

## **Sidewalk Infill Program Description**

The Sidewalk Infill Program involves the design and construction of new sidewalks or pathways adjacent to existing arterial, collector and local streets. In accordance with current design standards, sidewalks are required on both sides of arterial, collector and local streets in both residential and industrial neighbourhoods. As this was not the standard over much of the City's development, there are many established neighbourhoods that are missing sidewalks on one or both sides of the street.

### **Missing Sidewalk Inventory**

In 2019, Transportation moved to tracking missing sidewalk locations in a GIS-based asset management model because it is an efficient way to prioritize and track missing sidewalk locations and allows the City to efficiently map missing sidewalk locations. Furthermore, a GIS-based approach aligns with the City's other asset management programs improving the opportunity to more efficiently identify and coordinate efforts with other construction projects.

Transportation is currently working with Information Technology (IT) staff to improve the inventory of missing sidewalk locations to attach functional plans, priorities and resolution status - such as irreconcilable tree/utility/property conflicts. Completing the inventory will permit the long-term storage of attributes from the prioritization criteria and the feasibility of construction and will streamline the prioritization and reporting of sidewalk infill.

There is currently an estimated 370 kilometres of missing sidewalk, or approximately 2,200 blocks of missing sidewalk. This number is an estimate only, using the data currently available in GIS.

### **Sidewalk Infill Prioritization**

To focus the program's efforts on locations where sidewalk is most needed, prioritization criteria were developed and endorsed by City Council in January 2020. The criteria utilizes a combination of land use and street context to determine which missing sidewalk locations will have the most impact on the safety and walkability of the pedestrian network. Each missing sidewalk is assigned a prioritization score out of 100 using the established set of criteria and is then categorized as a Priority 1 through 5 (e.g., scores of 80-100 would be assigned a Priority 1, 60-79 Priority 2, etc.). Details on the criteria are outlined in Image 1 at the end of this appendix.

### **Functional Plan Development**

Functional plans are then developed for the top scoring locations to determine the cost and feasibility of installing sidewalk. To develop functional plans, both surveys and site visits are completed to identify any opportunities and constraints for the construction of the sidewalk. Surveys and site visits provide a comprehensive understanding of the placement and condition of existing infrastructure, available space, restrictions and surrounding trees and landscaping present at each site.

The standards used for design are found in the City of Saskatoon Design and Development Standards Manual Section Eight Transportation System Version 12 document and are summarized in the Table 1.

Table 1: Summary of Sidewalk Design Standards

Street Classification	Location	Min Walking Surface Clear Width (m)	Material	Offset from Back of Curb
Arterial	Both sides	2.5	Concrete	Separate (1.5 m)
Collector	Both sides	1.8	Concrete	Combined or Separate (1.5 m)
Local	Both sides	1.5	Concrete	Combined or Separate (1.5 m)

In addition to the design standards, current placement of existing infrastructure and available right-of-way (ROW) are also considered. Due to constraints, not all locations are able to meet the standards; however, a minimum sidewalk width/clearance of 1.5 metres is required for the sidewalk to be considered accessible. Effort is taken to limit the removal/replacement of existing infrastructure and trees with strategic placement of the new sidewalk, prioritizing retaining existing infrastructure and trees over the offset standards.

### Construction Feasibility Assessment

The functional plans are then assessed for feasibility of construction and given a score out of 100. Factors affecting the feasibility of building the sidewalks include lack of available ROW, utility conflicts, landscaping conflicts, ability to meet design standards and impact to adjacent properties. An evaluation matrix, shown in Table 2, containing each of these categories has been developed and is used to rank each of the sidewalk infill locations. Each of the categories in the matrix has an equal weighting of 20%. Each site is evaluated individually and given a total score out of 100.

Table 2: Construction Feasibility Matrix

Weighting	Description	Point Range
<b>Available Right of Way</b>		
20%	No Additional Right of Way Required	100
	Adjacent commercial/industrial lands required < 2 m width	70
	Adjacent commercial/industrial lands required > 2 m width	50
	Adjacent residential lands required < 2 m width	20
	Adjacent residential lands required > 2 m width	0
<b>Utilities/Third party infrastructure</b>		
20%	No utility conflicts	100
	Minor adjustments to utility boxes/UG lines	71-99

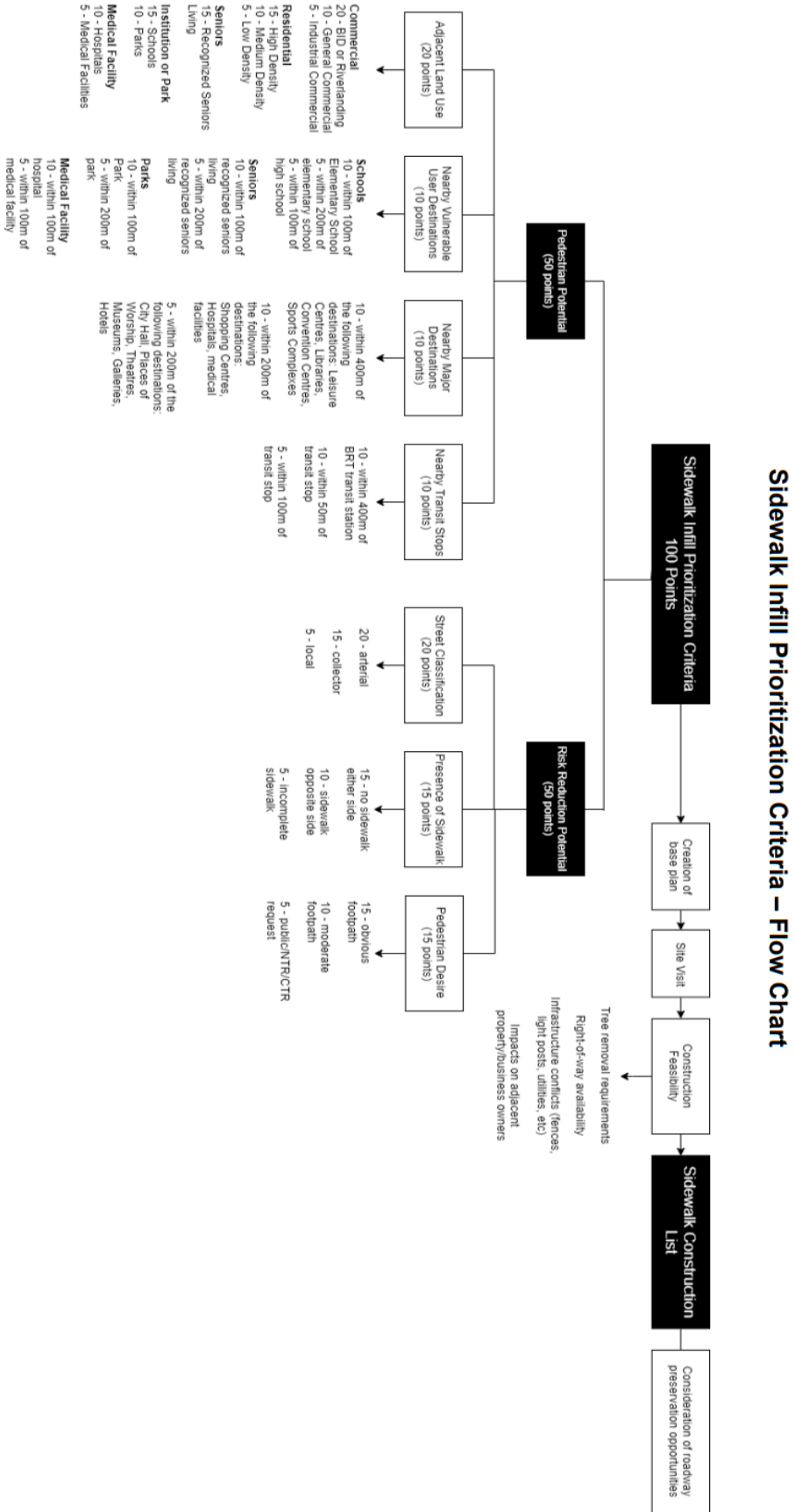
Weighting	Description	Point Range
	Adjustments to traffic signals	51-70
	New traffic signals/rail crossing	41-50
	Relocation of roadway lighting/hydrants etc.	21-40
	Impact to major utility infrastructure	0-20
<b>Landscaping</b>		
20%	Standard grassed boulevard with no trees or features	100
	Select pruning and/or relocation of existing small trees	81-99
	Removal of hedges/small trees	51-80
	Replacement of fencing and other landscaping features	26-50
	Large mature trees/shallow roots	11-25
	Removal of mature trees	0-10
<b>Design Standards</b>		
20%	Higher achieved standard (wider sidewalk)	100
	COS standards boulevard and sidewalk achieved	91-99
	COS standard sidewalk width achieved	71-90
	Minimum longitudinal grades achieved	51-70
	Flat or back graded boulevard	26-50
	Requirements for handrails or other safety measures	11-25
	Requirement for retaining wall due to steep grades on boulevard	0-10
<b>Impact to Adjacent Properties</b>		
20%	No impact to properties	100
	Adjustments to parking lots	71-99
	Reduction in driveway/access widths	41-70
	Reduction in residential parking capacity/driveway length	31-40
	Reduction in commercial parking spaces	21-30
	Impacts to commercial operations or personal properties (out buildings)	0-20

**Cost Estimates Development**

A capital construction cost estimate is developed for each location. A unit cost for each aspect of construction is used to calculate a total cost for each site. Costs that do not have a set monetary value, such as property acquisition, internal reparations for tree removal and trees within 1.5 metres of the sidewalk (which will need to be individually assessed as to whether they will need to be removed) are not included in the cost estimate. Operational costs for snow clearing on sidewalks along green spaces and city-owned property are also not included.

The majority of the costs associated with the construction of the infill sidewalk at each site is the placement of the concrete or asphalt pathways and features such as pedestrian ramps and concrete crossings. Additional significant costs also result from landscaping work, especially the removal of mature trees. The current average cost estimate is approximately \$675/m.

Image 1: Sidewalk Infill Prioritization Criteria and Process



Criteria is sourced from data sets that are maintained by various City of Saskatoon departments.