive to transform "an acre of class 3 or 4 farmland into class 1 or 2 by soil improvement, drainage, or irrigation" than it would be to impose higher housing costs on homebuyers, and he urged the GVRD to study this possibility (Blumenfeld, 1973b, p. 4). Of course, it did not.

"It should be admitted that the main reason for the preservation of farmland in the GVRD and the Lower Mainland is not economic nor even social," Blumenfeld stated, "but its value as scenery for the enjoyment of the urban population" (Blumenfeld, 1973b, p. 5). In other words, planning restrictions were reducing the value of some people's property solely to enhance the value of other people's property—with the side effect that the restrictions were also creating a housing shortage.

Such restrictions might be good for the people who already owned their own homes. But, Blumenfeld noted, in 15 to 20 years, "80% of the population of the GVRD will consist of persons who are not yet there. They have no vote, but it is their living conditions which are determined now. Who speaks for these voteless people who are not yet here? Only the planner can perform this thankless task" (Blumenfeld, 1973b, p. 3). By failing to do so, planners imposed a huge cost on future homebuyers in the region.

Blumenfeld also suggested that people be allowed to build on steep slopes, where residential development is "scenically attractive." While the cost may be higher than building on flat land, many people are willing to pay that cost and "they should be encouraged to do this," because the alternative is

more development of level (and possibly agricultural) land (Blumenfeld, 1973b, p. 5).

Blumenfeld also criticized the notion that the GVRD should try to discourage automobile driving. "Mobility is a very important objective," he wrote. The costs of reducing mobility, he observed, included:

1. Fewer job choices, lower incomes, and "lower productivity and production to the community";
2. Reduced residential choices;
3. High costs imposed on people when they change jobs because they may be forced to move to be close to their jobs;
4. High costs imposed on deliveries of goods and services (Blumenfeld, 1973c, p. 1).

Indeed, recent research has found that mobility is very important for personal incomes and worker productivity. A 10 percent increase (or decrease) in average commuter speeds, the research found, results in a 3 percent increase (or decrease) in worker productivity, which usually translates to changes in worker incomes (Prud'Homme and Lee, 1999).

Perhaps because he was an outside consultant, Blumenfeld was the only person at the GVRD who appeared willing to recognize, in print at least, the tradeoffs inherent in planning. He specifically observed that efforts to "keep urban development compact" and "contain urban development within a broad greenbelt" were in conflict with other objectives approved by the GVRD board, including an objective of keeping lot prices affordable enough that more families could afford single-family homes (Blumenfeld, 1973d, p. 6).

Blumenfeld might as well have saved the ribbon on his IBM Selectric typewriter, as nearly all of his comments and recommendations were ignored by the GVRD. Instead of trying to relieve high housing prices and improve mobility, the GVRD published a plan in 1975 that, if anything, made those problems worse.

The new plan maintained the restrictions of farmlands and formally ended the possibility that "detailed studies" might allow future development of steep slopes or other undeveloped lands outside of established cities. Planners also decided to use transportation "strategically to bring about development" rather than as a tool for efficient movement of people (GVRD, 1975, p. 9).

One of the members of the GVRD board coined the term "livable region" to describe the philosophy of this plan (Lash, 1976, p. 45). From then on, "livable" became a word that the GVRD used in all its planning documents, as if repeated use of this mantra would lead people to overlook the fact that the regional planners had made the region less livable by increasing housing prices, imposing densities, and increasing traffic congestion.

The 1975 *Livable Region* plan did depart from the 1966 *Official Regional Plan* in one key area. The *Official Regional Plan* was based on a monocentric view of the region; that is, it assumed that most jobs were in Vancouver and most suburban workers would commute to those jobs. Monocentric cities were built primarily in the nineteenth century when intercity rail transport encouraged centralization of industry, but limited urban transport discouraged suburbanization. New York City, which has 2.5 million jobs in one central location, is the best example we have today of a monocentric city.

In contrast, the 1975 plan was based on a polycentric view of the region. As the plan stated, the board's policy had changed "From acceptance of the concentration of jobs in Vancouver City, to a policy of distributing employment in the Region by creating several major Regional Town Centres outside the central city" (GVRD, 1975, p. 9). Polycentric cities began to develop in the 1890s and early 1900s, when first electric streetcars and then automobiles allowed more people and jobs to decentralize. Los Angeles, which has jobs spread out in more than 100 job centers, none of which have more than 4 percent of the region's jobs, is the classic polycentric region.

Even "polycentric" does not adequately describe today's urban regions, however. No more—and in some cases much less—than 30 to 40 percent of the jobs in modern urban areas can be found in downtowns and regional town centres (Bogart, 2006, p. 7). Thus, in moving from a monocentric model to a polycentric ideal, GVRD planners were advancing from planning a nineteenth-century city to a pre-1930 twentieth-century city.

For example, the policy of using transportation "strategically to bring about development" eventually translated to building Skytrain and other transit lines to connect and serve regional town centres. But if at least 60 to 70 percent of the jobs are not located in those centres, then GVRD planners are totally ignoring the needs of the majority of commuters in the region. Just as generals always fight the last war, planners, in the GVRD at least, seem to be building an urban area from a half century or so ago.

In presenting the *Livable Region* plan to the public, the GVRD never provided a balanced view of the tradeoffs that the plan represented. It did not reveal that the cost of protecting most of the region as open space was high housing prices. It did not reveal that the cost of its transportation strategy was increased traffic congestion. It did not reveal that that increased congestion would lead to increased air pollution.

Vancouver was not the only urban area in Canada that had seen a run-up in housing prices in the early 1970s. Between 1972 and 1975, housing prices doubled in Vancouver, Victoria, Calgary, Regina, and Saskatoon, and prices grew by 50 to 80 percent in most other major urban areas (Canadian Real Estate Association, 1977, p. 30). Since this was far more extreme than any prior three-year period, the gov-

ernment created a commission to examine whether land-use regulation or some sort of cartel of developers was responsible.

The commission was chaired by David B. Greenspan, so the commission's report, *Down to Earth*, was often called the Greenspan report. Vancouver planners breathed a sigh of relief when the commission concluded that skyrocketing housing prices were not caused by a developer or government conspiracy aimed at maximizing profits or municipal tax revenues. Instead, the main cause was an increase in demand caused by relaxed mortgage regulation, a booming economy, and an increase of buyers as baby boomers graduated from school and began to start new families (Task Force, 1978a, pp. 5-6, 19).

Planners either did not read or hoped no one else would read the report's fine print. Government land-use restrictions had played a role, though perhaps not the key role, in increasing home prices. "Planning raises prices," said the report. While planning can be beneficial, "it does not necessarily follow that the public planning sieve makes the [housing] projects any better." "Often planners do not appreciate, and do not even care to be told, the cost/consequences of their decisions" (Task Force, 1978a, pp. 33-34).

As evidence for this, "most municipal planners across Canada have a shocking lack of data on the availability of land" for housing. Greater Vancouver, of course, was no exception. "It is one thing to force developers and their customers to pay a fairer share of social costs. It is another to restrict production and increase price levels so much that many customers are priced out of the market" (Task Force, 1978a, p. 35).

Echoing Blumenfeld, the report pointed out that municipal officials have incentives to restrict development outside their borders and to promote only more expensive (and thus more tax-producing) developments inside their borders. They "resist cheaper land" based on "money, not principle" (Task Force, 1978a, p. 52).

While the Greenspan report exonerated planners for being primarily responsible for the rapidly growing housing prices from 1972 to 1975, it admonished them to make more land available for housing as soon as possible. "To lower the price of serviced lots permanently in the face of strong demand, it will be necessary for municipalities and planners permanently to increase the number of lots they permit to be produced," said the report. "In other words, it is necessary that the process become less restrictive" (Task Force, 1978a, p. 35). As usual, Greater Vancouver planners failed to heed any of these warnings.

In fact, a close look at the data in the Greenspan report suggests that the commission should have singled out Vancouver for closer study. Of all the urban areas reviewed in the report, Vancouver had the greatest increase in prices in the 1972-1975 period (Task Force, 1978b, p. 195). Other data in the report showed that land-use restrictions played a greater role in price increases in Vancouver than in most other cities.

In 1966, the report found, the cost of a lot made up only 10 to 20 percent of the total cost of a new single-family home. By 1976, this had increased in most metropolitan areas to 25 to 30 percent. But in Vancouver, the lot price represented a whopping 49 percent of the price of the home. Only Toronto and Hamilton were in this range; Victoria was 39 percent and no other area was more than 33 percent. Between 1966 and 1975, Vancouver lot prices grew by nearly 450 percent. Other than Victoria, no other region was above 400 percent and only three more were above 300 percent (Task Force, 1978b, pp. 191, 199).

This suggests that Greenspan's conclusions might have been accurate for the country as a whole, but in Vancouver and a few other regions, land-use restrictions played a much bigger role. If land had been available for development, there is no reason why lot prices should have gone up so high.

In 1981, the GVRD invited a group of urban experts from all over Canada and the United States to lead a workshop on "trends and options in

regional development." BC Research, which conducted the workshop for the GVRD, reported that one of the workshop's general conclusions was that, "The priority that is given to agricultural land preservation should be carefully re-examined to take account of all the economic implications including any limitations that it might place on the range of other development options, particularly housing" (BC Research, 1981, p. 5).

Hu Harries, a consultant from Edmonton, spoke on this specific point. "Strategies for the preservation of farmland need to be reexamined," he said. "The amount of land available for agricultural production is only fixed in the broadest sense," suggesting (as Blumenfeld had previously observed) that farmland preservation at the expense of higher housing prices was inappropriate (BC Research, 1981, p. 8).

"Increased government regulation will result in less choice for housing," said Denton Kent, the executive director of Portland's Metropolitan Service District, who obviously had not gotten the memo about how planners could promote housing choice. (Ironically, Kent's agency would eventually morph into Portland's equivalent of the GVRD.) Kent also noted, "There will be an increase in private auto use whatever is done about public transit" (BC Research, 1981, p. 13). Like the comments on housing, this warning went unheeded.

Workshop participants also warned that the GVRD's population forecasts were "too low." This is obviously important because a larger population would need more housing than planners were ready to provide. This warning turned out to be accurate. At the time, the GVRD had forecast that the 2006 population for the region would be 1.64 million people (GVRD, 1984, table 5). The actual population (not counting Langley, Maple Ridge, and Pitt Meadows, which were not a part of the GVRD in the early 1980s) turned out to be 1.91 million, about 17 percent more than forecast (Statistics Canada, 2007b). No one expects forecasts to be perfect, but in a plan as heavily restrictive as this one, a small forecasting error can impose huge costs on the region.

Perhaps in response to the Greenspan report, the GVRD finally conducted a survey of land in 1982. It found less than 24,000 hectares available "for metropolitan expansion." About half of this was vacant land in existing urban areas and the other half was still-rural areas—mostly in Surrey—that were in urban reserves or "developing suburban areas" (GVRD, 1982, table 6).

A setback for planning

The recession of the early 1980s led the BC Social Credit government to repeal the law allowing regional districts to plan. Alone among the regional districts, the GVRD specifically contracted with its municipalities to provide planning services for the region. Although the *Livable Region* plan was supposed to be good only through 1986, the GVRD was unable to mount an effort to begin revising the plan until 1989. In the interim, the old plan remained in effect and no municipality expanded the land available for development. Thus, the provincial government's effort to create a more business-friendly environment failed.

In the meantime, the GVRD subtly changed the focus of housing debate from housing affordability—that is, the general level of housing prices relative to incomes—to affordable housing—that is, subsidies to housing for low-income families. "There is a serious lack of affordable housing throughout Greater Vancouver for people with low incomes," noted a 1988 GVRD report on regional social issues (Clague, 1988, p. i). Of course, there was also a lack of affordable housing for people with middle incomes, but this was never again mentioned in a GVRD report.

In 1989, the GVRD started preparing a new plan under the title, *Choosing Our Future*. This resulted in a 1990 document called *Creating Our Future*, which was more of an evolution of the 1976 plan than an entirely new plan. As former GVRD planning direc-

tor Harry Lash observed, planning in the GVRD had become more a process than a product—a philosophy that was good for planner jobs, but not for the region (Lash, 1976, p. 45-46).

GVRD planners reviewed the land inventory data in 1991 and concluded, "the region will be out of capacity for additional ground-oriented units [single-family homes, townhouses, and low-rise multi-family homes] by the year 2007" (Baxter and Laglagaron, 1992a, p. 5). Not surprisingly, no one proposed to make more land available for such housing by designating rural lands for urban development.

In 1992, planners for the first time offered the public some options (which was curious since the GVRD had supposedly just finished a new plan). A million more people were coming to the region by 2021, and the question was where to put them. The so-called "current direction" would have put 610,000 people south of the Fraser River, most of them east of the GVRD in a corridor from Surrey to Chilliwack. A second alternative would put 715,000 people in a corridor north of the Fraser River, also mostly outside the GVRD. The "compact region" option kept all newcomers within the GVRD (Baxter and Laglagaron, 1992b, p. 3). This last was obviously the preferred alternative as it was the only one developed in detail (Baxter and Laglagaron, 1993).

None of the alternatives proposed to open up more land in the GVRD to development. None of the public documents revealed that the GVRD predicted that the region would run out of land for single-family homes in 2007 (GVRD, 1992). So those members of the public who bothered to express an opinion on the plan—and only a small percentage did—were unaware of the tradeoffs.

In 1995, the provincial moratorium on planning ended when the legislature passed the Growth Strategies Act. Since the GVRD had never really stopped planning, it was prepared to immediately publish a new plan, the *Livable Region Strategic Plan*, in 1996.

Implementing the Plan

Targets

The *Livable Region Strategic Plan* assigned population, job, and housing targets to each of the 21 municipalities in the region. The housing targets were broken down by "ground-oriented" (low-rise) and "apartment" (high-rise) housing. At the very least, the municipalities are expected to provide the infrastructure needed to meet these targets. If necessary, they are to rezone areas to meet them. For example, to meet housing targets, some cities may need to rezone neighbourhoods of single-family homes to allow multifamily housing or, at least, rental units in existing single-family homes.

Regional context statements

The 1965 Municipal Act (now called the Local Government Act) required each city to have an Official Community Plan. The Growth Strategies Act required each city to add a "regional context statement" to its plan showing how the community plan conforms to the regional plan and what changes would be needed to make it so conform.

Many of the official community plans strongly reflect the anti-auto, anti-sprawl ideas behind the *Livable Region Strategic Plan*. For example, Burnaby's Official Community Plan includes "reduce the need for travel" as a goal, which means that the city encourages mixed-use developments and a jobs-labour balance (City of Burnaby, 2006, section 8.2).

"As Burnaby and its neighbouring municipalities head towards the next century, they clearly must do their share as regional partners to reduce dependency on the automobile," says the Burnaby plan. "Transit, high occupancy vehicles, cycling and pedestrian ways must play a more significant role. If this does not occur, then increased congestion and its negative effects will become even more pronounced and contribute to the deterioration of the Region as a desirable place to live and work" (City of Burnaby, 2006, section 8.5).

Burnaby's plan also has a goal of "Move People Efficiently by Road." Despite this goal, however, the plan warns, "it will not be possible or cost effective to maintain an efficient road system by simply constructing new roads or expanding existing ones solely to meet the escalating demand for travel by one person/one car. Improvements to the road system need to emphasize carrying more people in fewer vehicles and making optimal use of existing road facilities" (City of Burnaby, 2006, section 8.2).

The plan also contains what appears to be an ultimatum to Burnaby's neighbours and residents. "There needs to be an unwavering commitment by all involved that the delivery of the Transport 2021 objectives embedded within the *Livable Region Strategic Plan* are achievable, as well as a willingness to change our travel behaviour for the benefit of each and all," argues the plan. "If these are not forthcoming, then a more pragmatic, less ambitious course needs to be set, with adjustments being made to the regional plan accordingly. Unfortunately, this would result in the deterioration of the quality of life we have come to expect as future growth occurs" (City of Burnaby, 2006, section 8.5).

Burnaby planners do not realize that reducing people's mobility also represents a deterioration in their quality of life, and cannot imagine that it might be possible to retain that mobility while also protecting air quality and other regional resources.

Vancouver community vision statements

Vancouver planners have broken their large city into at least nine different communities including Dunbar, Kensington, Sunset, Victoria, and several others. Planners have written or are writing commu-

nity vision statements for each one. The vision documents insist that they were "developed by people who live and work" in each individual community (City of Vancouver, 1998a, p. 6). Yet the visions include hundreds of paragraphs and, often, entire pages of nearly identical text.

For example, the Dunbar vision says: "New Housing Choices on Arterials: In addition to current apartments above stores in the shopping areas, new types of housing, such as rowhouses, four- and sixplexes, and duplexes should provide other affordable housing choices for young families" (City of Vancouver, 1998a, p. 5). The Kensington vision says, "New Housing Choices: In addition to new three to four story mixed-use buildings, mainly along Kingsway and Victoria, there should be new forms of housing around the Knight and Kingsway and Victoria and 41st neighbourhood centres. This would include rowhouses, four- and sixplexes, and duplexes" (City of Vancouver, 1998b, p. 5).

A careful examination of the visions suggests that they were pre-written by the city planning office based on a boilerplate that is customized for each community by adding the names of individual streets and other geographic features. Sometimes the customization reflects the existing local zoning codes. For example, the existing code for Kensington apparently allows homeowners to add rental suites to their homes, effectively converting them into duplexes. So the Kensington vision includes a statement that "Rental suites in houses should be made easier to do" (City of Vancouver, 1998b, p. 32). In contrast, rental suites are currently allowed in only part of the Dunbar community, so the vision states, "In areas where rental suites in houses are currently permitted, they should be made easier to do," and goes on to add that, where not currently permitted, they should be.

Having customized the boilerplate, planners then asked some of each community's residents whether they agreed or disagreed with each of the statements in the vision. If residents agreed, the statement was included in the vision. If residents disagreed, however, planners often included the statement in the vision anyway. For example, a majority of Victoria-Fraserview residents did not agree with the statement, "rental suites should be made easier to do." But planners consoled themselves that "the agree and neutral votes substantially outweigh the disagree, so it is classified as Uncertain. Uncertain directions remain topics for more public discussion" (City of Vancouver, 1998c, p. 24).

In presenting these statements to the public, planners did not fully reveal the benefits and costs of each policy. For example, rental suites were presented as a way "to provide 'mortgage helpers,' and to provide affordable housing" (City of Vancouver, 1998c, p. 17). They did not mention that rental suites might add to local congestion or reduce the stability of neighbourhoods of owner-occupied homes by adding a more transient population to those areas.

Similarly, the statements endorsed the idea of mixed-use developments with "one level of commercial and three levels of apartments above." Such developments, claim the statements, improve safety by providing "eyes on the street." This claim was made in a book published by the American Planning Association titled *SafeScape* (Zelinka and Brennan, 2001, p. 27). However, this book offered no evidence to support this claim, while experts who have examined mixed-use neighbourhoods have found that they tend to suffer more crime than neighbourhoods that are purely residential (Newman, 1973, p. 112).

Given this biased view of the planners' visions for their communities, it is no wonder that many residents agreed with the visions. But the visions were not in any sense "developed by the people who live and work" in those communities.

Annual reports

The Greater Vancouver Regional District has issued a series of annual reports describing how well the region is implementing the plan. The criteria used to monitor implementation reveal that the plan is achieving few of

its objectives. Moreover, the criteria that are used are of questionable usefulness in any case.

The reports suggest that the region is protecting the Green Zone, but the data used to confirm this are slim. The number of hectares released from the agricultural land reserve is small—an average of about 45 per year since 2000 (GVRD, 2006, p. 6). However, planners have no idea how many new non-farm buildings have been built in the Green Zone.

The reports offer more data on the goal of "building complete communities," but much of it is census data and thus not yet available for any year after 2001. The 2005 report indicates that the average price of single-family detached homes in the Greater Vancouver area has increased from around $350,000 in 1999 to $525,000 in 2005, though it does not suggest whether this is a cause for celebration or not (GVRD, 2006, p. 9). One of the objectives is to have "a diversity of housing tenures in each part of the region," but the reports offer no data to show whether this is being accomplished (GVRD, 2006, p. 10).

The goal of producing a compact region is clearly not being achieved, at least by the standards of the plan. The growth concentration area had 65 percent of the region's people in 1991, and the goal was to increase this to 70 percent. But it has stubbornly remained at 65 percent as cities outside the growth concentration area, such as White Rock and Langley, have grown as fast as cities inside the area (GVRD, 2006b, p. 11).

The region may be offering more transportation choice, but the annual reports indicate that only a few people are taking advantage of this choice. The region's vehicle registrations increased from about 1 million in 1995 to more than 1.3 million in 2005, an increase of more than 2.5 percent per year (GVRD, 2006b, p. 14). Planners have no data on how many kilometres people are driving, but assume an average of 23 per person per day. Since the number of vehicles is growing faster than the population (which from 1996 to 2006 grew by less than 1.5 percent per year), it is more likely that per capita driving is increasing. Travel data collected by the Greater Vancouver Transportation Authority (GVTA) suggest that auto trips per capita increased by 6.5 percent, or 1.3 percent per year, between 1999 and 2004 (GVTA, 2005).

Transit trips are growing a little faster, but from a much smaller base. The 2005 annual report says that per capita transit trips grew by about 1.6 percent per year between 1994 and 2005 (GVTA, 2006b, p. 16). The GVTA travel data indicate that transit's share of trips increased from 10.3 percent in 1999 to 10.8 percent in 2004 (GVTA, 2005).

With transit starting from such a low share of travel, it will take decades for it to have a significant role in the region's transportation. Imagine per-capita transit ridership were growing by 2 percent per year (instead of the historic 1.6) and per-capita driving were growing by only 1 percent per year (instead of the probable historic 1.3), then it will take more than 70 years for transit's share of travel to grow from 10.8 percent to 20 percent. Yet even such growth rates are likely to be a fantasy.

Most disturbing are the things that are not measured in the annual reports. A few of the things that could be and ought to be measured, but aren't, include such things as:

- the amount of time people waste sitting in traffic;
- the total amount of air pollution emitted by transportation sources;
- the total energy efficiency of transportation sources;
- the number of hectares of urban open space per capita within each community.

In general, the reports measure means to ends rather than the ends themselves. But that is not surprising since the plan's focus is on specific means, such as changing people's housing types or modes of travel, rather than on whether those means actually accomplish any important goals.

Goals harmed or ignored by the plan

"We are able to manage growth in a way that preserves the essential qualities that make our region a special place," the plan confidently states (GVRD, 1996, p. 6). But what are those essential qualities? Growing traffic congestion? Increasingly unaffordable housing? Reduced take-home pay as taxes are increased to support the plan?

The Growth Strategies Act clearly states fourteen different goals that district planners are to aim for. But the *Livable Region Strategic Plan* only directly addresses the first two goals and indirectly addresses three more. Several other goals are either completely ignored or planners assumed without question that, by avoiding sprawl and reducing auto use, they would also achieve the other goals specified in the act. In fact, the plan adversely affects at least three and as many as six of these goals, and three other goals are virtually ignored by the plan.

- Goals directly addressed by the plan include, of course, a, "avoiding urban sprawl" and b, "minimize the use of automobiles."
- Goals indirectly addressed by the plan include d, "protecting environmentally sensitive areas," e, "maintaining the resource base, including the agricultural land reserve," and l, "preserving open space."
- Goals that are adversely affected by the plan include c, "efficient movement of goods and people," f, "support the unique character of communities," and h, "affordable housing."
- Goals that may be adversely affected by the plan include g, "reducing pollution," j, "protecting ground water and surface water," and m, "efficient use of energy."
- Goals that are largely ignored by the plan include i, "inventories of suitable land for future settlement," k, "minimize the risks associated with natural hazards," and n, "stewardship of cultural sites."

Indirectly addressed goals

The Green Zone helps protect the "resource base" and "open space." But it uses a broad brush to accomplish these goals. Less than half of the Green Zone is considered "protected habitat" and barely more than a quarter is considered agricultural land reserves. Moreover, 28 percent of those agricultural land reserves are not even considered agricultural lands: the 2001 census found less than 40,000 hectares of agricultural lands in the region, compared with 53,700 acres of agricultural reserves (GVRD, 2003b, p. 2). The plan failed to carefully evaluate just which lands really need protection and which lands could be more suitable for urban development.

Goals adversely affected by the plan

Three of the goals are clearly adversely affected by the plan. The plan does not result in the efficient movement of goods and people. According to Transport Canada, Vancouver congestion costs area residents an average of $275 per year. Only Toronto and Montreal are in the same league. Congestion costs Calgary and Winnipeg residents less than half as much, and Edmonton and Ottawa residents less than a third as much. Yet Vancouver's plans assume that relieving congestion for auto drivers—especially single-occupancy drivers—is inefficient and undesirable.

This is a mistake. According to Transport Canada, in 2005 Canadians spent about $95 billion on autos, including fuel, repair, insurance, tolls, taxes, and parking (Transport Canada, 2006c, p. A36). They also drove about 288 billion kilometres (Statistics Canada, 2006a, p. 17). A single-occupancy vehicle thus costs owners about 33 cents per kilometre to drive. Transport Canada also says that highway revenues, such as fuel taxes, covered an average of 98 percent of the cost of highway construction, operation, and maintenance between 1997 and 2005 (Transport Canada, 2006c, p. A41). The remaining cost is well under a half cent per vehicle kilometre.

By comparison, Transport Canada says that transit fares average about $1.53 per trip (Transport

Canada, 2006c, p. A83). If the average transit trip is 8 kilometres, then transit costs users an average of 34 cents per kilometre, or about the same as the cost of driving a single-occupancy vehicle, but much more than the cost of driving vehicles with more than one occupant. In addition, government subsidies to transit average 39 cents per passenger kilometre, roughly 100 times the subsidy to driving (Transport Canada, 2006c, pp. A41, A83).

Thus, attempting to substitute transit for single-occupancy driving is not efficient for either transit users or the taxpaying public. This is especially true when efforts to get people to drive less include construction of light-rail lines or other fixed- guideway systems, which tend to cost more both to construct and to operate than buses, and therefore require more than the average subsidies indicated here.

The costs in Vancouver may vary somewhat from the national averages. But it would take an impossibly large variance to make investment in Vancouver transit more efficient investment than offering people the roads they need to drive in relatively uncongested traffic.

Another of the act's goals that the plan adversely affects is housing affordability. The Vancouver metropolitan area is the least affordable housing market in Canada, and the plan's restrictions on land use are largely to blame. Economists say that housing demand is inelastic, which means that a small change in the supply of housing can lead to a large change in price (Hanushek and Quigley, 1980). Moreover, sellers of existing homes implicitly account for the cost of new housing when they set a price for their properties. Thus, restrictions on new homes will lead to price increases of all homes in a region.

As previously indicated, polls show that the great majority of Canadians would prefer to live in a single-family home with a yard (RBC, 2007, p. 13). The LRSP actively denies many Vancouver-area residents this opportunity as it limits the amount of new single-family housing and requires most communities to build apartments, rowhouses, and other multifamily housing. The result is an escalation in the cost of housing that people prefer and a surplus in types of housing that they consider less desirable.

A standard measure of housing affordability is the median price of homes in a city or region divided by the median family income. A price-to-income ratio of 3 means that a family could pay for a home in three years if they could devote their entire income to that home. More typically, families spend about a third of their income on housing, including mortgage payments, taxes, and insurance. At today's interest rates, if a family devotes a quarter of its income to its mortgage, a price-to-income ratio of 3.0 means that it can pay for the home in about 17 years, which is affordable. At a price-to-income ratio of 4.0, more than 30 years is required, which makes housing unaffordable.

The 2001 census (which collected income and home price data for 2000) revealed that the average price-to-income ratio for single-family detached homes in Canada as a whole was 2.5 in 2000. Single-family homes in the Montreal, Ottawa, and Edmonton metro areas was similarly affordable, with price-to-income ratios of 2.3 to 2.5. Calgary housing was slightly less affordable, with a ratio of 3.9. Of major metropolitan areas other than Vancouver, only Toronto was unaffordable, with a price-to-income ratio of 4.2 (Statistics Canada, 2003a; Statistics Canada, 2003b).

By comparison, the Vancouver region's price-to-income ratio was 5.2, while the ratio in the city of Vancouver was more than 6.0. Such high prices force homebuyers to devote far more than a third of their income to housing. If many people did not already own their own homes before housing became unaffordable, homeownership rates in the Vancouver region would be very low.

Research has clearly shown that growth-management planning reduces housing affordability (CMHC, 2005, pp. 1-2). Of course, planners do not necessarily view a lack of housing affordability to be a problem. Since they consider single-family homes to

be more of a problem than an amenity, they are not unhappy that such homes have become unaffordable. The high prices of these homes also makes higher density housing more acceptable by comparison—although, with the exception of a small number of units of housing subsidized for low-income people, high-density housing in the Vancouver region is hardly affordable either.

The third goal that is adversely affected by the plan is a requirement that the plan promote "economic development that supports the unique character of communities." While this is somewhat subjective, almost everything about the plan is aimed at reducing the unique character of communities, including requirements that communities balance jobs and labour, provide a combination of high-rise and ground-level housing, provide a combination of owner-occupied and rental housing, and that they promote mixed-use developments. These requirements apply to all municipalities in the Vancouver region except the villages of Anmore, Belcarra, and Lions Bay, and even the villages are expected to increase the density of their housing.

Goals that may be adversely affected by the plan

Three other goals may also be adversely affected by the plan: pollution, energy, and water. Only a detailed analysis, which the district does not seem to have undertaken, could determine this for sure. Instead of doing such an analysis, planners apparently assume that a plan that promotes compact development and aims to get people out of their single-occupancy automobiles (without ensuring that it actually succeeds) produces less pollution, consumes less energy, and protects watersheds.

It is highly likely that the plan will result in more air pollution than necessary. In the past 40 years, technological improvements to automobiles have proven far more successful at reducing pollution than attempts to persuade people to drive less. Environment Canada says that, despite large increases in driving, transport-related emissions of nitrogen oxides declined by 19 percent and emissions of carbon monoxide and volatile organic compounds both declined 37 percent between 1990 and 2004 (Statistics Canada, 2006b, p. 17). This parallels the experience of the United States, where automotive emissions of toxic pollutants declined by more than 60 percent since 1970 even as kilometres of driving have almost tripled (EPA, 2003; FHwA, 1996, table VM201; FHwA, 2006, table VM1). Moreover, these declines are expected to continue despite any future increases in driving because new cars are getting cleaner every year.

Today's clean cars pollute the least when travelling in free-flowing traffic at 60 to 90 kilometres per hour (FHwA, 2006, p. 15). New roadway facilities that relieve congestion can allow cars to operate in this optimal range. The congestion produced by the region's failure to expand road capacities for single-occupancy vehicles will do less to get people to stop driving than it will increase pollution by leading more people to drive at slow speeds and in stop-and-go traffic.

The same is true for energy efficiency. Transport Canada estimates that Vancouver drivers wasted 65 to 98 million litres of fuel sitting in traffic in 2002 (Transport Canada, 2006b, p. 20). The plan will only increase this waste. As with air pollution, improvements in auto technology are doing far more to improve fuel efficiency than trying to get people to stop driving.

For example, thanks largely to consumer response to higher fuel prices, the average kilometres-per-litre of US autos increased from less than 5 in 1972 to more than 7 in 1997 (FHwA, 1996, tables MP221 and VM201; FHwA, 1999, tables MF1 and VM1). Due to low fuel prices, kilometres-per-litre have remained constant since 1997, but energy efficiency increased as the average weight of autos increased without increasing fuel consumption (Lutsey and Sperling, 2005). Now that fuel prices have increased again, we can expect fuel economy

to increase. The numbers may vary in Vancouver, but there is little evidence that the district conducted any analysis to determine if the LRSP really would save energy or produce less pollution than an alternative.

Nor is it clear that heavy investments in rail transit will reduce pollution or energy consumption. Rail transit tends to produce less pollution than buses, but rail lines must be supported by feeder buses that are often lightly used. Moreover, to a large degree, rail transit cannibalizes the bus system by taking bus passengers away from the most productive routes. Since any form of transportation is more efficient with higher passenger loads, rail transit that reduces bus loads may actually result in a transit system that pollutes more and consumes more energy, per passenger kilometre, than a bus-only transit system.

For example, before starting construction on a light-rail line, buses in Salt Lake City consumed about 2,700 BTUs and emitted less than 200 grams of carbon dioxide for every passenger kilometre they carried. Today, Salt Lake's light-rail trains do better than this, but the buses that are left are emptier and do far worse. The combined system consumes nearly 3,500 BTUs and emits more than 250 grams of carbon dioxide per passenger kilometre (FTA, 1993, table 15; FTA, 2006, table 17). The numbers in Vancouver may vary, of course, but there is no evidence that the Greater Vancouver Regional District ever considered whether alternative land-use or transportation plans would be more energy efficient or produce less air pollution.

It is also unclear that a land-use plan that packs more people into a fixed area is necessarily better for surface and ground water. An important measure of watershed health is the percentage of any individual hectare than is rendered impermeable by development. The LRSP attempts to maintain watershed health solely by maximizing the amount of land in the Green Zone. The health of watersheds in developed areas is largely ignored. As population densities in these areas increase, the percentage of impermeable land is bound to decline. For many purposes, it would be better to allow low-density development to make small permeability reductions on larger areas of land than to concentrate impermeability in small areas. The district does not appear to have evaluated this possibility.

The only mention of water resources in the LRSP is a reference to the district's Watershed Management Plan (GRVD, 1996, p. 14). But this plan only applies to the approximately 60,000 hectares of land managed for the region's drinking water (GRVD, 2002, p. 2). The district appears to have made no effort to assess whether its plan is good or bad for other watersheds.

Goals ignored by the plan

At least three of the act's goals were totally or almost totally ignored by the plan: minimizing the risks associated with natural hazards, stewardship of cultural heritage sites, and maintaining inventories of land for future settlement. Natural hazards and cultural sites are nowhere mentioned in the plan. The district may believe it has addressed the last goal by requiring that development must take place outside the Green Zone, but this requirement is not the same as maintaining an inventory.

In short, of the act's fourteen goals, the plan directly addresses two; indirectly addresses three; fails to address three; adversely affects at least three; and may adversely affect three more. Five out of fourteen can hardly be considered a good record.

Four problems with the plan

The disturbing failure of the plan to address many of the act's goals and its adverse affects on many others is actually a predictable result of the growth-management planning process. There are four basic reasons why the LRSP should be replaced with a more sensible method of managing the Vancouver urban area:

1. Growth-management planning is the wrong way for the Greater Vancouver Region to deal with the region's problems.
2. Growth-management planners identified the wrong problems to solve.
3. The tools growth-management planners are using to address the problems they identified will not solve those problems.
4. The plan creates problems far worse than any of the problems it claims to address.

The wrong solution

Growth-management planning presumes that government planners know the preferences, or at least the needs, of a region's residents better than those residents themselves know. It further presumes that planners are omniscient about relationships between resources both today and in the future and that they can identify and fix all of the market failures and externalities involved in a region's day-to-day life. Finally, growth management presumes that planners can avoid any unintended consequences that might result from their plans.

All of these presumptions are, of course, wrong. Urban areas are far too complicated for anyone to plan. As this plan demonstrates, attempts to comprehensively plan such areas lead planners to simplify by discarding many of the objectives that ought to be considered in such a plan.

Planners today rely heavily on the "visioning" process in which planners or a few members of the public try to imagine what they would like their region to resemble in twenty years or more. Of course, no one today really knows what people two decades hence will need; after all, no one two decades ago could have predicted the far-reaching affects of the Internet or other recent technologies and events.

An even more important flaw of visioning is that, once a vision is identified, the only clear way to achieve that vision is through regulation, subsidies, and other government intrusions into people's lives. After all, if you know what you want your region to look like, you would not dare leave it to the vagaries of individual taste and the free market. Thus, the visioning process leads inexorably to a big-government solution even when other solutions, such as improved markets and user fees, could more easily solve regional problems.

Growth management also assumes that planners have the ability to control things that are really beyond them. "We are able to manage growth in a way that preserves the essential qualities that make our region a special place," the LRSP optimistically claims. But a few decades ago, affordable housing and uncongested roads were among those essential qualities. Today, Vancouver is considered a special place in spite of unaffordable housing and congested roads—but many Vancouver-area residents would probably be angered if they understood that planners deliberately increased congestion and housing prices to manipulate people's lifestyle choices.

The wrong problems

Life is about tradeoffs. It is not possible for 2 million people to live in an untrammeled wilderness, immediately adjacent to productive farms, and all within walking distance of work, shops, and recreation areas. In focusing on sprawl and auto driving, planners traded off many desirable qualities of the Vancouver region, such as affordable housing and mobility, in order to achieve goals that are arguably much less important.

Start with the Green Zone. The idea that Vancouver-area residents should suffer the least affordable housing in Canada in order to preserve rural open space in a province that has millions of hectares of open space and some of the lowest population densities in the world would be comical if its results were not so tragic.

Nor does it make sense to place agriculture above all other land uses when the agricultural lands in the Greater Vancouver Region make up only a small fraction of all the farmlands in British Columbia. According to the 2001 census, less than 40,000

hectares in the Vancouver region qualify as "agricultural lands" (GVRD, 2003b, p. 2). This is less than one tenth of one percent of the nation's "dependable agricultural land," and just 4 percent of the dependable agricultural land in British Columbia (Hoffman, 2001, p. 4).

The agricultural lands in the Greater Vancouver Region make up less than 20 percent of the Green Zone, so it is not even necessary to trade off these lands to keep housing affordable. Since some 53,700 hectares in the Green Zone are in agricultural reserves, but less than 40,000 hectares are truly agricultural, it appears that British Columbia has included more than 13,000 hectares of submarginal or nonagricultural lands in those reserves.

Urbanization poses even less of a threat to forest lands. More than two thirds of British Columbia's vast area is forested, and only 3 percent of that is privately owned (Canadian Forest Service, 2007, p. 19). Development of most of the crown land is unlikely.

In short, the region has an incredible abundance of farmlands, forest lands, and rural open space. What is in short supply is land available for housing and other urban development. The district should work to alleviate this shortage instead of exacerbating it by setting needless targets for rural open space preservation.

Beyond the sheer abundance of land in the Greater Vancouver Region, urban sprawl is exaggerated both as a phenomenon and as a problem. A large part of the increase in urban development in recent decades has been due to a dramatic decline in household size. In 1971, the average Canadian household had 3.5 people, while the average in British Columbia had 3.2 people. By 2001, the average household had declined to 2.6 for Canada and 2.5 for British Columbia (Statistics Canada, 2003c). This means there would have been a 28 percent increase in British Columbian households even if there had been no population growth. If each household uses about the same amount of land in 2001 as in 1971, this of course translates to a 28 percent increase in developed land.

In other words, a large part of what planners call sprawl is not households using more land than in the past, but smaller households using the same amount of land as in the past. Most of the decline in household size took place between 1971 and 1986, and the decline has since tapered off. As historian Robert Bruegmann observes about similar patterns in the United States, "The campaign against urban sprawl was reacting to a trend that actually peaked some forty years earlier" (Bruegmann, 2005, p. 69).

Planners' approach to the automobile is similarly misguided. The amount of driving people do is not the problem; the problem is the negative effects of that driving. Those effects have technological solutions, and those solutions have proven far more effective at solving those problems than efforts to get people to reduce their driving.

As previously noted, Transport Canada estimates that total automotive pollution has declined by 19 to 37 percent in just the fourteen years between 1990 and 2004. As new, cleaner cars enter the market, the auto fleet gets cleaner at rates faster than the growth in driving, so total emissions will continue to decline.

At normal operating temperatures, most cars today produce virtually no pollution. For short trips, the main source of pollution is cold starts and emissions as the car is cooling off, called the hot soak (FHwA, 2006b, p. 15). Thus, a two-kilometre trip by auto can produce almost as much of at least some kinds of pollution as a ten-kilometre trip. For this reason, the number of trips is at least as important as the number of kilometres travelled. Because light-rail stations are located further apart than bus stops, substituting light rail for buses usually increases the number of transit riders who drive to transit stops. The result is that light rail may reduce the kilometres of auto travel but does little to reduce automotive trips and pollution.

The second-most important source of automotive pollution is congestion. As previously noted, cars produce the least amount of pollution at speeds of 60 to 90 kilometres per hour, so congestion that slows cars below such optimal speeds increases emissions. Moreover, in stop-and-go traffic, catalytic converters can cool below their optimal operating temperatures. When this happens, cars pollute almost as much as if they had no converters. Even without this problem, cars in traffic consume more fuel and thus emit more pollutants and greenhouse gases. Thus, Vancouver's strategy of not building more roads because they fear new roads would encourage driving may actually lead to more pollution, not less.

To date, automobile companies have focused their efforts on reducing emissions of toxic pollutants such as carbon monoxide, hydrocarbons, and particulates. But other technologies can reduce greenhouse gas emissions. Since carbon dioxide emissions are almost directly proportional to the number of litres of fuel consumed, one simple way of reducing emissions is to increase fuel economy.

Auto buyers have shown that they rapidly respond to high fuel prices by converting to more fuel-efficient cars. For example, between 1973 and 1991, the fuel economy of the average motor vehicle on American roads increased by 41 percent. After 1991, low fuel prices encouraged US residents to buy larger cars, and fuel economy remained about the same for the next fourteen years. This still represents a gain in efficiency because larger cars did not reduce the average kilometres per litre, so the number of ton-kilometres per litre continued to grow. If the fuel price increases of 2006 continue, we can expect Americans to buy lighter cars, and as fuel economy increases, greenhouse gas emissions will decline.

In the long run, other technologies will allow continued auto driving with dramatically lower greenhouse gas emissions. One likely possibility is hydrogen fuel cells. As the home of Ballard Power, which is doing much of the recent research on such fuel cells, it is ironic that the Greater Vancouver Region is seeking to reduce greenhouse gas emissions by reducing driving rather than by promoting this technology.

It is worth noting that other problems associated with the automobile, such as accidents and fatalities, are also steadily declining despite increases in driving. The number of fatalities in Canada declined from 4,283 in 1987 to 2,725 in 2004 (Transport Canada, 2006a). That is a huge decrease considering that kilometres of driving have increased. The decline can largely be attributed to safer cars and safer roadway design. A failure to build new roadways in the Greater Vancouver Region is likely to result in more fatalities because the new roads not built would likely be safer than existing roads.

The wrong tools

The *Livable Region Strategic Plan*'s tools for reducing the effects of auto driving are doomed to failure, mainly because planners have selected the wrong tools for the job. Those tools—density, changes in housing types, mixed-use developments, and a jobs-labour balance—are among the latest planning fads, but they will not significantly reduce auto driving. Nor is it clear that endless increases in density are the best approach to avoiding urban sprawl.

As of the 2006 census, the city of Vancouver is already the densest large city in Canada, with 5,039 people per square kilometre, a 6 percent increase from 2001. This is slightly denser than Chicago which, at 4,920 people per square kilometre, is the third densest major city in the US. Vancouver is much denser than Montreal, with 4,400 people per square kilometre, and Toronto, with less than 4,000. The only incorporated city in all of Canada that is denser than Vancouver is the town of Westmount, Quebec (population 20,494), a Montreal suburb with 5,093 people per square kilometre.

Other major Canadian cities are far less dense. Calgary's and Winnipeg's densities are about 1,360 per square kilometre; Saskatoon's is under 1,200; Edmonton's is only 1,070; and Ottawa's and Hamil-

ton's are both under 500. The regions around most of these cities are even lower in density. Such lower densities allow room for growth without making housing unaffordable.

To be fair, many other cities have consolidated with their suburbs, leading to lower overall densities. But, in contrast with most other Canadian suburbs, several of the suburbs in the Greater Vancouver Region are almost as dense as Vancouver. Of Canada's 25 densest cities of over 5,000 people, six are in the Greater Vancouver Region, including Vancouver, North Vancouver, New Westminster, White Rock, Langley, and Burnaby. Three more are on Vancouver Island (Victoria, Esquimault, and Sidney). Except for Toronto and Mississauga, all the rest are in Quebec.

Altogether, Vancouver's growth concentration area had an average density of about 3,500 people per square kilometre in 2006, which is about a 7 percent increase from 2001. The growth concentration area is only a subset of the region, of course, but it is far denser than any metropolitan area in Canada. The Toronto and Montreal census metropolitan areas, for example, are both around 860 people per square kilometre (Statistics Canada, 2007a).

Considering these densities, the plan's goal of "avoiding urban sprawl" is strangely vague. At what density does sprawl no longer become sprawl? How dense can the growth concentration become before district planners will decide to allow development of some of the Green Zone? Is there any upper limit to density that planners consider unacceptable? If homebuyers are willing to pay the full costs of the urban services they consume, is there any reason not to allow them to live in whatever densities they prefer?

If the idea of sprawl is vague, the idea of reducing driving seems clear. But it is not clear that increasing densities will significantly influence people's driving habits. All evidence indicates that huge increases in density are needed to obtain small declines in per-capita driving. For example, 89 percent of commuters drive to work in America's densest urban area, compared with 98 percent of commuters in America's least-dense urban area (US Census Bureau, 2002b). To achieve that 9 percent reduction in driving, the densest area is seven times denser than the least dense one. This means the denser area has 535 percent more kilometres of driving per square kilometre of land (91 percent times 7 is roughly 635, so the denser area will have 635 percent as much driving (or 535 percent more driving) per square kilometre as the less dense area). Unless the denser region has 535 percent more roads per square kilometre (which it does not), it will be far more congested. Not by coincidence, the densest urban area in America is considered the most congested urban area in America.

A review of US census data by a Seattle transportation consultant found that the density of auto driving increased with population density at almost a one-to-one ratio up to densities of about 10,000 people per square kilometre (Eager, 2001, p. 20). Above this density, per-capita driving might fall off, but there is no known density at which a further increase in density would lead to a reduction in total driving. Since the densities of the city of Vancouver, its growth concentration area, and the region as a whole are all much lower than 10,000 people per square kilometre, any density increases will only produce more congestion.

Nor is there any evidence that changes in housing type, mixed-use developments, and transit improvements will reduce congestion. Studies that find that people in high-density or mixed-use developments drive less than others often ignore the self-selection effect: people who want to drive less tend to chose to live in transit-friendly environments (Krizek, 2006). This does not mean that other people, if forced to change their home location, will suddenly stop driving.

Like Vancouver, Portland has attempted to emphasize high-density housing in an effort to reduce auto driving. One major development, Orenco, has been heralded by planners as a sound

example of transit-oriented housing. Yet a survey of Orenco residents by Lewis and Clark College researcher Bruce Podobnik found that few had changed their travel habits. "Though some have increased their reliance on mass transit for occasional trips since moving into Orenco Station, most residents of the neighbourhood report using alternative modes of transportation far less than do their counterparts in Northeast Portland," says Podobnik. "A key objective, that of significantly altering resident transportation habits, therefore remains to be achieved in Orenco Station" (Podobnik, 2002, p. 1).

Portland's 2040 land-use plan calls for increasing the region's population density by 70 percent, building more than 160 kilometres of rail transit and scores of transit-oriented developments, and building almost no new roads in the region. Based on travel diaries collected by thousands of the region's residents, the region's transportation models predict these actions will only reduce the automobile's share of travel by about 4 percent, from 92 in 1990 to 88 percent in 2040 (Metro, 1994). Since this small decline is more than offset by the region's projected population growth, planners also predict that the plan will increase the amount of time residents waste sitting in traffic by more than six times (Metro, 2002, p. 5-4).

Similarly, a study by the Denver Regional Council of Governments found that "overall trip-making is generally insensitive to changes in urban development patterns" (DRCOG, 1977, p. 26). This is because "trip-making is primarily a function of trip purpose and household income, and only secondarily sensitive to development patterns or housing types" (DRCOG, 1977, p. 24). In particular, the agency found that moving 20 percent of a region's population from the suburbs to the central core would reduce auto trips by only 1 percent. "It is thus difficult to imagine what order of magnitude of change would be necessary to effectuate a 10 percent change in trip-making" (DRCOG, 1977, p. 26).

Another study by the same agency examined the effects of particular land-use and transport strategies on vehicle travel. The study found that almost all strategies had only tiny effects on the number of kilometres driven. Large improvements in transit service, such as doubling frequencies and increasing transit speeds, would reduce auto commuting by less than 1.5 percent and total driving by less than 1 percent. Requiring employers to promote carpooling would reduce auto commuting by less than 1 percent. The only action that would significantly change driving would be to severely restrict parking. But even a complete freeze on all new parking in the region would reduce auto commuting by less than 7 percent and total driving by less than 3 percent (DRCOG, 1979, p. 2).

Altogether, the study found, no conceivable package of strategies would reduce driving by more than 10 percent. Since driving in Denver (and, indeed, many Canadian and US urban areas) grows by 10 percent every four or five years, land-use and transit strategies are not a viable long-term way of reducing driving.

Some people fear that building new roads will simply lead people to drive more. But a study of the Vancouver area found that significant additions to the region's road network over the next two decades would lead to less than a 0.25 percent increase in driving. Yet those new roads would reduce the amount of time Vancouver residents spend driving by 7 percent (Delcan, 2003, p. 61).

While density and housing types will do little to reduce auto driving, one of the *Livable Region Strategic Plan's* policies—improving the jobs-labour balance of communities—is likely to increase it. A jobs-labour balance, planners hope, will allow people to live close enough to their jobs that they can walk, cycle, or at least drive shorter distances to work. The problem is that, in a mobile society, people no longer consider immediate proximity to work to be a high priority when locating their homes. In fact, one University of California study found that people actually

prefer to live some distance away from work (Mokhtarian and Ilam Salomon, 1999, p. 27). So it is not surprising that University of California planning Professor Robert Cervero found that jobs and housing in many San Francisco Bay Area communities "are nearly perfectly balanced, yet fewer than a third of their workers reside locally, and even smaller shares of residents work locally" (Cervero, 1996).

A review of census data for US urban areas reveals that those urban areas that have a low rate of auto commuting are not particularly dense, nor do they have a jobs-labour balance, but fall instead into one of two categories. Some, such as Ithaca, NY; Davis, CA; and Boulder, CO, are dominated by universities, and so have a lot of young people willing to walk or cycle to work. Others, such as New York, San Francisco, and Boston, have large numbers of jobs located in an urban centre served by a hub-and-spoke transit system (US Census Bureau, 2002a). Since the district is not likely to be able to change the age composition of the region, the best way it could reduce auto commuting would be to concentrate all new jobs in downtown Vancouver or downtown Burnaby. By dispersing jobs instead, the jobs-labour balance policy reduces the effectiveness of transit and increases auto usage.

The plan's focus on urban design as a way of reducing the impacts of auto driving is an example of what sociologist Herbert Gans calls the "physical fallacy" (Gans, 1961). In fact, while transportation technology has a major influence on urban form, urban design has only a marginal influence on people's transportation choices. Rather than focusing on urban design, planners should have relied on technological improvements that reduce the automobile's negative effects.

This paper has already shown that technical changes have greatly reduced air pollution and auto fatalities. The one significant externality of driving that has not yet been fixed is congestion. (Congestion is an externality because one new car added to a congested road can impose large delays on other cars on the road, costs not paid by the driver of the new car.) Three technical solutions to congestion include variable pricing of tollways, traffic signal coordination, and adaptive cruise control.

Congestion takes place mainly because highways are poorly priced. Gasoline taxes are a form of user fee, but they fail to let drivers know the relative costs of providing various road services. Congestion tolls—tolls that vary according to the amount of traffic or, in some cases, the time of day—let drivers know that it costs more to supply peak-period road services and encourages some drivers to shift to driving at different times of the day.

Various cities around the world are experimenting with electronic toll collection, which eliminates the inconvenience of stopping at tollbooths. In some cases, entire roads are priced with variable tolls. In other cases, known as high-occupancy/toll lanes, new toll lanes are added to existing freeways. The latter method gives drivers a choice of paying the toll and saving time, or spending more time in traffic but avoiding the toll. Either way, variable tolls are kept high enough to make sure the highway or lanes are never congested. This method can significantly reduce congestion; even when only some lanes are tolled, those lanes take traffic off of the free lanes so the people don't pay the tolls still receive a benefit.

Since an uncongested lane can move far more passenger kilometres per hour, congestion tolling makes more effective use of transportation facilities. Congestion tolling also offers transit agencies the ability to provide bus service that avoids freeway delays and can operate at average speeds equal to or greater than those of light rail.

Some worry that tolls offer drivers an unpalatable tradeoff: either spend time and money sitting in traffic or spend money paying a toll. In fact, tolls can produce enormous social benefits. When traffic is controlled by queuing, the time and fuel drivers waste is a deadweight loss to society. When traffic is controlled by tolls, the collected revenues can pro-

vide many social benefits, such as providing more transportation capacity.

Although it is possible to design electronic tolling of arterials that are not limited-access freeways, no one to date has attempted to do so. Improved coordination of traffic signals on such arterials is probably the most cost-effective way of reducing congestion in almost any urban area. Modern signal coordination uses sensors at each intersection to detect demand, microcomputers to control signals, and wired or wireless communications between signals to allow them to work with one another.

A third congestion-reduction technology is already being built into many new cars: adaptive- or laser-guided cruise control. This system detects the next car in front and maintains speed at exactly the speed of that car. Since a computer can react to changes in flow faster than humans, congestion that results from slow reaction times can be reduced or eliminated if only 20 percent of the cars on the road are using adaptive cruise control. Presently, only about 1 or 2 percent of cars on the road have adaptive cruise control, but as more cars get it, congestion will decline.

Like technological solutions to other automotive problems, these and other congestion-reduction techniques are far more effective at reducing the impacts of driving than the LRSP's plan of allowing congestion to grow in order to discourage driving. In addition to saving people time, reducing congestion can reduce auto emissions and fuel consumption, while construction of limited-access highways can attract motor vehicles off of streets, leaving the streets safer for pedestrians and cyclists. Vancouver's misguided plan imposes huge costs on the region's residents without producing any significant benefits. The district's failure to consider technological solutions to congestion will cripple the Vancouver region as employers seek less congested locations.

The cure worse than the disease

The district's plan will have little impact on auto driving, and its focus on open space protection is questionable in a province that has one of the lowest population densities and some of the most extensive rural open spaces in the world. The questionable benefits of this plan are more than offset by its huge costs.

As previously mentioned, the two most important costs are congestion and unaffordable housing. Transport Canada estimates the cost of congestion in Vancouver to range from $400 million to $630 million a year. This range depends on whether people feel their time is not being wasted unless they are going less than 50 percent to less than 70 percent of the posted speed limit (Transport Canada, 2006b, pp. 8, 19). If people think their time is wasted if they are only going 80 to 90 percent of the posted speed limit, the estimated cost would even be greater.

Statistics Canada has found that "people who use public transit like commuting less than those who drive their cars," partly because they are "spending a significantly longer time on commuting." It also found that, even when trip times are the same, people dislike commuting more if they have to face congestion during their commutes (Turcotte, 2006). So the district is clearly wrong when it concludes that it can increase the livability of the region by increasing congestion and getting more people to ride transit.

As noted earlier, the above cost of congestion does not include the cost to shippers and delivery companies, which may be as large as the cost to commuters. For example, congestion reduces the number of deliveries a single vehicle can make in any given day, so delivery companies need to purchase more vehicles and pay more drivers to serve their customers in those congested regions. Those vehicles, of course, consume more fuel and emit more greenhouse gases and other pollution than if fewer vehicles could be used to make the same number of deliveries.

Congestion also imposes costs on government. Fire departments and other emergency service providers try to achieve a goal of delivering services within five minutes of notification. To meet this goal in a congested area requires the operation of more fire and paramedic stations. The alternative is to

accept greater losses to fire, accidents, and health problems such as sudden cardiac arrest.

One problem is the inefficiency of spending money on expensive forms of transit when other transportation systems cost far less to build. Light rail has become popular in the United States precisely because it is expensive. Congress gives transit grants to cities on a first-come, first-served basis. So the cities that build the most expensive transit systems get the largest share of federal transit funding. Naturally, dozens of cities are in line to get their share of the pork. But that does not prove that light rail is worthwhile.

Too many cities have built expensive rail lines and then found that, due to overruns, high operations and maintenance costs, or heavy mortgages, they have to cut back bus service. The result is that rail construction has actually led to reduced transit ridership in many, if not most, cases. For example,

- Cost overruns forced Portland to raise bus fares and cut bus service during construction of its first light-rail line in the 1980s. As a result, a smaller proportion of Portlanders ride transit to work and other places today than did so in 1980.
- A similar situation in Los Angeles led to a 17 percent decline in transit ridership between 1985 and 1995. The NAACP sued the transit agency for cutting bus service in low-income neighbourhoods while building rail to middle-class neighbourhoods. The suit forced the agency to scale back its rail plans and restore bus service, which led to a recovery of ridership.
- Due to heavy rail debt, San Jose was forced to drastically cut bus and rail service in 2001 and lost 35 percent of its riders. The transit system may have to make further cuts in 2007.
- When Dallas opened a new light-rail line in 2002, it lost more bus riders than it gained rail riders. Even worse, when St. Louis opened a new light-rail line in 2001, it lost bus riders and gained virtually no new rail riders.
- Despite (or because of) several extensions of the BART line, transit ridership in the San Francisco Bay Area has fallen by more than 10 percent since 1982. Several transit advocacy groups, including the Sierra Club (Piper, 2004), the Bay Area Transportation and Land Use Coalition (BATLUC, 2003), and the BayRail Alliance (Carpenter, 2007), actively oppose a proposed extension of BART to San Jose because they know investments in other forms of transit are much more cost effective.
- Most recently, Toronto spent a billion dollars building a subway line that critics derided as a "subway to nowhere." Now the Toronto Transit Commission faces a financial crisis and is threatening to shut down that subway line and up to 21 bus lines while increasing transit fares by 10 to 25 percent (Patrick, 2007).

Overall, US urban areas with rail transit have not fared as well as areas with bus transit. Between 1990 and 2000, the number of people in regions with rail transit who commute to work by transit actually declined, while the number in regions with bus-only transit systems increased.

The saddest part of these stories is that the people who lose tend to be those who most depend on transit due to low incomes or an inability to drive, while the people who end up riding rail lines tend to have higher incomes and plenty of automobility (Winston and Shirley, 1998, p. 9). This means that rail transit can be highly inequitable.

The district's plans also create inequities in housing. Vancouver housing was affordable in 1960, but since implementation of the Lower Mainland Planning Board's regional plan, housing prices have grown much faster than both incomes and the national average.

In 1960, the average single-family, owner-occupied home in the Greater Vancouver area was worth about 2.5 times as much as average family incomes. This was slightly higher than the national average, but about the same as the average for other metro-

politan areas in Canada (Statistics Canada, 1963a; Statistics Canada, 1963b). The region maintained this average in 1970 (Statistics Canada, 1973a; Statistics Canada, 1973b), but by 1980, housing prices had leaped to 5.7 times family incomes, making Vancouver the least affordable metropolitan housing market in Canada (Statistics Canada, 1983a; Statistics Canada, 1983b).

In 1990, Vancouver's 4.7 value-to-income ratio was slightly better than Toronto's 4.8, but far worse than any other metropolitan area. At the time, Victoria's ratio was 3.7 and most metropolitan areas were less than 3.0 (Statistics Canada, 1993a, table 6; Statistics Canada, 1993b, table 6). By 2000, the average value of a single-family home in the Vancouver region was nearly 350,000, which—at five times average family incomes—once again made Vancouver Canada's least affordable housing market (Statistics Canada, 2003a; Statistics Canada, 2003b).

Table 1 shows that Vancouver's decline in affordability took place because housing prices increased much faster than incomes. While Vancouver's incomes have remained about 10 percent more than the national average, Vancouver-area housing prices grew from about 25 percent more than the national average in 1960 to 134 percent more in 1980. Prices today remain more than twice the national average. As noted previously, this suggests that the problem was originally caused not by the 1996 *Livable Region Strategic Plan* but by the Lower Mainland Regional Planning Board's 1966 plan.

Table 1 shows the affordability of single-family homes. In 2000, the average value of all types of homes in Greater Vancouver was $295,000. If Vancouver's price-to-income ratio was 2.5, the same as the rest of Canada, the average home would have cost only $173,000. The $122,000 difference between these two numbers is the penalty homebuyers pay to live in a region that is doing such strict growth-management planning. Since about 30,000 to 40,000 homes in the region are sold each year, the total annual penalty homebuyers paid in 2000 ranged between $3.7 and $4.9 billion.

On a regional level, this cost is at least partly offset by the windfall profits to home sellers. But this ignores a major equity problem: home sellers tend to be wealthier than homebuyers, especially first-time homebuyers. So the livability plan is, in essence, a highly regressive tax on low-income people that transfers their money directly to higher-income people.

Comparable information will not be available until the 2006 census data is fully tabulated, but all indications are that Vancouver-area housing has become even less affordable since 2000. The Royal Bank of Canada estimates that a median family in Vancouver would have had to devote about 55 percent of its income to the mortgage to purchase a bungalow home in 2000. By 2006, this had increased to

Table 1: Affordability of Single-Family Homes in Vancouver and Canada

	Average Home Value		Average Family Income		Value-to-Income Ratio	
Year	GVRD	Canada	GVRD	Canada	GVRD	Canada
1960	13,932	11,021	5,489	4,906	2.5	2.2
1970	26,702	19,020	10,664	9,600	2.5	2.0
1980	179,780	76,687	31,634	26,748	5.7	2.9
1990	265,971	146,275	57,100	51,342	4.7	2.8
1995	318,127	147,877	64,776	54,583	4.9	2.7
2000	349,545	166,712	70,196	66,160	5.0	2.5

Source: Statistics Canada. See endnotes in text for complete sources.

almost 70 percent of its income (Holt and Goldbloom, 2007, p. 2). The percentages for Canada as a whole were about 33 and 38 percent (Holt and Goldbloom, 2007, p. 1-2).

Planning advocates often argue that the real cause of higher housing prices is demand, not supply. This is based on a shallow understanding of economics. In the absence of supply constraints, the basic factors of housing production—labour, construction materials, and land—cost about the same everywhere. The Houston metropolitan area is growing by more than 100,000 people a year, or four times faster than the Vancouver area, but homebuilders are able to keep up with demand and housing remains highly affordable.

A 2002 study compared housing costs in San Jose—which, like Vancouver, has a strict urban-growth boundary—with Dallas, which, like Houston, does not have strict land-use regulation and is growing much faster than Vancouver or San Jose. The study found that a three-bedroom home in San Jose cost more than three times as much as one in Dallas. The most important reasons for the difference were:

- Land costs: A 2,400-square-foot lot in San Jose cost $232,000, while a 7,000-square-foot lot in Dallas cost only $29,000;
- A lengthy permitting process added $90,000 to the cost of San Jose homes;
- Due mainly to high housing prices, San Jose labour costs added $43,000 to the cost of a three-bedroom home in San Jose;
- San Jose impact fees were $29,000 per new residence, compared with $5,000 in Dallas (Kaplan and McAllister, 2002).

None of these factors have to do with demand. Without supply restrictions such as the Green Zone and the effects those restrictions have on labour costs, Vancouver housing would be no more expensive than in Calgary, Edmonton, or other comparable Canadian cities.

A further cost of Vancouver's plan has to do with infrastructure. Planners take it as a given that higher densities reduce the costs of urban services. But all of the cost-of-sprawl studies are based on comparisons of greenfield developments at high versus low densities. The costs of increasing the density of an existing low-density area can be much greater than building a high-density development in a greenfield. Such areas tend to have sewer, water, and other service lines designed for their existing densities. Increasing the density requires that these systems be replaced with systems that can serve more people. "Laying in new capital investment on suburban sites may generally cost less, not more, than replacing (or 'revitalizing') the downtown's depreciated buildings, streets, sewers, and other basic installations," says Pietro Nivola of the Brookings Institution (Nivola, 1999, p. 36). The District failed to evaluate this question in any meaningful way.

Another infrastructure issue has to do with schools. While high-density, mixed-use developments may be attractive to singles and childless couples, families with children prefer to own a single-family home with a yard. Due to high housing costs in the city of Vancouver, most families with children have left the city. A total of 26 percent of the people in the region, but outside of Vancouver itself, are under the age of 20, but only 18.6 percent of the people in Vancouver are under the age of 20.

The sorting process that leads families with children to leave Vancouver also is leading to an increased separation of families by income. A University of Toronto study found that, between 1970 and 2000, many neighbourhoods of that city became progressively richer while others grew poorer. As housing prices became unaffordable, the wealthier people tended to stay in single-family homes, while neighbourhoods with declining incomes were transformed into apartments and other multi-family housing (Hutchanski *et al.*, 2003, pp. 2-3). Not only are fewer families able to achieve the Canadian dream of homeownership, but low-income families are shunted into particular neighbourhoods. The same process is probably taking place in Vancouver.

High infrastructure costs, the high cost of light rail, and other costs almost certainly mean that the plan imposes a higher tax burden on the region's residents than would be required for a more sensible plan. None of these costs were considered when the district wrote the *Livable Region Strategic Plan*.

Recommendations

The problems with the *Livable Region Strategic Plan* are not the result of bad planning; they are the result of planning, that is, centralized, top-down, government planning. A region as large and complex as the Greater Vancouver Region is simply too complicated to plan. The necessary oversimplifications planners make when they attempt to plan lead them to ignore such important things as housing affordability. Rather than seriously evaluate the trade-offs between, say, open space preservation and housing prices, or the effects of rail transit on driving, they simply mindlessly try to preserve a maximum amount of open space and to ruthlessly punish anyone who wishes to drive by forcing them to suffer congestion.

The solution to the problems created by planning is to not plan. Technical, economic, and institutional tools can solve the problems that planning was supposed to address at a far lower cost and without any unintended (or intended) negative consequences.

One of the arguments for compact development, for example, is that low-density development supposedly imposes higher urban service costs on the cities or districts providing those services. Instead of discouraging low-density development, the solution is simply to make certain that the people using those services pay the costs for them.

Technical solutions include:

- constructing new roadways that are managed using electronic tolling;
- improving arterial traffic flows by installing the latest traffic signal coordinating systems;
- continually improving air pollution control systems;
- eventually replacing internal combustion engines with non-polluting power sources such as fuel cells.

Economic solutions include:

- implementing variable-priced tolling to insure that new highways—and eventually new lanes parallel to all major existing highways—are never congested;
- developing local improvement districts that allow homeowners in new subdivisions to pay the costs of supporting infrastructure over a multi-year period;
- redesigning and decentralizing transit services so they are primarily responsive to users, and not simply seeking large appropriations for expensive projects. One way of doing this would be to encourage the formation of private transit services, while subsidizing low-income transit riders and other transit-dependent people with transit vouchers that could be applied to any public transportation.

To best identify and implement these technical and economic solutions, the province should dismantle the Greater Vancouver Regional District and instead develop institutions that have narrow missions and the incentives to efficiently carry out those missions. In particular:

- the provincial legislature should repeal the Growth Management Act and sections of the Local Government Act requiring cities in the province to plan.
- the government should break the Greater Vancouver Regional District into sewer, water, and park districts, and consider breaking some of those districts in turn into subregional districts that serve individual cities and even, possibly, portions of cities.
- the province should create a new Greater Vancouver Regional Tollroads Authority that is authorized to sell bonds and build new roadways whose costs will be covered by tolls.
- the region's transit systems should be designed to be as cost-effective as possible. This will prob-

ably mean relying mainly on buses, with no new rail construction. The transit agency or agencies should not be in the business of trying to manipulate land uses to promote transit as the benefits of such manipulations are likely to be far less than the costs.

- cities should either dismantle their planning departments or transform them from agencies that focus on urban design to ones that focus on reducing the impacts of urban life through user fees and other incentives.

Only by making these or similar changes can Vancouver maintain its reputation as a livable region. Any solutions that do not improve housing affordability and mobility should be rejected as unfair to both present and future residents of the region.

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