

# CORPORATE ENVIRONMENT, HEALTH & SAFETY ANNUAL REPORT



**2015 UPDATE REPORT**



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## 1. OVERVIEW

On behalf of the Corporation of the City of Calgary, Environmental & Safety Management (ESM) reports annually to Council on The City's corporate performance in the areas of the environment and employee safety.

This report complements Action Plan-related performance reports, such as those focused on Water, Waste, Biodiversity and Climate Change which address The City's broader mandate for balancing the environment, the societal and the economic interests of the city and its citizens (The Triple Bottom Line).

The City of Calgary owns a total of 13,295 hectares, representing more than 15 per cent of Calgary's total land area. Of the City-owned land, 7,660 hectares (58 per cent) is parkland. The City has an employee complement of more than 15,000. Within Calgary, The City is one of the largest employers, landowners, fleet owners, and building owners. This gives The City the influence to shape city values and culture, in addition to its municipal government authority.

Employee safety and operational impacts on the environment are primary pillars within corporate responsibility reporting. In addition to managing the environmental, health and safety risks of its operations and services through defined management systems (Action Plan 2015-2018: W6.2), one of The City's Council Priorities is to lead by example and manage regulatory risks to protect public health and the environment (Action Plan 2015-2018: H10). The City is positioned to model exemplary citizenship for other organizations headquartered and operating in Calgary.

Our commitment is to continue building and strengthening more robust management systems that support the environment and safety outcomes for the Corporation.



## 2. CORPORATE DIRECTION

In an effort to integrate the direction and priorities of City departments, “One City, One Voice” principles were created, including:

### CORPORATE VALUES

- Individual responsibility: I act responsibly, perform my duties to the best of my ability and present myself as a positive ambassador for the City.
- Collective accountability: We work together for the benefit of the people of Calgary.

Our shared values provide a basis to help us to make decisions and guide our actions. They give us a clear idea on what we need to do to be successful, both individually and collectively. It is our job to make our values meaningful and to make sure that we live our values in our daily interactions with customers, citizens and each other.

We are a public service organization with a unique set of responsibilities. We have a direct impact and can make a difference in people’s lives. Among our responsibilities are:

- Corporate stewardship: We are accountable for the financial, social and environmental resources entrusted to us, to ensure the decisions we make today contribute to the quality of life in the community now and into the future.
- Safe and healthy work environment: Protecting the health and safety of ourselves, the people we work with and the public.
- Environmental stewardship: Encouraging responsible use and protection of the natural environment through conservation and sustainable practices to protect and improve the quality of life in the community.
- Fiscal stewardship: Managing citizens’ tax dollars in a responsible and efficient manner.

### ACTION PLAN 2015-2018

The City’s Action Plan for the 2015-2018 business cycle has five priority areas, three of which are directly relevant to the environment and/or employee safety: A Health and Green City and, A Well-Run City and Inspiring Neighbourhoods. While corporate responsibility may be seen as part of being a well-run organization, the Action Plan 2015-2018 deliverables pertaining to the environment are captured under the Council Priority: A Healthy and Green City.



The following have been identified as relevant to the 2015 Corporate EHS Annual Report:

## **COUNCIL PRIORITY: A HEALTHY AND GREEN CITY**

- H1 Implement the green cart program and multi-family recycling strategy, and reduce industrial, commercial and institutional waste in our landfills (*relevance to corporate environment and safety: corporate compliance with the ICI Waste Reduction By-law*)
- H2 Encourage a broader range of innovative and clean energy technologies
- H5 Protect and enhance our urban forest and natural landscape throughout Calgary
- H10 Lead by example and manage regulatory risks to protect public health and the environment

## **COUNCIL PRIORITY: A WELL-RUN CITY**

- W9 Strive to be an employer of choice with a focus on addressing The City's aging workforce
- W6.2 Use tools such as management systems and auditing to minimize environmental health and safety (EHS) risks

## **COUNCIL PRIORITY: A CITY OF INSPIRING NEIGHBOURHOODS**

- N9 Provide great public spaces and public realm improvements across the city to foster opportunity for well used public spaces and places for citizen connections and urban vitality



### 3. GOVERNING POLICIES AND PLANS

The City of Calgary Environmental policy and the Occupational Health & Safety (OHS) policy are the cornerstones of The City's environmental and safety management systems. They provide the guiding statements about The City's responsibility, and are supported by more specific principles, plans and processes to ensure clarity in our everyday operations.

The Environmental Policy addresses The City's broader environmental stewardship role – as a corporation and as a government. Within our own operations, we are committed to:

- Develop and implement strategies to mitigate impacts, promote conservation and minimize consumption of natural resources including land, energy and water;
- Develop and implement strategies to prevent pollution, protect and enhance the natural environment, reduce waste generation and respond to climate change issues;
- Integrate environmental considerations into all decisions and approvals relating to growth, planning, infrastructure, transportation and development.

Within the Occupational Health and Safety Policy, some specific key directives have driven our activities in 2015:

- Proactively manage risks to prevent workplace injury, illness or loss to employees, contractors, suppliers, volunteers and the public;
- Support early and safe return to work initiatives;
- Continually seek innovative ways to improve occupational health & safety performance;
- Provide education, training and competency evaluations to ensure employees understand and meet their health and safety responsibilities.



## **4. 2015 MILESTONES & HIGHLIGHTS: POLICIES, STRATEGIES AND PLANS**

In addition to the foundational policies above, these supporting policies and strategies were introduced or initiated in 2015:

### **CLIMATE CHANGE PROGRAM**

In an effort to focus and prioritize greenhouse gas (GHG) reduction actions and address the risks and impacts of climate change facing The City and the broader community, a climate program is being developed. The Climate Change Framework (preparation, adaptation and mitigation and recovery) will guide the development of a climate program. A cross-Corporate program team has been created to develop and execute strategic oversight (including a comprehensive climate action plan). The climate plan will chart the course for Calgary to achieve its emissions reduction goals, ensure City plans and actions are responsive to changes in the climate and integrate The City's response to provincial and federal climate change programs.

#### **4.1 BIODIVERSITY PROGRAM**

In 2015, The City adopted a 10-year biodiversity strategy, titled *Our BiodiverCity*. It is based on principles of ecological literacy, ecological resilience, collaboration and integration to foster more resilient, biologically diverse open space and neighbourhoods that support positive outcomes for Calgarians, visitors, wildlife and plant communities. The vision of the biodiversity program is that Calgarians value our city's diversity and richness in wildlife, vegetation and landscapes, and The City and citizens work to integrate our actions and the built environment with an ecological network that is healthy, connected and well managed.

#### **GREEN DRIVER POLICY**

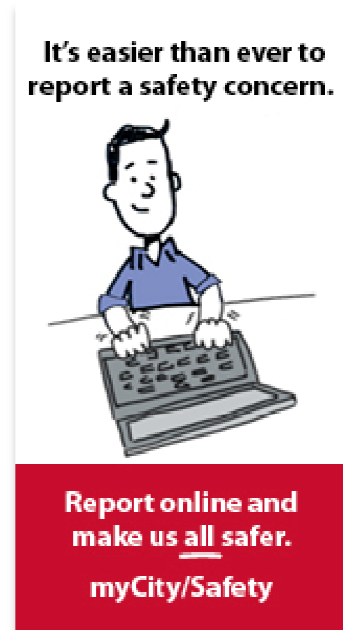
In 2015, the Corporate Reduced Idling Policy was replaced with a Green Driving Policy that in addition to avoiding idling, reinforces the principles of efficient driving to minimize fuel consumption. The policy requires drivers to incorporate fuel saving behaviours when driving City vehicles, such as accelerating smoothly, preparing to stop by slowing down, reduced idling, planning and combining trips, lightening the load, keeping tire pressure at the optimal level and choosing the right-sized vehicles for the job.

## 5. 2015 MILESTONES & HIGHLIGHTS: STRENGTHENING MANAGEMENT SYSTEMS

### IMPLEMENTATION OF AN ONLINE SAFETY REPORTING TOOL

In 2015, The City embarked on the implementation of a single online tool for capturing the Corporation’s safety data in order to measure performance and guide effective decision-making. By the end of 2015 the incident management module of the corporate-wide reporting system was in use by all City business units. Having a single system for safety data makes it easier and more convenient for employees to report issues in real-time, strengthens our ability to track actions related to incident management and proactive safety efforts, and provides timely access to trends or issues for early intervention and planning by decision-makers. Full implementation of the system is slated for Q1 2017 and will allow for:

- Online reporting and investigation of incidents;
- Centrally housing all position hazard assessments for easy review;
- Logging and scheduling proactive safety activities like safety meetings, audits and workplace inspections;
- Recording and managing safety risks, compliance obligations;
- Housing audiometric, industrial hygiene, respiratory fit testing data;
- Improved reporting and measurement.



...d an online safety  
... for employees.

### UPDATING PROTOCOLS TO MEET ISO14001:2015 REGISTRATION REQUIREMENTS

The City’s current environmental management system utilizes the widely recognized International Standards Organization (ISO) 14001 standard. In 2015, the 13 registered business units maintained their ISO registrations. ISO14001 has been in place at The City since 2003 and has helped registered business units improve their environmental performance and manage their risks.

In 2015, the international standard was revised and the new ISO 14001: 2015 contains elements to help move organizations beyond “pollution prevention” to “environmental enhancement”. The key changes include enabling environmental management to be more prominent within the organization’s strategic direction and a focus on a greater commitment from leadership.





Within The City, the 13 currently registered business units are transitioning to become registered under the new ISO 14001: 2015 standard by September 2018. The City is using this transition as an opportunity to review and improve the overall function of its environmental management.

## **MAINTAINING CERTIFICATE OF RECOGNITION (COR)**

The City participates in the provincial Partnerships in Injury Reduction program, which requires an external occupational health and safety management system audit every third year to re-qualify for a COR. Being COR certified means that our system meets established provincial standards for safety. The COR audit provides an unbiased assessment of our Corporate health and safety management system, identifying strengths in our safety programs and services, and areas where we can improve.

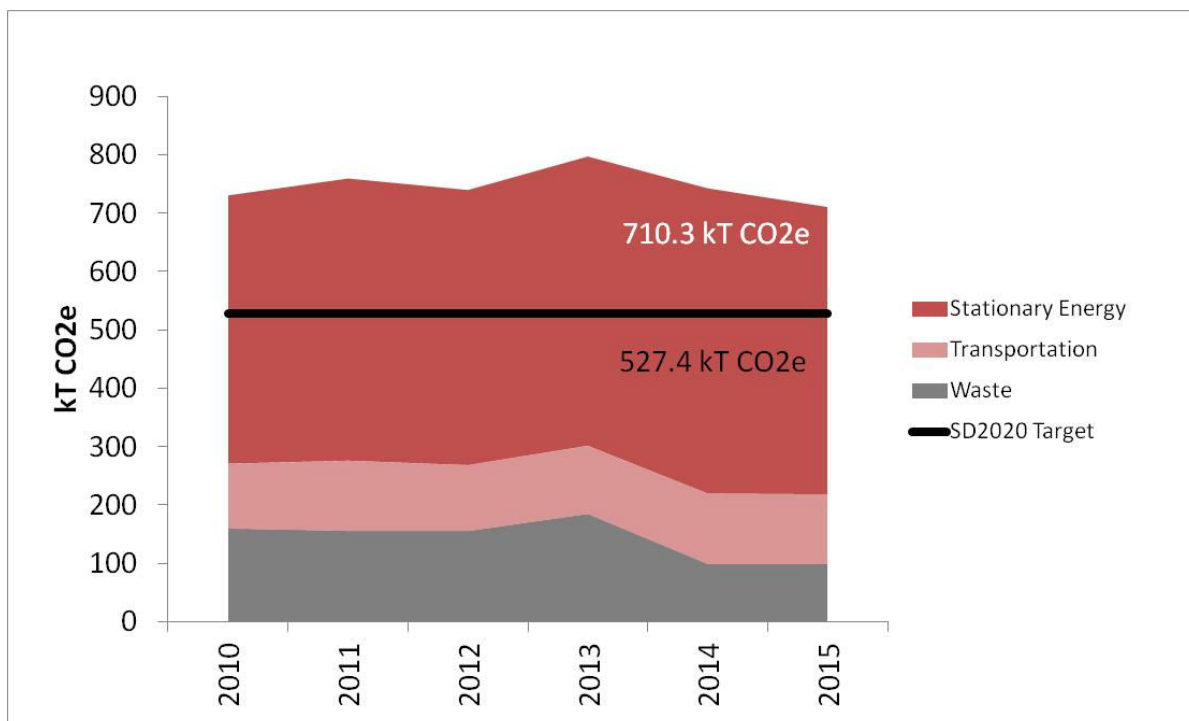
The City's last external audit was conducted in 2013. After each COR audit, an action plan is developed to address opportunities for improvement. In the years between external COR audits, The City develops an annual action plan approved and evaluated by Alberta Municipal Safety Health Association (AMSHA) to maintain its COR requirement. In 2015, the City successfully completed all requirements. The City's next COR audit is scheduled to begin in June 2016.

## 6. 2015 MILESTONES & HIGHLIGHTS: ENVIRONMENTAL AND SAFETY ACTIONS

### 6.1 ENERGY PERFORMANCE

The City focuses on reducing energy use and using cleaner fuel sources to meet its commitment of reducing its corporate GHG emissions by 20 per cent below the 2005 baseline by 2020, and 80 per cent by 2050. The City’s three main sources of GHGs are buildings and stationary structures (electricity, heating and cooling systems), vehicles (burning fossil fuels), and methane released from the decomposition of waste products (at landfills and in wastewater treatment).

The City continues to purchase Renewable Energy Credits (REC) through its green energy contract with ENMAX. The benefits of investing in green energy infrastructure are gained at the Provincial Electric Grid level. Overall, when the Provincial Electric Grid GHG factor is lowered, it reflects a decreased use of GHG-intense fuels (such as coal) and an increased use of energy that produces lower levels of GHGs (such as solar and wind). The City of Calgary’s investment in wind energy, which is now added to the Grid, contributes to the overall lowering of the Provincial Electric Grid GHG factor.

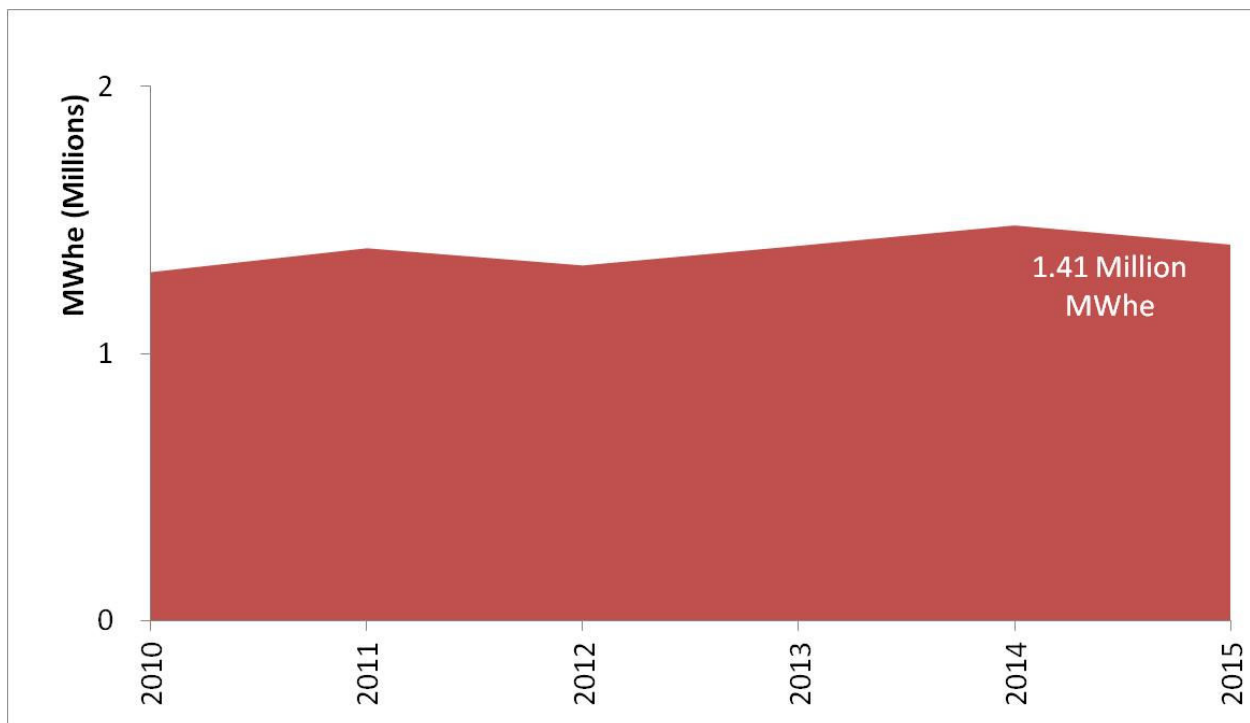


**Figure 6.0 – Corporate GHG Emissions**

In 2015, The City adopted the Carbon Disclosure Project’s (CDP) methodology to calculate GHG inventories, showing the actual GHG benefit through a better grid factor but not showing the conceptual “offset” of purchased RECs. The CDP is an international organization based in the United Kingdom that

works with corporations to disclose their GHGs. The new methodology reflects global protocols for reporting GHG emissions, which allows us to participate in global, national, and regional benchmarking and reporting programs. The information presented in this report represents the use of the new methodology and shows that corporately we are above our targeted reduction goals, however The City continues to purchase its electricity from renewable energy sources.

The City continued to focus its GHG reduction efforts through reduced energy use and the increasing use of cleaner fuels. The biggest gains were realized in the amount of energy used in our buildings and other stationary structures and in the way that GHGs are managed at the waste and water treatment sites. In addition to benefits offered by warmer winter weather (requiring less heating, less idling, and less snow removal activity), The Corporation’s GHG-reduction actions are highlighted below:



**Figure 6.1 – Total Corporate Energy Use**

## CONTINUED REPLACEMENT OF STREETLIGHTS



.LED fixtures.

The city-wide LED (light-emitting diode) streetlighting retrofit project is an example of how the decision to prioritize efficiency now can return substantial savings for The Corporation longer-term. This four-year \$35 million project will see all of Calgary's high pressure sodium streetlamps replaced with technologically advanced LED fixtures. Beyond delivering better lighting and less light pollution throughout the city, energy savings of more than 55 per cent are expected, along with more than \$5 million in operating costs each year.

In 2015, over 7,000 additional streetlights were replaced by LED luminaries, bringing the total to nearly 17,000 since the beginning of the program. These energy savings represent taking over 600 passenger cars off the road for a year, or over 2,800 tonnes of Carbon Dioxide Equivalents (tCO<sub>2</sub>e). The City has a target of 80,000 LEDs replaced by the end of this business cycle.

## COMPUTER SHUTDOWNS

The City piloted an end-of-day automatic computer shutdown program in two business units in 2015. For the 102 computers involved in the pilot, the automatic shutdowns yielded a 62 per cent reduction of energy use with virtually no impact to users. This pilot provided The City with insights and recommendations for future larger-scale rollouts.

## BUILDING SUSTAINABLY

The City continues its commitment to sustainability in building design, construction and operations through the Sustainable Building Policy. The policy requires certification to specific levels of the Leadership in Energy and Environmental Design (LEED™) green building program for new construction and major renovations. In 2015, 6 city-owned or funded civic partner buildings achieved green building certification with 5 of those rated Silver or Higher. These newly constructed buildings were designed to optimize energy and water efficiency, while addressing construction waste management and recycling, indoor environmental quality, and durability in material selection.



The City also invested over \$3 million in 2015 through the Sustainable Buildings Partnership Program in energy efficiency measures. These investments included energy efficiency measures at recreation facilities identified through detailed energy audits, LED lighting replacements in areas affected by flooding at Bonnybrook Waste Water Treatment Plant and improvements to insulation at affordable housing units. The City also invested into distributed energy generation systems such as a combined heat and power system at Spring Gardens Garage and Calgary’s largest rooftop solar project at Southland Leisure Centre.

**Table 6.0 – LEED Facility Certification Levels, 2015**

Facility	Certification Level
Calgary Zoo Penguin Plunge Complex	Gold
Douglas Glen Fire Station 39	Gold
Municipal Building 9th floor Tenant Improvement	Silver
Municipal Building 12th floor Tenant Improvement	Certified
Fire Station 40 - Symons Valley	Gold
Winsport - Markin MacPhail Centre	Silver

## SOUTHLAND LEISURE SOLAR RETROFIT

In 2015, solar panels were installed on the Southland Leisure Centre facility roof, which will convert solar energy into electricity that can be used in the building. The energy generated is equivalent to the electricity use for 24 average Calgary homes each year. From a cost standpoint, the savings associated with generating its own electricity will eventually offset the investment in the system. Using energy generated by renewable sources such as the sun and wind reduces the amount of fossil-fuel based energy The City requires.

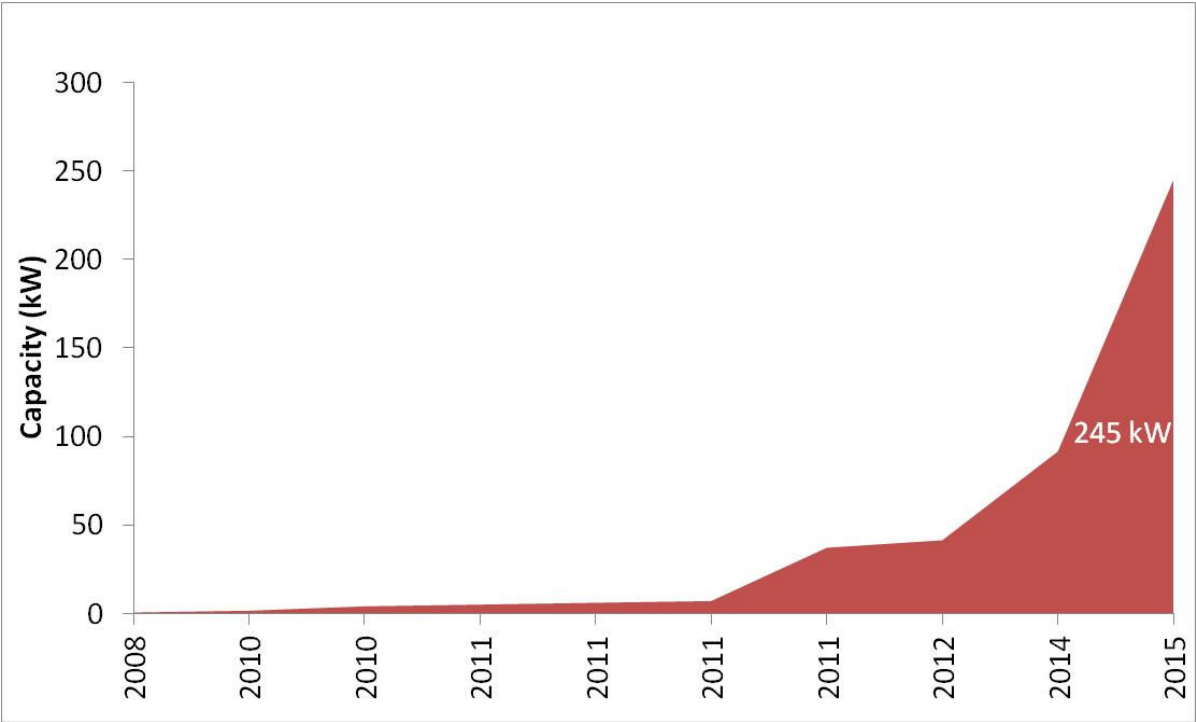


Figure 6.2 – Total Installed Solar Capacity

## GREEN DRIVER TRAINING

Teaching Green Driving behaviours such as reduced idling, slower acceleration and planning and combining trips have been proven to reduce fuel consumption in a pilot project. In 2015, over 1100 employees with licenses to drive corporate vehicles received the basic training. By the end of 2015, more than 250 drivers of targeted categories of vehicles received training using driving simulators, in which they go through scenarios and see immediate impacts of driving habits on fuel consumption. The training not only teaches about eco-driving methods for light-fleet operators, it provides added instruction for heavy-fleet operators like bus and garbage/recycling truck drivers about the fuel efficient use of air brakes and other specialized technology.

## GREEN FLEET

Through a number of channels, The City is increasing the energy efficiency of its fleet and therefore reducing the environmental impact from vehicle use.

- This year light fleet vehicles were purchased under a new contract with environmental sustainability criteria built into the evaluation of the new vehicle supplier. “Best in class” (top ten per cent) fuel economy performance was included as performance criteria for light fleet vehicles being purchased by The City. Light fleet vehicles currently account for 15 per cent of corporate motor fuel use.
- Through lifecycle replacement, older buses and other vehicles are being replaced with vehicles with improved fuel use and fuel replacement.
- The City is choosing better sized vehicles while maintaining or improving service delivery. For example, in 2015 a Segway (a two-wheeled, self-balancing, battery-powered electric vehicle) was purchased for staff to use to inspect the integrity of sidewalks, replacing a half-ton truck which would have used much more fuel to do the same job.

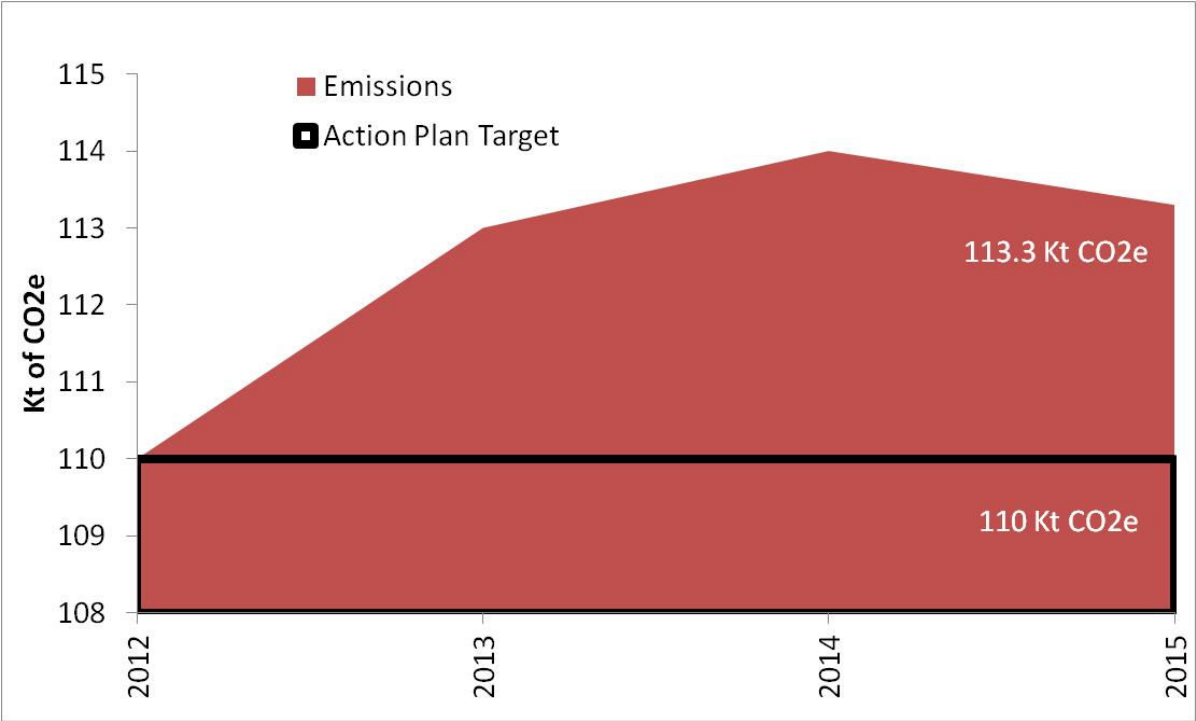


Figure 6.3 – GHG Emissions from Vehicle Fuel Use for the City’s Operations



## **METHANE FLARING AND RECAPTURE**

The methane produced from waste decomposing in some of our landfills is flared (burned) converting it to carbon dioxide. Methane is a greenhouse gas that has 25 times the global warming potential of carbon dioxide. In 2015, through flaring, The City avoided emitting 42,653 tCO<sub>2</sub>e, which is equivalent to taking almost 9,000 passenger cars off the road for a year. In addition to the flaring at landfills, Bonnybrook Water Treatment Plant has the capacity to capture methane and reuse it as an energy source. In 2015, The City avoided 6,400 tCO<sub>2</sub>e through this process, taking the equivalent of over 1,300 passenger cars off the road for a year.





## **6.2 CORPORATE LAND STEWARDSHIP**

As steward of the land owned by The City of Calgary, The Corporation is committed to preventing or minimizing the potential for contamination of soil and groundwater. The City strives to demonstrate leadership in managing brownfield sites, setting a good example for private and corporate land-owners.

### **ENVIRONMENTAL CONSTRUCTION OPERATIONS PLANS (ECO PLANS)**

Depending on the environmental sensitivity and issues of a site, contractors working on a City construction project are required to submit an Environmental Construction Operations (ECO) plan outlining specific actions they will take to protect the environment while they work. ECO plans typically focus on logistics like how runoff from the site will be managed, how dust will be managed, how trees will be protected, and where vehicles will be refuelled to avoid fuel spillage.

The City's ECO plans coordinate the review of various cross-jurisdictional requirements designed to help protect the natural environment to the extent possible during, and potentially after, the construction period. For example, in an area where there is known contamination in the soil or groundwater, the ECO plan focuses risk mitigation to protect the workers, the public and the environment. Also, to support biodiversity, information is shared with contractors about how to protect habitats of particular plants, birds, mammals or amphibians specific to the working area.

The intent is to work with contractors to ensure their related internal policies and best practices align with those of The City. ECO plans are now embedded into the tendering process for key City contracts. Beyond holding contractors accountable for meeting The City's internal standards, ECO plans promote environmental excellence within industry.

The City completed ECO plans in 2015 for all capital construction projects that required them. There were 89 ECO plans completed.

### **CONTAMINATED SITES SCREENING**

The City owns thousands of pieces of property throughout Calgary, some of which have varying degrees of soil and/or groundwater contamination. This contamination can be a result of activities taking place on the site, former activities on the site, or activities on an adjacent or nearby site. Each year, a subset of these sites is assessed for environmental risk and liability. Some of the sites are newly assessed (no prior assessments), whereas others are being reassessed to determine if conditions have changed, or they are reviewed for a potential new use of the site. Some known contaminated sites are assessed several times a year over multiple years.



Assessments are performed for various purposes, but primarily to be protective of human health and the environment, to provide information for land transaction purposes, and to meet regulatory requirements. Sites which have a significant likelihood of presenting risk to human health or the environment are assessed on a high priority basis. In Action Plan, The City has committed to doing 150 assessments annually. In 2015, The City surpassed its target with 182 assessments.

## **BROWNFIELD REDEVELOPMENT**

Brownfield redevelopment and remediation activities support efficient land use and environmental protection in Calgary. The City's brownfield redevelopment program encourages and enables City-owned, underutilized properties to be returned to productive use. The City continuously ensures that the level of contamination and any remediation measures are suitable for the intended land use. To lead by example and contribute to inspiring neighbourhoods, The City has committed to return at least two of its brownfield sites to productive community use in each year of the 2015-2018 business cycle. For 2015, The City initiated:

- A temporary-use project that repurposed a derelict tennis court into the Twin Views Communal Garden, which is a meeting space and garden education centre for Dover and adjacent communities. A dedicated team of volunteers manage the project with oversight from The City.
- Redevelopment of a contaminated City-owned property in the community of Montgomery that resulted in the successful sale of the property to a developer that intends to erect a 4-storey mixed-use commercial/residential destination.

Further, in 2015 The City continued active remediation work and investigations on two large brownfield properties: the Former Imperial Oil Refinery (FIOR) site and the former Canada Creosote Site.

## **FORMER IMPERIAL OIL REFINERY (FIOR)**

The City and Imperial Oil Limited continue to work together to address the contamination at the former Imperial Oil Refinery site in Millican-Ogden. After receiving approval from Alberta Environment & Sustainable Resources in 2014, The City and Imperial Oil began a three-year remediation project to clean up the soil and groundwater in Old Refinery Park and Beaverdam Flats. In 2015, a water treatment system was installed to clean the groundwater. Crews also built an underground barrier wall along the riverbank to prevent the contaminants from entering the river. This work is an important step in protecting the environment and restoring the land to a point where it can be repurposed for the benefit of surrounding communities.

## **FORMER CANADA CREOSOTE SITE (CCS)**

In 2015, The City completed several investigations on the former Canada Creosote site located in the west end of downtown. The investigations used up-to-date information and models to examine the efficacy of the current containment system, provided recommendations for improvement on the water treatment system design and operations, and presented options for potential remediation of the site.



The results of these studies have been shared with Alberta Environment & Parks, as well as the Calgary Municipal Land Corporation to aid their ongoing investigations for potential end uses for this site.

### **6.3 BIODIVERSITY STRATEGIC PLAN**

Biodiversity conservation is a part of Calgary's history, is widely supported by Calgarians, is endorsed by many City of Calgary Council initiatives and is necessary for life. The City must therefore advocate for the protection of natural environments in balance with the need for urban development. In 2015, The City adopted a 10-year biodiversity strategic plan aimed to approach this balancing act. The plan offers a comprehensive and systematic approach to protecting, developing and managing the city's natural and built environments for healthy ecological processes in support of biodiversity. The plan has three built-in measurements of tracking success: one) evaluating landscapes in Calgary and setting targets for conservation measures to identify, protect and manage ecological cores and corridors; two) restoring 20 per cent of Calgary's current open space to increase biodiversity; and three) identifying invasive species in Calgary's open space and completing strategies for their management.

#### **HABITAT CONDITION RATING**

The HCR tool is used to evaluate the quality of Calgary's natural parks through the development of a scoring system that grades a park's health and to track changes over time. Scores reflect the diversity of plants in forest, shrub and grassland habitats, as well as the overall area under the pressures of urban use. The City plans on expanding the tool to aid in planning new parks, to ensure connection across Calgary's park system and to prioritize habitat management activities such as restoration and trail design. This tool will help minimize the negative effects of our ecological footprint on Calgary's biodiversity.

#### **BIOLOGICAL WEED CONTROL**

In 2015, there were 35 new bio-agent releases. Instead of pesticides, bio-agents are insects used to address the proliferation of invasive weeds. There have now been a total of 95 bio-control releases city-wide. Plant populations have the potential to become invasive when introduced to an environment that lacks natural enemies. Biological weed control involves the introduction of natural insect enemies to suppress the growth and spread of the invasive plants. In 2015 The City completed 35 biocontrol releases targeting houndstongue, leafy spurge, scentless chamomile and yellow toadflax, bringing the total number of releases to 95 since the onset of the program. Going forward in 2016, The City is intending to expand the program adding 20 or more releases.

## TREE CANOPY RESTORATION

As part of the recovery of the tree canopy after the snowstorm in September 2014, The City conducted operational planting of 7,488 trees including: 1600 NeighbourWoods Trees, 1600 Mass Planting Trees, 1600 Special Event Plantings. ReTree YYC was created to respond to the damage caused to over 1 million trees by 'Snowtember'. The primary goal of ReTree YYC from a citizen perspective is to work in partnership with Calgarians to understand the proper planting and maintenance of our urban forest and encourage them to become tree stewards, as 75% of Calgary's trees are on private land. By helping Calgarians plant and maintain trees on both public and private property, we hope to make the city landscape better for generations to come. Ensuring a healthy and resilient urban forest not only benefits citizens, but supports strong biodiversity within our city.



in Confederation Park

## 6.4 CORPORATE WASTE MANAGEMENT

The City, as a large corporation, has established itself as a leader in minimizing waste generation and increasing waste diversion in Calgary. By the end of 2015, 93 per cent of the City’s employees had access to a mixed recycling program – up from 70 per cent in 2014. The City’s workplaces are on track to meet the requirements of the updated Waste & Recycling bylaw, and continue to be an example for the industrial, commercial, and institutional (ICI) community.

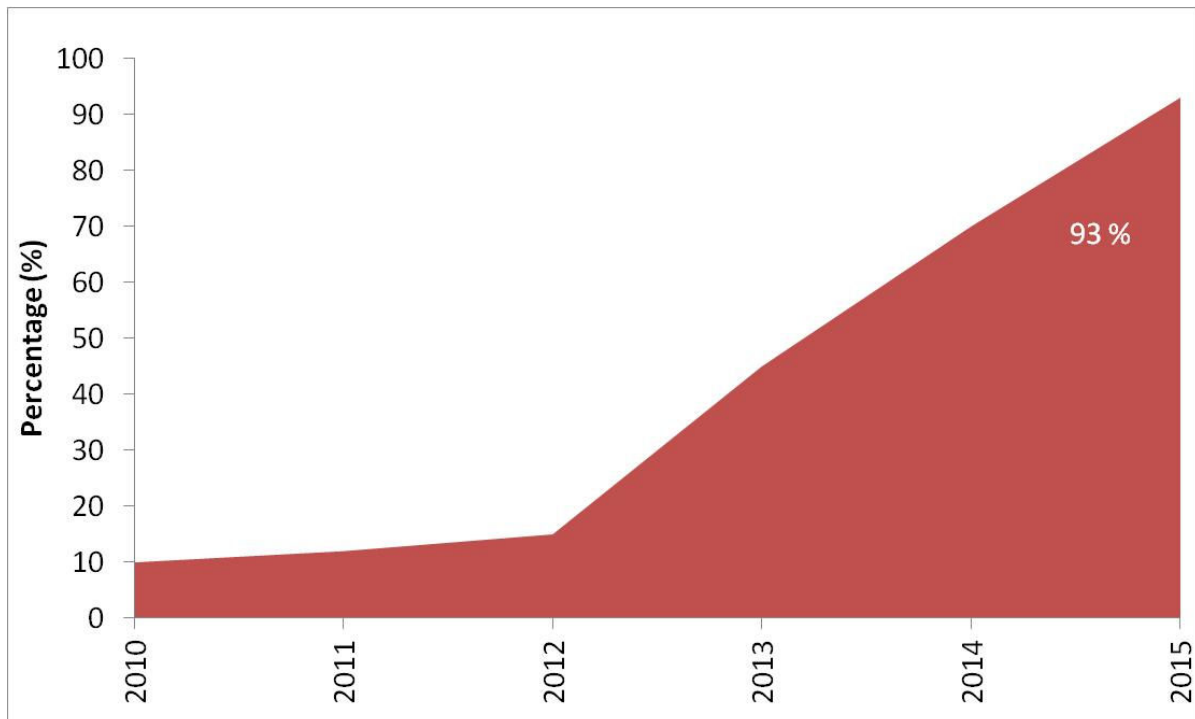


Figure 6.4 – Percentage of Employees with Access to Mixed Recycling Programs

### DIVERSION OF OFFICE WASTE

The City is working with various suppliers to increase the amount of recycled materials in the products we purchase. For example, in 2015, the percentage of recycled content used in paper products for transit-related activities increased. (This includes transfers, bus passes, and schedules.)

The 2015 Waste Reduction Week employee awareness campaign shared how to recycle less obvious paper items in the mixed recycling program, like file folders and sticky notes, envelopes with plastic windows, clean pizza boxes, clean brown lunch bags, empty tissue boxes, and greeting cards. The intent was to increase paper diversion rates and decrease the amount of recyclables being erroneously disposed of in the waste stream.



Following the campaign, The City conducted waste assessments at the Municipal Building, Whitehorn Multi-Services Centre, Water Centre and Ad Valorem place and found that recyclable paper in our total corporate waste stream dropped from 18 per cent to 11 per cent.

## **WASTE DIVERSION OF CONSTRUCTION AND SCRAP MATERIALS**

In 2015, transportation construction projects generated approximately 28,000 tonnes of waste, 99 per cent of which was diverted away from landfills for repurposing.

The City continues to look for innovative ways to recycle or re-use scrap materials. In 2015, 2,100 tonnes of scrap materials including metals, used oil, batteries, etc. were recycled, equivalent to 70 City garbage collection trucks.

In addition, The City replaced 6 kilometres worth of pathways in 2015. All the asphalt and concrete from breaking out the paths were recycled, resulting in approximately 2,600 tonnes of material shipped to a recycler for crushing so it can be reused.

## **REDUCING WASTE**

In addition to programs aimed at recycling, The City has practices to reduce how much waste is created in general. One way is the “greening” of meetings by reducing refreshment-related waste. In another example, the installation of multi-function printers reduced the amount of paper used and wasted. An estimated 60,000 printed pages were saved in 2015 largely due to modern printing technology and defaulting to double-sided and black and white printing. Additionally, more efforts to communicate with citizens in digital channels has in many cases reduced the need for printed materials.

## 6.5 CORPORATE WATER MANAGEMENT

The City recognizes the importance of leading by example when it comes to water efficiency and being mindful of what goes into our wastewater and storm water systems.

At some City parks, The City has increased its water use efficiency through centrally controlled irrigation systems. The City has also brought water efficiency to several spray parks which now have the technology to capture, treat and reuse the water. Another example is that, de-chlorinated pool water has been reused for irrigation purposes in some city parks.

The City also saves millions of litres of water each year through proactive leak detection and repair of water lines. Within buildings, a number of City facilities have reduced water use with retrofits to showerheads, faucets flows, toilets and urinals.

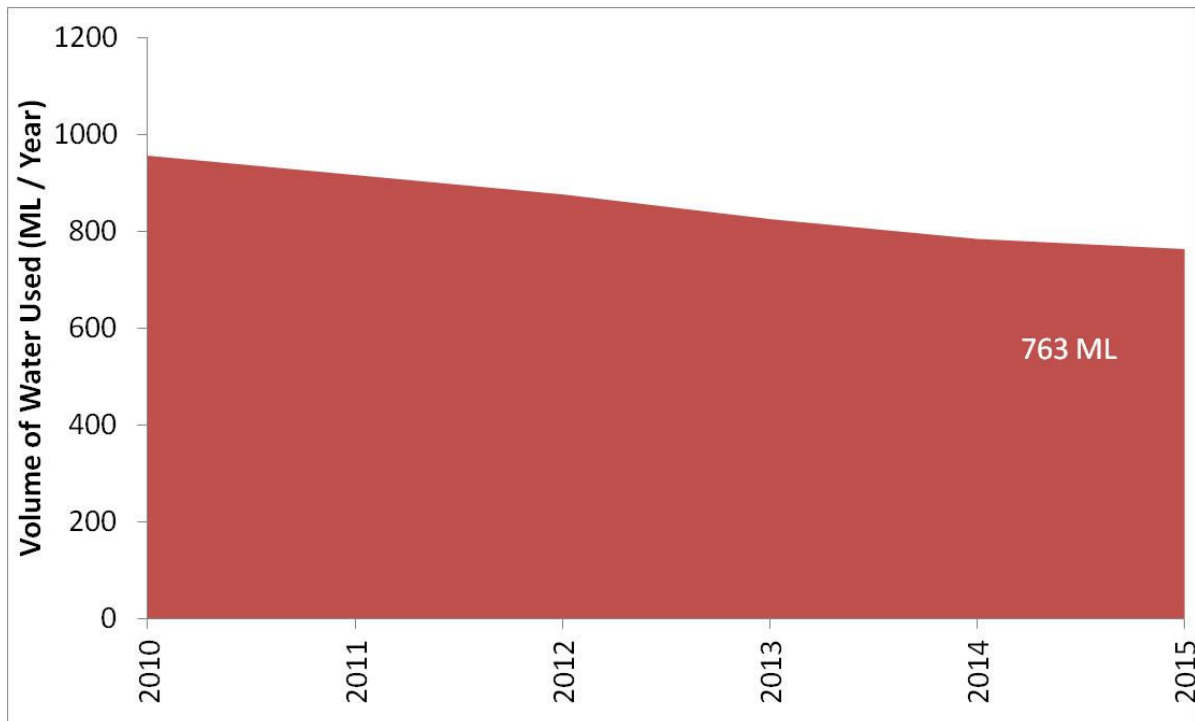


Figure 6.5 – Municipal Buildings Volume of Water Used (ML / Year)

### GLENMORE PARK WATER EFFICIENCY

Renovations at the Variety Spray Park in South Glenmore Park in 2015 included the installation of a water treatment and pumping system featuring an ultra violet (UV) disinfection component. Using these systems means the pool only needs to be drained once a season. These renovations increase the park's water use efficiency, as well as reduce the amount of chemicals needed to treat the water, while safeguarding public health for users.

## WATER EFFICIENT BUS WASHING

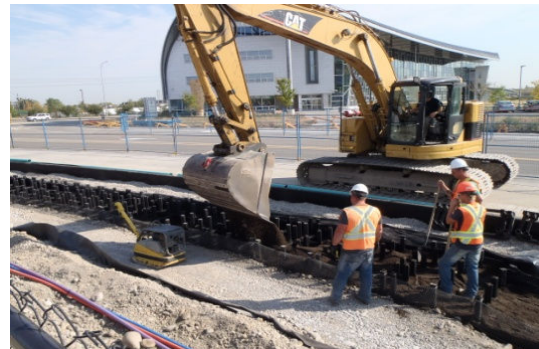
In 2015, new water recycling techniques piloted at Spring Gardens bus washing station cut fresh water use from 200L to 30L per bus washed – an 85 per cent reduction in water use.

## KEEPING OUR RIVERS CLEAN

The City’s Stormwater Management Strategy and Total Loading Management Plan guide The City’s actions to maintain river water quality and meet regulatory commitments. One way this is achieved is through reducing the rates and volumes of stormwater runoff, controlling sediment loads, and encouraging development of sustainable stormwater management solutions. In 2015, a number of low impact strategies (rain garden, soil cell and permeable pavement) were installed at the Water Centre and in Calgary parks to gain a better understanding of local installations and demonstrate how stormwater management can be functional and beautiful. By recreating natural landscape features that use stormwater as a resource, stormwater pollutants and sediment will be managed on-site improving the health of our rivers and the water quality for users downstream.

## WORKING ACROSS THE CORPORATION TO IMPLEMENT INNOVATIVE STORMWATER MANAGEMENT

In 2015, The City completed the construction of three source control practices to treat stormwater at the Water Centre prior to it entering the Elbow River. These included a rain garden, a soil cell installation with 23 trees, as well as resurfacing and expanding the Water Centre visitor parking lot with permeable paving stones and an additional nine stalls. Stormwater monitoring, soil moisture, as well as plant and tree health assessments will be evaluated to demonstrate technology effectiveness. Structural



Water Centre Silva Cell installation



Deerfoot Athletic Park rain garden and infiltration chamber

durability monitoring will be undertaken on the Water Centre permeable parking lot.

Rain gardens were installed at Carburn Park and Deerfoot Athletic Park. To demonstrate how a redevelopment project can meet Nose Creek Watershed Management volume runoff targets, an innovative underground storage system (infiltration chamber) was installed at Deerfoot Athletic Park.



## 6.6 OCCUPATIONAL HEALTH AND SAFETY

The City of Calgary is committed to providing a safe and healthy work environment for all staff, visitors and contractors. The City actively improves the organization’s safety culture through actions in the areas of leadership, governance, programs and services, as well as evaluation and measurement.

### TOTAL RECORDABLE INJURY FREQUENCY

Whenever an employee seeks medical treatment or misses work as a result of a workplace incident, it is counted as a recordable injury. Whereas historically The City only reported on incidents if the next shift was missed, Total Recordable Injury Frequency (TRIF) includes injuries where medical aid was sought as well.

This new measurement will help drive a culture shift to address all injuries. It provides a complete picture of incidents so leaders can develop comprehensive corrective action plans to decrease the likelihood of those incidents occurring in the future. In 2015, an Action Plan target was set for TRIF at 9.2, with a 10% annual reduction used to determine targets for subsequent years.

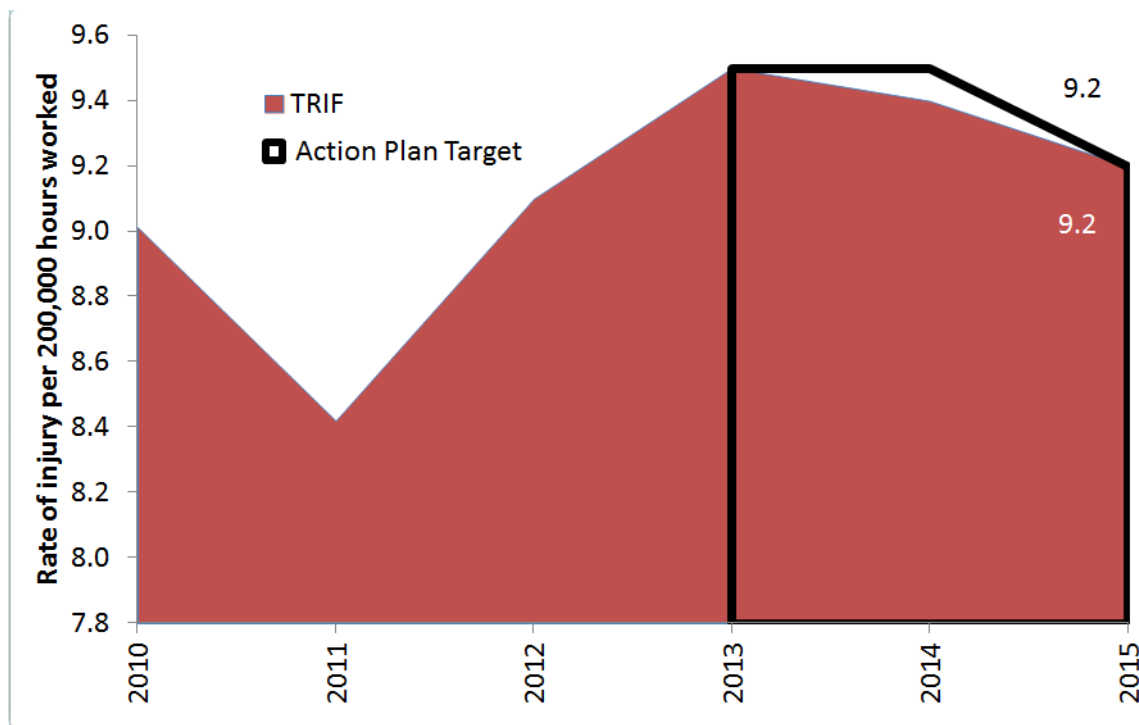


Figure 6.6 – Total Recordable Injury Frequency (TRIF)

## MAKING CHANGES WHERE NUMBER OF INJURIES ARE HIGHEST

In 2015, slips, trips and falls accounted for the greatest number of injuries to employees, particularly during the winter months. To reduce the occurrence of these injuries, The City painted an Eco-traction product on paved surfaces at the entrances of all transit facilities to help prevent slips. In addition, new Transit employees are taught the “3-point contact” stabilizing method for entering/exiting the busses and when using equipment in the maintenance areas.

## MINIMIZING LOST TIME CLAIMS

Lost time claims (LTC) frequency measures the amount of time City employees are away from work due to work-related injury or illness. In 2015, The City’s lost time claim frequency was reduced due to an increase in accommodated work offered to injured or ill workers. As indicated in the graph below, in 2015, the average number of days lost per Lost Time Claim was 17, an average reduction of three days from 2014. Action Plan targets have been set for this measure, starting at 20 days in 2015, and moving to 19 in 2018.

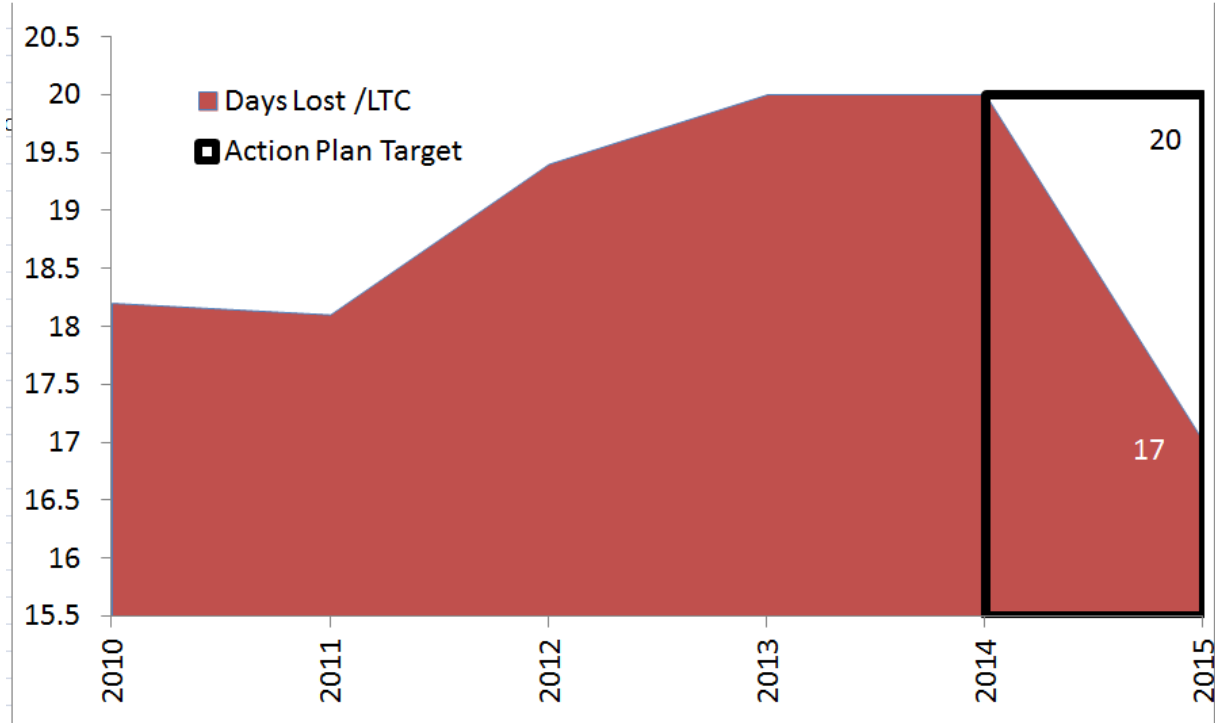


Figure 6.7 – Average Number of Days Lost Per Lost Time Claim (LTC) Throughout the Corporation

## SAFER RETURN TO WORK PRACTICES

In 2015, The City trained leaders on the process of offering accommodated work, and encouraged them to do so. The training allowed leaders to support employees' return to work goals and resulted in a marked increase in the number of accommodated employees within the year.

Reducing the amount of time an employee is away due to injury or illness includes how to safely return them to work by modifying their work schedule or the work itself, so they are able to contribute, even if in a different way. These are accommodations for occupational injuries only.

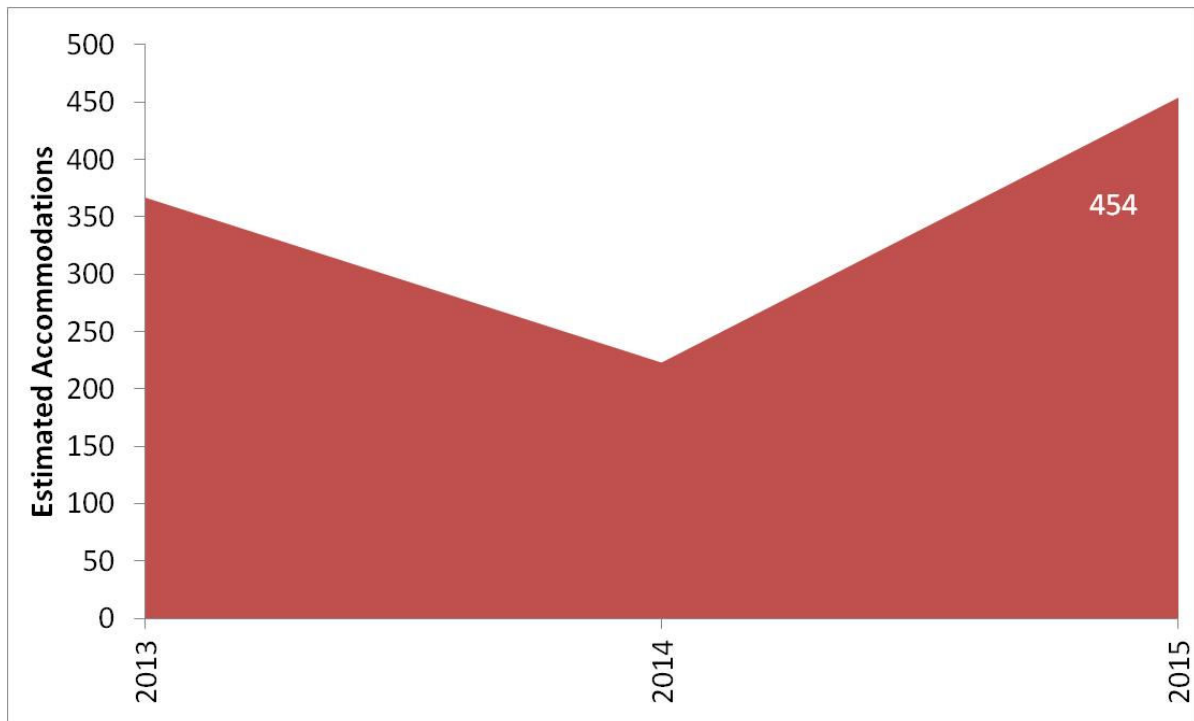


Figure 6.8 – Return to Work Opportunities Accommodated

## NORTH AMERICAN OCCUPATIONAL SAFETY AND HEALTH (NAOSH) WEEK

All City departments participated in 2015 North American Occupational Safety and Health (NAOSH) week and safety-oriented activities and discussions occurred at every level of the organization. The corporate focus for 2015 was preventing and responding to workplace violence. The City developed a new Workplace Violence training module, and has a Workplace Violence Policy that is designed to clearly outline behaviours that are unacceptable in the workplace.



## **RESPONDING TO AIR QUALITY EVENT**

In August 2015, smoke from forest fires in the state of Washington led to poor air quality in Calgary. For approximately five days, the Air Quality Health Index indicated a high health risk from exposure to outdoor air. The City of Calgary sent a special announcement to employees to reschedule non-essential outdoor activities where possible, keep windows and doors shut, and to monitor colleagues for any health-related effects of poor air quality. Monitoring conditions in real-time helps ensure we can address hazardous situations.

## **EMERGENCY RESPONSE PLANNING**

In the event of an emergency, The Corporate Emergency Response Plan (ERP) Program supports City employees' ability to respond by providing a building-specific plan that takes effect and continues until first responders, security personnel, and/or facility managers arrive on scene.

In 2015, 30 ERPs were developed or revised to meet the new City standard. Floor monitor and fire warden duties have been assigned and the corresponding City employees have been trained for their duties.