11. Toronto Megacity: Growth, Planning Institutions, Sustainability

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11.1 Introduction

During the last 50 years the Toronto region has grown from a small city of 1.3 million in 1955 to a sprawling metropolitan region of about six million today. Although most of this growth took place as the use-segregated, automobile-oriented, suburban tract development often considered characteristic of suburbanization in North America, Toronto has a distinctive urban form, which is quite different from the U.S. model, and poses different sustainability challenges.

The main distinguishing features are that Toronto's suburban areas have been developed at relatively high densities, and urban growth in the post Second World War era has been accommodated with relatively little unregulated development, and in a contiguous pattern without significant leapfrog development or large-lot estate development. A recent study, which measured average population density of the full contiguous built-up area of entire metropolitan regions on a consistent basis, found that the Toronto region had an average population density of 27 people per hectare, the same as Copenhagen, and slightly higher than Stockholm (26/ha). This is much higher than similar-sized U.S. cities such as Chicago (15/ha), Washington (13/ha), Houston (11.4/ha), or Atlanta (6.8/ha) (see Sorensen and Hess 2007). This chapter is about the entire Toronto metropolitan region, that includes both the current City of Toronto (known as Metropolitan Toronto before amalgamation in 1998), and its contiguous suburbs in Halton, Peel, York, and Durham Regions, an area often referred to as the Greater Toronto Area (GTA) (see Fig. 11-1).

The distinctive urban form of the Greater Toronto Area (GTA) is a product of the actions during the last 50 years of a robust set of planning and development control institutions. Suburban land development has been

Fig. 11-1. Land use and urban structure of the Greater Toronto Area

tightly linked to municipal investment in the infrastructure of water supply and sewer systems, primarily to manage the timing of construction and achieve efficiencies of scale, thereby reducing costs. Development control ensures that local services such as roads, sidewalks, and sewers are paid for by developers, who must also provide local park space and set aside lands for natural heritage protection and schools. In combination with local Conservation Authorities established to prevent the recurrence of flood damage caused by Hurricane Hazel in 1954, this development control regime has achieved significant protection of natural heritage features, including green buffers flanking most rivers and streams, an extensive regional parks network, and large protected green areas. In short, Toronto's development control regime has resolutely achieved the modernist vision of suburbanization and in the process has created a highly planned and relatively compact metropolitan region that is quite different than most US cities.

This description of the Toronto region as highly planned and tightly regulated seems at odds with the views of many urban observers of the last 10 years, who have depicted Toronto's postwar suburban growth as urban sprawl and criticized the rapid consumption of high-quality farmland, destruction of wildlife habitat, and the conversion of a planned greenbelt into a utility and expressway corridor (Wheeler 2003; Winfield 2003; Solomon 2007;

Sewell 2009). The conventional planning wisdom is that although the original City of Toronto and the Regional Municipality of Metropolitan Toronto (Metro) achieved considerable planning success, after the early 1970s planning at the scale of the region was largely abandoned, just at the moment that growth passed beyond the boundaries of Metro Toronto (Wronski and Turnbull 1984; Filion 2000; Frisken 2007; White 2007). This view has been succinctly and famously summarized in the description of the Toronto region as "Vienna surrounded by Phoenix" (Cervero 1998; Filion 2000; Wheeler 2003), an exaggeration on both counts. Nonetheless it contains a measure of truth in identifying Toronto's dualistic urban form, with a high-density mixed-use transit-oriented core in the prewar City of Toronto, surrounded by much lower-density, segregated-use, auto-oriented suburbs.

The suggestion that regional planning was largely abandoned also contains a measure of truth, as there is no longer a planning agency responsible for the region as a whole, but as this chapter will show, that that does not mean that the Toronto region is unplanned and unregulated. Rather, the core planning, development control frameworks, and infrastructure provision strategies established during the 1950s and 1960s to regulate development in the region have continued to function, and have even strengthened, allowing an accelerating build-out of the postwar vision of efficient, planned suburbanization, even as explicit regional-scale planning waned.

In part, this confusion is a result of the multiple meanings of the term "planning." Although explicit "regional planning," which attempted to achieve a pre-ordered urban form for the Toronto region, was largely abandoned after 1970, as many have argued, the machinery of development control, municipal regulation, and environmental management at the municipal scale has continued to evolve and even strengthen over the last four decades. It is the product of this planning system for regulating suburban development that is the focus of this chapter.

It is also worth distinguishing between three scales of planning activity: (1) regional strategic planning, which attempts to shape patterns of growth for the urban region as a whole, (2) municipal scale land-use planning through zoning and infrastructure building, and (3) design and regulation of the development of individual land parcels or subdivisions through secondary plans, site plan control, and subdivision control. In Canada, the federal government plays almost no direct role in urban affairs.¹ Local government

¹The federal government does, however, have enormous influence on the scale and speed of urbanization through its control over immigration policy, which has encouraged high levels of immigration. Most immigrants settle in the three major metropolitan regions (Toronto, Montreal, and Vancouver), and about half the total choose to settle in the Toronto area.

and urban planning are a provincial responsibility, and municipalities have no independent constitutional status, but are merely the creations of provinces, and are closely regulated and supervised by them. Regional strategic planning has been inconsistently applied in Ontario, while municipal planning and site planning have been applied with considerable consistency.

Before the Second World War, there was little large-scale urban planning in Ontario at all, and almost no attempt to shape regional growth patterns (Gomme 1984; Harris 1996). This changed with the passage of the *Planning Act* in 1946, and especially with the creation of Metropolitan Toronto (Metro) in 1953. As Richard White has convincingly shown, Metro was the de facto regional planning agency from 1953 until the mid to late 1960s, when the province became increasingly active in devising plans for the region (White 2007). During the 1950s and 1960s Metro included both the existing built-up area and the suburban growth areas, and was responsible for planning and building the large-scale infrastructure of roads, public transit, and pipes that shaped patterns of growth.

After 1970, most greenfield growth was taking place beyond the edge of the Metro political boundary, but instead of expanding the Metro area, the province created four new two-tier regional governments in the suburbs surrounding Metro Toronto. Regional planning became much more fragmented and competitive, the political will to plan for the whole region diminished, and the political power of the suburbs increased (Gomme 1984; Walks 2004; Frisken 2007: 141). Issues of regional urbanization patterns and infrastructure needs and costs resurfaced periodically, but most commentators agree that from 1970, until the resurgence of regional scale planning in the early years of the twenty-first century with the creation of the Greenbelt and Places to Grow plans, there was little explicit regional planning for the GTA.

On the other hand, development in the region has been carefully planned and managed at the local scale, largely by the municipal governments that are responsible for local official plans, zoning, subdivision control, secondary plans, and infrastructure management. As this chapter will show, those efforts have faithfully reproduced much of the conception of "good urban form" established by Metro in the 1950s, and have reinforced the development management institutions established at that time, even though the suburban forms generated by those institutions have since been widely criticized. Municipal institutions and patterns of development management have also been structured by the large-scale infrastructure building and land-use planning frameworks established by the province and Metro in the 1950s and 1960s, including the expressway system, the major employment areas, sewer systems, and natural heritage preserves.

This pattern of urban development has significant positive elements as discussed below, but as the Toronto region's population pushed past the five million mark, the flaws in this planning vision became more apparent. The most important of these flaws is undoubtedly the extreme auto-dependence of the postwar suburbs, which are highly use-segregated, with large mono-functional areas, so that even with relatively high population densities they are difficult to serve with high-quality public transit. Even with a robust expressway and arterial roads system, road congestion has become endemic, especially in the suburbs, where the roads are most extensive. Air pollution is a serious and steadily worsening problem that causes some 440 extra deaths in the City of Toronto each year according to the city's Department of Public Health (Winfield 2003; Toronto Public Health 2007). Automobile dependence produces both high levels of congestion and high levels of energy use per capita.

Perhaps most problematic in the long run is the highly inflexible urban form that has been created, which for multiple reasons examined below is likely to be much more difficult to adaptively re-use and re-design than the urban areas created in the prewar period. In particular, the units of land development, and the size of mono-functional areas has steadily increased, so land uses are less mixed, and there has been a spread of urban forms that are designed to prevent change over time.

During the last 15 years, this critique of the problematic patterns of urban growth of the GTA has become increasingly influential and has played a major part in shifting public opinion against "suburban sprawl." The change in attitudes has been a major factor behind recent Provincial government initiatives, including the protection of the Oak Ridges Moraine, the creation of the Greenbelt, and the Places to Grow regional plan discussed below.

This chapter traces the evolution of the Toronto growth management and regional planning paradigm and examines the characteristic patterns of urban form it has produced. Part 2 examines the creation of the major institutions of land development control and infrastructure planning during the 1950s, grounding those innovations in an analysis of the major urban problems of the 1920s and 1930s that they were designed to prevent. Part 3 describes and analyses the patterns of urban form that have been produced during the last half-century. Part 4 summarizes the major characteristics of the Toronto megacity's urban form, discusses the relationship between urban form and sustainability in the region, and suggests that the dominant urban forms created during the last 50 years will make it difficult for current intensification policies to contribute to greater sustainability.

11.2 The Emergence of a New Development System

The robust and enduring institutional framework that has structured the creation of today's Greater Toronto Area was a product of major legislative reforms and governance innovations of the 1940s and 1950s, and the emergence of a large-scale development industry that specialized in suburban land development. The development system established during these years was a direct response to the serious urban problems created during the 1920s and 1930s, especially haphazard urban sprawl, shortages of municipal infrastructure in growth areas, and the severe fiscal problems of suburban municipalities, many of which went bankrupt in the 1930s.

A pivotal issue in the creation of the postwar Toronto growth management regime was thus the vexing question of the high costs of servicing urban growth – more precisely, who was to pay? As increasingly high standards of municipal infrastructure and building regulations were advocated and achieved, the cost of providing infrastructure for rapidly growing urban areas had grown exponentially, but the question of how to regulate suburban development and to finance infrastructure remained unresolved, creating major problems for both municipal and provincial governments.

A second major factor impelling action was the surprisingly rapid urban and economic growth experienced during the 1940s and early 1950s, which was concentrated in the Golden Horseshoe region at the western end of Lake Ontario, stretching from Oshawa through Toronto to Hamilton. The resumption of urban growth in the 1940s after a decade and a half of depression and war created a crisis for Toronto region urban policy-makers, who agreed that the existing system of planning and governance was failing and that a new arrangement was necessary.

In Toronto planning, the late 1940s represent a critical juncture of precisely the sort described by institutional theorists such as Katznelson (2003). Established institutions and governance arrangements for regulating the growth and development of the metropolis were found to be inadequate, and had lost legitimacy as a framework for interpretation and action, creating the need to develop new institutions, and presenting opportunities for new actors and ideas to gain influence. The institutions created during this critical juncture are a direct response to the critique of the failings of existing arrangements, so an analysis of that critique is important for understanding the particular institutional innovations that were implemented.

The main issue was how to pay for the urban infrastructure necessitated by urban growth. Until 1912 the city of Toronto had grown through regular annexations of new territory, often in advance of significant development. After 1912, however, the City Council decided against further annexations,

primarily because of political controversy over the high costs and the extra taxes associated with extending public services to the annexed areas (Harris 1996: 151; Frisken 2007: 55). The last major annexation had been North Toronto, where the city found itself obliged to rebuild at great expense an inadequate sewer system in which some of the pipes ran uphill. By 1918 the voices opposing further annexation had gained the ascendancy, with the Toronto housing commissioners declaring "For the City to embark on any such schemes would not only involve improperly risking the ratepayers' capital and credit, but would unquestionably greatly increase the municipality's already heavy debt" (cited in Harris 1996: 151). The direct result was that during the 1920s, large areas were developed in unincorporated rural townships outside the city boundary. Several new municipalities were eventually incorporated in these areas.

Those new municipalities lacked the financial resources and planning expertise to build municipal infrastructure such as roads, schools, water mains, and sewers, and did not enforce requirements for sanitary hookups or expensive building standards, whereas Toronto required connections to water and sewer systems, and brick construction for all dwellings to prevent fire (Harris 1996). Water supply outside the city was provided by inexpensive wells, and where they existed, sewer systems provided only basic treatment before effluents were released into nearby rivers and streams.

These suburbs became a relatively cheap place to own a home, allowing large numbers of working people and new immigrants to build their own inexpensive houses in "shacktowns" outside the city. Starting with a tarpaper shack, homeowners gradually improved the structure as time and money allowed.² Such development patterns were a disincentive for the city to annex these areas, as it was very expensive to service them retroactively, and their property taxes could not cover the investment. Not surprisingly, during the Depression of the 1930s, many of these same municipalities went bankrupt, and the province was obliged to assume their debts.

Rapid economic growth in the 1940s, and pent-up housing demand dating from the 1930s combined to produce a development boom outside the City of Toronto that demonstrated the inadequacy of the existing planning framework. The major problems with the existing planning system were clearly summarized by the first Chairman of the Municipality of Metropolitan Toronto, Frederick Gardiner, in a 1953 speech to the Empire Club in which he sets

² Harris (1996) has documented the high rate of owner-building in the Toronto area, praising the access this provided to working-class homeownership, while criticizing the lack of planning that contributed to widespread foreclosures, municipal bankruptcies, and retrenchment in the 1930s.

out the arguments in favor of Metropolitan government, referring specifically to problems associated with growth in the 1940s and early 1950s:

In North York, there are over 15,000 septic tanks built in clay which has neither the qualities of absorption nor evaporation. No comment is necessary with respect to the unsatisfactory nature of that condition. Some municipalities were able to finance the services which their residential development required, others were not. The issuance of building permits was stopped or held up on account of the inability of some municipalities to provide the services required. One municipality boasted that it had the finest educational system in Canada. Others were unable to provide their children with a minimum standard of education except with the utmost financial difficulty. Nothing approaching a system of arterial highways accompanied this tremendous development. This was because no agreement could be arrived at on a cooperative basis between the thirteen municipalities as to where the arterial highways should go and how they would be paid for. All agreed that expressways and parkways were necessary so long as they ran through some other municipality and someone else paid for them. ... The Toronto and York planning board, of which I was chairman for five years, lined its walls with plans for the development of the whole area. We knew what needed to be done but in the absence of power to tax the constituent municipalities and to take expropriation proceedings, none of the essential works could be undertaken. ... There was a crying need for housing. The city had no room for a housing development program and the suburbs could not finance the necessary services. Maps, plans and theoretical discussions accomplished nothing. We had to be driven by intolerable inconvenience and the threat of financial difficulty before steps were taken to solve our problems. When some of our municipalities had difficulty in selling their bonds it was evident that a major operation was necessary (Gardiner 1953).

The major operation undertaken by the provincial government in response to this crisis was the creation in 1953 of the Municipality of Metropolitan Toronto (Metro). Although the City of Toronto had finally applied in 1950 for amalgamation with its 12 suburbs, that proposal encountered strong resistance from the suburban municipalities, and the Ontario Municipal Board³ (OMB) rejected the application (Milner 1963: 261). Instead the

³The OMB is a quasi-judicial adjudicative tribunal established by the Province of Ontario to settle disputes over land-use planning, development charges, land expropriation, and municipal finance (www.omb.gov.on.ca/english/home.html).

province commissioned an inquiry into regional governance and planning, that recommended a two-tier system of government, with a metropolitan-level government to provide regional planning and infrastructure investment, while the 13 local municipal governments were left in place, and retained local planning and zoning powers and responsibilities for service delivery. Metro would plan, build, and sell wholesale services to the municipalities, and they would retail them to users.

Some enduring characteristics of Ontario's planning culture are visible here, including the concern for the efficient deployment of public investment, the desire to facilitate continued growth, the recognition of the need to supply housing at a price working people could afford, and a concern for "fairness" among municipalities in bearing a share of the costs of metropolitan services. The fact that the poorer municipalities often had the worst services and highest tax rates, while affluent suburbs had lower taxes and excellent services was widely seen at the time as a serious social equity problem (Friskin 2007).

11.2.1 The Metro Development Control Regime

The urban development priorities and planning approaches of Metro emerged directly from the context in which Metro was created, and the problems it was meant to solve. First and foremost, Metro was created to build the major public infrastructure of water supply and sewers, roads and public transit, schools and other educational facilities to permit the continued growth of the region, which the small and fragmented suburban municipalities had been unable to do, both because of coordination problems, and because of financial constraints. Metro, with an integrated planning, development, and financing machinery, could overcome the problem of coordination and, drawing on the rich tax base and excellent credit rating of Toronto, finance the needed investment in the most cost-effective way.

Efficiency and cost-effectiveness were major planning values for Metro, and were achieved in part through economies of scale, and in part through coordination that eliminated duplication, but especially as a result of the decision to build a single integrated Lake Ontario-based water supply and sewer treatment system for the whole region. This eliminated well-based water systems and the disposal of wastes into the region's small rivers and streams. The 1946 Ontario *Planning Act* had permitted municipal governments to deny permissions for residential and industrial development based on small-scale septic tanks for wastewater, effectively tying development to the provision of municipal plumbing systems. The Act also required

registered plans of subdivision approved by municipal officials and the Minister for all land subdivision in designated urban development areas, giving municipal planners considerable leverage to negotiate the standards and design for new subdivisions (Gomme 1984: 104).

A closely related planning priority for Metro was to ensure compact, contiguous development, without leapfrogging over undeveloped land. This priority followed directly from the decision to use integrated lake-based water and wastewater systems. While the globally dominant metropolitan planning paradigm in the 1950s and 1960s was the creation of satellite towns separated by greenbelts, following the London model, Toronto opted for compact, contiguous peripheral growth. It simply didn't make sense to build satellite towns that would require pipes from the Metro system to cross a greenbelt. As White (2007: 17) puts it, "The Board's overall 'vision' of the region was thus as much a product of engineering as planning."

The achievement of contiguous development was also made possible by the fact that the Metro Toronto Planning Board (MTPB) was given planning authority over an area three times the size of Metro, and used this authority to prevent most developments outside Metro until the Metro area was almost fully built out, ensuring that investment in infrastructure was paid back through full use of built capacity. As Frisken shows, Metro proved a cost-effective way of providing infrastructure, saving the Provincial government considerable money by allowing a reduced share of Metro's infrastructure costs to be paid directly through provincial grants (2007: 86).

Another of Metro's priorities was to ensure an adequate supply of land for housing to provide access to homeownership for the majority of the population, and employment lands to make space available for industrial investment. This role, which was seen as essential to ensure that land prices were not pushed up by lack of supply, followed directly from the Metro mandate of facilitating planned growth. However, the huge investments in infrastructure, and the restrictions on unplanned development, also provided powerful incentives for the provision of sufficient land in sites where services had been supplied. Land supply for housing further required both the agreement of local governments to rezoning, and the willingness and ability of developers to subdivide and develop land and housing.

A key institutional innovation of the postwar planning regime was the requirement that services internal to developments be entirely supplied by developers as a condition of the permit to subdivide. As of 1954, the standard subdivision agreement in Metro required the subdivider to install roadways (including asphalt surfacing), watermains, sanitary sewers, storm sewers, sidewalks, street lighting, and street signs. Agreements also specified existing and final grades and contours, land for municipal purposes

(schools and parks), and drainage works, and contained provisions for financial arrangements with the township, and registration of the subdivision agreement (Milner 1963). Municipalities increasingly levied development charges that the developer paid on a per-acre or per-lot basis for capital infrastructure required by the development, but external to the actual site, such as sewer systems, pumping stations, new schools, etc. Most of the upfront costs of urban growth were thus transferred from municipal governments to developers, who in turn passed along the increased costs to house buyers. Many suburban municipalities in this way became dependent on a continuing stream of development charges from greenfield development as a major part of their revenues.

One consequence was that large, highly capitalized private developers became essential to the growth of Metro as a planning and infrastructure-building juggernaut. The prototype was Don Mills Development Limited, which designed and built Canada's first comprehensive privately built suburb. Don Mills was the creation of E.P. Taylor, one of Canada's most successful and richest businessmen, who had made his fortune brewing beer. He started buying land north of Toronto in 1947, and by 1952 had assembled a tract of 2,063 acres (835 ha) (Sewell 1993). Taylor assembled a talented team of designers and planners, and in Don Mills they created an approach to development that incorporated the latest planning ideas. The main planning principles were: complete segregation of land uses and housing types into their own areas, neighborhood units centered on public schools, an abandonment of the street grid in favor of discontinuous, looping road systems with many cul-de-sacs and T-intersections, and extensive green spaces (Fig. 11-2a shows Don Mills today).

Such design concepts for new residential areas were subsequently actively promoted by the Community Planning Branch of the Ontario Department of Planning and Development. The traditional "gridiron" layout was criticized as boring, wasteful of land, and producing the maximum of dangerous intersections. Best-practice examples of the "Planned Neighbourhood: Good Curvilinear Pattern" were provided, that demonstrated a road pattern with less land used by roads, many fewer cross-intersections, more private residential lots, more multiple dwelling units, higher overall population densities, and more land area for parks, schools, churches and other community facilities (Milner 1963).

Most significant in the context of the present discussion were Taylor's innovative approaches to infrastructure finance. Although municipalities around Toronto were gradually adopting the practice of requiring subdividers to build infrastructure internal to the subdivision, such as local roads and piping, there were still significant off-site costs for water supply, sewage

treatment plants, and schools. Municipalities had to shoulder these costs, creating a risk that local property taxes in the new development would not be sufficient to cover them. To speed up approval by a hesitant North York council, Taylor offered to pay for the off-site infrastructure himself. As Sewell puts it:

Quite simply, Taylor agreed to assume almost all the servicing costs. The financial risks were taken off the shoulders of the municipality and borne by the developer. The municipality's role of providing services was eschewed for one of simply being a planning regulator. Since the municipality bore little risk, it had little reason not to permit the developer to do exactly as he saw fit. In one simple stroke, Taylor had totally changed the rules of development. Now, the only developers municipalities need concern themselves with were those large enough to provide funds for all services demanded by the municipality (Sewell 1993: 95).

Another reason for the emerging preference for large-volume, integrated development firms was the widespread concern about the rising cost of housing. Housing experts believed that a shift to mass production of housing would allow significant economies of scale compared to the existing practice in which most houses were built individually by small builders (Harris 2004: 121).

Taylor's successful Don Mills set a template for large-scale land development that was widely copied throughout the GTA and Canada. Segregated land uses, hierarchical road systems with major arterials for through traffic and looping disconnected local distributors, neighborhood units based on primary schools, extensive park space – all became standard features in the years to come, as did the reliance on developers to finance both on-site and off-site infrastructure. Don Mills Developments built a second, even larger development West of Toronto called Erin Mills on over 6,000 acres (2,400 ha), which has since become a core part of the city of Mississauga. In Erin Mills, as in Don Mills, the plan was distinguished by an ambitious approach to comprehensive town development, including the creation of a commercial center, employment areas, and a mix of housing types from detached houses to mid-rise apartments.

This model, in which Metro and the Province of Ontario built regional infrastructure, and developers designed and built local infrastructure, proved extremely robust, and provided a template for development that became the business-as-usual pattern of land development and urban growth in the Toronto region for the next half-century. The MTPB insistence that developers contribute land for schools, parks, and other public purposes was consistently upheld by the OMB (Kaplan 1982: 727). This approach relieved municipalities of most of the financial burden of urban growth, but tended to

Fig. 11-2. (a) Don Mills and (b) North Scarborough

make them dependent on further growth to supply a steady stream of development charges to finance other municipal infrastructure and spending.

11.2.2 The Metro Concept of Urban Form and Mobility

The draft Metropolitan Toronto Official Plans of 1959 and 1965 set out in detail the proposed urban form for the region, a form that was largely implemented, even though Metro's official plan had no legal status until it was finally approved by Metro Council in 1980, by which time virtually the whole Metro area was already built up.⁴ The basic principle was that the whole Metro area would be linear, along the north shore of Lake Ontario from urbanization would be linear, along the north shore of Lake Ontario from Oshawa in the east to Hamilton in the west, allowing lake-based services throughout the metropolitan area. The only exception was to be a corridor heading north along Yonge Street. The central business district of Toronto would be strengthened and intensified, continuing to function as the regional employment centre, accessible from all parts of the metropolitan area by mass transit (Metropolitan Toronto Planning Board 1959: S4). Secondary employment areas were dispersed throughout the planning area near railway and road facilities, so that there would be more than enough employment land to provide location choices for industry.

According to Frisken (2007: 89), Metro plans repeatedly endorsed a consistent set of planning principles throughout Metro's history: a relatively compact regional urban structure, with well-defined urban boundaries, a strong core with most commercial, cultural, and institutional activities; large amounts of central city housing in high-rise forms in redeveloped inner-city neighborhoods; and commercial areas away from the core in the form of huge shopping centers located at major transportation nodes surrounded by high-density housing. The goal of having many employment districts distributed throughout the new suburban areas was to enable people in the suburbs to live near their work if they chose. This, combined with the proposal for a comprehensive mass transit system, was designed to prevent congestion: "While the proposed scheme thus maximizes opportunities for commuting, it is proposed to minimize the need for commuting by reserving ample areas for industry in each major section of the area. The residents of all sections will have a choice between local employment and employment in the central area" (Metropolitan Toronto Planning Board 1959: S5); (see also Frisken 2007: 89).

⁴As both Frisken and White explain, although the draft plan was for many years not submitted for approval by Metro Council, it served as a guide for the development of the region.

A new pattern of roads was sought that could handle much larger volumes of traffic and prevent the sort of congestion that had begun in the 1920s when increasing private automobile traffic had overwhelmed the downtown grid. The basic principle of the roads system was to build a three-level hierarchy, with limited-access expressways to carry long-distance and through trips across the region, a large-scale grid of arterial roads of two or three lanes in each direction to carry traffic around the city, and local distributor roads within the arterial grid squares to bring traffic to individual houses or businesses. Through traffic was to be diverted away from local roads by curved and discontinuous roads, T-intersections, and cul-de-sac layouts within large grid squares. Although public opposition resulted in the cancellation in the 1970s of parts of the planned expressway system in the already built-up areas of the former City of Toronto,⁵ the majority of the system outside the existing built-up area was rapidly built out, with about 218 km of the current 315 km completed by the late 1960s (Filion 2000: 169).

The basic road network in Toronto's postwar suburbs, however, is based on the old rural concession divisions that were surveyed when Ontario was first settled by the British colonial government at the end of the eighteenth century. The grid was 100 chains (1 chain = 66 feet) between concession roads, forming square blocks of 100 chains by 100 chains (1.25 miles by 1.25 miles or about 2 km by 2 km), with a 1-chain right-of-way separating each concession block that contained about 1,000 acres or 400 ha of land (Taylor et al. 2008). In the first Metro plan, these grid squares became the basic building blocks of urban form, and the concession roads were widened into an arterial road grid with a standard right-of-way of 120 feet (36.6 m). The 400-ha grid squares also came to be seen as an appropriate scale for neighborhood units, with their own public schools and parks.

A fundamental principle of the first Metro plans was that land uses should be separated, with some areas for residential use, others for employment uses, and major shopping centers for retail, reflecting the conventional planning wisdom of the time. As Harris (1996: 171) notes, Toronto land subdividers in the early decades of the twentieth century had gradually realized that buyers were willing to pay a premium for lots in areas where noxious uses were prohibited. This led to a growing practice during the 1920s of large developments that were promoted as exclusively residential, sometimes protected by deed restrictions and with housing standards that ensured exclusivity. Housing-only developments ensured that noisy and

⁵The success of the opposition movements, led by downtown residents including Jane Jacobs, is often credited as being a turning point in protecting the vitality and liveability of central Toronto (see Nowlan and Nowlan 1970; Sewell 1993).

noxious industrial plants and associated traffic were kept out, and more important, single-use zones were seen as better protected against change, which was equated with eventual decline and loss of property values.

As Filion points out, this development pattern requires very little coordination between monofunctional zones, as long as each was buffered by arterial roads and/or green space. Individual 4-km² concession blocks were usually internally carefully designed and planned, but the overall pattern needed little coordination, as interzone integration is provided by the road system (Filion 2000: 171). Development could proceed according to market demand on a block-by-block basis. Whereas early comprehensive development plans such as Taylor's Don Mills and Erin Mills attempted integrated plans for "complete communities," and Metro had a similar overall vision for the Metro area, those ambitions gradually devolved into concession block sized development of a greatly simplified "neighborhood unit" concept of housing with a local school and local green space bordered by arterial roads, and sometimes a local retail area on a designated corner or along an arterial road. Critically, outside the Metro area the contiguous areas of monofunctional use became much larger, with many adjacent concession blocks of almost purely residential uses, and enormous employment areas.

Local governments also developed sophisticated methods to ensure unified development of whole 2 ha concession blocks, even in areas where multiple owners owned separate tracts of land, as was often the case. Because municipal governments had some discretion about the timing of development, and could prevent leapfrogging by delaying development of a particular block until main services were available, developers had a powerful incentive to cooperate. A system evolved in which each developer contributed proportionately to space allocated for parks and schools and other public facilities, even if the secondary plan established by the municipality meant that most of that space was actually on one developer's land, in which case that developer would be compensated with developable parcels contributed by other developers. This system solved the problem of land assembly for developers, who no longer needed to assemble huge sites, as in Don Mills and Erin Mills. And of course, the assembly of a site such as Erin Mills soon became virtually impossible, as most developable land within the two-to-four-decade development horizon had already been bought or optioned by the end of the 1960s.

11.3 Toronto Urban Form 1954–2006

A remarkable aspect of development patterns in the Toronto region since 1954 has been the very consistent urban form that has been produced. Despite recurring concerns and debates about regional patterns of urban

growth, the urban development and design strategies pioneered in the 1950s still provide the basic template for greenfield development, even as regional conditions have changed greatly. This section summarizes briefly the major urban form characteristics produced by Toronto's postwar suburban development regime, positive and negative, and reviews the factors that have tended to produce continuity in regional development patterns.

Perhaps unsurprisingly, the main successes of this development regime relate directly to the problems identified in the postwar crisis, and the solutions proposed in response. A major achievement was the efficient development of large-scale physical infrastructure systems, particularly water supply, sewers, arterial roads, and expressways, but also local roads and parks, and public facilities such as schools (Rose 1972: 99; White 2007: 17). Regional infrastructure systems allowed the efficient and rapid build-out of huge new urban areas, with significant regional coordination and little duplication of functions. Tying land development to provision of municipal water and wastewater systems made infrastructure construction more cost-effective and virtually eliminated leapfrog development, as municipal governments were able to insist on contiguous, phased land development.

Equally important, the system required land developers to build high-quality local infrastructure, provide land for local parks and schools, and set aside land for regional greenspace and natural heritage systems. This meant that most of the cost of new development, including the public infrastructure associated with it, was internalized into the development process and included in the cost of new housing, instead of being paid out of general tax revenues. This had the effect of ensuring that house buyers paid for much of the costs of infrastructure upfront, thereby increasing private debt instead of public borrowing. An extensive parks and green space system was created (based primarily on existing rivers, creeks and valleys), as well as local parks and school playgrounds. It seems certain that the parks system thus created is larger and better connected than it would have been if municipal governments had simply bought land for parks on an ad hoc and occasional basis, as was the case in prewar Toronto. Similarly, the local road system of high-capacity arterials and low-capacity distributors is robust and comprehensive, and built almost entirely on existing rights of way and land contributed at no cost by developers.

A major advantage of the system is that there is a relatively long pipeline of land development. Development companies purchase urban fringe land and hold it for many years before development is permitted, so there is sufficient time to create coordinated development plans even where there are multiple landowners. And when the housing market periodically picks up, developers can supply large numbers of new homes relatively quickly in areas where plans have already been approved. Although the early vision

of balanced “complete communities” was gradually abandoned and worries are frequently voiced that the costs of housing are increasing faster than incomes, compared to suburban areas in the United States, Toronto’s suburbs are built at relatively high densities, with a significant proportion of higher-density housing forms, including duplex housing, townhouses, and particularly in the Metro area, many high-rise housing units. Huge amounts of good-quality housing have been produced, at a range of prices, in desirable and well-served neighborhoods.

The continuity in development patterns during the last 50 years is documented in a recent research project that examines the evolution of urban form in the Toronto region during the twentieth century. A major finding is that both dwelling unit densities and population densities have declined over the last 40 years (Taylor et al. 2008: 35). During the same period, the provision of road space, parks, schools and other public facilities has been quite consistent, indicating that design standards developed during the 1950s have continued to be applied with few changes, although the amount of park and greenspace on a per-person and per-dwelling unit basis has increased (Taylor et al. 2008: 50).

The burst of institutional reform and innovation in the 1940s and 1950s in the way cities are planned and built in Ontario set a template that structured the next 50 years of development. This model evolved over time, however. For early comprehensive developments such as Don Mills (Fig. 11-2a), the concept was of a new town with a commercial center, higher-density housing in a mix of styles near the center, surrounded by neighborhoods of lower-density single-family homes and employment lands near the railways on the edges of the site. It is important to note the small scale of Don Mills (originally only the area within the railway lines), yet it had its own town center, higher-density housing, and employment areas. Metro planners replicated the Don Mills pattern of commercial centers, nearby higher-density housing, and medium-sized industrial areas in north Scarborough, built within Metro in the 1960s (Fig. 11-2b). This area looks like nothing so much as five linked Don Mills, which together produce a much larger scale of suburban development.

By the 1980s much of the early vision of “complete communities” had been abandoned in favor of the regional patterns of mobility that universal car ownership made possible. It became the norm to develop new concession blocks with purely residential uses, associated schools and parks, and perhaps some commercial space at a corner. Areas of residential-only development grew larger and more uniform, and there was little attempt to establish “town centers” or nearby industrial areas. While there were smaller, scattered industrial areas within Metro, outside Metro there are just a few

vast employment areas (see Fig. 11-1). The scale of urban form gets much larger, with huge areas of purely residential and employment use.

Two examples of more recent development are shown in Fig. 11-3a Richmond Hill, north of Toronto, and Fig. 11-3b Meadowvale, to the west of Toronto. As these two areas are both located at the newly developed fringe of the built-up area, the pattern of urban development by concession block is apparent, with the edge between urban and rural following arterial roads, and partly built-out blocks visible in both examples. In Richmond Hill a linear area of mixed use remains along the old highway known as Yonge Street, but apart from that and some older industrial areas along the railway, development is purely residential. This pattern is particularly visible in the newest developments between Bayview and Leslie, and the partly built-out block west of the Richmond Hill Golf Club.

Figure 11-3b shows the western edge of urban development of the Toronto region, in Mississauga. The area to the north and east of Winston Churchill Boulevard was designed and developed starting in the 1970s as part of Erin Mills, while the areas south and west of Winston Churchill have been developed since the 1990s. The newer grid squares are purely low-density residential, with some schools and a few neighborhood commercial areas, while the earlier development included town centers, areas of higher density housing, and employment areas.

So the Toronto model has, despite considerable success, produced several serious urban form problems. Key here is that the urban pattern is premised on universal automobile ownership and use, and a highly auto-dependent urban form has been created, so that virtually all trips in the outer urban area are made by car. Whereas in central Toronto, 33% of all trips are made by transit, and in the rest of Toronto the proportion is 21%, in the rest of the GTA only 6% of trips are made by transit (Miller and Soberman 2003: 24). This finding reflects the fact that mono-functional urban zones have become much larger, indicating a virtual abandonment of the earlier ideal of “complete communities” that integrate housing, employment zones and neighborhood retail centers, and allow walking and cycling for some trips.

Mono-functional areas are extremely hard to service with high-quality public transit, although housing densities are fairly high in many neighborhoods. Auto-dependent urban forms, combined with medium densities, have created a congestion crisis that is much worse in the suburbs than it is in the old central city, where the roads are not as good but more than half of trips are made by transit, walking, or cycling. In the long run, even more troubling is the virtual elimination of mixed-use areas from the suburban fabric, apart from a few older villages that were enveloped by new development.

This creates two serious problems. First, the design and land-use patterns of newly developed lands are not just highly segregated, but also highly inflexible. Large residential areas in particular are designed in a way that makes future mixed use almost impossible: road systems prevent through traffic and make walking and bicycling difficult, single-use zones are designed to be unchanging, many houses back onto arterial roads that might be logical routes of public transit systems, preventing redevelopment into Main Street style boulevards with a mix of shops, employment, and residential uses. The adaptive re-use of buildings and districts that is occurring downtown will be very difficult in areas outside Toronto. Second, the processes and institutions for building mixed-use areas have been lost, as none have been built for 50 years. Even though provincial plans are premised on the development of high-density mixed-use nodes throughout the region, it is not clear that this will be possible within existing institutional frameworks. The development of new nodes will be made even more difficult by the recent dispersion of retail to big box centers scattered around the region in auto-only locations (Jones and Doucet 2003; Buliung and Hernandez 2009).

Multiple factors tend to support continuity in what Bourne has described as the “culture of development” (Bourne 1996: 705). Perhaps most important is the central role of large developers. A major product of the new planning system was the creation of a large-scale development industry. The building of roads, parks, sewers, and other community facilities for integrated developments required a scale of capitalization previously unknown in the Ontario land development industry. Huge development companies, with extensive land banks and long pipelines of development projects (from initial land purchase through design, planning, approval, servicing and eventual house marketing) tend naturally towards conservatism of design, and prefer a stable regulatory approach. By the late 1960s these companies had built up their land banks through purchase and options on most of the developable land in the region, a strategy that squeezed out smaller players. Major development companies require an ongoing pipeline of projects to provide a return on their land investment, so are routinely designing and obtaining subdivision permits 5–15 years in advance of construction. Their design conservatism is shared by risk-averse investors, insurance companies, and mortgage holders who want consistent, safe products (Bourne 1996; Grant 2002; Harris 2004).

The preference for continuity is shared by municipal and provincial governments. They invested in regional infrastructure systems that had to be conceived and planned decades in advance of demand, and once built required customers (that is, new residents) to be able to pay back the

Fig. 11-3. (a) Richmond Hill, and (b) Meadowvale

investment. Suburban municipalities also quickly became dependent on the revenue stream of development charges from new land development projects. The emergence of comprehensive zoning plans as the standard practice from the late 1940s greatly reinforced this trend, as zoning was premised on large stable areas of single land use. Equally, consumers tend to be risk-averse, and the new style of large mono-functional developments is attractive to home-buyers. The standard pattern of suburban development emerged almost fully formed from the first major projects of Don Mills, Erin Mills, and Bramalea. Segregated land uses, arterial roads defining neighborhood units, discontinuous looping distributor roads within those units, local parks, and school systems all became synonymous with “good residential environments” and “good investment.” Harris describes these trends towards standard forms of development, consistent housing products, and standardized consumption practices as a form of “creeping conformity” engendered by the shift to suburban lifestyles (Harris 2004).

Thus multiple factors promote continuity in the patterns of greenfield development in the Toronto region. Although “new urbanist” and “smart growth” ideas have been influential in changing residential street patterns towards modified grids instead of loops and lollipops layouts, and densities are inching higher, pushed in part by higher land costs, most urban-edge development today still consists of large mono-functional areas of residential or employment lands that are even more auto-dependent than those of the 1980s, as transit service is poorer and they are even further away from the central city and its high-quality transit facilities.

11.4 Toronto Megacity Sustainability

The most striking aspect of this story is the fact that in response to an urban growth crisis in the 1940s and 1950s, a new suburban planning and development regime was established that has structured the development process until the present day. That solution has been, in many respects, highly successful, by guaranteeing a careful, planned process of suburbanization in which most of the costs of public infrastructure are internalized into the development process, large quantities of good housing have been produced at affordable prices, and the extremely low-density exurban development and gated communities common in the U.S. have largely been avoided. There is no doubt that the Toronto region and its citizens have benefited greatly from many of the institutions established in the 1950s. As Bourne puts it, Toronto “continues to provide a relatively high quality of life for most of its citizens” (Bourne 2001: 44).

For those concerned with metropolitan region sustainability, perhaps the most important message here is that transformative change of governance structures can happen. The critical juncture of the 1940s and 1950s in Toronto, when new institutions of regional governance, land development control, and infrastructure finance were established, shows clearly that it is possible to create new and effective institutions to harness urban growth processes for the production of a higher quality of life and better urban environments. A range of factors made that transformation of the planning system achievable. These include:

- A clear and widely shared analysis of the then-current development pattern as unsustainable in the sense of posing significant long-term added costs and risks
- A suite of solutions and reforms, that while not necessarily agreed by all, were well-known and based at least in part on known precedents
- A mainstream tradition of provincial and municipal reform governments that had tackled and achieved governance improvements in the past (see Kaplan 1982)
- Robust economic growth
- A shared sense that planning, and government intervention more generally, is a legitimate activity that, although not without costs, must still be cheaper and more efficient than inaction

The Toronto planning regime largely achieved the core ideas of the “growth management/smart growth” movement in the United States: compact and contiguous development, integrated infrastructure and land development processes, regional greenspace networks, and affordable and high-density housing integrated into suburban residential areas (see Porter et al. 2002). As the region continued to grow, however, car ownership rates increased, land developers became larger, governance became more fragmented, and ever-larger mono-functional areas were produced. The result is that residents of the Toronto region have grown increasingly auto-dependent in their daily lives, and many see the resulting combination of high-energy consumption, worsening roads congestion, and serious air pollution as the key challenges facing the region. The Toronto experience suggests that the growth management/smart growth conception of sprawl prevention is inadequate to tackle serious problems of urban sprawl and automobile dependence, and that a more ambitious vision is required to create more sustainable cities in future.

The most important shift over time in the urban form that the Toronto development regime has produced has been that from the original idea of “complete communities,” such as Don Mills, which had their own commercial

centers, flanked by higher-density housing and employment areas, to the current practice of completely residential grid squares within large monofunctional areas. Developers argue that their housing customers prefer homes in purely residential areas, and that retail businesses and other uses that might create "mix" have no interest in locating in residential areas.

This problem is related partly to the lack of controls over or clear regional policy on retail location, and partly to the emergence of "office parks" that took high-density white-collar jobs out of central cities and moved them to employment lands amid surface parking lots. And perhaps worse, most significant public facilities such as hospitals, senior-care facilities, and government buildings have for many years been located in stand-alone suburban locations, instead of in mixed-use walkable centers. Further, although planners have embraced the concept of mixed-use development, most homebuyers prefer homogeneous developments. As Grant suggests, "People want security, predictability, and tranquility in their environments. They fear mix" (Grant 2002: 80). She argues convincingly that this culture of single-use suburbs is powerful and not easily overcome.

Yet the Toronto case shows clearly is that it is quite impossible to build a road network that can handle 100% of all trips without generating serious congestion problems. The Toronto suburbs have a robust arterial road system, on a 2-km grid, with three lanes of traffic or more in each direction, and a larger grid of limited-access expressways on a roughly 10-km grid. Yet that road system generates serious congestion in the suburbs, where there has been a steady increase in the number and the length of trips per person. As building a road system with even greater capacity seems hardly possible, the only solution appears to be to build cities in which a significant proportion of trips can be made without cars. If we add to that challenge rising energy costs, heavy pollution burdens, and global warming, the conclusion is clear: automobile-oriented transport systems don't work for megacities. The problem is that for public transit systems to work well, they need not only higher residential densities than the normal suburban pattern permits, but also the high-density mixed-use clusters of jobs and services that provide concentrated destinations for transit riders.

The major question this paper raises about the current policy is whether such high-density mixed-use nodes are achievable. Despite periodic bouts of concern with urban sprawl, particularly since the mid-1980s, despite the significant influence of New Urbanist ideas reflected in the design of major areas of suburban development outside Toronto since the mid-1990s, and despite a widespread acceptance of "smart growth" concepts over the last decade, little has really changed in the urban form being produced. The overwhelming majority of new housing is still being built

in exclusively residential tracts, entirely separate from employment and retail areas. And there are major obstacles to the adaptive re-use of much of the suburban fabric developed during the last 30 years in particular. It will not be enough simply to raise population densities. Most areas are too use-segregated, and have been carefully designed specifically to *prevent* future land-use change. It will be difficult to achieve the kinds of intensification and reurbanization required to create more sustainable urban form in such areas (Bourne 1996). Yet the Places to Grow policy cannot work without the high-density mixed-use nodes and corridors patterns of development it envisions.

It is clear that from the point of view of urban sustainability challenges, the institutional frameworks of land development and planning and the cultures of development and homeownership are crucial. In Toronto those institutional frameworks are largely the product of an intense period of institutional innovation during the 1940s and 1950s, which have since become deeply embedded in Ontario planning and development culture. Changing those institutions is certain to be more difficult than drawing a tighter urban growth boundary, or the creation of a greenbelt and incentives for more intensive land use and intensification of existing areas.

The solutions to one urban crisis can sow the seeds of the next crisis. We can only hope that the capacity for transformative institutional and governance responses seen in the 1940s and 1950s is still available to deal with this next generation of urban form challenges.

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