

**From:** [Clerks@vaughan.ca](mailto:Clerks@vaughan.ca) <[Clerks@vaughan.ca](mailto:Clerks@vaughan.ca)>

**Sent:** Wednesday, July 12, 2023 8:18 AM

**To:** Regional Clerk <[ClerkGeneralLine@york.ca](mailto:ClerkGeneralLine@york.ca)>

**Subject:** Item 2, Committee of the Whole (Working Session), Report No. 27, Council June 20, 2023

*Sent on behalf of Todd Coles, City Clerk*

Christopher Raynor, Regional Clerk  
The Regional Municipality of York  
17250 Yonge Street  
Newmarket, ON L3Y 6Z1

Dear Christopher Raynor:

**RE: WINTER MAINTENANCE SERVICE LEVEL REVIEW**

[Linked](#) for your information is **Item 2, Report No. 27**, of the Committee of the Whole (Working Session) regarding the above-noted matter, which was adopted without amendment by the Council of the City of Vaughan at its meeting of June 20, 2023.

*To assist us in responding to inquiries, please quote the item and report number.*

Sincerely,

**Todd Coles**

**City Clerk**

905-832-8504 | [clerks@vaughan.ca](mailto:clerks@vaughan.ca)

**City of Vaughan | Office of the City Clerk**

[2141 Major Mackenzie Dr., Vaughan, ON L6A 1T1](#)

[vaughan.ca](http://vaughan.ca)



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## CITY OF VAUGHAN

### EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 20, 2023

Item 2, Report No. 27, of the Committee of the Whole (Working Session), which was adopted without amendment by the Council of the City of Vaughan on June 20, 2023.

#### **2. WINTER MAINTENANCE SERVICE LEVEL REVIEW**

**The Committee of the Whole (Working Session) recommends:**

- 1) That the recommendations contained in the report of the Deputy City Manager, Public Works dated May 31, 2023, be approved; and**
- 2) That the presentation by Peter Pilateris, Director, Transportation and Fleet Management Services, and C2, presentation material, be received.**

#### **Recommendations**

1. THAT winter maintenance services be maintained at the current level, given their positive impact on safety and citizen satisfaction;
2. THAT funding in the amount of \$250,000 be added to the snow removal budget to sustain current snow removal operations, without impacting the winter reserve;
3. THAT the Severe Weather Response Plan (SWRP) be adopted to help communicate to the public potential service level impacts during major storms using the City's established communications channels;
4. THAT as per the February 2022 Member's Resolution, that the City of Vaughan and the Regional Municipality of York collectively undertake a review of various service delivery options for sidewalks adjacent to regional roads and their impacts, while providing the most affordable service that ensures legislative compliance and an accessible and safe citizen experience; and
5. THAT the City Clerk forward a copy of this report to the Regional Municipality of York.

## Committee of the Whole (Working Session) Report

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**DATE:** Wednesday, May 31, 2023

**WARD(S):** ALL

**TITLE:** WINTER MAINTENANCE SERVICE LEVEL REVIEW

**FROM:**

Zoran Postic, Deputy City Manager, Public Works

**ACTION:** DECISION

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**Purpose**

To provide a risk-based analysis of current winter maintenance service levels and recommendations for future service levels.

**Report Highlights**

- An audit of the Roads Winter Maintenance program was conducted in 2018 with recommendations to conduct a risk-based evaluation of the winter strategy.
- A jurisdictional review of peer municipalities was conducted which revealed the City of Vaughan has the highest service levels for road winter maintenance in the GTA.
- Industry experts conducted a study which confirmed the City of Vaughan's higher service levels reduce the risk of collisions during winter events.
- The 2022 Vaughan Citizen and Business Survey showed an increased satisfaction score of 5 points for road snow removal.
- To manage extreme weather events effectively and communicate realistic outcomes, Public Works has developed a Severe Weather Response Plan.

**Recommendations**

1. THAT winter maintenance services be maintained at the current level, given their positive impact on safety and citizen satisfaction;
2. THAT funding in the amount of \$250,000 be added to the snow removal budget to sustain current snow removal operations, without impacting the winter reserve;

3. THAT the Severe Weather Response Plan (SWRP) be adopted to help communicate to the public potential service level impacts during major storms using the City's established communications channels;
4. THAT as per the February 2022 Member's Resolution, that the City of Vaughan and the Regional Municipality of York collectively undertake a review of various service delivery options for sidewalks adjacent to regional roads and their impacts, while providing the most affordable service that ensures legislative compliance and an accessible and safe citizen experience; and
5. THAT the City Clerk forward a copy of this report to the Regional Municipality of York.

### **Background**

**The May 2018 Roads Winter Maintenance Audit recommended that the City conduct a risk-based evaluation of its winter maintenance strategy.**

The City's roads winter maintenance program was evaluated against multiple risk factors including financial, operational, health and safety as well as environmental. The objective was to determine whether existing service levels were deriving any additional benefits considering the incremental costs and potentially adverse environmental impacts.

**The Audit recommended a complete review of winter maintenance strategies and budgets to ensure alignment with Council directives and historical and anticipated spending.**

A jurisdictional review was conducted to compare the City of Vaughan's Roads winter maintenance strategy to those of peer municipalities. The peer group included the cities of Markham, Richmond Hill, Brampton, Toronto, Mississauga, Oakville, and York Region. Comparisons included service levels, costs (where available) and road safety outcomes.

Since the 2018 audit, Public Works has worked with stakeholders to increase funding to enable the delivery of services in alignment with Council directives. The operating season has been extended where required to address the additional demands placed on services due to climate change and operational efficiency increased through innovative service initiatives to manage funds effectively and responsibly.

**Extreme weather events have resulted in Public Works reviewing its service delivery model and exploring an enhanced operational response.**

Extreme weather events can stress an organization's ability to deliver winter maintenance services while maintaining service level commitments. Though these events are not common, they are becoming more frequent as a result of climate



change. On January 17, 2022, the City experienced the greatest daily snowfall in 14 years and the second most snowfall in 23 years with a snow accumulation of 40 cm. Extensive analysis and review was conducted which confirmed that the City performed exceptionally well overall in its response to the January 17, 2022, extreme snow event and minimized risk to the community.

To ensure the City is managing such extreme events effectively, Public Works has performed a service level review, developed a Severe Weather Response Plan and is exploring several avenues including communication tools and provisional service options to maintain citizen satisfaction.

**A recent survey shows that Vaughan’s citizens are satisfied with the winter maintenance services provided by the City.**

The 2022 Citizen and Business Survey revealed that citizen satisfaction scores for road snow removal increased from the previous survey in 2018. Road snow removal increased by 5 points and end-of-driveway snow removal (windrows) increased by 1 point. Road snow removal was identified as a primary area for maintenance. Primary areas are services that have relatively high impact on overall satisfaction and high individual satisfaction scores. The focus is on maintaining the current level of service and satisfaction.

**In February 2022, Regional Councillor Linda Jackson, now Deputy Mayor, presented a Member’s Resolution requesting the Regional Municipality of York (the Region) perform a review of the effectiveness and efficiency of winter maintenance activities on sidewalks adjacent to regional roads.**

The Member’s Resolution was supported by Committee and subsequently provided to the Region and local municipal partners. In response, on June 16, 2022, the Region’s Committee of the Whole endorsed a report from the Commissioner of Public Works entitled “Winter Maintenance on Sidewalks Adjacent to Regional Roads”. The report requested local municipal partners to determine their position on sidewalk winter maintenance adjacent to regional roads.

**Previous Reports/Authority**

*The following report(s) provide additional information on various topics discussed in this report:*

[Staff Communication – January 17, 2022, Winter Storm Event \(SC1, June 21, 2022, Committee of the Whole \(2\)\)](#)

[Review of Regional Winter Maintenance Roles and Responsibilities Extract from Council Meeting Minutes of February 15, 2022 \(Report No. 6, Item 14 of the Committee of the Whole \(2\) February 8, 2022\)](#)

[Internal Audit – Winter Maintenance Audit Extract from Council Meeting Minutes of June 19, 2018 \(Report No. 6, Item 4 - Finance, Administration and Audit Committee Report, June 6, 2018\)](#)

[Winter Control Programs Operational Review Extract from Council Meeting Minutes of May 27, 2014 \(Report No. 25, Item 4 – Committee of the Whole \(Working Session\), May 21, 2014\)](#)

### **Analysis and Options**

**Vaughan’s implementation of provincially and internationally award-winning artificial intelligence (AI) technology has enabled Public Works to improve operations efficiency and optimize salt usage, which has improved environmental and financial sustainability and increased citizen satisfaction.**

Public Works has undertaken initiatives to improve both citizen satisfaction and operational performance. One of these initiatives is the implementation of an artificial intelligence-based system that provides recommendations on winter maintenance treatments. The Maintenance Decision Support System (MDSS) uses weather forecasts, road pavement conditions and the City’s operational rules to recommend road treatments and optimal salt usage. The effective reduction in salt usage has made for a more financially sustainable operation and has reduced the amount of salt introduced into the watershed, contributing to environment sustainability.

The City was awarded the following awards for innovation:

- 2022 Technology Project of the Year from the Ontario Public Works Association (OPWA)
- 2022 Willis Award for Innovation from the Canadian Association of Municipal Administrators (CAMA)
- EA Danby Certificate of Merit from the Association of Municipal Managers, Clerks and Treasurers of Ontario (AMCTO)
- Smart 50 Award from the Smart Cities Connect Foundation, which honours the 50 most innovative and transformative municipal-scale smart city projects globally.

The implementation of MDSS was also recognized recently at a United Nations Industrial Development Organization Bridge for Cities conference as an example of building resilience through urban innovation.

**A roads winter maintenance survey was conducted among peer municipalities and demonstrates that Vaughan has the highest service levels in the GTA for Roads Winter Maintenance.**

The City's winter maintenance service levels were benchmarked against the service levels of a group of peer municipalities. The comparator group included the cities of Markham, Richmond Hill, Brampton, Toronto, Mississauga, Oakville, and York Region. The items benchmarked included service levels, costs (where available), and resources. The Minimum Maintenance Standards legislation (O.Reg. 366/18) defines the minimum standards for winter maintenance for roads (highways). The highest service levels apply to major highways and arterial roads with decreasing requirements for residential roads. All municipalities surveyed maintain their main roads to the higher levels of the standard, which is a target state of bare pavement. However, only Vaughan maintains its residential roads to the same standard as the main roads. (See Attachment 2: Jurisdictional Review).

Vaughan also maintains its laneways to the standard of bare pavement (which is unique among the peers). Additionally, Vaughan is one of the few municipalities to offer a windrow clearing service for all residential driveways and has the most comprehensive of all offerings among the peer municipalities.

**Vaughan winter service level options have been reviewed and current service levels continue to ensure the safety of the road network in a fiscally and environmentally sustainable manner.**

Several winter maintenance service level options were reviewed for Roads. The winter maintenance industry defines three typical outcomes of a maintenance operation:

- The first is a target state of "bare pavement".
- The second is a state of "safe and passable", which is a road surface that has residual snow and/or ice but may be travelled safely.
- The third is "snowpack", which is a permanent state of hard-packed snow on a roadway (typically implemented in jurisdictions with colder temperatures or lower traffic volumes).

As Vaughan implements a bare pavement strategy across its entire network, several options were examined for lower levels of service. Implementing a combined "bare pavement/safe and passable" approach would result in an increased risk to the City and reduce citizen satisfaction at marginal cost savings.

**An independent study conducted by industry experts confirmed that Vaughan's winter maintenance service levels have a positive impact on road safety.**

Industry experts were retained to examine the impact of the City's level of service on road safety. Vaughan's historical collision data was compared to those of several peer municipalities. The descriptive analysis showed that the number of collisions during winter events increased in all municipalities compared to collisions that occurred during corresponding non-event periods. However, the City of Vaughan experienced the smallest increase in collisions during the event periods compared to the comparison municipalities. Thus, the study demonstrates that the higher winter maintenance service levels have a positive impact on public safety.

**Vaughan is a leader in providing the most extensive, time efficient and cost-effective windrow clearing program across the Greater Toronto Area**

Vaughan is one of three municipalities in the GTA that offer city-wide windrow clearing. In comparison to other municipalities, Vaughan's windrow program services all residential driveways and has the most efficient service level timelines. Vaughan currently services approximately 90,000 residential driveways at an annual cost of \$2.1M, which equates to \$23 per residential driveway per winter season.

Several options were examined for windrow clearing services. The option of plow-windrow coupling involves the plow and windrow clearing unit working in tandem. This is an approach that was implemented in the City in the past. A 2014 study commissioned by the City found that this delayed the completion of maintenance on routes by an average of 3 hours. As a result, the coupling approach was abandoned and the current operational practice of plows and windrow clearing units to proceed independently was adopted. This finding was supported by a study using data from recent plowing events, which showed an average route completion delay of almost 4 hours for the coupling approach. To effectively pair plows and windrow units and maintain current maintenance timelines, a significant increase in the number of units deployed would be required, which would result in a significant increase in costs. Given the current contract status, the earliest this option could be implemented would be in 2026.

**To ensure public safety, the City typically conducts snow removal operations three to four times per season within its Business Improvement Areas (BIAs) and once per season in laneways and narrow corridors when snow storage capacity has been exceeded.**

The removal of accumulated snow and is only performed within our Business Improvement Areas (BIAs) or when snow accumulations pose a risk to public safety. The service is typically performed in the City's BIAs when snow accumulation in parking areas reaches a height exceeding 0.5m or in laneways when snow accumulation

impedes the passage of vehicles and snow storage capacity has been exceeded. From the jurisdictional review, most municipalities in the GTA that conduct snow removal in laneways take a similar approach to the City of Vaughan which is to perform snow removal operations as required when the passage of vehicles through the corridors is impeded.

As part of the service level review, several options were reviewed including making snow removal a standard service after every plow event for BIAs, laneways, narrow roads, and cul-de-sacs. Given an average of seven (7) plowing events per season, the cost of snow removal would be significant at a cost of over \$2M annually and would require additional contracted services. It is recommended to continue providing snow removal for major storm events when there is a risk to public safety. In recent years, snow removal operations within laneways and narrow corridors have been conducted once annually following severe winter storm events and when snow storage capacity has been exceeded.

**A Severe Weather Response Plan has been developed to effectively communicate anticipated service level impacts to the public during severe weather events and to identify thresholds that trigger snow removal operations.**

Extreme winter weather events can present challenges in meeting service level commitments. A Severe Weather Response Plan has been developed to identify realistic maintenance timelines when snow accumulation from an event exceeds 20 cm and when snow removal operations are required. The Plan classifies “Storm Types” and the corresponding service levels based on accumulation. This can be an effective way to explain the anticipated service level impacts to the public using the City’s various communications channels. The City of Toronto uses a similar tool to communicate service levels to their citizens. There is also potential for broader adoption across peer municipalities.

This will serve to further enhance the Corporate and Strategic Communications department’s already award-winning winter maintenance communications approach which employs various communications methods to increase public awareness of service levels, educate residents and business owners about their responsibilities during the winter season, and provide weather-related updates that may affect residents during winter. From November 2022 to April 2023, winter communications tactics included more than 125 Public Service Announcements and Council Communications Packages, educational videos on City services, proactive media outreach, eNewsletters, brochures, social media (both organic and paid) to the City’s 70,000 followers, website content, mailers, signage and much more. Going forward, the City of Vaughan will consider partially opening the Emergency Operations Centre in severe storm circumstances as required.

**As per the Province of Ontario's *Municipal Act, 2001* sidewalk winter maintenance adjacent to regional roads is the responsibility of local governments. The time and equipment required to ensure sidewalks adjacent to regional roads are maintained to the appropriate levels of service impacts Vaughan's ability to deliver timely local sidewalk winter maintenance service.**

Vaughan currently provides winter maintenance along 216 kilometres of sidewalks adjacent to the Region's roads. This makes up 18% of the 1,200 sidewalk kilometres maintained by the City. The City often expends 60 to 65% of its resources per winter event maintaining sidewalks and intersections adjacent to regional roads.

This is due to the high volume of snow cleared from the road that requires storage within the boulevard and sidewalk areas. With the compressing urban form and widening of roads, sidewalks have become the only option for road plowing operations snow storage. Stored snow is often a solid mass and can at times be up to three (3) feet deep. Clearing and removing this type of snow is tough on the City's equipment and requires a more robust, coordinated approach with the Region.

#### **Financial Impact**

The cost to fully fund the snow removal operations once per year within the City's laneways and narrow corridors will result in an increased cost of approximately \$250,000 to the existing snow removal budget.

#### **Operational Impact**

Public Works is responsible for delivering winter maintenance services. Corporate and Strategic Communications would be involved in the communication of the proposed Severe Weather Response plan.

#### **Broader Regional Impacts/Considerations**

There are no broader regional implications of the winter maintenance service level review. There is an opportunity to implement a Severe Weather Response plan as a common approach to communicating service level impacts across a number of peer municipalities.

#### **Conclusion**

Vaughan has among the highest levels of service for winter maintenance in the GTA. As a result, it is recommended that the City maintains its current winter maintenance service levels. In order to sustain current snow removal operations without impacting the winter reserve, it is recommended that funding in the amount of \$250,000 be added to the snow removal budget.

It is further recommended that the City proceeds with the proposed Severe Weather Response plan to enhance the approach to explaining potential service level impacts during major storms to the public.

As the City often expends 60 to 65% of its resources per winter event maintaining 18% of sidewalk kilometres adjacent to regional roads, Public Works recommends the City and the Region collectively examine various service delivery options for sidewalk snow clearing, and their impacts while providing the most affordable service that ensures legislative compliance and an accessible and safe Citizen experience.

**For more information**, please contact:

Peter Pilateris, Director, Transportation and Fleet Management Services, Ext.6141.  
Shanon Kalra-Ramjoo, Acting Director, Parks, Forestry and Horticulture Operations / Business Excellence and Operational Performance, Ext.6308.

**Attachments**

1. Jurisdictional Review.
2. Severe Weather Response Plan.
3. Winter Maintenance Service Level Review Presentation.

**Prepared by**

Alan Pacheco, Manager, Road Operations, Ext. 6204

In consultation with:


Carmine Mainella, Manager, Parks and Horticulture Operations, Ext. 6500  
Maurice Battistuzzi, Project Manager, Operational Performance, Analytics and Innovation, Ext. 6149  
Bianca D'Mello, Project Manager, Business Transformation, Ext. 8886

**Approved by**



Zoran Postic, Deputy City Manager,  
Public Works

**Reviewed by**






Zoran Postic  
on behalf of Nick Spensieri,  
City Manager

# Jurisdictional Review

Attachment 1



Service Level	 BRAMPTON	 MARKHAM	 VAUGHAN	 Richmond Hill	 TORONTO
Mains					
Residential					
Windrow		 *persons with disabilities and elderly residents only	 *all residential driveways, within 4 hours after plow	 *all residential driveways, up to 13 hours after snowfall	 *clear all residential driveways, where mechanically possible

Legend:	 = Bare Pavement	 = Safe & Passable	 = Snow Pack
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# Severe Weather Response Plan: Roads

Attachment 2



Road Category	Target Condition	Start of Plowing After Accumulation Of	Time to Complete			
			STORM TYPE 1 (0-5 cm)	STORM TYPE 2 (5-20 cm)	STORM TYPE 3 (20-35 cm)	STORM TYPE 4 (35+ cm)
<b>Primary</b> <i>(after snowfall)</i>	Bare Pavement	5 cm	4 hrs	4 hrs	6 hrs	8 hrs
<b>Primary – Windrows</b> <i>(after plow)</i>	One car width	5 cm		4 hrs	8 hrs	12 hrs
<b>Secondary</b> <i>(after snowfall)</i>	Bare Pavement	5 cm	12 hrs	12 hrs	16 hrs	20 hrs
<b>Secondary – Windrows</b> <i>(after plow)</i>	One car width	5 cm		4 hrs	8 hrs	12 hrs
<b>Laneways (Narrow Streets)</b> <i>(after snowfall)</i>	Bare Pavement	5 cm	12 hrs	12 hrs	16 hrs	20 hrs

<b>Notes</b>	<p><b>Windrows:</b></p> <ul style="list-style-type: none"> <li>Objective of driveway windrow opening program is to clear sufficient space so that a vehicle may pass safely. There will be some residual snow left in the driveway that the resident will have to clear by hand.</li> <li>Driveway windrow opening not provided in areas where there is overnight on street parking.</li> </ul> <p><b>Snow Removal:</b></p> <ul style="list-style-type: none"> <li>Snow removal will commence in BIAs after 0.5 m of accumulation.</li> <li><b>Snow removal on laneways and narrow streets will be performed for Storm Types 3 and 4</b></li> <li>Snow removal on cul-de-sacs will commence when there is no longer enough room around a pile for safe passage of snowplows, emergency vehicles and garbage collection.</li> </ul>
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# Severe Weather Response Plan: Sidewalks

Attachment 2



Road Category	Target Condition	Start of Plowing After Accumulation Of (cm)	Time to Completion Plowing (Hours) After the End of Snowfall			
			STORM TYPE 1 (0-5 cm)	STORM TYPE 2 (5-20 cm)	STORM TYPE 3 (20-35 cm)	STORM TYPE 4 (35+ cm)
Sidewalks – Primary	Bare Pavement	2 cm	48 hrs	60 hrs	72 hrs	84 hrs
Sidewalks- Secondary	Bare Pavement	2 cm	48 hrs	60 hrs	72 hrs	84 hrs





# Public Works Service Level Review Winter Maintenance

May 2023



Transportation and Fleet  
Management

# Agenda

**1** Background

**2** Road Operations

**3** Safety and Risk Assessment

**4**

**Severe Weather Response Plan**

**5**

**Winterization Reserve**

**6**

**Recommendations**





# Background





# Why Service Level Reviews Matter



- **Responsive to the needs of the community** – services meet and are adaptive to community needs and expectations
- **Efficient** – service processes are optimized and right-sized (using resources - people, materials, equipment, infrastructure, buildings - the best way possible)
- **Effective** – services are delivered with better quality and possibly in new ways
- **Making evidence-informed decisions** – using data and process performance indicators to evaluate service delivery efficacy

# Why This Service Level Review Matters



Key Activity in the Term of  
Council Service Excellence  
Strategic Plan



Audit of Winter  
Maintenance (2018)



Planning for Growth







# Winter Maintenance in Vaughan



Approximately  
**90,000**  
windrows



More than  
**2,200 lane km**  
of roads

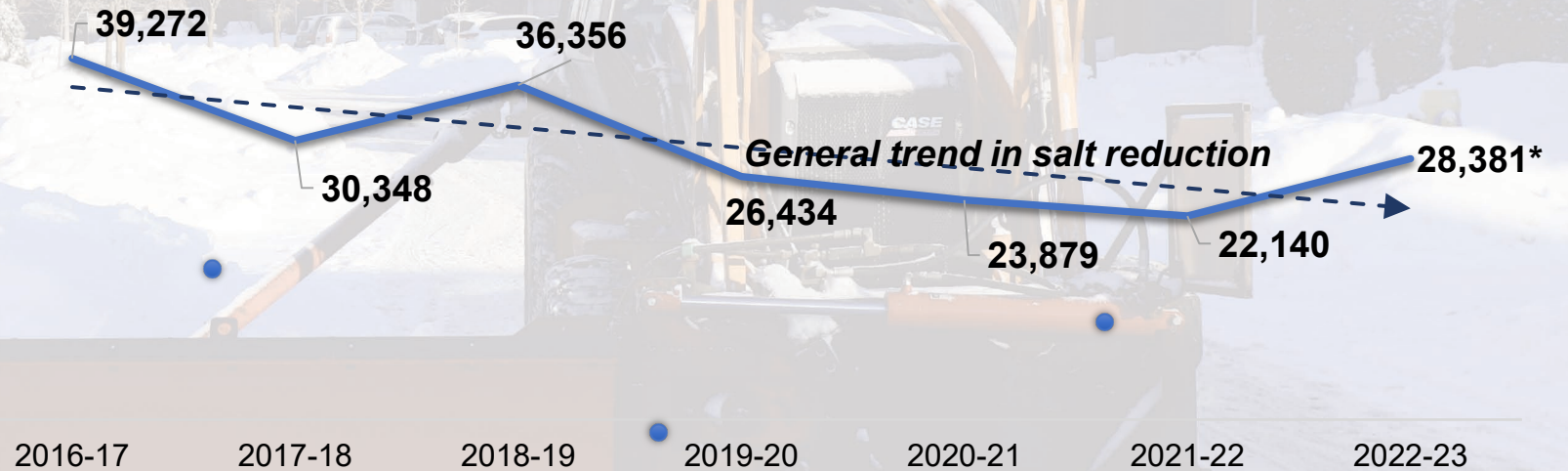


More than  
**1,200 km**  
of sidewalks



More than  
**130** crosswalk  
locations

## Salt Usage by Season (in tonnes) – Roads



\*While having less events in the 2022-23 season, it had an increase in freezing rain events as well as multi-day events resulting in an increase in salt usage due to the application of salt numerous times during one event.

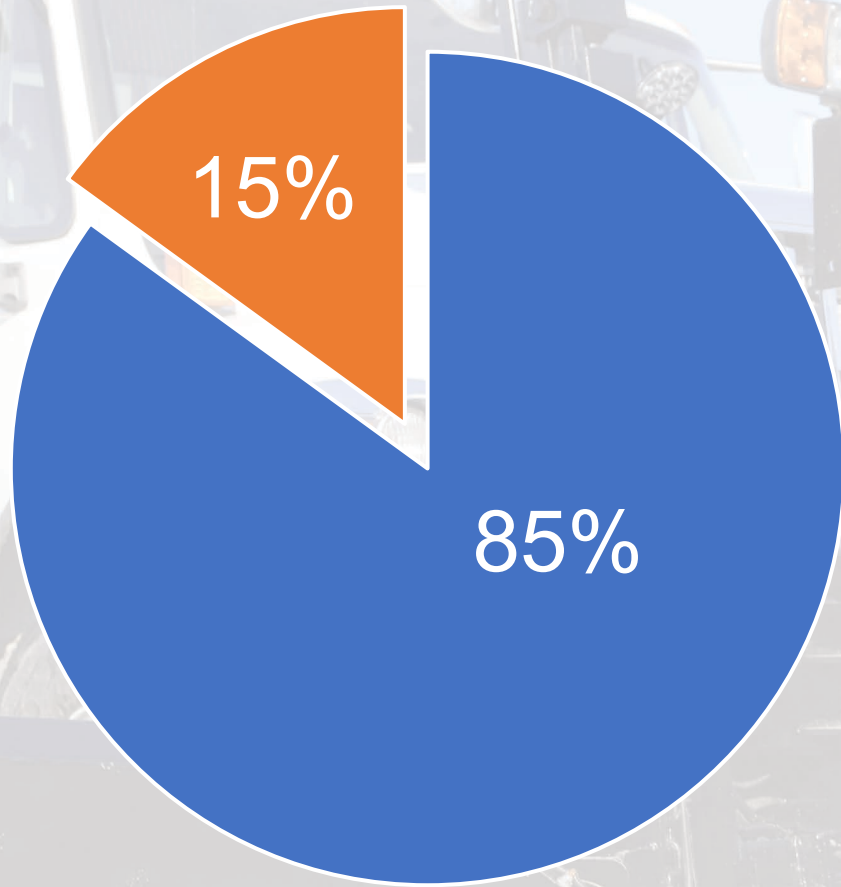




# A Winter Season in Vaughan



## % OF PLOWING EVENTS



- Average # of Winter Events (46)
- Average # of Plowing Events (7)



## Winter Operations Events by Type by Season

Table 1: Winter Operations Event History by Season

Season	Salting	Plowing & Salting	Total
2016-17	39	6	45
2017-18	32	10	42
2018-19	50	9	59
2019-20	46	6	52
2020-21	29	9	38
2021-22	45	4	49
2022-23	30	6	36

# 2022 Citizen and Business Survey



- Areas to be protected and maintained included winter maintenance services
- **Road snow removal** was identified as a primary area for maintenance

Overall, there is an **increase** in winter maintenance areas:

- Road snow removal increased **5 points**
- End-of-driveway snow removal increased **1 point**





# Key Terminology



## BARE PAVEMENT



- Denotes fully cleared snow from a driving surface.



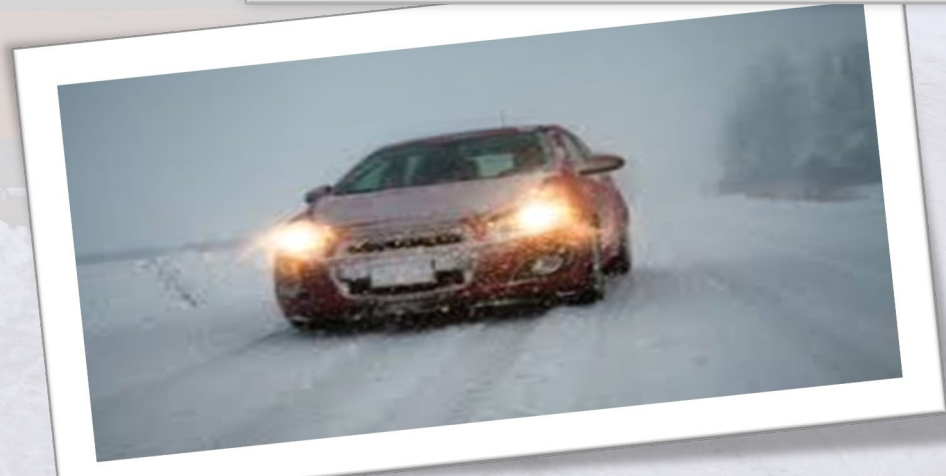
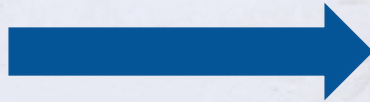
## SAFE AND PASSABLE

- A road surface that is free from as much ice and snow as is practical and may be traveled safely at reasonable speed.



## SNOW PACK




- Snow pack is hard-packed snow on a roadway.



# Jurisdictional Review



Service Level	 <b>BRAMPTON</b>	 <b>MARKHAM</b>	 <b>VAUGHAN</b>	<i>Richmond Hill</i>	 <b>TORONTO</b>
<b>Mains</b>					
<b>Residential</b>					
<b>Windrow</b>		 *persons with disabilities and elderly residents only	 *all residential driveways, within 4 hours after plow	 *all residential driveways, up to 13 hours after snowfall	 *clear all residential driveways, where mechanically possible

<b>Legend:</b>	 = <b>Bare Pavement</b>	 = <b>Safe &amp; Passable</b>	 = <b>Snow Pack</b>
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# Road Operations

## Service Level Options



1. STATUS QUO

2. INTERMEDIATE

3. MINIMUM MAINTENANCE  
STANDARDS (MMS)



# Option 1: Status Quo

## Roads Operations



### SERVICE LEVEL

- Mains and Residentials maintained to bare pavement
- Plowing operations: 5 cm threshold

### Timeline:

- 4 hours for Mains
- 12 hours for Residentials

### COST

- Total cost is \$9.6M

*Vaughan is the only municipality with this high level of service.*



# Service Level Options



1

## STATUS QUO

### SERVICE LEVEL

Mains: bare pavement  
Residential: bare pavement  
Plowing Mains: 5 cm  
Plowing Residential: 5 cm

### TIMELINES

Mains: 4 hours  
Residential: 12 hours

**COST: \$9.7M**

2

## INTERMEDIATE

### SERVICE LEVEL

Mains: bare pavement  
Residential: safe & passable  
Plowing Mains: 5 cm  
Plowing Residential: 8 cm

### TIMELINES

Mains: 4 hours  
Residential: 12 hours

**COST: \$9.2M**

3

## MMS

### SERVICE LEVEL

Mains: safe & passable  
Residential: safe & passable  
Plowing Mains: 5-8 cm  
Plowing Residential: 8-10 cm

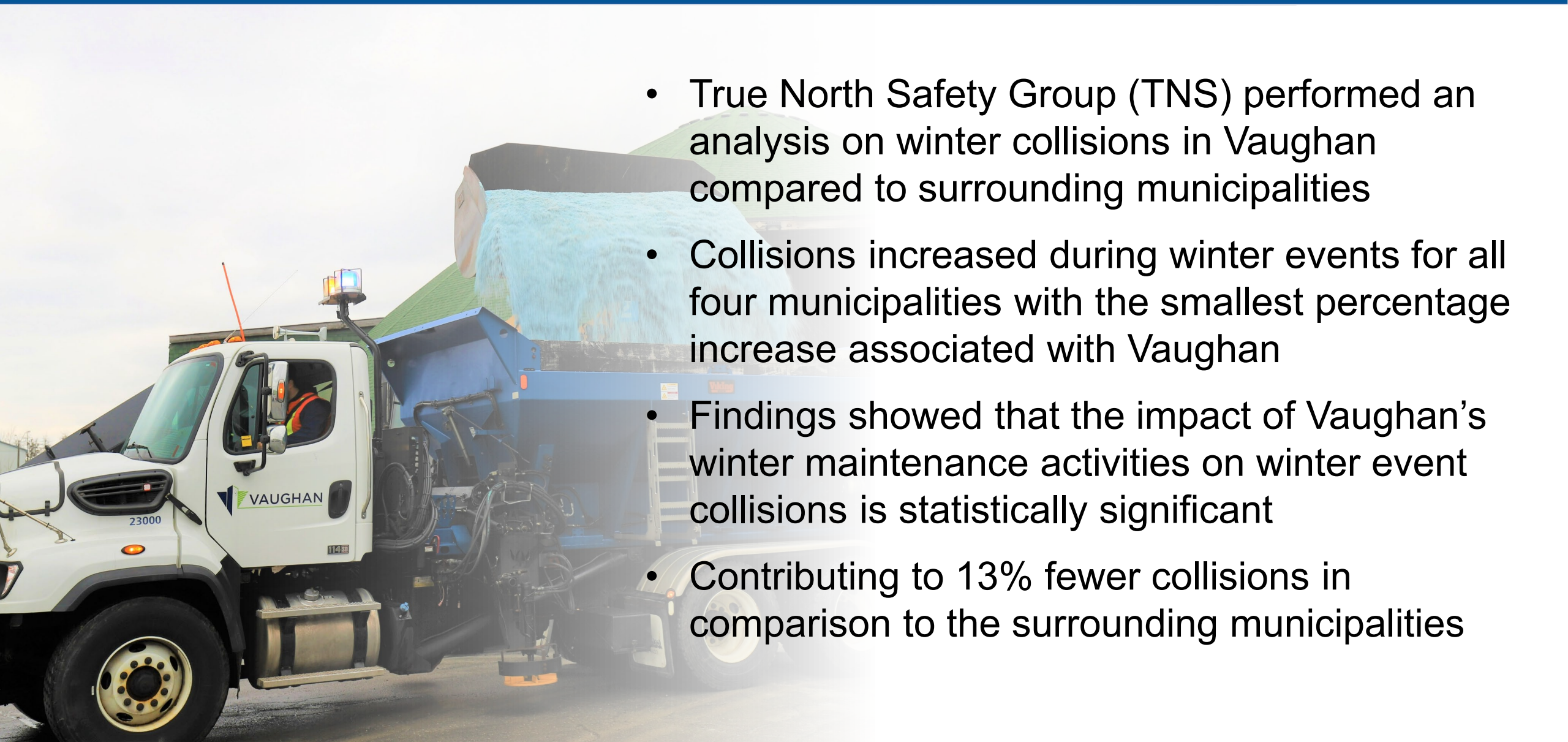
### TIMELINES

Mains: 6-12 hours  
Residential: 16-24 hours

**COST: \$8.4M**



# Safety and Risk Assessment



- True North Safety Group (TNS) performed an analysis on winter collisions in Vaughan compared to surrounding municipalities
- Collisions increased during winter events for all four municipalities with the smallest percentage increase associated with Vaughan
- Findings showed that the impact of Vaughan's winter maintenance activities on winter event collisions is statistically significant
- Contributing to 13% fewer collisions in comparison to the surrounding municipalities





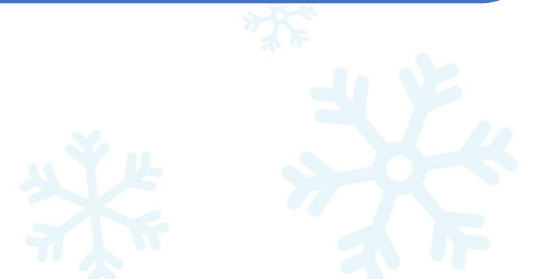
# Windrows

## Service Level Options



**1. STATUS QUO**

**2. PLOW-WINDROW COUPLING:  
MAINTAINING STATUS QUO  
TIMELINES**



# Option 1: Status Quo

## Windrows



### SERVICE LEVEL

- Windrow clearing is performed during plowing operations
- Windrow unit follows the plow (performed within 4 hours of the pass of the plow)

### Timeline:

- Mains cleared within 8 hours
- Residentials cleared within 16 hours

### COST

- \$2.1M

### IMPACT

- Up to four-hour delay for windrow clearing



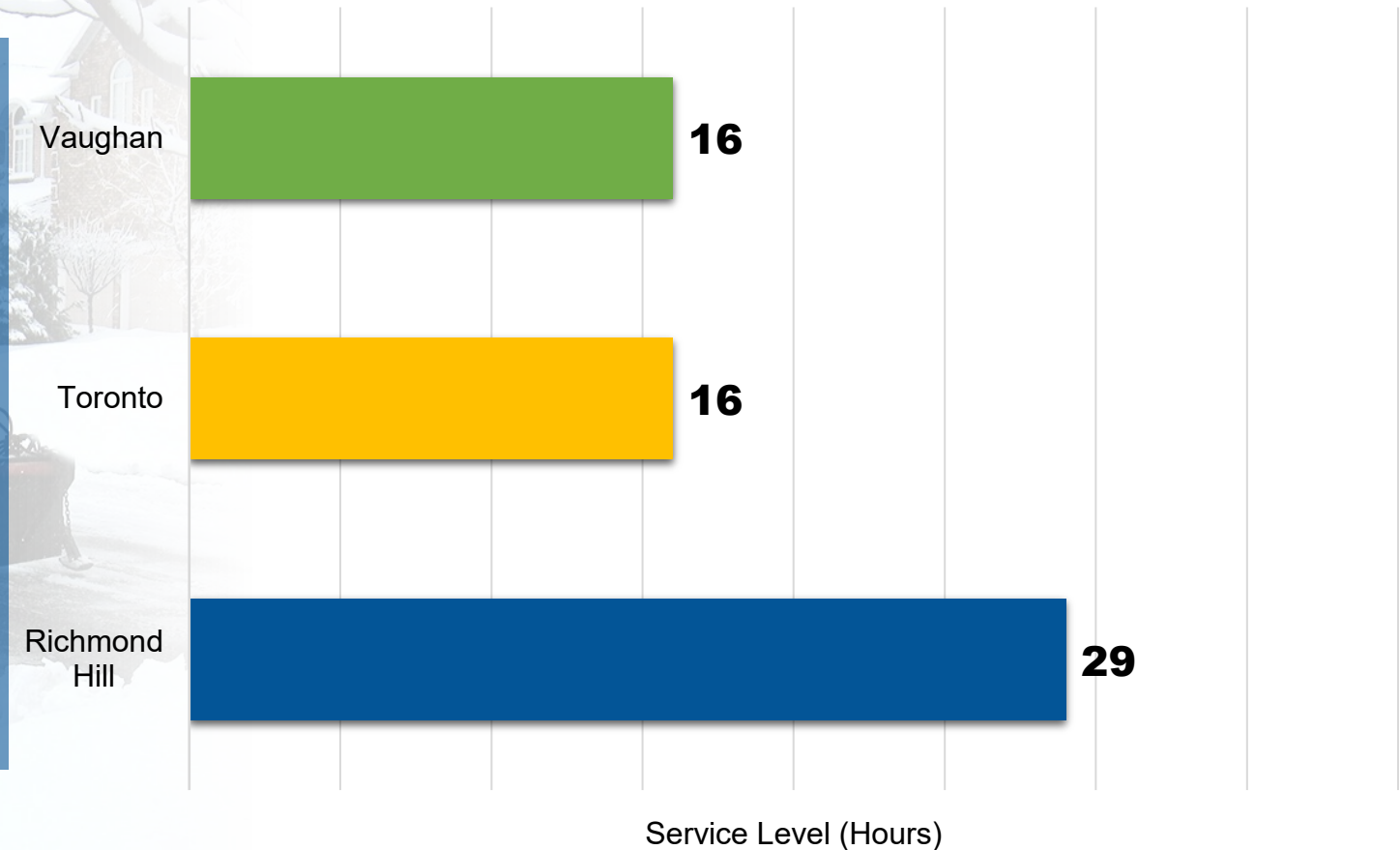


# Windrow Clearing Comparison



- Vaughan begins plowing and windrow operations at 5cm
- Toronto begins plowing operations at 8cm and windrows begin at 25cm
  - \*Service is *only* offered where there is no on-street parking, roads are wide, and there are no other obstructions\*
- Richmond Hill begins plowing windrow operations at 10cm

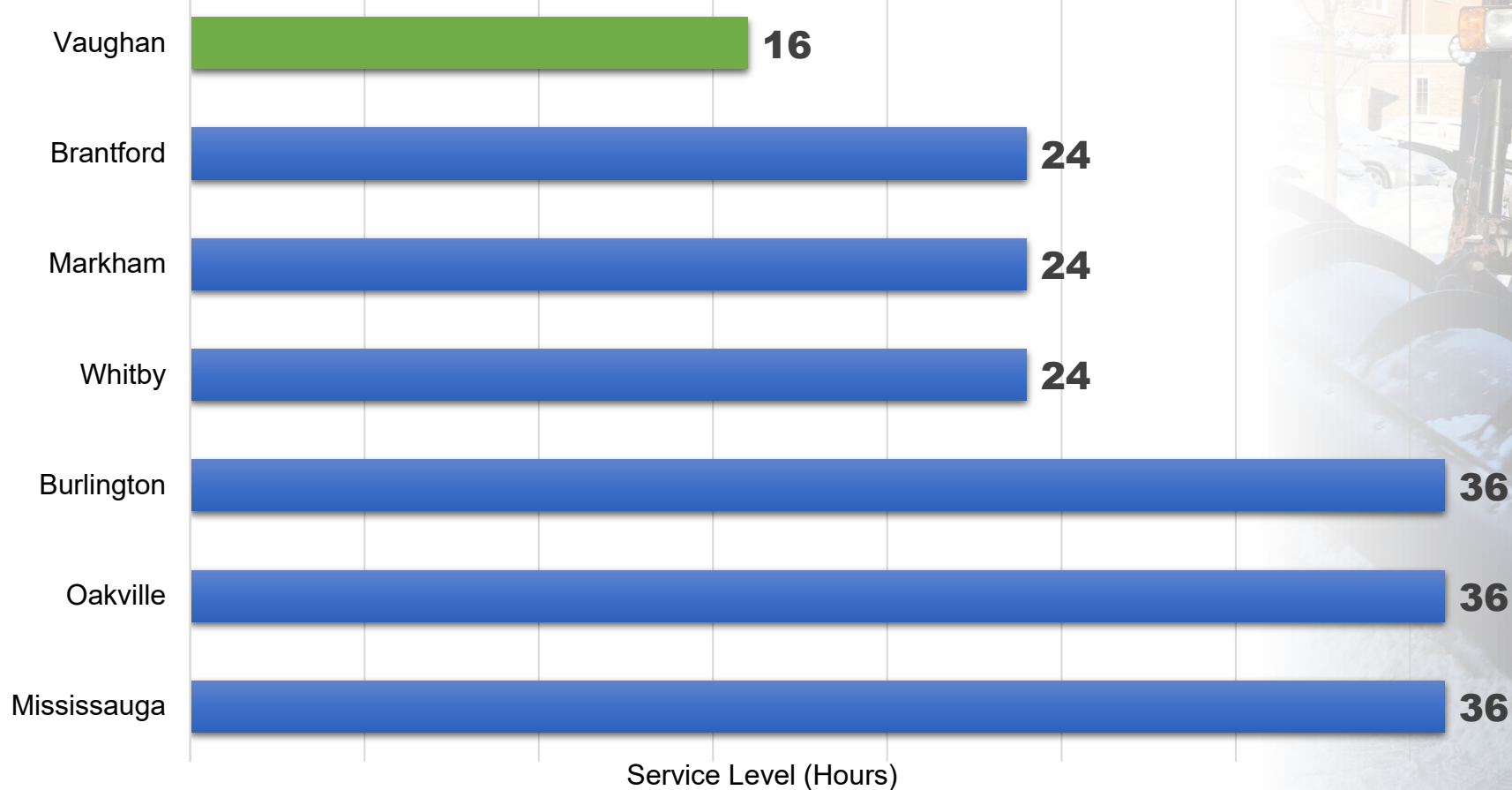
## WINDROW CLEARING SERVICE



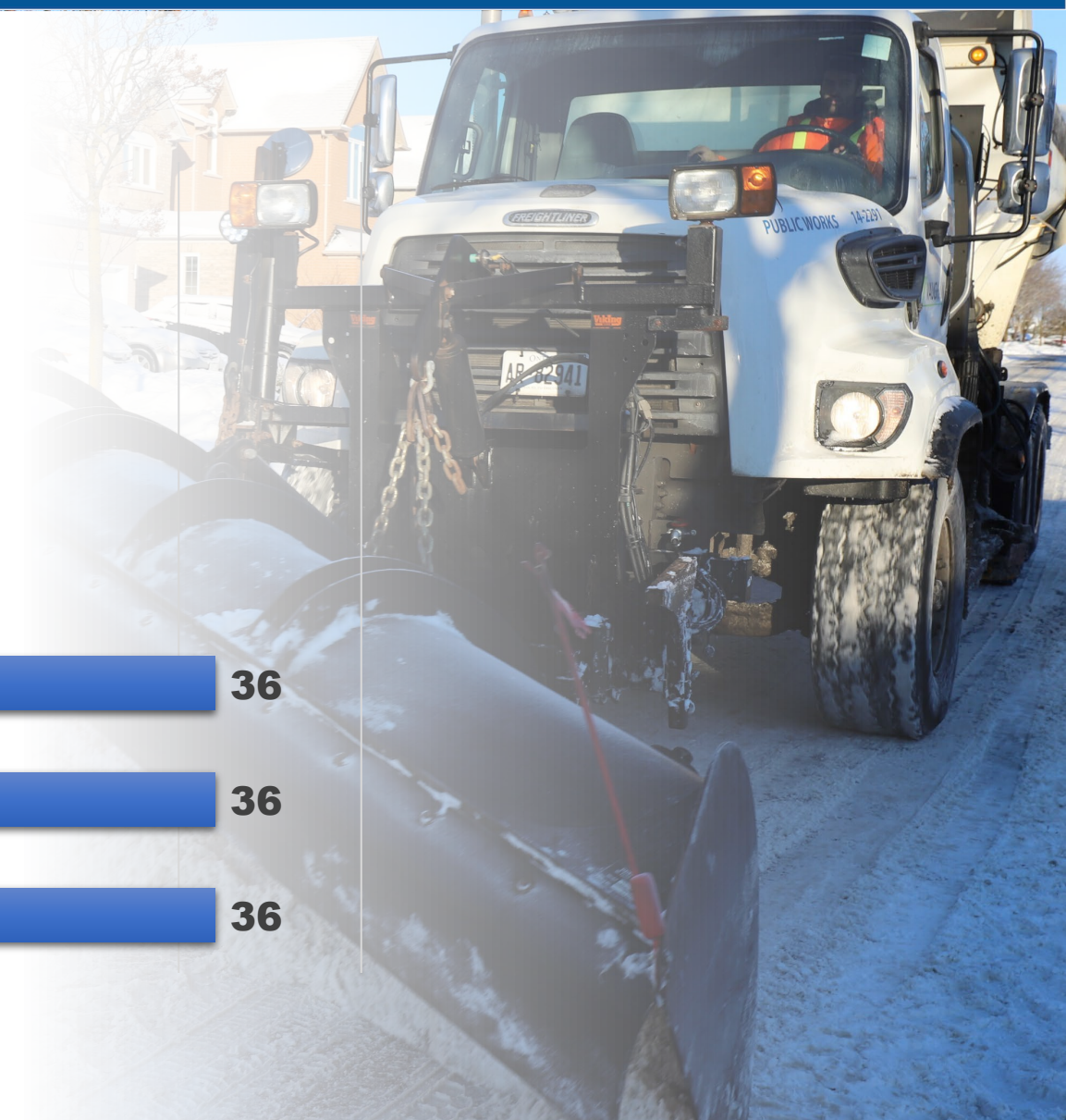
# Windrow Programs Across the GTA



## MUNICIPALITIES WHO PROVIDE SENIORS WITH WINDROW SERVICE



 No Senior Service  Senior Service





# Service Level Options



1

## STATUS QUO

### SERVICE LEVEL

- Windrow clearing is performed during plowing operations
- Windrow unit follows the plow (performed within 4 hours of the pass of the plow)

**COST: \$2.1M**

2

## PLOW-WINDROW COUPLING: MAINTAIN STATUS QUO

### SERVICE LEVEL

- Windrow clearing is performed during plowing operations
- Windrow unit is coupled with plow so that driveways are cleared as close to the pass of the plow as possible

**COST: \$4.1 - 5M\***

\*Pricing quoted 7 years ago; does not include COVID pricing

# Snow Removal Service Level Options



1. STATUS QUO

2. SNOW STORAGE  
CAPACITY ISSUES:  
LANEWAYS, NARROW STREETS  
AND CUL-DE-SACS



# Option 1: Status Quo

## Snow Removal



### CURRENT SERVICES PROVIDED

- In Woodbridge and Kleinberg BIAs: Snow removal when snow piles on curbs (0.5 m)
  - **\$30K** per operation, typically 3-4 times per year
- Snow removal in laneways and narrow streets is done after severe storms as required
  - **\$330K** per operation, typically one time per year

### IMPACT

- Negative feedback from residents in laneways and narrow streets due to lack of snow storage



# Snow Removal Service Level Options



## 1 STATUS QUO

### CURRENT SERVICES PROVIDED:

- Woodbridge & Kleinberg BIAs: Snow removal when snow piles on curbs to 0.5m
- Snow removal in laneway and narrow streets done after severe storms as required

### COST:

BIAs → \$120K (~4x/year)  
Laneways and Narrow Streets → \$330K (~1x/year)

**Average season total of \$450K**

## 2 SNOW STORAGE CAPACITY ISSUES: LANEWAYS, NARROW STREETS & CUL-DE-SACS

### SERVICE LEVEL:

In addition to current services provided:

- Snow removal services on laneways and narrow streets\*
- Snow removal services on cul-de-sacs

### COST:

BIAs → \$120K (~4x/year)  
Laneways and Narrow Streets → \$1.32M (~4x/year)  
Cul-de-sacs → \$456K (~1x/year)

**Average season total of \$1.9M\***

*\*Note: This type of snow removal is already done for severe storm types 3 and 4*



# Severe Weather Response Plan



Clearly defines service delivery and sets expectations



Provides flexibility to operating departments during larger events



Reduced calls once this is established (to Mayor and Members of Council)



Other municipalities assess service levels based on severity of storm; Toronto is the only municipality with this plan





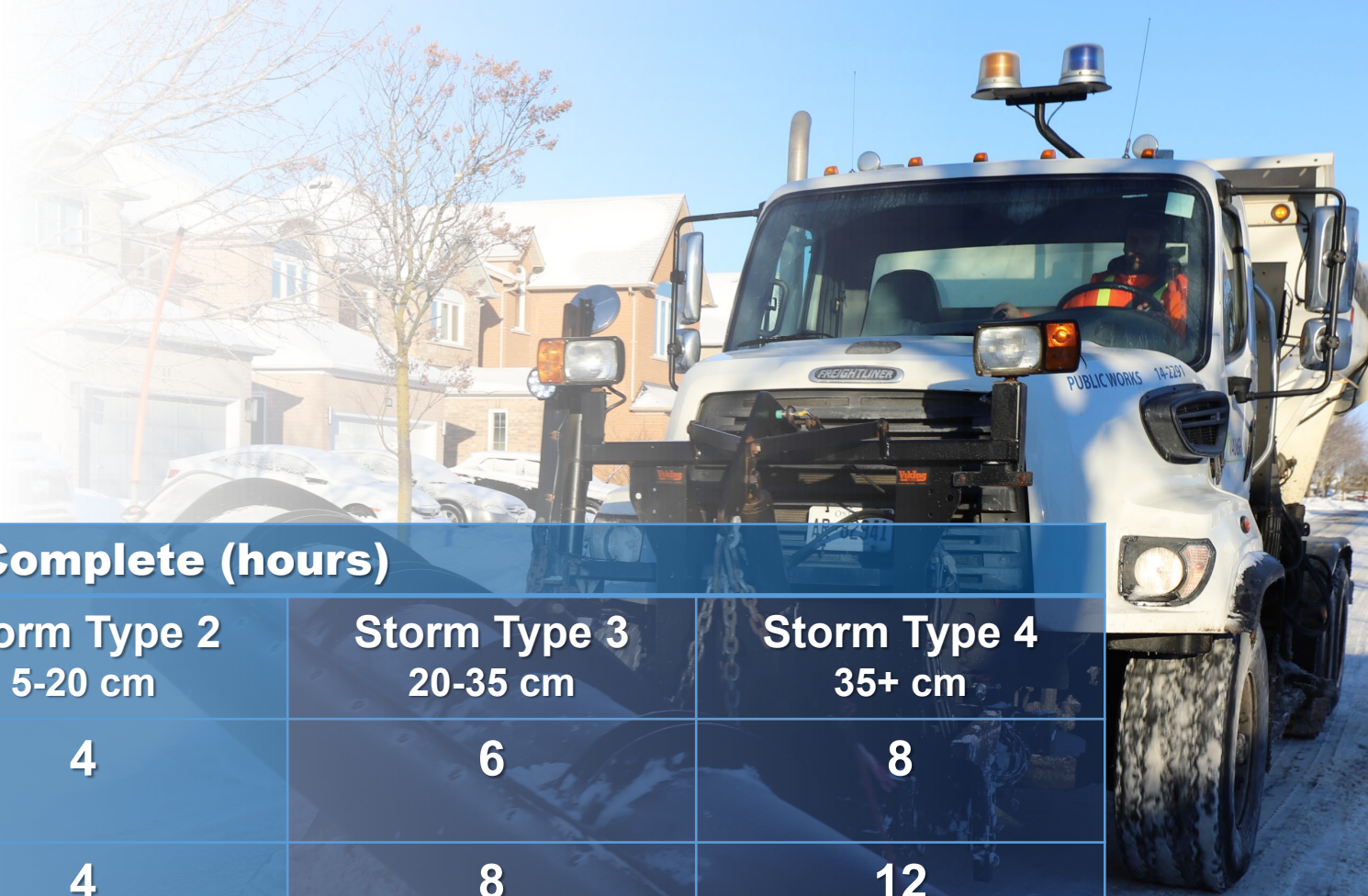
# Severe Weather Response Plan

## Primary Roads



### Treatment Condition:

- ✓ Roadway: Bare Pavement
- ✓ Windrow: One Car Width
- ✓ Start Plowing: 5 cm



### Time to Complete (hours)

	Storm Type 1 0-5 cm	Storm Type 2 5-20 cm	Storm Type 3 20-35 cm	Storm Type 4 35+ cm
Roadway (after snowfall)	4	4	6	8
Windrow (after plow)		4	8	12



# Severe Weather Response Plan

## Secondary Roads & Laneways



### Treatment Condition:

- ✓ Roadway: Bare Pavement
- ✓ Windrow: One Car Width
- ✓ Laneways (narrow streets): Bare Pavement
  - \*Snow removal on laneways and narrow streets will be performed for Storm Types 3 and 4
- ✓ Start Plowing: 5 cm

### Time to Complete (hours)

	Storm Type 1 0-5 cm	Storm Type 2 5-20 cm	Storm Type 3 20-35 cm	Storm Type 4 35+ cm
Roadway (after snowfall)	12	12	16	20
Windrow (after plow)		4	8	12
Laneway (after snowfall)	12	12	16	20



# Communications Plan



This past winter season, more than 125 winter communications were done using the following tactics:

- Public Service Announcements and Council Communications Packages
- Educational videos on City services
- Proactive media outreach
- eNewsletters
- Brochures
- Social media (both organic and paid) to the City's 70,000 followers
- Mobile signs
- Website content, mailers, signage and much more.



# Summary of Options & Recommendations



## ROADS

**OPTION 1:**  
Status Quo

Cost: \$9.7M



**OPTION 2:**  
Intermediate  
Cost: \$9.2M

**OPTION 3:**  
MMS  
Cost: \$8.4M

## WINDROWS

**OPTION 1:**  
Status Quo

Cost: \$2.1M



**OPTION 2:**  
Plow-Windrow Coupling  
Cost: \$4.1M - \$5M\*  
\*estimated

## SNOW REMOVAL

**OPTION 1:**  
Status Quo

Cost: \$450K

\*Current Budget: \$200K



**OPTION 2:**  
Snow storage  
capacity issues  
Cost: \$1.9M



# **Winterization Reserve**

## **Background and Strategy**





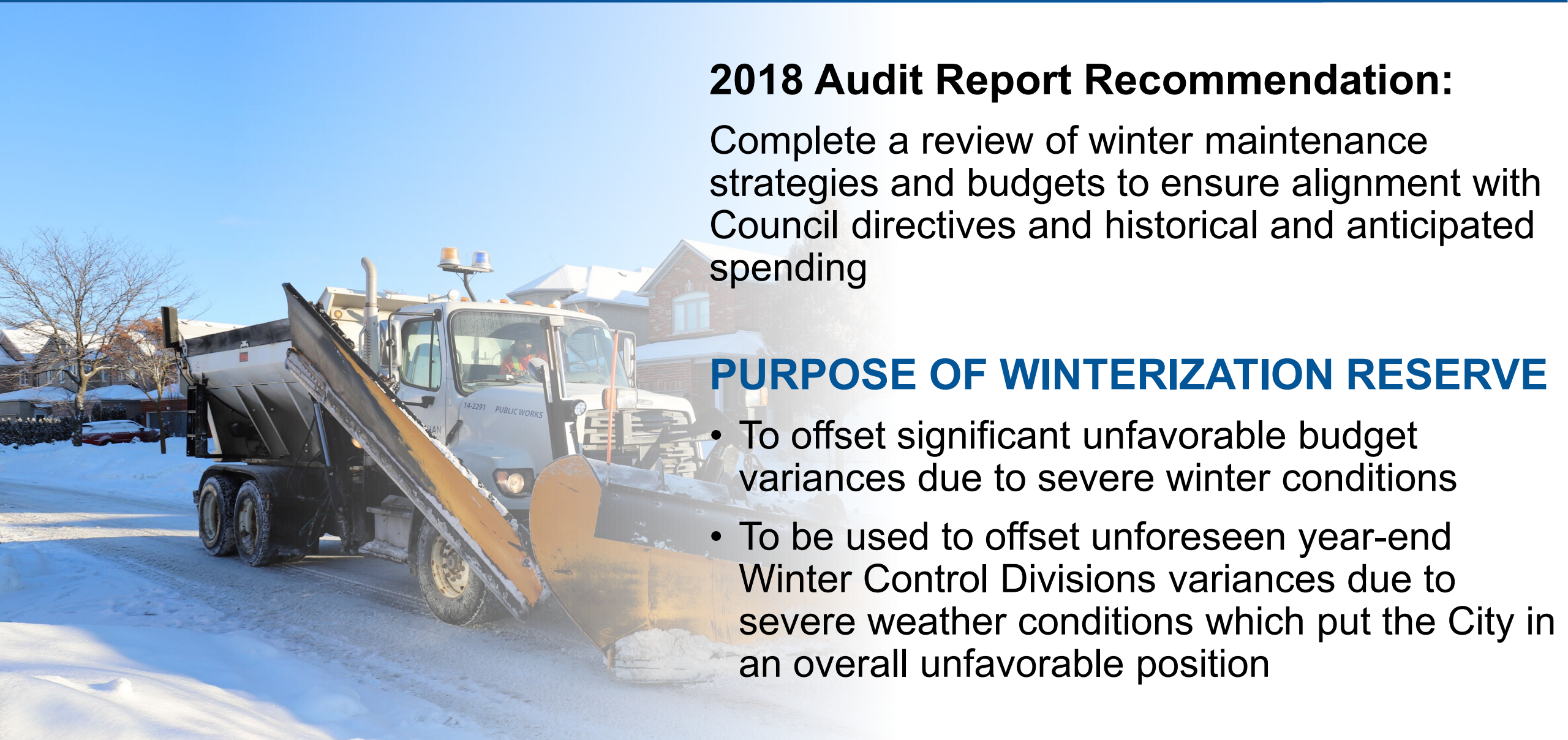


## 2018 Audit Report Recommendation:

Complete a review of winter maintenance strategies and budgets to ensure alignment with Council directives and historical and anticipated spending

## PURPOSE OF WINTERIZATION RESERVE

- To offset significant unfavorable budget variances due to severe winter conditions
- To be used to offset unforeseen year-end Winter Control Divisions variances due to severe weather conditions which put the City in an overall unfavorable position





# Winterization Reserve



## CURRENT RESERVE

- \$5.5M

## WINTER RESERVE STRATEGY

- Net annual surplus funds generated within the Public Works Winter Control Division or City-wide. Contributions will occur as required
- Recommended Target: A maximum of 40% of the four-year Winter Maintenance annual adjusted average costs
- Under authorization of the DCM, Corporate Services/CFO, funds may also be used to phase-in unexpected expense pressures (i.e. contract negotiations, etc.)







# **Conclusion**

## **Recommendations**



# Conclusions and Recommendations



- Vaughan currently has a comprehensive winter program that has among the highest levels of service for winter maintenance in the GTA. This contributes to 13% less collisions
- Based on this analysis, it is recommended to maintain current service levels.
- Public Works recommends \$250K in funding to sustain current snow removal operations without impacting the winter reserve.
- To increase citizen satisfaction in extreme weather events, it is recommended that the City proceed with the proposed Severe Weather Response plan.



**Thank You**