SUBJECT: Temporary Turning Circles - Request for Reduction in Radius and Change in Standard (City Wide) (PED09284)

RECOMMENDATION:

(a) That Council approve the following changes in the standard for temporary turning circles and direct the General Manager of Planning and Economic Development to incorporate the changes within the City’s Engineering Guidelines for Development:

(i) a reduction in size of the paved portion of the turnaround from a 13m radius to a 12m radius if it makes a material difference to the number of lots that would otherwise need to be sterilized if the 13m radius was used.

(ii) a reduced setback from the back of curb from 3m to 2m if no utilities are to be located within the area behind the curb and if it makes a material difference to the number of lots that would otherwise need to be sterilized if a 3m setback was used.

(iii) a hammerhead design be included as an option for a temporary turning circle.
(b) That the item respecting “Carlson Street temporary turnaround – request for reduction in radius” on the Economic Development and Planning Committee’s Outstanding Business List be identified as completed and removed from the List.

Tim McCabe
General Manager
Planning and Economic Development Department

EXECUTIVE SUMMARY:

On February 17, 2009 Losani Homes Ltd. requested the City of Hamilton to consider a reduction in the size of a temporary turning circle required for the Carlson Street extension plan of subdivision in upper Stoney Creek in order to reduce the impact of freezing lots that would result if the City standard was used. The issue was referred to staff to consult with other City departments and to report back on the overall policy issue.

Although the City has an approved standard for temporary turning circles which was developed in 2005 with consideration of the impact of freezing (sterilizing) lots, based on Council’s direction, staff has revisited the issue to see if there are any new considerations that will allow for more flexibility in the standard by providing greater choices thereby reducing one-off solutions and keeping the decision making at a staff level.

As a result of staff’s investigations, it has been confirmed that the City’s current standard for temporary turning circles is appropriate based on the need to assure the safe and convenient turning of City vehicles and is comparable with other GTA municipalities. Although staff’s preferred design continues to be the present standard of 13 metres, in an effort to provide some flexibility to deal with site specific issues, the following are being recommended as alternatives:

1. a reduction in size of the paved portion of the turn circle from a 13m radius to a 12m radius if it makes a material difference to the number of lots that would otherwise need to be sterilized if the 13m radius was used thereby making the proposed development more economically viable. Depending on the lot widths, reducing the radius to 12m may sterilize one less lot.
2. a reduced setback from the back of curb from 3m to 2m if it makes a material difference to the number of lots that would otherwise need to be sterilized if a 3m setback was used. The 3m setback behind the curb is normally reserved for snow storage and underground utilities; however, if no utilities are to be located within the area behind the curb, the option to reduce this setback is available.

3. a hammerhead design be included as an option for a temporary turn circle. This design requires sterilizing only two (2) lots but cannot be used when proposed development is on only one side of a municipal street.

BACKGROUND:

The City has an approved standard, included in the Engineering Guidelines for Development, for temporary turning circles. The standard was developed in 2005 with consideration of the need to both provide for safe and convenient turning of City vehicles and to minimize the impact (sterilizing of lots) caused by the turning circle’s physical requirements. Notwithstanding this standard, time and time again, staff is asked to forego the standard in order to optimize the development potential of lots within subdivisions.

Problem

The sterilization of any lots in a plan of subdivision is not ideal but necessary if the appropriate access cannot be provided for City services (waste collection, snow removal, emergency services). In subdivision plans with a small yield the issue is exacerbated because the sterilization can result in plans not going forward. Depending on factors such as fragmented properties, economic conditions, planning issues (e.g. urban boundary expansion), servicing issues (e.g. different drainage boundaries), the lots could remain sterilized for a significant length of time. In some instances the temporary conditions remain for several years and can even become permanent.

Lot sterilization and the requirements for temporary turning circles is a persistent problem such that staff in the Development Engineering Division commonly work with developers to find solutions. In many instances, satisfactory solutions are found; however, in others the only viable solution leads to developers not being able to realize (optimize) the value of the land being developed until a later date. In some situations where staff and developer cannot find a resolution, the matter has escalated to Council for consideration resulting in the acceptance of substandard turning circles and inconsistent applications of policy across the City.
**ANALYSIS/RATIONALE:**

**Present Situation**

Current City of Hamilton standards require that all proposed developments that result in temporary dead-end streets are required to construct a 13.0 metre (m) curb radius temporary turning circle with an additional minimum 3.0m setback from the back of curb within a road allowance width of 32.0m (refer to Appendix A to Report PED09284). The turning circle allows for emergency/service vehicles to safely manoeuvre and exit a dead-end street in a forward manner, eliminating the need to back-up on a public street which is in contravention of the **Health and Safety Act**. In order to provide for the additional right-of-way and pavement, the lots adjacent to the temporary turnaround are sterilized, usually four (4) lots, because the temporary turn circle encroaches into the future lots such that completion of the final grading, drainage, sidewalk and boulevard construction, etc. is precluded. The lots remain sterilized until such time that the street is extended and the turning circle is no longer required.

The City’s engineering standards do permit offset turning circles which also allow emergency/service vehicles to safely manoeuvre and exit a public street in a forward manner. This variation can reduce the number of lots to be sterilized to two or three lots depending on the lot width (refer to Appendix A to Report PED09284).

A survey of area municipalities regarding temporary turning circles was recently conducted by staff; the results are included in Appendix B to Report PED09284. Municipalities such as Brant (curb radius of 14.75m), Waterloo (curb radius of 14.0m), Ajax (curb radius of 13.5m or 15.5m), Markham (curb radius of 14.0m), Brantford (curb radius of 13.5m) and Georgina (curb radius of 15.0m) all require temporary turning circles that are larger than the 13.0m curb radius required by the City of Hamilton.

Conversely, municipalities such as Mississauga (curb radius of 12.7m), Burlington (curb radius of 11.0m), London (curb radius of 12.2m), Pickering (curb radius of 11.5m), Oshawa (curb radius of 10.0m), and Scarborough (curb radius of 9.5m) all allow for smaller radius temporary turning circles. Others, such as East Gwillimbury, Welland, York and Peterborough have adopted the Ontario Provincial Standard (OPSD) of 9.0m. The remaining municipalities on the survey such as Oakville, Caledon and Milton have adopted the same standard as Hamilton.

On the issue of sterilizing lots adjacent to the temporary turning circles, several municipalities such as Pickering and Brant allow development as long as zoning can be met, whereas other municipalities such as Brantford and East Gwillimbury sterilize development adjacent to the temporary turning circle similar to Hamilton.

**Service/Emergency Vehicles Requirements**

According to manufacturer’s specifications the following chart lists several of the City’s service vehicles and their minimum turning radius:
**Type of Service Vehicle** | **Minimum Turning Radius**
--- | ---
International Waste Truck | 12.0m
Sterling LT8500 25 YD Dump Truck | 11.5m
Sterling L8500 Single Axle Snow Plow | 9.5m
Sterling LT8500 Tandem Axle Snow Plow | 11.5m

**ALTERNATIVES FOR CONSIDERATION:**

1. **Assessment Of Options**

In order to address the issue of temporary vehicular turning circles in the broader context of how it would affect service delivery and current engineering standards, the problem was circulated to Emergency Services and the following divisions from Public Works: Environmental Services (Waste), Operations (Roads), and Traffic Engineering for discussion. The focus of the discussion was to obtain input and to explore other options such as a 10m curb radius turning circle and a hammerhead design turnaround. The results of the circulation are summarized below:

**Turning Circle Options Assessment**

<table>
<thead>
<tr>
<th>Departments/Divisions</th>
<th>Proposed 10m Curb Radius Turning Circle</th>
<th>Hammerhead Turnaround</th>
<th>Existing Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Services</td>
<td>Unacceptable design. Vehicles require 13m for turning. Creates safety concerns and potential liabilities.</td>
<td>Acceptable design. Allows vehicles to exit street in forward manner.</td>
<td>Acceptable design, but requires no parking signs within turnaround to function properly.</td>
</tr>
<tr>
<td>Environmental Services (Waste Management)</td>
<td>Unacceptable design. Vehicles require 13m for Collection vehicles will not reverse down a public street as per Health and Safety Act.</td>
<td>Acceptable design. Allows for a 3 point turn which is permitted by Health and Safety Act within a turning area.</td>
<td>Acceptable design, but requires no parking signs within turnaround to function properly.</td>
</tr>
</tbody>
</table>
Turning Circle Options Assessment

<table>
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<tr>
<th>Departments/ Divisions</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Traffic Engineering</td>
<td>Unacceptable design. Would restrict the ability for emergency and service vehicles to exit street in a forward manner.</td>
<td>Acceptable design, requiring sterilizing 2 lots. Would need to restrict on-street parking within turning circle area.</td>
<td>Acceptable design. Provides ample manoeuvring space for passenger vehicles.</td>
</tr>
<tr>
<td>Operations</td>
<td>Unacceptable design. No snow storage area. Additional cost of $2,500/ season for snow removal.</td>
<td>Acceptable design. Allows for snow storage or a cost of $1,200/ season for snow removal.</td>
<td>Acceptable design, but requires no parking signs within turning circle to function properly.</td>
</tr>
</tbody>
</table>

2. Discussion of Options

a. 13m Curb Radius (Existing Standard)

Maintaining the existing standard ensures safe and efficient manoeuvring of service/emergency vehicles; however, can sterilize up to four (4) lots which may deter small developments with a limited number of lots.

b. Reduced Radius Turning Circle

A 10m curb radius would result in no lots being sterilized in most instances, but based on the above, the circulated departments do not support the 10m curb radius turning circle within the road allowance as an alternative to the current standard 13m curb radius turn circle as it does not provide sufficient manoeuvrability and could not be utilized by Emergency Services vehicles such as fire trucks and Operations and Environmental Services vehicles such as garbage trucks or snow removing equipment and would necessitate vehicles reversing on the municipal road, which is in contravention of the Health and Safety Act, which states:

“Every project shall be planned and organized so that vehicles, machines and equipment are not operated in reverse or are operated in reverse as little as possible” (which is usually no greater than a truck length).

In addition, since no snow storage can be accommodated in this substandard design, this may require removal of the snow from the turning circle off-site at a cost to the City.

Staff, also reviewed the abilities of slightly larger turning circles (i.e. between 11m and 13m curb radii) to accommodate city vehicles. While a reduced radius could reduce the number of sterilized lots to between two and three, based on the standard, anything less than 12m prevents safe and efficient manoeuvring of service/emergency vehicles to exit in a forward manner, therefore would be deemed unacceptable.
c. Hammerhead

Although not currently offered as an option for developers, the hammerhead design provides for safe manoeuvring for service/emergency vehicles, and generally could result in the sterilization of two (2) lots; however, they cannot be used when proposed development is on only one side of a municipal street (refer to Appendix C to Report PED09284).

3. Other Opportunities

a. Offset Turning Circle

Offset turning circles are acceptable and can ensure safe manoeuvring of service/emergency vehicles and can reduce the number of sterilized lots to two (2); however, cannot be used when proposed development is on one side of the municipal street (refer to Appendix A to Report PED09284).

b. Reduced Land Taking

The standard turning circle requires a 13m curb radius and an additional 3m behind the curb to provide for any utilities and a boulevard. In the past, staff has accepted a reduced road allowance if it was found to be beneficial and would not impact utilities and service delivery (e.g. snow storage).

Depending on the proposed lot widths, the reduction in the temporary turning circle curb radius from 13m to 12m and the reduction in the setback from 3m to 2m may reduce the number of sterilized lots and make the proposed development more economically viable.

4. Conclusions and Recommendations

The City’s standard of a 13m curb radius is appropriate based on the above manufacturer’s specifications for minimum turning radius and that radii less than 12m will not facilitate the need of service vehicles to complete turning safely and thus are unacceptable. Providing 13m over the above-noted minimum radius needed of 12m for a waste truck allows for a margin of error in manoeuvring around the turning circle, encourages the use of the turning circle and should the occasion occur, allow the flexibility of larger vehicles such as moving trucks to utilize the turning circle. It should be noted that based on a survey conducted by staff, the City’s standard is comparable to many area municipalities’ standards, where the City’s current standard rate sits in about the middle of other municipalities’ standards.

Therefore, based on the foregoing, it is staff’s preference to maintain the present standard of 13m. However, in an effort to provide some flexibility to deal with site specific issues, staff are recommending the following options that may be considered:
a. a reduction to a 12m radius if it makes a material difference to the number of lots to be sterilized, thereby making the proposed development more economically viable. Depending on the lot widths, reducing the radius to 12m may sterilize one less lot.

b. a reduced setback from the back of curb from 3m to 2m if it makes a material difference to the number of lots to be sterilized within a road allowance width of 30m. The 3m setback behind the curb is normally reserved for snow storage and underground utilities; however, if no utilities are to be located within the area behind the curb, the option to reduce this setback can be made available.

c. a hammerhead design be included as an option for a temporary turnaround. This design requires sterilizing only two (2) lots but cannot be used when proposed development is on only one side of a municipal street.

**FINANCIAL/STAFFING/LEGAL IMPLICATIONS:**

Not applicable.

**POLICIES AFFECTING PROPOSAL:**

This change in the City’s standard will be incorporated into the Engineering Guidelines for Development document.

**RELEVANT CONSULTATION:**

Staff has consulted with the following divisions/sections in Public Works:

- Environmental Services (formerly Waste Management)
- Operations (formerly Operations and Maintenance)
- Traffic Engineering (formerly Traffic Engineering and Operations)
- Emergency Services

Staff also consulted with representatives of the Hamilton-Halton Home Builders Association.
By evaluating the “Triple Bottom Line”, (community, environment, economic implications) we can make choices that create value across all three bottom lines, moving us closer to our vision for a sustainable community, and Provincial interests.

Community Well-Being is enhanced. ☐ Yes ☑ No

Environmental Well-Being is enhanced. ☐ Yes ☑ No

Economic Well-Being is enhanced. ☑ Yes ☐ No

This change in standards promotes optimal build out potential of subdivisions which has the effect of increased assessment and job growth.

Does the option you are recommending create value across all three bottom lines? ☐ Yes ☑ No

Do the options you are recommending make Hamilton a City of choice for high performance public servants? ☐ Yes ☑ No

GN:MS:tl
Attachs. (3)
### Survey of Area Municipalities

<table>
<thead>
<tr>
<th>MUNICIPALITY</th>
<th>TEMPORARY TURNING CIRCLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>County of Brant</td>
<td>Curb radius of 14.57m&lt;br&gt;Property line radius of 20.0m</td>
</tr>
<tr>
<td>Town of Oakville</td>
<td>Similar to Hamilton</td>
</tr>
<tr>
<td>Town of Caledon</td>
<td>Property line radius of 15.0m&lt;br&gt;Curb radius of 13.0m&lt;br&gt;Offset property line radius of 15.0m and 13.0m curb radius</td>
</tr>
<tr>
<td>City of Burlington</td>
<td>Uses permanent cul-de-sac&lt;br&gt;Property line radius of 14.5m&lt;br&gt;Curb radius of 11.0m</td>
</tr>
<tr>
<td>City of Mississauga</td>
<td>Uses permanent cul-de-sac&lt;br&gt;Property line radius of 18.75m&lt;br&gt;Curb radius of approximately 12.7m</td>
</tr>
<tr>
<td>City of Brantford</td>
<td>Curb radius of 13.5m&lt;br&gt;Hammerhead design also used</td>
</tr>
<tr>
<td>Town of Milton</td>
<td>Uses permanent cul-de-sac&lt;br&gt;Property line radius of 18.0m&lt;br&gt;Curb radius of 13.0m</td>
</tr>
<tr>
<td>City of London</td>
<td>Easement block of 32.0m x 32.0m&lt;br&gt;Curb radius of 12.2m</td>
</tr>
<tr>
<td>City of Waterloo</td>
<td>Property line radius of 20.0m&lt;br&gt;Curb radius of 14.0m</td>
</tr>
<tr>
<td>City of Brampton</td>
<td>Property line radius of 16.0m or 19.5m&lt;br&gt;Curb radius of 11.5m or 15.0m</td>
</tr>
<tr>
<td>City of Welland</td>
<td>Uses OPSD Standards 500.02 and 500.03&lt;br&gt;Curb radius of 9.0m and property line radius of 15.0m</td>
</tr>
<tr>
<td>City of Guelph</td>
<td>Currently reviewing standards</td>
</tr>
<tr>
<td>City of Kitchener</td>
<td>No temporary turning circle standard</td>
</tr>
<tr>
<td>Town of East Gwillimbury</td>
<td>Uses OPSD Standards 500.02 and 500.03&lt;br&gt;Curb radius of 9.0m and property line radius of 15.0m</td>
</tr>
</tbody>
</table>
### Survey of Area Municipalities cont'd

<table>
<thead>
<tr>
<th>MUNICIPALITY</th>
<th>TEMPORARY TURNING CIRCLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Toronto</td>
<td>No standard temporary or permanent cul-de-sac.</td>
</tr>
</tbody>
</table>
| City of Scarborough     | Property line radius of 15.0m  
                           | Curb radius of 9.5m         |
| City of Newmarket       | Uses hammerhead design    |
| Town of Ajax             | Uses permanent cul-de-sac  
                           | Property line radius of 18.5m or 20.5m depending on length  
                           | Curb radius of 13.5m or 15.5m depending on length |
| City of Oshawa          | Curb radius of 10.0m      |
| Town of Richmond Hill   | Located entirely within road allowance |
| Town of Markham         | Uses permanent cul-de-sac  
                           | Property line radius of 19.0m  
                           | Curb radius of 14.0m         
                           | Offset radius cul-de-sac also used |
| City of Pickering       | Curb radius of 11.5m within easement block  
                           | Offset curb radius of 11.5m from property line within easement block |
| York Region             | Uses OPSD 500.02 and 500.03 Standards  
                           | Curb radius of 9.0m and property line radius of 15.0m |
| City of Peterborough    | Uses OPSD 500.02 and 500.03 Standards  
                           | Curb radius of 9.0m and property line radius of 15.0m |
| Town of Georgina        | Temporary and permanent cul-de-sac are same standard  
                           | Asphalt radius of 15.0m  
                           | Property line radius of 20.75m |
| Town of Halton Hills    | No temporary turning circle standard |
Hammerhead Design

NOTES:
1. MINIMUM TURNING MOVEMENT BASED ON RTAC, SU 9-SINGLE UNIT TRUCK, WITH THE FOLLOWING DIMENSIONS: WHEELBASE: 6.1m, OVERALL LENGTH: 7.9m (EXCLUDES OVERHANG AT REAR)
2. ALL DIMENSIONS ARE MINIMUM

City of Hamilton
Public Works Department

TYPICAL PERMANANT HAMMERHEAD TURNING MOVEMENT DIAGRAM

DIMENSIONS SHOWN ARE IN MILLIMETRES UNLESS OTHERWISE NOTED (N.T.S.)

DATE: November 2005
REV No.

HAMILTON STD No. RD-115