

ISSUES AND OPPORTUNITIES FOR ENHANCING ACTIVE TRANSPORTATION AMONG RURAL AND URBAN AREAS: LESSONS FROM A NEW BRUNSWICK STUDY

Trevor R. Hanson, PhD, P.Eng, Assistant Professor
Florence Allaire, BScE, MScE Candidate
Carly MacEacheron, BScE, MScE Candidate

UNB Department of Civil Engineering

Introduction

Active transportation (AT) includes any form of human-powered transportation and the systems and infrastructure that enable it (Transport Canada, 2011). While many communities have adopted an AT philosophy in the context of wellness, most Canadian municipalities lack basic metrics on AT, which has led to difficulty in measuring outcomes and justifying future projects. This issue is exacerbated in New Brunswick where 35% of the population lives in unincorporated areas where transportation planning is exclusively vehicle-focused.

The Government of New Brunswick's Wellness Strategy (2014-2021) highlights the provincial interest in developing a "culture of wellness". The "culture of wellness" means New Brunswick will have "a natural and built environment that supports physical activity, social connectedness and active transportation for all" (New Brunswick Department of Healthy and Inclusive Communities, 2014). The connection between wellness and AT is a motivator for this work.

This paper summarizes the main findings of a study “Understanding Active Transportation in New Brunswick: its role in an Age-Friendly built environment” funded by the New Brunswick Health Research Foundation and the New Brunswick Department of Healthy and Inclusive Communities. The objectives of the project were to develop a series of recommendations and considerations in terms of:

- access to AT in rural and urban communities;
- community, workplace and school engagement in and support for AT;
- community capacity to address AT, the built environment and age-friendly communities; and
- policies that support AT.

The study included a literature review, profile of major design guides, types of AT monitoring and promotion initiatives, profile of AT usage behaviour in NB, a survey of community perspectives on AT, six community case studies, and an exploration of community capacity to support AT developments. This paper focuses on the major lessons, conclusions, and considerations with respect to opportunities for AT in New Brunswick developed throughout the course of this work.

Summary of AT trends in NB

Transportation usage trends in the seven Census Metropolitan Areas/Census Agglomerations (CMA/CAs) in New Brunswick show that 88% to 93% of commuters depend on the automobile. The Fredericton CA has the highest percentage of commuters as walkers and cyclists (8%). Approximately 35% of New Brunswick commuters do not live within a CMA/CA (Table 1) (Statistics Canada, 2010).

Table 1: Number and proportion of commuters in New Brunswick cities using active transportation (Statistics Canada, 2011)

CMA/CA	Total commuters	% in vehicle	% walking	% biking
Moncton	69680	88.8%	6.1%	0.6%
Saint John	58920	89.0%	5.1%	0.2%
Fredericton	46730	87.9%	6.7%	1.4%
Bathurst	13775	92.8%	5.2%	0.0%
Miramichi	11575	92.2%	4.6%	0.0%
Edmundston	9285	92.3%	5.7%	0.4%
Campbellton	6240	91.0%	6.6%	0.2%
Other NB*	115800	93.4%	4.3%	0.3%
Total NB	332005	90.7%	5.3%	0.5%
* derived from difference between Total NB and data from CMA/CA				

Given that CMA/CAs do not cover all of New Brunswick, the New Brunswick Health Council (NBHC) procured similar commuting data from Statistics Canada for the entire province, organized into 33 areas of at least 5000 people (New Brunswick Health Council, 2014). These data show that the average percentage of automobile usage for commuting generally increases as community size decreases, with the highest automobile dependence at 96% of all commuters. The exception to near-universal automobile dependence in a small community is the Sackville, Dorchester, Port Elgin area, where 15% of adults bike or walk to work, possibly facilitated by the presence of Mount Allison University.

Smaller communities appear to have longer commute times than the largest communities, and also appear to have lower adult daily

physical activity participation rates than larger communities, though this is not universally observed. The Quispamsis, Rothesay and Hampton area (in Saint John CMA) has the highest physical activity participation rates in New Brunswick at 66%, yet among the lowest AT usage for commuting in New Brunswick. This may be because the opportunity for AT commuting does not exist in a meaningful way, or that residents prefer AT for recreation purposes. Given NBHC/Statistics Canada data at a provincial level show that approximately half of adults 18-64 years in New Brunswick are physically active during free time on a daily basis, viewed in context of active transportation commuter rates of 5.8%, suggests that only about 10% of active people carry this behaviour forward to their commuting habits.

Feedback from municipal and local officials

This research solicited feedback from municipal and local government public officials to better understand the prevalence of AT infrastructure in their communities, as well as how AT is successfully fostered, designed, planned, monitored and promoted. Surveys were distributed via 12 Regional Service Commissions, organizations where every incorporated municipality and a subset of unincorporated areas under provincial jurisdiction are represented for the purposes of administering regional land use planning and solid waste management. Approximately 2/3 of New Brunswickers live in incorporated municipalities (e.g. Cities, Towns, Villages, Rural Communities) while the remainder live in Local Service Districts or “LSDs”, which account for 90% of the land area and 35% of the province’s population (New Brunswick Department of Environment and Local Government, 2012).

A total of 29 surveys were returned, as outlined in Table 2. The most likely respondents were administrators and technical staff (62% of respondents), with elected officials accounting for 24%.

Table 2: Responses by community type

Community Type	Province total ¹	Contact info provided, survey distributed ²	Surveys received	Response rate of prov. total %
City	8	8	5	63%
Town	27	24	8	30%
Village	66	66	12	18%
Rural Comm.	4	4	0	0%
LSD	319 ³	35	4	1%

1. Based on 2012 municipal statistics, which may have changed due recent amalgamations
2. Represents surveys distributed by the research team based on known email addresses provided through responses from Regional Service Commissions (RSC) to original request for participation. Not all LSDs have an elected advisory council, and only a subset (35) serve on RSC boards.
3. 319 = 266 LSD + 53 taxation subdistricts within LSDs

The cities reported the most comprehensive AT infrastructure, with sidewalks, bike lanes, shared use lanes, bike routes, multi-use trails and walking trails reported in all five cities. Sidewalks were the most commonly reported type of AT infrastructure in the respondent incorporated areas. All of the responding towns reported having paved shoulders and walking trails, while most had bike routes and multi-use trails. Most villages had sidewalks and walking trails, and one LSD reported having a walking trail.

Successful and sustainable AT initiatives appear to be a function of the roles of the proponents and the stage of their involvement (Table 3). Of the 23 AT successful initiatives profiled by the respondents, council and municipal staff were most often involved in starting the

initiative, with citizens and the non-profit sector being the next most likely to be involved. Municipal staff played the largest role in developing the initiative, followed by council and citizens. Given that realizing and sustaining AT initiatives most often fell to municipal staff, it is reasonable to assume that communities without municipal staff find it challenging to develop and sustain initiatives.

Table 3: Involvement in the different stages of initiatives by proponent type

Proponent	Initiated	Developed	Realized	Sustained	Total
Citizens	9	15	6	1	23
Council	18	16	15	12	23
Corporate	1	4	3	0	23
Non-profit	7	9	10	3	23
Muni. staff	15	20	19	21	23
Consultant	2	2	2	1	23
Prov. of NB	1	1	1	1	23

Respondent cities were the most likely to have an AT strategic plan, while both cities and towns were most likely to depend on a staff member for AT planning. Villages and LSDs reported were least likely to undertake AT planning. All cities reported using the Transportation Association of Canada (TAC) Bikeway Traffic Control Guidelines for Canada in their AT development, and over half reported using the TAC Geometric Design Guide. Some towns and villages also reported using these guides for design, but the majority did not report using any design guides.

Cities were also the most likely to monitor the usage of their AT networks, with 60% reporting using spot counts, and one reporting the use of a counting program. Some towns and villages reported

some monitoring on a case-by-case basis or through community feedback, but the majority do not formally monitor the usage of their AT networks. AT use was most likely to be promoted through local or municipal initiatives, rather than through national or provincial wellness campaigns, or health or education initiatives. While most of the responding communities did incorporate AT initiatives that were age-friendly, most did not use any age-friendly guide.

Perspectives of organizations supporting persons with a disability

A survey was sent to 14 organizations that support persons with a disability in New Brunswick, with responses received from 7 representatives. Respondents provided feedback on their observations with respect to how frequently AT accessibility issues are discussed with them by persons with a disability, which included the need for:

- Better winter maintenance
- Additional accessible pedestrian signals at traffic lights
- More or better marked crosswalks
- Addressing concerns with safety with other AT users
- Sufficient curb cuts/sidewalk ramps
- Sufficient pathway entrance width for mobility devices
- Availability of paved shoulders
- Addressing challenges with the physical terrain
- Additional accessible washrooms for AT users
- Accessible charging stations for mobility equipment
- Smoother, more stable trail surfaces
- Adequate street lighting
- Enhanced tactile paving at crossings

Future research involving AT use by persons with a disability could use this list as a starting point to eventually identify the prevalence and degree of the issues as experienced by individuals with a disability. The City of Fredericton trail system was highlighted by multiple respondents as a model or notable for accessibility.

Lessons from the case studies

A total of six case studies that represent the geographic and linguistic character of New Brunswick were completed, including three cities (Moncton, Saint John, Edmundston), one town (Saint-Quentin) and two villages (McAdam, Pacquetville). The case studies focused on AT infrastructure, policy and promotion initiatives. They were not intended as an exhaustive inventory of active transportation assets, rather they focused on generalized approaches and unique elements which may provide lessons for all New Brunswick municipalities.

Each profiled community had some type of AT branding unique to the community, whether it was Harbour Passage in Saint John (Figure 1), or the Saint-Quentin pedestrian walkway (Figure 2).



Figure 1: Saint John's "Harbour Passage"



Figure 2: Pedestrian walkway in Saint-Quentin

The largest communities tend to focus on AT in support of commuting, as well as recreation, while the smaller communities have embraced AT for recreation and safe access to schools. The largest communities have strategic plans that guide development, while the smaller communities have developed AT in response to community interest, or were citizen-led.

Community capacity to support AT in NB

This research also explored community capacity to support AT in New Brunswick. This is an important consideration because New Brunswick health and wellness goals incorporate elements of AT (such as walking to school), yet it is unclear whether such goals could be universally applicable among rural and urban areas due to differing jurisdictional roles and responsibilities with respect to AT.

New Brunswick is unlike other provinces, such as Nova Scotia or Ontario, because not all residents live in a municipality (whether city, county or regional municipality). A total of 35% of New

Brunswickers live in 266 provincially administered Local Service Districts, which were established in 1966 by the provincial government to facilitate the provision of local services and the collection of local taxes outside of municipalities (New Brunswick Department of Environment and Local Government, 2012). These 266 LSDs also include an additional 53 taxation subdistricts where groups of property owners receive (and are taxed for) additional services not desired or relevant to other property owners (*e.g.* streetlights, recreation). This brings total number of unincorporated taxation subdistricts in New Brunswick to 319. Only essential and citizen-approved services are eligible to be covered by local taxes in an LSD; however, “transportation services” are not considered “local” expenditures as they are in municipalities, so there is no mechanism to directly provide financial support for AT development in LSDs. Roads in LSDs are the responsibility of the Department of Transportation and Infrastructure, and AT is not part of their mandate.

The only possible mechanism LSDs have to indirectly support AT would be through grants to non-profit trail development groups through “Recreation and Community Services” funding, though if the service was not established for taxation in 1966, it would need to go to a community vote. Only 136 of 319 (43%) of all unincorporated taxation districts in New Brunswick had Recreation and Community Services budgets in 2012 (New Brunswick Department of Environment and Local Government, 2012).

AT infrastructure was explored at two urban and two rural schools in the Greater Fredericton Area. The purpose was to determine whether there may be a difference between the provision of AT infrastructure by jurisdiction, and lay the foundation for a broader research project in this area.

Both urban schools have provisions for dedicated pedestrian access to the schools, although cyclists are required to share the same entrance

as the school buses and automobiles if they wish to cycle to the school without dismounting. The two rural schools (both new construction) have no dedicated pedestrian or cycling access from the surrounding road network, requiring pedestrians and cyclists to use the same entrance as the school buses and vehicles to access the school (Figure 3).



Figure 3: Example of the lack of AT provisions at the entrance to a rural school

Conclusions

This research provided valuable information about the state of AT in New Brunswick and the opportunities and challenges with respect to meeting health and wellness goals with AT. In New Brunswick, AT as a choice for commuting is primarily, but not universally, an urban undertaking, with the highest AT commuting rate being observed in a small town. The lowest AT commuting rates are associated with communities that are outside but adjacent to cities, which are primarily residential areas that serve as “bedroom communities” for the cities.

The low survey response rate associated with smaller communities limits the broader conclusions that can be developed with respect to rural AT access, but may also be reflective of the level of involvement and interest in AT by jurisdiction size. The largest communities in the sample generally undertake a strategic approach to incorporating AT as part of a larger transportation plan, including local promotion initiatives. Smaller respondent municipalities tended to focus on the recreational aspects of AT. Sidewalks were reported to be the most universal AT infrastructure among responding municipalities, followed by walking trails, with the breadth of AT offerings increasing with community size. The case studies (which did not include any LSDs) also show a level of AT planning and development sophistication that is likely commensurate with community size. Each case study community had at least one notable AT initiative that was unique to their community.

The responding organizations speaking in support of persons with a disability highlighted not only the importance of having accessible AT infrastructure, but ensuring that infrastructure remains accessible year round and as travel surface condition deteriorates with age. Further research that engages individuals with a disability would assist in determining the degree and breadth of the issue.

New Brunswick's Wellness Strategy 2014-2021 highlights that a "culture of wellness" means New Brunswick will have "active transportation for all" (New Brunswick Department of Healthy and Inclusive Communities, 2014). Moving towards "active transportation for all" will require understanding and addressing the underlying issues resulting in 35% of New Brunswickers living in unincorporated communities that do not appear to have the necessary technical and financial mechanisms to see AT develop as a realistic travel choice. The organization of local governance in New Brunswick undoubtedly has and will continue to play a role in terms of community capacity to develop and foster AT.

Looking to the future, the provincial government of New Brunswick should consider becoming more involved in AT by developing additional resources for analysis (e.g., province wide inventory of AT initiatives; provincial geographic map layer of AT infrastructure; study of AT needs of persons with a disability) as well as collecting additional evidence to support policy-making (e.g., study of walking and cycle rates at New Brunswick schools, including an audit of AT routes to schools). Finally, New Brunswick should consider addressing the gaps in the responsibilities with respect to AT infrastructure provision in unincorporated areas and between urban and rural areas.

Acknowledgements

The authors wish to acknowledge the funding of the New Brunswick Health Research Foundation and the New Brunswick Department of Health and Inclusive Communities, and the efforts of participating staff members. The authors also wish to thank Tim Holyoke for his comments on the paper draft.

References

New Brunswick Department of Environment and Local Government. (2012). *Annual report of municipal statistics for New Brunswick – 2012*. Government of New Brunswick. Retrieved from <http://www2.gnb.ca/content/dam/gnb/Departments/lg-gl/pdf/MunicipalStatistics-StatistiquesMunicipales/2012.pdf>.

New Brunswick Department of Healthy and Inclusive Communities (2014). *New Brunswick's Wellness Strategy 2014-2021*. Government of New Brunswick. Retrieved from <http://www2.gnb.ca/content/dam/gnb/Departments/hic-csi/pdf/Wellness-MieuxEtre/NewBrunswickWellnessStrategy2014-2021.pdf>

New Brunswick Health Council. (2014). *“My community at a glance” community profiles*. Government of New Brunswick.

Statistics Canada. (2010). *Census metropolitan area and census agglomeration definitions*. Government of Canada.

Statistics Canada. (2011). *Mode of transportation (20), average commuting duration, commuting duration (7), time leaving for work (7), sex (3) and age groups (11) for the employed labour force aged 15 years and over having a usual place of work or no fixed workplace address, in private households of Canada, provinces, territories, census metropolitan areas and census agglomerations, 2011 national household survey*. Government of Canada.

Transport Canada. (2011). *Active Transportation in Canada: A resource and planning guide*. Ottawa, ON: Government of Canada.