

**Presentation to the Audit Committee
on July 7, 2023
Agenda Item AU2.6**

**AUDITOR
GENERAL**

TORONTO

Winter Road Maintenance Program Follow-Up: Status of Previous Auditor General's Recommendations & Processes to Hold Contractors Accountable to New Contract Terms

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Auditor General

Ina Chan, CPA, CA, CISA
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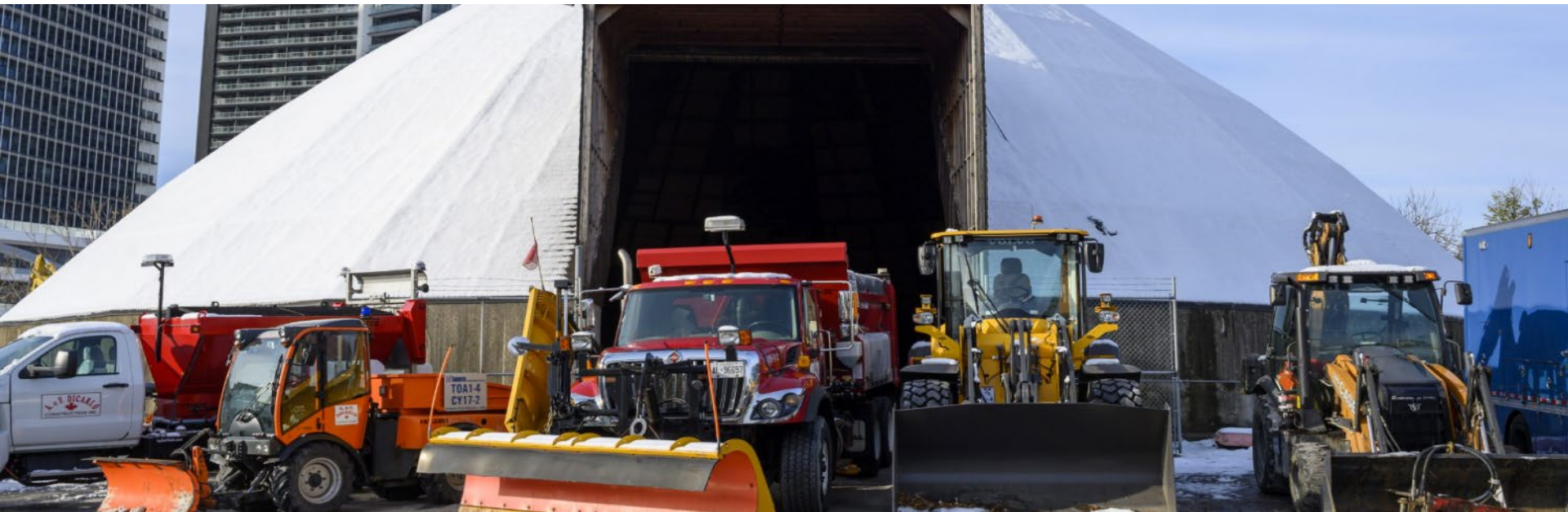
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Senior Audit Manager

Presentation Overview

- Why this follow-up matters
- Background
- Progress (overall follow-up results) and challenges
- Key findings by area
- Closing remarks

Why This Follow-Up Matters

- Winter maintenance services **affects our safety and mobility**
- Nearly **\$1.5 billion** in winter maintenance contracts (over a 10-year term) awarded in December 2021
- **City Council voted** for Auditor General to review this area





Background

- New performance-based contracts
- 11 contract areas, 5 contractors
- 1,300+ vehicles / equipment
- Contractors are paid daily rates and operating rates

Progress and Challenges



Progress

- Improved clarity of contract language
- Developed manual and provided training
- Piloted a purpose-built GPS dashboard

Challenges

- Supply chain issues impacting equipment and GPS
- Labour shortages
- Delays in implementing systems and tools

Follow-up Results


Report	Verified as fully implemented	In progress (not yet fully implemented)	No longer relevant / applicable	Total
Audit of Winter Road Maintenance Program – Phase One: Leveraging Technology and Improving Design and Management of Contracts to Achieve Service Level Outcomes (October 2020)	9	13	0	22
Winter Road Maintenance Program – Phase 2 Analysis: Deploying Resources (June 2021)	1	2	1	4
Total	10	15	1	26

4 new recommendations

A. Strengthening Processes to Consistently Enforce Payment Criteria and Apply Liquidated Damages

Verifying Daily Rates


- Insufficient records of physical verification of equipment
- Some daily rate sheets that did not have accurate information

 **OM-FM-W06-Daily Rate**

Contract No.: _____
Contract Area.: _____
Contractor.: _____
Date.: _____
(MM/DD/YR)
Location: _____

Instructions:

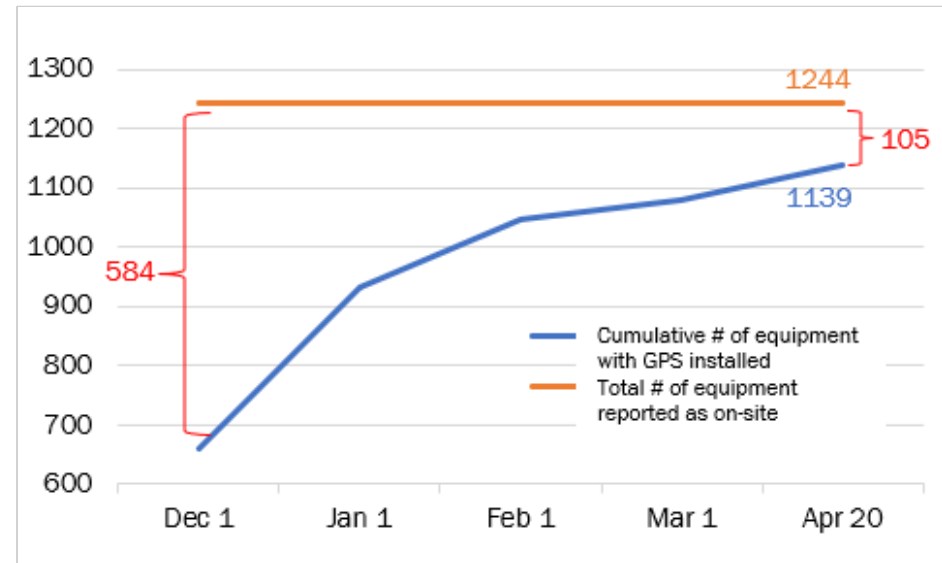
1. This form is to be completed on Daily basis
2. Only Equipment meeting all specifications and having a functional GPS are eligible for Daily Rate (Part 3, Sec 9.4)



DESCRIPTION	Infra. Type	Equipment ID.	Est Start Date	Est End Date	VEHICLE ID SIGNAGE (Yes/No)	Functioning GPS (Yes/No)	Daily Rate (Yes/No)	Comments
Tractor with Plow	Salting-Sidewalk Plowing-Sidewalk	TOA1-1-SW17-1	1-Dec	31-Mar	Yes	Yes	Yes	E.g. Vehicle in Depot City has not provided Sign yet

Equipment Did Not Always Have a Functioning GPS Device Installed

- **285** vehicles/equipment took 1 to 4+ months before a GPS signal was emitted
- **105** did not have a GPS signal at the end of winter season
- **367** sensor installations outstanding
- Management paid daily rates as long as equipment could be deployed (**633** vehicles/equipment, **\$18M**)



Daily Rates on Substitute Equipment

- **204 substitutions** – majority by JV
- Change orders approved for 134, pending for 70
- Most substitutes (*e.g. Single-axle*) were paid at the **same rate** of the original equipment (*e.g. Tandem axle*), instead of the **lower pricing** in the contract for that type of substituted equipment (*e.g. Single-axle*)

Original Equipment	Substituted Equipment	# Replaced	Potential \$ Impact Per Winter Season	Change Order Approved
Truck – Tri-axle with plow blade	Truck – Tandem Axle with plow blade	32	\$38,938	Yes
Front end loader – Articulating with driveway blade	Backhoe with driveway blade	16	No daily rate for contract area*	Yes
Truck – Single axle with plow blade	Grader with driveway blade	2	No daily rate for contract area*	Yes

...

Truck – Tandem axle with plow blade	Truck – Single axle with plow blade	7	\$189,386	Yes
Truck – Single axle with plow blade	Grader with plow blade	3	\$82,562	Yes
Truck – Tandem axle with plow blade	Truck – Single axle with plow blade	10	\$134,220	Yes
Grader with driveway blade	Tractor – 4-wheel drive bi-directional with driveway blade	5	\$75,000	No
Truck – Tandem axle with plow blade	Truck – Single axle with plow blade	20	\$600,000	No
Truck – Tri-axle with plow blade	Tractor – 4-wheel drive bi-directional with plow blade	2	No daily rate for contract area*	No
Truck – Tandem axle with plow blade	Truck – Tri-axle with plow blade	14	\$0	Yes
Change orders have been approved		134	\$536,314	
Change orders still being finalized		70	\$797,160	
Total		204	\$1,333,474	

Verifying Operating Rates and Applying Liquidated Damages

<u>Item</u>	<u>Section number in Part 3</u>	<u>Event</u>	<u>Liquidated Damages Paid by Vendor</u>
1	2.7.2	<u>Failure to calibrate all Equipment seven (7) days prior to the Winter Season; or failure to calibrate all Equipment on a monthly basis</u>	<u>\$1,000.00 per day per piece of Equipment that is not calibrated in accordance with the Contract</u>
2	2.6.10	<u>Failure to provide verification to Contract Administrator that a GPS/AVL device is working</u>	<u>\$400.00 per day per piece of Equipment</u>
3	2.10	<u>Failure to submit CVOR abstract in accordance with the Contract</u>	<u>\$400.00 per day per piece of Equipment</u>
4	3.1 3.2	<u>Failure to apply any required signage on a piece of Equipment</u>	<u>\$1,000.00 per day per piece of Equipment</u>
5	4.3.3	<u>Failure to provide shift schedule to Contract Administrator in accordance with the Contract prior to October 15 each Winter Season</u>	<u>\$100.00 per day</u>
6	5.4.4	<u>Failure to leave a Depot within the applicable Mobilization Period</u>	<u>\$200.00 per minute per piece of activated Equipment in the Depot after the expiry of the Mobilization Period</u>
7	5.7	<u>Failure to spread salt or pre-treated salt in accordance with the Contract</u>	<u>\$360.00 per failure</u>
8	5.11	<u>Failure to correct a deficiency within 2 hours of notification by the Contract Administrator</u>	<u>\$400.00 per hour starting two hours after notification</u>
9	5.12	<u>Failure to repair damages to property prior to May 31 annually</u>	<u>\$1,600.00 per day</u>
10	7.2.7	<u>Failure to submit a Depot plan in accordance with Contract</u>	<u>\$100.00 per day</u>

- Procedures to verify completed operations currently are highly manual/time-intensive
- No Liquidated damages (LD) applied from Oct 2022 – Jan 2023
 - **2 of 10** LD clauses applied from Feb 2023 onward
 - **\$17.4M in LD** communicated to contractors

B. Ensuring Robust Monitoring of Contractor Performance

Ensuring Robust Monitoring of Contractor Performance

- Contractor deficiencies and damage to property should be centrally tracked
- Field audits should be performed and well-documented
- **\$300K** in negative price adjustments for 2022/23 winter season

TORONTO
Transportation Services

Appendix A.4 - Winter Event Field Audit Report

Report # number not documented

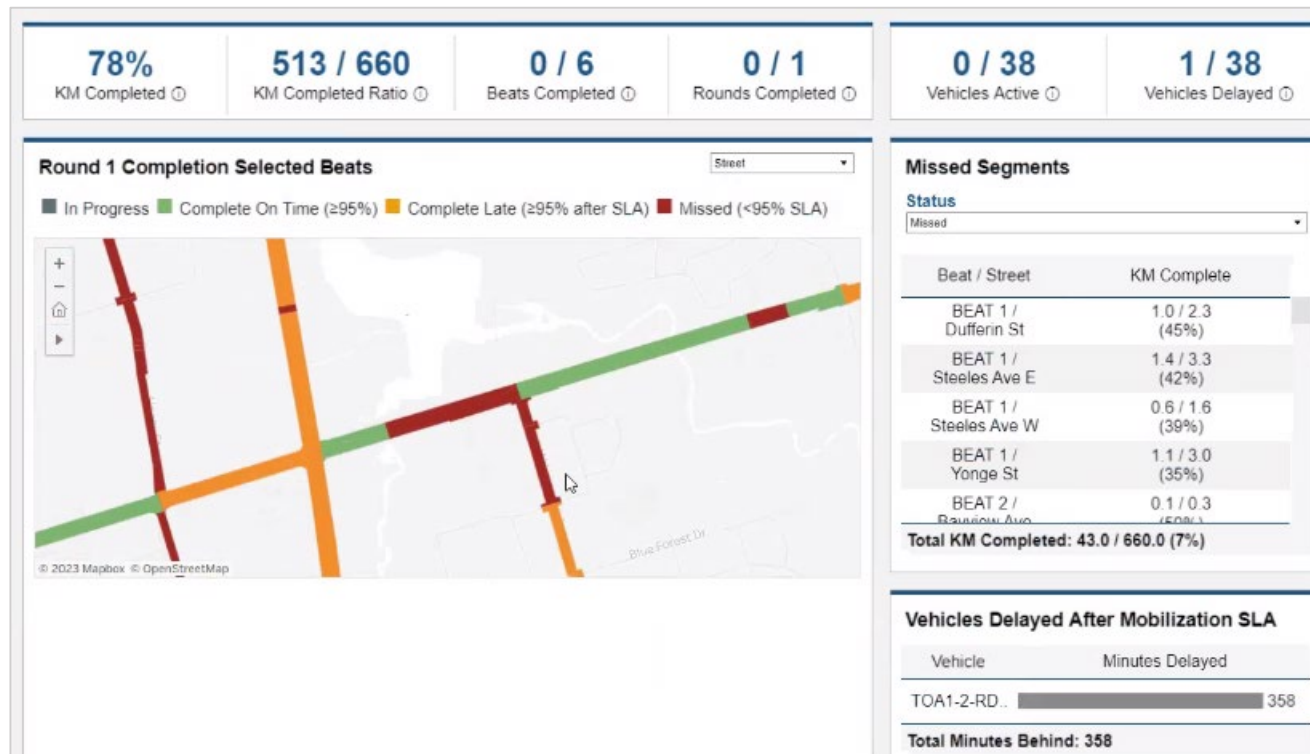
Distance/ Kilometers Assessed and found non-compliant not documented

Infrastructure Audit #:	Report #	Out of	
		20	
Overall Distance Inspected (km):	Overall Distance in Non-compliance (km):		
Contract Number:	Inspection Date: 11/22/2022	Inspection Time: 11:09	
Contractor Name:	Contract Area: [REDACTED]	Ward:	
Street Name: [REDACTED]	Time Snow Event Completed:	Time snow event completed not documented	
From: [REDACTED]	To: [REDACTED]		
Kilometers Assessed on this Report:	Total Kilometers in Non-compliance:		
Infrastructure type:	<input checked="" type="checkbox"/> Sidewalks		
<input type="checkbox"/> Expressway <input type="checkbox"/> Arterial	<input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local	<input type="checkbox"/> Cycling <input type="checkbox"/> Bus Stops/PXO	
Salting Conditions			
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	Salt is present at the centreline of the road when travelling in one direction
Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>	Salt does not extend beyond the travelled portion of the infrastructure
Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Excessive accumulation of salt at standing points are not present in the area including at intersections
Plowing Conditions			
Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	Snow does not encroach more than 0.5-0.75m from the curb onto pavement
Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	Salt is applied while plowing of a road
Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>	Salt is applied while plowing of a sidewalk

C. Continuing to Implement Systems and Tools to Improve Efficiency and Effectiveness of Contract Management

Continuing to Implement Systems and Tools

- Piloted GPS dashboard this past season
- Ensure GPS dashboard, exception reports, remaining GPS devices and sensors are ready before second winter season
- Continue to integrate processes with EWMS



Closing Remarks

- Progress since 2020 and 2021 audits – 10 recommendations fully implemented
- 15 recommendations where work is underway and 4 new recommendations
- Areas for continued improvement:
 - A. Strengthening processes to consistently **enforce payment criteria and apply liquidated damages**
 - B. Ensuring robust **monitoring of contractor performance**
 - C. Continuing to **implement systems and tools** to improve efficiency and effectiveness of contract management

Thank you

We would like to express our sincere appreciation for the co-operation and assistance we received from the management and staff of the Transportation Services Division as well as the Fleet Services Division.



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Transportation Services Division

Barbara Gray, General Manager,
Transportation Services Division

Vincent Sferazza, Director, Transportation
Operations & Maintenance



Transportation Services – Comments and Response

- In 2020, Transportation Services (TS) embarked on a major transformation of its winter maintenance program, including incorporating guidance from the Auditor General’s previous reports on the winter program
- TS worked collaboratively with the Auditor General’s Office on this report and will continue that collaboration to make improvements to the Winter Services Program going forward.
- TS endorses and supports the recommendations within this report as well as the remaining 15 recommendations that are currently in progress.

2022/2023 Winter Contract Accomplishments

New Contract Preparations

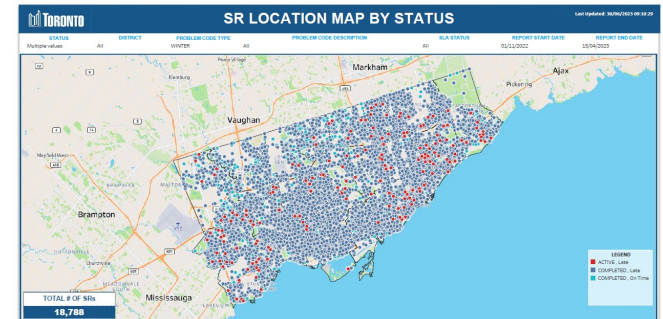
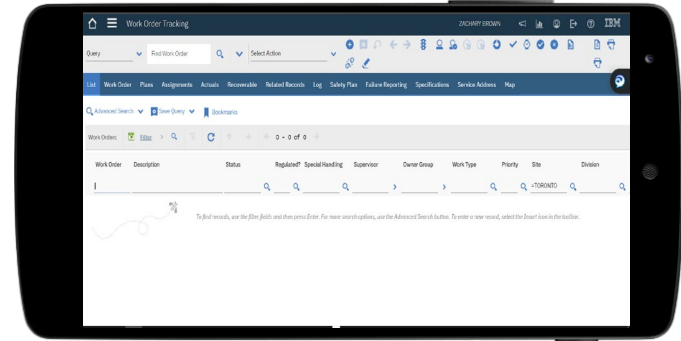
- 17 Winter Maintenance Depot facilities set up
- Development of a new Winter Contract Administration Manual
- Development of 32 Standard Operating Procedures
- Hiring vacant positions (Approx. 175 new staff)
- Developed and delivered training for staff on new winter maintenance contracts.

Foundational / Technology Improvements

- GPS dashboard development and pilot to support staff monitoring contract performance.
- Implemented Electronic Work Management Systems (EWMS) system for managing 311 Customer Service Requests.
- Development and implementation of a Service Request dashboard.
- Upgrades to PlowTO and integration with new GPS provider.

2022/2023 Winter Season Challenges

- Global Supply Chain & Labour Shortage Impacts
 - Delayed and/or Substitute Equipment
 - GPS Installation delays and chip shortages
 - Labour Shortages/turnover
- Harmonizing practices across Contract Areas
 - Implementing a transformational change to the program
 - From 47 contracts now delivered through 11 contracts.
 - Different historical approaches to service delivery
- Multiple technology/system improvements being implemented in parallel
- Compressed timelines implementing complex systems
- Major business process changes required to adapt to new system

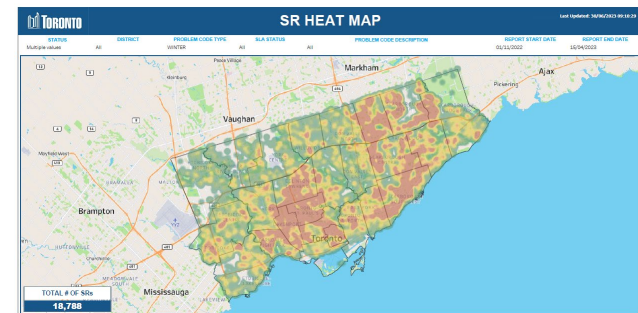
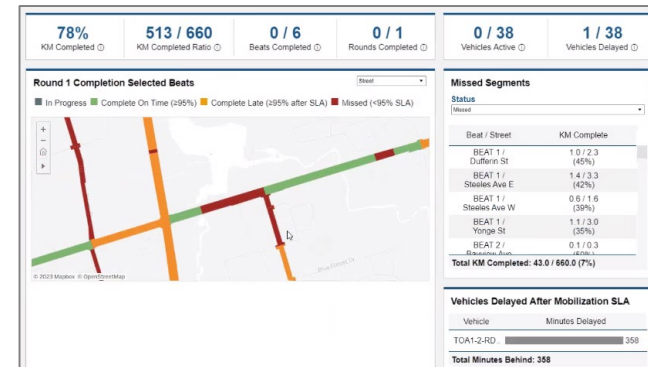


Key Recommendations – Transportation Services Response

- Global supply chain issues resulted in vendors unable to acquire all originally proposed equipment.
- Substitute equipment proposed to ensure services could be delivered. Substitutions maintained the same unit prices as the original costs and took into consideration:
 - New equipment vs previously owned / used equipment
 - Differences in operator costs
 - Equipment Purchase costs
- No additional costs for substitutions.
- Liquidated Damages were not applied at the beginning of the season taking into consideration the need to continue providing services and the challenges experienced.
- In February liquidated damages began to be applied for items related directly to meeting service levels

Transportation Services Response - Moving Forward

- Fully Implementing Tools & Technology to support Staff managing winter contracts
 - GPS Dashboard to monitor Service Level Achievement
 - EWMS System for recording information
 - Service Request Dashboard
 - Further PlowTO updates
 - Resolving any outstanding Equipment and GPS issues
- Ongoing discussion with Contractors to resolve issues and lessons learned.
 - Automated in-vehicle routing for contractors.
 - Operational improvements
 - Improved Communications



Transportation Services Response - Moving Forward

- Continuing efforts to develop, improve and train on Standard Operating Procedures
 - Clarifying roles and responsibilities
 - Internal compliance monitoring
 - Establishing Winter Command Centres to track and monitor performance
- Communication Plans
 - Coordination with 311
 - Ongoing public information
 - Ongoing Councillor engagement and workshops

