HOW TRANSPORTATION P3S HELP SHAPE CANADA'S URBAN CENTRES

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Introduction

Urban centres in Canada have experienced a rapid expansion in the last few decades that will undoubtedly, if it has not already, have a number of impacts on transportation in metropolitan communities. It is not the speed or the volume of this growth that is at issue; rather, it is the mode in which it is taking place. Burgeoning low-density suburbs – often referred to as "urban sprawl" – have created a large-scale transportation conundrum that raises questions for the sustainability of the transportation network in many Canadian cities.

Public-private partnerships, or P3s as they are sometimes called, have recently become a popular mechanism for the financing and construction of infrastructure projects in Canada, especially in the transportation sector. In an era of fiscal austerity, and in the shadow of a growing global financial crisis, public-private partnerships are increasingly being seen by various levels of government as policy instruments that can divert costs and risks to the private sector. These projects have, however, met with some resistance, as critics claim that P3s inherently lack accountability, hide costs rather than reduce them, and that they generally fail to deliver on promises of private sector efficiency and innovation. Very recently, the global financial crisis has caused P3s to become less reliable as a financing mechanism for infrastructure projects, in contradiction to what many P3 proponents might have predicted. Their use remains a contentious issue.

These two issues are linked. Private transportation companies, through P3s, have the capacity to affect the growth patterns of urban centres. Governments and citizens look to P3 projects as a way to help solve problems of financing and construction for transportation in metropolitan areas. However, P3s

may only be able to exacerbate sprawl problems by helping suburban and rural areas expand and decentralize at ever-lower densities. What is more, the inherent design of suburban communities supports the use of P3s for this purpose.

What follows is a theoretical analysis of the capacity of public-private transportation partnerships to encourage and support an expanding, decentralized, low density, suburban sprawl model of urban growth. While some evidence of this model will be presented, more empirical research in this field is clearly necessary and it is hoped that this will be a topic of interest for future studies.

The Context - Urban Sprawl

The term "urban sprawl" has been in use since 1958 (Frumkin et al., 2004). It is usually used to connote the deleterious effects of urban decentralization, including negative health effects on humans, depletion of natural resources, noise pollution, air pollution, water pollution, greenhouse gas emission, loss of productivity, and destruction of wildlife habitat, among others (Kunstler, 1993; Squires, 2002; Frumkin et al., 2004; Muñiz and Galindo, 2005; Cabana and Wagner, 2006; Plantinga and Burnell, 2007; Garden and Jalaludin, 2009). While some authors point out that the phrase still lacks a precise definition that would make it a truly useful technical term (eg. Gillham, 2002), "urban sprawl" continues to be described and analyzed by academics from a variety of fields from urban planners to environmental scientists to legal scholars.

Many authors have attempted to provide a working definition of urban sprawl that conveys an image of actual physical conditions and that operationalizes the concept for proper social scientific study. Squires, for example, defines sprawl as "a pattern of urban and metropolitan growth that reflects low-density, automobile-dependent, exclusionary new development on the fringe of settled areas often surrounding a deteriorating city" (Squires, 2002: 2). Gillham defines sprawl as "a form of urbanization distinguished by leapfrog patterns of development, commercial strips, low density, separated land uses, automobile dominance, and a minimum of public open space" (Gillham, 2002: 8). Frumkin et al. initially shy away from a general definition of sprawl, but then provide one in passing:

"low density/low land use mix/low connectivity" in suburban environments (Frumkin et al., 2004: 17).

There is one factor common to all definitions of sprawl, whether they refer to density or land use or connectivity, and that is mode of transportation. The basic notion behind urban sprawl is that the distances between homes, shops and jobs are so great that all trips between venues must be undertaken by automobile. All other attributes, such as low density or leapfrog development or single-use zoning are secondary descriptions of what is essentially a problem of distances separating important places between which people in a sprawl environment must travel. Therefore, I offer my own definition of urban sprawl: any neighbourhood, borough, or municipality, urban or suburban, in which the average distances between homes, shops and jobs are so great that the only convenient and economical mode of transport is the personal automobile.

In recent years, a debate has arisen around the origins of, and the appropriate response to, urban sprawl. A school of thought has emerged that defends the right of North Americans and Europeans to live in quiet neighbourhoods, on spacious plots of land, far removed from the bustle of the city. These works often extol the virtues of the automobile as a convenient, affordable, comfortable and popular way to move people from home to work and along whatever other trips one may require throughout a typical day (see Bruegmann, 2005, 2006 and Bogart, 2006 for example).

Nonetheless, no serious scholar can deny the increasing dependence on the automobile for personal travel. In fact the data are hard to disagree with: in Canada, for example, the proportion of adults who made all daily personal trips by car went from 68% in 1992 to 74% in 2005, while the percentage of people who made at least one trip per day by foot or bicycle dropped from 26% to 19% in the same time period (Turcotte, 2008). A dependence on affordable, convenient, comfortable automobiles and a state-sponsored auto-related infrastructure of roads, highways, tunnels and bridges is inarguably one of the primary reasons for urban decentralization and suburban expansion (see for example Gillham, 2002; Frumkin et al., 2004; Bruegmann, 2005).

The academic debate on sprawl, therefore, is one that is normative in nature. Should residents of large urban areas be allowed

or encouraged to rely on the personal automobile as their primary - and in most cases, sole - medium of transportation? Should cities be allowed or encouraged to expand, decentralize, and disperse themselves over increasingly large areas? Bruegmann (2005, 2006) argues that suburban living is a choice that an increasing number of people and families have made, based on their desire to live in quiet, spacious, more affordable homes, closer to nature. These people, according to Bruegmann, have weighed the opportunity cost of their daily commute, the cost of owning and maintaining one or more automobiles, and their contribution to traffic congestion and pollution, and have nevertheless exercised their democratic right to live at the low-density suburban periphery. These choices have been made possible by a rise in average incomes resulting from the industrial boom period of the 1950s and 1960s, necessitated by the entry of women into the workforce (requiring many more workers to move around simultaneously), and facilitated by advances in technology that have made automobiles safer, more efficient, more comfortable and more affordable. Urban sprawl, according to Bruegmann, is the popular and mostly beneficial result of a confluence of economic and labour issues and represents the free choice of a growing number of people and families.

For the majority of urban sprawl researchers, however, sprawl engenders a number of negative health and social consequences, including poor air quality, water pollution, obesity and other health concerns related to lack of physical activity, injuries or death resulting from traffic accidents, chronic injuries and ailments from driving such as back pain, emotional tension as a result of "road rage", reduced social capital, and isolation of the elderly and the disabled (Frumkin et al., 2004). Persky and Wiewel (2000) assert that the current model of a compact urban core with a low-density auto-dependent suburb is economically inefficient, due to the loss of time that workers spend in traffic, extra funds spent on roadway infrastructure, and the socialized costs of preventing the urban poor from accessing high-wage unskilled jobs that have now moved too far away from the city center. Others lament the destruction of wildlife habitat, the contamination of aquifers vital to the natural water cycle, emission of greenhouse gases, and other harmful consequences of sprawl to the natural environment. Still others claim that an urban

sprawl model is fundamentally unsustainable, as inevitable fuel shortages related to peak oil will one day make automobile dependence for commuting and for freight prohibitively expensive (Gilbert and Perl, 2008), and will likely result in a suburban real estate crash of biblical proportions (Kunstler, 2006).

The real debate, then, surrounds the normative prescription of what should be done about sprawl, if anything. Some researchers argue that since government policies have the potential to shape the development of both urban and suburban areas (Perl and Pucher, 1995), public policy ought to be employed to find an alternative to the urban sprawl model. These policies, which are sometimes referred to as "smart growth" or "new urbanism" (Cozens and Hillier, 2008), include planning for more compact urban development, expanding public transit, designing and promoting neighbourhoods that can be walked, and mixed-use land development zoning (Salkin, 2007). Some authors take the public policy approach one step further by arguing that it was the various levels of government that created sprawl in the first place, by investing so heavily in the roadway network, homeowner tax policies and the single-use zoning pattern throughout the past four or five decades (see, for example, Wiewel and Persky, 2002), and that similar contemporary policies can only encourage sprawl to continue (Voith, 2000).

Public-Private Partnerships (P3s)

There is a continuum of public and private involvement in service delivery, ranging from pure private sector delivery to pure government provision (Savas, 2000: 241). In the space between these extremes lie what are often referred to as public-private partnerships, or P3s. In Canada, P3s continue to be a popular policy implement for the financing and construction of infrastructure, especially in the transportation sector.

Bult-Spiering and Dewulf (2006: 16-19) and Allan (2001: 6-8) offer numerous definitions of P3s. Common to all definitions is the notion of partnership. The term "partnership" implies, at the very least, a sharing of risks, responsibilities, or rewards (Allan, 2001).

For this reason, when a government hires a private company to deliver a service on the government's terms (often referred to as

"contracting out"), this is not considered a P3. In these instances, the private contractor does not share in the risks or responsibilities of providing the service to the public, and the public sector does not share the financial rewards. Under this arrangement, the government is still the supplier and provider of the service to the public, and the contractor is merely used as a mechanism for delivery. Likewise, a situation in which a private company may hire a public agency to perform a specific task is again not a P3. And finally, a complete divestiture of a public property or agency to a private firm - often referred to as "privatization" or "denationalization" (Savas, 2000) - is not a P3 either, because in these instances the public sector has relinquished its responsibility for delivering that service to the public, and the private firm takes on all risks, responsibilities, and rewards attached to service delivery in that area. A true P3 would involve some shared level of investment, responsibility for decision-making, or shared revenues between the public and private sector partners.

The private sector, obviously, only has one motive for engaging in a partnership with a government entity: to access a profitable revenue stream. This can be achieved through user fees or by payments from the public sector partner. The public sector, however, may choose to collaborate with the private sector for several reasons (Moavenzadeh and Markow, 2007):

1. To capitalize on perceived efficiencies in the private sector that would hopefully lead to lower costs, improved technology and better choice for consumers.
2. To gain from the technical experience or the existing enterprise of a private firm already involved in a particular sector.
3. To "reduce government spending and limit government's role in the economy" (ibid.: 130).

In some jurisdictions - notably in the US - partnership with the private sector may also be the only way to access the capital required for investment in infrastructure, since raising public funds through the sale of bonds would require a referendum that would probably be lost, and the raising of taxes is often seen as politically unpalatable. In Canada, however, governments have much greater access to capital than private firms do, and at lower rates of interest

(Daniels and Trebilcock, 2000; Hamel, 2007). In addition, Daniels and Trebilcock (2000) point out that any revenue stream that would be available to the private sector partner, through charges or user fees, would also be available to government. Any effort to access private capital through a P3 initiative, according to Daniels and Trebilcock, is simply an attempt to move government expenditures off-budget. The financial incentives inherent in P3s are therefore only likely to be gained through exploiting any efficiencies of the private sector.

Many scholars agree that P3s are most effective when they can harness the classic advantage of the free market - competition (Hakim et al., 1996; Rosenau, 2000; Batley, 2001; Moavenzadeh and Markow, 2007). In theory, in a competitive environment, firms will seek to improve technology, reduce costs, provide more and better choices to customers, and deliver projects faster than a single provider - government or private sector - could hope to do in a monopoly environment. Public sector involvement is often required to protect vulnerable sections of the public, to ensure accountability, and to reduce the impact of negative externalities (Rosenau, 2000).

Despite many years of P3s in use around the developed world, the empirical evidence is still largely inconclusive as to their ultimate benefits or drawbacks. Savas (2000) argues that the private sector will always be better at delivering services than the public sector, because governments are bogged down by bureaucratic red tape, because government employees are overpaid, unmotivated and abuse their union rights, and because the unlimited competition of the private marketplace produces the best and most efficient economic results in all areas. Others, such as Hamel (2007) for example, argue that P3s increase the overall costs of service delivery by forcing the government to factor the private partner's profit into the project's budget. In many cases, especially considering the length of some P3 contracts, P3s do not introduce competition into the mix but instead replace a non-profit government monopoly with a for-profit private sector one. In these cases, the greatest benefit of P3s is that they remove massive infrastructure and service delivery costs from a government's budget, but not from the intended users of the service or from society as a whole (Daniels and Trebilcock, 2000).

P3s have been in use in the transportation sector for many years, and continue to be a popular method of service and

infrastructure delivery in many jurisdictions. In Canada, Ontario's Highway 407, the Confederation Bridge link between Prince Edward Island and New Brunswick, and Vancouver's "Canada Line" extension of the SkyTrain network were all built as P3s. Future Canadian transportation P3s that have recently been announced or are underway include Edmonton's North Ring Road, extensions to the Viva rapid transit system north of Toronto, and the Golden Ears bridge linking Maple Ridge and Langley, BC.

Linking P3s and Urban Sprawl

P3s have been recommended as a policy tool to help combat urban sprawl (Dunn, 2000; Bult Spiering and Dewulf, 2006; Moavenzadeh and Markow, 2007). In theory, the competition inherent in the private marketplace should induce private transportation companies to build, maintain, and operate infrastructure faster and at a lower cost than a traditional public sector monopoly would, and therefore affordable transportation solutions could be made available to suburban regions where governments are unable to deliver these services alone. In addition, under the pressures of competition, a private company ought to be more responsive to consumer demands, and therefore the maintenance and improvement of P3 infrastructure should more closely follow the needs of the users as they change and grow, so as suburban areas expand, P3s should make an expanding transportation network economically feasible. The government partner in the P3 project would be needed for oversight, accountability purposes, and to ensure that vulnerable populations are still serviced.

In practice, these gains are rarely entirely realized. As mentioned above, governments can really only take advantage of the benefits of the private sector when companies compete. However, given the massive costs of transportation infrastructure, P3 contracts need to be very long (typically anywhere between 25 and 90 years) in order for the project to be profitable for the private sector partner. In addition, the enormous capital requirements often prove too much for single transportation companies, and so interested parties for P3 contracts often assemble into consortia, of which only two usually end up bidding for any given project (Daniels and Trebilcock, 2000).

The anticipated benefits of the private sector partner are therefore hampered by the little potential for competition that P3 projects offer.

However, if we assume that these problems of competition could be resolved, there are some ways in which P3s could be used to address urban sprawl problems. First, they could be used to improve transportation within the city core – by reducing traffic congestion in the city, by increasing bicycle routes or by making them safer, or by making public transit options more comfortable, less crowded, more convenient and more affordable. This could make living nearer to the city more attractive to some residents who currently prefer a long highway commute to the crowded and uncomfortable transportation options of the city.

Second, P3s could be used to connect the city and the suburbs more efficiently. By providing suburban commuters with a non-automobile commuting option, such as rapid commuter trains, light rail, or extensions of subway systems, transportation P3s could offer suburban residents a more sustainable route into the city centre that would reduce the need to rely on the automobile.

Third, P3s could be used to bring public transit options to suburban communities. An analysis of the 2001 Census revealed that Canadian urban centers are spreading out, and work-related driving patterns are changing (Statistics Canada, 2003), meaning that the traditional suburb-to-city commute is no longer the principal daily route taken by many commuters. Increasingly, commuters travel a reverse-commute (living in the city and working in the suburbs) or commute between two suburban locations. Because of the great distances and low residential and commercial densities inherent in sprawl areas, traditional public transit devices are often uneconomical for these purposes.

Ideally, a P3 solution to urban sprawl would attempt to address all three of these options. In Canada, however, P3s are not extensively used for any of these purposes. Most P3 projects in this country have been used or are planned for use on extending the road network for personal automobiles. While suburban governments often argue that increased road capacity is necessary to relieve congestion, even conservative commentators acknowledge that more roads only ever offer a temporary relief from congestion at best (Downs, 2001). The reduction in traffic entices more people to move

out to suburban sprawl areas, and in a short time even these new roads become congested.

It is not surprising that P3s have not been used to improve transportation in urban centres. Urban sprawl conditions are ideal for private sector transportation, because they offer the best opportunity to maximize revenue from a P3 project. Suburban residents are on average wealthier than city-dwellers, they travel much greater distances, and they have no free alternatives such as walking or cycling. Not only is there no incentive for private companies to engage in P3s in city centres, but it is in fact in their interest to encourage urban sprawl in order to grow their business.

In fact, only one transportation P3 has been located in an urban centre in Canada, and this is the "Canada Line" of Vancouver's SkyTrain system (scheduled to open in November, 2009 – see http://www.canadaline.ca). However, even this project was clearly not designed to improve urban transit options: the selection of Cambie Street for the major Vancouver arm of the line, rather than nearby Main Street, and the small number (two) and unimaginative positioning of the downtown stops demonstrates that the developers were more concerned with providing service to suburban Richmond and Vancouver Airport customers than with improving transit within the city. Fortunately, the Canada Line's capacity to provide rapid transit from the Richmond suburb to downtown Vancouver, and the impressive number of stops inside the boundaries of Richmond (four) indicate that this project does have potential for sprawl reduction by providing transit options within the suburb and by reducing the daily number of cars that travel into Vancouver's city centre.

Conclusions

P3s have the capacity to shape cities and suburbs in Canada. While in theory, investment in transportation infrastructure ought to help curb the negative effects of urban sprawl, it can only do so by providing rapid transit and public transportation options to commuters who travel the sprawling distances of suburban regions. Unfortunately, reducing sprawl is not to the advantage of private sector P3 partners, for whom a continuing revenue stream is of utmost importance. Not surprisingly, then, P3s in Canada have

concentrated on expanding the road network for personal automobiles – a model that can only encourage sprawl rather than reduce it.

More empirical evidence is clearly needed to complete the picture presented here. Canada's oldest transportation P3s are mostly less than 15 years old, and urban growth patterns are better quantified over longer periods than this. As planned P3 projects become reality, it will be instructive to learn how the private sector's interest in partnership projects contributes to the suburban transportation network.

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