

## **Avenues or Arterials: The Struggle to Change Street Building Practices in Toronto, Canada**

PAUL M. HESS

*Department of Geography and Planning, University of Toronto, Toronto, Ontario, Canada*

**ABSTRACT** *This paper explores why Toronto's policies for improving pedestrian conditions are not better reflected in the design of arterial streets as the city tries to refashion them into pedestrian-oriented 'Avenues'. Professional frameworks shaping street design date from the first half of the 20th century and reflect a consensus between the fields of planning and engineering. Recently, this consensus has broken down in terms of the design of arterial streets. The role of engineering standards in this story has been told, but this study also examines how other institutionalized practices continue to operate making design changes difficult. Understanding why this occurs has lessons beyond Toronto and is intended to help cities to better match street-making practices to new visions of pedestrian-oriented streets.*

### **Introduction**

The traffic engineering and planning professions share an intellectual and institutional heritage dating to the early 20th century that includes common understandings of how cities should be designed and built. In terms of streets, this legacy continues with a current professional consensus about organizing residential neighbourhoods around quiet streets for local use. The corollary of this idea is the urban arterial, located outside of this protected residential space and designed as a primary link in a larger transportation network. Although traffic engineers continue to view arterial streets as such movement corridors, many urban designers and planners have reconceptualized the large urban street as a place for walking, shopping, and socializing. For arterial streets this creates what Patton (2007) calls competing rationalities of 'flow and place'. This paper looks at the case of Toronto to show how these competing ideas are incorporated into municipal policy and why newer ideas about creating places out of corridors are not more strongly reshaping street-making practices. Instead, institutional practices continue to build streets much as they always have. The paper argues that the daily bureaucratic routines that determine how actual streets are designed and built must be closely examined and changed if newer ideas about the role of urban streets are to be implemented.

The Toronto case is far from unique and reflects larger normative discussions about how streets should be designed and used. Initiatives to refashion large

*Correspondence Address:* Paul M. Hess, Department of Geography and Planning, University of Toronto, 100 St. George St., Toronto, Ontario M5S 3G3, Canada. Email: hess@geog.utoronto.ca

urban streets from traffic corridors to public places are gaining support from a variety of sources. Building on arguments espoused more than 40 years ago by Jane Jacobs (1961), a broad group of architects, planners, journalists and activists are expressing dissatisfaction with conventional planning and street building practices, arguing that conventional street design creates unwalkable neighbourhoods (e.g. Untermann, 1984; Kunstler, 1993; Southworth & Owens, 1993; Moudon *et al.*, 1997; Duany *et al.*, 2000). Planning and public health researchers and officials even suggest that street building practices contribute to the startling recent rise of physical inactivity and obesity because people no longer walk as part of their regular, daily activities (e.g. Ewing *et al.*, 2003; Frank *et al.*, 2003; Handy *et al.*, 2003; Saelens *et al.*, 2003). From another direction, street design is caught up in new economic imperatives that stress creating 'vibrant places' to attract skilled workers and tourists and to project an image that promotes investment as part of the current drive for urban competitiveness (e.g. Toronto, 2004).

Given this breadth of concerns, it seems that street design should be changing rapidly and indeed important progress is being made through traffic calming programmes for residential streets, 'context sensitive design' engineering approaches to adjust highway design to different development contexts, and New Urbanist developments with grid-like street systems developed as an alternative to conventional disconnected subdivisions. However, new street design practices in the United States and Canada are the exception. Instead, most urban and suburban streets are designed much as they have been for the past half-century. Even most New Urbanist subdivisions are built with fairly standard and wide, even if better connected, streets. Streets that already exist, in particular, usually have their old form replicated rather than rethought when opportunities for change come up through periodic repaving or rebuilding.

This paper uses Toronto as a case study to explore how pedestrian issues are, and often are not, taken into account when the city builds and rebuilds streets. The most common explanation for the difficulty of making more walkable streets is connected with standards for lane widths, turning radii, sight lines etc. which are employed by the engineers that design streets. Together with moving traffic, engineers have established these standards as part of their responsibility for minimizing injuries and fatalities through motor vehicle collisions. The standards are then reinforced by cities not wanting to use untested designs that may expose them to legal liability if collisions ensue. This role of street standards in shaping design has been told in detail by Southworth & Ben-Joseph (2003) who trace their origin, evolution and power in the American and British context back more than a century. Hebbert (2005) also explores these issues and finds that "the inertia still embodied in official highway standards" (p. 55) may undermine the long term success of new street design strategies and writes that "in urban design the highway engineer is apt to be cast in the role of villain" (p. 39).

Such standards are a very important part of the institutionalization of street design. Rather than retelling this story, the aim here is to add to it by showing how this institutionalization goes beyond standards and is more broadly embedded in the ways municipal governments manage and invest in their street systems. Standardized ways of thinking about and making streets are actually shared by engineers, planners, and other professionals. Indeed, as city planning and street engineering were being established as professions in the first half of the 20th century, economic and engineering visions of the role of the street were closely fused with planning ideas about what makes good neighbourhoods. As traffic

engineering and planning became regular functions of municipal government, these ideas were incorporated into standard practices and continue to influence street making even when new policies are fashioned to change them. Better understandings of these institutionalized ways of street making are key to implementing meaningful change.

The paper begins with a discussion of institutionalism drawn from the political science and sociology literatures. This discussion is not intended to add to the scholarship on the new institutionalism, but rather to provide concepts that help in understanding why street building practices resist change even when policies shift. The following examines some of the core historical concepts that continue to drive conventional urban street design. As Hebbert (2005) identifies, these revolve around the concept of a street hierarchy, which is embedded in routine municipal street-making activities. Using Toronto as a case study, the paper then explores how one large urban bureaucracy manages the physical design of streets by looking at the complex of policies related to street design, the role of different bureaucratic units within the city government, and the routine types of opportunities that exist for changing streets. The paper concludes with a discussion of some sources for changing institutionalized street design practices.

### **Institutionalism**

The literature on institutional theory is large, diverse and replete with disagreements. However, the goal here is not to develop or test a specific theory, but to draw on general concepts to help better understand street making. Some authors distinguish between variants of what has come to be called the 'new institutionalism', notably rational choice theory, sociological institutionalism and historical institutionalism, based on different theoretical emphases including, respectively, the rational decision making of actors within institutionalized 'rules of the game', the determining role of culture in how institutions are shaped and operate, and a focus on how institutions are historically constituted and persist even as the conditions for which they were formed change (Hall & Taylor, 1996; Immergut, 1998). All these ideas have analytical power for understanding how street making is institutionalized.

Definitions of what constitutes an institution differ substantially. Hall & Taylor (1996, p. 938) suggest that historical institutionalists "associate institutions with organizations and the rules or conventions promulgated by formal organization". However, other writers, such as Lowdnes (2001), specifically distinguish institutions from organizations, and Gonzales & Healey (2005, p. 2058) define institutions broadly as "frameworks of norms, rules, and practices which structure action in social contexts". Thus, institutions can have both formal and informal components in structuring social interaction that go beyond formal organizations. This broader definition highlights how organizations operate within political and cultural frameworks that, as DiMaggio & Powell (1991, p. 13) note, "penetrate the organization, creating the lens through which actors view the world and the very categories of structure, action, and thought" (quoted in Healey, 2007, p. 65). As such, institutions shape action within these accepted world views which include those associated with professional cultures such as exist for planning and which may be particularly important for rule-based disciplines such as engineering.

Scholars focusing on institutions are generally interested in political processes and emphasize that institutions are not static or singular, but operate

through the interactions of actors and groups over time. Lowndes (2001, p. 1960), for example, writes “institutions embody power relations by privileging certain courses of action over others and by including certain actors and excluding others”. In terms of this study, the legitimacy given to various types of expertise can be seen as one element that creates differentials in power in local decision making. For example, elected decision makers may give less weight to the broad but relatively weak technical knowledge of planners, compared to the narrower, but more developed technical knowledge of engineers particularly as this is often directly connected to safety concerns and issues of legal liability.<sup>1</sup> This inclusion or exclusion of actors and the differential valuing of viewpoints and types of knowledge in decision making processes narrows potential outcomes and sustains existing practices.

The stability of institutions is a central idea in historical institutionalist scholarship which emphasizes how the choices made when institutions are formed continue to have profound influences on practices over time (Peters, 1999). In part, the idea incorporates Charles Lindblom’s (1959) insight that policies tend to change incrementally rather than being developed from scratch. More recent writers have also identified ‘positive feedback effects’ that include the difficulty of establishing new practices in the face of existing ones with proven outcomes, even if these outcomes are sub-optimal. Institutions also create benefits for particular groups who then fight for their continuance (Thelen, 1999), and, similarly, bureaucrats work to protect and expand programs within their areas of responsibility (Woodlief, 1998). Institutions are also self-reinforcing because they create routines and norms that actors use to predict how others will behave in institutional contexts, and they adjust their own behaviour accordingly (Pierson, 2004).

Even with such stress on stability and continuity, institutional perspectives should not be seen as deterministic and the sources of institutional change have become an important focus of scholarly interest. In much of the literature on historical institutionalism the idea of ‘critical junctures’ is used to explain why institutions are created or undergo fundamental change. Critical junctures occur during periods of upheaval or crises. In terms of this study, the late-19th century urban crises can be seen as such a time when the poverty, density and unhealthy conditions associated with large, industrial cities became a pressing political issue. In North America, Progressive Era reformers helped to establish city planning and traffic engineering as they pushed for the provision of infrastructure and the regulation of private development by municipalities in ways that were previously politically unacceptable (Schultz, 1989; Fairfield, 1994).

While institutionalist perspectives vary in how much emphasis they put on individual agency versus structure, they do see institutions and their rules as socially constructed and therefore subject to redefinition. In this regard, some scholars such as Steeck & Thelen (2005, p. 11) argue that there is ‘play in the rules’ and actors constantly renegotiate institutional structures and outcomes “as part of the normal, everyday implementation and enactment of an institution”. Similarly, Healey (2007, p. 68), interested in how planning can promote institutional transformations, posits that change can take place at several ‘levels’, including through the concrete interaction of actors when decision making is carried out, through the institutional contexts where “policy agendas and discourses ... frame debates, conflicts, interests, and strategies” and through deeper cultural understandings that “frame discourses”. As noted above, cultural understandings

of the role of streets are already changing. These issues are returned to at the end of the paper when it is suggested that changes to street making may now also be occurring at other levels.

### Streets and the Institutionalization of Planning and Traffic Engineering

The way cities in Canada and the United States design and manage their streets today has roots in concepts and regulatory tools developed approximately 100 years ago. Early last century in the midst of the effects of industrialization, urbanization and the mass adoption of privately owned vehicles as a prime means of transport, engineers, surveyors, social advocates and architects grappled with what they saw as the dirty, unhealthy and congested state of cities. Planning and traffic engineering were slowly established as new professions to help manage infrastructure and the physical environment of cities in order to improve economic efficiency and to create orderly and healthy people and places.

Although the particular solutions adopted by the professions should not be seen as historically inevitable, street design and the regulation of land development are intricately related and engineering and planning ideas were closely intertwined with many early planners and engineers working across what are now seen as firm professional boundaries (Schultz, 1989; Schultz & McShane, 1978). Charles Mulford Robinson, Nelson P. Lewis, and Fredrick Law Olmstead Jr. are all examples of what Brown (2006) refers to as early 'planner-engineers'. Robinson, for example, was one of the first university planning professors in the United States and wrote both *The Width and Arrangement of Streets* in 1911 and one of the first planning texts, *City Planning*, in 1916. Similarly, Nelson P. Lewis worked as both the Chief Engineer of New York City and wrote *Planning of the Modern City*, also in 1916, and Fredrick Law Olmstead Jr., first president of the American City Planning Institute, continued the pioneering work of his famous father and also contributed to early traffic plans such as the 1924 *Major Traffic Street Plan* for Los Angeles.

The way that street engineering concepts and planning ideas about community design were fused during this period is well illustrated by Clarence Perry's neighbourhood unit proposal of 1929. Influenced by English garden suburb designs and broadly discussed ideas in the US that cities should be composed of small, spatially defined social units (Johnson, 2002), Perry's proposal accorded perfectly with the street engineering principles his contemporaries were working out at the time. In particular, Perry argued that neighbourhoods as defined social units should be bounded by large roadways for through-traffic, but that interior streets should be for local residents as part of high quality residential environments for family life with schools, parks and playgrounds. The neighbourhood unit thus firmly unites the idea of a street hierarchy to the idea that the appropriate location for community social life is away from large streets and within the interior of the neighbourhood. These concepts were further refined and articulated in Clarence Stein's influential design for Radburn, New Jersey, which in 1929 was being built outside New York as a 'garden city for the motor age' before the Great Depression disrupted its completion. In Radburn, a full street hierarchy was used where special collector streets are a mediating link between the highway reserved for traffic and the private and community realm of houses placed on cul-de-sacs.



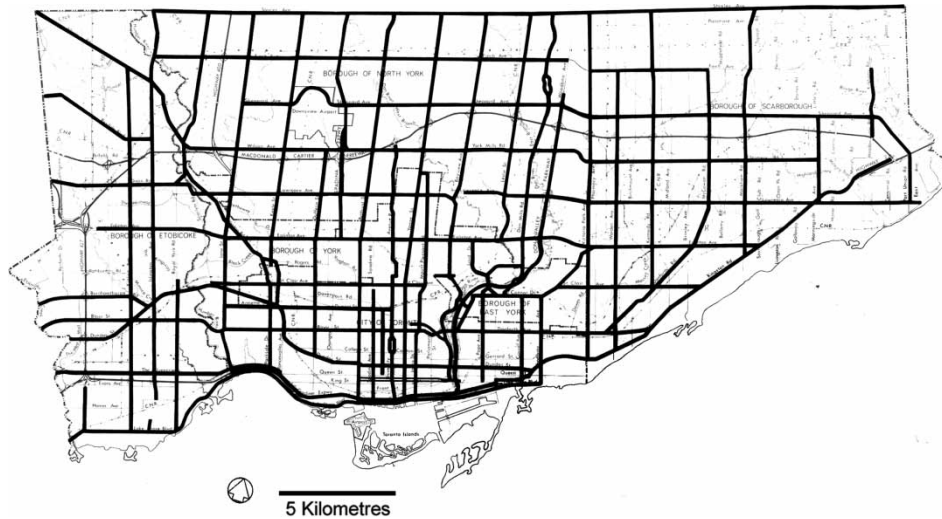
These ideas about street network design were consciously made in marked contrast to the conventional grid, which makes no such strong distinctions of who should use what streets or where different types of social life should take place. Indeed, in the 19th-century large streets lined with businesses were the location of traffic *and* a likely locus of activity and social life. However, in the early 20th century reformers were even attempting to redefine sidewalks on such streets as places for unimpeded pedestrian movement rather than as a place for other types of activities (Ehrenfeucht & Loukaitou-Sederis, 2007). The models being developed for new large streets, which were increasingly seen as inappropriate places for almost all activities other than moving motorized traffic, can be seen as an even more radical redefinition of the social role of streets.

These concepts and models were expanded and institutionalized in codes, regulations and professional practices that began during the 1920s and 1930s and more fully during the great urban construction boom after World War II. In the Ontario case, official plans became mandatory under provincial legislation passed in 1946, creating an instant demand by municipalities to hire planners. More generally, planners across the continent used plans, zoning by-laws and subdivision controls to protect new areas of single-family housing and establish land-use patterns based on neighbourhood unit ideas (Banerjee & Baer, 1984). At the same time, traffic control ordinances and geometric design standards developed by professional organizations such as the Institute of Transportation Engineers in the US and the Transportation Association of Canada (TAC) were adopted by highway departments and municipal traffic departments.

While previous attention has quite appropriately been given to these standards (Southworth & Ben-Joseph, 1995), the formalized road hierarchy, or road classification system, through which standards operate has been less emphasized and is a deeper structure in the institutionalization of street design and community planning. Road classification systems work by categorizing streets according to whether they are principally designed for moving traffic across urban areas (expressways and arterials located outside or at the edges of neighbourhoods), for providing access to individual properties (local streets located within neighbourhoods), or for a mix of these functions (collector streets for connecting local streets to the city-wide network). The next section further discusses how the core concepts underlying the system are incorporated into contemporary policy in Toronto.

However, it is worth noting here that the distinction between arterial streets and other types lower in the hierarchy is incorporated into the division of the professional responsibilities within urban bureaucracies (Hebbert, 2005). Responsibility for the design (and management) of arterial streets to move traffic across the city is typically housed within transportation departments or traffic bureaus staffed by engineers. Local and collector streets, in contrast, are created through the subdivision process, a primary responsibility of city planners working within their own departments. Engineers typically review the streets created through subdivision, but their concern is mostly in terms of the connection they make to the arterial road network. Together, the activities of both professions form a linked, institutionalized system of city building that rests on common ideas.

In the Toronto region after World War II, this professional division was extended to different levels of government. The Province of Ontario created the Municipality of Metropolitan Toronto in 1953 as a new 'upper-tier' level of regional



**Figure 1.** Arterial system under Metro Toronto. *Source:* Metropolitan Toronto Planning Department (1977).

government above the 'lower-tier' City of Toronto and its surrounding suburbs.<sup>2</sup> Responsibilities for roads and development control were split between the upper-tier 'Metro' government and the various local municipalities. Metro developed expressways and a grid of arterials that came to be referred to as 'metro roads' that almost perfectly implemented mid-century engineering ideals for the efficient movement of traffic (see Figures 1 and 2). Within this framework, the local municipalities were responsible for detailed land-use planning to meet broad density targets defined by Metro, partly on the basis of the service capacity of the new arterial roads and other infrastructure systems (Metropolitan Toronto Planning Board, 1959; White, 2003; Bocking, 2006).

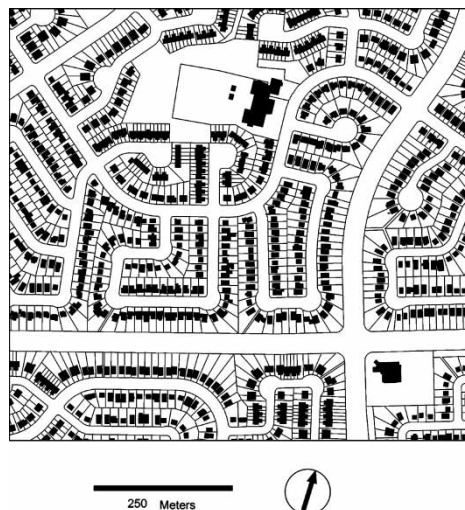
Individually, the lower-tier municipalities were highly successful at implementing neighbourhood unit ideas with single-family housing organized around schools and buffered from the surrounding metro roads. Sub-division practices used 'reverse-lots' so that houses faced on to local streets and also established collector streets to link residents to the metro roads and the rest of the city (see Figure 3). Thus, institutional arrangements and community planning models treated arterial roads as regional facilities for moving traffic, with residential space treated as a separate and more local concern. In 1998, the Province of Ontario dissolved Metro and amalgamated its constituent local municipalities into a new single-tier 'mega city' of Toronto. However, as discussed in the next section, the institutional legacies of street and community design created under Metro continue to operate in the newly organized city.

### Toronto Case Study

The current city of Toronto makes an excellent case study on contemporary street making. The city is large, with a population of about 2.5 million people and over 5000 kilometres of publicly managed streets in a diversity of urban contexts. The city also continues to struggle with the effects of amalgamation, even after almost 10 years, as staff wrestle with the task of creating unified, functional



**Figure 2.** Finch Avenue near Kipling, a 'metro road' in Toronto showing the full implementation of mid-20th-century planning and engineering ideals. *Source:* Author.



**Figure 3.** Classic neighbourhood unit planning in post-World War II Metro Toronto with reverse-lot subdivisions, few connections to arterials, and a school within a park area in the neighbourhood interior. *Source:* Author.

bureaucratic units out of the remnants of the former municipal governments. As a result, in the interviews conducted as part of the research staff were often highly aware of and articulate about institutional arrangements, some of which continue to be in flux. In addition, Toronto's new Official Plan and Pedestrian Charter embody progressive ideas about streets that are on the forefront of those found in large US and Canadian cities. Finally, although this paper is about the difficulty of affecting change, the city is actively involved in progressive street building practices. For example, the city is moving forward on reducing its waterfront roadway from four to two traffic lanes and developing a wide pedestrian zone and continuous bike path as part of a major effort to improve this important area. Some other streets around the downtown core have also received important upgrades to their pedestrian environments and redevelopment areas are being built using a 'streets first' policy to create a connected network of high quality public spaces. This strong effort to change the ways streets are built, at least in high profile areas, creates an excellent context to explore and contrast why conventional ways of building streets persist across the rest of the city.

The Toronto case study draws on a collaborative research project carried out in 2005–2006. A nine-member steering committee consisting of existing and former city officials, professional physical engineers and pedestrian activists was established to give feedback at several points in the research. Steering committee members were picked because of their knowledge about Toronto, its governance, history, politics and in particular its streets. The basic research approach entailed a detailed policy review and semi-structured, confidential interviews with 17 participants. An initial list of potential interview subjects was compiled in consultation with the Steering Committee. Each person interviewed was also asked who else they thought should be interviewed. There were many overlaps in the lists and the focus was on these interviews. Most interviews were with departmental managers, but issues were also discussed with lower-level staff,



involved citizens and a city councillor. Interviews with planning and transportation staff were most common, but were also held with people in a variety of units across the city bureaucracy whose responsibilities or concerns are related to street design. The focus was on the bureaucratic management of streets as physical environments. The politics of streets within the city council was not a focus, nor were staff involved with operational issues such as the determination of posted speed limits, traffic and parking enforcement or traffic signal timing interviewed. These issues are certainly very important with regard to how streets function but they are beyond the scope this work. Interviews lasted about one hour and focused on: the responsibilities of the interview subject and their unit related to street making; the policy documents relied on or produced; the ways the unit works with or coordinates their street-related activities with other units; whether and how pedestrians are taken into account in policies and practices; and how citizens are involved in policy making or implementation. In a large bureaucracy such as Toronto's, the number of interviews were obviously not adequate to fully capture the complexity of the issues, but interpretations were also checked with the steering committee. The following sections synthesize and illustrate some of the findings. A fuller description of the study and its methodology can be found in the research report (Hess & Milroy, 2006).

### **Toronto's Policy Vision for Streets and Pedestrians**

By-laws and formal policies and programmes adopted by Toronto City Council are important to understand how streets are shaped and managed by the city. They present a vision for how the city currently sees its streets and wishes them to be in the future. They also govern the decisions made by elected officials and the actions of city staff as they carry out daily street building activities. A very partial list of important documents and initiatives includes: the Pedestrian Charter, the Official Plan, secondary or district plans, urban design guidelines, a streetscape design manual, warrants (technical criteria) for installing traffic calming, a business improvement area streetscape improvement programme, a coordinated street furniture initiative, the road classification system, and a bicycle plan. These policies, plans and programmes come into practice in complex ways. Although a broad sweep of policy documents were reviewed as part of the research, in the interests of space only three key documents are discussed here: the Toronto Pedestrian Charter (Toronto, 2002b), the Official Plan (Toronto, 2002a), and the road classification system (Toronto, 2000). These documents are particularly important in how they set the vision Toronto has adopted for its streets and most other policies relate to them in some fashion.

#### *The Toronto Pedestrian Charter*

The Toronto Pedestrian Charter is recognized as possibly the first such statement of pedestrian rights passed by a municipal government in the world and puts the city on the forefront of recognizing pedestrian issues as an important concern.<sup>3</sup> The Charter was developed by a citizen advisory committee and was passed in a ceremonious meeting of Toronto City Council in 2002, complete with a display of support by Jane Jacobs. The Charter sets out broad principles such as accessibility, equity, health, sustainability, safety and community vitality "to ensure walking is a safe, comfortable and convenient mode of urban travel" and lays out what

“pedestrians can expect from the city” in nine points. These include: upholding the rights of all pedestrians for safe, convenient, and comfortable walking conditions; providing infrastructure along and across streets to provide access to basic services by walking without the need for driving or using transit; and setting out policies to reduce conflicts between pedestrians and other street users. In basic terms, the Charter suggests the city should provide high quality pedestrian environments on public streets, in parks and other public spaces, and that it “supports and encourages the planning, design and development” of high quality pedestrian environments in private spaces as well. However, the Charter is not a statutory document. It is only effective if the city’s policies and practices are consistent with it and this is not required by law. Thus, the city’s website (Toronto, 2005c) states that the most important purpose of the Charter is to “serve as a reminder to decision-makers, both in the city and in the community at large, that walking should be valued as the most sustainable of all forms of travel, and that it has enormous social, environmental and economic benefits for the city”, or, as one staff member interviewed put it more prosaically, the Charter can be used by citizens and staff to keep councillors’ ‘feet to the fire’.

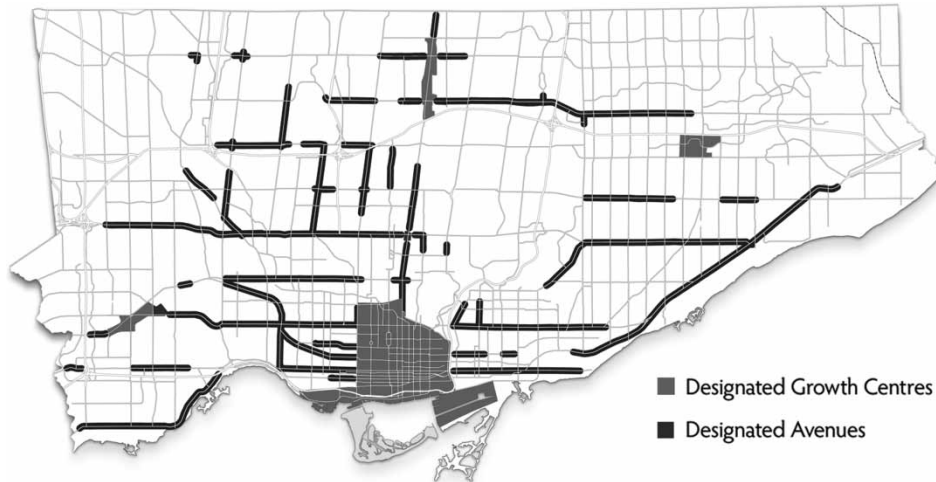
### *The Official Plan*

Unlike the Charter, The Toronto Official Plan (OP) has important legal status that governs the actions of the city. Its policies represent many interests, but the development of the OP is a prime responsibility of the city’s planning division. It is intended to guide the physical development of the city with a 30-year planning horizon, and all municipal by-laws and public works must be consistent with the plan.

Statements concerning streets and pedestrians are woven throughout the OP with the very first section listing “attractive, tree-lined streets with shops and housing that are made for walking” as a key vision of the plan. Formal policies establish that streets should stay “in the public realm”, designate some streets as transit priority routes, and, state that:

An urban environment and infrastructure will be created that encourages and supports walking throughout the City through policies and practices that ensure safe, direct, comfortable, attractive and convenient pedestrian conditions. (Section 2.4)

Importantly, the general development strategy behind the plan is also directly tied to reshaping the city’s large streets. With the goal of increasing the city’s population by 1 million people over the life of the plan, the OP divides the city into growth areas and into ‘stable neighbourhoods’, mostly areas of detached and semi-detached houses that are intended to change only slowly. Areas for growth include the downtown, designated centres and ‘Avenues’ (see Figure 4). Many of these Avenues, described as ‘reurbanizing arterial corridors’ are, in fact, the suburban metro roads originally designed for moving traffic in the 1950s and 1960s. As such, most are either separated from surrounding development or lined with automobile-oriented retail uses. However, the plan presents a vision of their transformation into “main streets that are focal points for the community with attractive, bustling sidewalks ... [with] a quality pedestrian environment” (Section 2.2.3) to be achieved through the development of mid-rise buildings along their length. A few sites across the city have already been developed with



**Figure 4.** Designated growth centres and Avenues from the structure plan of the 2002 Toronto Official Plan. *Source:* Modified by Author from Toronto (2002a).

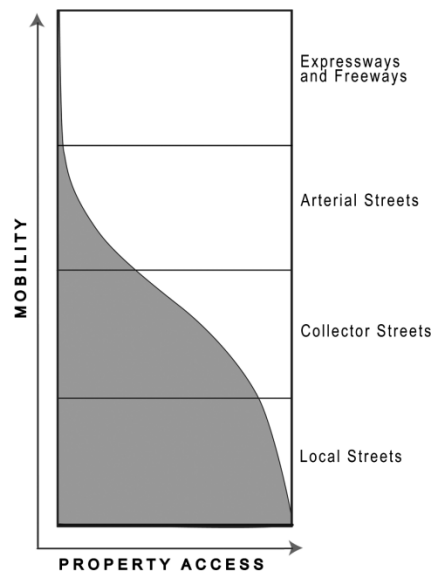
'Avenue-style' buildings, but even with fast growth it is expected that it will take many years before the new policy will affect the substantial transformation of any particular length of arterial (see Figure 5).

#### *The Road Classification System*

The 'Avenues' strategy within the OP operates together with an array of other policies, including Toronto's road classification system (RCS) (Toronto, 2000).



**Figure 5.** An 'Avenue building' being completed along the Queensway, one of Toronto's six-lane suburban arterials. *Source:* Photo by Author.



**Figure 6.** Theoretical trade-off between mobility and access underlying standard road classification systems. *Source:* Author.

Modified from the RCS defined by the Transportation Association of Canada (1999), the Toronto version is maintained by the city's transportation division. It defines five categories of streets: expressways, major arterials, minor arterials, collectors and local streets. As is standard in almost all such systems, the distinctions are based on how streets accommodate two abstract functions: traffic movement and vehicle access to property. A fundamental assumption is that these functions are in conflict and that trade-offs must be made between them as shown in the conceptual diagram in Figure 6. Expressways at 'the top' of the system are designed for traffic movement only with very limited access to other streets and none to individual properties. At 'the bottom', local streets are seen as providing property access and are not intended for moving traffic. In between, the Toronto RCS defines arterial streets and collector streets as mixing traffic movement and access to varying degrees, although the policy clearly states that major and minor arterials are "intended to serve primarily a traffic movement function" (p. 4).

The Toronto RCS also preserves the institutional distinction that operated under the old Metro government between expressways and arterials as a citywide concern, and collector and local streets as a more local concern. The RCS places oversight for decisions concerning expressways and arterials under the Public Works Committee, a City Council committee that oversees major infrastructure systems across the entire city including water, sewer, and waste water treatment, all former responsibilities of the old, now-dissolved Metro government. In contrast, oversight for decisions about more local streets is divided between four Community Councils representing different city districts that roughly correspond to the old, lower-tier municipalities.

The logic of the RCS makes it a powerful management tool. It is used to prioritize streets for snow removal and repair, but ranges of vehicle volumes, the number of travel lanes and traffic operations such as speed limits and truck restrictions are also defined as classification criteria (see Table 1). For example, major arterials will carry more than 20 000 vehicle a day, have four travel lanes during peak periods, and will have legal speed limits of between 50 and 60 kilometres per hour. More specific street design criteria such as lane widths and turn radii are also directly tied to the categories used for classification through standards defined by the Transportation Association of Canada's *Geometric Design Guide for Canadian Roads* (1999).<sup>4</sup> The manual sees classification as "the first step in any roadway planning, design or administration study", and as assisting "in establishing the geometric design features for each group of roads" (Section 1.3.3). The manual, for example, defines major arterial lane widths at 3.7 metres, the same as for expressways.

The Toronto RCS does incorporate 'refinements' to the TAC model in the attention it pays to pedestrians and bicycles, but beyond simple facility requirements, such that 'arterials should have sidewalks', little is stated. Indeed, while the policy acknowledges that older parts of the city have "arterial roads having different characteristics from those normally associated with arterial roads" where because of "varied historic land use ... traffic movement tends to be less dominant [and] access remains an important function", it suggests that "land redevelopment and periodic road reconstruction" will present opportunities for standardization.

### *Arterials versus Avenues*

Many of the planning and traffic engineering concepts developed a century ago are still present in the OP and RCS and continue to shape practice. The idea

**Table 1.** Road classification criteria, Toronto RCS

Characteristic	Locals	Collectors	Minor arterials	Major arterials	Expressways
Traffic movement versus property access	Property access primary function	Traffic movement and property access of equal importance	Traffic movement primary consideration; some property access control	Traffic movement primary consideration; subject to property access control	Traffic movement primary consideration; no property access
Typical daily motor vehicle traffic volume (both directions)	< or = 2500	2500–8000	8000–20 000	> 20 000	> 40 000
Minimum number of peak period lanes (excluding bicycle lanes)	One (one-way streets) or two	One (one-way streets) or two	Two	Four	Four
Desirable connections	Locals, collectors	Locals, collectors, arterials	Collectors, arterials	Collectors, arterials, expressways	Major arterials, expressways
Flow characteristics	Interrupted flow	Interrupted flow	Uninterrupted except at signals and crosswalks	Uninterrupted except at signals and crosswalks	Free-flow (grade separated)
Legal speed limit, km/h	40–50	40–50	40–60	50–60 <sup>a</sup>	80–100
Accommodation of pedestrians	Sidewalks on one or both sides	Sidewalks on both sides	Sidewalks on both sides	Sidewalks on both sides	Pedestrians prohibited
Accommodation of cyclists	Special facilities as required	Wide kerb lane or special facilities desirable	Cyclists prohibited		
Surface transit	Generally not provided	Permitted	Preferred	Preferred	Express buses only
Surface transit daily passengers	Not applicable	< or = 1500	1500–5000	> 5000	Not applicable
Heavy truck restrictions (e.g. seasonal or night time)	Restrictions preferred	Restrictions permitted	Generally no restrictions	Generally no restrictions	No restrictions
Typical spacing between traffic control devices, <sup>b</sup> metres	0–150	215–400	215–400	215–400	Not applicable
Typical right-of-way width, metres	15–22	20–27	20 <sup>c</sup> –30 <sup>d</sup>	20 <sup>c</sup> –45 <sup>d</sup>	> 45 <sup>d</sup>

Notes: Private roads and lanes (public or private) are not part of this classification system.

<sup>a</sup> A number of major arterial roads have speed limits which fall outside this range, as noted in the report under the heading 'Speed Limits'.

<sup>b</sup> Traffic control devices mean traffic control signals, pedestrian crossovers and 'stop' signs.

<sup>c</sup> 20 m rights-of-way exist on many downtown or older arterial roads. New arterial roads should have wider rights-of-way.

<sup>d</sup> Wider rights-of-way (within the ranges given) are sometimes required to accommodate other facilities such as utilities, noise mitigation installations, bicycle facilities, and landscaping. For new streets, wider rights-of-way (upper end of ranges given) should be considered to accommodate such facilities.

This table to be used in conjunction with the report 'Road Classification System – A Consolidated Report'. Source: Toronto (2000, Table 1).



of stable residential neighbourhoods in the OP is closely related to the idea of the neighbourhood unit. It also fits seamlessly with the idea of a hierarchical street system as formalized in the RCS. Indeed, the RCS and the OP are entirely consistent in their identification of the need to minimize traffic on local streets and this is further reinforced by policies produced by both the planning and transportation divisions, including district or secondary plans, access management guidelines, criteria for installing traffic calming devices, and other policies that emphasize preventing 'traffic infiltration'.

However, the role the Toronto OP sees for the 'reurbanization' of large urban streets as 'Avenues' departs strikingly from this shared vision. Arising from the complex of social, safety, health and economic concerns referred to at the beginning of the paper, this strategy represents a post-modern rethinking of the functionally specialized arterial. Without rejecting the formal idea of street hierarchy and protected neighbourhoods, the idea of Avenues as laid out in the plan does reject the modernist ideal of removing social activity from large streets. Instead, it promotes a model based on the city's old, pedestrian-oriented main streets where mixed-use buildings directly line sidewalks, or, more implicitly, on Parisian avenues lined with substantial buildings in the 19th-century mode, with their accompanying image of sidewalks filled with pedestrians and cafes where people sit, socialize and are a part of an active public life. Thus, while the vision of local streets in the Official Plan and RCS is largely consistent, the RCS sees an arterial almost exclusively as a major link in a larger street network while the Toronto OP envisions these large urban streets as places where people walk, shop and socialize.

The differences between the idea of Avenues and that of arterials is not explicitly discussed or acknowledged in city policies. As noted above for example, the idea in the RCS that older arterial streets where "access remains and important function" could be rebuilt to standards that stress traffic movement can be seen as being in conflict with the Official Plan's vision to turn Avenues into places of community activity. Put another way, the RCS envisions old main streets transformed into more standardized arterials while the OP envisions arterials transformed into streets more like the old pedestrian-oriented main streets. Such conflicts have not been identified in city documents or even particularly by many of the staff interviewed. Some staff in transportation did not see the plan as particularly relevant to their work and emphasized how the RCS was just an 'administrative tool', and, similarly, a senior planner who had been centrally involved in the development of the Avenues strategy and is highly sympathetic to pedestrian issues noted that "I have not had much occasion to turn my thoughts to the road classification system".

### **The Street Bureaucracy**

Even if potentially conflicting ideas are not worked out in policy, they do get worked out one way or another in the day-to-day practices of the city. Institutionalist theory is helpful in understanding how this works by pointing to the formal and informal rules that govern routine decision making, the interactions of the actors involved, and the ways that power is distributed. In more concrete terms, whether or not these ideas operate in conflict is partly determined by the activities of city staff within various bureaucratic units, each with their own responsibilities and interests, as they collectively manage the

building, maintenance and operations of real streets. Table 2 shows that there are many units and sub-units within the Toronto bureaucracy that have direct interests in streets. This list does not encompass all the actors involved because it excludes bureaucratic actors whose interests are primarily in the use not the design of streets, the standing committees of the city council, groups outside of the municipal bureaucracy such as residents' associations, business associations, advocacy groups and land developers. Some relevant sub-units within the planning and transportation divisions are shown, but other relevant sub-units within other divisions and departments are not. The city's transit agency, for example, is a large, complex organization in its own right. Indeed, this complexity, which can be only partially explored here, can be seen as one of the central features of street making in the city as the interests of various bureaucratic and non-bureaucratic actors are continually negotiated over time and across different areas of Toronto.

Opportunities for changing the design of streets are numerous with a broad distinction useful between those associated with the design of new streets that are created as part of land development or redevelopment, and those associated with the modification of already existing streets. In a mature city such as Toronto where there is little land that has not been previously developed, the modification of existing streets is a far more important arena of activity. Within this category, two of the most important opportunities for modifying existing streets occur when (1) streets are either resurfaced or rebuilt as part of their ongoing maintenance, a process led by the transportation division; or (2) when small parts of streets are changed when building development takes place along them, a processes managed by the planning division. As examples of institutionalized street making, these two processes are further described below.

### *Street Resurfacing and Reconstruction*

Resurfacing streets with new paving material and reconstructing streets starting with a new roadbed are part of the transportation unit's highest mandate to maintain streets in a 'state of good repair'. With work crews and equipment on site, resurfacing projects make some street redesign possible. Street reconstructions provide even larger opportunities for change as the old roadway is entirely replaced, allowing for completely new designs within the existing right-of-way. With Toronto's large street system, resurfacing and rebuilding work occurs continuously, but with the life cycle of a roadway measured in decades, the opportunities for changing any individual street are very infrequent. This is a key issue affecting the implementation of new ideas about street design change because if a street is not redesigned when it is repaved or rebuilt, it may be a full generation or more before the next opportunity comes up to do so.

Many city units, including urban design, urban forestry and the city's transit agency, have substantial interests in making changes to ongoing street projects, with the transportation division playing the dominant role when the different units interact. The transportation division is assigned the overall responsibility for what physical changes occur in city rights-of-way and for running street projects, and it controls large budgets to do so. For example, the 2005 capital budget (Toronto, 2005a) included \$283 million for the transportation division to carry out its responsibilities, with \$12 million devoted to sidewalk installation and replacement alone. This compares to

**Table 2.** Major Toronto city units with interests in street design

CITY PLANNING	Develops policy and implements regulation to shape development and physical growth patterns. Divided into four major sections: policy planning, transportation planning, urban design, and community planning.
<i>Policy Planning</i>	Develops major development policy including the Official Plan and updating and harmonizing the zoning codes of the former municipalities.
<i>Transportation Planning</i>	Responsible for developing overall transportation policies and transportation forecasting. Involved in development of a city bicycle plan. Involved in strategic planning for transit investment.
<i>Community Planning</i>	Decentralized in districts. Plays the leading role in reviewing and processing development applications, organizes public consultations, and makes recommendations to City Council when approval is necessary.
<i>Urban Design</i>	Involved in development review, with particular concern for how buildings relate to streets and improving sidewalk areas. Develops policy and controls a small budget for public space improvements. Develops urban design and streetscape guidelines.
TRANSPORTATION SERVICES	Builds, resurfaces, cleans and clears snow from city streets. Handles traffic operations and maintains pedestrian and cycling infrastructure. Its priorities are (1) work that keeps streets in a 'state of good repair'; (2) traffic control projects; and (3) enhancements to rights-of-way. Organization is complex. Major sections include Transportation Infrastructure Management, District Transportation Services and Traffic Management.
<i>Transportation Infrastructure Management</i>	Manages city streets, sidewalks and bridges and develops a 5-year capital improvement budget for repair and reconstruction. Plans and programmes transportation infrastructure improvements such as street extensions, widening and conducting environmental assessments. <i>Pedestrian and Cycling Infrastructure</i> is a sub-unit that plans and programmes new pedestrian and cycling infrastructure, principally sidewalks along arterials without them and bicycle lanes. It also oversees the bicycle plan and is leading the development of a 'walking strategy'.
<i>District Transportation Services</i>	Decentralized in districts. Executes district-level functions including traffic planning, right-of-way management, road and traffic operations, and traffic signs and pavement markings. Reviews development applications to assess impacts on traffic. <i>Right-of-Way Management</i> issues permits for work done in right-of-ways resulting from private development. <i>Road and Sidewalk Supervisors</i> schedule street work and insure the work that is carried out has sound financing and meets city standards.
<i>Traffic Management Centre</i>	Manages traffic control including the installation, maintenance of traffic control systems and street lighting.
PEDESTRIAN COMMITTEE	Advisory committee to the city with membership composed of up to 16 citizens and two city councillors. Comments on a range of pedestrian issues, but there is no obligatory reporting system from city departments Developed Toronto Pedestrian Charter.

Table 2 (continued)

URBAN FORESTRY	Part of Parks, Forestry and Recreation. Maintains an estimated 500,000 trees in city right-of-ways in addition to another 2.5 million in parks and ravines. Involved in development review for a limited number of projects due to staffing and has small budget for additional street trees.
DEVELOPMENT ENGINEERING	Part of Technical services. Reviews development applications for servicing requirements that impact city infrastructure and established requirements for development. Represents requirements of Water, Sewer and other units. Provides design services for streets. Led multi-department effort to establish new standards for local streets.
FIRE SERVICES	As part of ensuring access of equipment for fighting fires and responding to medical emergencies, is involved with development review and the planning of streets in large redevelopment areas.
BUSINESS IMPROVEMENT AREA OFFICE	Part of Economic Development, Culture, and Tourism. Provides liaison between over 50 Business Improvement Areas and other city departments and administers street improvement programme where the city cost shares on equal basis for special paving, street furniture, and other improvements in BIA's. The city contributes approximately \$4 million on an annual basis.
TORONTO TRANSIT COMMISSION	Toronto's transit agency interested in both transit planning and operations. Plans include 'Transit City', an initiative to build seven new light rail lines along arterial streets. <i>Transit Service Planning</i> focuses on planning for vehicle operations in streets include transit stop siting. It reviews development applications to examine impacts on transit and potential for improving transit operations including transit stop location and pedestrian access, and contributes to other city policy documents including secondary plans and 'Avenue studies' to implement Avenues strategy in the official plan.
WATERFRONT and CLEAN AND BEAUTIFUL SECRETARIATS	Special purpose bodies established by City Council. The Waterfront Secretariat oversees city interests in redevelopment of the Toronto waterfront. It acts as a liaison body to the Toronto Redevelopment Corporation, the Province, the city's own Economic Development Corporation, and other bodies with interests in the waterfront. The Clean and Beautiful Secretariat is responsible for developing initiatives such as the Five Point Action Plan: 'sweep it, design it, grow it, build it, celebrate it'.

Source: Author.

a total capital budget for the planning division of \$7 million with only \$3 million devoted to 'civic improvement' projects that include, but are not limited to, improving streets. That said, transportation must cope with a large unfunded backlog of maintenance projects that put the division under budgetary pressure, and this plays an important role in how they carry out their mandate. Within this context, one arena that shows how transportation interacts with other bureaucratic units concerns making street and sidewalk improvements or 'upgrades' such as planting new trees or installing special paving materials. Transportation may take the lead on making upgrades, but other units must often use their own budgets to get the changes they want made. Because transportation manages the projects, tendering bids, overseeing the work of contractors, and so on, these other units must 'piggyback' their work on the schedules and priorities that transportation establishes.

The role of urban design, a sub-unit of planning, is illustrative of the piggybacking process. Urban design's civic improvement projects come under the rubric of a 'clean and beautiful city', an important political initiative of the mayor, and also builds on previous policy work including a streetscape manual which identifies the street treatments that urban design believes should be used whenever arterials streets are resurfaced or rebuilt. Despite such political support and policy development, urban design can fund only a handful of projects each year. To help select these, urban design has developed a policy tool to define 'strategic opportunities' for implementation that categorizes potential projects under three broad 'themes' entitled 'places', 'routes', and 'districts'. The 'routes' theme, of most concern here, includes projects to improve Avenues identified in the OP and on other major and minor arterials that 'serve as corridors' (Toronto, 2004).<sup>5</sup> A document produced by urban design identifying civic improvement streetscape projects for 2006 lists seven projects with a combined budget of about \$1.6 million (Toronto, 2005b). Almost all projects included street trees and decorative pavers as major components. Selection criteria are given as: geographic distribution across the city; projects in priority areas identified by the OP; and projects with demonstrated public and community support and involvement. However, the first page of the document clearly puts this in the context of the role of transportation, stating that:

streetscape improvement elements of the Civic Improvement Program are closely linked with the Transportation Division's roadway and sidewalk annual capital works program, both by specific street location and through the timing of the city's tendering-cycle deadlines.

Because urban design has no influence over when and where these projects occur, the document also lists 19 alternative projects in the event of changes in the order or timing of capital projects carried out by transportation.

Transportation is often resistant to changes proposed by other units that may increase ongoing maintenance costs or reduce the design-life of a project because it becomes responsible for these costs, but does not automatically receive increased budgets when they are incurred. An anecdote that occurred in interviews concerned a major arterial street that was planned with repaving to have a grassy planting strip with trees, but that was rebuilt with trees in an asphalt strip. Although no one was willing to attribute blame for this substitution as to whether it was an errant contractor or whether it was a staff level decision, it still illustrates the operation of existing priorities. Staff in planning and other units



were sometimes critical of what they saw as transportation's dominant power in the process or what several called its 'priority to move cars', but they also understand the pressures under which the division operates. One person stated:

There seems to be a certain level of disconnect between [the mayor's] priority of beautifying the city and ... the maintenance that it requires. [Transportation] does not have the budget to do it. We may want to have a grassy boulevard and plant trees on a certain road, but then, they don't have watering trucks, or the means to cut the grass.

Another person on the planning staff described using the OP as a means for getting street improvements but said that this was often trumped by "transportation's caveat of 'has this been priced?'" Several staff argued that upgrades should be made 'automatically' on important streets, but under the current system, every up-grade paid for by urban design or another unit has to be negotiated with transportation and followed by budget transfers. Given transportation's under-funding to carry out its basic mandate, a mandate that is focused on maintaining the existing system, their reluctance to go beyond standardized street designs and treatments is eminently understandable. There are no villains here, but rather a structure of responsibilities and funding where long-standing institutionalized professional concerns continue to operate without much modification even in the face of new policies.<sup>6</sup>

Even more key to the way that conventional street-making practices remain unchallenged concerns how professional responsibilities are spatially divided when arterials are currently resurfaced or rebuilt in Toronto. This spatial division is based on the kerb line and replicates the traditional responsibilities of traffic engineers for traffic movement and of planners for residential environments within the scale of the arterial right-of-way itself. The division dates to at least to the era of Metro Toronto when it was the local jurisdiction that made the decision whether or not to fund and build sidewalks along metro roadways. Currently, Toronto's transportation unit now has a programme to provide sidewalks where they are missing on old Metro arterials. However, they maintain the strongest control over the roadway itself as the most important domain of their professional expertise, that of maintaining the safe and efficient movement of traffic. Staff across city units clearly understand this division of responsibility. For example, a staff person in planning, when asked about modifying the width of roadways said "the fact is that we are only involved from the curb to the property line, but between the curb and the curb, you have 8 lanes and we don't have much of a say". Planning and other units thus wield more influence in these areas which are outside of the zone of traffic movement and can, thus, be treated as a more local, living environment. It is here that improvements for pedestrians and other street users are very largely relegated.

With this division of responsibility the kerb line is rarely changed in order to reapportion right-of-way space between existing or potential users. The area of the roadways is designed using conventional standards produced by the Transportation Association of Canada (TAC) and all the power of such standards as explored by Southworth & Ben-Joseph (2003) come into play. As one city engineer stated, the manual's standards are "about cars, not peds" and another said that "I am not in a position to recommend something not in the TAC manual [because] I open up liability issues".<sup>7</sup> Even pedestrian street crossings, a central issue for improving pedestrian conditions, are rarely modified beyond, perhaps,

having special surfaces at existing crosswalks, or adding 'bump-outs' that narrow the openings of local or collector streets where they meet arterials.<sup>8</sup> To make more substantial changes usually requires difficult negotiations between city units together with the ongoing involvement of city council, community consultations and transportation studies. Such changes can also trigger a complex, expensive environmental assessment process that can have unpredictable outcomes. The city has embarked on such redesigns, especially in high profile areas around the downtown core, but doing so requires substantial political and financial resources and is done very selectively. For the more common arterial roadway network, repaving or reconstruction projects are fairly routine, without any reconfiguration of the roadway, that is, within the existing kerb line and with maintaining existing roadway widths and lane configurations. In this context planning and urban design are seen as successfully implementing their mandate if they make pedestrian spaces prettier and perhaps more comfortable. These are important and should not be dismissed, but equally important are the negative incentives in place for staff to push for a more fundamental rethinking of the role of the street.

The different professional domains between transportation and planning are also reflected in the policy documents that have been discussed above. It is telling, for example, to compare the road classification system together with the TAC Manual that are used by transportation with the streetscape manual and policies associated with the civic improvement programme that are used by planning and urban design. In many respects, these sets of policy documents are quite analogous, guiding the location of capital investment and establishing design standards. However, beyond the fact that they are applied to the same physical streets, they do not refer to each other and have little in common. They use completely separate conceptual categories, the first more concerned with streets as traffic conduits and the latter as streets as places or environments. Some of the staff working in planning on street design had never even heard of the TAC design manual and some staff in transportation were surprised that planners did not use the road classification system in their work.

### *Streets and the Development Process*

Development review is a second important area of opportunity for changing streets. Led by the planning division, development review engages city council and many units of the bureaucracy, especially during a development boom such as Toronto has been undergoing for more than a decade.<sup>9</sup> As in most large cities, the development review process is complex, requiring multiple steps over many months and sometimes years. Most large projects in Toronto go through a rezoning process, where developers seek to build larger and taller buildings than would be allowed under existing by-laws. Multiple city units review the applications, requesting changes according to their interests, making sure that traffic flows, that garbage can be collected, that utilities can be accommodated, that emergency vehicles have access, and so on. Planning is responsible for running the review process and for writing a report evaluating the proposal and recommending whether or not it should be approved by council. Council may or may not follow these recommendations and developers can appeal refusals to a Provincial review board. If projects go ahead, eventually developers and the city enter into legal agreements about what developers must provide and pay for as part of the process.

Through this process, the city can push developers to provide both large and small improvements to the street frontages adjoining their project sites. Large street improvements may be negotiated by the local ward councillor as part of the 'community benefits' that developers provide in exchange for increased zoning allowances, but most street changes are more modest in scale and are requested as part of the standard review process. The nature of these changes may be shaped by policy documents such as urban design guidelines and 'Avenue studies' that are produced to help implement the Official Plan. Formal tools also exist for evaluating certain types of development impacts. Proposals for re-zonings, for example, include transportation impact studies and servicing reports that detail how new demands on city infrastructure will be met or mitigated.

In this way, accommodating new traffic generated by development is well institutionalized into the review process. Proposals are evaluated by the transportation division, for example, to ensure that new traffic generated by the development does not lead to volumes that exceed the design capacity of adjacent streets. If it is estimated that capacities will be exceeded, the developer must increase capacity by providing signal improvements, new turn lanes or other street modifications. Despite policies to get people out of their cars, there is no parallel review of how a proposal will affect or improve the pedestrian environment. When an intersection is reconfigured to accommodate new traffic, for example, potential negative effects on pedestrians are not formally evaluated. This was expressed repeatedly in interviews. One staff person put it thus:

Traffic issues are institutionalized in the process—not peds—there is no formalized way to incorporate, nobody at the table for peds—applications may be assessed from an urban design view, but they [urban design] are not at the table [in the transportation department] when infrastructure gets looked at—no pedestrian side is represented there—they are not high on anyone's agenda.

Community planners, transportation engineers or transit agency staff reviewing development projects may evaluate projects in terms of pedestrians, but the policy guidance as found in the OP or in the Avenue studies tends to be very general compared to the specific requirements necessitated by a traffic study. When asked about accommodating pedestrians, a senior transportation manager stated:

We have the OP with its transportation component but no one has sat down and asked how do you take that vision and translate it into an operational reality like all the day-to-day development review and implementation? ... we're not giving [staff] something solid to work with and to make decisions and know it's a correct decision or a least in the right ballpark.

Another staff person interviewed echoed this:

The OP has lots of lovely words but no way to translate that down to policy on the ground ... [staff] have to use mere judgment calls versus numbers measurements for motor vehicles. [That's] not a good match.

Pedestrian issues are thus often lost in more central and more institutionalized concerns when city units deal with the complex tradeoffs that are part of development. When they are considered, again they tend to be relegated to the area between the building face and the kerb where developers are asked to

provide improved sidewalks, new street trees and decorative improvements. Policy documents such as the Avenue studies speak largely to these areas, with most studies calling for street trees and street furniture, and, with very few exceptions, issues such as street crossings are not discussed. As in street resurfacing or reconstruction projects, the kerb becomes the line dividing responsibilities between traffic and pedestrian and place-making concerns.

There are also real limits to the piecemeal nature of changes made to streets implemented through the development review process. Unlike the RCS, the Avenues concept in the Official Plan does not treat streets as part of a larger network, and this prevents important changes that may be necessary if streets are going to be refashioned as places rather than just movement corridors. It will clearly take many years for the vision of Avenues in the OP to start taking shape. However, even imagining a future state where the arterials have been transformed with a solid wall of mid-rise buildings facing rebuilt streets with street trees and beautiful sidewalk areas, adjacent neighbourhoods of houses on residential streets will still be separate environments with few connections to the arterials, just as they were originally planned to be in the early post-World War II era. The traditional Toronto main streets or Parisian models to which the Avenues strategy refer are not merely good pedestrian environments because of the buildings lining them or their high quality sidewalks. They are also integrated into the larger fabric of the city, where people living nearby have easy access and use them as part of their daily lives. There is no place in the various design guidelines or Avenue studies that address these connectivity issues. Improving the areas designated for pedestrians through the development review process without also pursuing strategies to deal with intentionally disconnected street networks and improving pedestrian street crossing opportunities will not succeed in turning arterials into Avenues.

## Discussion and Conclusions

Reflecting cultural shifts in the expected roles of streets in contemporary cities, making arterial streets into places that support pedestrians and social activity in Toronto is inscribed in the language of major policy documents. However, these policy statements have not yet permeated the existing institutional framework, allowing them to be systematically discussed or acted upon. Changing policy is not enough. The ways that routine street-making processes are institutionalized also needs to be examined much more closely. This includes the variety of actors involved and the types of interests they have, the professional frameworks they use, and the rules of interaction when decision making occurs.

As examples of the institutionalized process of street making, this paper discussed street resurfacing and rebuilding and the changes made to streets as part of the development review process in Toronto. As in other North American cities, these processes use standard policy tools such as road classification systems, plans and zoning, and were largely designed to build an early and mid-20th century vision of the role of streets in the city. For the most part, they still continue to do so. Attempts to change what is built according to a newer policy vision using exiting tools has not created the processes to balance the multiple interests involved in streets and come to decisions. Instead, initiatives often depend on specific events or individual champions to move street design away from standardized outcomes. This does happen in Toronto and some important

streets are being redesigned around the downtown core, but decision making in these cases moves to a politically contested realm where outcomes can be based on long battles and outcomes are uncertain. With little to gain, staff within the city bureaucracy have little incentive to incorporate innovative practices in their day-to-day activities concerning the city's more common suburban arterial roadways. These difficulties in affecting deeper change should not be taken as a criticism of city staff. Indeed, almost all the staff people interviewed for this project were smart, hard working and committed to making Toronto a better place. In addition, most of the decisions they make are understandable given the institutional contexts in which they carry out their responsibilities. These responsibilities are defined by their professional frameworks and the mandates they are given by city council, usually without the fiscal resources to carry them out. Such institutional issues are especially important in a profession such as traffic engineering which is conservative and rule-based by nature with its concern for traffic safety and legal liability, but they also apply to planning and other professions involved in municipal street making. The inability to effectively tackle fundamental issues of street design is critical because once a street is built according to old models the next opportunity for change may be decades away.

Using an institutional perspective highlights how street making is a complex process involving many bureaucratic units. While this paper has highlighted the roles of engineering and planning, even the relationship between these two professions is far from simple and is not one of straightforward opposition. This can be seen in the Toronto planning unit's idea of stable neighbourhoods and the transportation unit's ideas of local streets that are derived from a shared history and basic consensus about the role of streets in the city. This consensus has broken down with respect to arterial streets, but institutional practices minimize conflict on these streets by using the kerb line to divide professional responsibilities. Toronto has thus adopted the idea of creating Avenues in their policy without challenging the basic idea of arterials in practice. The transportation division may often have more power in routine street making, but simply pointing to engineering practices simplifies real institutional issues and will not be effective in helping introduce more meaningful change.

As noted by some institutional theorists, cultural and intellectual frameworks that structure thought and action can pose barriers to institutional change. In terms of street making, the assumed conflict between mobility and access that underlies the road classification system should clearly be counted as key among these in the way it shapes existing institutional practices. The arterial-local/movement-access construct was largely assumed by nearly all the people interviewed for this project and is too powerful to be challenged by simply changing other policies. It creates very little room to experiment with street types that do not correspond to its assumptions such as boulevards that mix mobility and access (Jacobs *et al.*, 2002) or shared streets where vehicles and pedestrians share the same surface. More specifically in terms of Toronto's Avenues policy, it is unable to incorporate the idea of the messy, mixed old commercial main streets that the policy looks to as a model. Thus the default position is to rebuild a street virtually as it was. Perhaps the sidewalks will be wider or the paving material nicer, but as important as this is, the underlying construct remains and no real re-thinking will have taken place.

Scholars such as Steeck & Thelen (2005) and Healey (2007) who are interested in institutional change note that actors have agency through 'play in the rules' and that everyday negotiations can transform institutions. Certainly this is occurring



to some extent in Toronto because many of the staff interviewed report that people throughout the city bureaucracy are becoming more aware of pedestrian issues and that this is affecting minor improvements such as widening sidewalks in places where traffic capacity is not an issue. Some staff suggested that the fight over changing the design of arterials has not started, but that even sidewalks are now provided as a matter of course and that trees and street furniture are accepted (if not always funded) on parts of suburban arterials already demonstrates a significant change of practice.

However, theorists are also clear that more significant change is likely when culturally embedded practices, professional discourses and the ways different groups have differential access to power and resources are also modified (Healey, 2007). There can be many sources for such changes. For example in Toronto, staff were very much involved in the city hosting the Walk21 conference in Fall, 2007, bringing together planning and transportation professionals as well as advocates from around the world and thus highlighting pedestrian issues and practices in the city. At the same time, the city is developing a 'walking strategy' which is being headed by a sub-unit in the transportation division and is intended to help better include pedestrian issues across city policy. An ambitious new transit plan, 'Transit City', to build light-rail in seven corridors across the city, mostly on streets designated as Avenues, is even more likely to necessitate that these streets are rethought and reconfigured. Implementation of the plan will bring new actors and resources to the street-making process, creating the potential for reconfiguring not just existing streets, but also existing decision making routines. Whether or not these efforts ultimately shift institutional relationships to be more in line with producing the type of streets as envisioned in the city's OP and Pedestrian Charter will be determined in the coming years.<sup>10</sup>

There are also some existing models for alternative practices in other places. Portland, Oregon, for example, has created a complex system where streets are defined using multiple layers of classification including a separate traffic classification, a transit classification, a bicycle classification, a pedestrian classification, a freight classification, an emergency response classification, and a street design classification, all of which must be taken into account for planning and design purposes (Portland, 2007). Another model is the European project for 'Arterial Streets Towards Sustainability' (Marshall *et al.*, 2004; Svensson, 2005). The project proposes a classification system that combines the ideas of streets as movement corridors and streets as places. Under the system, streets are classified according to their 'link status' in the larger network as in convention classification, but also simultaneously according to their importance as a place at the scale of the neighbourhood, district, city or nation. The project also proposes a new model for community involvement in the classification process, thus introducing new actors in the process and potentially changing power relationships.

How applicable are these lessons to other cities? Different cities certainly confront different institutional issues. Weak versus strong mayor systems, the organization of the bureaucracy into different configurations of units and sub-units, the ways residents are involved, whether many new streets are being built as in fast growing suburban areas or whether new streets are rare as in older cities like Toronto, and other factors will affect how streets are designed and built. However, many of the issues facing Toronto will have parallels in other places because North American cities are embedded in a broader culture of governance, because professional cultures such as those of planning and engineering operate

at national and even international scales, and simply because of the shared historic legacy of approaches to street making that dates back to the Progressive Era and leads to similar design outcomes in most cities. The success of Toronto and countless other cities in taking the vision of streets and cities that was created during that era and subsequently building the institutions to successfully implement it shows what is possible. In Toronto, together with other places, institutional change is already occurring to move towards realizing new visions for the multiple roles streets play in cities. Successful implementation of these visions will require that the goals are clear and that policies and resources are better matched to the day-to-day processes of institutional decision making.

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### Notes

1. However, it is worth noting that planning and other bureaucratic units within the urban bureaucracy such as fire departments often make competing or even contradictory safety claims. Pedestrian planners, for example, argue that narrow streets will reduce traffic speeds and the severity of pedestrian collisions, while fire department planners argue they will slow critical response times to fire or medical emergencies. These competing claims on safety are usually unable to be settled based on empirical evidence.
2. The number of municipalities within the Metro government diminished over time as smaller towns and villages were absorbed by larger cities. When Metro was dissolved at the end of 1997, the lower-tier municipalities were Toronto, York, East York, North York, Scarborough and Etobicoke.
3. The EU and Australia have prior charters, but they operate at the national and supra-national scales and are, therefore, not directly connected to the municipal level of government most responsible for urban streets. The Toronto Pedestrian Charter has since served as a model for other cities, particularly in south-central Ontario.
4. The TAC manual emphasizes that judgement and experience of the designer are important and avoids using the term 'standards' to specify required features of a design. Instead, the manual refers to the 'design domain', a range of acceptable geometric configurations and dimensions that the designer should choose from. However, as a previous version of the manual states, the manual represents "customary practice that is generally recognized by the profession to be sound" and many of the geometric dimensions provided are very narrowly if not precisely defined.
5. Expressways are included as a third project type with potential improvements focused on reducing their role as 'barriers to local movement in the city' with bridges, new trails, and tunnels for pedestrians and cycles.
6. Several staff made remarks along the lines of "if there was political will, we could do this", pointing to council level politics and what does and does not get funded. This is a very important part of the story that was beyond the scope of the research.
7. This point partly speaks to professional culture as well as legal reality. For instance, Ewing's (2001) research on tort liability undertaken for the New Jersey Department of Transportation showed that fear of legal proceedings was a poor reason to design streets for worst-case scenario traffic. He found that the main legal requirement for reasonable care was that a street design should be recommended by a reputable source, not necessarily a transportation-focused or engineering-based association, and be approved by a city council.

8. This actually serves to discourage 'traffic infiltration' as much as it does to improve the pedestrian environment. Therefore, it can be seen as further implementing conventional engineering distinctions between classes of roads and their functions.
9. In 2005 alone, proposals for developments including almost 40 000 housing units were reviewed by the city (Toronto, 2006).
10. An earlier attempt to separate an existing streetcar line from general travel lanes on one of the city's old arterials raises some doubts on this matter. Planning was handled through the environmental assessment process and despite 'transit first' policies in the OP, the principle that traffic capacity would not be compromised was established early in the redesign process, and, in some places, the redesign even narrowed sidewalks. In addition, although there appears to have been broad, general support for the project, it was bitterly fought by a local citizen's group and the city only won the right to proceed in court.

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