



# 311/Public Works Sidewalk Snow and Ice Removal Consultation

**City of Minneapolis  
Internal Audit Department**

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## Table of Contents

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Executive Summary.....	3
Scope and Approach .....	3
Results .....	3
Conclusion .....	4
Background.....	5
Opportunities for Process Improvement.....	6

## Executive Summary

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The City of Minneapolis Internal Audit Department conducted a consultation with 311 (the single point of contact for local government information and services) and Public Works management to review the City's sidewalk snow and ice removal processes. The objective of this consultation was to evaluate the data collection processes and reporting of information and complaints related to sidewalk snow and ice removal and to identify opportunities for process improvements.

Sidewalks play a critical role in City life as conduits for pedestrian movement and access while enhancing connectivity and promoting walking. As such, sidewalks should always be accessible to all users. City Ordinance, MCO Chapter 445 – Snow and Ice Removal, requires property owners to keep sidewalks maintained and clear of snow and ice. Residents who are in violation of this City Ordinance could be charged for the cost of the City to clear their sidewalks. The City's 311 service platforms are used to report sidewalk snow and ice complaints and the Enterprise Land Management System (ELMS) is used by Public Works to issue Notices of Violations to residents. The consultation scope and approach, testing results, and conclusion are discussed below, followed by a description of the City's 311/Public Works process for enforcing public sidewalk snow and ice removal in the background section. The final section comprises a detailed description of opportunities for process improvements (observations, recommendations, and management responses).

## Scope and Approach

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The scope of this consultation included the processes listed below for the period from January 1, 2017 – present. The consultation approach included:

- Review of 311/Public Works/ELMS data intake processes and controls, including data quality, related to sidewalk snow and ice removal complaints and violations including:
  - Accuracy of complaint data made to 311 and imported into ELMS
  - Effectiveness of technology used for intake of complaints
- Review of the following processes to determine data quality for sidewalk snow and ice removal complaints and violations:
  - Communication of violation to residents
  - Inspection process of residents in violation
  - Billing for work completed

## Results

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As a result of this consultation, the following observations were noted and presented to management:

1. The PropertyInfo database and ELMS taxpayer property information are outdated, not aligned, and can populate inaccurate address information into ELMS Code Enforcement cases.

2. The Notice of Violation is sent to the property owner address that is the subject of the snow and ice complaint prior to performing a visual inspection of the property to determine if the complaint is accurate.
3. The Mobile 311 application is used the least when compared to other platforms to report snow and ice complaints while generating the most inaccurate sidewalk snow and ice removal complaints.
4. 311 staff validate the address of a sidewalk snow and ice complaint in accordance with the Enterprise Addressing System; however, 311 staff are not validating that Service Request complaints in 311 match the Code Enforcement case address complaint in ELMS.

The details of these observations are included within the *Opportunities for Process Improvement* section of this report, beginning on page 6. Management is not required to provide responses or formally adopt action plans; however, Internal Audit has included management responses where provided.

## Conclusion

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Internal Audit noted a limited number of non-critical 311/Public Works sidewalk snow and ice removal opportunities for process and technology improvement to help reduce the number of inaccurate complaints received from residents. No substantial risk exposures or material control weaknesses were identified during the scope of this consultation.

The Internal Audit team would like to thank 311 and Public Works staff for their cooperation, time and effort put forth during this engagement.

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## Background

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### Overview

Minneapolis Ordinance 445.20 requires property owners to clear or treat sidewalks covered with snow and ice after snowfall within a defined timeframe. Sidewalks for single-family homes and duplexes must be cleared within 24 hours and all other properties must be cleared within 4 daytime hours after the snowfall ends. In general, the City relies on a complaint-based reporting system for properties that may be in violation of ordinance. Sidewalks found in violation upon visual inspection are subject to clearing by the City, with the cost billed to the property owner. Sidewalk snow and ice complaints are processed through the City's 311 information services system while inspections and costs for clearing billed through the Public Works department.

During the 2018-2019 winter season Public Works implemented proactive sidewalk inspections as a pilot program. Table 1 below summarizes the number of complaints submitted, covering the period between January 1, 2017 to March 3, 2019.

**Table 1**

Count of Overall Complaints				
Reporting Method	2017	2018	2019*	Totals
311 Agent	1901	3564	1607	7072
Online	782	2172	1314	4268
Inspector Pilot	0	774	600	1374
Mobile Application	426	1428	476	2330
<b>Grand Total</b>	<b>3109</b>	<b>7938</b>	<b>3997</b>	<b>15044</b>

*Summary of overall complaints by intake method.*

*\*2019 data through 3/3/2019*

### 311

Minneapolis 311 currently receives sidewalk snow and ice complaints in the following ways:

- Calling 311 and speaking with an agent
- Submitting a complaint online through the self-service platform
- Submitting a complaint using the Mobile 311 application
- Reporting by City inspectors through the Proactive Sidewalk Inspection Pilot Project (new last winter)

Information gathered in the complaints includes the address for the property, along with an option for additional comments. Once a complaint is received, a service request ticket is automatically generated, with the information passed on to the City's Enterprise Land Management System (ELMS) for further action.

### Public Works

An assigned Code Enforcement case number is generated in ELMS for each complaint. Public Works generates a list of complaints and tracks their status. If it is the property's first violation of the season, a Notice of Violation is generated and mailed to the property owner listed in the City's PropertyInfo database. The letter

reminds property owners of the ordinance, their reported violation, and advises them to clear sidewalks before inspection, or risk the City performing the work and billing the property owner for the clearing. Inspections are then scheduled for 3 business days after the letter is sent. When there are repeated violations within the same season, a Notice of Violation letter is sent only at the time of the first violation. With subsequent violations in the same season, inspections occur the next business day or 24 hours after the end of a snowfall.

Upon Public Works sidewalk inspection, no further action will be taken, and the case will be closed if a sidewalk has been adequately cleared or treated per ordinance. If the inspector finds an uncleared or untreated sidewalk, the property address is sent to a City contractor to clear the sidewalk within 72 hours. The contractor photographs and documents the violation both before and after the clearing to verify the violation and work conducted. Once the clearing is completed, a bill is issued to the property owner listed in the City's PropertyInfo database.

Charges for clearing of sidewalks this past season were \$149 for properties with a basic front sidewalk, and \$299 for corner lots. This cost covers only the contractual bid price paid to the contractor for clearing the sidewalk. The cost is billed to property owners, and property owners may pay the bill within a specified time, or have unpaid bills added to property tax rolls as special assessments.

## Opportunities for Process Improvement

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### Recommendation #1

#### *Enterprise Opportunities – Database Integrity*

#### **Observation**

The PropertyInfo database and ELMS taxpayer property information are outdated, not aligned, and can populate inaccurate address information into ELMS Code Enforcement cases. PropertyInfo is the property owner database used throughout the City for many different City processes, including ELMS. Additionally, the ELMS application, utilized by Public Works, contains taxpayer property information. These systems are used in conjunction at Public Works to populate both property owner information and taxpayer information when a snow and ice complaint is issued through 311. PropertyInfo populates the “owner” information when an address is entered in ELMS from a Service Request ticket generated from 311. The addressing system in PropertyInfo can often populate incorrect addresses into ELMS because it cannot differentiate specific address information (i.e.: 15<sup>th</sup> Ave and 15<sup>th</sup> Ave S). In addition, ELMS contains “taxpayer” address information that is outdated and not aligned with PropertyInfo. ELMS generates a Notice of Violation based on the information that is populated from PropertyInfo and ELMS and is then sent to the property owner.

#### **Recommendation**

PropertyInfo and ELMS taxpayer property information should be updated regularly and aligned with Minneapolis address data records to further increase the integrity of the data and improve efficiencies. This will require Citywide cross-functional management discussions as PW and 311 are not primary property database managers.

By populating address ownership and taxpayer information from inaccurate databases, Notices of Violation may be sent to the wrong property owner and/or taxpayer of the property. Between 2017 and 2019, invalid Service Requests have increased continually from 1.32% in 2017 to 3.15% in 2019. In addition, when property owners change, residents often are unaware of the process required to update their address information with the City’s assessor’s office which can result in a time gap before information is updated in the database.

**Management Response:**

Property databases are maintained enterprise-wide and not specifically by Public Works. Public Works utilizes ELMS; however, the department is not the primary database manager.

**Recommendation #2**

*Public Works – Reporting of Violations*

**Observation**

A Notice of Violation is sent to the property owner address that is the subject of the snow and ice complaint prior to performing a physical inspection of the property to determine if the complaint is accurate. ELMS generates Notices of Violation based on the addresses that are populated from PropertyInfo, which contains some inaccurate address data. The Notices of Violation are processed and sent by postal mail to the reported violator’s address as the Copy Center batches and sends mail to the post office, usually within 24 hours.

The visual inspection of the property is scheduled for three business days after the Notice of Violation letter is sent. This current approach of not validating the initial complaint was designed to reduce enforcement time. Continuing to issue Notice of Violations without performing visual inspections could result in an increased number of invalid and unresolved snow and ice complaints. The Proactive Sidewalk Inspection Pilot Project represented 15% of violations reported from January 1 through March 3, 2019. The proactive inspection reports produced fewer errors in complaints than any other method for receiving sidewalk snow and ice violations. See tables 2 and 3 below for details on errors by reporting method. It is not known if proactive inspections will decrease total number of complaints over time.

**Table 2**

<b>Invalid Rate by Method</b>			
<b>Reporting Method</b>	<b>2017</b>	<b>2018</b>	<b>2019*</b>
311 Agent	0.95%	2.41%	2.74%
Online	1.02%	3.27%	0.63%
Inspector Pilot	0.00%	1.16%	0.00%
Mobile Application	3.52%	5.53%	2.36%
<b>Overall Invalid Rate</b>	<b>1.32%</b>	<b>2.97%</b>	<b>3.15%</b>

*Invalid complaint rate by reporting method.*

*\*2019 data through 3/3/19*

**Table 3**

<b>Duplicate Rate by Method</b>				
<b>Platform</b>	<b>2017</b>	<b>2018</b>	<b>2019*</b>	<b>Total</b>
311 Agent	0.95%	0.59%	2.05%	1.02%
Online	1.53%	1.29%	4.41%	2.30%
Inspector Pilot	0.00%	0.13%	0.50%	0.29%
Mobile Application	5.87%	3.57%	5.88%	4.46%
<b>Overall Duplicate Rate</b>	<b>1.77%</b>	<b>1.27%</b>	<b>3.08%</b>	<b>1.85%</b>

*Duplicate complaint rate by reporting method.*

*\*2019 data through 3/3/19*

**Recommendation**

The Notice of Violation should be issued after a visual inspection is performed to validate the existence and accuracy of a violation. Photographs should be taken by City inspectors and retained in the Code Enforcement case file. During the 2018-2019 winter season Public Works implemented proactive inspections as a pilot program

**Management Response:**

In 2017 Public Works implemented the first of a series of pilot approaches to improve compliance. This pilot was aimed at shortening the time the process took to resolve issues, and the change involved removing the physical inspection of the sidewalk prior to issuing a Notice of Violation. While the pilot process shortened the process by several days, it lead to inaccurate Notices of Violation being sent due to the lack of initial data validation.

This audit verifies our suspicion that our pilot, while helpful to reduce time, overall did not solve the issues in the way we had hoped, in part because of the inaccurate reporting through 311 noted in this report. Our opinion is that invalid complaints are a result of invalid data. In-person inspections help to rectify the issues with invalid data and do not contribute the problem. Photo-logging thousands of complaints would greatly slow our process, which would deter from our overall goal of expediting resolution and keeping sidewalks clear for all. A significant investment in technical resources and staffing would be necessary to include photo-logging.

**Recommendation #3**

***311 – Mobile Component***

**Observation**

The Mobile 311 application is used the least when compared to other platforms to report snow and ice complaints but generates the most inaccurate complaints from those reporting non-compliant sidewalks. See



Table 4, below, for a summary of complaints by intake method, for the period covering January 1, 2017 to March 3, 2019.

**Table 4**

<b>Percentage of Overall Complaints</b>			
<b>Reporting Method</b>	<b>2017</b>	<b>2018</b>	<b>2019*</b>
311 Agent	61.15%	44.90%	40.21%
Online	25.15%	27.36%	32.87%
Inspector Pilot	0.00%	9.75%	15.01%
Mobile Application	13.70%	17.99%	11.91%
<b>Total</b>	<b>3109</b>	<b>7938</b>	<b>3997</b>

*Percentage of complaints by intake method.*

*\*2019 data through 3/3/2019*

In addition, the Mobile GPS component utilized to report a complaint with a mobile device is not synchronized with the Minneapolis addressing system. In comparison to other reporting platforms, phone and web, the scripts used to file complaints include many more identifiers to ensure the address location of a complaint is accurate. Enabling residents to report snow and ice complaints through a platform that relies on a different addressing system than what the City uses, and that is reliant on the end-user to input correct address information while requiring only one data element, contributes to increased volume and inaccurate data in sidewalk snow and ice removal complaints.

**Recommendation**

The Mobile 311 application should be suspended until application enhancements can further increase the location accuracy of a snow and ice complaint. A cost benefit analysis should be performed to determine if an upgrade to the Mobile 311 application should be performed or if use of the mobile platform should be discontinued. Smart phone technology is expected to increase in the future and, if an upgrade is determined to be feasible, the Mobile 311 application should require more than one data element and be synchronized to the Minneapolis addressing system to ensure address input is accurate from the end user.

**Management Response:**

311 has met with SeeClickFix, our mobile app vendor, and unfortunately there are limitations to what can be configured. That being said, we are open to meeting with the vendor again. Also, in late 2019 or early 2020 we will be upgrading our Lagan CRM, which will include a new customer portal for reporting/tracking issues. Users will be able to access the web portal via their smart devices.

**Recommendation #4**

***311 – Data Validation***

**Observation**

311 staff validate the address of a sidewalk snow and ice complaint in accordance with the Enterprise Addressing System; however, 311 staff are not validating that Service Request complaints in 311 match the

Code Enforcement case address complaint in ELMS. Currently, read-only access to ELMS is limited to 311 supervisors. By not monitoring and validating the Service Request address complaints in 311 to match the Code Enforcement case address in ELMS, Notices of violation could be delivered to the wrong address resulting in an invalid complaint. Because PropertyInfo and ELMS are outdated and contain some inaccurate data, it is possible that the snow and ice complaint is valid but the Notice of Violation could be delivered to the wrong address. Therefore, the complaint would not be resolved in a timely manner and the property owner receiving the Notice of Violation may contribute to the volumen of complaints by submitting a new complaint about receiving the notice in error.

**Recommendation**

All 311 staff that manage snow and ice complaints should be granted read-only access to ELMS and should monitor and validate the Service Request address in 311 the same as the Code Enforcement case address in ELMS. By validating the Service Request complaint address matches the populated address in ELMS, 311 can ensure the correct address is being inspected for possible violations.

**Management Response:**

311 has been considering the idea of allowing 311 agents read-only access to ELMS. Our workflow processes for sidewalk snow/ice complaints are determined by Public Works processes. While we are open to adding another layer of validation, this may add to the length of the call. Also, sidewalk snow/ice complaints are only made during winter, so ELMS knowledge retention is a concern.