

CORPORATE ENVIRONMENT,
HEALTH & SAFETY
2014 Annual Report



Foreword

Calgary has long been recognized around the world for its beautiful natural environment – its sparkling blue rivers, parks and public spaces situated on the edge of the foothills and the prairie landscape.

How does The City of Calgary, on the move to serve an ever-growing city, ensure we are preserving this beautiful natural environment for our generation and for those to come? It requires both setting environmental standards and leading by example in following them. It takes an investment in infrastructure, programs and a dedicated team of experts, constantly reviewing opportunities to minimize the impact of our operations and services and ensuring we are doing the right things in all the right ways. It takes looking beyond what solutions are within our grasp today, planning for change and working toward the Calgary we will want to live in decades from now.

Similarly, what makes The City of Calgary a leader in public service is its people. The investment we make in keeping City employees healthy and safe pays off in the quality of the service we provide Calgarians every day. City employees are your fathers, mothers, friends and neighbours. We take pride in making sure they get home from every shift safely, and back again to the next shift to provide you with the services you use every day. We owe that to them – and to you.

This report shares the highlights on how we are performing against these commitments and I am proud to share it with you.

Sharon Young

Director, Environmental & Safety Management

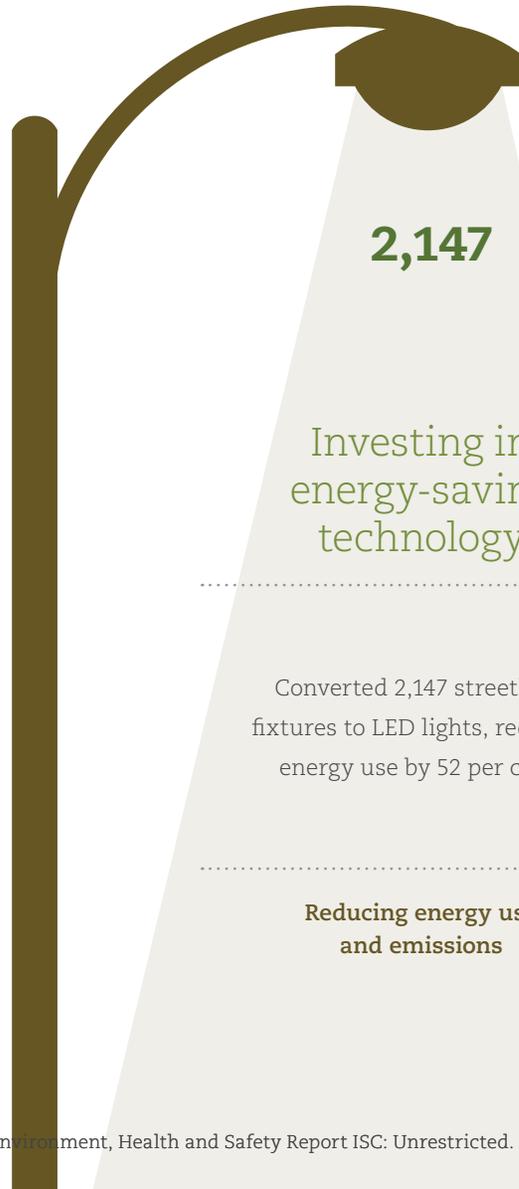
The City of Calgary

Contents

Performance at a glance	4
.....	
Managing our environmental impacts and workplace safety	6
.....	
Reducing energy use and emissions	8
.....	
Conserving and protecting water resources	12
.....	
Reducing the impact on land	16
.....	
Protecting ecosystems	18
.....	
Reducing waste	22
.....	
Advancing safe work practices	24



Performance at a glance

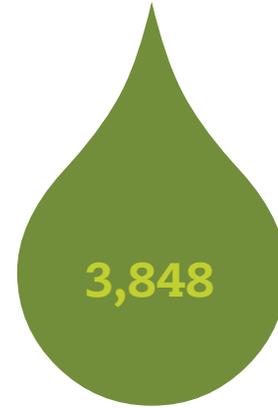


2,147

Investing in energy-saving technology

Converted 2,147 streetlight fixtures to LED lights, reducing energy use by 52 per cent.

Reducing energy use and emissions



Saving every drop

Replaced 3,848 metres of leaky water mains, saving up to 16 million litres of water per day — the equivalent of the daily water use for over 41,000 citizens.

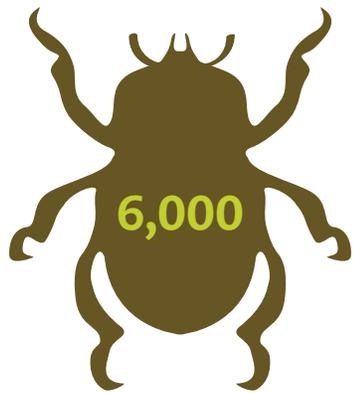
Conserving and protecting water resources



Making progress with brownfield sites

Started construction to manage soil and groundwater contamination at the site of a former oil refinery in Millican-Ogden.

Reducing the impact on land



Controlling invasive weeds biologically

Captured and re-located 6,000 beetles to three city parks to attack and control the spread of noxious weeds.

Protecting ecosystems



Expanding our recycling program

Expanded our mixed-recycling program to 94 City facilities, providing 70 per cent of City of Calgary employees with access to separate out their recyclables.

Reducing waste



Working collaboratively on emergency response

Tested new emergency response protocols to ensure the safety and security of City employees and visitors in the event of a large scale emergency.

Advancing safe work practices

Managing our environmental impacts and workplace safety

THE 3 Cs OF OUR ENVIRONMENTAL POLICY:

1. Comply with legislation
2. Conserve resources and prevent pollution
3. Continually improve our environmental performance

OF OUR OCCUPATIONAL HEALTH AND SAFETY POLICY:

1. Comply with legislation
2. Commit to working safely
3. Continually improve our safety performance

At The City of Calgary, we are passionate about protecting the environment and creating a safe and healthy workplace.

The 2014 Corporate Environment, Health & Safety Annual Report shows Corporate performance towards key Environment, Health & Safety objectives and targets, and highlights examples of the effort and innovation applied to managing what's precious to us as an organization and to the city we serve.

We've aligned our management systems with robust, externally recognized systems to make sure we continue to meet or exceed industry standards. We participate in the provincial Certificate of Recognition program (COR) for workplace health and safety and the international ISO:14001 standard for the environment. Regular external audits provide unbiased feedback on how we're doing, and point to areas we can improve.

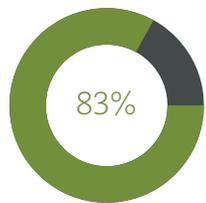
The City's Environmental Policy and Occupational Health and Safety (OHS) Policy are the cornerstones of the management systems. They provide the guiding statements about The City's responsibility, and are supported by a multitude of more specific principles, plans and processes to ensure clarity in our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

An international industry standard for environmental management, ISO:14001 provides the framework to ensure that its registrants bring attention and appropriate oversight to the operational activities that have the most significant impact on the environment.

From The City's 11 business units registered with ISO:14001, there have been 170 activities captured that require attention for their environmental impact – negative or positive. The City has documented the actual and potential environmental impacts from those 170 activities, and associated means of monitoring and measuring the impact. There is also a risk ranking or prioritization method for all activities and impacts to ensure that resources are directed to reducing the most significant impacts, and that performance improvement is measurable.

The 2014 Corporate Environment, Health & Safety Annual Report presents The City's leading initiatives, achievements and performance results for 2014 as we work together to manage workplace health and safety, and the impact our operations have on the environment.

Certificate of Recognition (COR) Scores



**2010
COR AUDIT**



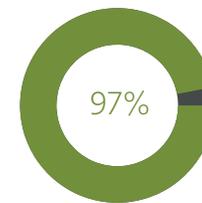
**2011
COR ACTION
PLAN**



**2012
COR ACTION
PLAN**



**2013
COR AUDIT**



**2014
COR ACTION
PLAN**

The COR Audit Program - The COR Action Plan ensures The City meets recognized safety practices and identifies areas for improvement. In the years between audits, The City takes steps to address the findings in the previous COR audit report.

The COR Action Plan - The COR Action Plan scores show we are on track in improving our health and safety management system. A minimum score of 80 per cent is required for an organization to maintain their COR.





Reducing energy use and emissions

The City provides services that require a considerable amount of energy to deliver.

We build, maintain and operate roadways and public transportation networks. We provide clean drinking water. We manage all manner of waste, facilities and public infrastructure. The services we provide are expected by citizens and the onus is on us to minimize greenhouse gas emissions (GHG) resulting from our service delivery. Accordingly, The Corporation has set clear GHG emission reduction targets.

The challenge we have in meeting these targets continues to be the city's growth. The greater the expansion, the further our services need to reach. The greater the distance our vehicles travel, the more we burn fossil fuels and add to the atmosphere GHGs.

For 2014 we provided all the services Calgarians demand while keeping our GHG emissions in line with the rate of population growth. We continue to investigate opportunities to increase energy efficiency in new and renovated buildings, as well as implementing emerging fleet and fuel technologies. As we continually seek more efficient ways to use energy as a corporation, we remain on track to meet our 2020 corporate emissions goals and associated GHG contribution.

Goals & Targets

Goal:

→ Greenhouse gas (GHG) emissions in Calgary are reduced by decreasing energy use, doing more with less energy, and developing and using energy from sources that are renewable or low carbon (2020 Sustainability Direction).

Targets:

→ **ON TRACK** Reduce corporate emissions to 20 per cent below 2005 levels by 2020, and by 80 per cent below 2005 levels by 2050 (the Calgary Climate Change Accord and 2020 Sustainability Direction).

→ **EXCEEDED TARGET** By 2014, 37 per cent reduction in corporate greenhouse gas emissions (Utilities & Environmental Protection 2012-2014 Business Plan performance measure 3.4).

Managing our energy efficiency

To address projected increases in energy costs and growth-related energy consumption, The City developed a Corporate Energy Strategy, to better align energy conservation initiatives and explore opportunities for further initiatives in the future. The Corporate Energy Strategy identifies specific areas of focus, skills required and management systems to be implemented. It will enable improved energy management practices based on three priority actions:

1. The City will improve operational efficiency,
2. The City will focus on energy sources that offer the greatest long-term environmental, economic and social value, and
3. The City will develop the capabilities and business processes to support improved energy management.

Investing in energy savings

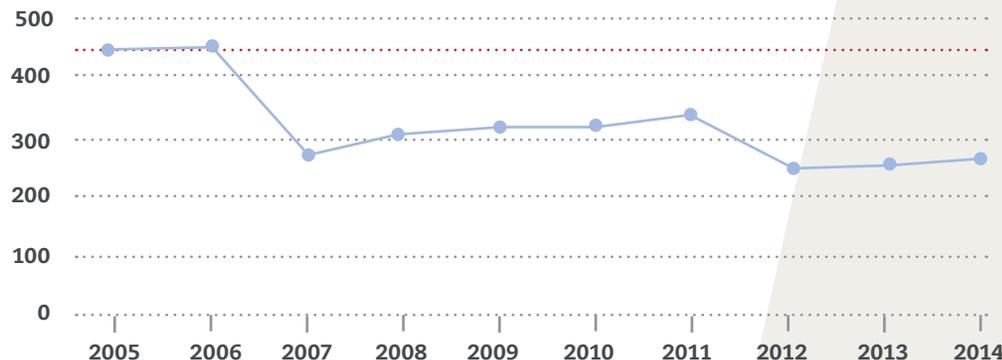
The city-wide LED (light emitting diode) streetlighting retrofit project is a great example of how the decision to prioritize efficiency now can return substantial savings for The Corporation down the line. This four-year, \$35 million project will see all of Calgary's high-pressure sodium streetlamps replaced with technologically advanced LED fixtures.

Beyond delivering better lighting and less light pollution throughout the city, we're expecting to realize energy savings of more than 55 per cent. Factor in the lower maintenance costs due to greater longevity of LED fixtures and we're looking at saving citizens more than \$5 million in operating costs each year. It is projected that in just six years the investment will have paid for itself.

As of December 31, 2014, we have converted 2,147 streetlights to LED and have seen a 52 per cent energy reduction based on fixtures converted. A total of up to 80,000 streetlight fixtures will be replaced over the next four years.

CORPORATE GREENHOUSE GAS EMISSIONS

2005 Baseline: 442.8
2020 Emissions Goal: 354.2
2080 Emissions Goal: 88.6



268.2 kt CO2e

The City met its 2014 target, with a 39 per cent reduction in GHG emissions from the 2005 baseline

Rightsizing: rethinking status quo

Why use a heavy truck to do a job when a more fuel-efficient car would do? The City is analyzing how it uses its fleet by common services or tasks and is now matching the vehicle to the needs of the job.

Rightsizing our vehicles reduces our environmental impact. For example, during the latest round of fire truck purchases, The City included terms in the purchase request to right-size its fire engines, reducing the overall length of the truck and its horsepower where appropriate. The terms of the request included the addition of LED lighting along with various other components to improve their environmental performance, while still meeting all emergency response and operational needs.

Idling fire trucks have an environmental impact but are necessary to power lights and communication systems, as well as maintain the temperature in the cab. In another innovative move, The City will use auxiliary power units that function as on-board generators, making it possible to shut off the engines. Since idling on scene at non-fire related calls will no longer be necessary, we'll be conserving fuel and reducing emissions. On fire calls, the primary engine will continue to be needed to power the on-board pumps.

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 2014, six buildings achieved green building certification. These new 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 \$3.5 million in 2014 through the Sustainable Buildings Partnership Program in energy efficiency measures. These investments included lighting system retrofits at recreation centres, mechanical upgrades to more efficient alternatives in parks facilities affected by the 2013 flood,

and an investment in one of the largest solar photovoltaic projects in Calgary, to be located at the Bearspaw Operations Workplace Centre.

FACILITY NAME	LEED™ RATING AND CATEGORY
South Calgary Fire Station Number Five	Gold – New Construction
TELUS Spark Centre	Gold – New Construction
Genesis Centre of Community Wellness (including the Saddletowne Library)	Gold – New Construction
Calgary Police Service Forensics Lab and Exam Centre	Silver – New Construction
Westwinds Campus East Building Renovation	Silver – Commercial Interiors
Westbrook Centre (future home of Calgary Transit Operations Centre and a new library)	Gold – Core & Shell

Reducing fuel consumption

Even small changes can make a big difference on our path to continuous performance improvement, especially in an organization as large as The City. About 400 City-licensed drivers participated in our Green Driver program in 2014, learning simple driving techniques to reduce their fuel consumption by an estimated 10 per cent and lower emissions in the process. The benefits of slower starts, moderate speeds and softer stops add up with the number of drivers we have on the road. The City developed a Green Driver Standard to raise awareness among all City employees of the habits that generate greater fuel efficiency of our fleet vehicles.



Genesis Centre of Community Wellness



Conserving and protecting water resources

Calgary is known for its clean and clear water. Between drinking water, wastewater and stormwater, The City manages water quality and quantity from the river, to the tap and back, protecting public health all the way.

Water conservation is a big part of this responsibility and an important component of our everyday activities. As a growing community, we've pledged to do more with less and we're staying true to our word.

In 2014 The City withdrew a total of 176,445 megalitres of water for treatment and distribution throughout Calgary, and maintains its downward trend well below the 2033 target. The City's water efficiency goal and plan will accommodate Calgary's future population growth with the same amount of water removed from the river as in 2003.

The Corporation is responsible for approximately two per cent of Calgary's water use to maintain its daily operations. A number of water efficiency initiatives have been implemented to support the water conservation target.

Goals & Targets

Goals:

→ Calgary's public health and the health of its watersheds are protected by delivering safe and reliable drinking water, collecting and treating wastewater, and managing stormwater to minimize the impact of Calgary's urban form. (2020 Sustainability Direction)

Targets:

→ **ON TRACK** By 2020, drinking water and treated wastewater effluent will continue to meet provincial regulations for quality 100 per cent of the time (2020 Sustainability Direction).

→ **ON TRACK** By 2020, total loading targets continue to be met in The City's License to Operate (2020 Sustainability Direction).

→ **ON TRACK** By 2020, accommodate Calgary's population with the same amount of water withdrawn from the river as 2003/30 in 30 target (2020 Sustainability Direction).

→ **ON TRACK** By 2020, diversify Calgary's future water supply to align with water demand. (2020 Sustainability Direction).

→ **ACHIEVED TARGET** Provincial regulations met for drinking water and treated wastewater (Utilities & Environmental Protection 2014 Business Plan performance measures 3.9 and 3.10)

Saving every drop

As the seasons change, our aging infrastructure experiences underground leaks in the water delivery network, which can result in the waste of potable water. Through proactive leak detection, we flagged and replaced 3,848 metres of leaky water mains in 2014, resulting in a savings of 16 million litres of water per day. This is the equivalent of the average daily water use for over 41,000 citizens.

Looking at City operations to find efficiencies has also helped. Prairie Winds spray park (shallow wading pool with spray features) became the third such City facility (after Canmore Park and Rotary Park) to abandon the

traditional fill-and-dump operating model in favour of a small-scale closed treatment system that filters and re-circulates the water on site. The spray park's water quality continues to meet stringent health and safety guidelines and the overall water savings at all three parks adds up to approximately 700 million litres every year, or 1.9 million litres daily. This is the equivalent of the average daily water use for over 4,800 citizens.

Focusing on stormwater

Stormwater is made up of rain and snowmelt that flows over surfaces such as rooftops, parking lots and roadways, and into The City's stormwater

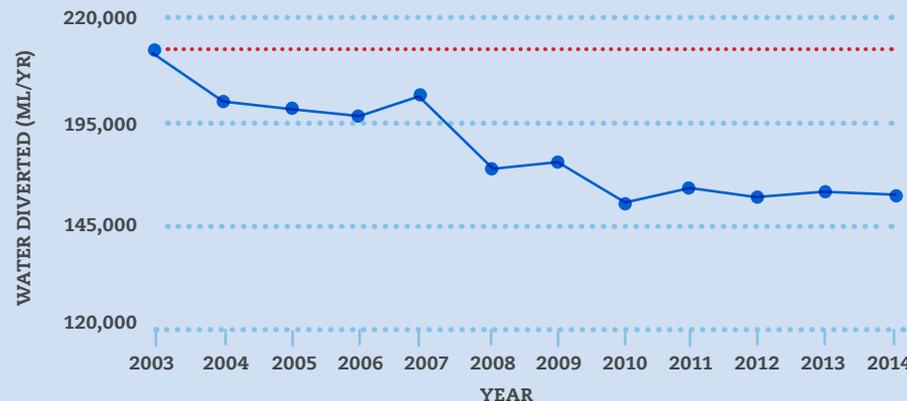
drainage system. It helps prevent localized backup of surface waters by diverting stormwater into retention ponds or rivers and creeks through curb-side drains and underground pipes.

Stormwater management is integral to The City's role of protecting the health of our watersheds. The City has placed a priority on reducing the amount of stormwater and suspended soil and pollutants entering the river system. The goal of The City's Stormwater Management Strategy is to maintain sediment loadings to our rivers at or below 2005 levels regardless of how much Calgary's urban landscape grows.

Through proactive leak detection, we flagged and replaced **3,848** metres of leaky water mains in 2014, resulting in a savings of **16 million** litres of water per day. This is the equivalent of the average daily water use for over **41,000** citizens.

ANNUAL WATER WITHDRAWN FROM BOW AND ELBOW RIVERS

2003 level 212,471 ML/yr



In 2014 we completed design work for two major stormwater retention pond retrofit projects. Construction of these at Bowmont East and Laycock Park will happen in 2016. When completed, these stormwater retention ponds will improve the quality of water returning to the river from these communities.

Shovels were in the ground at Manchester Centre in 2014 with the installation of an experimental soil cell system. This underground system of interconnected cells contains lightly compacted soil for tree roots to grow in and flourish. The soil cell system cleans and filters stormwater as it seeps into the ground. This innovation is expected to improve the health of urban trees while removing sediment from the stormwater before it enters any waterways. The Manchester Centre site will be monitored and the system's effectiveness evaluated over time.

As part of a parking lot retrofit project, we installed an interconnected rain garden and below ground infiltration storage system in Deerfoot Athletic Park. The rain garden is designed to capture stormwater generated from the parking lot which then drains to an underground storage system that promotes infiltration and recharges the groundwater, mimicking natural processes.

From parking lots to rooftops, The City is managing stormwater at many levels. This year The City partnered with the University of Calgary, SAIT Polytechnic and Olds College on a research project that transformed a section of the Municipal Building's rooftop into a living garden. This will divert stormwater away from the storm drainage system and support a healthy green space in the urban environment. A four-year study of the plant viability and stormwater quantity and quality on this green roof will inform future opportunities throughout Calgary.

Filtering stormwater runoff

We continued the multi-year community rain garden program to capture and treat stormwater at the local level. A rain garden is an engineered feature planted with hardy, low-maintenance, water-wise plants. They are designed with engineered soils and drainage layers of gravel and sand, which absorb and naturally filter stormwater before it enters our storm systems and eventually our rivers.

Rain gardens are a low impact development practice and are a part of The City's Stormwater Management Strategy to help manage the quantity and quality of stormwater going into rivers from Calgary's stormwater drainage system.

The City installed rain gardens in Carburn Park and in the community of Bridgeland. The Bridgeland installation happened alongside a public engagement and education component that generated excitement among residents who were keen to see this kind of sustainable technology introduced into their neighbourhood.





Goals & Targets

Goals:

- ➔ Brownfield remediation and redevelopment support efficient land use and environmental protection in Calgary (2020 Sustainability Direction).
- ➔ Encourage brownfield redevelopment and overall improvement of brownfield sites (Brownfield Strategy).
- ➔ Prevent and/or minimize environmental impacts and enhance the environmental value of the air, land and water affected by projects (Environmental Construction Operations [ECO] Plan Policy).

Targets:

- ➔ **EXCEEDED TARGET** By 2014, 92 per cent of City-owned properties screened through the Environmental Liability Assessment Program (Utilities & Environmental Protection 2012 – 2014 Business Plan performance measure 3.1).
- ➔ **EXCEEDED TARGET** By 2014, 130 hectares of cumulative area of investigated, remediated or risk-managed City-owned land (Utilities & Environmental Protection 2012 - 2014 Business Plan performance measure 3.3).

Reducing the impact on land

We are stewards of the land owned by The City of Calgary. We are advocates to prevent or minimize the potential for contamination of soil and groundwater throughout Calgary for all City-owned land.

We strive to demonstrate leadership with regard to managing brownfield sites, setting a good example for private and corporate land-owners.

OUR EFFORTS FOCUS ON:

- Preventing contamination and reducing negative impacts
- Managing environmental damage
- Improving conditions of our lands

Making progress with brownfield sites

In 2014, Alberta Environment & Sustainable Resources accepted The City of Calgary's site management plan for the former oil refinery in Millican-Ogden and The City began installing the groundwater treatment system. Imperial Oil Limited and The City are partners in what is a long-term commitment to getting the property to a point where it can be repurposed for community use. At the south end of the same land, the Lynnview Ridge site also received some hands-on attention this year. Crews capped the land with clean top soil, and then planted grass, in preparation for future access and use by the community.

Whenever The City looks at opportunities to repurpose a brownfield site, our priorities are always protecting public health and the environment. Our goal is to make sure the land is made safe and suitable for the uses it is intended to accommodate.

Working with partners to reduce potential impacts to our land

Depending on the environmental sensitivity of the site, when a contractor is doing work on a City project, they must submit an Environmental Construction Operations (ECO) Plan outlining specific actions they'll take to protect the environment while they work. ECO plans typically focus on logistics like how runoff from the site will be managed, how trees will be protected, where vehicles will be refueled to avoid fuel spillage, etc.

The intent is to work with contractors to ensure their related internal policies and best practices align with ours. We have now embedded these ECO plans into the tendering process for City contracts. Beyond holding contractors accountable for meeting our internal standards, we're promoting environmental excellence within industry. It's another example of how we demonstrate leadership in reducing the impact our operations have on the land. There were 101 active ECO Plan projects in 2014, which is the highest number of ECO Plan projects since the program began in 2002 and is a 19 per cent increase since 2013.

Changing our substance release protocol

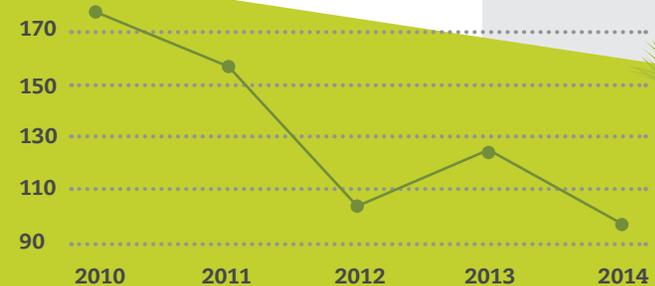
In 2014, The City changed its reporting protocol on hazardous material spills to better align with those legislated by the Province and to improve responsiveness. Employees now report a spill directly to the 3-1-1 Call Centre. From there the information is forwarded automatically to Alberta Environment and Sustainable Resource Development for follow-up. Because the Call Centre is operational 24/7, delays in reporting are no longer a concern.

The substance releases shown in the graph (below) represent those that must be reported to regulators and those with a higher potential risk to impact the environment. A general decreasing trend over the past five years is the result of The City using less hazardous

products wherever feasible, improved containment controls and training on preventive measures.

SUBSTANCE RELEASES SUMMARY

Potential Higher Risk Releases



Making the best use of the land we have

When brownfield sites are City-owned, we lead community consultation and work to realize the transformation. Community gardens or pop-up parks are popular options, depending on the site.





Protecting ecosystems

Protecting natural environments and conserving the biodiversity in a city poses a number of challenges. We address these through advocating for the protection of our natural environments, supporting biodiversity, minimizing the fragmentation of wildlife habitats and managing all of our parks for ecosystem health.

Goals & Targets

Goals:

- ➔ Calgary's ecosystems are healthy, connected and diverse and represent the breadth of our natural heritage (2020 Sustainability Direction).
- ➔ Maintain, protect and restore local ecosystems (Natural Area Management Plan).
- ➔ Protect the environment and public infrastructure, and ensure legislative compliance by controlling pest populations through scientific IPM principles and best practices (Integrated Pest Management Plan).
- ➔ Achieve and maintain safe, healthy trees (Parks Urban Forest Strategic Plan).
- ➔ The City of Calgary and citizens work to integrate their actions and the built environment with an ecological network that is healthy, connected and well managed (Biodiversity Strategic Plan – Biodiversity Policy).

Targets:

- ➔ **COLLECTING DATA** Ensure “no net loss” of significant wetlands (Wetland Conservation Plan).
- ➔ **COLLECTING DATA** Maintain the integrity of a high-quality and diverse park and open space system (Open Space Plan).
- ➔ **COLLECTING DATA** By 2020, significant landscapes and habitats in Calgary will be restored and/or reconnected (2020 Sustainability Direction).
- ➔ **COLLECTING DATA** By 2020, there will be an increase in the use of native plant xeriscaping in Calgary parks (2020 Sustainability Direction).
- ➔ **COLLECTING DATA** These targets are under review in light of new legislation such as the Land Stewardship Act and South Saskatchewan Regional Plan.

These targets are under review in light of the approval of the South Saskatchewan Regional Plan in 2014 under the authority of the Alberta Land Stewardship Act.

Restoring our wetlands

Beginning in 2014, The City is participating in a three-year applied research project to evaluate the use of market-based instruments for wetland restoration. These may include economic tools or incentives as part of a voluntary system whereby The City would work collaboratively with landowners on wetland restoration projects. It is expected that this research will help The City identify costs more accurately in areas with a higher need for watershed and wetland conservation. The research is being led by the Alberta Land Institute at the University of Alberta and is focused on the Nose Creek watershed, which

encompasses portions of Rocky View County, Airdrie and Crossfield and drains much of the north-central area of Calgary.

Anticipated benefits to The City include helping us meet our 'no net loss' of wetlands targets, improve watershed health and to better understand wetland restoration costs.

Controlling invasive weeds biologically

When noxious weeds like houndstongue, leafy spurge, spotted knapweed and scentless chamomile get out of control in natural areas, one of the best control solutions is biological – the introduction of specially

selected beetles. The adult beetles feed in the foliage while their larvae feed on the roots, providing a sustained and effective control.

Biological weed control isn't new to The City. We started importing these beetles for weed control in 2006. A highlight in 2014 was the capture of 6,000 beetles from one of Calgary's established leafy spurge biocontrol sites, which were then distributed among three different sites.

Understanding our biodiversity

To protect urban ecosystems, The City drafted a Biodiversity Strategic Plan and Policy for Calgary in 2014. The Plan is based on four key principles:

- cultivating ecological literacy and stewardship,
- managing for healthy, resilient open space,
- collaborating locally and regionally to improve biodiversity, and
- integrating biodiversity into Calgary's neighbourhood and community-building.

In order to address habitat fragmentation and loss, The City has developed a Habitat Condition Rating tool that describes and tracks the health of Calgary's natural areas over time. This health scoring system was tested in 2014 across 41 per cent (169 out of 408) of our Natural Environment Parks comprised of grassland, forest

Pest management methods:



Biological:

Using natural biological systems to implement control



Physical:

Weed pulling, mowing, etc.



Cultural:

Education to eliminate invasive horticultural species from residential gardens



Chemical:

Use of federally regulated pesticides



and shrub land habitats. In 2015 the rating tool will be expanded into an Ecological Integrity Index that both describes an individual park's ecological condition and the role it plays in providing wild species with a connected landscape of core habitats and movement corridors.

Both of these tools support biodiversity goals by providing a standard means to assess the health of Calgary's parks and improve the way we prioritize naturalization, restoration and habitat management activities across The City's Parks system.

Emergency response and reforestation

In early September, before the trees had time to shed their leaves, Calgary was hit with its biggest snowfall in 130 years. Twenty-eight centimeters of wet and heavy snow fell in just three days. The burden proved too much and many trees broke under the weight.

As a result many trees and branches created public safety concerns such as blocking roads, and branch failures. The City responded to approximately 20,000 emergency service requests in



a two month timeframe. To ensure public safety, preliminary tree risk assessments were completed in all impacted communities by the end of October.

Initial cleanup efforts brought in 26 million kilograms of plant materials, the equivalent of 12 per cent of Calgary's total inventory of tree cover which is routinely maintained or pruned. The storm's full impact on Calgary and our urban forest will take years to understand. Aside from the financial cost of pruning and replanting, there are all the lost environmental benefits: carbon sequestration (trees absorb carbon dioxide and filter pollution), shade and related energy

conservation values, stormwater runoff mitigation, habitat for birds and animals, and aesthetics related to our city's parks, boulevards and streetscapes.

Following the snow event in the fall, we set up the Tactical Operations Centre to co-ordinate efforts to clean up tree debris and plan for recovery and restoration of the urban forest. In November, Council approved a one-time \$35.5 million budget (allocated over the next three years) to help restore the integrity of our urban forest. This includes pruning 50 per cent of The City's total 500,000 trees, replacing trees lost as a result of the storm, and educating the public on looking after their own private trees.



Promoting pollination and green spaces

Bee populations play a critical role in the pollination of many plants. The City had a bee hive installed on the roof of the Municipal Building to help increase the survival rate of the experimental green roof plantings. Bumblebee boxes were installed at the Spynhill Waste Management Facility as part of a study being conducted by Mount Royal University on how bees use available green spaces throughout Calgary.



Pearce Park

Reducing waste

As Calgary's municipal government, we set an ambitious city-wide waste reduction target. As a large organization, we must be a leader in ensuring we meet the targets we set out for all commercial, industrial and institutional sectors in Calgary. We ensure the necessary infrastructure is in place to support the activities that will help achieve that target. And we set the example, as leaders, for others to follow. We are on track to increasing our waste diversion rate and monitoring progress through periodic waste assessments, setting an example for the community.

Recycling materials on transportation construction projects

Major transportation construction projects like roads, interchanges, bridges transit facilities are part of our everyday activities. While the city is growing, the amount of waste we generate in these operations — or the lack thereof — continues to be rather remarkable.

Every year we calculate how much tonnage of construction waste materials were generated in transportation construction-related projects, and how much of it was recycled. This year we generated approximately 23,850 tonnes of construction and demolition waste materials and diverted approximately 23,800 tonnes from landfills. That means 99 per cent of the construction waste was recycled for repurposing.

Making a difference with the Green Office program

You can tell a lot about an organization by what's in their garbage bins.

Goals & Targets

Goal:

→ Minimize waste generation and increase waste diversion (80/20 by 2020 Strategy). (Corporate goal adopted to lead by example for city-wide waste diversion goal).

Target:

→ **ON TRACK** By 2020, 80 per cent diversion of waste from City landfills (80/20 by 2020 Strategy and 2020 Sustainability Direction).

In 2014 we audited three day's worth of garbage at 16 City facilities. Their task was to look at composition and to tell us how much of what was in there could have been recycled. When compared to results from a similar audit at seven of the same City facilities in 2012, we had compelling evidence that our efforts to recycle more than we throw away are on the right track. This one-time snapshot showed an improvement in our overall diversion rate, from 37 per cent in 2012 to 49 per cent in 2014. Beyond providing reassurance that our Green Office efforts are working, this kind of assessment can point to what kind of programs we

should have to encourage recycling of specific materials. Organics (food and compostable items) is on our radar and we'll be looking at how best to address organic waste in the future, once the necessary infrastructure is in place city-wide.

Our mixed recycling program expanded again in 2014. By the end of the year, 94 City facilities had a mixed recycling program in place. Now roughly 10,700 employees, or nearly 70 per cent of our workforce, have the means to separate out their recyclables (i.e. normal blue cart materials) from the garbage while at work. Our goal is for 90 per cent access by the end of 2016, and we're confident we can achieve that.

2016, these materials will be subject to a landfill surcharge at any of our Waste Management Facilities. As an organization, The City fits into the ICI sector for waste generation. We are one of the largest organizations within this sector, which includes over 160,000 organizations such as hospitals, schools, offices, malls, restaurants, hotels, manufacturers, warehouses and other businesses.

The ICI sector is responsible for more than one third of all waste going to City landfills. A large component of this waste (paper, cardboard and food) is recyclable or compostable and therefore, this sector will be the target of upcoming initiatives for diversion in the near future.



Writing our expectations into the contract

We've been promoting the use of recycled content paper throughout The Corporation for years. Reoccurring problems with paper jams in some printers have been a hurdle in the way of our achieving corporate-wide use of 100 per cent recycled content paper.

This year we made printer vendors guarantee their machines will be able to handle 100 per cent recycled content paper as part of their service bid. It's a small change with far-reaching potential as 100 per cent recycled content becomes the norm for us.

94 City facilities (70% of City of Calgary employees) have access to a mixed-recycling program. Where there are mixed-recycling programs available, 89% of recyclables are captured for diversion.

Raising our expectations

In 2014, Council approved an industrial, commercial and institutional (ICI) strategy that will define paper and cardboard as designated materials. Beginning as early as

Corporate scrap materials recycling trends

The City continues to look for innovative ways to recycle or re-use scrap materials. In 2014 we increased the total amount of scrap material (e.g. metals, used oil, batteries, paper, etc.) recycled by 29 per cent.

	Tonnes scrap materials recycled	Tonnes electronic waste recycled	Dollars recovered from sale of scrap materials
2014	2403	34	\$723,700
2013	1864	25	\$411,600



Advancing safe work practices

The City of Calgary is one of this province's largest employers. We perform countless tasks while providing hundreds of diverse services to benefit citizens. The City has a comprehensive Occupational Health and Safety Management System in place to reduce the risk of exposure to workplace hazards and to ensure ongoing compliance with legislated requirements. We are confident in our ongoing ability to improve our overall health and safety performance.

Our Corporate Safety Strategy has five key focus areas: safety culture, leadership, governance, programs and services and measurement.

Goals & Targets

Goal:

➔ By 2020, The City of Calgary's recordable injury rate is best in class for Canadian municipalities (2020 Sustainability Direction).

Target:

➔ **MISSED TARGET** Reduce the corporate-wide lost time claim (LTC) frequency to 3.5 in 2014 (Utilities & Environmental Protection 2013 Business Plan performance measure 6.2).

Committing to safety at the top

In 2014, The City created a Senior Safety Committee of senior executive-level leaders who meet regularly to review corporate performance, set targets, approve safety work plans and identify issues and opportunities for improved collaboration and communication with front line supervisors and employees.



Measuring the mindset of our people

Each year as part our annual employee survey, we ask City employees if they feel their working conditions are safe. While this information helps us track employee satisfaction, it gives us only a glimpse into what our employees think, feel and believe about safety.

In the spring of 2014 we conducted a corporate safety perception survey to gain a deeper understanding of how employees view safety in the workplace. The information that came out of the survey will provide a baseline against which to measure our future progress in the areas of safety culture, leadership and performance. The survey will be conducted every two to three years.

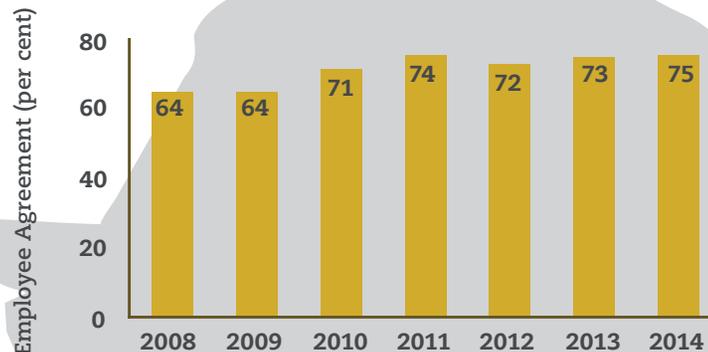
The 2014 survey results point to a corporate safety culture in which employees understand their roles and want to work safely. New employees learn quickly that they are expected to follow health and safety practices (82 per cent) and that they are encouraged to look out for each other (82 per cent). As well, the majority of respondents (88 per cent) are satisfied with the health and safety practices in their workplace. These are all good attributes of a positive safety culture.



Employees learn how to safely maneuver a City truck down residential streets using the fleet training simulator

2014 NAOSH Week

All City departments participated in 2014 NAOSH (North American Occupational Safety and Health) Week and many safety-oriented activities and discussions occurred at every level of the organization. The theme for 2014, "Make Safety a Habit" inspired operational areas across The Corporation to celebrate NAOSH with a week of safety activities, events and speakers, including two-time Grey Cup Champion Dan Comiskey who spoke to staff about changing habits.



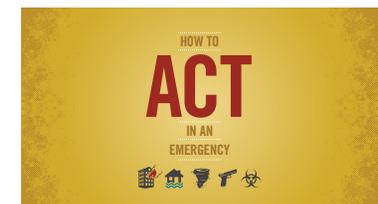
"MY WORKING
CONDITIONS
ARE SAFE."

CORPORATE SCORE

Working collaboratively on emergency response

Multi-tenant sites like Manchester, just south of the Stampede grounds, have long had clearly posted emergency evacuation procedures and muster points for each building. But up until 2014 they lacked a comprehensive emergency response plan that covers the entire site to ensure the safety and security of all City employees, contractors/consultants and visitors. As the site is located near the Elbow River, with railway tracks and other industrial activities nearby, the entire Manchester site may need to be evacuated in a significant emergency. This new emergency response plan provides the protocol for a large scale evacuation, with designated business unit representatives and communication systems. Site tenants have already participated in a successful discussion-based evacuation exercise. The next step will be to share this template with The City's other multi-tenant sites.

The Corporation also released a video to support the training and preparation of our employees in the event of an emergency. It encourages all staff to take some time, ahead of time, to learn how to “ACT” in an emergency situation. The online information video and web hub prompts employees to Assess, Communicate and Take action (ACT) in an emergency situation, with reassurance that specially trained individuals are in place in every City building to give direction and help in an emergency.



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 2014, our lost time frequency remained the same as 2013 at 3.9. This is a calculation of the number of lost time claims for a standard amount of time worked. While this suggests we're doing many things right, we did not reach our more aggressive target of a reduction to 3.5.

Part of reducing time lost means understanding how to deal with injuries and illnesses in the workplace – and how to prevent them from occurring again by understanding why they happened in the first place. In 2014, 391 managers, supervisors and foremen took the City-specific WCB Matters course to learn about root cause analysis, preventing an injury from becoming a lost time claim and how we can safely get the employee back to work as soon as possible.

The City also reviewed those key operational areas where injuries are more likely to occur. Higher risk operational groups like transit operators, roads crews, parks and recreation staff and fire personnel have specific safety needs. By reviewing how safety services are provided to these groups, we're able to identify gaps and improve upon our processes, equipment and overall health and safety performance. Some of these business units, for example, focused on improving communication of hazardous conditions to help build safety culture and cultivate awareness.



CORPORATE LOST TIME (LTC) FREQUENCY



**CORPORATE ENVIRONMENT,
HEALTH & SAFETY**
2014 Annual Report
