

## Request for Decision

### Bus Shelter Policy

Presented To: Operations Committee

Presented: Monday, May 06, 2013

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Type: Managers' Reports

### Recommendation

That the City of Greater Sudbury adopt the Bus Shelter Request Policy prepared by the Transit and Fleet section dated April 2012.

## Background

The City's Transit and Fleet section receives several requests each year to install Shelters at various locations throughout the City of Greater Sudbury. A Bus Shelter Request Policy has been developed to assist staff in evaluating requests. (see Exhibit A)

An extensive review of reports and policies from various transit authorities concluded that there were three dominant approaches with regards to evaluating and determining stops which are candidates for bus shelters or further amenities.

The three dominant methods are:

- Ridership Analysis Based Methods
- Ridership and Circumstanced Based Methods
- Category Based Methods

The information provided below will outline in detail each of these methods, and determine the best approach for establishing a framework to assess bus shelter requests.

### Ridership Analysis Based Method

This method is common in urban and suburban transit authorities, and sets a cutoff with regards to ridership. These cutoffs are determined by the transit authority and are usually based on existing reports which are generated by transit research groups. For example, in TCRP Report number 19, the

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following ridership cutoffs are established as guidelines for shelter placement:

<u>Locations</u>	<u>Boardings</u>
Rural	10 boardings per day
Suburban	25 boardings per day
Urban	50 to 100 boardings per day

These numbers are reflected in other transit organizations throughout North America, the following are a few excerpts of similar policies:

- Shelters should be provided at all transit stops serving 15 or more passengers per day; seating should be provided at all transit stops serving 5 or more passengers per day (City of Folsom Short Range Transit Plan Update 2005)
- The placement of shelters and bus stop amenities is determined based on threshold values of daily passenger boardings. Seating is standard for 50+ daily boardings and, typically, a shelter will require at least 100 daily boardings. Lighting, route info and expanded sidewalks also require at least 100 daily boardings (Palm Tran Service Guidelines 1999)

This method is not the most common, mostly due to the lack of consideration of other factors which often influence the location and establishment of bus shelters. That being said, these factors are critical, and are required when evaluating shelter requests in transit agencies which do not have a uniform urban structure, such as the above examples; ridership is only one dimension of this process.

### **Ridership and Circumstanced Based Method**

This method is the most common of the three, and is found throughout most transit agencies in North America. While it utilizes the core concepts of ridership cutoffs to establish a baseline to determine what stops are eligible for a bus shelter, it also takes into account other factors.

TCRP report number 19 identify most of the following as the criteria to evaluate the potential for a shelter placement:

- Number of transfers at a stop
- Availability of space to construct shelters and waiting areas
- Proximity to major activity centers
- Frequency of service
- Adjacent land use compatibility

These factors and others are then incorporated with 14determined ridership cutoffs, and are outlined in the following policy excerpts:

- Shelters should be considered at the following locations: any stop serving more than 40 boardings/transfers per day within major commercial areas; any stop serving more than 25 boardings/transfers per day within urban or suburban areas; any stop that is a major transfer point between routes; or any stops located near schools, senior citizen housing facilities, or community recreation centers where large concentrations of the young and elderly are

expected (Grand Junction/Mesa County MPO Transit Design Standards and Guidelines 2003).

- Priority factors for selecting bus stops as candidates for shelters include all terminals and transfer points, high boarding locations (35 pas/hour in peak periods), unique exposure to inclement weather, and in front of senior residences and other institutional facilities (York Region Transit – Transit Service Guidelines 2006).
- Bus stop amenities such as shelters, benches should be provided when the transit stop serves a minimum of 50 boardings per weekday day. Other considerations for locating amenities should include terminals and transfer points, high boarding locations, exposure in bad weather, in front of seniors' residences and other institutions, accessible features to accommodate people with disabilities. Such locations should have high priority for snow clearing (Durham Region Transit – Recommended Service Standards 2009)

While this method is the most common, it is still vague as to what would qualify for a bus shelter or how they would assess the relative categories from other requests; but it is clear that the discretion of the transit authority will ultimately make the final call if a bus shelter is necessary or warranted at the specific stop.

### **Category Based Method**

This method is the most complete and analytical of the three, and builds on the concepts which were used in the previous methods. To establish this method, categories are developed to reflect factors which would impact the location and establishment of a bus shelter. Each of the categories is then graded and assigned values which would represent a scale of severity or importance (generally a higher number would represent increased importance or severity.) Once a stop is assigned for evaluation, it is then scored on the various categories and an index is generated. This value can then be used in relation to other stops and requests to determine the most valuable stop to locate a shelter, or as a cutoff to designate a shelter. For examples of policy based on this method, refer to Appendix B and C which highlights work done by Winnipeg Transit and Thunder Bay Transit.

Generally this system is often linked with a yearly shelter improvement budget, which allocates a certain amount of money to place new shelters in the bus system. At the beginning of the new budget year, a list of requested stops or potential stop improvement locations is provided and stops which rank highest on the list get priority from the budget for improvements. If no yearly budget is available and shelters are located on a need only basis, then a set score can be used to assign a pass or fail value for the request. For example, Thunder Bay requires that a request for a shelter score at least 70 points on their scale, before being considered for installation.

### **Recommendations**

After assessing the current policy framework that exists for shelter allocation, the method which best suits the current context of Greater Sudbury and the various types of urban densities which are found within the region would be a category based method.

The following points outline the deciding factors for this recommendation.

- Ridership will be the prerequisite in determining whether or not there is sufficient historical usage of the stop to be considered as a potential location for a shelter. Considerations for rural and urban environments will be made; this will offer greater flexibility when taking into account the varying levels of population densities within a region.

- The level of exposure to the elements is an important factor to consider when deciding if a shelter is required. To address this, the surroundings will be evaluated and a score will be assigned to reflect the level of exposure. Those areas with little or no shelter in the vicinity will be given a higher consideration for a shelter.
- Transfer points can also be taken into consideration, since transferring passengers are typically subjected to longer wait times, then passengers making an initial boarding. Essentially the more routes that pass through a stop will technically have an increase in transfer waiting time as they wait to make their connection.
- The aggregate score for passenger wait times, and frequencies has advantages since:
  - Higher scores are allocated to locations where headways are longer
  - Lower scores are allocated to locations where headways are shorter
  - It reflects land use and area served (since higher boardings are associated with major trip generating locations and vice versa)
- The consideration of locations where elderly or disabled are situated is critical when determining a shelter location. While this is an important factor, it will not be the only deciding factor when considering a new shelter location. It will be compared to historical ridership counts and other criteria to ensure that those groups which are in the most need will receive amenities first.

In short, due to the many different environments, population densities, service levels and demographics, a one dimensional policy is not recommended. As a result of this, a transparent and multidimensional system is needed to address these variables, which in their own right are important; in order to be unbiased and fair in this process, the above method is preferred.

# BUS SHELTER REQUEST POLICY

## INTRODUCTION

This document outlines the criteria which will be used to evaluate potential shelter locations or requests. The point based system identifies and highlights key items which would merit a shelter at a bus stop. These criteria are derived from other transit agency policies and reports from transportation research publications, which outline best-practices in the transit industry.

## PREREQUISITES

In order to be considered as a potential location for a bus shelter, the site in question must obtain a minimum of:

- 10 boarding's per Service Day in "Commuter" areas.<sup>1</sup>
- 25 boarding's per Service Day in "Urban" areas.<sup>2</sup>

Stops which do not meet these minimum ridership requirements will not be considered for further analysis.

## SELECTION METHODOLOGY

Each year, existing stops and shelters will be evaluated using a point based system to create a list of potential areas of merit and improvement. To maximize cost efficiencies the Transit and Fleet section will work in conjunction with the Roads and Transportation and Engineering and Construction Services sections. Locations identified on the list that are affected by future road construction projects will be prioritized.

In order to be considered as a potential location for a bus shelter, the site in question must obtain a minimum of 60 points.

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<sup>1</sup> "TCRP Report #19: Guidelines for the Location and Design of Bus Stops". Rural ridership requirement.

<sup>2</sup> Ibid. Suburban ridership requirement. Urban ridership requirement is 50 boarding's per day, but due to lack of urban densities the suburban requirement was used.

### 1. *Ridership*

- a. Ridership is a key element in determining the current use of a bus stop, and will aid in allocating shelters in areas of higher usage. As a result of this, one point will be attributed to each stop for each average boarding per day for Urban locations. Shelters located in Commuter locations will receive 2.5 points for each average boarding per day. For example, if a stop in an Urban area has 40 average boardings per day, that stop will then be attributed 40 points. If a stop in a Commuter area has 10 average boardings, that stop would then be attributed 25 points.

### 2. *Exposure*

- a. The patrons level of exposure is a key factor in determining the level of priority in shelter placement, the following scale is used to grade the patrons level of exposure:
  - i. Allocate [0] points if the location is perfectly sheltered. For example, there is no exposure to elements whatsoever or there is a large heated shelter near the stop.
  - ii. Allocate [4] point if the exposure is minimal. For example, there is a public or commercial building which can be used by the passengers but access is somewhat limited (in terms of hours, capacity).
  - iii. Allocate [8] points if there are no indoor waiting areas, but a sufficiently large overhang where the wind is blocked by both sides.
  - iv. Allocate [12] points if there is no overhang or indoor waiting areas, or type of shelter, but there are structures which can block the prevailing winds effectively.
  - v. Allocate [16] points if there is no shelter, no overhang, and no buildings blocking the prevailing winds. For example, a residential subdivision.
  - vi. Allocate [20] points if the stop is on vacant, windswept land, and there are absolutely no shelters of any kind.

### 3. *Transfers*

- a. Transfer zones will be attributed [30] points, due to the potential for longer wait times.

### 4. *Frequency*

- a. Stops with lower frequency of service will be attributed more points, due to longer wait times between trips. The following scale is used to grade frequency:

- i. 15 minutes [4] points
- ii. 30 minutes [8] points
- iii. 45 minutes [12] points
- iv. 60 minutes [16] points
- v. 60+ minutes [20] points

5. *High Priority Institutions*

- a. Stops which are located in close proximity to a home for ambulant senior citizens, special needs patrons, hospitals or clinics, and if it is used by a reasonable number of seniors/patients will be assigned [30] points.

6. *Additional Factors to Consider*

- a. Available land (no easements required for allocating the shelter).
- b. Line of sight hazards.
- c. Lighting and pad requirements.
- d. Impacts to underground services (utilities, fire hydrants, storm and sewers).
- e. Existing shelters or stops impacted by road construction will receive top priority for evaluation.
- f. New shelters must adhere to any transit specific design requirements in accordance with the Accessibility of Ontarians with Disabilities Act, 2005.

## **APPENDIX B: THUNDER BAY TRANSIT**

**THUNDER BAY TRANSIT  
POLICY FOR THE PLACEMENT OF PASSENGER SHELTERS**

This policy provides criteria for the evaluation of shelter locations. It is based on a priority-rating system that identifies the most appropriate locations for shelters. Shelters are ranked on the four main categories below. A shelter will only be installed at those locations which meet the minimum score of 70 points. Exceptions can be made for areas such as hospitals, senior citizen's homes, or handicapped homes.

1. Passenger usage (daily)

Adults or students	2 points
Seniors/Disabled or children	4 points
  
2. Exposure to Weather Conditions

Protected (buildings nearby)	5 points
Minor (Residential area)	10 points
Moderate (wide street)	15 points
Extreme (wide open-exposed)	20 points
  
3. Transfer point 20 points
  
4. Frequency of service

10 minutes	5 points
20 minutes	10 points
30 minutes	15 points
40 minutes	20 points
60 minutes	30 points

**Additional factors to be considered:**

- Available land
- Sight Hazard
- Lighting Requirements
- Underground Services

(Approved by council 1990)

## **APPENDIX C: WINNIPEG TRANSIT**

# SHELTER LOCATION EVALUATION FORM No 1351

Form T59: 87 10

## PART I. GENERAL INFORMATION

Name of Customer: \_\_\_\_\_

Address: \_\_\_\_\_

Postal Code: \_\_\_\_\_ Phone: \_\_\_\_\_

Reason for request (if stated): \_\_\_\_\_

Additional info (e.g.: Nearby Shopping Centre): \_\_\_\_\_

Request Taken By: \_\_\_\_\_ (NAME) \_\_\_\_\_ (DATE)

### LOCATION

Street or Property on Which Shelter Would Be Located: \_\_\_\_\_

Direction of Street Traffic: ☐ EB ☐ WB  
☐ NB ☐ SB

Nearest Cross-street: \_\_\_\_\_  
(N/A If Location Is Shopping Centre Or Similar Property)

Side of Cross-Street on Which Shelter Would Be Located: ☐ N/S ☐ N/S Opp.  
☐ F/S ☐ F/S Opp.  
☐ Directly Opp. ☐ N/A

## PART II. EVALUATION (This part to be completed by Planning Staff)

Was this location previously evaluated? ☐ YES ☐ NO

If yes, enter the serial number of original Shelter Location Evaluation, form below and go to PART IV

Serial No. of S.L.E. form containing original request for this location: \_\_\_\_\_

### SCORING RESULTS: (Refer to Attached Detailed Scoring Instructions)

#### SCORE

- a) Aggregate passenger wait time. \_\_\_\_\_
- b) High priority institutions. \_\_\_\_\_
- c) Exposure to elements. \_\_\_\_\_
- d) Homes beyond reasonable walking distance. \_\_\_\_\_
- e) Transfer points. \_\_\_\_\_

TOTAL SCORE: \_\_\_\_\_

Attach the detailed scoring instructions to this form.

## PART III. ON-SITE INSPECTION (This part to be completed by The Chief Inspector)

- |                                                                                            | GOOD                     | FAIR                     | POOR                     |
|--------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------|
| a) Protection against prevailing winds given orientation of shelter. ....                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Clearance for passage of pedestrians. ....                                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Clearance for snow plowing. ....                                                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Lighting conditions (can passengers see and be seen?). ....                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e) Visibility for motorists and pedestrians (would the shelter obstruct their view?). .... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

f) Would the shelter be located on private property? ☐ YES ☐ NO

If yes, name and phone number of owner: \_\_\_\_\_

Will there be any difficulty in installing a shelter at the location under consideration? \_\_\_\_\_

RECOMMENDATION: Is the location operationally suitable for a shelter? ☐ YES ☐ NO

On-site inspection completed by: \_\_\_\_\_ (Name) \_\_\_\_\_ (Date)

(When Part III is completed, return form to Planning)

## PART IV. (Part IV to be completed by Planning Section)

BUS STOP ID NUMBER:

SMART Project Processing Completed BY: \_\_\_\_\_ (Name) \_\_\_\_\_ (Date)

Letter sent to Customer ☐ YES ☐ NO BY: \_\_\_\_\_ (Name) \_\_\_\_\_ (Date)

### b) HIGH PRIORITY INSTITUTIONS:

If the stop is within 400 metres walking distance of a home for ambulant senior citizens or of a hospital, and if it is used by a reasonable number of seniors/patients, add 15 points.

SCORE: \_\_\_\_\_  
(B)

### c) EXPOSURE TO ELEMENTS:

Allocate a score of 0 to 25 points based on the degree of exposure to elements.

- Allocate 0 points if the location is perfectly sheltered, i.e. there is no exposure to elements whatsoever or there is a large heated shelter near the stop.
- Allocate 5 points if the exposure is minimal, i.e. there is a public or commercial building which can be used by passengers but access is somewhat limited (in terms of hours, capacity, etc.)
- Allocate 10 points if there is no indoors waiting area but there is a sufficiently large overhang and the wind is blocked on two sides.
- Allocate 15 points if there is no overhang, no indoors waiting area, and no other type of shelter, but there are buildings efficiently blocking the prevailing winds.
- Allocate 25 points if there is no shelter, no overhang, and no building blocking the prevailing winds (e.g. residential area).
- Allocate 40 points if the stop is located on vacant, windswept land and there are absolutely no shelter of any kind.

SCORE: \_\_\_\_\_  
(C)

### d) HOMES BEYOND REASONABLE WALKING DISTANCE

Calculate the number of dwelling units within an approved subdivision of the City of Winnipeg for which the location is the nearest weekday, midday stop and that are located more than 400 meters walking distance from the location under consideration. Allocate the number of points shown below.

No. of Dwelling Units	Score
0 — 99	0
100 — 199	5
200 — 299	10
300 — 399	15
400 +	25

SCORE: \_\_\_\_\_  
(D)

### e) TRANSFER POINTS

Allocate 0 to 25 points based on the amount of passenger transfers occurring at the location under consideration.

Transferring Activity \ Number of Routes	1	2	3	4	5 +
Light	N/A	5	10	15	20
Medium	N/A	10	15	20	25
Heavy	N/A	20	25	30	30

SCORE: \_\_\_\_\_  
(E)

TOTAL SCORE: \_\_\_\_\_  
(Add A, B, C, D, and E)

Report scores A, B, C, D, and E, as well as the total score in PART II of the Shelter Location Evaluation Form