

INFORMATION NOTE

Title:	Winter Design Standards for Residential Developments
Date Prepared:	December 3, 2020
Report To:	Committee of the Whole
Councillor and Role:	Councillor Ian Froude, Public Works & Sustainability
Ward:	N/A

Issue:

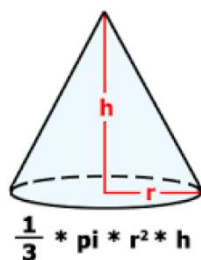
Information about the new Winter Design Division for residential developments as outlined in the Development Design Manual

Discussion – Background and Current Status:

The new Winter Design Division of the Development Design Manual outlines the general design requirements for new residential developments. This section of the manual helps to ensure that urban expansion is carried out in a manner that does not add a financial burden to the City, as per the strategic objectives of Envision St. John's.

Whenever new or temporary roads are proposed for the City to maintain, snow clearing must be taken into consideration. While the requirements are not significant, they are vital in minimizing the burden on operational resources.

Residential building lots in the City of St. John's should have adequate snow storage for street and driveway snow to prevent costly snow removal. The current method of determining the necessary snow storage requires building lots in heavy snow volume areas identified on the "Snow Volume Map", to follow the Snow Volume Calculation (SVC) which is often referred to as the Snow Cone Calculation.



The SVC was developed to ensure adequate snow storage on building lots in higher elevation areas such as Kenmount Terrace and Southlands to allow for reduced building lots and increased density at higher elevations. It was a theoretical calculation to provide an equivalent amount of snow storage on a reduced lot as on a standard R1 building lot with 15m of street frontage. The SVC generally worked in these areas, but it was recognized that developments

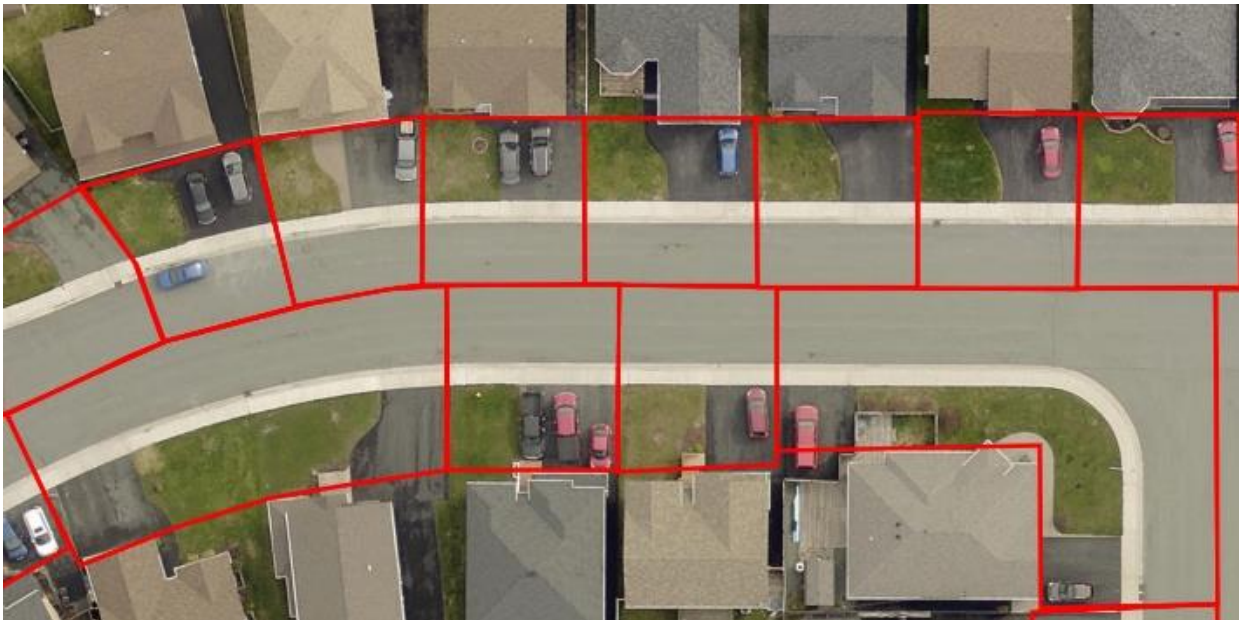
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above the 190m contour would not be well served by this calculation since these areas receive higher annual snowfall accumulation. Some limitations of the SVC include:

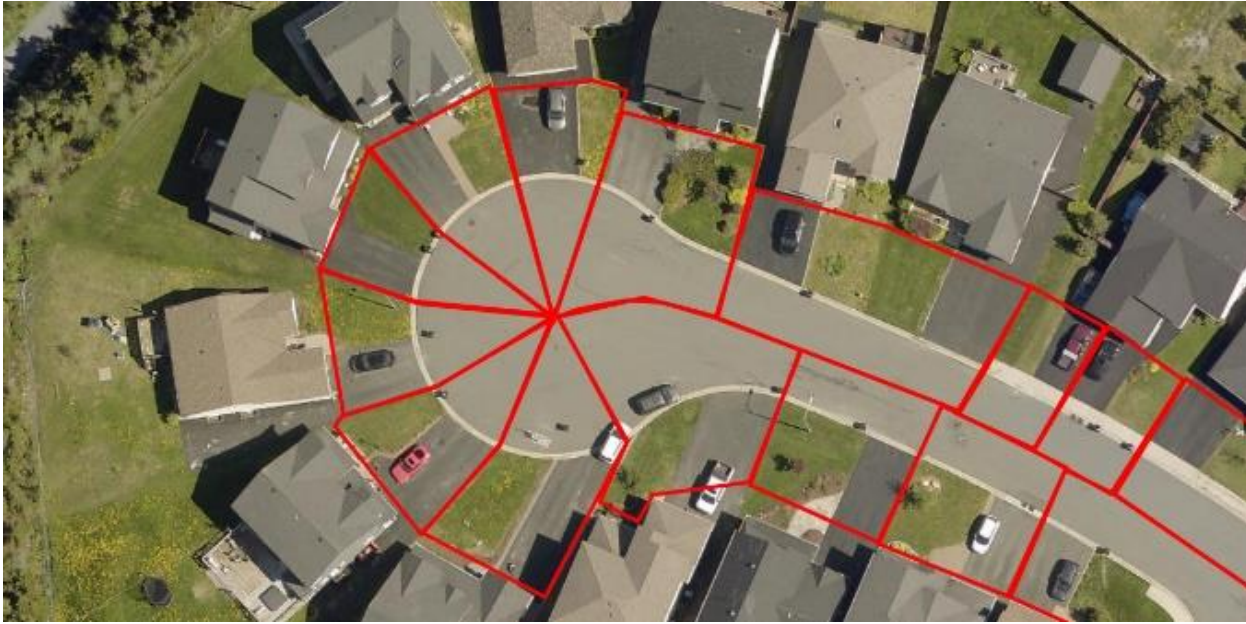
- It does not account for elevation or snowfall variances
- It does not account for road width variances
- It does not allow for the sharing of snow storage areas
- It is not representative of what happens in the field

As development within the City continues to spread into higher elevations, and further from the City core, the City's Operations staff continue to face ever-increasing challenges with snow clearing. Higher snow volumes exist at these higher elevations and costly snow removals can be avoided with proper planning and design. New developments will be expected to provide adequate landscaped areas adjacent to the City roadway, which will provide City Operations staff adequate snow storage for snow cleared from City streets. Developments in some areas may also be required to provide bulk snow storage sites, this requirement is expected for areas with a high snow volume.

The proposed Winter Design Division to be implemented in the City's Design Manual requires that snow accumulation areas be delineated for each snow storage area (residential front yard). Each accumulation area should extend from the centerline of the road to the building footprint (or 10m from the face of curb, whichever is less). Each accumulation area should contain only one or two driveways. Snow storage areas between adjacent homes can share the storage area between two driveways. This is encouraged and results with larger snow storage piles.

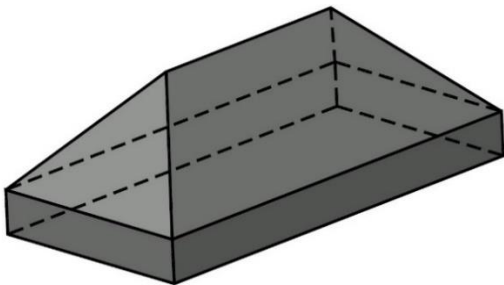


This image outlines the snow accumulation area for each residential property. The total snow that falls in these areas must fit on the adjacent lawns.



This cul-de-sac image shows how the snow accumulation areas are much larger than the available snow storage area. This lack of snow storage space is a source of frustration for many cul-de-sac residents.

The new Winter Design Division was developed to address the limitations of the Snow Volume Calculation. It accounts for items such as elevation, road width, community mailboxes, fire hydrants, and more closely represents winter conditions. This design process combines the City's snow storage requirements with the residential homeowner's snow storage requirements to provide an adequately spaced shared snow storage area in the homeowner's front yard. This design standard is applicable to all elevations and snow volumes and is intended for use city-wide, not just the areas identified on Map N.



Some benefits provided by the new Winter Design Division include:

- It permits increased density at various elevations
- Better homeowner experience with adequate front yard snow storage
- Cul-de-sacs have a high percentage of wasted land and the Winter Design Division makes it less attractive to develop them.
- Reduction of costly snow removal

Residential hardscapes need strict control. Driveways approved at a certain width may not be widened at any point of the driveway without express approval by the City. Previous City landscaping and driveway width requirements on occasion resulted with driveways installed in triangular shapes, or with other hardscapes installed alongside the driveway. This practice severely impacted snow storage and will not be accepted by the City. Driveway widths must remain consistent within the 10m setback from the face of curb, at the width approved in the snow storage plan.



*Left: Triangular driveway with reduced snow storage.
Center: Triangular driveway widened with an adjacent walkway.
Right: Driveway with consistent width but installed wider than approved.*

The City will provide a spreadsheet to developers who can input street details such as elevation, street classification, street width, and sidewalk width. The lot information is also added including the lot width, driveway width, and building line. The lot information can be adjusted to achieve the required snow storage. This will work for single or combined housing units on varying lot sizes. This spreadsheet will contain all the necessary calculations, the developer is only required to input the data. The workload increase for developers is expected to be minimal.

This design standard may result in less building lots or larger building lots than the developer initially proposes. However, City staff feel that by adhering to this design standard both the City and the eventual homeowner will have adequate space to satisfactorily store snow. This will lead to less frustration and complaints from residents and less cost to the City's snow clearing operations.

Key Considerations/Implications:

1. Budget/Financial Implications: N/A
2. Partners or Other Stakeholders:
 - Residents
 - Developers
3. Alignment with Strategic Directions/Adopted Plans:
 - Envision St. John's
 - A Sustainable City
 - A City That Moves
4. Legal or Policy Implications: N/A
5. Privacy Implications: N/A
6. Engagement and Communications Considerations:
 - The Winter Design Division will need to be communicated to developers and residents.
7. Human Resource Implications: N/A
8. Procurement Implications: N/A
9. Information Technology Implications: N/A
10. Other Implications:

Conclusion/Next Steps:

The full Winter Design Division will be reviewed for full adoption with the new Envision Regulations.

Report Approval Details

Document Title:	Winter Design Standards for Residential Developments.docx
Attachments:	- Map N and the snow cone.pdf
Final Approval Date:	Dec 3, 2020

This report and all of its attachments were approved and signed as outlined below:

Lynnann Winsor - Dec 3, 2020 - 11:03 AM