



PED CONNECTIONS:
A Strategy for Sidewalk Infrastructure in Edmonton

Summary Report

2008



Stantec





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This document is the summary report for Ped Connections: A Strategy for Sidewalk Infrastructure in Edmonton (Sidewalk Strategy). It summarizes the information and recommendations resulting from the analysis included in *Ped Connections: A Strategy for Sidewalk Infrastructure in Edmonton - Technical Report*, under separate cover.

PED CONNECTIONS:
A Strategy for Sidewalk
Infrastructure in Edmonton
Summary Report

Though inanimate, sidewalks play a crucial role in animating our society, from basic transportation and accessibility to community cohesiveness and viability.

INTRODUCTION

CITIES AND SIDEWALKS

Like many utilitarian things, the city sidewalk suffers much of its existence in a state of anonymity as one of the physical structures in our communities that we mostly take for granted unless it is prominent by its absence or deteriorating condition. Yet the importance of sidewalks, and the pedestrians and other users they support, is clear to those who consider the preconditions of healthy, vibrant cityscapes.

Urban planner and architect Peter Calthorpe notes that “(t)hey create the place and time for casual encounters and the practical integration of diverse places and people.”¹ Writer and urban planning activist Jane Jacobs articulates three ‘uses’ of sidewalks (safety, contact, and assimilating children)² that speak to the breadth and extent of their role in cities. She notes that “sidewalks ... serve many purposes besides carrying pedestrians ... at least as basic as circulation to the proper workings of cities.”³

Though inanimate, sidewalks play a crucial role in animating our society, from basic transportation and accessibility to community cohesiveness and viability. Edmonton’s 1999 *Transportation Master Plan* recognized an element of this by highlighting the need for “construction of missing sidewalk links”⁴ as one of its specific recommendations. Similarly, Edmonton strives for Smart Choices that build “vibrant communities and a sustainable future”⁵, and identifies the walkable city as one of eight key initiatives.

Many of the everyday functions experienced in our Edmonton communities involve walking, much of which take place on sidewalks.

Pedestrians are the catalyst which makes the essential qualities of communities meaningful. – *The Next American Metropolis*, Peter Calthorpe, 1993.



1 *The Next American Metropolis*, Peter Calthorpe, 1993, p. 17.

2 *The Death and Life of Great American Cities*, Jane Jacobs, 1961.

3 *Ibid.*, p. 29.

4 *Transportation Master Plan*, City of Edmonton, 1999, p. 12.

5 *Smart Choices Information Brochure*, City of Edmonton, 2004, p. 1.



PROJECT PURPOSE AND OBJECTIVES

The purpose of Ped Connections: A Strategy for Sidewalk Infrastructure in Edmonton (Sidewalk Strategy) flows directly from the City of Edmonton's 1999 *Transportation Master Plan*, which requires the City to "(p)rovide (an) appropriate system of pedestrian facilities in developed and developing areas to enable well-integrated, safe, and convenient pedestrian accessibility to activities, amenities, and services (Strategic Goal A: Policy A-4)."⁶

An update of the 1999 *Transportation Master Plan* is currently underway, with direction that is consistent with the existing policy noted above. Key themes emerging from the update, entitled *Moving Edmonton*, include the need for the City of Edmonton to increase its sustainability with a goal of reducing reliance on single occupant vehicles. Additionally, the *Transportation Master Plan/Moving Edmonton* identifies having a transportation system which will support healthy, active lifestyles as an important priority. Encouraging walking and active transportation and improving these networks will be a key strategy in achieving these objectives.

Ped Connections: A Strategy for Sidewalk Infrastructure in Edmonton (Sidewalk Strategy) also addresses a specific goal of the *Smart Choices* initiative: "The City will look at areas where sidewalks or pathways are missing or deteriorated, and develop financing strategies to upgrade these areas. Making new communities walkable will also be considered."⁷

The primary objectives of Ped Connections: A Strategy for Sidewalk Infrastructure in Edmonton (Sidewalk Strategy), as outlined in its Terms of Reference, can be summarized as follows:

- Consolidate a strategic direction for the sidewalk system in Edmonton toward improvements in walkability and active transportation
- Identify deficiencies in the sidewalk system and develop an approach to prioritization and funding

SCOPE AND APPROACH

The scope of Ped Connections: A Strategy for Sidewalk Infrastructure in Edmonton (Sidewalk Strategy) addresses sidewalks and related infrastructure and amenities, primarily within road right-of-way, in support of non-motorized modes for a complete range of users and activities, plus related processes for management, maintenance, and enhancement.

⁶ *Transportation Master Plan, City of Edmonton, 1999, p. 37.*

⁷ *Smart Choices Information Brochure, City of Edmonton, 2004, p. 1.*

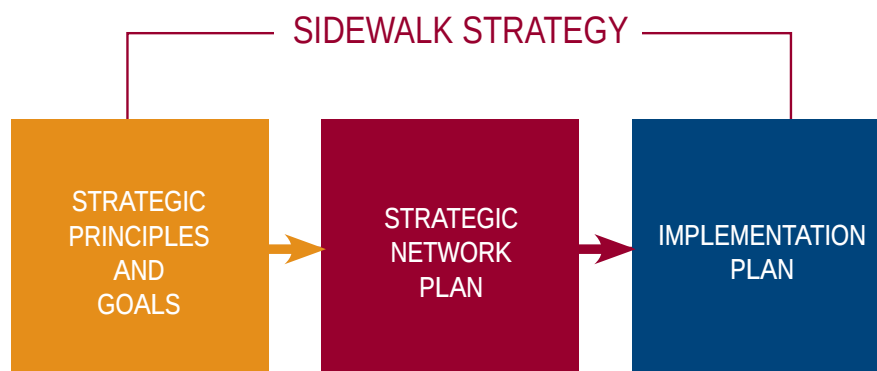
In order to move effectively toward improving conditions for pedestrian transportation in Edmonton, three distinct elements were identified, which together comprise the approach for Ped Connections: A Strategy for Sidewalk Infrastructure in Edmonton (Sidewalk Strategy):

- **Strategic Principles and Criteria** – crystallizing the ‘big picture’ guiding principles to provide a foundation for determining needs and priorities
- **Strategic Network Plan** – representing the desired framework for prioritizing pedestrian facility improvements that should be targeted with available resources
- **Implementation Plan** – creating the action plan for short- and medium-term progress toward the strategic plan

Sidewalks ... serve many purposes besides carrying pedestrians ... at least as basic as circulation to the proper workings of cities. – *The Death and Life of Great American Cities*, Jane Jacobs, 1961.

These elements are illustrated schematically in Figure 1. Ped Connections: A Strategy for Sidewalk Infrastructure in Edmonton (Sidewalk Strategy) also included an extensive public and stakeholder consultation process, including the preparation of a Public Involvement Plan that was written and followed in accordance with *City Policy C513*.

Figure 1: Sidewalk Strategy Approach



GOALS AND PRINCIPLES

Through the public and stakeholder consultations, the following overall goal of the Sidewalk Strategy was defined:

Increase the priority of walkability in Edmonton by maximizing opportunities for walking and enhancing safety, convenience, and strategic improvements and expansions of the sidewalk system, thereby promoting a healthy and sustainable community.

To achieve the defined goal, eight principles were established by administration, stakeholders, and the public to guide the planning, development, and improvement of Edmonton's sidewalk system:

- Design the sidewalk system to be safe and barrier free
- Develop the sidewalk system to be suitable for all ages
- Promote stewardship of the sidewalk system
- Plan the sidewalk system to connect origins and destinations
- Promote sidewalks as social, cultural, and aesthetic space
- Sustain funding for maintenance and expansion of the sidewalk system
- Customize the sidewalk system to varying contexts, needs, and natural conditions
- Plan the sidewalk system for winter conditions

The preceding principles were used to develop the Sidewalk Strategy deficiency prioritization method and also in the development of policy recommendations.

CURRENT STATE OF THE SIDEWALK SYSTEM

PEDESTRIAN TRAVEL PATTERNS

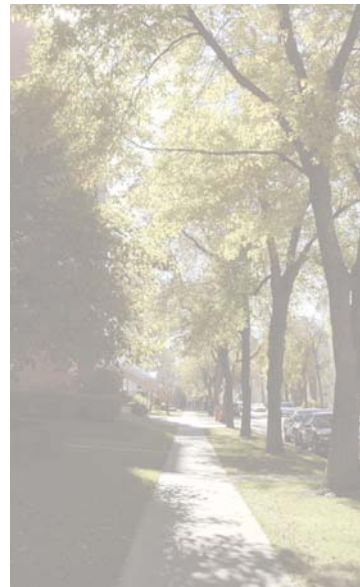
From the 2005 Edmonton *Household Travel Survey*⁸, pedestrian trips account for 11% of all weekday trips, with higher mode share percentages for elementary and post-secondary students. In addition to these primary mode pedestrian trips, a pedestrian component exists for every other primary transportation mode – an automobile driver or passenger has to walk to and from the car, a transit passenger has to walk to and from the transit stop, and a cyclist has to walk to and from the bicycle parking. These additional pedestrian trip components are not reported in the *Household Travel Survey*.

Based on the Household Travel Survey data, the highest numbers of pedestrian trips occur in Edmonton's central business district and university areas, each generating about 12% of Edmonton's total pedestrian trips. Throughout Edmonton, the proportion of pedestrian trips that are made for social or recreational purposes ranges from 10% to 40% for employed individuals and as high as 40% to 70% for retirees depending on the location of their residence.

Walking trip distances average around 1 km, with 92% less than 2 km. This confirms that the vast majority of pedestrian trips in Edmonton occur at the neighbourhood level – walking for pleasure, shopping, and, in some neighbourhoods, to and from work.

EXISTING PEDESTRIAN NETWORK

To accommodate this pedestrian travel, the City of Edmonton has an extensive pedestrian network consisting primarily of sidewalks, walkways, multi-use trails (both within road right-of-way and in off-road corridors), and river valley and parkland trails. Other elements of the network traversed by pedestrians include curb ramps, stairs, overpasses/underpasses, pedestrian crossings (marked/unmarked crosswalks, pedestrian-actuated signals/amber flashers), and bus stop pad connections.



⁸ Edmonton Household Travel Survey, City of Edmonton, 2005



As of 2007, Edmonton has approximately 4,400 km of sidewalk along roadsides, which translates to about 55% sidewalk coverage (where 100% would represent sidewalks present on both sides of every road other than freeways/highways). This total includes about 100 km of wide sidewalk designated as multi-use trail, but does not account for sidewalks in walkways that connect neighbourhoods and culs-de-sac to the street sidewalk system. There are about 30 km of paved multi-use trail in rail and utility corridors throughout the city, and about 135 km of paved multi-use trail in the river valley and parkland (plus many kilometres of unpaved trails and paths in the river valley and parkland).

The City of Edmonton maintains and organizes an inventory of Edmonton's existing sidewalks in a geographic information system (GIS). The GIS inventory indicates that about 3,670 km of sidewalks are physically absent along roadways, which translates to 45% of all potential sidewalks. These absent sidewalks are not evenly distributed along Edmonton's streets – almost 50% of the absent sidewalks are along arterial roads, about 35% along collector roads, and about 15% along local roads. In addition, there are approximately 10,000 absent curb ramps along Edmonton's existing sidewalks, which limit the accessibility of the existing sidewalk network.

ABSENT VS. MISSING SIDEWALKS

However, having a physically absent sidewalk does not necessarily indicate that citizens have a particular desire to have it constructed or that it would be used if it were constructed. At the same time, having a physically present sidewalk does not necessarily mean it is functionally adequate. The physical condition of a sidewalk could be such that it renders the sidewalk virtually absent. In other cases, potential pooling of water may render a sidewalk impassable or hazardous during spring freeze/thaw cycles.

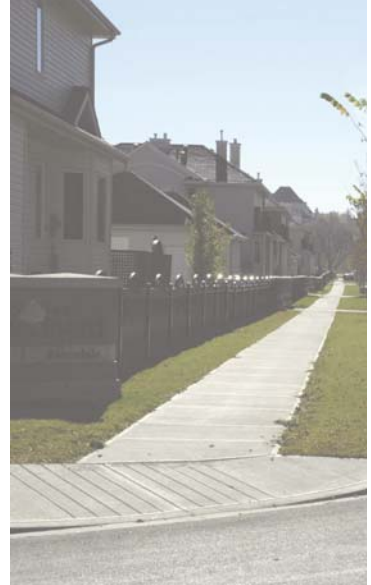
In order to focus the Sidewalk Strategy on where absent sidewalk facilities are actually missed by users, the general public and community-based groups were engaged to help identify sidewalks in their neighbourhoods that are truly missing – those that would provide valuable links to land uses/destinations and those valuable links that exist but are in poor condition. All of the input received was incorporated into GIS, consistent with the City of Edmonton GIS environment, where the pertinent deficiency information was stored and analyzed.

In total, almost 500 blocks of sidewalk deficiencies and approximately 200 curb ramps (in addition to those needed at locations of missing sidewalks) were identified in about 120 neighbourhood areas of Edmonton. In total, 105 km of sidewalk needs were identified of which 87 km are physically absent. Based on the data available in the City's GIS, this represents about 2.5% of all the physically absent sidewalk infrastructure in Edmonton.

In addition to the public and community input, Edmonton Transit provided a list of approximately 1,700 bus stops throughout Edmonton that are considered 'isolated' (i.e. not adequately connected with hard-surfaced links to the Edmonton sidewalk system). This missing sidewalk-related infrastructure was also incorporated into the Sidewalk Strategy.

HOW DID WE GET HERE?

Numerous practices exist to promote and establish walking and pedestrian activity to support social equity, recreation, health, good urban form, and sustainable modes of transportation. Some of the elements that promote pedestrian activity include *Plan Edmonton/Focus Edmonton*, the *Transportation Master Plan/Moving Edmonton*, the project charter of the *Walkable Edmonton Strategy*, *Smart Choices*, the *Integrated Service Strategy*, *Great Neighbourhoods* and the *Urban Parks Management Plan*. The current update to the City's *Transportation Master Plan* will re-confirm commitment to and support of non-motorized modes. There are also a number of City bylaws and standards that dictate the provision, maintenance, and use of sidewalks including *Zoning Bylaw #12800*, the *City of Edmonton Design and Construction Standards*, and *Traffic Bylaw #5590*. Many of these supportive elements have changed over time and have partly contributed to the current state of Edmonton's sidewalk system.



To understand how the state of practice has changed over the past few decades and the potential impacts that historic practices may have had on the sidewalk system, several area structure plans (ASPs) and neighbourhood structure plans (NSPs) from the past three decades were reviewed and compared to identify differences in these plans with respect to planning the locations of sidewalks, neighbourhood walkability, and pedestrian/transit-oriented design concepts. NSPs and ASPs from the early 1980s include little comment on walkability, pedestrian facilities, or sidewalks. Later in the 1980s and into the 1990s, more concerted analysis and consideration of pedestrian facilities, circulation, and walkability were included in these plans. Discussion included concepts such as pedestrian precincts and providing safe and functional linkages as part of a pedestrian circulation system.

More recently, strategic documents such as *Smart Choices*, *Plan Edmonton/Focus Edmonton*, and the *Multi-use Trail Corridor Study* have been developed. There has also been an increase in public, political, and professional awareness of the importance of alternative commuter modes as well as increases in the public desire for recreational pedestrian facilities. Consequently, ASPs and NSPs include concepts such as pedestrian-friendly environments, principles of walkability, pedestrian connectivity, minimizing walking distances, and pedestrian, bicycle, and multi-use trail circulation.

It is evident that as public desire for pedestrian-friendly facilities has increased, greater effort has been exerted to plan and design facilities to provide safe, efficient, integrated, and convenient pedestrian facilities for new neighbourhoods. However, the reduced level of importance that historic planning practices have placed on pedestrian infrastructure has clearly impacted Edmonton's older neighbourhoods and the extent of the existing sidewalk network in these areas.

PROVIDING MISSING SIDEWALKS

INTRODUCTION AND ASSUMPTIONS

A number of scenarios were evaluated addressing current reported backlog of missing sidewalk infrastructure in Edmonton and anticipated future requests over the next 20 years. Significantly, the input received and a supplemental GIS analysis indicate that there are substantial differences in the extent of sidewalk deficiencies when comparing Residential & Commercial Areas to Industrial Areas. Whereas most of Edmonton, defined as the Residential & Commercial Areas, has gaps in the sidewalk network, Edmonton's Industrial Areas are essentially starting from scratch. Therefore, the prioritization, funding, and implementation of the Sidewalk Strategy have been addressed as two separate components – (1) Residential & Commercial Areas, and (2) Industrial Areas.

Sidewalk Standard

Each funding scenario evaluated for the Sidewalk Strategy established a distinct sidewalk standard for the City of Edmonton. A sidewalk standard defines the priority locations for which sidewalks and related infrastructure would be provided. It also identifies the extent to which missing or deteriorating sidewalks would be addressed by the City's budgeting and construction programs on an ongoing basis. Separate sidewalk standards are defined for the Residential & Commercial Areas and the Industrial Areas.



Assumptions

Based on 2007 unit rates from recent Edmonton projects, the unit costs below were used to approximate the costs of addressing the identified deficiencies. All sidewalks were assumed to be 1.5 m in width. It should be noted that these are construction industry costs, not City of Edmonton construction costs. These costs assume that deficiencies would be addressed in a coordinated manner by grouping them into projects to provide economies of scale. All costs and funding scenarios also assume that adequate right-of-way exists and that major relocation of landscaping or utilities is not required. No discounting or net present value calculations have been included.

- Sidewalk construction: \$240/m
- Sidewalk major repair: \$550/m
- Sidewalk minor repair: \$200/m
- Curb ramp installation: \$7,200/curb ramp
- Lighting: \$6,000/light standard

For all the discussion included herein, these additional assumptions have been made:

- Existing sidewalks requiring maintenance and repair will be funded and addressed by Roadway Maintenance as is the current practice. The funds required to complete this work are not included in the estimated costs of the sidewalk standards
- Funding required for multi-use trails as identified in the 2002 Council-approved Multi-Use Trail Corridor Study are not included in the cost estimates. These projects require additional funding
- The total funds required do not account for work completed through the City of Edmonton Neighbourhood Renewal or Local Improvement programs

RESIDENTIAL & COMMERCIAL AREA SIDEWALKS

Residential & Commercial Areas are areas of Edmonton not located within the designated Industrial Areas illustrated in Exhibit 1 on page 19.

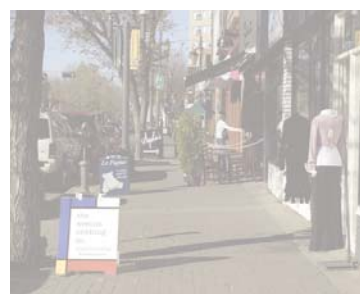
Evaluation Approach

The reported deficiencies in Residential & Commercial Areas were evaluated to determine which sidewalks should be defined as being the priority for the City with each deficiency classified by its urgency and importance.

Evaluating each deficiency based on its urgency (i.e. how severe the deficiency is) and importance (i.e. the context the deficiency is found in) allows the deficiencies to be organized in a way similar to that illustrated in Figure 2. In more general terms, urgency deals with the experience of the individual pedestrian in terms of how badly the deficiency impacts that person's mobility and safety. Importance deals with the pedestrian experience collectively in terms of the impacts that providing a missing sidewalk link will have on the connectivity of the overall pedestrian network.

Figure 2: Sidewalk Prioritization Concept

Urgency = Severity (physical condition, accessibility, etc.)	Importance = Context (connections, potential use, etc.)	
	High Urgency/ High Importance	High Urgency/ Low Importance
	Low Urgency/ High Importance	Low Urgency/ Low Importance



Using the urgency and importance definitions, prioritization of the reported deficiencies can be systematically addressed by spending the most effort on high urgency - high importance items and then working down and across towards less urgent and less important items. To apply this prioritization method to the Residential & Commercial Areas, relative definitions for severity/urgency and context/importance are required.

Deficiency Severity

The severity of a sidewalk system deficiency was evaluated on the basis of user safety and accessibility as defined below, with Severity A representing the highest severity. Deficiencies for curb ramps and isolated bus stops affect different dimensions of pedestrian travel, but both relate to accessibility and thus were grouped together as a common severity.

- A. **Existing sidewalks in poor condition:** Limits basic access due to the physical condition of the sidewalk and poses potential safety and liability questions. The deficient infrastructure would require major repair. Poor condition sidewalks are defined as those with visual condition indices of 2.9 or less as evaluated by the current City of Edmonton sidewalk inspection guidelines. These would include, for example, cracks greater than 10 mm, vertical distortions of 20 mm or greater, and reverse cross-falls of greater than 5%. This type of major repair is typically completed by and with funding from Roadway Maintenance.
- B. **Sidewalks missing along both sides of roadway:** No sidewalks along either side of the road. Sidewalks and curb ramps would be constructed on one side initially to provide a basic level of access for users.
- C1. **Missing curb ramps:** No curb ramps are present along an existing sidewalk. Curb ramps would be installed to provide access for the full range of users.
- C2. **Isolated bus stops:** Bus stops lacking sidewalk and/or curb ramp connections. Sidewalks and/or curb ramps would be constructed to provide transit stop facility access for the full range of users.
- D. **Sidewalks missing along one side of roadway:** No sidewalk along one side of the road. The sidewalk and curb ramps would be constructed to provide comprehensive access for all users.
- E. **Existing sidewalks in fair or better condition:** Requires general maintenance, minor repairs, or other improvements to the sidewalk system (such as amenities). The existing sidewalks have a visual condition index of 3.0 or better. This type of minor repair and maintenance is typically completed by and with funding from Roadway Maintenance.

Deficiency Context

The context for each sidewalk or curb ramp deficiency was defined based on how it relates to three general considerations. A higher number of relevant characteristics for a particular deficiency translated into a higher context rating (i.e. higher importance).

- **Pedestrian generator characteristics** – proximity to land uses where large numbers of pedestrians are present as well as the presence of vulnerable pedestrians (e.g. children, seniors)
- **Connection characteristics** – connectivity to Edmonton’s transit system and recreational trails
- **Exposure characteristics** – adjacent roadway type and purpose

Context rating for sidewalks and curb ramps was evaluated based on yes/no questions pertaining to the three characteristics above. A yes answer counted as one point. For example, a yes answer to ‘is the missing sidewalk or curb ramp located along a transit route or 800 m from a transit centre?’ would count as one context point.

The context for isolated bus stops is based on how many buses serve the bus stop on a daily basis, which provides a proxy for the magnitude of pedestrian activity at the stop. The greater the number of daily buses, the higher the context rating, and the greater the importance of connecting the isolated bus stop.

Based on the context evaluation, the following context scores translate into the four context ratings incorporated in the Residential & Commercial Areas sidewalk deficiency evaluation.

Figure 3: Deficiency Context Rating

Context Rating	Sidewalk and Curb Ramp Context Characteristic Score	Isolated Bus Stop Number of Daily Buses
Context A	5 to 7	more than 180
Context B	4	101 to 180
Context C	2 to 3	61 to 100
Context D	0 to 1	60 or less



Summary of Deficiencies

In total, 87 km of physically absent sidewalks were reported with an additional 18 km of existing sidewalk deficiencies that require some level of repair. Requests for construction of about 200 curb ramps were received. There were also 1,702 isolated bus stops reported by ETS.

In addition to the existing inventory of deficiencies, additional deficiencies will be reported over the 20 year implementation of the Sidewalk Strategy. These must also be incorporated into the inventory in order to more accurately reflect Edmonton's ongoing sidewalk improvement needs. The number of annually reported deficiencies was assumed to be 10% of the existing inventory. The distribution of the additional reported deficiencies in terms of severity and context was assumed to be consistent with the initial inventory of deficiencies described above. The only exception where additional future reported deficiencies have not been assumed is for isolated bus stops because the list provided by ETS is the entire set of deficiencies of that nature.

Figure 4 summarizes the breakdown of context and severity for the existing and future reported deficiencies by their magnitude (i.e. length of deficient sidewalk, number of missing curb ramps, and number of isolated bus stops).

Figure 4: Deficiency Summary: Length/Number of Reported Deficiencies
(20 Year Accumulation Included)

Severity Code	Severity	Context				Total
		A	B	C	D	
A	Poor condition existing sidewalks	3 km	5 km	1 km	< 1 km	10 km
B	Sidewalks missing on both sides	22 km	53 km	114 km	21 km	210 km
C.1	Missing curb ramps	102	192	183	102	579
C.2	Isolated bus stops	14	59	137	1,492	1,702
D	Sidewalks missing on one side	8 km	7 km	17 km	19 km	51 km
E	Existing sidewalks in fair or better condition	16 km	20 km	7 km	2 km	45 km

Figure 5 summarizes the costs required to address the existing and anticipated future reported deficiencies over a period of 20 years. Of the total costs summarized in Figure 5, one third will address the current backlog of reported deficiencies and two thirds are required to address the future deficiencies that are anticipated to be reported over the next 20 years (except for isolated bus stops).

Figure 5: Deficiency Summary: Cost (in \$1,000,000s, 20 Year Accumulation Included)

Severity Code	Severity	Context				Total
		A	B	C	D	
A	Poor condition existing sidewalks	\$1.8	\$2.7	\$0.3	\$0.3	\$5.1
B	Sidewalks missing on both sides	\$7.2	\$16.2	\$30.6	\$6.6	\$60.6
C.1	Missing curb ramps	\$0.6	\$1.5	\$1.2	\$0.6	\$3.9
C.2	Isolated bus stops	\$0.1	\$0.6	\$1.6	\$15.0	\$17.3
D	Sidewalks missing on one side	\$1.8	\$2.1	\$5.4	\$6.6	\$15.9
E	Existing sidewalks in fair or better condition	\$3.0	\$3.9	\$0.6	\$0.3	\$7.8
	Total	\$14.5	\$27.0	\$39.7	\$29.4	\$110.6

Recommendations

Numerous sidewalk standards and funding requirement scenarios were considered to address the Residential & Commercial Area sidewalk deficiencies (see the Technical Report for further details). For every scenario considered, the first 10 years require a capital investment to address the current backlog of reported deficiencies as well as the ongoing annually reported deficiencies defined by the sidewalk standard. The following 10 years require a sustained investment to maintain that sidewalk standard by addressing the annually reported deficiencies encompassed in it. In this way, the funding scenarios represent sustainable models.



Existing Funding

The Capital Budget for the Transportation Department includes the following dedicated annual sidewalk-related funding, totaling \$2 million annually (values are approximate and rounded) and representing approximately 0.2% of the City of Edmonton Capital Budget and 1% of the Transportation Department Capital Budget.

- \$1.4 million for sidewalks (or multi-use trails)
- \$0.5 million for curb ramps
- \$0.1 million for connecting isolated bus stops

Since implementation of the *Multi-Use Trail Corridor Study*, which began in 2002, the funding previously allocated to sidewalks has been used for both sidewalks and multi-use trails. Additional funding for multi-use trails has been directed through separate capital programs, but these funds have not been consistent on an annual basis.

In addition to the above funding, sidewalk-related improvements are also addressed through Neighbourhood Renewal and Roadway Maintenance projects as well as one-off capital investment projects (e.g. the 105 Avenue Multi-Use Trail first stage, for which a projected budget of \$6 million was defined). The Neighbourhood Renewal program has not historically addressed physically absent sidewalks in a neighbourhood, typically only addressing deficiencies in the existing infrastructure, including connecting isolated bus stops and installing missing curb ramps. Based on 2007 funding, Roadway Maintenance annually directs \$3.5 million to the repair of concrete sidewalks.

Recommended Sidewalk Standard

The recommended Residential & Commercial Areas sidewalk standard for providing missing sidewalks, curb ramps, and isolated bus stops is based on striking a balance between context and severity as presented in Figure 6. The substantial sidewalk advancements in the recommended sidewalk standard, as compared to what can be achieved with existing funding, are shown in the figure.

The sidewalk standard presented in Figure 6 is the Recommended Residential & Commercial Areas sidewalk standard for the following reasons:

- Achieves a balance between pedestrian demand and user accessibility/safety.
- Provides a base level of pedestrian infrastructure along all roads (constructing missing sidewalks along at least one side where missing on both), supports areas and land uses that generate high pedestrian use, and provides universal accessibility to most areas of the city except those with relatively low pedestrian use.

- Refocuses the sidewalk budget on providing sidewalks instead of sidewalks and multi-use trails.
- Establishes a substantially improved sidewalk standard as compared to what can be achieved with existing funding.
- Establishes a significant but practical increase in annual sidewalk funding – \$2.7 million per year for the first 10 years, then reverting to sustained funding in the subsequent 10 years, which is only \$0.3 million higher than existing levels.

Sidewalk deficiencies that are outside of the Recommended Residential & Commercial Areas sidewalk standard can be funded through other existing funding mechanisms, such as Local Improvements, or through alternative funding strategies that could be implemented as part of the Sidewalk Strategy.

Figure 6: Recommended Residential & Commercial Areas Sidewalk Standard

Severity Code	Severity Description	Context			
		A	B	C	D
A	Poor condition existing sidewalks				
B	Sidewalks missing on both sides				
C.1	Missing curb ramps				
C.2	Isolated bus stops				
D	Sidewalks missing on one side				
E	Existing sidewalks in fair or better condition				

Total Funded over 20 years ~ \$70 million			\$4.7 million per year for first 10 years	\$2.3 million per year for next 10 years
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Legend	
	Existing Funds
	Additional Funds
	Roadway Maintenance – Existing Funds Scenario
	Roadway Maintenance – Additional Funds Scenario



INDUSTRIAL AREA SIDEWALKS

The sidewalk prioritization system used for the Residential & Commercial Areas is mainly focused on addressing areas of Edmonton where gaps in the existing sidewalk or related infrastructure are identified. In the case of Industrial Areas, the gaps are far more significant. Whereas about 40% of all potential sidewalks in existing Residential & Commercial Areas are absent, approximately 90% of potential sidewalks are absent for the Industrial Areas illustrated in Exhibit 1. Rather than prioritizing missing gaps in the sidewalk system, the Industrial Areas are more in need of building basic pedestrian infrastructure where sidewalks essentially do not exist. The current magnitude of absent sidewalks in Industrial Areas is a result of standards that have not historically required the construction of sidewalks in these areas as a condition of development.

Due to the extent of the deficiencies in Industrial Areas, a separate funding and implementation program is more appropriate and will help ensure the availability of a basic level of pedestrian infrastructure for citizens accessing these areas.

Evaluation Approach

The sidewalk standard for the Industrial Areas illustrated in Exhibit 1 was defined to provide a basic level of pedestrian accessibility and connectivity based on a GIS analysis of absent sidewalks. Characteristics similar to the ones used for the evaluation of missing sidewalks in Residential & Commercial Areas were used to evaluate the urgency and importance of absent sidewalks in Industrial Areas. Evaluation criteria included pedestrian use, connection, and exposure characteristics.

[illegible]

Summary of Deficiencies

Absent sidewalks in the defined Industrial Areas were tabulated with regard to transit service and the designation of the adjacent roadway (i.e. arterial, collector, or local) based on the City's GIS data. The percentage of absent sidewalks is fairly consistent across all Industrial Areas, with typically over 80% absent along all roadway types. A total of about 400 km of absent sidewalk is located along arterial roads, 150 km along collector roads, and 360 km along local roads.

When considering absent sidewalks that would provide access to transit routes, there is a greater range in the percent absent across the various Industrial Areas. This results from a number of factors including the location of the Industrial Areas, the extent of integration with the adjacent neighbourhoods/areas, and the varying level of transit service provided in each Industrial Area. In total, approximately 260 km of sidewalk is absent along transit routes in industrial areas.

Costs were attributed to the sidewalk deficiencies in Industrial Areas by applying the same unit costs as used for the rest of the sidewalk prioritization system. Approximately \$265 million would be required to construct sidewalks along all Industrial Area roads. Conversely, only \$76 million is required to construct sidewalks along transit routes in Industrial Areas.

Recommendations

Industrial Areas tend to have limited proximity to residential land uses, meaning that most trips to Industrial Areas are typically by a motorized mode – personal vehicle or public transit. The Industrial Areas have adequate vehicle access and roadway facilities, and are typically adequately served by transit during peak periods. However, transit users must traverse the collector and arterial road network as pedestrians from the transit stop to their place of employment.

To provide transit users with adequate and safe facilities during the pedestrian ends of their trips, sidewalks should be provided along the transit routes, at a minimum, to better separate pedestrians from the higher volumes of heavy vehicles and general traffic along these roads (as compared to the local roads). In addition, providing facilities along transit routes accommodates transit users with mobility aids that require an appropriate loading surface to board or alight from transit vehicles.

Based on the travel characteristics of the Industrial Areas and to encourage transit use by workers in these areas, the initial priority in Edmonton's Industrial Areas should be to provide sidewalks along all transit routes. As noted previously, this would require approximately \$76 million, which could be contributed over a 10 or 20 year period and is in addition to funds for the Residential & Commercial Areas and multi-use trail corridors.

For future industrial developments within the Industrial Areas, sidewalk infrastructure should be constructed consistent with the objective of providing sidewalk infrastructure to support the transit network.

IMPLEMENTATION

Residential & Commercial Areas

The extent of the work program for Residential & Commercial Areas is based on the recommended sidewalk standard (i.e. the priority locations for providing sidewalks and related infrastructure). The implementation of the recommended work program will require the definition of projects using GIS to group individual deficiencies based on geographic proximity to help minimize costs. In some cases, the grouping of prioritized deficiencies to achieve preferential costs may not be possible. In these instances, deficiencies that fall outside of the Residential & Commercial Areas sidewalk standard may be incorporated to achieve preferential unit costs.

Residential & Commercial Area projects should be identified for a five year period based on the deficiency inventory at that time, at which point detailed design can be initiated. This allows coordination with other projects, such as roadway improvements, to further minimize costs. The project list should be reviewed prior to each tender period to include any additional deficiencies that have been identified since the list was originally generated.

Neighbourhood Renewal and corridor improvement projects should be coordinated with the Residential & Commercial Areas work program. The project scope for Neighbourhood Renewal and corridor improvement projects should address sidewalk infrastructure deficiencies within the adopted sidewalk standard.



Industrial Areas

The total extent of sidewalk deficiencies in Industrial Areas is fully defined (unlike the deficiencies in Residential & Commercial Areas). Therefore, pedestrian improvement projects for Industrial Areas can be compiled into a list of priorities. Consultation with representative stakeholders from the Industrial Areas consistent with the City of Edmonton's current practice would assist in determining a prioritized project list. These projects should also be coordinated with corridor improvement projects, if possible and appropriate, to achieve cost efficiencies.

The implementation of sidewalk improvements in Industrial Areas will be affected by cross-section and right-of-way issues, particularly the rural cross-sections that exist in some Industrial Areas. Further detailed investigation and evaluation is required to improve cost projections for completing the Industrial Area sidewalk improvements.

Costs

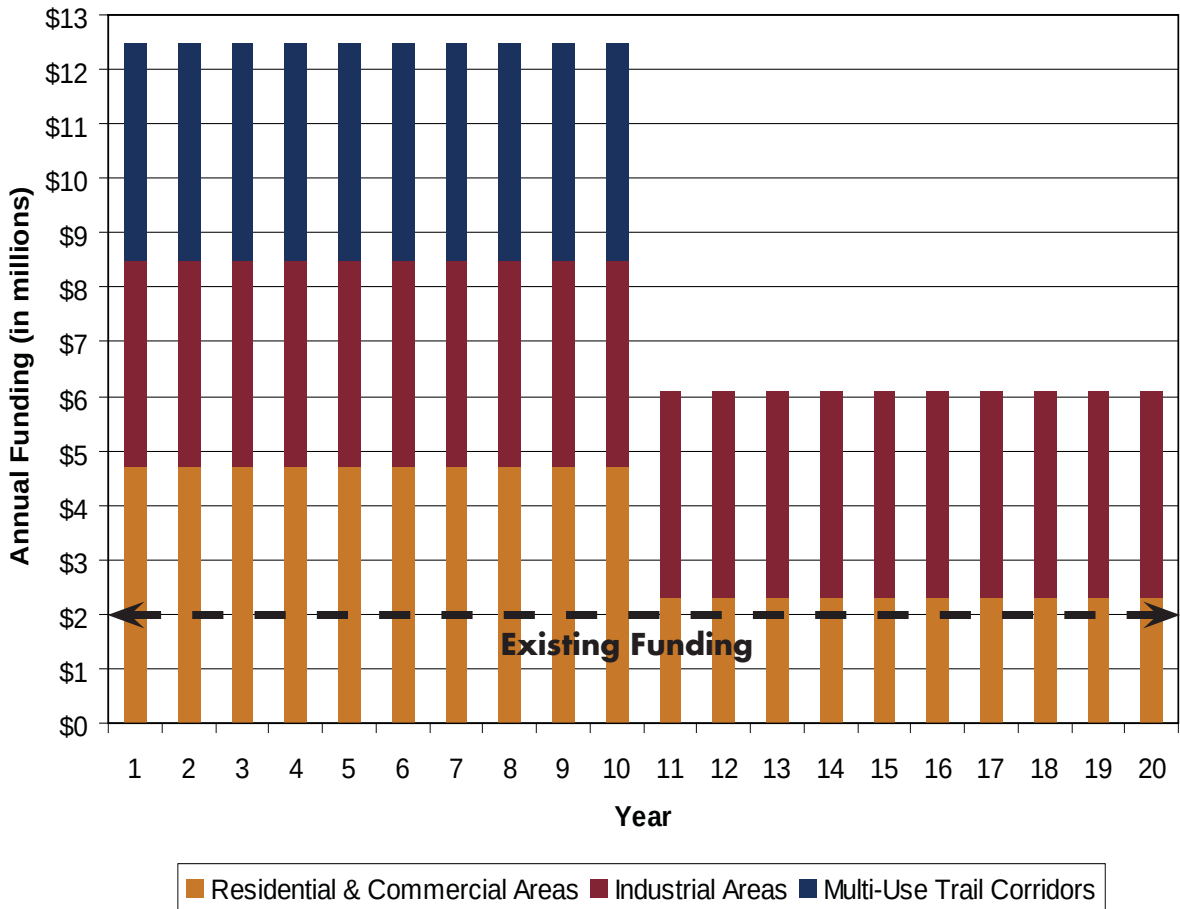
Figure 7 summarizes the total amount of annual funding required to address Edmonton's pedestrian network deficiencies for the recommended sidewalk standards as well as the financial impacts on maintenance expenditures resulting from the expanding pedestrian network. Funds required to complete the remaining 40 km of multi-use trail corridors identified in the Multi-Use Trail Corridor Study are also included.

Figure 7: Annual Implementation Costs (in 2007 dollars)

	Years 1 to 10	Years 11 to 20
Residential & Commercial Areas	\$4.7 million	\$2.3 million
Industrial Areas	\$3.8 million	
Multi-Use Trail Corridors	\$4.0 million	—
Maintenance	\$3.5 million annually (existing funding) + approximately \$0.3 million in additional annual funding by Year 10 and \$0.4 million annually by Year 20	

Figure 8 illustrates the implementation plan for the Sidewalk Strategy defined in Figure 7 and provides a reference comparison to existing funding levels. The Residential & Commercial Area sidewalks are addressed on an ongoing basis with the current backlog completed within 10 years and sustained funding for the subsequent 10 years. The Industrial Area sidewalks should be addressed over 20 years due to the magnitude of the project as well as cost considerations related to the availability of construction crews. Investment in the remainder of the multi-use trail corridors should be completed within the first 10 years. The maintenance impact of the expanding network is not illustrated in Figure 8 as the additional maintenance and repair funding requirements should be reviewed in more detail.

Figure 8: Implementation Plan



If funding were allocated as per Figure 8, funding for pedestrian infrastructure would have to increase to about \$12.5 million per year for the first 10 years. In the subsequent 10 years, funding of pedestrian infrastructure would decrease to approximately \$6.1 million annually, since the backlog of Residential & Commercial Area sidewalk deficiencies would be addressed and the multi-use trail corridors would be completed. The recommendations for the implementation of the Residential & Commercial Areas and Industrial Areas sidewalk standards will expand the sidewalk system by over 11% and improve existing sidewalk conditions.

POLICY CONSIDERATIONS

SIDEWALKS ON ONE OR BOTH SIDES OF ROADS

Background

Planning initiatives in Edmonton such as *Plan Edmonton/Focus Edmonton*, *Smart Choices*, *Great Neighbourhoods*, *Walkable Edmonton*, and *Edmonton's Downtown Plan* all address various aspects of the planning and development process and implementation. Each has identified walkability as a key feature to Edmonton's existing and planned built-form and should be considered to support a coordinated approach to implementing the Sidewalk Strategy.

These Edmonton-based planning initiatives incorporate concepts consistent with principles for creating a functional community included in the New Urbanism school namely walkability and connectivity. In New Urbanist and similar environments, "most things (are) within a ten-minute walk of home and work" and an "interconnected street grid network disperses traffic & eases walking.... (A) high quality pedestrian network and public realm makes walking pleasurable."⁹

The concepts of walkability and connectivity appear in many plans throughout the world, but are being promoted in different ways. In Edmonton-based plans, promotion of walkability and pedestrian use is primarily accomplished by providing dedicated pedestrian infrastructure to separate pedestrian travel and activity from vehicular traffic thereby increasing pedestrian comfort and safety. Conversely, in some New Urbanist suburban developments, sidewalks are completely absent, based on the assertion that the absence of pedestrian-specific infrastructure facilitates free-flowing movement of pedestrians without constraining them through provision of a dedicated pedestrian precinct.¹⁰

⁹ Retrieved: <http://www.newurbanism.org/newurbanism/principles.html>. Accessed November 30, 2007.

¹⁰ Retrieved: http://www.hopfensperger.co.uk/Docs/Shared Space/Newsletter_1.pdf. Accessed January 16, 2008.

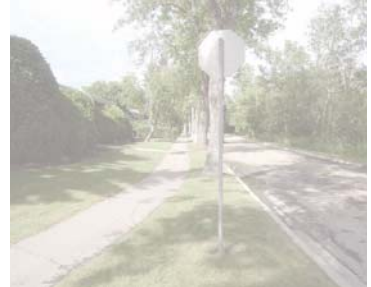
Discussion and Recommendations

When evaluating the need for sidewalks on one versus both sides, it is important to consider the context of a road corridor. Key factors include adjacent land uses and pedestrian generation, intermediate pedestrian connection points, the speed and volume of road traffic, and the presence of transit routes/stops.

On the one hand, the speed and volume of traffic on local roads is generally lower (though this is not always the case) and transit generally does not travel or stop along local roads. On the other hand, local roads are by definition surrounded by activities and land uses that are potential or actual generators of pedestrian traffic. Furthermore, every lot fronting onto a local road is effectively an intermediate pedestrian access point onto the road/sidewalk system. As such, the default practice should be to provide sidewalks on both sides of local roads. However, there are circumstances such as a local road with a pocket-park on one side where providing a sidewalk on the park side may not be necessary.

For collector roads, generally the presence of transit routes/stops for buses traveling in both directions is a key factor that supports the need for sidewalks on both sides. In addition, collectors often form the basis of the neighbourhood street system, which is consistent with typical distances residents are willing to walk. As such, the default practice should be to provide sidewalks on both sides of collector roads.

For arterial roads, based on their high volumes and speeds, it is important to have a sidewalk on at least one side to provide a minimum level of accessibility and support pedestrian activity in the vicinity. Because busy arterials can pose a barrier to pedestrian crossings, it negatively impacts pedestrians if they have to cross the road to access a one-side-only sidewalk. As such, the default practice should be to provide sidewalks (or equivalent such as a multi-use trail) on both sides of arterial roads. However, if there is a sidewalk (or equivalent such as a multi-use trail) on at least one side, and there is a clear absence of supporting factors on the other side (such as adjacent land uses generating pedestrian traffic, transit stops, or intermediate pedestrian connection points such as pathway crossings along a corridor), it may not be necessary to provide a sidewalk.



In addition to the context of the roadway corridor, pedestrian safety is also an important consideration. A literature review was conducted to determine if research has established the safety impacts of sidewalks on one side versus two sides of roads. Based on research completed by Knoblauch et. al¹¹, streets without sidewalks had 2.6 times more pedestrian collisions than expected based on exposure as compared to the overall street sample. The research also indicates that streets with sidewalks on only one side had 1.2 times more pedestrian collisions than expected.

Based on the above analysis, the City of Edmonton should continue with current standards (sidewalks on both sides of arterials, collectors, and locals) unless there is clear justification that sidewalks will not significantly contribute to the objectives of encouraging walkability, connectivity, and active transportation.

SIDEWALK REQUIREMENTS FOR INFILL DEVELOPMENTS

The City of Edmonton's Zoning Bylaw and Design and Construction Standards state that any new development must include an abutting sidewalk. However, the case of infill development requires further definition and clarity to ensure fairness and affordability with respect to the infill development as well as the surrounding land uses. For the purposes of this discussion, a representative example was considered.

Suppose a medium-density residential building is constructed as an infill development on a street of otherwise detached single-family dwellings. If there is no existing pedestrian infrastructure on that street, what is the extent of the sidewalk that should reasonably be constructed for this development? There are a number of options.

1. Only construct the sidewalk directly in front of the development (current standard of practice) – no continuous sidewalk is developed, impacting the mobility and accessibility of pedestrians from the development as well as those traveling through the neighbourhood.
2. Construct the sidewalk from the infill development to the nearest intersecting street – connects the development to the broader pedestrian network but does not provide a continuous route for pedestrians, impacting accessibility/mobility while also not necessarily connecting to transit.
3. Construct the sidewalk from the infill development to the nearest transit stop – connects the development to the nearest transit stop and potentially to the broader pedestrian network depending on the transit stop location. Does not provide a continuous route for pedestrians, impacting accessibility/mobility.

¹¹ *Investigation of Exposure Based Pedestrian Accident Areas: Crosswalks, Sidewalks, Local Streets and Major Arterials*, Richard Knoblauch, 1988, p. 126.

4. Construct a sidewalk along the entire length of the block – connects the development to the broader pedestrian network and to transit but would unfairly burden one owner to the benefit of others who do not contribute financially.

Other considerations include financial responsibility and cost sharing. If a sidewalk is constructed in response to an infill development/redevelopment that will also be used by the adjacent properties, who pays for the construction? Should there be cost sharing with those property owners who receive the new sidewalk connection? Should the developer cover the entire cost, which may affect the ability of developers to complete redevelopment projects in mature areas, thereby impacting the extent of community-oriented densification in these areas? If future infill development or redevelopment occurs, should compensation be given to the developers of the initial infill development for the costs of providing the pedestrian infrastructure?

A review of the Zoning Bylaw should be undertaken to address the connectivity requirements for sidewalks associated with infill developments. In addition, the review will ensure that sidewalk provision requirements are applied consistently and clearly for infill developments. The City of Edmonton could also encourage additional construction of sidewalks beyond what is required under prevailing legislation and/or practices by providing subsidies or incentives.

ADDITIONAL SOURCES OF FUNDING

Additional sidewalk funding mechanisms were identified to assist in the expansion of the sidewalk network and to support walkability.

Cost Sharing of Local Improvements

Based on reviewing the practices of communities throughout North America, changes to the Local Improvement program in Edmonton may be warranted. Currently the City of Edmonton pays 50% of the cost of Local Improvements for sidewalks in neighbourhoods undergoing Neighbourhood Renewal, with the adjacent property owners paying the remaining 50%. However, costs for Local Improvements concerning construction of sidewalks in any other circumstances are completely borne by the adjacent property owners. In comparison, the City of Vancouver pays 80% of the costs of Local Improvements for new sidewalk construction.



Reviewing the merits of altering the Local Improvement cost sharing program in Edmonton reveals that shifting more of the funding responsibility to the City of Edmonton would disperse the Local Improvement costs of constructing missing sidewalks to the broader tax base. This practice would reflect the broader benefits to the public achieved through sidewalk network expansion more accurately.

Community Investment in Sidewalks – “Adopt a Sidewalk”

The concept of using solely private funds to construct some of the sidewalk deficiencies in the form of a community investment program or adopt a sidewalk program was reviewed. Public responses regarding this issue included the sentiment that the benefit of a sidewalk extended much further than to just the adjacent property owners and that it was unfair that only the adjacent property owners should be carrying the burden of constructing sidewalks under the Local Improvement program.

Allowing a community or business group to fundraise and invest in the capital costs of constructing sidewalks and related infrastructure would provide a way for the community to more equitably share the costs of addressing the deficiencies among the eventual users of the facility. This concept could also allow these groups to address deficiencies in their communities that may not otherwise be an initial priority of the Sidewalk Strategy standard.

An important consideration of a community investment program is that not all communities will be financially capable of being involved. A wealthier neighbourhood could therefore jump the queue and get their missing sidewalk constructed earlier than if it were left to be addressed by the Sidewalk Strategy. Communities with lower incomes or with limited opportunity to fundraise with the business community may not have this same opportunity. That said, reported deficiencies in lower income areas may be addressed in a more timely fashion by removing some of the reported deficiencies from the Sidewalk Strategy if groups pay for them with private funds through the community investment program.

A community investment program may be a component of the Community Services and Planning and Development Department’s *Great Neighbourhoods* initiative.

Community Transportation Enhancement Program

An existing model in Great Falls, Montana, is an intriguing way to collaborate and engage the public on projects that would enhance their communities. A similar program may be appropriate for Edmonton.

Under this type of approach, Federal, Provincial, and/or City funds would be used. Projects would be identified by community groups and residents of Edmonton. With assistance from a multi-disciplinary group of staff (e.g. Community Services, Transportation), a proposal for a project would be submitted to the program administrator, which would be most likely be the Provincial government. An annual amount of funds would be designated by the Provincial and/or Federal government for the Community Transportation Enhancement Program and would be directed to the submitted projects. In addition, the City of Edmonton would provide some level of matching funds for any projects from Edmonton that were awarded funds from Provincial and/or Federal sources.

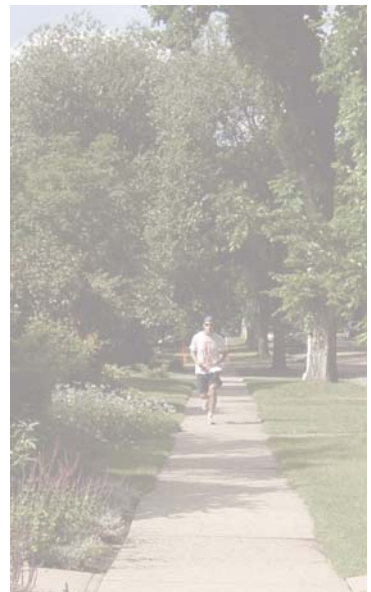
Clearly, this type of arrangement would require negotiations with multiple levels of government, but the Montana example shows the benefits that have accrued from this type of program including:

- Creating a collaborative environment where community groups and City officials could identify and plan ways to enhance communities
- Sharing the costs of pedestrian and urban improvements between Municipal, Provincial, and Federal governments

SAFETY, HEALTH, AND DEMOGRAPHICS

Overall, safety perspectives are currently included in much of the City of Edmonton's practices and also in initiatives offered by other Edmonton-based agencies. Specific traffic safety initiatives have been implemented by the City of Edmonton including the *Traffic Safety Strategy*. Safety is also incorporated in key planning documents (e.g. *Transportation Master Plan*) and is directly impacted by a number of bylaws and standards including the *Traffic Bylaw #5590* and the *City of Edmonton Design and Construction Standards*.

There are a number of existing multi-sector and jurisdictional initiatives and programs promoting sidewalk user safety, such as the Capital Region Intersection Safety Partnership (CRISP), Safe Healthy Active People Everywhere (SHAPE), and Safe Edmonton. These organizations focus on pedestrian safety by implementing education, engineering, and enforcement initiatives.



Similar to the concepts of pedestrian safety, there is support from health-focused groups to encourage and support walking to achieve healthier, more active lifestyles. Research on health and current recommendations from Health Canada suggest that 30 to 60 minutes of moderate physical activity is required per day.¹² This level of activity can be achieved from brisk daily walking.

Partnerships with and support of organizations that espouse the health benefits of walking can provide additional support and a more rounded focus for walkability policies including the Sidewalk Strategy. Groups that are currently working in this field in the Edmonton-area include Capital Health, the Faculty of Physical Education and Recreation at the University of Alberta, and Walkable Edmonton.

As Edmonton's population ages, it is critical to ensure that the built environment and the policies which guide it are designed to accommodate all demographics by being cognizant of the impacts that design and built-form can have on sidewalk user safety and health. To encourage healthy living, the sidewalk system must be designed to provide a safe and comfortable environment for the entire range of potential sidewalk users. The City of Edmonton is currently addressing these considerations through various policy and program initiatives like promoting universal accessibility in the transportation system by constructing curb ramps, connecting isolated bus stops, and purchasing low-floor buses; applying universal design standards to buildings and public places; and establishing the Edmonton City Council Seniors Portfolio.

URBAN FORM

Edmonton's urban form is directly influenced by the Zoning Bylaw and the Design and Construction Standards, which define sidewalk requirements and influence the level of walkability. These requirements help to ensure that sidewalks are constructed to a standard providing sufficient accessibility and clear space to travel on and along the sidewalk, while also maintaining adequate physical condition and maximizing the life expectancy of the sidewalk.

In some cases, there may be a need to permit some flexibility in sidewalk alignments and cross-sections. A sidewalk alignment may require variation to avoid a mature tree, deal with complicated right-of-way issues through use of easements, or address other situations requiring customization. In these instances, flexibility in sidewalk requirements should be available. Implementing flexible sidewalk alignments and cross-sections may impact the current snow removal and maintenance practices of which further review and mitigation by the Transportation Department may be required.

¹² Retrieved: <http://www.phac-aspc.gc.ca/pau-uap/fitness/index.html>. Accessed February 4, 2008.

Urban form is also impacted by the connection between public pedestrian networks and private pedestrian networks. Improvements to the pedestrian networks on private property including providing connections to the public sidewalk system are an important component to providing a continuous pedestrian link between residents and destinations. Particularly for commercial developments providing continuous pedestrian linkages from the public sidewalk to the store entrances will support and encourage walking and improve pedestrian safety.



Revisions should be made to the Zoning Bylaw. These should require proposed developments to include the review of pedestrian access, connectivity, and integration based on industry best practices such as the Institute of Transportation Engineers Promoting Sustainable Transportation Through Site Design. This change could be included in the anticipated revisions to the Zoning Bylaw and would help to ensure continuous pedestrian networks are provided to and within developments.

COORDINATED PLANNING

The City of Edmonton can achieve improvements in the design of the built environment through more extensive collaboration between departments and branches at all levels of the transportation and land use planning process.

One example of a potential improvement would be integrating the use of GIS. If planned infrastructure is included in the GIS inventory for all departments, coordinated construction and repair programs can be organized more efficiently, providing both schedule and cost savings.

Furthermore, coordinating with external organizations that can act as resources or partners in advocacy could not only assist in policy implementation, but also further the effectiveness of the Sidewalk Strategy.

Finally, departments applying or revising City standards such as the Zoning Bylaw and Design and Construction Standards should consult with the Transportation Department to allow coordination with and incorporation of the principles and recommendations of the Sidewalk Strategy and to ensure the consistent application of sidewalk guidelines.



CONCLUSION

The Sidewalk Strategy provides a toolkit that will enable the City of Edmonton to implement an integrated, functional pedestrian network to facilitate walking as a mode of transportation and to support walkability in general.

The Sidewalk Strategy potentially improves existing processes in the following ways:

- Community-based input is directly logged in the sidewalk prioritization system, which can be used to inform the public of approximately when the deficiency may be resolved
- Adopting a designated sidewalk standard for Edmonton allows achievable funding levels to be identified and establishes a reasonable timeframe for improvements to be completed (e.g. 5 to 10 years for higher-priority improvements, as compared to 20 years or longer)
- Through coordinated use of the prioritization system by the Transportation Department, deficiencies can be evaluated consistently and incorporated in the City's repair and construction programs such as Neighbourhood Renewal and Roadway Maintenance

The Sidewalk Strategy provides a consistent approach to evaluating reported sidewalk deficiencies. Implementation of the Sidewalk Strategy will significantly improve the existing sidewalk network and strengthen the expanding sidewalk system in developing areas. The Sidewalk Strategy will support and encourage walking in Edmonton.

SUMMARY OF RECOMMENDATIONS

Based on the assessment of Edmonton's sidewalk infrastructure needs and practices, the following recommendations are presented.

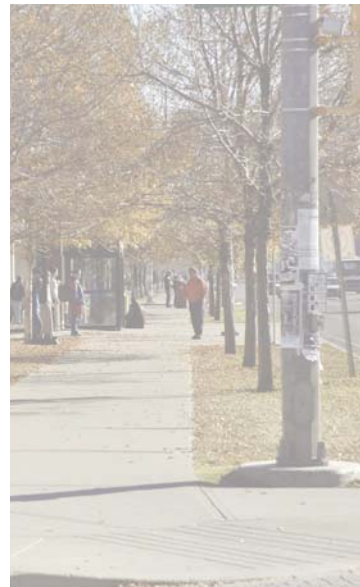
In support of sidewalk infrastructure and pedestrian transportation, the City of Edmonton should:

A.0 Sidewalk Provision

- A.1 Adopt the sidewalk standard and funding requirements defined by Figure 6 as Edmonton's new standard of sidewalk infrastructure provision for Residential & Commercial Areas.
- A.2 Construct missing sidewalks according to the Residential & Commercial Areas sidewalk standard to systematically resolve missing sidewalk infrastructure on an ongoing basis.
- A.3 Provide sidewalks along every transit-served side of the road (existing or planned) in Industrial Areas.
- A.4 Require all future industrial developments to construct sidewalks as a condition of the development along every transit-served side of the road (existing or planned) in Industrial Areas.

B.0 Sidewalk Maintenance

- B.1 Update funding levels for sidewalk maintenance and repair based on current and anticipated cost escalations.
- B.2 Direct additional annual funding to Roadway Maintenance at an appropriate rate for the increased length of new sidewalks that are constructed.
- B.3 Reference the Sidewalk Strategy Deficiency Matrix to assist in identifying funding allocation priorities and to supplement Roadway Maintenance's existing processes.



C.0 Implementation & Funding

- C.1 Define Residential & Commercial Area projects for five year periods, confirming the project list annually prior to each tender period.
- C.2 Group Residential & Commercial Area sidewalk deficiencies based on geographic proximity to minimize costs and achieve competitive unit rates.
- C.3 Include Residential & Commercial Area sidewalk deficiencies in Neighbourhood Renewal and corridor improvement projects.
- C.4 Complete further detailed review and investigation of the Industrial Area sidewalk deficiencies and the required improvements to refine the cost estimates.
- C.5 Include Industrial Area sidewalk deficiencies in corridor improvement projects.
- C.6 Complete further review to investigate how best to provide sidewalks along roadways with rural cross-sections, particularly in Industrial Areas.
- C.7 Evaluate the benefits of tendering multi-year sidewalk improvement contracts.
- C.8 Evaluate the benefits of completing sidewalk improvements internally using staff employed by the City of Edmonton.
- C.9 Increase the City's share in the cost of constructing sidewalks under the Local Improvement program, with the proportion of the cost to be paid by the City to be established based on further review and analysis.
- C.10 Complete further review of the feasibility and applicability of implementing a community sidewalk investment program.
- C.11 Investigate and negotiate the development of a community transportation enhancement program with other levels of government.

D.0 Policy Considerations

- D.1 Continue with current standards (sidewalks on both sides of arterials, collectors, and locals) unless there is clear justification that sidewalks will not significantly contribute to the objectives of encouraging walkability, connectivity, and active transportation.
- D.2 Review the Zoning Bylaw with respect to sidewalks and pedestrian connectivity and propose Zoning Bylaw amendments to further support the Sidewalk Strategy as may be necessary.
- D.3 Offer incentives or subsidies to developments that construct additional sidewalks beyond what is required under prevailing legislation and/or practices.
- D.4 Encourage owners adjacent to infill development/redevelopment (for which a sidewalk will not be built along their frontage by the infill project) to contribute funds to construct the remainder of the block's sidewalk along their property's frontage in order to provide a continuous pedestrian link along the block.
- D.5 Provide continued support for and coordination among groups and agencies promoting and encouraging pedestrian safety.
- D.6 Provide continued support and encourage collaboration with Capital Health and other health-focused groups in order to broaden the focus of City of Edmonton sidewalk and pedestrian policies.
- D.7 Apply current and evolving practices for planning and designing sidewalk infrastructure to incorporate the needs of the aging population.
- D.8 Construct all new sidewalks based on universal design principles.
- D.9 Be more supportive of customization of sidewalk alignments and cross-sections where it contributes to the objectives of walkability, connectivity, and active transportation.
- D.10 Support and encourage coordinated planning among internal City departments and between City departments and external organizations.
- D.11 Incorporate the Sidewalk Strategy principles during the application and revision of City of Edmonton standards, where applicable.



GLOSSARY OF TERMS

Deficiency Context – The importance that addressing the sidewalk, curb ramp, isolated bus stop, or other deficiency will have on the pedestrian network based on connectivity to supportive land uses, the level of potential pedestrian use of the facility if it were provided, and the type/purpose of the adjacent roadway.

Deficiency Severity – The urgency with which the sidewalk, curb ramp, isolated bus stop, or other deficiency should be addressed based on physical condition, accessibility, and safety.

Sidewalk Standard – The priority locations for which sidewalks and related infrastructure will be provided. Identifies the extent to which missing or deteriorating sidewalks will be addressed by the City's budgeting and construction programs on an ongoing basis by implementing the Sidewalk Strategy.

Importance – See definition for Deficiency Context.

Industrial Areas – The industrial land areas illustrated in Exhibit 1 and commonly referred to as the Northwest Industrial, Central Industrial/Municipal Airport, Northeast Industrial, East Industrial, and South/Southeast Industrial areas. These areas have very few existing sidewalks and need basic pedestrian infrastructure.

Residential & Commercial Areas – All areas of Edmonton not defined as an Industrial Area as illustrated in Exhibit 1. These areas have gaps of absent sidewalks within the existing sidewalk system.

Urgency – See definition for Deficiency Severity.

