

SUBURBAN SPRAWL: EXPOSING HIDDEN COSTS, IDENTIFYING INNOVATIONS



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Sustainable Prosperity is a national research and policy network, based at the University of Ottawa. SP focuses on market-based approaches to build a stronger, greener, more competitive economy. It brings together business, policy and academic leaders to help innovative ideas inform policy development.

SUBURBAN SPRAWL:

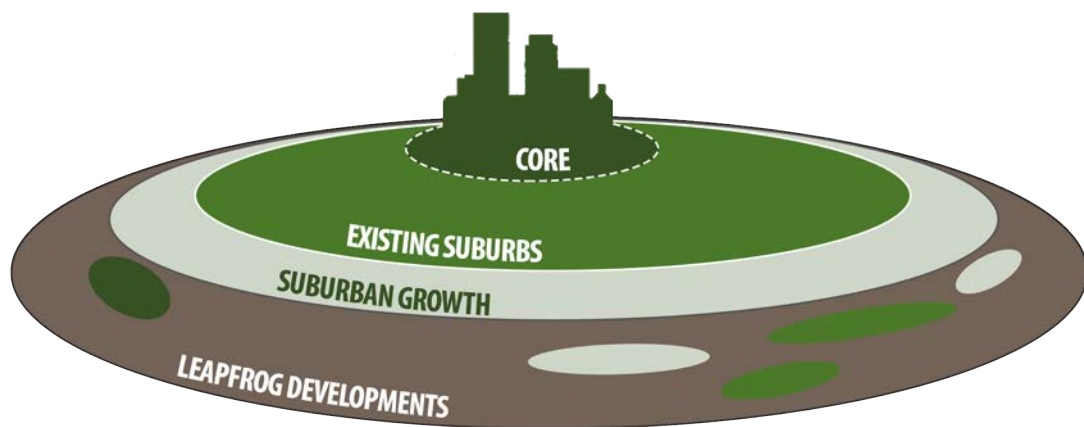
EXPOSING HIDDEN COSTS, IDENTIFYING INNOVATIONS

EXECUTIVE SUMMARY

For thousands of years, cities and towns were built at a human scale. Even large cities were walkable. Then, within the span of two lifetimes, cities and towns were completely transformed. Instead of being built for people, they were being built for automobiles. They sprawled.

Sprawl has a number of characteristics: low density of development per hectare; rigorously separated uses (e.g., long distances between housing and retail); “leapfrogging” past existing areas of build-up, leaving undeveloped gaps; and/or dependency on the automobile. Most of all, sprawl is characterized by development on previously agricultural or natural “greenfield” sites.

Sprawling, suburb-dominated municipalities are now common worldwide – and predominant in North America. While 81% of Canadians now live in urban areas, half of metropolitan residents are in the suburbs, and suburbs are growing 160% faster than city centres. Although sprawl is common, it is still in the experimental stage, and we don’t know how this experiment will work out. The signs suggest we will need to be more aware of the hidden costs and consider innovative ways to create denser urban form.



CAUSES

Why have the suburbs grown so fast? Much of the literature places the blame on municipal plans and zoning rules. However, while such plans and rules allow for sprawl and even shape it, they don’t require it. There is however a *demand* for sprawl; people and firms have been choosing the suburbs without considering some of the other costs. Why is that?

A key factor is price: it’s cheaper to buy a house in the suburbs. In a 2012 survey, 79% of Toronto-area residents said prices influenced their choice of location; the survey concluded that housing affordability, not personal preference, may be driving homebuyers to the suburbs. Likewise, for firms that have a choice of location, the suburbs are generally cheaper.

Prices are lower in sprawling areas for a number of reasons. Distance from city amenities is one reason, but it is not the only one. Markets don’t exist in a vacuum; they exist in a framework of government policy and law, and are heavily influenced by it. For example, several decades of government spending on major free-to-use highway systems has enabled daily long-distance commuting. Furthermore, the ongoing policy failure to address the other costs of road use (such as illness, injuries and climate change) subsidizes and perpetuates automobile use and suppresses the price of transportation to and from suburban locations.

Most significantly, undercharging developers for necessary infrastructure and municipal costs created by new greenfield developments artificially distorts the market in favour of sprawling development, though some municipalities are starting to examine the underlying costs. Utility pricing that fails to reflect the higher costs of servicing sprawling areas is another hidden subsidy.

COSTS OF SPRAWL

The costs of sprawl are many and diverse. Some of these costs are counted, meaning they show up on financial statements. Other costs are hidden – they don't show up on financial statements, but they are real and substantial. Different stakeholders pay for sprawl in different ways, either directly or indirectly. However, it is important to realize that we all—businesses, governments, and homeowners-- bear the costs in the end.

Governments and their taxpayers absorb many of the costs of development directly and in future infrastructure liabilities. Municipalities can pay a significant financial cost for sprawling development. Sprawling suburban development requires new infrastructure and thus new capital spending. When a new development is approved on the fringes, municipalities get additional property tax revenues, but they also pick up new costs, including liability for future infrastructure maintenance and replacement costs that continue indefinitely, and rise over time. In the initial wave of sprawl, these costs were not understood.

Development charges help municipalities recover some of these costs from developers but not all of them. Municipalities are beginning to understand the burden these costs place on their communities. In Edmonton, for instance, the City picks up all the capital costs of fire and police stations, and portions of some roads and recreation facilities. It also covers all the costs of maintenance, repair and renewal of the infrastructure, including pipes and roads. The costs to Edmonton of new suburban developments will exceed revenues – by a very large margin. Across just 17 of more than 40 new planned developments, costs to the City are expected to exceed revenues by nearly \$4 billion over the next 60 years.

Edmonton is not alone. Peel Region recently determined that new development was not paying for itself. Calgary Mayor Naheed Nenshi has started calling these hidden costs the "sprawl subsidy."

Some municipalities are starting to ask questions and find savings. In established areas, much or all of the required infrastructure already exists, and so redevelopment and infill development typically entail significantly lower municipal capital spending. Halifax Regional Municipality (HRM) recently found that it could save hundreds of millions of dollars by reducing the expansion of low-density sprawling development and opting for more dense urban development. Calgary found that by adopting a denser growth pattern that used 25% less land, it could save \$11 billion in capital costs alone.

Today's transportation systems further mask the costs of sprawl. The vast majority of roads in Canada are free to use, but they aren't cheap to build or maintain. Governments in Canada spend almost \$29 billion on roads every year – far more than they spend on transit, rail, air, marine and all other transportation modes combined. Fuel taxes, licence fees and all other motor vehicle payments cover only a little over half of that cost; \$13 billion is subsidized by other sources.

This large subsidy to road use is overshadowed by other costs that don't appear on financial statements: air pollution, climate change emissions, noise, delay from traffic congestion, and losses and injury from collisions. Estimates of these costs range upwards of \$27 billion per year. Parking is also often "free" or heavily subsidized. Based on US estimates, the cost in Canada is in the tens of billions of dollars per year.

Suburban households can end up driving about three times more than households close to the city centre, with consequent costs to household budgets and to the economy. Higher transportation costs for extra car ownership and fuel cancel out some of the household budget savings from lower home prices. By thinking about the long-term costs differently, consumers could reconsider the perceived benefits of sprawl. For instance, eliminating one car from a Calgary household's bills—an average savings of about \$10,000 per year--would put up to 18 times as many homes within financial reach (depending on income level). Clearly, the real cost of a suburban house to individuals and families is much higher than its sticker price. To address this in the future, home buyers may start considering the costs of more than just the property at the time of purchase.

On the social side, the unquestioning expansion of sprawl obscures statistics on more motor vehicle collisions, higher

climate change and smog emissions, and higher levels of obesity, diabetes, and other chronic illnesses that also impose significant costs on the economy. For example, in Toronto smog emissions from automobiles cost the economy \$2.2 billion per year and kill an estimated 440 people per year.

From yet another angle, businesses pay the costs of sprawl every business day. Roads congested by commuter traffic delay freight and raise delivery costs. Long-distance commuting, as well as the mental and physical health problems associated with sprawl, raise employee absenteeism while reducing productivity.

Finally, sprawl encroaches on natural areas surrounding municipalities, stressing and even eliminating key ecosystem services, such as water filtration, storage and runoff control, fresh air, erosion control, pollination, recreation and aesthetic enjoyment. The total value of such services provided by the Toronto greenbelt has been estimated at \$2.6 billion per year.

INNOVATIONS

Municipalities from St. John's to Vancouver have identified goals for the reduction of future sprawl and the creation of more liveable communities. However, little progress has yet been made, and the majority of population growth still occurs in the suburbs. Fortunately, there are communities examining the costs and finding innovative options. There is a growing body of experience that shows that public policy can shift price signals and transform markets to reshape municipal sprawl and create more liveable communities. They can also help to boost the economy and, by addressing hidden costs directly, balance municipal government finances.

Canada has an enormous stock of existing suburbs, a rising population and a growing interest in reducing the extent of future greenfield sprawl. These forces have sparked an interest in redeveloping existing suburbs, or "retrofitting suburbia" – the redevelopment of vacant lots, abandoned malls and big-box stores, inner city surface-parking lots, abandoned industrial (brownfield) sites, decaying older suburbs, as examples. What's needed is to use policy instruments to correct the price relationships currently encouraging sprawl while at the same time revitalizing urban cores and existing suburbs. These changes will raise property values for existing owners and help to achieve the urban form goals now being adopted by municipalities.

While prices have the advantage of allowing for "choice," it is important to bear in mind that choice isn't everything: equity, economic mobility and social stability are important, and spending choices are more restricted for those with lower incomes. There is a need to ensure fairness – to consider equity, economic mobility and social stability when designing pricing policies.

Below are examples of policy tools and innovative communities across the country that have begun to address the hidden costs of sprawl and design alternative approaches.

DEVELOPMENT CHARGES

Development charges, which help defray municipal costs associated with new development, can be adjusted to reflect the higher costs imposed on municipalities by sprawling development. Development charges can be calculated based on the location in which the development occurs. For example, the City of Kitchener's suburban residential development charges are 74% higher than those for central neighbourhoods. For non-residential buildings, suburban charges are 157% higher. Similarly, Ottawa has higher charges for development outside of its greenbelt. Hamilton provides a 90% exemption from development charges in the downtown area. Calgary recently doubled its development charges on new suburbs. Peel Region also doubled its charges.

UTILITY CHARGES

Providing services to sprawling areas tends to be more expensive. For example, a study of municipal wastewater systems in the Great Lakes area found that operation and maintenance costs can be twice as high in low-density areas. Municipalities can charge for utilities based on costs related to frontage (property width), and many do so. The City of Terrace charges \$.65/foot for water main while Winnipeg charges \$.95/foot for water main and \$2.95/foot for sewer main. Such charges help create a financial incentive for denser development.

PROPERTY TAXES

Several options exist to use the tax system to address sprawl.

Property taxes are calculated by multiplying the assessed property value by the tax rate. The tax rate can be varied by property class. Some Montreal boroughs have lower rates for multi-unit buildings, thus encouraging denser development. Adjusting tax rates by location could also help reduce sprawl, if rates were to be reduced in central areas and raised in outlying areas. Provincial legislation determines the tax rates available; Ontario's Municipal Act, for instance, would require amendment to make such a change.

Another option is to levy higher taxes on the land's value and lower (or no) taxes on the buildings on the land. This "land value taxation" would encourage redevelopment of parking lots and underutilized land in city centres – thus taking some of the demand away from sprawl. Several cities in Pennsylvania have adopted land value taxation.

Finally, municipalities can offer special reductions. For instance, Windsor has a property tax assistance program for redevelopment of "brownfield" (abandoned industrial) properties, which encourages development in established areas. Ontario has reduced tax rates for farms, which encourages farmers to continue farming instead of selling their land to developers.

TRANSPORTATION PRICING REFORM

Providing and boosting subsidies to transit, car-sharing and active transportation can level the playing field with motor vehicle subsidies. Such changes would encourage more density and less sprawl and municipalities continue to call for more investment in transit.

Fuel taxes can be adjusted to cover the costs of roads. Canada's are among the lowest fuel taxes in the developed world. Higher fuel prices can reduce the advance of sprawl and low density housing, while boosting inner city growth. Provincial governments can share the higher revenues with municipalities, or provide municipalities the power to levy such taxes (as Metro Vancouver has).

Parking pricing can be reformed to charge users the costs of "free" parking across municipalities – including in suburban shopping malls. Road use can be charged for directly. Highway 407 in Southern Ontario has a fully automated toll system. Vehicle registration and licencing fees can also be set on a distance-travelled basis to reward less driving and encourage denser development.

ECONOMIC BENEFITS OF DENSITY

Filling in the spatial gaps in cities and increasing urban density can bring about what economists term "economies of agglomeration": spreading the fixed costs of infrastructure over more businesses and households, reducing costs on a per-unit basis. This also gives firms more potential workers to choose from, resulting in better employment fit and higher labour productivity. Job seekers also have more employers to choose from, reducing unemployment. The greater density of firms and employees results in knowledge spillovers, within sectors and between sectors. Urban density also improves the access of firms to suppliers and markets. And proximity of firms in related or complementary industries allows for productivity gains through specialization and outsourcing.

Such economies of agglomeration boost economic growth, and it appears that, as the economy tends toward being information-based, that association will grow stronger. In the Greater Toronto Area, for instance, population growth has accelerated downtown, in 2006–2011 exceeding growth in the surrounding regions of Peel, York-Durham and Halton for the first time. The downtown population is both younger and better educated, and they report that being close to work and public transit are their top two reasons for living downtown. Employers are moving downtown to attract this workforce and access the market.

EQUITY AND FAIRNESS

Pricing reforms should be carefully designed to address unfair impacts on lower-income Canadians. Some reforms can be beneficial. For instance, raising property tax rates on single-family dwellings while reducing rates on multifamily rental dwellings (as some Montreal boroughs have done) will tend to be more progressive than flat rates across the board, or rates that are higher on multifamily dwellings.

However, sometimes a particular revenue-raising instrument can have a regressive consequence. Focusing on the combined costs that determine housing affordability--housing plus transportation--can compensate. The revenues can be used to support transit, build truly affordable (well-located) housing, or support social services. What matters is not whether an individual element of a policy package is regressive, but whether the package overall is more regressive than the alternative.

Finally, the overall distributional impacts of sprawl pricing reforms should be borne in mind. Reducing further sprawl reduces vehicle use and the smog emissions that disproportionately harm lower-income people. Making housing in central areas with good transit less expensive provides living arrangements that are truly more affordable (rather than distant houses with low sticker prices and expensive automobile dependence).

FEDERAL AND PROVINCIAL ROLES

Other levels of government can support municipal innovation, recognizing their influence on what municipal governments can achieve in restraining future sprawl. Provincial legislation provides and shapes the municipal capacity to employ pricing policy instruments (property taxation, charges, fees and levies, and other matters). For example, provincial governments restrict the authority to collect development charges.

Under existing legislation, some reforms that municipalities could take to change the prices and create incentives for denser development are impossible. Yet, some larger cities have been given expanded powers under charters. This model could be rolled out to other larger cities, and general municipal legislation could be revised to expand powers of all municipalities to address sprawl.

In addition, provincial and federal governments could revise their own policies in order to support municipalities that are addressing sprawl. Transit investments, carbon pricing, highway tolls and higher fuel taxes, and improved regional governance arrangements can make it easier for municipalities to manage sprawl.

CONCLUSION

The main driver of sprawl is prices. Prices have a profound impact on the decisions of firms and individuals, including decisions about where to build new developments, and where to buy houses and site businesses. Currently, price structures encourage sprawl while obscuring significant costs, creating a series of 'suburban myths.' By more closely examining both costs and alternatives, we can turn prices around and make them reward infill development, brownfield development and suburban retrofitting. When we do so, we will reap significant economic, environmental and municipal budget benefits.

The time is right to recognize a shift in attitude and growing body of innovative practice across the country. Municipal governments are studying the financial costs of sprawling development and the long-term liabilities it imposes. Major cities are exploring revenue-raising mechanisms to finance much-needed transit improvements, while citizens are open to the idea of taxes and user fees to support municipal services. With a better understanding of the costs and opportunities, perhaps we can better challenge our historic assumptions and adopt policies that will create towns and cities that work better for individuals, businesses and governments.

SUBURBAN

NOT AS CHEAP

The hidden costs of sprawling development

SPRAWL DWELLERS PAY ONLY HALF THE COST OF ROADS,

SUBURBS ARE GROWING 160%

81%
of Canadians live in CITIES

HIDING THE REAL COST OF THE SUBURBS

Suburban residents drive

3X



As much as urban drivers.

New Suburban Cities Growing Faster Than Urban Development

But More Sprawl is Changing the Shape of a Flat Region

GOVERNMENTS (FEDERAL + PROVINCIAL/ TERRITORIAL + LOCAL COMBINED)
= SPEND \$29 BILLION ON ROADS IN CANADA IN 2010-2017.

Fuel taxes, vehicle permits, licenses and other fees pay \$15.5 BILLION

leaving **\$13.5 BILLION** paid from general taxes.

LEADING TO MORE **VEHICLE COLLISIONS;**



RISING OBESITY, DIABETES, CHRONIC ILLNESSES, INACTIVITY, AND MENTAL HEALTH IMPACTS.



HIDDEN COSTS

THE INDIRECT COSTS OF AUTOMOBILE USE



THESE COSTS ARE ESTIMATED AT MORE THAN **\$27 BILLION PER YEAR.**

URBAN SPRAWL

AS YOU THINK.

Development are paid by all Canadians

FASTER THAN CITY CENTRES

HALF OF THOSE 81%

Live in the SUBURBS



If Urban Core Growth Were Encouraged, **BIG SAVINGS** Could Be Had...

CITIES + TAXPAYERS COULD SAVE MILLIONS WITH HIGHER DENSITY DEVELOPMENT

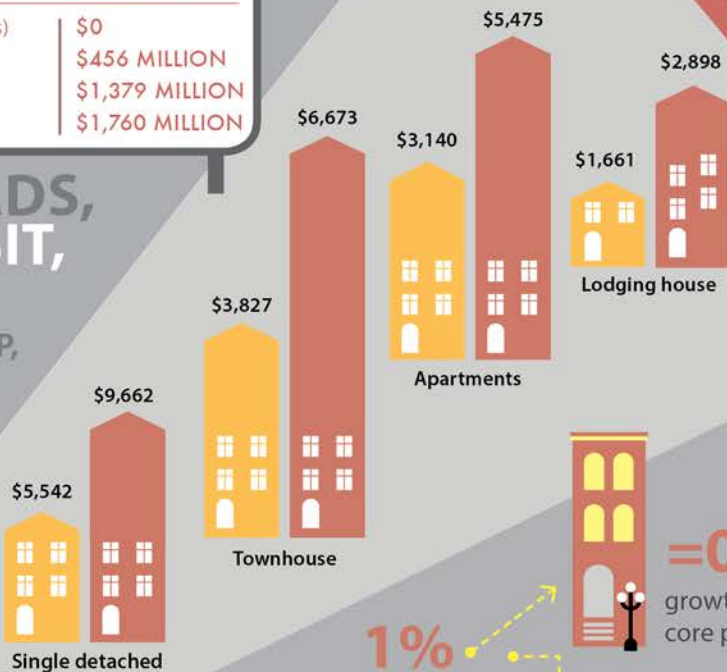
MAKING NEW DEVELOPMENTS PAY THEIR REAL COSTS CAN BALANCE MUNICIPAL FINANCES AND CREATE MORE LIVEABLE COMMUNITIES.

>>> KITCHENER DOES THIS.

HALIFAX'S POTENTIAL SAVINGS, 2009-2031

% NEW HOMES BUILT IN URBAN CORE	SAVINGS (net)
16% (Current levels)	\$0
25%	\$456 MILLION
40%	\$1,379 MILLION
50%	\$1,760 MILLION

ROADS, TRANSIT, PIPES, WASTE PICKUP, POLICING, FIRE LIBRARIES, DEPT., COST MORE IN THE SUBURBS



SOLUTIONS

Kitchener residential development charge rates
 ■ Central Neighbourhoods
 ■ Suburban Area

1% increase in gasoline price

Higher fuel taxes reduce sprawl and pay for more of the real costs of roads



= 0.32% growth in the urban core population

= 1.28% decrease in suburban housing units.

For more data and more reports, visit sustainableprosperity.ca

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INTRODUCTION

THIS REPORT IS ABOUT SUBURBAN SPRAWL AND HOW WE CAN REDUCE ITS FUTURE GROWTH AND SUBSTANTIAL COSTS BY ADDRESSING ITS PRIMARY DRIVER: PRICES.

For ten thousand years, cities and towns were built at a human scale. Even large cities were walkable. Then, within the span of two lifetimes, cities and towns were completely transformed. Instead of being built for people, they were being built for automobiles. This was unprecedented in human history.

Sprawling, suburb-dominated municipalities are now common worldwide – and overwhelmingly predominant in North America. However, it is important to bear in mind that suburban sprawl is still in the experimental stage. As with other experiments, we don't know how it will work out, and what the unintended consequences will be.

Fly over any North American municipality and you will see a pattern of development that creates enormous costs. The costs of sprawl range from smog and climate change emissions, to chronic disease and emergency room admissions, to higher costs and reduced productivity for businesses and financial liabilities for governments. Some of these costs increase our current tax rates as property owners and income tax payers. Some costs are hidden in long-term government liabilities. Others appear as private costs, including losses of personal income and business profitability. Still others are unaccounted for financially – climate change and habitat loss, for example – but are both real and substantial.

Fortunately, sprawl is a problem that can be addressed. We can slow the future advance of sprawl and revitalize established areas with new development. Natural areas and agricultural land can be preserved, while vacant buildings and lands are brought to life. We can supply truly affordable housing – housing that doesn't simply shift the costs onto homeowners' transportation and property tax bills. We can provide businesses with locations that attract workers and boost productivity. We can help manage costs and balance the bottom line of municipal and other levels of government.

How can the costs of sprawl be reduced? How can we reshape development? The answer is clear: we need to address the *causes* of sprawl.

For decades, we have understood the problem, but we have attempted to address it in a way that does not tackle the underlying causes. Cities have employed a range of planning and regulatory instruments in an attempt to rein in sprawl.

Some of these have had an impact, but sprawl proceeds at an astonishing pace. New construction continues to

encroach on natural spaces and prime farmland, while urban businesses and neighbourhoods struggle to stay afloat.

Municipal policies, zoning and development plans have often been criticized for facilitating sprawl. While they do allow for sprawling types of development, they don't require it. The main driver of sprawl is prices. Prices have a profound impact on the decisions of firms and individuals, including decisions about where to build new developments, and where to buy houses and site businesses. Currently, price structures encourage sprawl. And as long as prices pull new development toward the fringes of our cities, citizens, businesses, governments and the economy will continue to suffer the costs of sprawl.

Public policy can shift prices to encourage development in established areas and protect natural areas and agricultural land from further incursions of sprawl. Cities and other levels of government have at their disposal a range of policy instruments that can adjust prices that currently cause sprawl.

The literature on sprawl is broad and goes into far greater depth than the space of this overview permits. This report surveys the main topics and provides sources to enable the reader to dig into areas of particular interest. The next section of this report explores the many ways that prices encourage sprawl. While some of these prices could be regarded as market-determined – reflecting basic dynamics of supply and demand – many others are the direct result of past government decisions on regulation and budgets, at all levels of government.

The report then discusses some of the main costs of sprawl – both costs that show up on financial statements and those that are hidden. These costs are truly massive; they are of a scale that makes addressing them not only a local, but also a national, priority.

The next section of the report discusses some of the ways that governments can reshape prices to help rein in sprawl. There are many policies that municipal governments can employ. There is also room for policy co-operation; provincial governments can expand municipal capacity, and provincial and federal governments can align their policies to support municipal policies. Such policy changes not only can help address sprawl but also can boost the economy and help balance government finances.

Finally, the report concludes by reflecting on the opportunity for cities that work better for individuals, businesses and

governments. Cities are beginning to address the causes of sprawl, for good reasons. A national conversation about sprawl is beginning – a conversation that is based on evidence and could lead to the development of the political will to make important and necessary change.

development were not present. Likewise, zoning bylaws don't create or prompt sprawl; they manage some aspects of its form. No development plan or zoning bylaw says that new developments have to occur in sprawling suburbs. It may be that the prevalent identification of planning and

WHERE DO CANADIANS LIVE?

Globally, people have been migrating to cities for decades, and now more people live in cities than in rural areas. Like other developed nations, Canada is primarily an urban nation; the proportion of Canadians living in urban areas has been rising for more than 150 years and now stands at 81%.² Approximately two-thirds of Canadians live in large urban areas (those with populations over 100,000).³

What those numbers don't reveal is that half of the residents of metropolitan areas actually live in suburbs, and suburban growth is proceeding at over 160% the rate of growth in city centres.⁴ The statistics substantiate the visible reality: relatively small city cores, sometimes with ribbons and nodes of density huddled around transit lines and stops, surrounded by many kilometres of low-density suburbs.

SPRAWL AND ITS CAUSES

There is no universally accepted definition of sprawl. However, sprawl as an urban form does have a number of characteristics, not all of which may be present in a given case:

- **Low density.** Sprawling developments tend to have a lower density of uses (e.g., housing) per hectare of land than is typical of more central, urban neighbourhoods.
- **Separation of uses.** Sprawling development tends to have different land uses (e.g., housing and retail) separated, often by considerable distances.
- **Leapfrog development.** Sprawling development often takes place beyond the margins of existing built-up areas, leaving gaps that further reduce overall density.
- **Automobile dependence.** Sprawling development – whether residential or other – tends to require the use of automobiles for transportation.
- **Fringe.** Sprawling developments take place on lands that are distant from traditional urban cores, on “greenfield” sites that were previously agricultural or natural.⁵

That last, locational, point is consistent and perhaps the defining characteristic of sprawl: simply put, sprawling development is sprawling.

In several decades of literature on sprawl, there has been widespread recognition of the ways in which municipal regulatory policies (e.g., planning and zoning rules) have contributed to sprawl. Municipal governments have approved development plans and zoning bylaws that anticipate greenfield developments with low density, a strict separation of residential from other uses, and often inadequate or non-existent pedestrian infrastructure. These plans and rules do contribute to sprawl.

However, they are not the whole story. Development plans don't actually require anything to be built. A municipal plan could be adopted and nothing built if the demand for sprawling

zoning rules as a factor in sprawl is due to the prominent role that urban planners have played in drawing attention to the problems of sprawl. However, there are clearly other factors at play; the underlying demand for sprawl is created elsewhere.

PRICES

“Where people choose to live (in the city core, existing suburbs or new greenfield suburbs), the types of buildings they live in, where business people choose to locate their businesses ... [these decisions] are all highly influenced by price.”

– NATIONAL ROUND TABLE ON THE ENVIRONMENT AND THE ECONOMY⁶

Property prices are a key driver of sprawl. The influence of prices can be illustrated by a choice facing a typical homebuyer – a growing family with a limited income, searching for a three-bedroom house. Given the choice between a house near the centre of town that costs \$600,000, and one at the fringe that costs \$300,000, most will be forced to choose the suburban house because that's what they can afford.

A 2012 survey of Toronto-area residents confirms that price is key to location decisions: 79% said price influenced their choice of location, and 81% said that if home price were not an issue, they would give up a large-lot home to get a smaller residence in a walkable area with good transit.⁷

Many businesses are subject to the same pressures. For some businesses, location is determined by their market, or a crucial input. Others can choose location. Other things being equal, if faced by the choice between an expensive space in a downtown office tower or a cheaper space in a suburban business park, many firms will choose the latter.⁸ If facing higher shipping expenses due to traffic congestion getting in and out of town, firms sensitive to freight costs may opt for warehouse or production space near a suburban highway interchange.

Simply put, prices influence a lot of decisions for individuals and firms – including decisions on where to locate. Development plans and zoning rules will shape new suburbs, but without the demand, those suburbs wouldn't exist. Demand creates suburbs, and prices shape demand.

It is not hard to see why prices are an important driver of sprawl. All other things being equal, individuals and families like a low price (or at least what they perceive as a low price – see discussion below under Personal Household Costs). Firms are required to maximize profits, and keeping costs down is essential to maximizing profits.

In a nutshell, sprawl occurs because a building on the edge of town is cheaper. But why is that?

CONSUMER PREFERENCE OR PRICE?

Advocates for sprawl frequently argue that the cause of sprawl is simply consumer preference: sprawling suburbs exist because homebuyers chose to live in the suburbs.

This is true in a narrow sense; people who bought a house in the suburbs did choose to buy that house. But why? The answer for many, according to a survey in the Greater Toronto Area (GTA), is quite simple: 79 percent chose to live where they do based on home cost.¹¹

“Drive until you qualify” is a mortgage affordability expression that neatly captures the relationship between location and housing price. Prospective buyers whose incomes can't support a mortgage in central parts of town are advised by lenders to look further out of town, where sticker prices are lower – often by tens or hundreds of thousands of dollars. The claim that buyers prefer the suburbs hides the reality that many can only afford a house in the suburbs.¹²

Sprawl advocates also claim that buyers actually want certain features that come with sprawling developments, such as larger houses and bigger yards. The same GTA survey investigated homebuyers' preferences if home prices were equal. It found that while a detached single-family home is the most important attribute when choosing where to live, large houses and big yards are less important to GTA residents than walkable, mixed-use neighbourhoods, short commutes to work, and easy access to frequent rapid transit.

Another argument is that homebuyers select suburban neighbourhoods as safer for their kids. Yet the risk of violent death for young people (between the ages of one and 24) has more to do with automobiles than crime,¹³ and sprawl means more time spent in automobiles. Automobile collisions kill several hundred young Canadians every year. Injury is the leading cause of death of young people in Canada, and motor vehicle collisions are the leading source of fatal injuries.¹⁴

Contrary to the claims of sprawl advocates, sprawl is not merely an outcome of consumer preference, but rather it is an outcome of price.¹⁵ The benefits of sprawl are largely internal (private) and related to reduced housing costs.¹⁶

WHY ARE PRICES LOWER FOR SPRAWL?

Markets don't exist in a vacuum. They exist within a framework of government policy and law, and are heavily influenced by it. Markets can also be distorted by government policies, or their absence.

For example, several decades of massive government spending to build free-to-use highways has enabled daily long-distance commuting. It has also reduced long-distance food transportation costs,⁹ thus reducing the profitability of local farming and the value of farmland around cities and towns. Distance commuting and low-price farmland make it more attractive to build suburbs in greenfield areas.

The suburban housing market in its current form would not exist without that free-to-use road network. And the market in its current form continues to be indirectly subsidized by ongoing government spending on road maintenance, repair, replacement, expansion, clearing, lighting, policing, emergency medical services and other road-related costs.

Furthermore, the ongoing policy failure to internalize the externalities of road use (e.g., illness, injuries and climate change) amounts to a subsidy to automobile use and suppresses the price of transportation to and from suburban locations.

Undercharging developers for municipal costs caused by new greenfield developments artificially distorts the market in favour of sprawling development. Utility pricing that fails to reflect the higher costs of servicing sprawling areas is another hidden subsidy.

Bearing in mind the influence of public policy on markets and prices, we can begin to reformulate the question. Instead of asking “why is sprawl cheaper?” the more germane question is “how should we change the policies that make sprawl cheaper?” This is discussed in the sections below on policy solutions.¹⁰ It is important first, however, to get a sense of the costs of sprawl.

THE COSTS OF SPRAWL

The costs of sprawl are many and diverse.¹⁷ Some of these costs are counted, meaning they show up on financial statements. Other costs are hidden – they don't show up on financial statements, but they are real and substantial. They are termed “externalities” and economists have been quantifying them for decades.

WHO PAYS FOR SPRAWL?

Different stakeholders pay for sprawl in different ways, either directly or indirectly. However, it is important to realize that we all bear the costs in the end (Individual costs mentioned below will be expanded upon in the following sections).

Businesses pay the costs of sprawl every business day. Roads congested by commuter traffic delay freight and raise delivery costs. Long-distance commuting, as well as the mental and physical health problems associated with sprawl, raise employee absenteeism while reducing productivity.

Homeowners in sprawling areas find themselves dependent on automobiles for transportation, contributing to increased injury risk from collisions and rising obesity levels due to physical inactivity. Smog emissions from automobile use affect residents of neighbourhoods that commuters drive through in order to reach central areas.

Compact neighbourhoods with lower municipal infrastructure costs end up subsidizing low-density areas due to the structure of development charges.¹⁹ Household budgets are impacted by the fuel costs associated with long commutes.

Governments pay many of the costs of development directly, for instance, paying for new roads, pipes and other infrastructure and services used by developments. These costs are often higher per unit for sprawling neighbourhoods than they are for denser, central neighbourhoods. However, this premium is rarely reflected in development charges or property taxes. There is also a legacy liability for

EXTERNALITIES

In the ideal exchange in the marketplace, the full costs of producing a good or services are included in the price. However, in the real world, markets don't obey theories.¹⁸ For many goods and services, the market price doesn't tell the full truth about costs.

The classic example is a factory producing a good and releasing smoke that causes illness to its neighbours. The costs of ill health are not included in the price of the good; neither the company nor the buyer bears the associated health-care costs. Those costs are said to be "externalized" from the market transaction; they are termed "externalities."

Those health-care costs do appear on the financial statements of health agencies and are ultimately picked up by taxpayers. However, those financial statements generally don't identify the causes of the costs.

Furthermore, many of the costs of emissions do not appear on any financial statements (e.g., losses of productivity) and so are further hidden. Economists can generate estimates of such costs, and they are substantial. However, they aren't incorporated in prices.

Such market failures create economic inefficiency. Because the cost of the good is artificially low, it is overproduced – produced at a level higher than the "socially optimal" level.

Governments should, and do, take steps to reduce and eliminate externalities. "Getting the prices right" means addressing not just financial subsidies but also the externalities. Governments often do so through regulation, e.g., by stipulating limits on polluting emissions, which helps to internalize the cost by requiring polluters to install pollution control equipment.

Another way governments address externalities is by adjusting market prices to take externalities into account directly – by raising a price (through a charge, user fee or tax) or reducing a price (rebate, credit, loan or grant). This kind of policy instrument provides an ongoing financial incentive on the producer to internalize the externality. This is known as a dynamic incentive; the more producers reduce the externality, the more money they make or save. Regulatory standards, in contrast, provide a static incentive; once the standard is met, there is no incentive to make further improvements.

Pollution is a negative externality, but some externalities are positive, e.g., education and health care. These provide benefits not only to the individuals directly involved but also to others, like employers and the broader community. In such cases, the appropriate pricing adjustment is a subsidy (e.g. publicly funded education and health care).

In the case of sprawl, there are significant external costs, some of which are discussed below. However, the benefits of sprawl are mainly internal (profits, reduced housing costs), resulting in an overproduction of sprawl.

TABLE 1: EXAMPLES OF NEGATIVE AND POSITIVE EXTERNALITIES

NEGATIVE EXTERNALITIES (FISCAL POLICY: TAXES, CHARGES, USER FEES)	POSITIVE EXTERNALITIES (FISCAL POLICY: REBATES, CREDITS, LOANS, GRANTS)
Water wastage	Transit
Energy wastage	Education
Traffic congestion	Preventive health care
Derelict land and suburban sprawl	Urban revitalization
Habitat destruction	Community facilities and parks

governments: infrastructure maintenance costs continue indefinitely, and rise over time. Governments also pay indirectly – for example, federal and provincial governments covering health-care costs related to diseases linked to sprawl. Municipal governments are spending money on climate change impacts caused partly by excessive automobile use, and on preparing for and adapting to climate change.²⁰

MUNICIPAL INFRASTRUCTURE & OPERATIONS

When a new residential development (or industrial or commercial development) is built on the fringes of a municipality, a variety of new infrastructure investments are required. Some of these infrastructure costs are covered by the developers and are then passed on to buyers. Developers can cover costs directly (sometimes termed “in-kind”) or indirectly (by paying development charges to the municipality). However, many of the costs are left to the municipal government, which translates into higher property taxes and other taxes across the entire municipality. To the extent that federal or provincial grants cover some costs, they are passed along to an even wider set of taxpayers.

In Edmonton, for example, developers pay for sewers, underground electrical cables, roads and sidewalks, water mains and a handful of other costs.²¹ The City and its taxpayers pick up the rest of the infrastructure costs, including fire and police stations, portions of arterial roads, recreation facilities, transit centres and libraries. In addition, the City covers all operating costs – including transit, refuse collection, snow clearing, drainage, and police and fire protection. Finally, and importantly, the City covers the costs of all infrastructure maintenance, repair and renewal. Edmonton is not alone in covering many of the current and future costs of new suburban developments.

The net cost to a municipality can be quite high. In the Edmonton example, it appears the cost to the City of new suburban developments will exceed revenues from those new developments. Across just 17 of the more than 40 new developments underway or planned in Edmonton, net costs have been projected to exceed revenues by nearly \$4 billion over 60 years.²² The City has not published data on what the other twenty-plus planned developments will cost taxpayers.

Certainly, the problem of new developments causing net financial losses is not confined to the City of Edmonton. Other municipalities and regions are becoming more aware of the same problem. For instance, the Region of Peel recently doubled its development charges after determining that new development was not paying for itself.²³ “Staff has given us all kinds of financial statements proving that development is not paying its way,” said Mississauga Mayor Hazel McCallion. “It’s not my opinion here. The facts are on the books. We are going into debt in a big way in the Region of Peel.”²⁴

Of course, development that takes place in any part of a city can entail costs to a municipal government. However, in established areas, much or all of the required infrastructure already exists, and so redevelopment and infill development typically entail significantly lower (sometimes zero) municipal capital spending. Sprawling suburban development, on the other hand, requires new infrastructure and thus new capital spending.

This results in a city being responsible for a larger stock of infrastructure, which means higher maintenance and renewal costs in the future. Roads eventually crack and develop potholes, sidewalks crumble, and pipes decay and begin to leak. Repair and maintenance costs rise to the point where it makes financial sense to replace the aged infrastructure. This happens a few decades after the infrastructure is put in place. Turning back to the Edmonton example, the cost of the 17 developments is projected to exceed revenues in each and every year. However, the net loss to the City is projected to rise dramatically 30 years after initial construction, increasing by five-fold.²⁵

Other cities have found similar results. In 2005, Halifax Regional Municipality (HRM) estimated the cost of services for a range of development densities.²⁶ HRM found that on a per-household basis, the costs of the lowest-density development were more than three times higher than high-density urban development. The costs of many key infrastructure elements are related to distances covered (longer pipes and, particularly, roads cost more than shorter ones).

HRM subsequently adopted a regional plan that set a goal to have 25% of growth take place in urban areas. The existing trend was 16%. HRM recently commissioned another study to determine the net financial savings that could be obtained by meeting the goal of the plan, and by exceeding it (using 40% and 50% urban growth scenarios). The study concluded that HRM could save nearly \$66 million by 2031 through achieving its urban densification goal, and \$715 million by achieving the 50% urban growth scenario.²⁷ Note that such a short timeline (22 years) would exclude the substantial infrastructure renewal costs; the savings from higher density likely would be much larger in the longer term.

**TABLE 2 – HALIFAX REGIONAL MUNICIPALITY
PROJECTED SAVINGS DUE TO URBAN DENSITY²⁸**

REGIONAL GROWTH – URBAN FRACTION	NET SAVINGS 2009-2031
16% (Trend)	0
25% (Goal)	\$66 million
40% (Scenario A)	\$337 million
50% (Scenario B)	\$715 million

Calgary undertook a similar study, with similar findings. It compared the capital costs of new infrastructure for existing patterns of development against those of a denser growth pattern recommended in the Plan It Calgary process. The recommended pattern, which would use 25% less land, would be 33% less expensive to build – resulting in a savings to the City of more than \$11 billion in capital costs alone. Operating costs were also much lower for the denser growth pattern; at the 60-year point, the savings would be on the order of \$130 million per year.²⁹

The City of London found that over a 50-year period sprawling growth would entail capital costs \$2.7 billion higher, and operating costs about \$1.7 billion higher, than for a compact growth scenario.³⁰

These municipal losses amount to an extra subsidy to new suburban development. The financial cost of that subsidy is enormous, and puts a strain on municipal budgets – a strain that will grow larger in future years.³¹

DATA ON MUNICIPAL COSTS

Generating this type of data on the municipal costs of sprawl can be transformative to how municipalities look at growth. For example, some Edmonton city councillors are now openly questioning whether further developments should be approved in the absence of cost-benefit analyses.

Obtaining data on whether a new development is going to make money or lose money for a city is good business-like management. Indeed, it raises the question of why such decisions were ever made *without* the relevant data. Very few businesses make significant decisions without assessing both the benefits and the costs.

For many municipalities considering reining in sprawl, the objection often voiced has been “if we don’t approve it, the next municipality over will get all that development and all the property taxes that go with it.” This may be true; it is also true that the next municipality over will also get a lot of costs – perhaps billions of dollars more than revenues.

The Federation of Canadian Municipalities (FCM) has consistently drawn attention to the fiscal challenges facing cities, particularly infrastructure management costs. FCM is surveying its members in an effort to determine how many municipalities have data on whether new suburban developments yield net revenues or net costs. Some municipalities are collecting this data, but not all have done so.³²

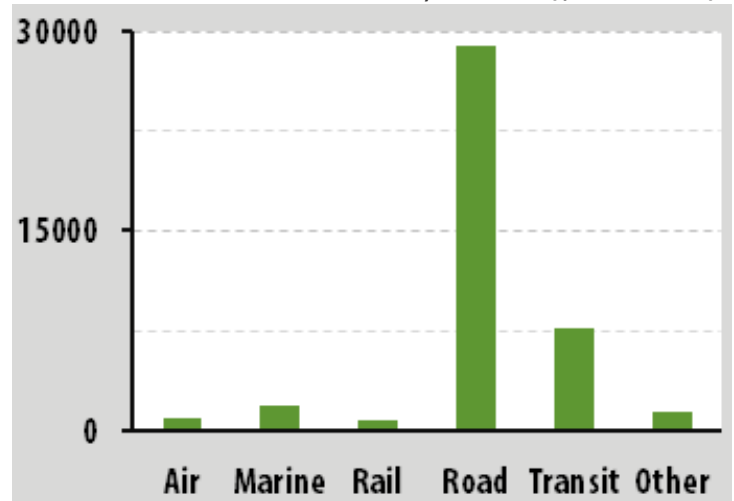
ROADS AND ROAD USE

Road use is currently free of charge on the vast majority of roads in Canada. However, the cost of roads is certainly not zero. Governments in Canada spent almost \$29 billion on roads in 2010/11 (see Table 3), far more than they spent on transit and all other transportation system elements combined (see Figure 1).³³

TABLE 3: ALLOCATION OF GOVERNMENT SPENDING ON ROADS IN CANADA, 2010/11³⁴

FEDERAL	\$2.48 billion
PROVINCIAL/TERRITORIAL	\$14.69 billion
LOCAL	\$11.89 billion
TOTAL	\$28.96 billion

FIGURE 1: GOVERNMENT SPENDING ON TRANSPORTATION IN CANADA, 2010/11 (\$ MILLIONS)



Source: Transport Canada³⁵

There is a widespread view that motorists pay fully for roads through fuel taxes. It is a mistaken view; road spending is not covered by fuel taxes. Even adding revenues from permit, licence and other fees collected by all levels of government, the total revenue from road users amounts to only \$15.5 billion per year across Canada. More than \$13 billion per year – nearly half – of the annual spending on roads is subsidized by other revenue sources.³⁶

In addition, fuel taxes and road-related user fees and charges cover none of the social costs of road use: air pollution, greenhouse gas emissions, noise, delay from traffic congestion, and vehicle collisions. These costs are high – estimated at more than \$27 billion per year in one study.³⁷ A more recent study puts the annual cost of collisions alone at \$63 billion.³⁸

The benefits of using automobiles on roads are mainly private, in other words they are internal to motorists: convenience and faster access to destinations, depending on the situation.³⁹ The costs are both private (internal) and social (externalized).⁴⁰

PARKING

As with roads, parking is often provided to users free of charge, particularly in suburban areas. Indeed, from a shopper’s perspective, free parking is a significant and sometimes determinative factor in choosing a shopping destination.

As with roads, “free” parking does have real costs. These include the costs of preparing, maintaining and repairing the parking spaces, and the opportunity costs of the land devoted to parking and not used for other purposes.⁴¹ The cost of providing a parking space in downtown Toronto is \$35,000 and up,⁴² consistent with costs in other large North American cities.⁴³

Whether free parking is provided by businesses or municipalities, the costs are paid by many. Businesses have to pay for their free parking spaces, and they are only able to pass along a portion of the costs to others. Customers of businesses who provide free parking pay higher prices for goods and services, while employees pay through reduced wages. Taxpayers pay through higher property taxes to cover costs of providing municipal free parking.

Residents with onsite parking – whether they are house owners or apartment renters – pay for driveway and garage/ carport construction and upkeep, and the lost opportunity to use the space for other purposes (the opportunity cost). When suburban shopping malls, business parks and industrial parks provide free or subsidized parking, they encourage higher levels of motoring (60% higher for employer-provided parking).⁴⁴

The bottom line on “free” parking is that it’s not free. It’s actually a wealth transfer to parking users that is paid by everyone. The scale of the cost of “free” parking is enormous; based on a US study, the cost in Canada would be in the tens of billions of dollars per year.⁴⁵

CLIMATE CHANGE

The transportation sector is Canada’s largest source of greenhouse gas (GHG) emissions,⁴⁶ and 69% of transport-sector emissions are from road-based motor vehicles. From 1990 to 2010, GHG emissions from transport, caused primarily by energy used for personal transportation, rose 33%, or 49 megatonnes. Overall, the transport category in 2010 contributed 195 megatonnes of GHG emissions and accounted for 47% of Canada’s emissions growth from 1990 to 2010.⁴⁷

The problem is not automobiles per se; it is the excessive use of automobiles. And sprawl increases automobile use. Statistical analysis suggests that climate change emissions from motor vehicle transport are closely correlated to sprawl.⁴⁸ Greater automobile dependency and travel results in greater energy consumption and GHG emissions for low-density areas (see Figure 2).

For its residents, sprawl locks in a higher future level of driving. Sprawling areas are generally automobile-dependent, and residents end up needing more cars and driving further distances:

- Research for National Resources Canada shows that

vehicle kilometres travelled can be approximately three times higher per household in suburban areas than in communities close to the city centre.⁴⁹

- Census data show that automobile dependence increases significantly further from the city centre. In Calgary, “more than half of those living within five kilometres of their workplace walk, bike or take transit. At 10–14 kilometres, that percentage drops to less than a quarter.”⁵⁰

Climate change is already having significant financial impacts, most notably through extreme weather events. Hurricane Sandy in October 2012 was estimated to have cost the United States more than \$60 billion and Canada more than \$100 million in insured costs alone.⁵¹

While no particular storm, flood or drought can be attributed to climate change (just as no particular case of lung cancer can be attributed to smoking), it is clear that climate change is “loading the dice”, i.e. increasing the likelihood of extreme weather events.⁵² It is also clear that the number and cost of such events is on the rise (see Figures 3 and 4).

In coming years, it is estimated that climate change will cost Canada into the tens of billions of dollars every year.⁵³ The global costs of climate inaction could be very high, at 20% or more of global GDP, or higher.⁵⁴ Needless to say, considering Canada’s economic reliance on trade, that kind of decline in global GDP would have profound effects on Canada’s economy.⁵⁵

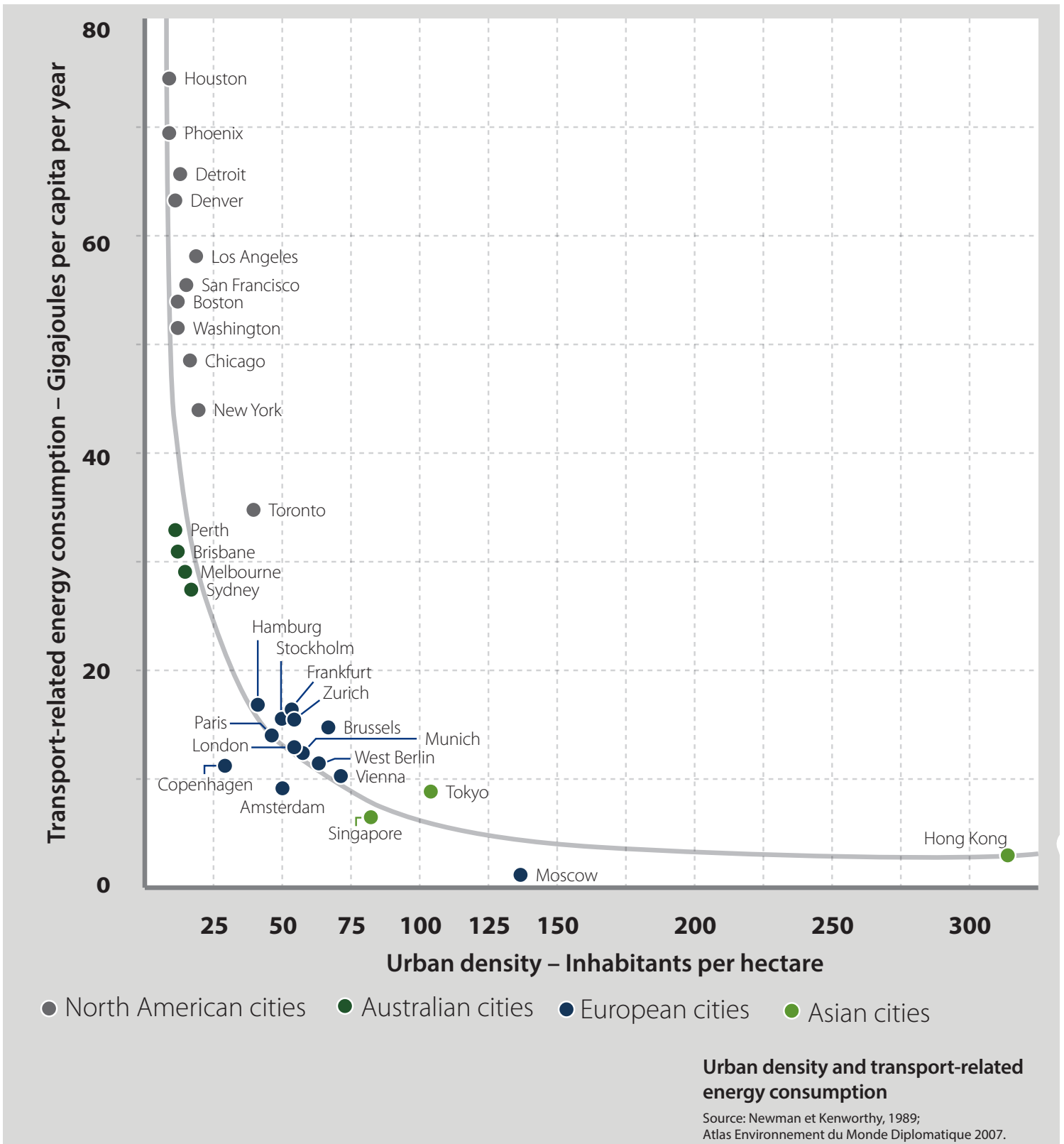
SMOG

Smog is created by certain air pollutants – sometimes termed “criteria air contaminants,” or CACs – many of which also cause acid rain. Regulatory emission controls on automobiles and other emission sources have reduced the ambient concentration of some CACs over recent decades. However, total emissions remain a serious health problem. In Ontario alone, smog emissions have been estimated to kill more than 9,500 people per year⁵⁶ – almost twice as many as die from infectious disease.⁵⁷

Motor vehicles are an important source of CAC emissions. In Toronto, air pollution from traffic has been estimated to kill more than a quarter of those killed by air pollution overall (440 out of a total of 1,700) and to cost \$2.2 billion per year.⁵⁸ Motor vehicles are more CAC-intensive than transit.⁵⁹

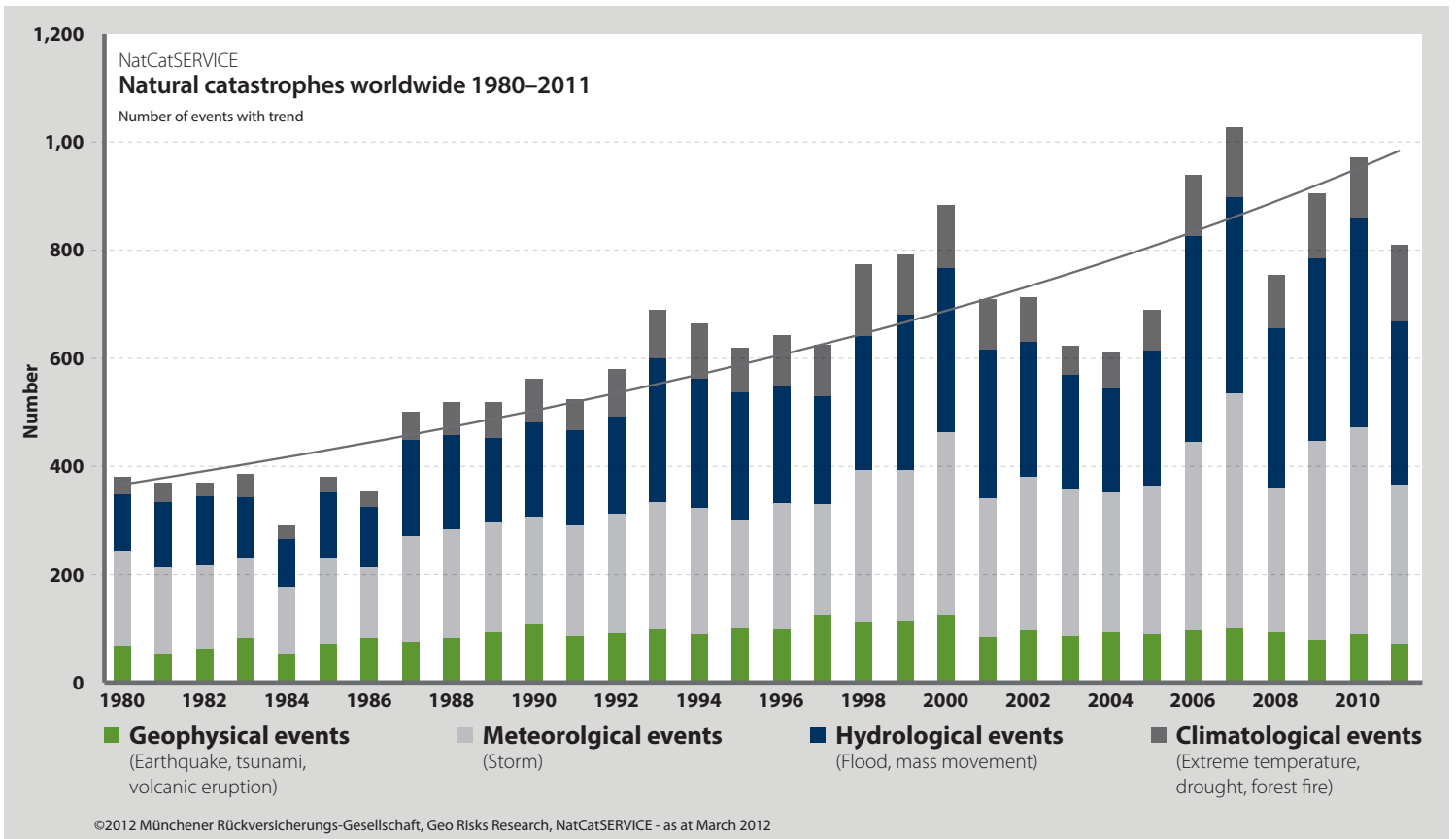
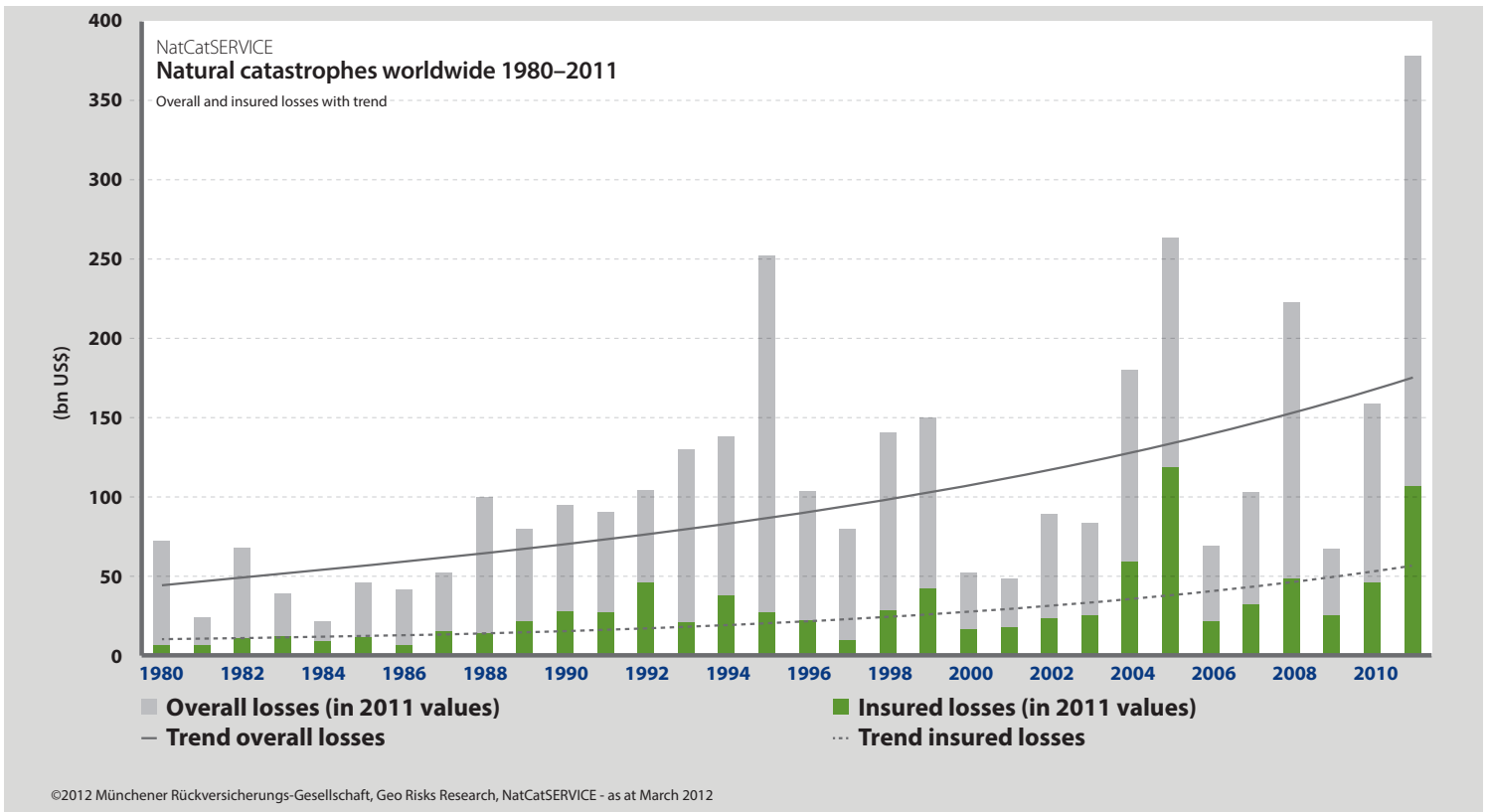
As noted in the climate change section above, sprawl is associated with greater transportation-related fossil fuel combustion, which results in greater emissions. The higher levels of automobile use necessitated by sprawl boost morbidity and mortality, along with their financial and economic costs.

FIGURE 2: URBAN DENSITY AND ENERGY USE



Source: Emmanuelle Bournay, UNEP/GRID-Arendal⁶⁰

FIGURES 3 AND 4: TREND IN WEATHER CATASTROPHES AND COSTS⁶¹



PERSONAL HOUSEHOLD COSTS

Although house prices in sprawling areas tend to be lower than in central areas, the cost of transportation tends to be higher: as noted above, residents of sprawling areas are more dependent on car travel and tend to own more cars and drive further distances.

The personal costs of car ownership are high. In Canada, the average car costs its owner approximately \$10,000 per year,⁶² which translates to roughly \$830 per month. Reducing the number of cars in a household by one would yield savings enough to enable ownership of a much more valuable home.

Considering another major household cost, retirement, the annual cost of owning an extra car for 35 years could buy more than \$570,000 of RRSPs⁶³ – more than the vast majority of Canadians in their 50s have saved for retirement.⁶⁴

The question of affordable housing takes on an entirely new meaning when considering the automobile dependency created by suburban sprawl. In a sense, homebuyers are being sold on the low sticker price for houses, while the high costs of the needed car ownership are brushed aside. Housing in sprawling areas is only “affordable” because the costs are being transferred to the homeowner’s transportation bill.

As the housing + transportation indices show, there is more to home affordability than the sticker price. Walkability of the neighbourhood, proximity to shops and services, and availability of high-quality transit are important determinants of true affordability. A cheap house at the edge of town that requires automobile transportation is not as affordable as it looks.

Some argue that the solution is greater “financial literacy” for homebuyers. If homebuyers would just learn how to do the research and crunch the numbers, the argument goes, they could make better financial decisions, including the decision to locate in a neighbourhood that truly reduces their costs.

The reality is that many people are simply too busy with work, families and other commitments to dig up non-transparent costs and perform the needed financial analysis for home buying, car buying, retirement planning, energy efficiency investments and the many other long-term financial decisions they face.

In order for real people to make the best decisions, they require relevant information. Housing + transportation affordability indices are an attempt to start developing that information. Ultimately, relevant information needs to be supplied to homebuyers when they are making decisions about whether to buy the house. It is very unlikely that all

vendors of suburban housing will voluntarily perform the calculations and tell prospective buyers about the additional costs required in order to use their products. If markets don’t provide such information, governments will need to step in.

AN IMPROVED MEASURE OF AFFORDABILITY: HOUSING + TRANSPORTATION INDEX

Researchers are beginning to cast light on the combined costs of home ownership and transportation. For example, the Center for Neighbourhood Technology has developed the Housing + Transportation Index, based on 337 US metropolitan regions. The index demonstrates that homeowners can save thousands of dollars per year in transportation costs by locating in compact, rather than dispersed, communities. Aggregated across an entire municipality, it can add up to hundreds of millions or even billions of dollars of savings per year.⁶⁵

“Families who pursue a ‘drive ‘til you qualify’ approach to home ownership in an effort to reduce expenses often pay more in higher transportation costs than they save on housing, thereby placing more, not less, stress on their budgets.”

– A. MOTLUCK⁶⁶

Research for Canada Mortgage and Housing Corporation (CMHC) on a housing + transportation index showed that in Calgary, being able to eliminate one car per household would put many more homes within financial reach of the potential buyer – depending on income level, up to 18 times as many homes.⁶⁷

Even if the housing + transportation costs are eventually displayed prominently on housing product information, it is far from clear that buyers will be able to make the “rational” decision that ideal economic actors would make. Behavioural economics has provided important insights about real-world decision-making, including the tendency to heavily discount future costs and benefits.⁶⁸ Simply put, many people tend to make decisions based on immediate costs and benefits, and they downplay future costs. Thus, there may need to be policy interventions that extend beyond the provision of information and that effectively reduce the risk of homebuyers overextending on transportation costs (just as CMHC now intervenes to reduce the risk of overextension on home mortgage payments).

The hidden household transportation costs of sprawl become even more important in light of potential energy cost increases. Although fuel prices are below their 2007 peak, in 2013 they are still historically high despite a major

global recession followed by a prolonged economic slowdown. Oil prices could well climb in the future: demand in developing countries continues, while the current boost to OECD unconventional production appears set to last little more than a decade.⁶⁹ As jurisdictions around the world continue to respond to climate change by expanding carbon pricing and regulation, the cost of fuel is likely to rise even further.

Higher fuel prices would have a disproportionate financial impact on suburban homeowners. If enough of those homeowners find themselves unable to afford their transportation costs, the value of suburban and exurban homes could tumble. This is what happened in the US housing bubble collapse; house values in areas requiring lengthy commutes fell more rapidly than those in central, compact neighbourhoods.⁷⁰ And when home values go down, many owners find themselves holding more debt than assets.⁷¹

HEALTH IMPACTS

The health costs of smog from vehicle emissions, and injury and death from traffic collisions, are discussed above. However, there are other health impacts of sprawl.

The research is still relatively new, but the literature has already identified linkages between sprawl and a large number of chronic diseases and risk factors.⁷² For example, University of Toronto researchers found that populations in less walkable neighbourhoods develop higher levels of diabetes; among new immigrants, the rate is 50% higher in the least walkable areas compared to the most walkable.⁷³ Another study states that there are “public health consequences of urban sprawl... [I]ncreasingly sedentary lifestyles now contribute to greater levels of obesity, diabetes and other associated chronic diseases.”⁷⁴ Furthermore, there are mental health impacts, ranging from loss of sense of community and social capital, to driver stress and road rage.⁷⁵

What about the risk of injury from violence? Even in American cities (where the risk of death due to violent crime is far higher than in Canadian cities), when considering crime and car crashes together, suburbs and particularly exurbs have a higher overall risk of violent death. This is due to the higher incidence of collisions in comparison to crime.⁷⁶ A study of the largest 101 metropolitan areas of the US determined that the degree of urban sprawl is directly related to traffic fatalities and pedestrian fatalities.⁷⁷ In Canada, although death rates from motor vehicle collisions are declining in response to consumer safety requirements, motor vehicle collisions still kill more than 2,000 Canadians a year.⁷⁸ Although the media and the federal government have made a political priority out of violent crime, the real health priority is automobile collisions, which kill four times as many Canadians as die from homicide.⁷⁹

ECOSYSTEM SERVICES

The natural areas surrounding municipalities provide a range of ecosystem services that have value to residents, businesses and municipal governments. These services include water filtration, storage and runoff control, fresh air, erosion control, pollination, recreation and aesthetic enjoyment.

These ecosystem services don't appear on financial statements, but they are real, and economists have quantified them. For example, the total value of ecosystem services provided by Toronto's greenbelt has been estimated at \$2.6 billion annually.⁸⁰

The City of New York has purchased land and conservation easements in the Catskill/Delaware watershed in order to protect its drinking water supplies, avoiding \$6 billion to \$10 billion in water filtration plant capital costs and more than \$300 million per year in operations.⁸¹

Where municipalities do not protect their surrounding environment, sprawl can literally pave over agricultural and natural spaces, displacing, damaging and even eliminating some of these services.

MUNICIPAL ALTERNATIVES AND INNOVATIONS

The purpose of this section is to discuss ways of preventing or reducing future sprawl at the suburban growth boundary and beyond (see Figure 5) and of revitalizing inner areas of municipalities.

Municipalities across Canada recognize the high costs of sprawl and have identified goals for the reduction of future sprawl and the creation of more liveable communities:

- **St. John's (Nfld.) Municipal Plan.** Urban form objective is to “encourage compact urban form to reinforce the older areas of St. John's, to reduce the cost of municipal services, and to ensure orderly development in new areas.”⁸²
- **Saint John (N.B.) Municipal Plan.** “City Structure Goals: 1) Limit urban and rural sprawl and use land more efficiently. 2) Revitalize existing communities through compact development, context-appropriate infill, and promoting infill development on vacant and underused properties. ... 6) Develop a compact built form that supports both a healthy lifestyle and efficient, convenient and viable alternative transportation choices, including transit, walking and cycling.”⁸³
- **Ottawa Official Plan.** “The policy direction of this Plan is to promote an efficient land-use pattern within the urban area through intensification of locations that are strategically aligned with the transportation network, particularly the rapid transit network, and to achieve higher density development in greenfield locations.”⁸⁴

- **Hamilton Transportation Master Plan.** Objective: “Encourage a more compact urban form, land use intensification and transit-supportive node and corridor development.”⁸⁵
- **Saskatoon Integrated Growth.** The Integrated Growth Plan endorsed by city council “will mean a change in focus from planning new greenfield developments to balancing outward growth with strong infill development in locations and forms that make sense.”⁸⁶
- **Calgary Municipal Development Plan.** Urban form goal is to “direct future growth of the city in a way that fosters a more compact, efficient use of land, creates complete communities, allows for greater mobility choices and enhances vitality and character in local neighbourhoods.”⁸⁷
- **Metro Vancouver.** “Goal 1: Create a compact urban area.”⁸⁸

A 2005 CMHC study examined six major metropolitan areas across Canada and found a distinct lack of progress in restraining sprawl.⁸⁹ The 2011 Census of Canada notes that the majority of population growth is in the suburbs,⁹⁰ and municipalities still commonly anticipate upwards of 70% of development ending up in greenfield locations.

Fortunately, there are effective solutions. Public policy can shift price signals and transform markets so they help manage municipal sprawl and create more liveable communities. They can also help boost the economy and help balance government finances.

PRICING

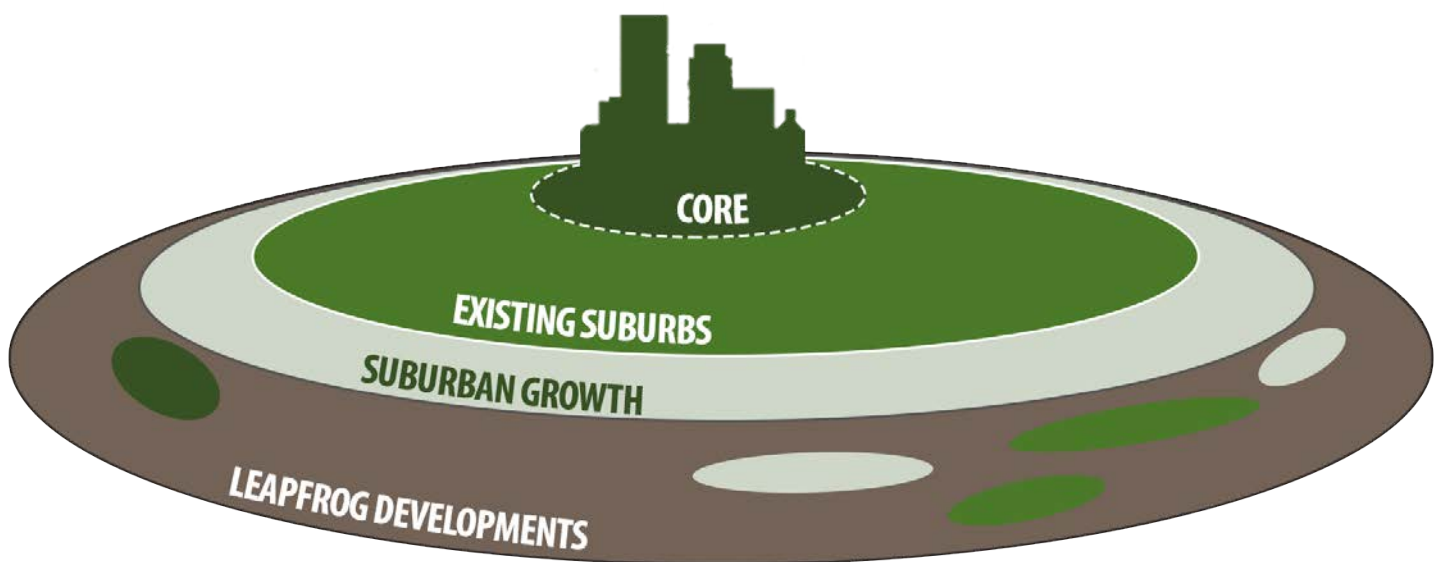
There are many public policy instruments that can correct the price relationships that currently encourage sprawl. In addition to reducing the future growth of sprawl, such policy instruments can revitalize urban cores and existing suburbs, raising property values for existing owners.

This section outlines a variety of policy instruments that directly alter prices – for example, through taxes, user fees and the like. Many other types of instruments also affect prices, albeit indirectly. For instance, urban growth boundaries (UGBs) – greenbelts that define limits to where development can take place – also affect prices. UGBs are an effective tool for reducing sprawl in a defined area, though sprawl can leapfrog across a UGB if it is too small, and prices are driven up throughout the area. UGBs have been used in many urban areas, such as Vancouver, Portland and now Toronto.

Using prices to influence choices is a “softer” mechanism than regulation; it allows for greater economic efficiency, as well as some degree of flexibility. If, for instance, the cost of commuting by automobile goes up while the cost of commuting by transit goes down, an individual can still choose to use the automobile if and when desired. If infill development is made more profitable than suburban tract development, individual developers could still choose to build in suburban areas.

However, not all the elements behind a given price can be reformed. For instance, land distant from amenities will tend to remain cheaper than land close to amenities. Also,

FIGURE 5: URBAN-SUBURBAN-EXURBAN STRUCTURE



reforming prices won't solve all problems. For some problems, there is still a need for regulation. For example, zoning bylaws will always be required in order to provide an appropriate separation distance between truly incompatible uses. And it may be that pricing-reform policy changes are resisted by vested interests, in which case governments will be forced to consider regulation to achieve their goals.

RETROFITTING SUBURBIA

Canada has an enormous stock of existing suburbs. Over time, if left unattended, infrastructure begins to wear and crumble, children of the original homebuyers graduate and schools close, making the neighbourhood less appealing. Families move out, strip malls are shuttered. If the neighbourhood is not revitalized, vacancies, vandalism and crime can follow.

At the same time, many cities aim to reduce the extent of future greenfield sprawl. Yet, with Canada's population continuing to rise in coming decades, new development is going to have to go somewhere.

Existing suburbs present an tremendous opportunity to reduce the extent of greenfield sprawl, and to densify and revitalize cities.

These three forces – the aging of existing suburbs, the reining in of future greenfield development and the continued growth in population – have sparked an interest in redeveloping existing suburbs. Many communities worldwide are in the midst of doing so under the banner of “retrofitting suburbia” – the redevelopment of vacant lots, abandoned malls and big-box stores, inner city surface-parking lots, brownfield sites (abandoned industrial sites), decaying older suburbs, etc.⁹¹

With another 6 million to 14 million Canadians needing housing in the next 24 years,⁹² there is a opportunity to achieve the kinds of urban form goals that municipalities have adopted. If prices can be aligned to support the retrofitting of suburbia, along with some relaxation of zoning and density rules, it could quickly grow to scale.

While prices have the advantage of allowing for “choice,” it is important to bear in mind that choice isn't everything: equity, economic mobility and social stability are important, and spending choices are more restricted for those with lower incomes. There is a need to ensure fairness – to consider equity, economic mobility and social stability when designing pricing policies (see section on Equity and Fairness).

Public acceptability is, of course, vitally important to the potential success of using pricing instruments to resolve sprawl concerns. Despite received wisdom, residents are generally supportive of municipalities generating revenues

and delivering good services. For example, a majority of Calgarians⁹³ would prefer to see taxes increased in order to maintain or improve service levels. Only 7% would like to see services and taxes cut (see Figure 6). These proportions have remained consistent over the years.

ERODING THE TAX BASE

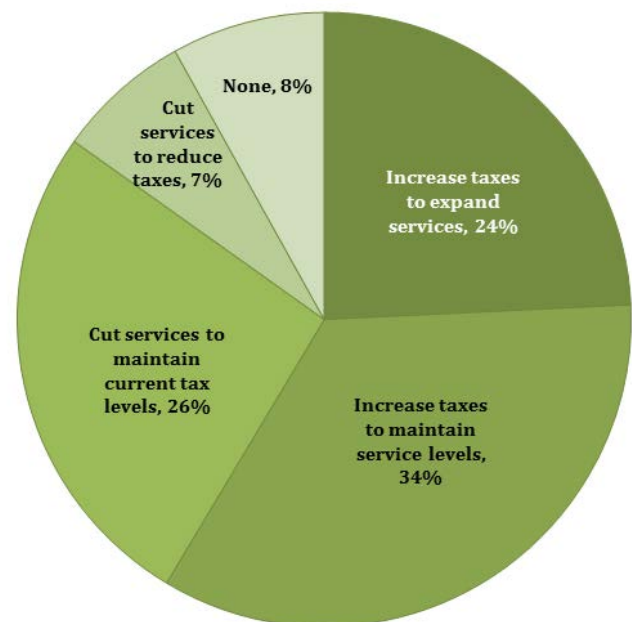
One objection to taxes that seek, as a matter of policy, to reduce social harms (“bads”) is that they could undermine their own base. If, for instance, a carbon tax reduced fossil fuel consumption significantly, then government revenue would decline.

Given that the primary policy aim of taxing externalities is to reduce the bad, achieving that goal counts as a success. Revenues can be restored by boosting the tax rate. If that rate eventually becomes too high, taxes on other bads can be instituted.

If all of the bads end up being greatly reduced or eliminated, then the overall program can be considered a major success. Some public expenses, like health care, will fall if externalities are reduced. But if the revenues need to be replaced, the policy focus can return to raising revenues by taxing goods, such as income and consumption.

Interestingly, when asked what type of revenues the City should collect if it needs more, 73% support new or expanded user fees, while only 27% support increased property taxes. Again this is consistent over the years.

FIGURE 6: CALGARIANS' SUPPORT FOR MUNICIPAL TAXES (2012)



Source: Ipsos Reid⁹⁴

Citizen satisfaction surveys like Calgary's are conducted in cities across Canada, and national norms are consistent with the findings in Calgary: the majority of residents prefer to see taxes increased to maintain or expand services, while a small minority would prefer cuts to taxes and services.

TABLE 4: NATIONAL NORMS – CITIZEN SATISFACTION SURVEYS⁹⁵

PREFERENCE	%
Increase taxes to enhance or expand services	22
Increase taxes to maintain services at current level	32
Cut services to maintain current tax level	22
Cut services to reduce taxes	11

The types of policy instruments discussed below are available to municipalities to varying degrees. The legal capacity of municipalities to implement some of these policy instruments is determined by each province. This is discussed later, in the Municipal Authority section.

DEVELOPMENT CHARGES

As noted earlier, new developments bring costs to municipal government, and some of these costs are recovered from developers through development charges (also termed development cost charges, development levies, off-site levies).⁹⁶

The costs of development vary considerably. For developments that are close to existing infrastructure (e.g., infill), the costs tend to be relatively low. Those that are far from existing infrastructure tend to have higher costs. Some types of infrastructure have costs that vary by length (e.g., roads and pipes), which results in costs being higher for low-density development.

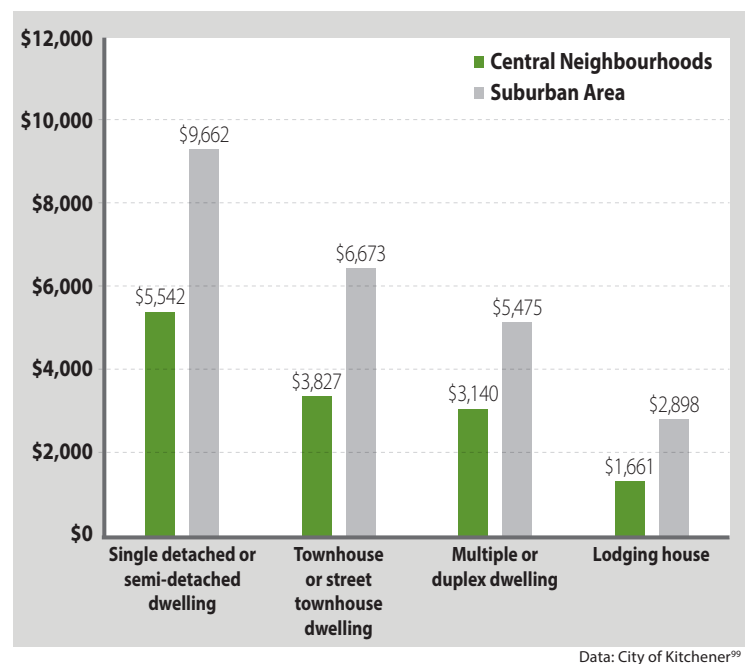
Despite these variations in costs, many municipalities have charged a flat development charge rate per unit or per unit area (square footage). This results in location, density and other cost drivers being ignored in the calculation of development charge rates. Thus, compact, location-efficient developments end up subsidizing far-flung sprawling developments, thereby providing another financial incentive for economically inefficient development.⁹⁷

Development charges can better reflect direct and indirect infrastructure and other costs engendered by development. Development charges can be adjusted so they are relatively low on developments near municipal cores and relatively high on developments in greenfield areas on urban fringes. This can be done cost-effectively by calculating development charge rates based on the area in which the development is taking place (area-specific rating), which is easier than

calculating the exact costs on a per-unit basis (marginal cost rating).

As an example, the City of Kitchener has set lower development charges for central neighbourhoods as compared to suburban areas. Comparing fully serviced lots, suburban charges are 74% higher than those for central neighbourhoods across all building types (see Figure 7).⁹⁸ Even semi-serviced suburban lots (no sewage or water service) require a 40% higher development charge than fully serviced lots in central neighbourhoods. For non-residential buildings, the difference is even starker. Fully serviced suburban lot charges are 157% higher, and semi-serviced suburban lots 84% higher, than fully serviced central lots.

FIGURE 7: KITCHENER RESIDENTIAL DEVELOPMENT CHARGE RATES (FULLY SERVICED LOTS)



Ottawa has similar rate differentials for development outside its greenbelt.¹⁰⁰ The City of Hamilton has taken a slightly different approach with a similar pricing result, providing a 90% exemption from development charges payable for developments in the downtown area.¹⁰¹

In addition to adjusting charges based on location, municipalities can provide incentives for particular types of development, such as redevelopment of brownfield (old industrial) sites, development in areas well served by transit, or infill of older inner-ring suburbs (see earlier discussion of retrofitting suburbia). The City of Hamilton, for example, has established exemptions and credits of up to 100% of the costs of development charges or environmental remediation required to redevelop a brownfield site.

Revisiting the development charge structure across the board gives municipalities an opportunity to reduce,

eliminate and even reverse some of the subsidies that many are currently providing to suburban sprawl. Municipalities are moving on this opportunity. For example, Calgary recently reached an agreement with developers to double the development charges on new suburbs;¹⁰² Mayor Naheed Nenshi would like to see them doubled again.¹⁰³ Peel Region also recently decided to double its development charges after being faced with the data indicating that development was not paying for itself.¹⁰⁴ Ottawa is currently phasing in increased development charges.¹⁰⁵ Below, in the section on Municipal Authority, some of the legislative limits on development charge reform will be discussed.

UTILITY PRICING REFORM

Many local utilities are based on networks of infrastructure, e.g., water delivery, wastewater (sewage) collection and electricity delivery. The larger the network infrastructure requirements per dwelling, the higher the capital investment cost. This means that sprawling, low-density developments are less cost-efficient than higher-density developments. Likewise, developments in new greenfield areas that don't already have infrastructure in place will have higher costs than redevelopment of central and established areas that have good infrastructure.

Not only do the capital costs of providing municipal servicing to sprawling areas tend to be higher, but so do operation and maintenance costs. For example, solid waste collection that requires more driving time and fuel use will be more costly. Moving water and wastewater greater distances boosts pumping costs; a study of data from 10 municipal wastewater systems in the Great Lakes area of the United States found that operation and maintenance costs in low-density areas is higher – sometimes more than twice as high – as it is in higher-density areas. The same is true for distance to utility plants.¹⁰⁶ As Enid Slack puts it:

“Given the evidence that the cost of services increases directly with distance and inversely with the density of development, the most costly areas to service logically tend to be the outlying, low-density developments.”¹⁰⁷

These findings suggest that in municipalities where services are charged at the same rate regardless of density or location, the higher-density and central areas are subsidizing the low-density and sprawling areas. The policy implications of this wealth transfer are clear: the financial subsidy should be eliminated. Municipalities can charge for utilities based on costs related to frontage (property width, measured at the front of the lot) and, in fact, many do so.

For example, the City of Terrace charges \$0.65/foot for water main,¹⁰⁸ while Winnipeg charges \$0.95/foot for water main and \$2.95/foot for sewer main.¹⁰⁹ Such charges help create a financial incentive for denser development.

PROPERTY TAX REFORM

Municipalities levy property taxes through a basic formula: the assessed value of the property multiplied by the tax rate (sometimes called the mill rate) produces the annual tax payable. There are some variations on the basic formula, as will be seen below. Tax rates are calculated once the total assessed values and annual municipal revenue needs are determined.

LAND VALUE TAXATION

Property value is composed of two elements: the value of land and the value of buildings or other “improvements” on the land. Taxing the improvements on land, which is part of market value assessment, provides a disincentive to improve that land.

Land value taxation means levying the tax on the land value only, not the improvement value. A variant – having property tax based on both values, but more heavily weighted on the land component of the value – is termed “split-rate taxation.” Land value taxation or split-rate taxation would boost the financial incentive to improve underutilized land.¹¹⁰

Many downtown cores in Canada have derelict buildings, empty lots and relatively low-value surface-parking lots. Shifting to a system of land value taxation or split-rate taxation would provide greater incentive to redevelop such sites and put them to a higher-value use. Doing so would boost the density of the urban core, thereby reducing the demand for suburban land.

Cities in Pennsylvania have experimented with land value taxation. In 1979–80, the City of Pittsburgh shifted to a split-rate taxation that boosted the tax on the land component to more than five times the rate on structures. It experienced a “dramatic increase in building activity, far in excess of other cities in the region,” particularly in the commercial sector. While demand for commercial space was an important factor in this growth, the evidence suggests that the shift toward land taxation was important in enabling the city to avoid rate increases in other taxes that could have impeded development.¹¹¹

“[One] way to promote compact metropolitan development would be to ... adopt split-rate property taxation. Under this type of property tax reform, a city can lower the tax rate on buildings and other capital improvements and still maintain the level of municipal services by raising the tax rate on land values. The Commonwealth of Pennsylvania has had this form of property taxation since 1913. Pittsburgh and Scranton have been the pioneers in tax reform, but by 1995, some 15 cities in the Keystone State had adopted two-rate property taxation.”

– R. ENGLAND¹¹²

One complication is that if tax rates on all unimproved lands rise, farmers would end up paying more, boosting their incentive to sell to property developers. However, this effect could be mitigated or eliminated by reducing the tax rate for land that is actively farmed.

PROPERTY CLASS TAX REFORM

Some municipalities vary tax rates across property classes. In Edmonton, for example, the tax rate on higher-density apartment buildings is greater than the rate on single-family dwellings.¹¹³ This creates an incentive to build at a lower density, which contradicts Edmonton's stated goals of increased density.¹¹⁴ Toronto's property class rates are similarly skewed against existing multi-residential buildings,¹¹⁵ but other cities' are not (e.g., Hamilton,¹¹⁶ and Winnipeg¹¹⁷). Some Montreal boroughs have higher rates for multi-unit dwellings, while others have lower rates.¹¹⁸

Whatever the rationale for varying rates on different types of property,¹¹⁹ those rates will affect the incentives in relation to density of development. In order to serve municipal goals of higher density, property class tax rates can be structured to favour multi-residential, townhouse and other relatively dense classes.

In addition, higher property tax rates for parking lot and vacant land classes would encourage more productive development.¹²⁰ This would have a similar effect to land value or split-rate taxation, without the side effect of making farming more expensive.

SPATIAL-BASED REFORM

Some municipalities set standard tax rates across the entire municipality. Others vary their tax rates by location, e.g., Hamilton¹²¹ and Winnipeg.¹²² Hamilton currently has higher tax rates for properties that are in the central part of the city and well served by transit.¹²³ These rates constitute a financial incentive for development in outlying communities and away from transit. This undermines Hamilton's Transportation Master Plan objective of encouraging "a more compact urban form, land use intensification and transit-supportive node and corridor development."¹²⁴

Removing area rating in such cases would help to revitalize central neighbourhoods and achieve municipal goals related to increased density and transit use. A further step in the same direction would be for municipalities to have lower rates in central areas and near transit. Provincial legislation governs what is possible for area rating; Ontario's Municipal Act, for example, would require amendment to expand the range of factors that could be used to set area rates.

As noted earlier (see Utility Pricing Reform section), some municipalities also have a frontage levy – an annual charge based on property width, which is added to the property tax bill. Such a charge not only addresses the cost of providing utilities to properties, but also functions as an encouragement to denser development.

TARGETED TAX REDUCTIONS

Municipalities can provide special tax reductions aimed at reducing future sprawling development.

For instance, municipalities can provide tax reductions for development of brownfield sites, which will reduce the demand for greenfield building sites. The City of Windsor's Brownfields Property Tax Assistance Program cancels any increase on property taxes for a brownfield property undergoing remediation and development.¹²⁵ The City also provides grants for brownfield rehabilitation.

Reducing tax rates for farms can make farming more viable in the face of challenges from global competition, farm subsidies and subsidized food transportation. Ontario, for instance, has adopted a reduced tax rate for farm properties: 25% of the normal property tax rate. This provides an incentive for farmers to stay in the business of farming, rather than selling their farms to developers.¹²⁶ Likewise, a municipality can adopt special tax rates for other green spaces protected from development by a conservation covenant.¹²⁷

TRANSPORTATION PRICING REFORM

The subsidies to motor vehicle transportation, discussed above, provide an added incentive to live and conduct business in sprawling areas. Eliminating those subsidies, and applying the savings to sustainable transportation modes, will help to rein in sprawl.¹²⁸ There are many policy instruments that can be used to alter the suite of transportation prices facing individuals and firms.¹²⁹

TRANSIT, CAR SHARING, AND ACTIVE TRANSPORTATION SUBSIDIES

Subsidizing transit, car sharing¹³⁰ and active transportation (walking and cycling) infrastructure will reduce the environmental costs of transportation and make living in urban neighbourhoods more attractive.

A significant impact of providing transit is its ability to help reshape a municipality. Surface transit (bus and streetcar/light rail) helps build ribbons of greater density along its routes. Subways and sky trains build nodes of greater density along their routes. Central networks of transit help build density throughout a municipal core. These various forms of added density help to reduce the growth of sprawling development on the urban fringes.

Of course, it matters where transit is built. Transit in urban cores and established areas can attract residents and businesses, reducing sprawl. Building transit systems that extend into sprawling areas can provide an added incentive to sprawl.

The costs of transit are often cited as a rationale for not proceeding with transit system expansion. However, as shown earlier, Canadian governments spend far more on

roads every year than they spend on transit – nearly four times as much – and Canada is the only G8 country without a national, long-term transit funding strategy.¹³¹

FIGURE 8: NODES OF DENSITY AT SUBWAY STOPS, YONGE STREET, TORONTO



Image: phototouring¹³²

The initial investment costs of transit system improvements can be offset by capturing the increase in nearby real estate values created by the improvements. Municipal governments capture some of the value increases through higher tax revenues from increased density. They can also purchase property near future transit locations and then rent or sell it when the value has risen. And, of course, all levels of government will benefit financially from reduced automobile use and its attendant costs.

PARKING PRICING

Parking is often provided at a subsidy, even free of charge, although there are real costs that are borne by society.

Parking prices can be reformed to pay for the overall costs of parking and to help achieve municipal goals like slowing sprawl and revitalizing urban cores. Currently, parking downtown in many municipalities costs money, while parking is provided free of charge in suburban malls, big box stores and business parks. Free suburban parking provides a gravitational pull for shoppers, employers and others – undercutting downtown businesses and helping to hollow out central areas. Municipalities (and provinces) could eliminate and even reverse this pull by charging for parking in suburban areas. Doing so would not only encourage greater use of sustainable transportation modes and help downtown areas, it would also reduce demand for parking, freeing up land for other purposes.

The technology to price parking in suburban lots already exists and is in use. Metered parking lots with self-serve kiosks are quite common and can be expanded across municipal regions. Mobile phone technology can make it even more convenient to make payments.

Parking taxes (also termed parking levies) can be tailored in a number of different ways, one of which is to apply them only to parking lots that are currently unpriced.¹³³ This would provide an incentive to charge for parking in such lots, and to provide less “free” parking space.¹³⁴ Parking taxes could be adjusted to provide for reduced rates for efficient forms typically found in urban cores, such as underground parking or parkades above commercial uses.¹³⁵

Provincial governments can implement a range of such parking tax systems or can give municipalities powers to do so.¹³⁶ Parking fines could be increased in order to encourage better compliance with parking rules and free up more parking spaces.

FUEL TAXES

Fuel taxes boost the costs of commuting and provide a disincentive to locating far from urban cores. A US Federal Reserve Board study across several large municipal areas between 1981 and 2008 found that a 10% increase in gas prices resulted in a long-term 10% decline in new house construction in areas with long commuting distances.¹³⁷

A study of Canada’s 12 largest metropolitan areas concluded that higher gasoline prices contributed significantly to reducing sprawl: a 1% increase in price caused an average 0.32% increase in the population living in the inner city and a 1.28% decrease in low-density housing units. Gasoline prices were found to be a larger influence on sprawl than household income or the population of a major census area.¹³⁸

As noted earlier, existing fuel taxes (even when added to the full basket of road user fees) fail to cover the financial costs of roads, let alone the social cost. In addition, fuel taxes in North America are at the bottom of the pack in the developed world. By both measures, there is room to increase fuel taxes as many other countries have done (see Figure 10).

Municipalities in Canada do not generally have authority to levy fuel taxes independently. Both the provincial and federal levels of government have established fuel taxes, and there is some revenue sharing with municipalities. The tax rates could be raised and more revenue shared with municipalities. Alternatively, providing municipalities the authority to establish fuel taxes would give them another tool with which to reduce the subsidies to sprawl. Metro Vancouver has the authority to set a local portion of the fuel tax and collect the proceeds, and the money is provided to the regional transit and transportation authority.¹³⁹ Such authority also helps to balance the books, as well as helping municipalities diversify away from their dependence on the property tax. Every penny of fuel tax in Toronto, for instance, would be worth a 1-3% change in property tax.¹⁴⁰

If structured as an ad valorem tax, rather than a per-litre tax, a municipal fuel tax would grow when fuel prices rose, just as income tax revenues do when incomes rise.

“Not only could the application of a municipal fuel tax raise the price paid by road users to a level that is more in line with the cost (production costs plus environmental costs) of providing roads, it would permit cities to have funds for improving and reconstructing their local roads and provide them with funds for public transit if they so desire. It would also lead to a more efficient use of local roads.”

– H. KITCHEN¹⁴¹

ECONOMIC BENEFITS OF MANAGING SPRAWL

As noted earlier, addressing the negative externalities associated with sprawl reduces economic distortions and boosts economic efficiency and overall welfare. In addition, filling in the spatial gaps in cities and raising urban density can bring about what economists term “economies of agglomeration.”

Higher urban density results in spreading the fixed costs of infrastructure over more businesses and households, reducing costs on a per-unit basis. It also improves the access of firms to workers and vice versa. Firms have more potential workers to choose from, resulting in better employment fit and higher labour productivity.¹⁴² Job seekers also have more employers to choose from, reducing unemployment. The greater density of firms and employees results in knowledge spillovers, both within sectors and between sectors. Urban density also improves the access of firms to suppliers and markets. Proximity of firms in related or complementary industries allows for productivity gains through specialization and outsourcing.

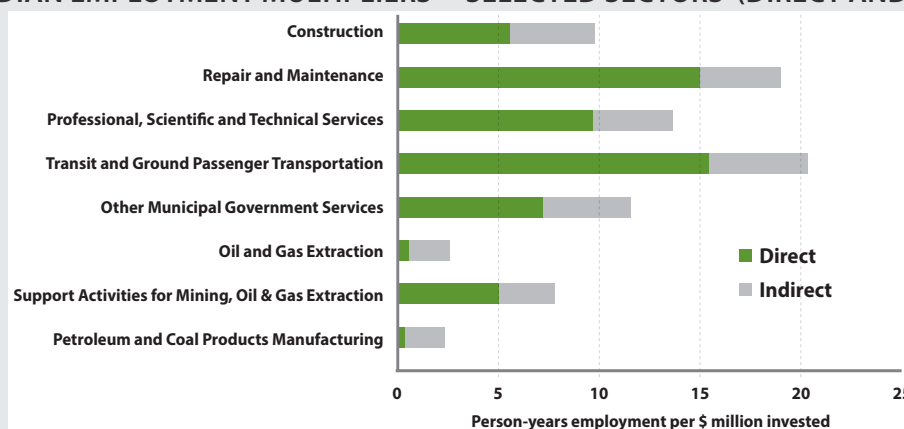
Such economies of agglomeration boost economic growth, and it appears that, as the economy tends toward being information-based, that association will grow stronger.¹⁴³

In the Greater Toronto Area, for instance, population growth has accelerated downtown, in 2006-2011 exceeding growth in the surrounding regions of Peel, York-Durham and Halton for the first time since the early 1970s. The downtown population is both younger and better educated, and they report that being close to work and public transit are their top two reasons for living downtown. Employers are moving to downtown to attract this workforce and access the market.¹⁴⁴

In addition to the benefits of density generally, some of the individual policy tools involved in managing sprawl also bring particular benefits. Governments have invested billions of dollars in job creation, and it is important to get the most bang for the buck. It turns out that public transit is a strong job creator. Transit creates more than 20 person-years of employment per million dollars invested – an employment return on investment more than five times higher than that of the oil and gas extraction sector, for example.¹⁴⁵ Construction and maintenance of transit also have very positive employment multipliers (see Figure 9).

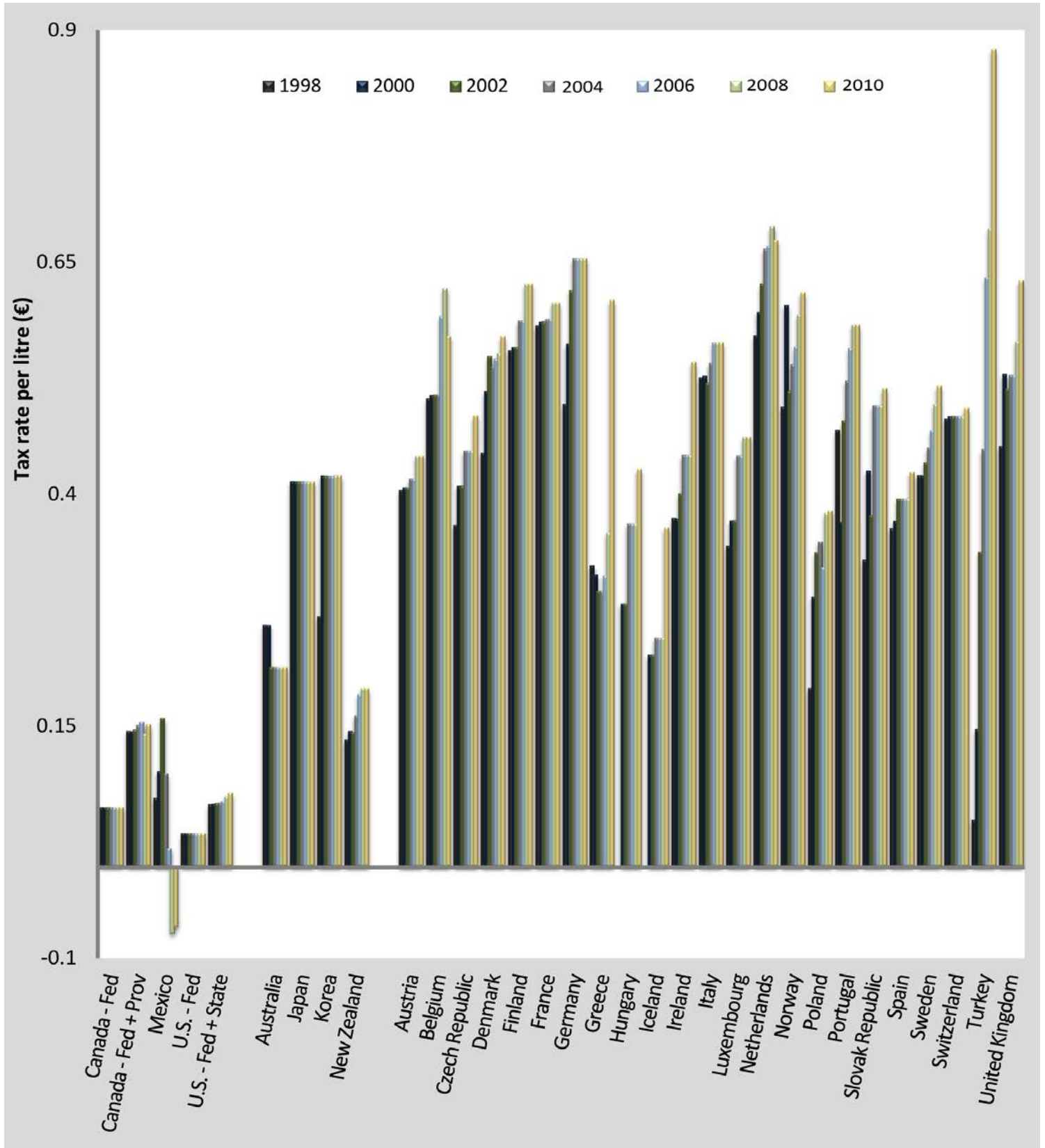
Moreover, the employment and economic benefits of transit tend to stay local. Operating transit systems is a labour-intensive activity, as is construction. The money spent on wages ends up being recirculated in the local economy. Figure 9 demonstrates the contrast between the high levels of direct and indirect employment created by labour-intensive transit and ground transportation and the low levels created by oil and gas extraction, which is capital intensive. For the oil and gas sector, few jobs are created because much of the money spent ends up leaving the local economy to bring in imported equipment.

FIGURE 9: CANADIAN EMPLOYMENT MULTIPLIERS – SELECTED SECTORS (DIRECT AND INDIRECT EMPLOYMENT)



Source: After Thompson and Joseph, data from Statistics Canada¹⁴⁵

FIGURE 10: DEVELOPED COUNTRY UNLEADED FUEL TAXES



Source: OECD¹⁷

ROAD USE PRICING

Another option for reforming transportation pricing is to charge directly for road use.¹⁴⁸ Tolling technology has come a long way since the days of toll booths that stop traffic. Billing on the 407 toll highway in Ontario, for instance, is fully automated.

“There is ... real potential for municipalities to introduce user fees in the area of non-public transportation, especially given the emergence of new, efficient technologies to collect tolls.”

– TD BANK¹⁴⁹

There are several ways to implement road pricing.¹⁵⁰ Many methods can be tailored to help rein in the impacts of sprawl.

Road Tolls. Tolls can be charged for the use of a particular section of road, which can be long or short. Tolling a network of urban ring and radial roads can provide a disincentive to long commutes.

Cordon (Area) Tolls. Cordon tolls are fees paid by motorists to drive into a particular area, usually a city centre. The London (UK) cordon toll has reduced congestion and sped up traffic dramatically compared to baseline levels, as well as providing funds for transit expansion. Complementary measures are needed to reduce the risk of driving people and businesses toward suburbs, e.g., exemptions for central area residents, ring-road tolls.

Congestion Pricing (Value Pricing). Congestion Pricing means varying toll charges over time and across locations to reduce traffic congestion and peak-period commuter traffic volumes. Variation can be on a fixed schedule or dynamic to reflect real-time congestion.

HOT Lanes. High Occupancy Toll (HOT) lanes are essentially Carpool/High Occupancy Vehicle (HOV) lanes that also allow low occupancy vehicles paying tolls. Provided that the toll-paying, low occupancy vehicles don't displace or slow the high-occupancy vehicles,¹⁵¹ HOT lanes assist in reducing congestion and emissions. HOT lanes, like other road pricing systems, can provide revenues to support transit, downtown renewal, brownfield remediation and so on.¹⁵²

DISTANCE-BASED PRICING

Motorists currently pay a number of annual and one-time flat-rate fees and charges, which could be restructured to reflect the amount they drive.¹⁵³ Such a restructuring would reward decisions to locate in central areas of town rather than distant areas requiring long commutes.

Vehicle registration and licensing fees, for instance, could be based on kilometres travelled per year. Currently, authority to collect such fees rests with provincial governments but this could be changed, and some major cities have already been given the authority to do so (e.g., Toronto, Vancouver

and many large cities in Quebec).¹⁵⁴ Similarly, insurance premiums can be pro-rated to distance travelled – termed pay-as-you-drive (PAYD) insurance pricing.¹⁵⁵

INFORMATION

While not directly affecting prices, providing information to market participants can bolster the impact of prices. For example, municipal governments could publish community walkability scores¹⁵⁶ and housing + transportation index scores (see Personal Household Costs section). If provincial governments or industry associations required real estate agents and mortgage lenders to provide such scores, it could assist homebuyers in making well-informed decisions.¹⁵⁷

EQUITY AND FAIRNESS

Pricing instruments to manage future sprawl, if poorly designed, could unfairly affect lower income Canadians. This is an important concern, and not just for those with lower incomes and the fair-minded majority of Canadians; if this concern is not addressed, the proposed policy changes likely won't attract a wide enough constituency to be adopted.

User pay systems have a well-deserved reputation for being regressive in their impact. Since the 1980s and 1990s, many local and higher level governments have gone through periods of imposing what have been called “user fees.” Often these weren't really user fees at all, but rather flat charges levied on a per-person, per-household or similar basis. Nor were they applied to reducing negative externalities; indeed, they were often levied against goods with positive externalities, such as health care (see Externalities discussion, above). Such charges were more akin to poll taxes (annual per-person head taxes) and, understandably, about as unpopular.

Applying a flat tax or charge unrelated to consumption carries little or no justification other than raising revenue. Intelligent design of pricing instruments can make them target the “bad” more accurately, and protect lower income people. For instance, raising property tax rates on single-family dwellings while reducing rates on multi-family rental dwellings (as some Montreal boroughs have done) will tend to be more progressive than flat rates, or rates that are higher on multi-family dwellings. Likewise, frontage rates for utilities will cost more for bigger properties, which – other things being equal – tend to be owned by people with more money.

Note the reference to “other things being equal.” Sometimes other things are not equal, and a particular instrument's revenue-raising side might have an unintended regressive consequence. For instance, a lower income person in a bungalow in an older part of town may have a 50-foot lot, while an expensive house sits on a newer 40-foot lot. The lower income person ends up paying a higher frontage rate than the owner of the expensive house.

The other side of the instrument, however, is revenue spending – and the revenue can be used in a way that makes the overall instrument neutral or even progressive (e.g., spending the revenue on income supports, transit subsidies or affordable housing).

Finally, an individual pricing instrument – even if it has a regressive impact in a particular case – can be part of a larger program of policy changes that overall is progressive. What matters is not whether an individual element of a particular reform package is regressive, but whether the package overall is more regressive than the alternative. Bearing in mind that property taxes have a regressive impact,¹⁵⁸ it is necessary to ensure that any revenue streams that replace it are at least less regressive, and ideally progressive.

A few simple principles could usefully inform a fair pricing guideline:

- Apply fees, charges and taxes to negative externalities, and subsidies to positive externalities.
- Design pricing instruments to provide “lifeline” or progressive rates, i.e., low or zero price rates for modest use of goods and services, and higher rates for larger quantities.
- Design pricing instruments to phase in transition to new prices, which will allow people to plan ahead in order to reduce disruption.
- Design pricing instruments to “grandfather” some prices for existing uses, or exempt qualified ratepayers (e.g., where a user fee or a shift in property tax structures could hurt retirees on fixed incomes).
- Where a pricing instrument cannot be designed to have a progressive impact, employ the revenues from it, or develop a companion instrument or program of instruments, to provide compensation for lower income people (e.g., use road tolls to subsidize transit, or provide income assistance).
- Employ a review lens of fairness and political acceptability in all stages of pricing implementation: issue identification, instrument selection, instrument design and communication.

Finally, in addition to considering the impact of individual policy instruments, it is important to bear in mind the overall distributional impacts of sprawl pricing. By reducing further sprawl, pricing helps to reduce vehicle use and smog emissions that harm lower income people disproportionately.¹⁵⁹ By making housing in central areas with good transit less expensive, it provides living arrangements that are truly more affordable (rather than distant houses with low sticker prices and expensive automobile dependence).

DIVERSE INCENTIVES

As shown, there are many tools available to municipalities to help reduce future sprawl and create more liveable communities. Employing a diverse range of tools is useful, for many reasons.

First, adopting a range of policies sends a clear signal about the overall policy direction of the (municipal or other) government. For example, the City of Kitchener, Ontario has signalled that it wishes to “facilitate the reurbanization of developed areas of the city, including the downtown and central neighbourhoods, by stimulating private sector investment in the reuse of vacant and underutilized lands,” and to that end, it is offering a “comprehensive package of financial incentives.”¹⁶⁰ A clear signal about the government’s intentions can influence private planning and investment decisions – above and beyond the influence of the pricing instruments adopted.

Second, the tools have different types of impact. For instance, distance-based pricing of road use provides an incentive to reduce distances driven but not to avoid driving during rush hour (dynamic congestion charging can do this). Likewise, property tax adjustments can be used to alter the ongoing cost of home ownership but have no direct effect on the very important up-front sticker price (development charge adjustments work better here). All of the tools have useful effects, but none is a silver bullet. Using a variety of instruments will help create a range of helpful incentives.

Third, it is unlikely that the implementation of any single instrument would result in a significant change in the pattern of suburban development. The price differentials between central and suburban housing are simply too large (in the hundreds of thousands of dollars in many cities) in comparison to the impact that a single pricing instrument would have. For example, the central-suburban price differential is often an order of magnitude larger than development charges, so tackling development charges alone would likely have an inadequate impact. In order to generate adequate incentives to manage sprawl, municipalities are going to have to use several instruments.

Fourth, the degree of impact of price changes on behaviour (“price elasticity,” in economics jargon) can vary over time. For some price changes, the behavioural impact could be high at first, but wane over time as people become accustomed to paying the new price. For others, the impact could increase over time, as people make investments that help them change behaviour to take advantage of the new price. Price elasticities can be estimated for the short term and the long term, and their variance over time may create a need for complementary pricing instruments.

Fifth, using a range of pricing tools at a relatively low rate creates less economic distortion than using just one or two

at a much higher rate. Generally, a broader tax base leads to greater economic efficiency than a single large tax.¹⁶¹

Sixth, politically, some of these tools can be considered low-hanging fruit, worthy of implementation in the short term. Other tools may be more effective, but require more time, effort and collaboration to overcome political challenges. Moreover, shifting politics can result in the adoption of some tools being more acceptable at different times. Moving forward on a range of proposals is less risky than depending solely on one.

Finally, adopting a package of pricing tools will enable any potential disadvantages of one to be offset by others. For instance, if one instrument had a regressive impact in a particular case, it could be offset by progressive impacts of others.

Municipal governments use their own criteria to evaluate what mix of policy instruments to employ. These will typically include the effectiveness of the instrument at helping to achieve the goal, other impacts (side effects), political challenges to adoption or implementation, economic efficiency (sometimes via cost-benefit analysis), administrative efficiency and cost-effectiveness, fairness, and any externally imposed obligations.¹⁶²

FEDERAL AND PROVINCIAL ROLES

Other orders of government influence what municipal governments can achieve in restraining future sprawl. This influence occurs in two manners: limits on the legal authority of municipal governments, and alignment of provincial and federal policies.

MUNICIPAL AUTHORITY

Municipal governments have a number of policy instruments at their disposal for addressing sprawl.¹⁶³ However, these instruments are limited in scope by provincial legislation. Being creatures of provincial statutes, municipal governments have no independent constitutional authority to pass legislation.

Most municipal government powers are found in statutes of general application, such as Ontario's Municipal Act, 2001,¹⁶⁴ Alberta's Municipal Government Act,¹⁶⁵ and B.C.'s Local Government Act.¹⁶⁶ Some local governments receive a broader range of powers through special statutes (often called "charters"), such as the Vancouver Charter,¹⁶⁷ the City of Toronto Act¹⁶⁸ or the City of Winnipeg Charter.¹⁶⁹ Hundreds of additional statutes and regulations provide further powers to local governments. These statutes – in scores to hundreds of sections – each provide, shape and limit local government powers over property taxation, fees and levies, and other matters.¹⁷⁰

The constraints on municipal revenue-raising powers restrict municipalities' ability to balance their books, let alone achieve important policy goals like reducing the future growth of sprawl. For example, provincial governments restrict the authority to collect development charges.¹⁷¹ Ontario limits the municipal costs of development that can be recovered by development charges, as follows:¹⁷²

- Only capital costs of growth can be included. Operating and infrastructure rehabilitation costs cannot be included, even if they are imposed by the new development.
- Several types of capital costs are excluded, even if the new development creates a need for them:
 - cultural or entertainment facilities, including museums, theatres and art galleries;
 - tourism facilities, including convention centres;
 - the acquisition of land for parks;
 - hospitals;
 - capital costs related to waste management services; and
 - office space for administration of municipalities and local boards.
- There is a mandatory 10% reduction in recovering the capital costs that are subject to development charges.

One historical rationale for maintaining a tight leash on municipal revenue-raising powers is that municipal governments could, due to lack of capacity, make errors that are costly to citizens, businesses, themselves or the provincial government. However, this has not deterred provincial governments from downloading greater responsibilities to municipalities, some of them unfunded. Moreover, many cities are now larger than, and as competent as, many provincial governments.

The types of powers now enjoyed by charter cities such as Vancouver, Winnipeg and Toronto could be extended to all large cities. Beyond this, it would be reasonable for provincial governments to explore options for empowering smaller cities to raise revenue commensurate to the challenges they face and the responsibilities they have been given. In addition to development charge reforms, provinces could consider a range of reforms, including enhancing municipal capacity to employ property taxation, parking pricing and fuel taxation. If there are real or perceived municipal governance risks remaining, other methods can be employed to manage them, such as avenues to appeal decisions and supermajority voting requirements on some issues.

POLICY ALIGNMENT

It is important that federal and provincial policies not undermine municipal goals and policies relating to managing sprawl. Key reforms that could be undertaken at higher levels of government in order to support municipal management of sprawl include carbon pricing, highway tolls and improved regional governance.

Carbon Pricing. The case for carbon pricing¹⁷³ is clear. Scientists have determined that we need to reduce climate change emissions quickly and deeply, and economists note that carbon pricing is the most economically efficient way of doing so. Canadian business leaders and firms are onside, including those in the energy and automotive sector.¹⁷⁴

In addition to the national and international reasons normally discussed for pricing carbon, there are good reasons tied to municipal sprawl objectives. Underpriced or unpriced climate change emissions constitute a subsidy to motor vehicle use, and thus to sprawl. If federal and provincial governments wish to support municipal governments in achieving their goals related to sprawl and liveable communities, they need to put a meaningful price on carbon.

Highway Tolls. In addition to municipal road pricing, discussed above, many highways managed by other orders of government could be priced, particularly those used as commuter routes in sprawling suburban areas.

Highway 407, a toll highway in southern Ontario, provides an example. Apart from problems with the private contractor running the 407, the tolling system has been widely regarded as a success, with an expansion coming shortly. New highways being built can be tolled from the outset, as with the 407. Existing highways can have tolls phased in, with prices rising gradually to enable users to adjust more easily.

Improved regional governance. A challenge for municipalities seeking to reduce the future growth of sprawl is that they may see themselves as being in “competition” for new development with neighbouring municipalities and counties. As noted earlier, what they may be competing for is actually debt rather than net revenues.

However, some may feel the need to facilitate sprawling development because other jurisdictions are doing so, and may thus be weakening their own development standards and revenues in order to poach development from other jurisdictions. This type of policy competition has been termed the “race to the bottom.” It not only results in less-sustainable development patterns and foregone revenues, it may not even be effective. Evidence suggests that “businesses are relatively immobile in response to changes in local tax differentials, even over a period of several years.”¹⁷⁵ Weak or absent regional governance facilitates this

competition, which results in fragmentation and low-density sprawling development. Effective regional governance enables municipalities to co-operate, rather than compete, and to maintain the development standards and revenues necessary to meet their community goals. Some cities and surrounding areas in a number of provinces have been combined into regional municipalities, also termed “upper tier” municipalities.

INFRASTRUCTURE: SHIFTING TO A DEMAND MANAGEMENT APPROACH

Certain types of public infrastructure have been managed over the last several decades purely by supplying more and more infrastructure. The problem with this approach, apart from sheer cost, is that when a good is provided for free, the demand for that good becomes excessive. Providing more of it in response further exacerbates the demand: as the saying goes, “build it and they will come.” This has been the case particularly for roads, and supplying more road space (most often at zero cost to users), generally has failed to resolve the problem of congestion over the long term.

Managing demand is a more economically efficient approach than simply always providing more supply. All levels of government could benefit from adopting a more comprehensive approach to infrastructure: managing not only the supply side, but also the demand side of the equation.

When it comes to demand management techniques, pricing is cost-effective. In contrast, demand management programs that rely on educating users about cost savings and other benefits require ongoing effort and resources. And, of course, they don’t generate revenues.

Pricing allows users to make their own decisions and can quickly bring demand into alignment with supply, reducing overuse and associated maintenance and repair costs. In the case of roads, pricing also reduces smog and climate change emissions, and future expansion of sprawl.

CONCLUSIONS

Municipalities across Canada are adopting goals of greater density and transit use and reduced sprawl. This is not surprising, as sprawl imposes substantial costs on municipal governments, not to mention businesses and families.

How can such municipal goals be achieved? This report has outlined some of the policy instruments that can directly tackle the cause of sprawl: distorted price signals. A number of policy instruments can be adopted or adjusted to provide the necessary price incentives, and do so in an equitable and fair manner. By eliminating the financial subsidies to sprawling development, and further internalizing the externalities, governments can encourage downtown revitalization, brownfield redevelopment and vibrant economies that attract workers and employers.

Municipal governments can lead the way in managing sprawl. Many policy changes are within their existing capacity. Provincial governments can amend legislation to provide additional capacity, and provincial and federal governments can align their policies to support municipal efforts.

It appears that the time is right to be discussing solutions. Municipal governments are studying the financial costs of sprawling development and the long-term liabilities it imposes. Major cities are exploring revenue-raising mechanisms to finance much-needed transit improvements, while citizens are open to the idea of taxes and user fees to support municipal services. There is now a clear opportunity to adopt the policies that will create towns and cities that work better for individuals, businesses and governments.

ENDNOTES

- 1 David Thompson is Policy Director of Sustainable Communities for Sustainable Prosperity. His publications with Sustainable Prosperity include "Putting Transportation on Track in the GTHA: A Survey of Road and Rail Emissions Comparisons"; "Smart Budget: A Background Paper on Environmental Pricing Reform for Local Governments"; "The Smart Budget Toolkit"; and "Building Canada's Green Economy: The Municipal Role." He has prepared reports and delivered presentations on the green economy, green jobs and environmental pricing reform for a number of organizations, including the City of Edmonton, the City of Hamilton, the Federation of Canadian Municipalities and the Toronto City Summit Alliance. He has worked as a lawyer in government and in the civil society sector, in management, and as a small business owner. He has postgraduate degrees in law and environmental economics.
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