



Corporate Environment, Health and Safety (EHS) Performance Report

May 15, 2019

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1 Introduction

The City of Calgary is committed to its corporate responsibilities related to environmental stewardship and a safe and healthy work environment. The City of Calgary's Environmental Policy and Occupational Health & Safety (OHS) Policy establish a set of commitments outlining The City's intentions to manage environmental and safety risks, fulfil compliance obligations, and continually improve performance. The City's environmental and safety management systems ensure the integration of environmental and safety considerations into The City's day-to-day operations and longer-term strategic plans.

To demonstrate accountability for these responsibilities, The City regularly reports on specific indicators of environmental, health and safety performance.

2 Organizational Health and Safety

The City's OHS Policy reinforces The City's commitment to provide a safe and healthy work environment for its employees. The City's OHS Management System establishes the standards, processes and programs to meet legislated requirements, manage health and safety risks, and continually improve safety performance. Through One Calgary, Environmental & Safety Management and Human Resources are working closely together to deliver the Organizational, Health, Safety and Wellness service.

Within the OHS Management System, The City has a Corporate Safety Strategy that identifies opportunities to strengthen corporate safety culture and improve safety performance. The strategy will be reviewed and updated in 2019 to integrate and align with One Calgary, the Healthy Workplace Strategy, recent changes to legislation, corporate learning programs, and to reflect the advancement of corporate safety programs and initiatives.



Safety Performance

Safety performance is continually tracked with two key performance measures: Total Recordable Injury Frequency (TRIF) and Lost Time Claim Frequency (LTCF):

- **TRIF** is a percentage of City workers injured within a certain period of time, factoring in the number of hours worked/exposure hours. Injuries are defined as both Medical Aid (no time loss from work) and Lost Time (missed work due to the injury); and
- **LTCF** is similar to TRIF, but only accounts for lost time due to injuries and illnesses.

For both measures, lower scores indicate better performance. In 2018, The City's Total Recordable Injury Frequency was 11.1, an increase from 10.5 in 2017. LTCF increased from 5.0 in 2017 to 5.5 in 2018.

The City participates in the Municipal Benchmarking Network, a network of Canadian municipalities that collect and compare standardized data for the purposes of service improvement. Through this network, The City benchmarks lost time incident frequency and lost time incident severity against eight cities with populations greater than 500,000.

Historically, The City's performance on lost time incident frequency has been better than the average and median performance of these comparable cities. In 2017, The City's performance fell slightly below the average. Benchmarking data for 2018 will be available later in 2019 and will be included in the next performance report.



Strategies and Actions to Improve Performance

Reducing the number of City employees getting injured continues to be a top priority for The Corporation. An increased operational focus for organizational health and safety management continued through 2018. This operational focus, along with key tactical actions, is improving safety performance. For the last 12-month period (May 2018 – April 2019) TRIF improved to 9.8.

Examples of key actions include:

- **Improving the quality of incident investigations**, including the enhanced use of data to understand incident root causes and drive effective corrective actions in operational business units. Two examples of data driven improvements involved: 1) adoption of ice cleats for all Calgary Transit staff—this led to a 56% reduction in slips, trips and falls in the business unit; and 2) application of high-visibility safety decals on the back of Water's valve crew trucks—this initiative resulted in a significant reduction in related near misses.

- **Increasing site inspection frequency** including inspections conducted by leadership teams. Site inspections not only support hazard identification and control, they also allow for behaviour-based observations and can be used to increase knowledge and awareness of safety related issues across all levels of the organization.
- **Improving safety resource efficiency** by analyzing safety resource allocation and work scopes. An analysis based on safety risk and customer-centric understanding of organizational safety support needs was completed in 2018. The analysis will support future resource allocation decisions ensuring resources are being applied toward the right areas of focus and priorities.

The Senior Safety Committee is engaged each quarter to provide strategic and tactical advice on health and safety direction and priorities, and to share information and best practices that reinforce a positive safety culture. Reviewing and improving overall safety governance will occur with an updating of the corporate safety strategy commencing in late-2019.

Safety Perceptions and Awareness

The Corporate Employee Survey (CES) captures employee perceptions of The Corporation's workplace practices that support physical and psychological safety. Results of the 2018 survey show The City continues to demonstrate strength in the protection of physical safety and psychological support. Additional areas of advancement and progress include:

- Employees better understand their responsibility for making sure they and their colleagues stay safe.
- Employees have the training to do their jobs safely.

Certificate of Recognition (COR) Audit

The Certificate of Recognition (COR) audit is an external health and safety audit conducted every three years as part of the provincial Partnerships in Injury Prevention program. The City has successfully participated in the program since 2007. The audit program has been updated to align with recent changes to Occupational Health and Safety legislation. The City's next audit will begin in September 2019 and audit planning is underway. The COR audit is important as the City receives a Workers' Compensation Board (WCB) rebate in addition to its reputational importance as an Alberta municipal standard. This audit assessment helps ensure that our safety management system remains effective and current.



Legislative changes

Joint Worksite Health and Safety Committees (JWHSC)

As a result of changes to Occupational Health and Safety (OHS) legislation, worksites with 20 or more employees require a health and safety committee. This legislative change provides an opportunity for The City to take a holistic look at our JWHSC structure and design a structural approach that will work best for our complex organization. The City has been working closely with a group of other large employers in Alberta (e.g. University of Calgary, Alberta Health Services) to monitor how they are responding. Further, The City is taking a risk-based approach in response to this legislative change.

Serious and potentially serious Occupational Health and Safety incidents

Recent legislative changes mean that any incident resulting in an employee being admitted to hospital must be reported to Alberta Occupational Health and Safety (Alberta OHS) along with “Potentially Serious Incidents”. Potentially Serious Incidents are those that had potential to cause serious injury to a person but did not. In 2018, The City successfully piloted a process to ensure the new reporting requirements are met.

In 2018, six serious incidents were reported to Alberta OHS. These incidents have all been investigated and incident files are now closed with Alberta OHS. Changes to OHS legislation have increased our reportable incidents. We continue to learn from the investigations to improve techniques, processes and implement findings.

<p>Preventing workplace injuries and illnesses The City's Occupational Health and Safety Policy outlines The City's commitment to providing a safe and healthy work environment for its employees. The Policy also sets out expectations for employees to contribute to a safe and healthy work environment as a shared responsibility.</p>																						
<p>Customers Leaders, managers, operational and administrative employees, health/safety/wellness risk owners, Administrative Leadership Team</p>	<p>Key Partners Senior Safety Committee, business unit safety contacts, Human Resources, Corporate Analytics & Innovation, Facility Management, Corporate Security, Supply Management, Law, Fleet Services, Calgary Transit, Water Services</p>																					
<p>Corporation-wide Total Recordable Injury Frequency</p> <table border="1"> <thead> <tr> <th>Year</th> <th>TRIF</th> </tr> </thead> <tbody> <tr><td>2012</td><td>9.1</td></tr> <tr><td>2013</td><td>9.5</td></tr> <tr><td>2014</td><td>9.4</td></tr> <tr><td>2015</td><td>9.2</td></tr> <tr><td>2016</td><td>8.3</td></tr> <tr><td>2017</td><td>10.5</td></tr> <tr><td>2018</td><td>11.1</td></tr> <tr><td>2019</td><td>Forecast</td></tr> <tr><td>2020</td><td>Forecast</td></tr> </tbody> </table>	Year	TRIF	2012	9.1	2013	9.5	2014	9.4	2015	9.2	2016	8.3	2017	10.5	2018	11.1	2019	Forecast	2020	Forecast	<p>The story behind the numbers</p> <ul style="list-style-type: none"> Total Recordable Injury Frequency (TRIF) is a ratio of the number recordable injuries and illnesses that result in medical treatment being sought, and those that result in lost time, per exposure hours. The Corporation's TRIF increased from 10.5 in 2017 to 11.1 in 2018. Lost Time Claim Frequency (LTCF) is similar to TRIF, but only accounts for injuries and illnesses that result in lost time. The Corporation's LTCF increased from 5.0 in 2017 to 5.5 in 2018. Psychological claim acceptance by WCB in 2018 was higher due to recent legislative changes. The greater number of accepted claims increases The City's TRIF and LTCF. The top underlying causes of occupational incidents for 2018 were: <ol style="list-style-type: none"> Lack of knowledge / awareness (i.e. insufficient information or understanding of job hazards). Surface conditions (i.e. unsafe or unstable surfaces, such as wet/slick surfaces). Inadequate preparation / planning (i.e. lack of task planning; insufficient pre-work briefing). 	
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<p>Managing workplace injuries and claim costs Intentional incident management includes supporting employees in seeking timely medical treatment after a work-related injury and supporting them through Workers' Compensation Board (WCB) and return to work processes to reduce the amount of time the employee loses from work. Incident management also includes thorough and timely incident investigations, which are critical to understanding causes and developing appropriate corrective actions and strategies.</p>																				
<p>Customers Leaders, managers, and operational and administrative employees, Health/safety/wellness risk owners, Administrative Leadership Team (ALT), Council</p>		<p>Key partners Human Resources, City leaders and managers, Workers' Compensation Board (WCB) Alberta, industry partners</p>																		
<table border="1"> <caption>Average days lost per lost time claim</caption> <thead> <tr> <th>Year</th> <th>Days lost</th> </tr> </thead> <tbody> <tr><td>2013</td><td>16</td></tr> <tr><td>2014</td><td>18</td></tr> <tr><td>2015</td><td>17</td></tr> <tr><td>2016</td><td>21</td></tr> <tr><td>2017</td><td>23</td></tr> <tr><td>2018</td><td>23</td></tr> <tr><td>2019</td><td>24</td></tr> <tr><td>2020</td><td>25</td></tr> </tbody> </table>	Year	Days lost	2013	16	2014	18	2015	17	2016	21	2017	23	2018	23	2019	24	2020	25	<p>The story behind the numbers</p> <ul style="list-style-type: none"> The average number of days lost due to work-related incidents in 2018 was 23, unchanged from 2017. In 2018, 75 per cent of employees that could be accommodated (based on medical clearance) were provided with an accommodation. Performance on accommodation was consistent with 2017; however, this remains an opportunity for improvement. 	
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<table border="1"> <caption>Medical and wage replacement costs paid by Workers' Compensation Board</caption> <thead> <tr> <th>Year</th> <th>Total cost (millions \$)</th> </tr> </thead> <tbody> <tr><td>2013</td><td>2.5</td></tr> <tr><td>2014</td><td>3.5</td></tr> <tr><td>2015</td><td>3.5</td></tr> <tr><td>2016</td><td>4.0</td></tr> <tr><td>2017</td><td>5.5</td></tr> <tr><td>2018</td><td>8.0</td></tr> <tr><td>2019</td><td>8.5</td></tr> <tr><td>2020</td><td>9.0</td></tr> </tbody> </table>	Year	Total cost (millions \$)	2013	2.5	2014	3.5	2015	3.5	2016	4.0	2017	5.5	2018	8.0	2019	8.5	2020	9.0	<p>The story behind the numbers</p> <ul style="list-style-type: none"> Medical and wage replacement costs paid by the Workers' Compensation Board (WCB) increased in 2018, primarily due to an increase in lost time claims. These costs directly affect The City's WCB premiums. The City's WCB premiums were \$21 million in 2018 and are forecast to be over \$22 million in 2019. Despite expected improvements in safety performance and accommodation, these are expected to continue to increase next business cycle, partially due to legislative changes. WCB premiums are also affected industry rate increases. 	
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<p>Accomplishments</p> <ul style="list-style-type: none"> Finalized an Accommodation Strategy, which will improve the employee accommodation process and address legislative changes. The strategy provides direction to: establish sustainable funding for accommodations; tactics to reduce the stigma related to accommodated work and support inclusion; and streamlining of accommodation processes to improve efficiencies. <p>Moving Forward</p> <ul style="list-style-type: none"> Continue implementing the Accommodation Strategy, including active case management and funding set aside for wage replacement. Continue to build job demands analyses of safety sensitive and high-risk positions to assist Business Units and case managers to more appropriately apply work restrictions and return employees to work sooner. Work with WCB on improving cost and case management, including identifying trends, improving efficiency for reporting, and improving the audit process. Continue with the multiple strategies and tactics to reduce the number of injuries across The Corporation. 																				

3 Corporate Environmental Management

The City of Calgary's Environmental Policy provides direction for City business units to fulfill environmental compliance obligations and continually improve performance in alignment with the ISO 14001 Standard for environmental management systems (EMS). Nine business units formally registered to the ISO 14001 standard, while three additional business units (not formally registered) maintain ISO 14001-based systems.

An overarching corporate-wide EMS is being developed to manage corporate environmental risks at the operational level and take advantage of opportunities for efficiency and collaboration across The Corporation. The corporate EMS will support the development of a Corporate Environmental Plan in 2019. The Corporate Environmental Plan will provide a strategic approach for continually improving existing programs, addressing gaps in current corporate environmental programming, and establishing actions to support performance of the corporate EMS.

Internal and external environmental audits

Environmental audits of The City's twelve business units with ISO 14001-based EMS did not identify any major management system non-conformities or high-risk non-compliance findings in 2018. Audits assess conformance to the ISO 14001 standard, environmental legislation, corporate environmental management standards, and the business unit's own management system requirements.

The most common areas for improvement identified during the audit are shown on the graph to the right. Corrective actions have been developed for each audit finding and are being monitored. Examples of recent corrective actions include:

- Improved environmental emergency plan testing with a process to track the timely implementation of corrective action items.
- Reduced risk of chemical reactions, leaks, and spills by reinforcing chemical storage compliance requirements with staff.

Most common areas for improvement identified by 2018 audits



Substance release reporting

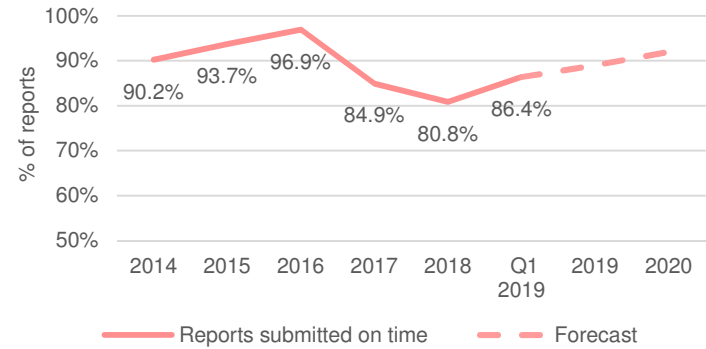
Substance releases that exceed established thresholds or may cause an adverse effect on the environment or human health must be reported verbally to Alberta Environment & Parks (AEP). A written report must be submitted to AEP within seven days of the verbal report. The City reported 104 substance releases to AEP in 2018.

A major update of the Corporate Substance Release Reporting Program was implemented in Q4 2018. Preliminary results indicate that the updates are improving The City's reporting compliance.

Changes to environmental legislation and policy

The City continues to monitor and respond to environmental legislation and policy changes. Since the last report, amendments to Alberta's *Water (Ministerial) Regulation*, made under the *Water Act*, came into effect. The amendments establish a risk-based and enforceable Dam and Canal Safety Directive, which sets out requirements for dam design, construction, operation, surveillance, and decommissioning/ closure. The City is responding by identifying gaps and developing a policy that will align with the new requirements.

Substance release reports submitted to regulator within legislated timeframe



<p>Preventing and managing soil and groundwater contamination means working collaboratively to control potential sources, reduce unknown liabilities, and mitigate contamination impacts across City facilities, capital projects, and services. This supports The City's commitment to protect the health of the environment and the public.</p>																														
<p>Customers Operational business units, site operators, project managers, Planning & Development, corporate land stewards</p>	<p>Key Partners Internal: Law, 311, Environmental and Safety Management (ESM), Calgary Fire Department, Law, Finance, Water Resources/Water Services, Customer Services and Communications (CSC). External: Consultants, regulatory authorities, Community Associations</p>																													
<p>Corporate Substance Release Management</p> <table border="1"> <caption>Corporate substance releases to air, land and water</caption> <thead> <tr> <th>Year</th> <th>Releases reportable internally only</th> <th>Releases reportable to Alberta Environment and Parks (AEP)</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>2014</td> <td>550</td> <td>100</td> <td>650</td> </tr> <tr> <td>2015</td> <td>450</td> <td>100</td> <td>550</td> </tr> <tr> <td>2016</td> <td>650</td> <td>100</td> <td>750</td> </tr> <tr> <td>2017</td> <td>600</td> <td>100</td> <td>700</td> </tr> <tr> <td>2018</td> <td>550</td> <td>100</td> <td>650</td> </tr> <tr> <td>2019 (Forecast)</td> <td>450</td> <td>100</td> <td>550</td> </tr> </tbody> </table>	Year	Releases reportable internally only	Releases reportable to Alberta Environment and Parks (AEP)	Total	2014	550	100	650	2015	450	100	550	2016	650	100	750	2017	600	100	700	2018	550	100	650	2019 (Forecast)	450	100	550	<p>The story behind the numbers</p> <ul style="list-style-type: none"> Internal substance releases reports decreased in 2018. The number of spills reported to Alberta Environment and Parks also decreased. Further investigation will be completed in 2019 to understand the cause of the decline (i.e. fewer releases occurring, or releases not properly reported). The primary causes of 2018 releases were related to the City's fleet of vehicles and equipment and included hose/line failure, vehicle and equipment leaks, and motor vehicle accidents. The majority of spills were small and contained. 	<p>Accomplishments</p> <ul style="list-style-type: none"> Supply Management, Fleet Services, ESM and CSC collaborated to address an observed increase in releases at The City's fuel sites. Actions included targeted communications, updated procedures, training, and revised signage. <p>Moving Forward</p> <ul style="list-style-type: none"> The Corporate Substance Release Reporting Program will be incorporated into a broader program including environmental emergency management, substance release prevention and substance release management/response. Release data will be used to identify opportunities to reduce environmental impact.
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<p>Contractor Environmental Management</p> <table border="1"> <caption>Most common areas for ECO Plan improvement</caption> <thead> <tr> <th>Area</th> <th>% of plans not meeting requirements</th> </tr> </thead> <tbody> <tr> <td>Emergency Preparedness</td> <td>~18%</td> </tr> <tr> <td>Permits / Approvals</td> <td>~22%</td> </tr> <tr> <td>ECO plan documentation</td> <td>~25%</td> </tr> <tr> <td>Hazardous Materials</td> <td>~25%</td> </tr> <tr> <td>Mitigation plans</td> <td>~28%</td> </tr> <tr> <td>Potential tree impacts</td> <td>~28%</td> </tr> </tbody> </table>	Area	% of plans not meeting requirements	Emergency Preparedness	~18%	Permits / Approvals	~22%	ECO plan documentation	~25%	Hazardous Materials	~25%	Mitigation plans	~28%	Potential tree impacts	~28%	<p>The story behind the numbers</p> <ul style="list-style-type: none"> Environmental Construction Operations (ECO) plans provide a framework for The City's capital projects to integrate environmental considerations into decision-making and support compliance with applicable environmental regulations, bylaws and guidelines. In 2018, 75 ECO plans were reviewed. An analysis of these identified the environmental requirements that most commonly require improvement when contractors and consultants prepare the ECO Plans. 	<p>Accomplishments</p> <ul style="list-style-type: none"> City project managers, construction supervisors, and field managers attended an environmental protection workshop to increase environmental awareness in daily decision-making. <p>Moving Forward</p> <ul style="list-style-type: none"> Education for project managers, contractors and consultants on The City's environmental requirements targeting the ECO plan improvement areas. 														
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<p>Contaminated Site Management</p> <table border="1"> <caption>City-owned properties assessed for potential environmental risk & liability</caption> <thead> <tr> <th>Year</th> <th>Properties assessed</th> </tr> </thead> <tbody> <tr> <td>2014</td> <td>~150</td> </tr> <tr> <td>2015</td> <td>~180</td> </tr> <tr> <td>2016</td> <td>~480</td> </tr> <tr> <td>2017</td> <td>~150</td> </tr> <tr> <td>2018</td> <td>~550</td> </tr> <tr> <td>2019 (Forecast)</td> <td>~200</td> </tr> </tbody> </table>	Year	Properties assessed	2014	~150	2015	~180	2016	~480	2017	~150	2018	~550	2019 (Forecast)	~200	<p>The story behind the numbers</p> <ul style="list-style-type: none"> In 2018, to reduce unknown liabilities, ESM's regular screening program assessed 561 City-owned sites for contamination risk. The number of assessments varies from year to year based on many factors (e.g. complexity/nature of environmental risks, number of land transactions and capital projects). To decrease unknown liabilities on a business unit portfolio basis, and in addition to the regular screening program, ESM and Calgary Housing Company (CHC) screened 1,539 CHC-managed sites for potential environmental concerns. Follow-up assessments required on 24 of these sites indicated no outstanding environmental concerns. The City actively managed 34 known contaminated sites in 2018, thereby reducing risk and liability. 	<p>Accomplishments</p> <ul style="list-style-type: none"> Calgary Roads is actively working to address contamination risks related to road salts and is on track to meet six of seven national voluntary compliance targets for the management of road salts. <p>Moving Forward</p> <ul style="list-style-type: none"> Implement a strategic plan to improve Roads' ability to store treated abrasives under cover. Develop a site portfolio to understand contamination risk and liability for Facility Management. Implement the new Remediation Regulation and Asset Retirement Obligations accounting standard. 														
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<p>Fulfilling corporate environmental stewardship responsibilities means working together to conserve, protect, and enhance the environment by complying with legislation, conserving resources and preventing pollution within The City’s own operations.</p>		
<p>Customers Council, Administrative Leadership team (ALT), business units, environmental policy owners.</p>	<p>Key Partners Internal: Waste and Recycling Services, Supply Management, Calgary Parks, Environmental and Safety Management, Roads, Planning, Transportation, Water. External: The development and building industry, transportation experts, waste experts, academics, non-profits, consultants, external supplier community, public space users</p>	
<p>Reducing Greenhouse Gas (GHG) Emissions</p> <p>Corporate Greenhouse Gas Emissions</p> <p>Y-axis: kTonnes CO₂e (200 to 1000) X-axis: 2010 to 2020</p> <p>Legend: Corporate GHG Emissions (solid red), 2020 Target (solid dark red), 2019-2020 Forecast (dashed red), Forecast if no action taken (dashed blue)</p>	<p>The story behind the numbers</p> <ul style="list-style-type: none"> The opening of the municipal composting facility resulted in increased corporate emissions for 2018. When the facility is operating at full capacity, the diversion of organic material from the landfills will avoid about 110,000 tonnes of CO₂e per year in landfill gas emissions. 	<p>Accomplishments</p> <ul style="list-style-type: none"> Solar photovoltaic panels were installed at nine locations in 2018, creating an estimated annual GHG reduction of 2,330 tonnes and generating 3.7 million kWh of energy. <p>Moving Forward</p> <ul style="list-style-type: none"> The 4.5 megawatt turbine installed at the Bonnybrook Waste Water Treatment Plant will improve the reliability and efficiency of energy and heat generation. Landfill gas capture at Spyhill landfill will reduce methane emissions.
<p>Maintaining and Protecting Trees</p> <p>Trees planted on City streets and in City parks</p> <p>Y-axis: number of trees (0 to 10000) X-axis: 2015 to 2020</p> <p>Legend: Trees planted on streets or parks (solid red), Forecast (dashed red)</p>	<p>The story behind the numbers</p> <ul style="list-style-type: none"> The ReTree program ended in 2017. Starting in 2018, tree planting has focused on replacing those lost to natural lifecycle decline, approximately 3,500 trees per year. In 2018, 4,258 trees were planted. A key learning from the ReTree YYC program was to prioritize proactive pruning to sustain the resilience of our public trees. Pruning will make them less susceptible to breaking from heavy snowfall, especially in the spring. 	<p>Accomplishments</p> <ul style="list-style-type: none"> Two years of data collected for an integrated pest trial program for European Elm scale. The data allows the exploration of ways to reduce pesticide use through cultural practices which benefit trees and surrounding soil communities. <p>Moving Forward</p> <ul style="list-style-type: none"> Collect data to monitor existing non-native pest species. Continue to prioritize proactive tree pruning to sustain the resilience of public trees. Use ECO Plan data to target education to contractors with regard to tree protection.
<p>Composition of divertible waste from public spaces</p> <p>Composition of divertible waste from public spaces</p> <p>Y-axis: % of divertible waste (0% to 100%) X-axis: Transit, Roads, Parks</p> <p>Legend: Organics (red), Paper (grey), Plastics (pink), Other Recyclables (dark grey)</p>	<p>The story behind the numbers</p> <ul style="list-style-type: none"> To guide waste diversion decisions, waste composition studies were undertaken in the public spaces maintained by Calgary Transit, Calgary Parks, and Roads. The studies found that up to 80% of the waste in the samples collected was potentially divertible. The three business units are using the results to develop and implement strategies. For example, Transit used the waste composition studies to determine a significant portion of divertible waste was paper. As a result, recycling bins have been placed at transit stations at a 1:1 ratio with waste bins. 	<p>Accomplishments</p> <ul style="list-style-type: none"> Calgary Parks tested the effectiveness of refurbishing garbage cans and benches to conserve materials, reduce waste, and lower costs. Refurbishing saves \$700/can and \$400/bench. 2018 savings were \$15,700. <p>Moving Forward</p> <ul style="list-style-type: none"> Forecasted refurbishment of 20 benches/60 garbage cans, will divert waste from landfills, saving \$50,000. Implement communications and education initiatives including “Recycle and Compost Right @ Work”. Introduce a yard waste diversion focus for operational business units such as Calgary Parks.