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Landscape and Urban Planning 68 (2004) 199–221

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The relationship of historic city form and contemporary greenway implementation: a comparison of Milwaukee, Wisconsin (USA) and Ottawa, Ontario (Canada)

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Abstract

Many cities in North America are attempting to implement connected greenway networks. Some are building on sparse existing open space resources. Other metropolitan areas, like Milwaukee, Wisconsin (US) and Ottawa, Ontario (Canada), have an impressive historic open space framework on which to build. However, neither city is well known for progressive, contemporary greenway planning efforts. This research asks two main questions. First, how have early city planning efforts affected the pattern of connected greenway systems currently in place in these cities? To address this question, the history of open space planning and the physical change in greenway development is assessed over time. Second, what institutional structures are currently used to implement connected greenways, and how do they relate to the historic fabric? Organizational structures, inter-governmental cooperation, leadership and advocacy, and greenway objectives are compared in order to assess the degree to which a regional vision is being pursued. This project is based on comparative case study research. Qualitative techniques are used to develop in-depth cases. Findings show that Milwaukee and Ottawa have remarkable historic corridors to build from, especially in parkways planned along urban rivers in the early 20th century. This analysis shows, however, that contemporary collaboration around regional greenways planning is piecemeal, that greenway objectives have changed over time in important ways, and that coordinated greenway visions are lacking. Finally, both Milwaukee and Ottawa seem poised for integrated greenways programs, accelerated by innovative experimental projects, increasing environmental awareness, and growing institutional capacity. This research has relevance to the growing literature in greenway planning and implementation. © 2003 Elsevier B.V. All rights reserved.

Keywords: Greenway networks; Parkway; Implementation; Urban planning history; Milwaukee, Wisconsin; Ottawa, Ontario; Land-use planning; Greenbelt

1. Introduction

Linkage is the key. Most of the big tracts in our metropolitan areas have already been saved, or they have already been lost. The most pressing need now is to weave together a host of seemingly dis-

parate elements—an experimental farm, a private golf course, a local park, the spaces of a cluster subdivision, the edge of a new freeway right-of-way (Whyte, 1968).

The greenway idea, a renewed landscape concept from the 19th and early 20th centuries, has swept across North America. Some cities have implemented impressive greenway networks. Others continue to develop comprehensive greenway plans, attempting to

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weave those diverse urban elements that Whyte valued over 30 years ago. Meanwhile, urban planners and managers are increasingly expecting connected landscape corridors to provide more than park and recreation functions. They are promoting metropolitan greenway networks that help shape urban growth, contribute critical environmental values and, indeed, *place* economic development and neighborhood revitaliza-

tion (Hough, 1995; Smith and Hellmund, 1993). This paper documents how two cities, by virtue of early 20th century parkway and greenbelt designs combined with 21st century greenway visions, are poised for innovative, multi-functional greenway systems.

Milwaukee, Wisconsin and Ottawa, Ontario (Fig. 1) demonstrate a legacy of urban open space protection. These are modest, second tier, mid-size cities; both



Fig. 1. Location of Milwaukee, Wisconsin and Ottawa, Ontario in relation to the Great Lakes region on the North American continent.

have roots in a blue-collar industrial past. Milwaukee, the largest city in Wisconsin, but lacking the state government seat, is 20th in a size ranking of US cities with 597,000 and 940,000 residents in the city and Milwaukee county, respectively (US Census, 2000). Ottawa's roots in lumbering and other resource extraction contrasts with its status as the national capital. It symbolizes a nation's identity and draws tourists from across the continent. Its central city population was 320,000 in 1996 with over a million residents in the greater Ottawa/Gatineau metropolitan area (Statistics Canada, 2002).

These metropolitan areas have achieved well-connected networks of urban and suburban greenways. However, Milwaukee and Ottawa are not well known for progressive, contemporary greenway planning efforts, even though they were strongly influenced by planners' early visions of parkways and greenbelts. This paper describes the urban histories that create a framework for greenway planning in Milwaukee and Ottawa, long before the contemporary greenway movement began. The importance of large-scale and long-term city plans is explicated, especially relating to parkway and greenbelt design nearly a century ago. Building on this historic context, the paper then connects these historic themes to contemporary greenway efforts underway in both cities and analyzes their greenway planning along several dimensions.

2. The study

For both case study sites, two main questions are asked. First, how have early city planning efforts affected the pattern of connected greenway systems currently in place? For this question, the history of open space planning is explored and the physical change in greenway development over time is assessed. Second, how have these physical histories led to the institutional structures currently used to implement connected greenways? Organizational structures, inter-governmental cooperation, leadership, and objectives are compared in order to assess the degree to which regional greenway visions are being developed and pursued in both cities.

This work builds on previous case-based research on greenway network implementation in metropolitan areas (Erickson, 2003; Erickson and Louise,

1997). Through that work, a number of cities in North America were investigated and typologies of implementation and institutional structure were developed. For the current study, one US city and one Canadian city were selected deliberately in order to begin explicating trans-national differences in open space planning and implementation (the topic of subsequent publications).

This project is based on comparative case study research. Qualitative research techniques are used to develop in-depth cases, including the use of historic documentation, planning reports, key informant interviews, and site visits (Glaser and Strauss, 1967; Patton, 2002; Shipley, 1996; Yin, 1994). Research visits were made to each city, in order to conduct interviews, access historical resources, and tour greenway corridors. Four to six interviews were conducted in each city. Interviewees were project managers working on greenway planning within public agencies or non-profit organizations. Some interviewees were contacted for follow-up information by e-mail, telephone and mail.

3. Historic context

3.1. Parkway, greenways and greenbelts

This paper, while mainly focused on greenways, explores parkways and greenbelts as they relate to greenway planning in large metropolitan areas. Some contextual definitions are in order. While parkways and greenways are certainly not interchangeable spatial phenomena, both provide long, green corridors on the landscape. Greenways are linear open spaces along natural or human-made features such as rivers, ridgelines, railroads, canals or roads. They are planned, designed and managed to connect and protect ecological, scenic, recreational and cultural resources. A greenway may include trails or it may be a conservation corridor without recreational access.

Many of the historic parkways in North America provide the protected land in which multi-purpose greenways can reside. However, scholarly analyses of the parkway as a distinct urban form are sparse; their utility for greenway design is even less understood. In searching for concise treatments of parkways, one is directed to *see streets*, *see roads*, or *see national parks*.

However, parkways have a distinct and fascinating history as an American urban open space form. As Newton writes (1971, p. 596), “It is doubtful that any single type of park area has been more widely misunderstood and misinterpreted than the parkway. The confusion is hardly to be wondered at when one considers with what free and easy imprecision the term ‘parkway’ has been used. Unfortunately, it has even been employed by real-estate developers in recent years as a sort of status label.” He describes early parkways as more accurately being boulevards. “It was only with the completion of New York’s Bronx River Parkway after World War I that the modern parkway came into being with its clear set of distinguishing characteristics. The term now denoted a strip of land dedicated to recreation and the movement of pleasure vehicles (passenger, not commercial automobiles)” (Newton, 1971, p. 597).

Parkways were meant for comfortable driving in pleasant surroundings, with alignments of gentle curves and low speeds; visually they were meant to be a natural part of the countryside. The parkway’s broad swath was often roomy enough for pathways and other recreational features. In addition, limited access distinguished parkways from early boulevards. A 24 km stretch of the original Bronx River Parkway in New York city, completed in 1923, is generally regarded as the first true parkway in the US (Newton, 1971). For the cities examined here, parkway systems helped provide both the space and the ecological protection necessary for superimposed greenway networks.

Greenbelts, in contrast to both greenways and parkways, are swaths of natural or open land surrounding cities or towns. They often contain a mix of public land and privately held land on which development restrictions are placed. Originating in the Garden City Movement of the early 20th century in Great Britain, greenbelts were meant to control urban growth by protecting a ring of undeveloped land, often forested or agricultural, around the city. Where greenways follow linear features in the landscape, greenbelts are less structured by rivers or other natural features; in some cases their forms are quite arbitrary. Greenbelt planning remains a planning strategy and land-use policy in Great Britain, where they are used to check unrestricted sprawl, prevent neighboring towns from merging, assist in protecting the countryside, preserve historic values, and promote urban regeneration

(Cullingworth and Nadin, 1997). This garden city approach has been applied to various cities in North America, most notably the new towns of Greenbelt (Maryland), Greenhills (Ohio), and Greendale (Wisconsin).

Many analyses have concluded that greenbelts have failed to control growth or to protect natural features, although other benefits have sometimes been realized; in fact many early greenbelts have now been developed (Fabos, personal communication; Hough, 1995; Whyte, 1968). According to Whyte’s greenbelt analysis, “the arbitrary boundaries that look so tidy on a map are extremely difficult to hold on the ground. The kind that work follow the idiosyncrasies of the land; the ridges and valleys, and especially the streams and rivers. Here is the line to hold” (1968, p. 162). This, in fact, is precisely what greenways are planned to do.

3.2. Milwaukee: Charles Whitnall’s progressive era parkway network

Milwaukee has a rich history as a working class, industrial, and ethnically diverse city on the shore of Lake Michigan. In the 19th century, the city was linked with the US and the world through the construction of harbor facilities at the confluence of Lake Michigan and three rivers—the Milwaukee, Kinnikinnic and Menomonee (Fig. 2). Like many American industrial cities, the land along these urban rivers was owned and utilized by shipping and railway companies; raw industrial landscapes developed along the rivers in the oldest parts of the city. The relatively fast and inexpensive railway and waterway transportation attracted industrial and commercial businesses, and significantly influenced the development of the city into a major urban center (Still, 1948). While its strong river network shapes Milwaukee, its physical structure is even more determined by the geometric section and township land division scheme common of most mid-western cities. The three rivers lie within a gridded landscape matrix, as does the surrounding countryside.

The mid-19th century saw Milwaukee’s growth as a commercial port, followed by its transformation after the Civil War to a manufacturing leader. In the late 19th and early 20th century, Milwaukee grew in a radiating pattern spreading out from Lake Michigan and the rivers’ confluence (Fig. 2). Early in the century, there was already concern about the city’s suburban

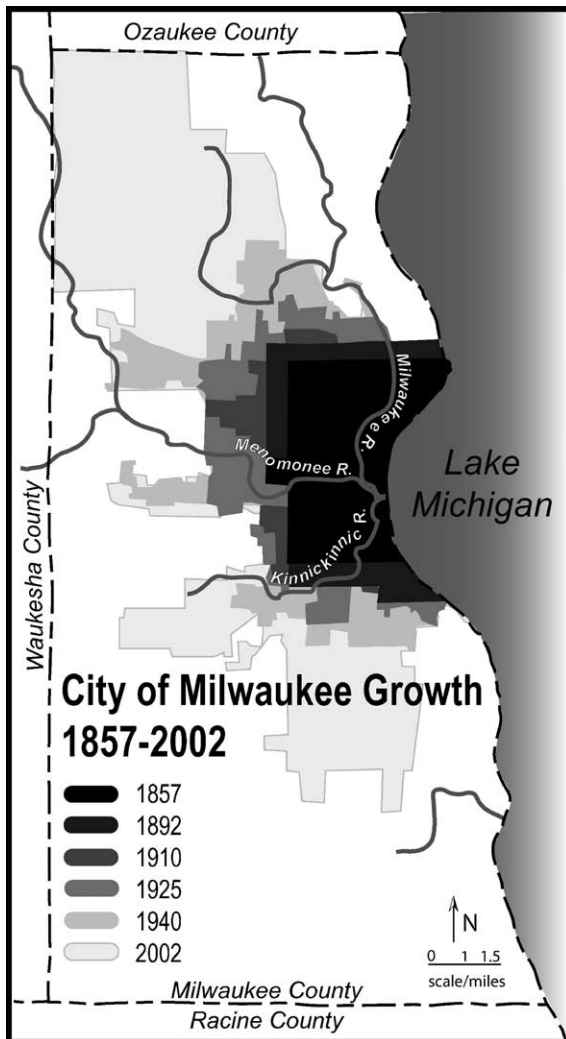


Fig. 2. City of Milwaukee within Milwaukee county, depicting location of three main rivers, Lake Michigan, and growth of the Milwaukee urban area between 1857 and 2002. Adapted from Still (1948) (1857–1940) combined with current city of Milwaukee boundary.

development. An assistant engineer of the sewerage commission noted with some exasperation in 1926: “About three years ago, a distinct change in the usual growth of various communities took place. Instead of the gradual radial growth out from the established population centers, numerous new centers were formed, scattered throughout the area, apparently for no other reason than a good real-estate agent and a fine view” (Kurtz, 1926 p. 395). Nearly 80 years later, the

land-use pattern in the Milwaukee region resembles that of many large US cities—increasingly dispersed suburban development at the outskirts. Between 1950 and 1985, a 47% increase in urban population was accompanied by a 227% increase in land committed to urban use (Southeastern Wisconsin Regional Planning Commission, 1997).

The story of Milwaukee greenways is rooted in the history of its park system during the Progressive Era of the late 19th and early 20th centuries, including many years of socialist control and influence. William Clausen (1980, p. 18) describes “... the existence of an active and alert group of citizens who adopted national planning ideas, translated them into a local program of action which was sensitive to local conditions, and fought for the adoption of planning at the city, county and state levels.” The purchase of land for parks and parkways is one of their legacies. The first parks were purchased in 1890 and promoted as *lungs of the city* with special emphasis at that time on the upper Milwaukee River. They were motivated by a combination of socialist ideals and the aesthetic ideals of the City Beautiful Movement of the last decade of the 19th century and first decade of the 20th (Clausen, 1980).

Pressure for a municipal park system developed in the 1880s and, in 1889, resulted in state enabling legislation for a system of parks and a park commission to govern it. Soon the need for parkland reached beyond the city limits, but the city lacked authority to buy land outside its jurisdiction. Again, permission was sought and granted at the state level for building parks outside of the city but within the county. Milwaukee used other innovative planning strategies as well. The parks were financed by the city almost from the beginning, in contrast to other cities where planning began as an activity of wealthy patrons and private organizations. In addition, planners relied on local expertise for technical direction rather than on the handful of prominent planners, architects, and landscape architects who produced most urban plans (Clausen, 1980).

Around the turn of the century, park planners began purchasing numerous sites along the Milwaukee, Menomonee and Kinnickinnic rivers. Thus began the greenway network in place today. These planners believed that the protection, and indeed restoration, of the natural drainage patterns was vital to public health. Forested lands adjacent to streams were valued

for runoff absorption, sustaining ground water levels, and ensuring an even stream flow (Clausen, 1980). Frederick Law Olmsted consulted on park design and suggested a network of linear parks for Milwaukee, probably envisioning protected urban riparian systems similar to those he advocated in Boston and elsewhere. “The urban version of the environmental corridor, the parkway, influenced park and open space planning in Milwaukee county as early as 1906, although the first plans for a Milwaukee County parkway system did not appear until 1924” (Southeastern Wisconsin Regional Planning Commission, 1991, p. 26).

Charles B. Whitnall is recognized as the father of Milwaukee’s open space system. As a charter member of the city’s Public Land Commission and the County’s Park Commission (both begun in 1907), he led two of the metropolitan area’s most important planning bodies. He worked on land-use and parks planning for over 40 years, until the mid-1940s, with a passion for progressive socialist ideals. “Whitnall was the dominant figure in regional planning for an entire generation He foresaw the day when Milwaukee would become a decentralized ‘regional city’ consisting of a specialized urban core ringed by a host of ‘subsidiary centers’ spreading fifteen or twenty miles [24–32 km] out into the countryside” (Gurda, 1999, p. 269).

Whitnall’s 1923 master plan (Fig. 3) called for 135 km of ‘parked driveways’ following the county’s rivers, creeks, and lakeshore. At the time, this figure eight around Milwaukee county touched every suburb and dozens of city neighborhoods. It was an ambitious plan that dealt with wetland protection, flood control, streambank restoration, sanitation, environmental education, and public recreation. When seen in light of expanding 21st century greenway objectives, this plan was decades ahead of its time.

“Whitnall’s highway and park maps became, with very little revision, the official guides for all local land-use planning Whitnall’s plan had inestimable value as a blueprint. It provided a well-reasoned and highly specific guide to development in outlying areas of the county, and it established two policies that influenced land-use planners for decades: Buy well in advance of need, and develop land with utmost respect for native contours and vegetation” (Gurda, 1999, pp. 270–271). The origins of Whitnall’s ideas are not entirely clear. “He combined the aesthetic val-

ues associated with early landscape architects with a surprisingly sophisticated understanding of natural systems and an active socialist’s concern for the mass of people in congested cities. Add to this his untiring devotion to public life and you have an individual who translates uncommon vision into concrete accomplishments” (Clausen, 1980, p. 10).

Early on, Milwaukee county was the more aggressive partner in open space protection, compared with the city, and in the 1930s the city of Milwaukee turned over its park system to the county (the city also owned some gems in the system: Lincoln Memorial Drive, a 5 km parkway completed in 1929 after many years as a landfill, was one of the best stretches of urban lakefront on the Great Lakes) (Gurda, 1999). The county had purchased over 800 ha of parkland by 1930, and laid the foundation for a connected greenway system.

3.3. Ottawa: Jacques Gréber’s greenbelt and parkway vision

The presence of the federal government infrastructure in Ottawa has influenced the city’s shape since it was chosen by Queen Victoria as the nation’s capital in 1858. Canada’s capital sits atop a 45 m limestone cliff, Parliament Hill, in what was a mere lumbering town in the 19th and early 20th centuries. “It lies on the banks of a great and beautiful river, the Ottawa, and has direct communication by water with the mighty St. Lawrence Two subsidiary rivers flow into the Ottawa near the site of the capital, the Gatineau, which comes through a picturesque valley from the north, and the Rideau, which reaches the Ottawa from the south. Two striking waterfalls, the Chaudiere and the Rideau, lie within the borders of Ottawa” (Federal Plan Commission of Ottawa and Hull, 1915, p. 14). The city is situated in the Great Lakes–St. Lawrence bioregion, with a rustic mixture of forests, farmlands and water. “The flat lands on the Ontario side and the nonchalant courses of its rivers make, with its pastoral scenery, striking contrast with the Quebec side, its undulating hills riddled with lakes, traversed by turbulent streams and covered by thick growths of trees” (Gréber, 1950, p. 119).

Like Milwaukee, the city lies at the confluence of three rivers (Fig. 4). The story of those rivers defines the early history of the city. The Ottawa River is used as a provincial boundary, separating the cities of

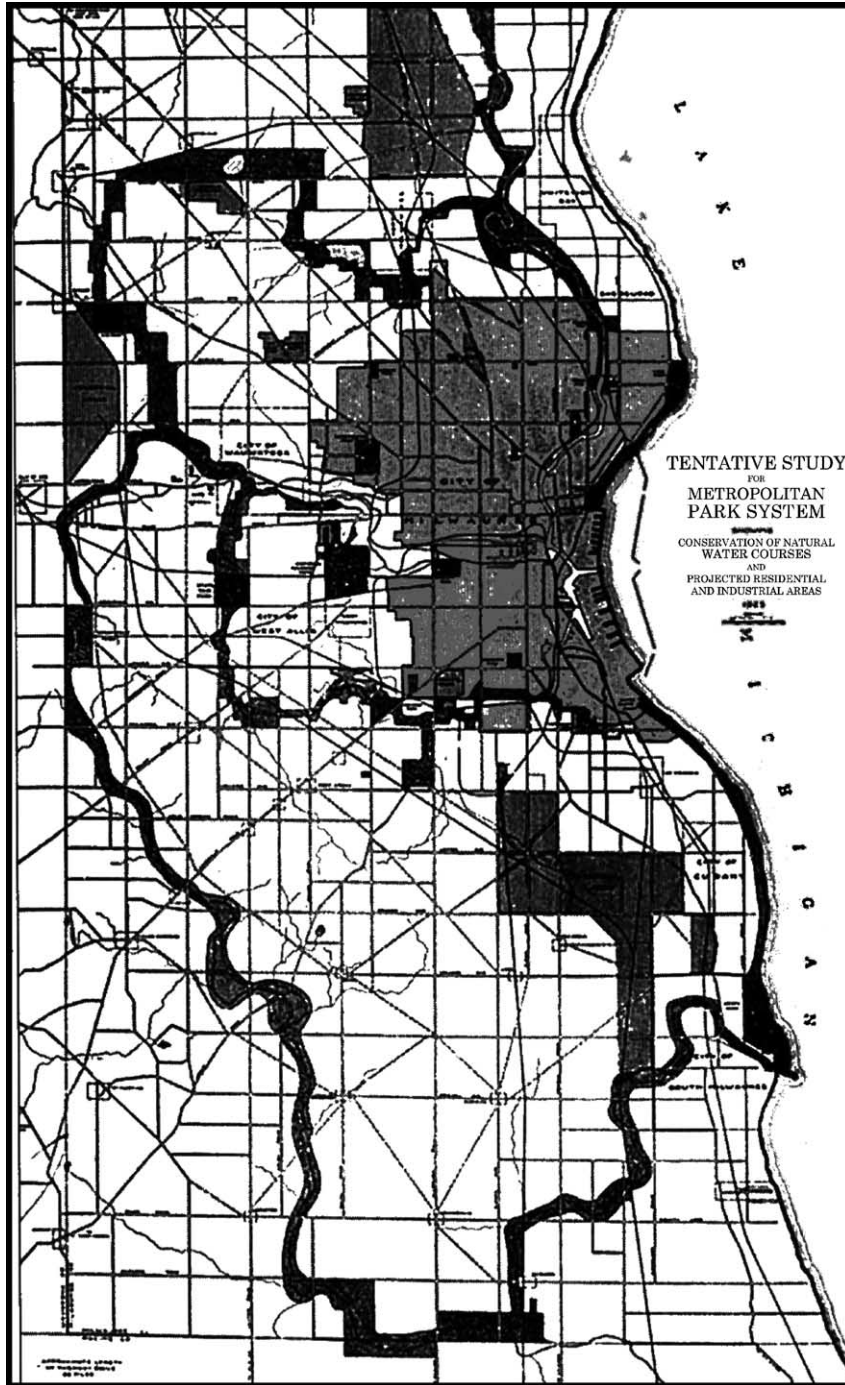


Fig. 3. Charles Whitnall's 1923 master plan for the Milwaukee County park system. From Gurda (1999) (Black pattern depicts proposed park system).

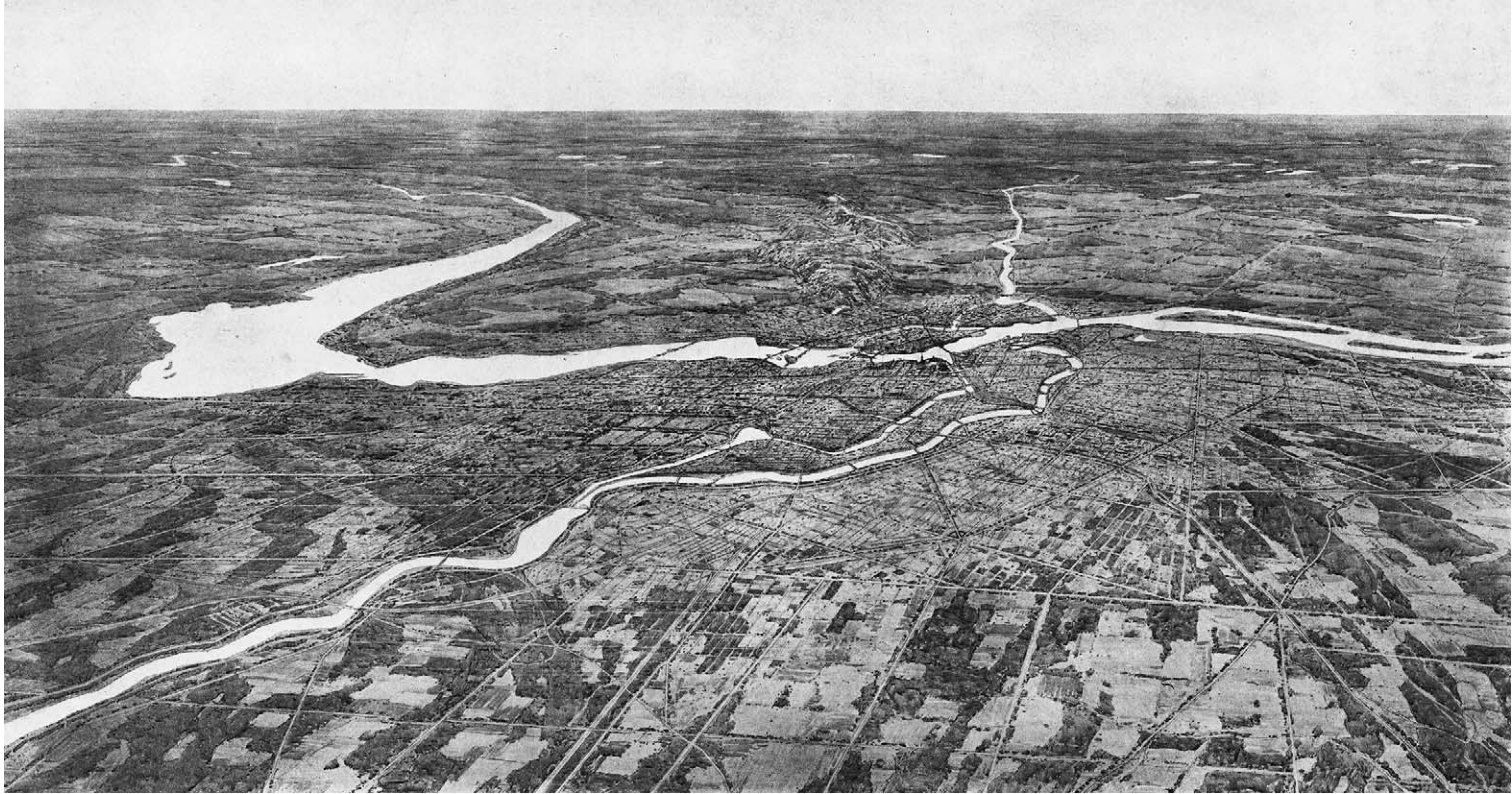


Fig. 4. Bird's eye view of the Ottawa/Hull area in 1915, looking north. Rendering by Jules Guerin, landscape artist. The Ottawa River runs east and west across the drawing, the Gatineau River flows south into the Ottawa River, and the Rideau River flows north into it (the Rideau Canal is the western arm). Reproduced from [Federal Plan Commission of Ottawa and Hull, 1915](#).

Ottawa in Ontario and Hull (now Gatineau) in Quebec. Unlike the Milwaukee urban landscape, Ottawa's shape is less geometric; urban areas fan out from the Ottawa River in a more organic way. Ottawa has so far rejected the grandiose City Beautiful promenade to Parliament Hill, although that urban design approach has been considered and argued for nearly a century (Pollock-Ellwand, 2001). Instead, Ottawa is an intimate, human-scaled city. In fact, it was laid out not as a prominent world capital at all, but as a mill town, converting lumber from the surrounding forests to wood products, dominated by the railroads needed to transport these products broadly. "The city had been laid out on no plan, and it developed on no plan. Industries grew up where they would. The railways carried on activities mostly as they liked" (Federal Plan Commission of Ottawa and Hull, 1915, pp. 14–15).

The development of the Rideau Canal, a 200 km system of channels, dams and locks, helped shape the city and develop its economy. After the War of 1812,

Lieutenant Colonel John By supervised 2000 men to build the canal system from Ottawa to Kingston, planned as a wartime supply route to the Great Lakes. Completed in 1832, the canal was lauded as one of the greatest engineering feats of the 19th century and today is a featured centerpiece of the city (Fig. 5).

At least four city plans were completed in the first half of the 20th century. Two are considered here for their relevance to greenway planning. The 1915 plan, referred to as the Holt Report, recommended several spatial and administrative changes, including the creation of a federal district similar to Washington, DC, zoning of industrial areas at the outer sections of the city, relocation of railways to the periphery, development of central plazas and parks, and acquisition of land on the Quebec side of the Ottawa River as a natural forested backdrop for Parliament Hill (Federal Plan Commission of Ottawa and Hull, 1915). In addition, the Holt Report recommended park land for a city of 350,000 people, although the population at that time was a fraction of that. The plan included



Fig. 5. Scene along the Rideau Canal in central Ottawa, with green open space and pedestrian ways on both sides of the canal.

1214 ha of parkland, with a playfield of 3–4 ha within about a kilometer of every resident.

As in Milwaukee, open space connectivity was envisioned even then. The 1915 plan recommends "... connection of parks by means of parkways and the making of the park system continuous and comprehensive. . . . The numerous waterways should be extensively used, not merely for business, but also for recreation. Few cities offer better facilities than Ottawa offers for pleasure upon the water" (*Federal Plan Commission of Ottawa and Hull, 1915*, p. 105). Eleven parkways were planned in the Ottawa and Hull region. At that time, there were already 344 ha of parks and parkways in the city, in addition to the Central Experimental Farm, which still exists as an important open space in the heart of the metropolitan area.

Thirty-five years later, many of these ideas were proposed again in the plan of Jacques Gréber, now considered the architect of Ottawa's open space system. Unlike Milwaukee's modest grassroots planning, Ottawa sought out the internationally known French architect and urban planner to design the nation's capital. There were three distinct aspects of Gréber's plan (*Gréber, 1950*) (1) a description of the capital area, (2) an analysis of the main spatial problems, and (3) a prescription for a new type of capital. While much of Gréber's plan was not implemented, many of the open space components were (*Eggleston, 1961*). Pollack-Ellwand observes that the elements of the plan that "relate better to improved human existence in the city were readily embraced, such as open spaces, organic forms, and more modest scales" (2001, p. 54–55). A vast system of protected green open spaces was designed, in the form of parkways, large park nodes, and nature preserves (*Fig. 6*). Like Whitnall's plan for Milwaukee, the parkway concept focused on the city's river system. Some parkways were built; for those that were not, open space corridors were left open. Unlike Whitnall's vision, in Gréber's plan, the parkways were meant to be very urban and not necessarily well connected.

At the heart of the Gréber plan was the notion of a large greenbelt surrounding the city of Ottawa, similar to Ebenezer Howard's garden city concepts for Great Britain. This became Gréber's main legacy in the physical form of the city. "The greenbelt was intended to circumscribe an area large enough for the

accommodation of some 500,000 persons. The inner limit was chosen by considering what area could be economically provided with municipal services. It was intended that the greenbelt would encompass within its own boundaries areas of great natural beauty. As well as limiting sprawl, it would provide sites for buildings, especially but not exclusively government buildings" (*Eggleston, 1961*, p. 293). The greenbelt was seen as an urban growth boundary and a physical separation between urban and rural land-uses, people and functions. It was not envisioned that the greenbelt would connect to the parkways, as the greenbelt was far from the city at that time (one parkway has since been extended to the eastern part of the greenbelt along the Ottawa River). The location of the greenbelt in relation to past and anticipated urban growth form is shown in *Fig. 7*.

The National Capital Commission, formed in 1958, was the key agency in implementing the Gréber plan. The commission is a Crown corporation whose mandate is to plan and assist in the development, conservation and improvement of the National Capital Region in keeping with its significance as the seat of the Canadian government. As part of the federal government, the commission has no authority over local units of government and, since no effective local zoning plans existed at mid-century, expropriating land was the most expedient means for it to amass the acreage needed to create parks, parkways, and other capital improvements. "The solution lay in speedy acquisition of strategically located lands within the national capital area, on both sides of the Ottawa River The rapid and extensive purchase of property over the 15-year period placed the crown agency in the position of ensuring the ultimate realization of the Gréber Master Plan . . ." (*Eggleston, 1961*, pp. 250–251). From 1946 to 1960, the National Capital Commission purchased some 1800 properties, totaling about 2529 ha, for the Ottawa River Parkway, Rideau River Parkway, Western Parkway and Eastern Parkway.

However, the greenbelt idea did not catch on easily and strong criticism of it slowed progress toward implementation. It was controversial from the start, and from 1945 to 1958 very little progress was made. Subsequently, 589 properties were purchased for the main portion of the greenbelt, accounting for nearly 9900 ha newly in National Capital Commission ownership. By

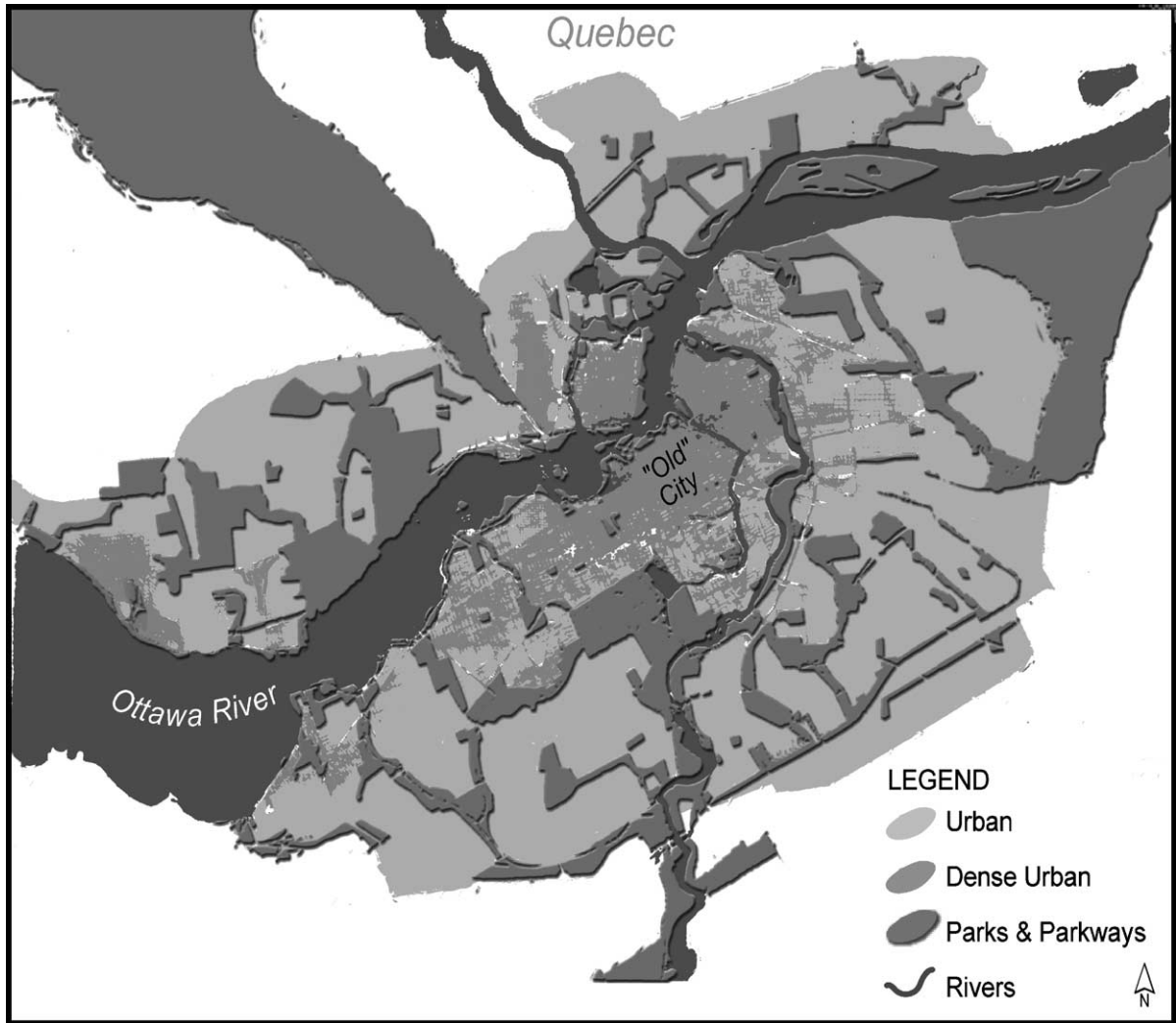


Fig. 6. Jacques Gréber open space plan for the National Capital Region, Adapted from Gréber (1950).

the end of 1960, this land buy had cost US\$ 39 million (Eggleston, 1961). The opposition came from farmers, landowners, speculators and local units of government on the urban fringe, who foresaw that the wave of building expansion in Ottawa was likely to engulf them, but that the free market would offer higher selling prices than the federal government. Despite the opposition, the greenbelt eventually circled the entire metropolitan area, in a 40 km arc averaging about 4 km wide, and only 8 km from Parliament Hill in places.

4. Contemporary greenway planning and implementation

4.1. Milwaukee

How has Charles Whitnall's connected open space system matured over the last half century? Three main agencies are primarily involved. Milwaukee county continues to be an important steward of Whitnall's open space network. The regional planning body, Southeastern Wisconsin Regional Planning

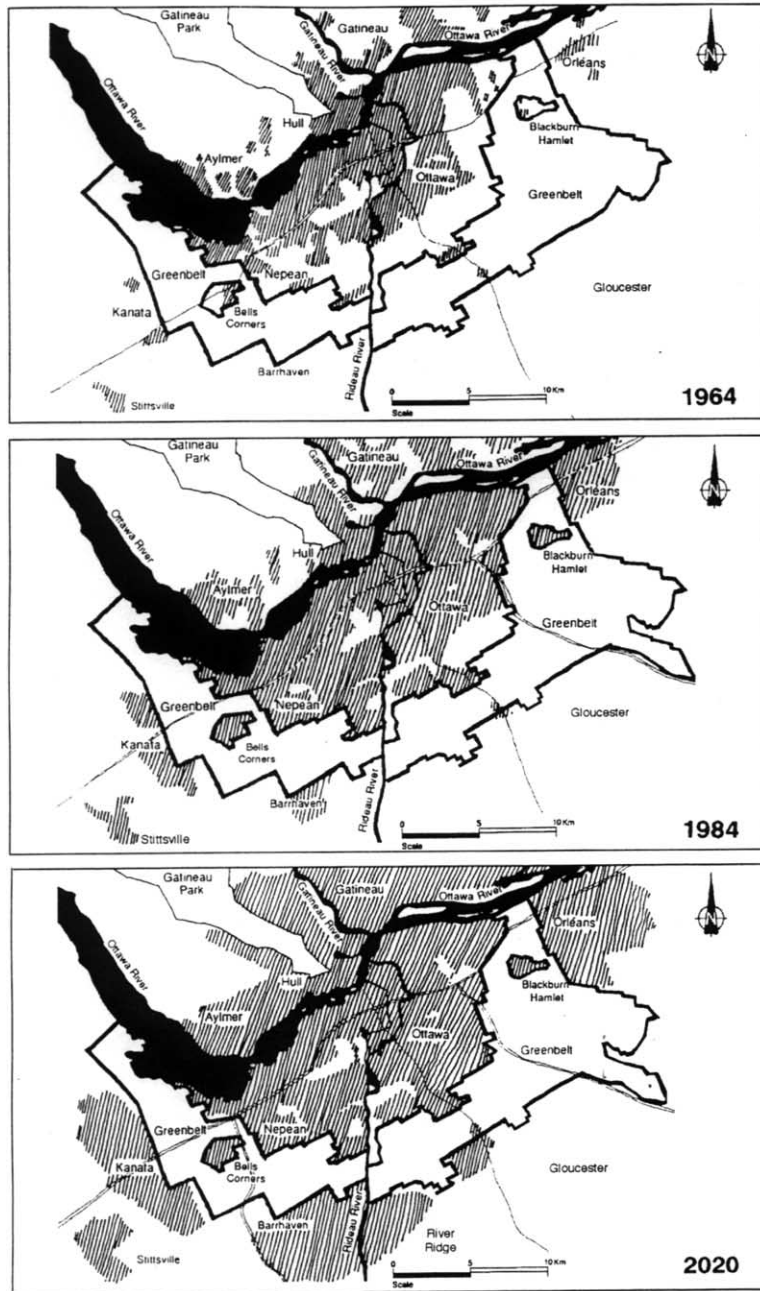


Fig. 7. Location of the greenbelt in relation to the city of Ottawa in 1964, 1984 and 2020 (anticipated). Adapted from National Capital Commission (1996).

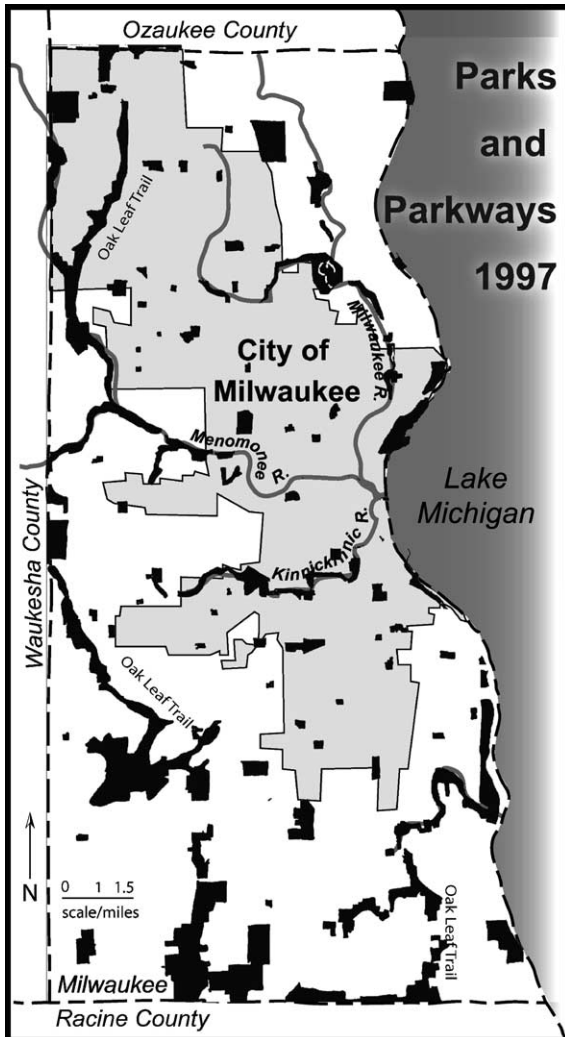


Fig. 8. Parks and parkways in Milwaukee county. The Oak Leaf Trail is shown as the connected linear system in a rough figure eight around the county.

Commission and the State of Wisconsin have also forwarded the greenways vision, although in quite different ways.

The Oak Leaf Trail (Fig. 8), owned and managed by Milwaukee county, is the modern version of Whitnall's figure eight around the Milwaukee metropolitan area and creates the scaffolding for the city's greenway network. The county has been astute in setting aside river corridors and other valuable land for protection throughout its 19 municipalities over several decades. The Oak Leaf Trail is now a 148 km

trail that connects county parks through a combination of dedicated trails, bike routes and recreational land along parkways.

The original routing for a paved bike trail through the parkway system was developed in 1939 by a group of bicycle enthusiasts. It loosely traced Whitnall's figure eight. In the 1960s and 1970s, pressure built again, especially from the biking community, to create more off-street trails through undeveloped parklands (personal communication, 4/26/01). The county began funding and implementing off-road sections designed to support multiple uses—jogging, in-line skating, bicycling, and cross-country skiing. Milwaukee County's 1972 plan proposed almost 800 ha of new parkway land (Milwaukee County Park Commission, 1972).

In 1990, the parkways encompassed over 3000 ha in a dozen parkways varying from 5 to nearly 1600 ha each. Recent plans suggest county acquisition of lands that continue to link the parkways and protect primary environmental corridors (Southeastern Wisconsin Regional Planning Commission, 1991). The system is composed of 140 parks and parkways totaling nearly 6000 ha. Over time, the objectives of the system have changed in that non-motorized transportation has become a main focus.

Much of the background planning for greenway corridors is done by the Southeastern Wisconsin Regional Planning Commission, a 'Council of Governments' organization. The County Parks Commission helps fund the commission and uses its planning services. The 1991 Parks And Open Space Plan (Southeastern Wisconsin Regional Planning Commission, 1991) and 1989 Inventory Of Vacant And Underutilized Riverine Land (Southeastern Wisconsin Regional Planning Commission, 1989) have been particularly influential; each has given spatially explicit recommendations for over 400 ha of new open space acquisition.

At the scale of the seven-county southeast Wisconsin area, the Southeastern Wisconsin Regional Planning Commission plans for environmental corridors have influenced greenway planning (Fig. 9). "Primary environmental corridors consist of elongated areas in the landscape which encompass the most important and highest quality elements of the regional natural resource base, including the best remaining surface waters and associated undeveloped floodlands and shorelands, woodlands, wetlands, wildlife habitat,

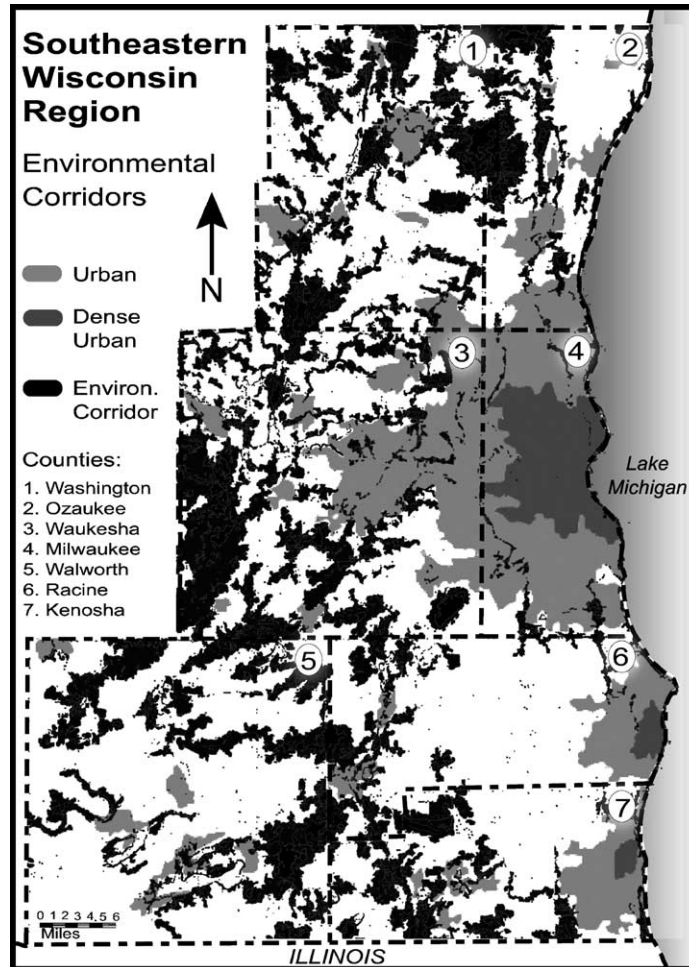


Fig. 9. Environmental corridors planned for the seven-county region by the Southeastern Wisconsin Regional Planning Commission (1997).

groundwater recharge areas, and scenic, historic, scientific and cultural sites” (Southeastern Wisconsin Regional Planning Commission, 1980).

The identification and protection of environmental corridors in Wisconsin is inspired by the pioneering work of Philip Lewis, a landscape architect at the University of Wisconsin, Madison, who, for several decades, promoted setting aside corridors of water, wetlands, and steep slopes to protect the most valuable recreational, scenic, and environmental lands (Lewis, 1996). For over 30 years, the Southeastern Wisconsin Regional Planning Commission has made efforts to protect 900 km² of environmental corridors in the region, about 40 km² of which lie within Milwaukee

county. Corridors are protected through a combination of (1) land acquisition, (2) land-use regulation and (3) policies to avoid utility service extensions that support inappropriate urban development in the corridors (Southeastern Wisconsin Regional Planning Commission, 1997).

The State of Wisconsin has an active role in Milwaukee greenways as well. As seen in Fig. 8, a critical greenway gap exists along the Menomonee River in downtown Milwaukee. In an ambitious urban revitalization project, this gap is being connected through greenway design, river restoration, and brownfields redevelopment. The Hank Aaron State Trail will nearly complete Charles Whitnall’s vision of linear

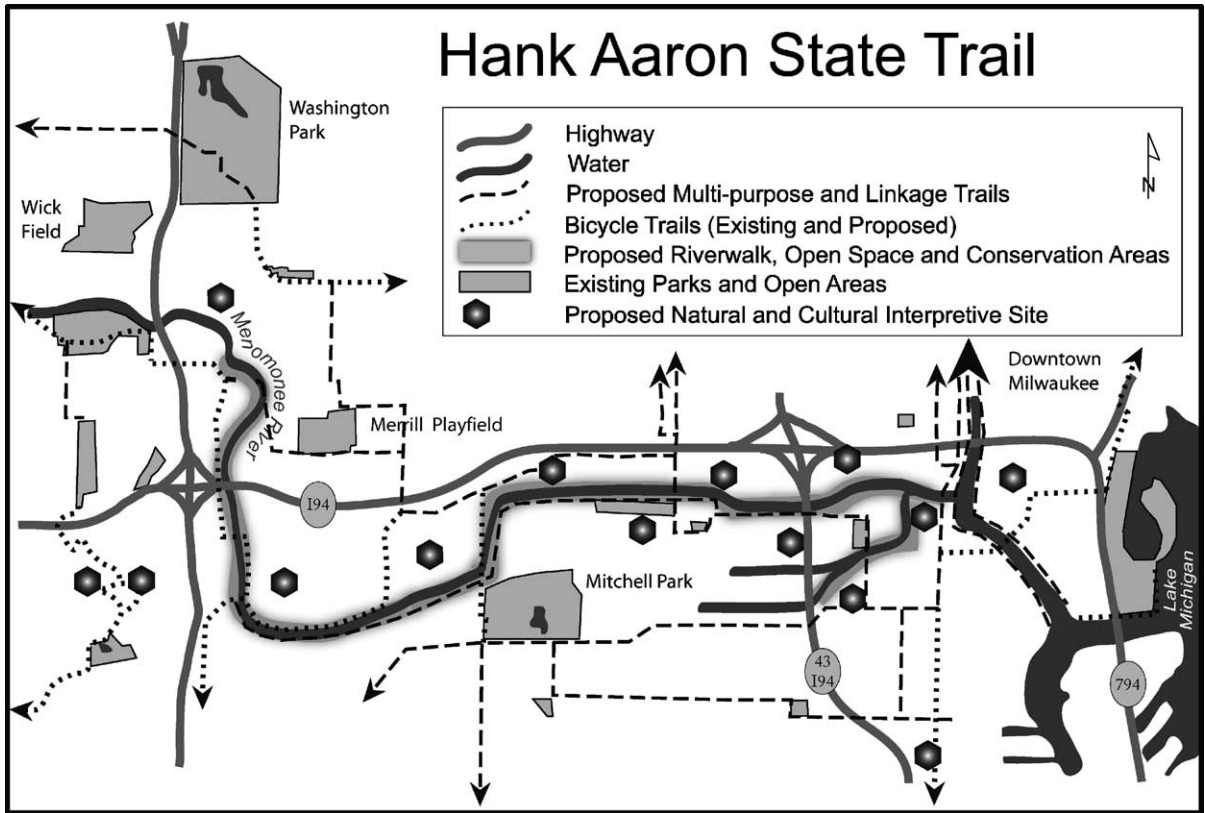


Fig. 10. Location of the planned Hank Aaron State Trail, running east from Lake Michigan through the Menomonee River Valley in downtown Milwaukee.

parcs along Milwaukee's river system. Beginning as early as the 1860s, as industrial development occurred in the Menomonee Valley, the river was straightened and dredged and its wetlands filled. Tons of landfill and miles of sheet-piling lined its banks. As manufacturing and rail transport declined, these lands were abandoned. Now the area contains one of the largest undeveloped sections of central city land in America.

The new 11 km urban greenway (Fig. 10), in the heart of the heavily industrialized valley, begins at a new state park at the Lake Michigan shore, runs through densely populated and ethnically diverse neighborhoods in the inner city, and links up at the other end to the existing Oak Leaf trail system. It will create accessible parkland for the near north and south sides of Milwaukee, where nearly 100,000 children live with minimal recreational facilities (Hopfinger,

1996). Its route passes Milwaukee's new professional baseball stadium, a major node in the redevelopment of the Menomonee Valley. The White House Millennium Council designated the trail as Wisconsin's Millennium Legacy Trail.

Named after Milwaukee's most famous baseball player, the Hank Aaron State Trail is a collaboration of the Wisconsin State Department of Natural Resources, Milwaukee County, City of Milwaukee, National Park Service, business associations, and the Southeastern Wisconsin Regional Planning Commission. The state has taken the lead, and will own and manage the trail after completion. It runs a well-established state trails system, heavily weighted toward trail-based recreation (interview, 6/7/01). The Hank Aaron Trail is more complex: it is the only urban trail in the Department of Natural Resources system and is justified by a diverse set of rehabilitation goals in the degraded

urban valley. Even so, recreation is a main priority (interview, 3/20/01).

Initially people thought the idea of a trail in this run-down industrial corridor was ridiculous (interview, 6/20/01). It has taken years to build a coalition around the concept, but the project is now well funded and under construction. “A twenty-two member Advisory Committee, and Concept Development, Environmental, and Finance Work Groups were formed during the study phase of the corridor The trail

is also supported by a group of volunteers, which will eventually be classified as a ‘friends’ group” (interview, 3/20/01). More than a half mile of sheet-piling has been removed, riverbanks have been restored, and riparian vegetation planted. A paved trail with interpretive signs and picnic pavilions is situated near the baseball stadium (Fig. 11). Along other sections, concrete linings have been removed, wetlands created, and riverbanks stabilized (personal communication, 6/14/02). It is interesting that Charles Whitnall, late in



Fig. 11. New section of the Hank Aaron State Trail, across the Menomonee River from the new professional baseball park, in the industrial Menomonee River Valley. Railroad and freeway corridors are visible in the background.

his life, predicted that the Menomonee Valley would become “a beauty spot which, for Milwaukee, would be more important than Central Park is to New York City” (Hopfinger, 1996, p. 33).

4.2. Ottawa

Contemporary greenway implementation in Ottawa is done by the city of Ottawa and the National Capital Commission. It remains divided into two distinct patterns: the greenbelt and the parkway corridors. The impact of the greenbelt has been thoroughly analyzed since its creation. The city has grown up to and beyond the greenbelt boundaries, with three main satellite communities outside the greenbelt. The greenbelt’s contribution to urban structure has been more to separate satellite communities from the main urban area, rather than to constrain suburban development. Clearly the greenbelt has not contained Ottawa’s growth, but has nonetheless shaped its structure significantly (interview, 3/19/01; National Capital Commission, 1996). Nixey evaluated the greenbelt’s economic impact and found that it has had little effect on the density of existing and planned suburban development, or suburban land markets (Nixey, 1991).

Judged according to the connective benefits that greenways provide, the story is mixed but less than satisfactory. A system of continuous pedestrian and vehicular routes within the greenbelt was part of Gréber’s original plan but unfortunately only portions of it have been completed (Taylor et al., 1995). However, the most recent greenbelt plan (National Capital Commission, 1996) incorporates a spine trail and connected spur trails throughout the length of the greenbelt. In addition, the commission is interested in making greenway connections from the greenbelt to areas beyond the outer boundary (personal interview, 7/29/01).

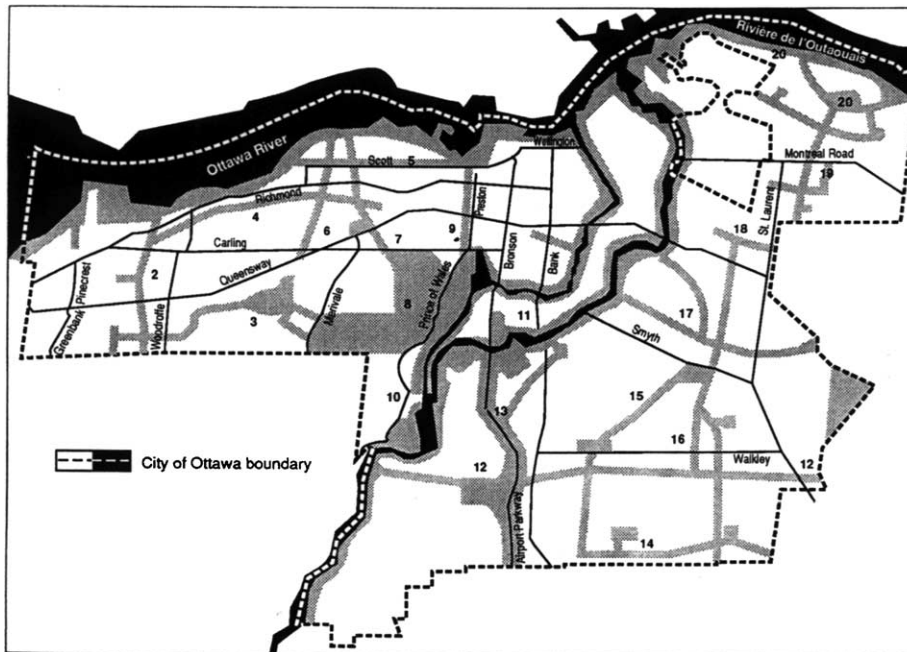
In 1991, an ecological study of the greenbelt was commissioned by the National Capital Commission (Hough, 1995; Hough Stanbury Woodland Limited, 1991). The purpose was to examine the biophysical functions of the greenbelt and to show how an ecologically-based vision could be used in future planning. The study examined natural features within and outside the greenbelt boundaries, and the degree to which the greenbelt protects them. The majority of significant natural areas in the region are either not

inside the greenbelt or at best only partially within it. In fact, greenbelt boundaries do not follow natural features, but appear to be based on other factors. A wetland can be partly in the greenbelt and partly outside it. On the other hand, much of the land that was purchased for the greenbelt was previously farmed, so has been gradually managed for increased habitat quality. In fact, there are now conflicts with bears, moose, and coyotes in areas that were formerly farmland (personal interview, 7/29/01; National Capital Commission, 1996).

Greenway planning by the city of Ottawa is somewhat more complicated. The Ottawa metropolitan area, until very recently, was composed of 11 municipal governments, of which the city of Ottawa was one. In addition, the Region of Ottawa–Carleton was created in 1969 to provide services for the metropolitan area. In 2001, all 12 of these local units were merged into a new City of Ottawa, aligned with the former region of Ottawa–Carleton boundary and encompassing 2700 km², over 90% rural and almost four times the size of metropolitan Toronto.

In 1991, the city of Ottawa developed a greenway plan for the area within its old (smaller) boundaries (City of Ottawa Department of Engineering Works, 1993). The plan specifies 20 corridors (Fig. 12) and incorporates them into its Official Plan. (The Official Plan is the city’s outline of how it wants to grow. Official plans place an emphasis on land-use planning, but also include economic, environmental and social goals. A new official plan for the new, larger city is expected in 2003). About three-fourths of the land designated in the corridors is already owned or managed by public agencies. Connectivity is one important objective: “To secure, maintain and expand the linear pattern of the Greenway System to provide a continuous network of lands and related waters that connect all parts of the city” (City of Ottawa Department of Urban Planning and Public Works, 1991). The greenway system consists of five components—environmentally sensitive areas, waterway corridors, linkages, major open spaces, and agricultural areas.

Due to administrative and financial constraints, and because of the city’s reorganization, the greenways plan has been somewhat stalled. The boundaries of most corridors have not yet been set, management plans have not been completed, and therefore none of the corridors are fully complete. In fact, the 1991



- | | |
|-------------------------------|-----------------------------------|
| 1. Ottawa River Corridor | 11. Rideau River Corridor |
| 2. Pinecrest Creek Corridor | 12. Southern Hydro Corridor |
| 3. Western Corridor | 13. Sawmill Creek/Airport Parkway |
| 4. Richmond Road Corridor | 14. Greenboro Corridor |
| 5. Scott Street Corridor | 15. Eastern Corridor |
| 6. North-South Hydro Corridor | 16. Alta Vista Corridor |
| 7. Island Park Drive Corridor | 17. West-East Hydro Corridor |
| 8. Central Experimental Farm | 18. South-North Hydro Corridor |
| 9. Champagne Corridor | 19. Aviation Parkway Corridor |
| 10. Rideau Canal Corridor | 20. Ottawa River Corridor East |

Fig. 12. Twenty greenway corridors planned for the former city of Ottawa, before consolidation with surrounding municipalities. Adapted from city of Ottawa, 1993.

greenways plan did not have enough environmental information to make implementation feasible or to substantiate ecological need. Environmentally sensitive areas of the city had not been fully mapped. Subsequently, the Natural and Open Space Study, was completed and approved in 1998. It provides a framework for comparing and classifying all natural and open space land in the city, helps in reviewing development applications, and better defines the boundaries of the greenway system. The study recommends where development, sensitive development and no development should occur, and targets 57 natural areas for protection.

With the greenway plan and the Natural and Open Space Study in place, the new city is poised for substantive greenways development, especially since acquiring large tracts of land in the Marlborough Forest southwest of the urban area and in other environmentally significant parts of the rural area. Much work remains to expand efforts throughout its larger regional land base. Meanwhile, a reactive form of implementation is in place. Ottawa requires a Municipal Environmental Evaluation Report for all projects situated at or near environmentally important lands, including the greenway corridors. When the findings of this process determine that adverse effects to a greenway

corridor are likely, developments are modified or denied. Although a reactive rather than proactive method to guide development in important corridors, it is helping protect some lands for the time when the new city can continue the greenways vision in a focused way.

5. Discussion: continuing the greenways vision

5.1. Greenway institutional structures

Milwaukee and Ottawa have historic frameworks for outstanding connected greenway networks, anchored by extensive river corridors in both cities. Spectacular greenway segments exist in both regions, especially along parkways. In addition, both cities have agencies and programs in place for which connected open space is important. However, a strong, coordinated regional greenways program has not emerged in either city. Both cities are ripe for one. In Milwaukee, the county has maintained the Whitnall legacy, mainly in providing trail-based recreation. It has been far less active in the environmental protection arena. In contrast, Southeastern Wisconsin Regional Planning Commission has been a major proponent of environmental corridors, but not of greenways per se. There is not a map that depicts, in one place, the greenways for the metropolitan area, combining local, county and state-managed corridors. According to interviewees, a regional plan would be the next logical step (interview, 6/20/01) and the regional commission would be the obvious home for a coordinated greenways program (interview, 6/14/01). However, the commission's status as an advisory body for the municipalities deprives it of the authority needed to undertake a program of this type.

A similar situation exists in Ottawa. The work of the National Capital Commission and the city of Ottawa has maintained the Gréber structure of open spaces throughout the city, each on its own land. However, there has been no overall greenways plan for the metropolitan area that integrates the greenbelt, parkways and greenways. Momentum in that direction seems to be building. A report summarizing conceptual strategies for an Integrated Network of Recreational Pathways for the National Capital Region was done in 1994 as a collaboration of

several municipalities and the federal government (National Capital Commission, 1994). While not greenway-driven, it developed strategies and recommendations for further regional pathway connections. Later, as shown in Fig. 13, the regional government showed pathway connections linking the greenbelt to lands inside and outside of it (Regional Municipality of Ottawa-Carlton, 1997). So far though, there is little physical connection between the federal greenbelt and the city greenway system, even though the city has indeed reached and exceeded the greenbelt boundary. It is encouraging that greenways are on the agenda of the new, larger, City of Ottawa. The new Official Plan is predicted to have a strong greenways planning component (interview, 7/26/01). For an integrated metropolitan greenway network, the new government structure may be very positive. It contrasts sharply with the Milwaukee situation, where the land-use planning authority rests primarily on much smaller local units of government.

5.2. Inter-governmental cooperation

Inter-governmental cooperation will be critical for capitalizing on the strong historic open space precedents in both cities. Again, Milwaukee and Ottawa have similar but different stories in this regard. In Milwaukee, coalitions around open space objectives have been modest, with very little coordination in trail connection work between municipal jurisdictions (interview, 6/14/01). The lack of a parks presence by the city of Milwaukee has been blamed for this gap in cross-jurisdictional cooperation in the metropolitan area (interview, 6/20/01). Since a large, densely-developed area and an under-served population exists in the city, this may be an important factor.

Furthermore, there is a history of tension between the state's largest city and the state government. Some of that has been eased through the successful collaboration on the Hank Aaron State Trail, where a range of agencies and organizations have developed a strong coalition. As a demonstration project for greenway collaboration, this trail may be the springboard for a more comprehensive greenway vision for the city. Similarly, in Ottawa, the relationship between the city and the Federal government is complex and conflicted. Back in the 1960s, there was not much cooperation

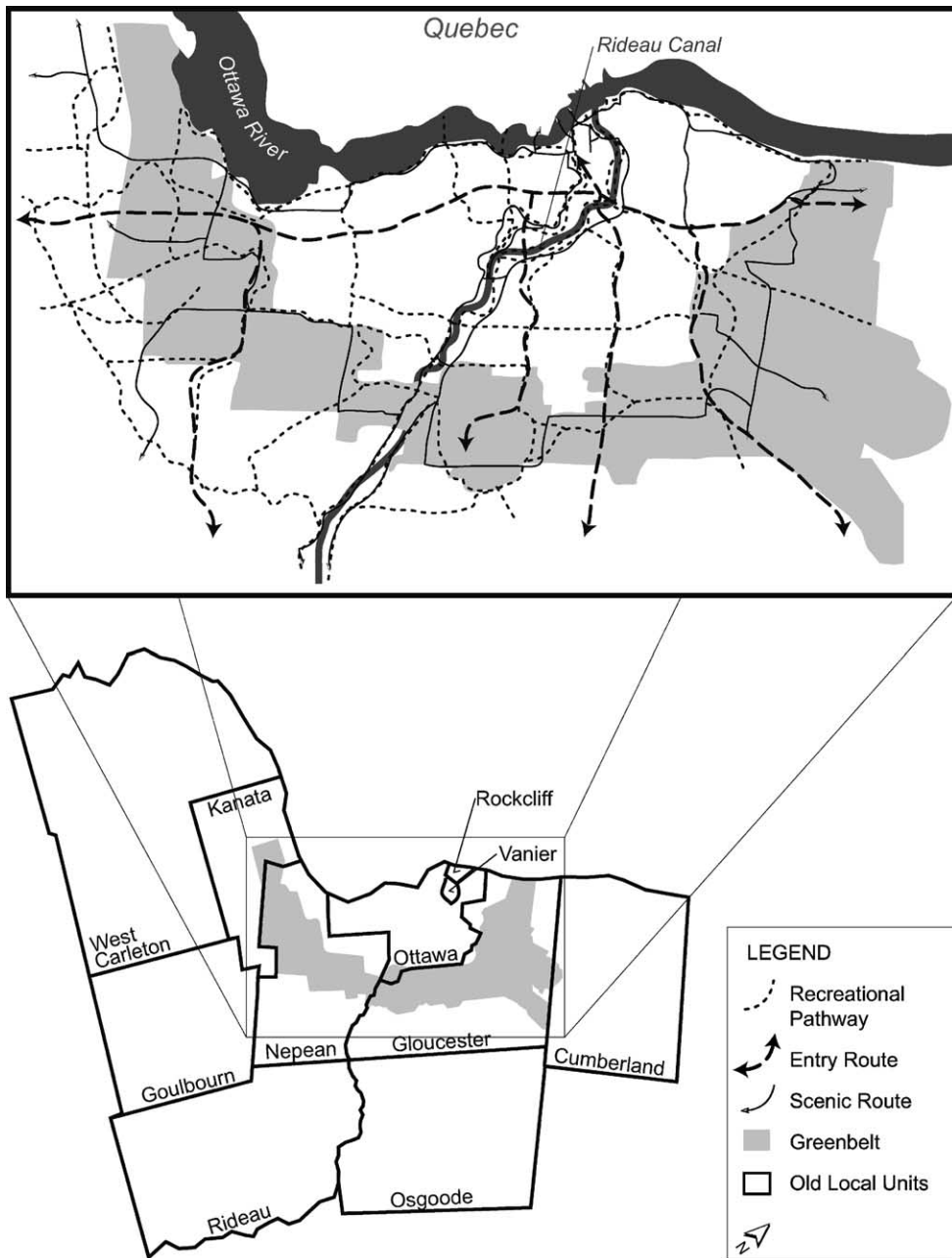


Fig. 13. Location of the former City of Ottawa boundaries in relation to surrounding municipalities in the metropolitan region. The entire lower map is now the new City of Ottawa. Inset map at top shows conceptual greenway connections linking the greenbelt with city parkway and greenway corridors. Adapted from Regional Municipality of Ottawa–Carleton, 1997.

with respect to implementing the greenbelt, in spite of efforts by the National Capital Commission to convince local municipalities to support its establishment. The commission could make dramatic changes on local landscapes without even consulting local municipalities. However, the federal role in large-scale development decisions has waned. The city–federal relationship has moved from a strained atmosphere to a more collaborative one over time. This is easing in recent years and is now completely changed with Ottawa encompassing those areas as part of the city. In addition, there is a history of resentment and distrust between the former rural municipalities where lands were absorbed in the greenbelt and the National Capital Commission; again, this situation is completely changed now that these areas are part of the city of Ottawa.

5.3. Leadership and advocacy

In recent decades, both Milwaukee and Ottawa have suffered from a paucity of influential leaders and advocates for connected greenway systems. In Milwaukee, Mayor Norquist has been a vocal supporter of the Hank Aaron State Trail. In fact, he helped secure appropriations for it when he was in the State Legislature. Other state legislators have been important allies. However, there is no strong powerful leader who advances the greenways vision, as there has been in other North American cities (Erickson and Lousse, 1997). Furthermore, Milwaukee lacks an advocacy organization specifically for open spaces. In both Milwaukee and Ottawa, informants reported a minimal amount of involvement by the general public in the design or location of trails and greenways, and limited involvement by the biking community. Some interviewees mentioned a lack of maturity in the local non-profit sector as a hindrance to a broader greenways vision. Currently, there are few land trusts or other non-profit organizations with strong land conservation objectives.

Similarly, there are few influential greenway advocates and leaders in Ottawa that are pushing a comprehensive regional vision. Although the greenbelt has its champions and the parkway corridors have theirs, any unified collaborative effort will need a powerful leader to pull together the disparate pieces. This problem is exacerbated by the fact that there is nearly no

leadership for greenway efforts at the provincial level, unlike at Milwaukee where the State of Wisconsin has played a major leadership and funding role. The Province supports protection of corridors by encouraging local units of government to protect them, but provides no funding. The unification of the metropolitan area into a large new City of Ottawa may be positive for fostering greenway leadership without provincial assistance.

5.4. Greenway objectives

The objectives for developing and protecting greenways change over time. While the three-legged stool of recreation, transportation and conservation has supported greenway efforts across the continent, it is rare that each leg is equally weighted. Furthermore, modern greenways are expected to provide many other benefits—from environmental education to neighborhood enhancement to water quality protection. For Milwaukee, protected greenway corridors were originally motivated by recreation and environmental protection. Later, non-motorized transportation became a key, possibly at the expense of ecological goals at the county level. Today, both recreation and non-motorized transportation are foremost. And yet at the regional level, through the Southeastern Wisconsin Regional Planning Commission, environmental quality objectives are driving the larger environmental corridor program.

There appears to be an inconsistency between levels and priorities in Milwaukee, with the exception of the Hank Aaron State Trail. It is important, however, to understand the important role of recreation. “The development of greenways without the recreational element is extremely difficult” (personal communication, 3/20/01). William Whyte predicted this decades ago: “The fundamental lesson, to summarize, is that open space has to have a positive function. It will not remain open if it does not. People must be able to do things on it or with it—at the very least, to be able to look at it” (Whyte, 1968, p. 162).

In many regards, Ottawa’s greenway institutions seem to be moving in the same direction regarding motives and objectives. Both the National Capital Commission and the city are developing stronger ecological protection goals, while focusing on recreation as a key component. Policies for Ottawa’s new

greenway system restrict development and give priority to linkages for environmental and recreation reasons over transportation and utilities. Ironically, Ottawa's historic framework is less ecologically-based than was Milwaukee's.

6. Conclusion

Milwaukee and Ottawa possess greenway systems that are at the same time mature in historical precedent and embryonic in contemporary potential. Like a number of cities across North America, both cities boast a strong historic open space framework with a focus on rivers and parkways. The parkways are a particularly interesting phenomenon for their ability to incorporate greenway objectives. Future research should further explore the use of historic parkways in greenway network planning in these (and other) cities and assess their potential for providing various benefits.

In many metropolitan areas, the greenway concept is stretched between two main drivers—ecological quality and social amenity. Cities are just now sorting out the complexity of creating and linking greenways on the physical landscape and at the same time satisfying these multiple (and often competing) demands. This is a complex endeavor, but is certainly aided by a strong historic open space framework already in place, as in Milwaukee and Ottawa.

One main lesson from these cities is this: where the connected open pattern is already nearly intact, due to foresighted planning decades ago, it may be possible to retrofit that pattern to accomplish new needs, whether about water quality protection, non-motorized transportation, or other needs. An existing historic framework of this kind is an enormous asset on which to build contemporary greenway corridors.

However, achieving this greenway network ideal necessitates an effective institutional structure, strong leadership and inter-governmental cooperation. These factors have been important in cities across North America. Unfortunately, neither Milwaukee nor Ottawa have a coordinated greenways plan in place nor a broad vision that can now be mapped. Milwaukee also lacks an agency with the authority to implement a metropolitan plan. It is promising that the new City of Ottawa will be able to implement greenways

across a wide geographic area; it is too early to assess the effectiveness of this new regional government on greenway implementation. In both cities, the agencies that do care about greenway objectives are so far collaborating in targeted, opportunistic areas.

A second main conclusion from this study is this: visionary thinking is critical, along with the leadership and cooperative structure to carry it out. The cities that have achieved open space networks across metropolitan areas have been guided by strong visions about the benefits of connectivity and its contribution toward community health. This paper has shown that the Milwaukee and Ottawa metropolitan areas possess an impressive system of open spaces that are built on city planning ideas from the early 20th century. They are ripe for a new vision of greenway connectivity that will capitalize on these assets for the 21st century.

Acknowledgements

The author greatly appreciates the superb assistance of two graduate students, Karla Rogers and Richard Meader, in the completion of this research. In addition, interviewees in Milwaukee and Ottawa were generous with time and information. This work was funded by the Canadian Embassy through their Canadian Studies Faculty Research Grant Program.

References

- City of Ottawa Department of Urban Planning and Public Works, 1991. City of Ottawa Official Plan.
- City of Ottawa Department of Engineering Works, 1993. Land and Water Background Report: State of the Environment Reporting Program, City of Ottawa, Ottawa.
- Clausen, W., 1980. Early planning for land-use and community parks in the City of Milwaukee. In: Proceedings of the Fifth Annual Professional Improvement Conference on Historical Perspectives. University of Wisconsin Extension, Stevens Point, WI, p. 38.
- Cullingworth, J.B., Nadin, V., 1997. Town and Country Planning in the UK, 12th ed. Routledge, New York, p. 392.
- Eggleston, W., 1961. The Queen's Choice. The National Capital Commission, Ottawa, Ontario, p. 325.
- Erickson, D., 2003. Connecting lines across the landscape: implementing metropolitan greenway networks in North America. In: Jongman, R.H.G., Pungetti, G. (Eds.), Ecological Networks and Greenways: New Paradigms for Ecological Planning. Cambridge University Press, London, p. 368.

- Erickson, D., Louisse, A., 1997. Greenway Implementation in Metropolitan Regions: A Comparative Case Study of North American Examples. National Park Service Rivers, Trails, and Conservation Assistance Program, Washington, DC.
- Federal Plan Commission of Ottawa and Hull, 1915. Report of the Federal Plan Commission on a General Plan for the Cities of Ottawa and Hull. Federal Plan Commission of Ottawa and Hull, Ottawa, p. 138.
- Glaser, B.G., Strauss, A.L., 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine, New York, p. 271.
- Gréber, J., 1950. Plan for the National Capital. National Capital Planning Service, Ottawa, p. 308.
- Gurda, J., 1999. *The Making of Milwaukee*. Burton & Mayer Inc., Brookfield, p. 468.
- Hopfinger, T., 1996. Valley of Dreams. *Milwaukee Magazine*, pp. 32–38.
- Hough, M., 1995. *Cities and Natural Process*. Routledge New York, p. 326.
- Hough Stanbury Woodland Limited, 1991. *Ecological Analysis of the Greenbelt*. National Capital Commission, Ottawa.
- Kurtz, A.L., 1926. The Value of Comprehensive Plans for Sewer Systems. *American City* 34, pp. 394–395.
- Lewis, P.H., 1996. *Tomorrow by Design: A Regional Design Process for Sustainability*. Wiley, New York, p. 258.
- Milwaukee County Park Commission, 1972. *Guide for Growth: Milwaukee County Park System*. Milwaukee County Park Commission, Milwaukee.
- National Capital Commission, 1994. *Integrated Network of Recreational Pathways for the National Capital Region, Strategic Development*. National Capital Commission, Ottawa.
- National Capital Commission, 1996. *Greenbelt Master Plan*. National Capital Commission, Ottawa.
- Newton, N., 1971. *Design on the Land: The Development of Landscape Architecture*. The Belknap Press of Harvard University Press, Cambridge, MA, p. 714.
- Nixey, D., 1991. *The Future Greenbelt, Economic Analysis*. National Capital Commission, Ottawa.
- Patton, M.Q., 2002. *Qualitative Research and Evaluation Methods*. Sage Publications, Beverly Hills, CA, p. 598.
- Pollock-Ellwand, N., 2001. Gréber's plan and the "Washington of the North". *Landscape J.* 20 (1), 48–61.
- Regional Municipality of Ottawa-Carlton, 1997. *Official Plan, Region of Ottawa-Carlton*. Ottawa.
- Shiple, K.G., 1996. In: Wood, J.M. (Ed.), *The Elements of Interviewing*. Singular Publishing Group, Inc., San Diego, CA, p. 111.
- Smith, D., Hellmund, P., 1993. *Ecology of Greenways*. University of Minnesota Press, Minneapolis, MN, p. 222.
- Southeastern Wisconsin Regional Planning Commission, 1980. *Alternative Futures for Southeastern Wisconsin*. Technical Report No. 25, Southeastern Wisconsin Regional Planning Commission, Milwaukee.
- Southeastern Wisconsin Regional Planning Commission, 1989. *An Inventory of Vacant or Underutilized Lands in the Riverine Areas of Central Milwaukee County*. Memorandum Report No. 40, Southeastern Wisconsin Regional Planning Commission, Milwaukee.
- Southeastern Wisconsin Regional Planning Commission, 1991. *A Park and Open Space Plan for Milwaukee County*. Community Assistance Planning Report No. 132, Southwestern Wisconsin Regional Planning Commission, Milwaukee.
- Southeastern Wisconsin Regional Planning Commission, 1997. *A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin*. Planning Report no. 42, Southeastern Wisconsin Regional Planning Commission, Milwaukee.
- Statistics Canada, 2002. <http://www.statcan.ca/>, accessed 2 January 2002.
- Still, B., 1948. *Milwaukee the History of a City*. North American Press, Milwaukee, p. 638.
- Taylor, J., Paine, C., FitzGibbon, J., 1995. From greenbelt to greenways: four Canadian case studies. *Landscape Urban Plan.* 33, 47–64.
- US Census, 2000. <http://www.census.gov/>, accessed 2 January 2002.
- Whyte, W., 1968. *The Last Landscape*. Doubleday, Garden City, New York, p. 376.
- Yin, R., 1994. *Case Study Research: Design and Methods*. Sage Publications, Beverly Hills, CA, p. 160.

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