

**Environmental Master Plan 2015 Annual Report:
Reporting on Benchmarks, Metrics, and Targets**

(January to December 2015)



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Environmental Master Plan 2015 Annual Report: Reporting on Benchmarks, Metrics, and Priority Actions

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Introduction

It is increasingly recognized that environment is a key determinant in human health and an important component of a healthy and successful community. Some of the elements Red Deerians most value about our community such as the river or the trail system, are directly linked to Red Deer's identity as a clean and healthy place to live, work and play. Red Deerians recognize that beyond the most visible aspects of our local environment, such as the river, there are many elements that make up a healthy environment and therefore there is need for ongoing stewardship of all components of our environment. For this



Red Deer Trail System, 2014-15

reason, City of Red Deer Council unanimously adopted the Environmental Master Plan (EMP) in 2011 with the endorsement and encouragement of many community organizations and stakeholders and the Environmental Advisory Committee (EAC).

The Environmental Master Plan serves as the Environmental Pillar of Red Deer's Municipal Sustainability Framework. Certainly, environmental sustainability has been a long held community value, Red Deer's Sustainability Framework and the EMP are simply the most recent chapter in Red Deer's journey towards environmental sustainability. Red Deer's progress towards improving environmental performance and our achievements in reaching goals set in the EMP is a strong priority for the community and our municipal organization.



The City and Red Deer residents created the EMP to provide a guide towards improved environmental sustainability. To achieve this, the Plan presents clear goals and measurable environmental targets and recommendations for actions for The City of Red Deer and the wider community. The plan's goals and objectives capture all aspects of Red Deer's environmental sustainability including air, water, transportation, waste, energy, built environment, and ecology. The plan contains immediate, mid-term, and long-term actions and priorities to meet our environmental goals.



View of Red Deer taken from the North Hill, 2014-15

Over the last number of years, The City and our partners have demonstrated an ongoing commitment to implementing the plan's goals. Collaboration and leadership from many partners has allowed important and significant environmental improvements to take shape.

The City is committed to annually reporting its progress towards the various plan targets to the community, in order to continue to improve and to keep the community informed and involved. An annual report and report card to the community are issued each year. Some elements of this year's annual report will be similar to previous reports as the targets and objectives generally have not changed; but some aspects will differ given the fact that The EMP is building on previous results, has introduced new programs and actions, and has built new as well as expanded existing partnerships. Additional plans have been born of the EMP based on recommended actions or areas for specific, additional work. To date these plans include The Greening the Fleet strategy, the Waste Management Master Plan update, and The City of Red Deer 2010 Corporate Green House Gas Inventory. This year's Environmental Master Plan Annual report includes detailed annual updates on these specific stand alone reports as they take on their own sets of initiatives, their own implementation structure and progress targets, but which fundamentally and specifically link back to the EMP. These annual updates, within the overall umbrella of the EMP, can be found in the appendices of this report.



Red Deer's social, cultural, and economic considerations bring both opportunities and challenges. The actions of local Red Deerians are central to ongoing improvement of our environmental performance. As previous annual reports demonstrated, action not only by the government, but also by many partners, organizations, and residents help us move forward.

The Plan's Focus Areas



Ross Street Patio, Red Deer 2015

The EMP was written to encompass all aspects of Red Deer's environment by identifying seven broad focus areas: Water, Ecology, Transportation, Built Environment, Air, Energy, and Waste. Each focus area establishes a goal and identifies either two, three, or four metrics to measure progress towards this goal. The metrics include targets to measure and drive progress. All total, the Plan contains 18 metrics, each with short term and longer term targets for the life of the plan. Since the EMP was adopted, annual reports have tracked and presented details about the progress that occurred for each of the metrics over the previous year and provided results for corresponding targets. The current annual report presents this progress information for the 2015 calendar year alongside the 2014 results, allowing comparison of community performance from year to year.

In addition to establishing a benchmark and target; each metric includes recommended actions that, if implemented, are expected to help Red Deer achieve the EMP goals. The actions are broken into immediate (top priority), short, medium, and long term timeframes. The annual report provides a list of the top priority actions and notes progress and status of each action. This information is contained in ***Table B: At a Glance – Top Priority Action Progress January – December 2015.***



The City and community can both be proud that after only five years many of the actions are completed. In addition to actions and projects taking shape in the community for improved environmental sustainability, in the five years since the plan was adopted, the EMP helped facilitate more collaborative partnerships. As well as supporting alignment with community groups where resources have been combined or aligned to achieve common environmental goals.

Why Produce an Annual Report?

The EMP is approved as a tool to support progress around environmental action in Red Deer. The Plan was envisioned by both the EAC and City Council as a guide towards enhanced environmental sustainability in Red Deer. For this reason, it is important that progress be tracked over time.

The annual report helps both The City of Red Deer and community members identify accomplishments but also recognize the things that may need to be reconsidered or reset if progress is not moving ahead in the way the expected. Each year, the annual report is the means to bring forward the recognized adjustments or changes as recommended changes to City Council for consideration.

The Environmental Master Plan is a 25 year plan with shorter term and longer term goals. This year's report is particularly significant as it the Five Year Report. Most of the short term goals were identified as a five year mark.

Therefore, this year's annual report will be very valuable in determining how to enhance and move forward with our sustainability goals as a community committed to the Environmental Master Plan.

The annual report is also about recognizing and celebrating achievements that have supported progress and about inspiring others. For this reason, the annual report is pleased to identify all the actions that have been completed, describe the type of results stemming from these actions, and define the projects and actions that still need to be tackled. As has been done yearly



The Red Deer River



since the Plan's adoption, The City will be sharing annual report results not just in the form of this detailed document but also in the form of a report card to the community distributed throughout Red Deer and available on The City web page.

2015 Year Highlights

During 2015 several groups and individuals worked hard to continue progress and efforts for environmental priorities in Red Deer.

Environmental Advisory Committee 2015

Environmental Advisory Committee Advocacy

The Environmental Advisory Committee brought focus to the goals of the plan by identifying and discussing some of the key environmental issues tackled by the plan. In addition, the Committee relies on the EMP as a key base for the review and recommendation of environmental issues within their mandate of advising Council and Administration.

As part of their role as ambassadors to the plan the Environmental Advisory Committee's role included raising public awareness.



Celebration and Education Events

In addition to presentations, the plan was recognized throughout the year within the local community in a few distinct ways:

- Seven celebration days were held in 2015, with each celebration day supporting each of the EMP's seven focus areas. These events were also held in conjunction with national or internationally-recognized environment days. Each of these celebration days was an opportunity to promote the EMP and engage Red Deerians with environmental topics.
 - ***Earth Hour***, a United Nations' recognized annual event, was held in March and reminded the public about the importance of conserving energy which linked to the EMP's energy targets. Many residents, businesses, and City facilities participated by turning off all non-essential lights. The "Earth Hour Toonie Swim" proved to be a popular event, seeing over 300 swimmers attend.



Red Deer River and storm water outfall, 2015

- ***World Water Day***, another United Nations' recognized event, was also held in March and highlighted the importance of the world's freshwater resources. The City supported the Red Deer River Watershed Alliance's World Water Day celebration by holding a booth at the EcoLiving Fair. This event included a screening of the documentary film "Carpageddon" and a discussion about global water issues.



- **Earth Day** is a national celebration that takes place in April, and supports the Ecology goals of the EMP. The Kerry Wood Nature Centre hosted Earth Day in 2015, inviting residents to participate in nature walks, eco-crafts, a toy exchange, meeting Otis the Owl or participating in a swap meet.
- **Jane's Walk** took place during the first weekend of May and invited residents to attend a citizen-led guided walk, explore the city, connect with other residents, and consider the links between environment and urban developments. Eight walks were held, with over 80 people attending.



Otis the Owl from Medicine River Wildlife Centre makes new friends at Earth Day Celebrations at the Kerry Wood Nature Centre, 2015.



Local citizens learning about Red Deer's history during a Jane's Walk through the downtown core, May 2015.



- **Clean Air Day** has become an annual event in Red Deer that takes place in June. In partnership with PAMZ, Alberta Environment and Sustainable Resource Development (AESRD), NOVA Chemical Corporation and Sheraton Red Deer, this event involved a free vehicle emissions testing clinic for gasoline vehicles where drivers were informed about how efficiently their vehicles were running, how their vehicles contribute to air pollution, and measures to protect local air. Around 60 vehicles were tested at the emissions clinic. Also part of the event was a trade show and the annual Action Hero Air awards presentations.



Clean Air Day Emissions Testing Clinic held at the Red Deer Sheraton Hotel



2015 World Car Free Day booth at the Red Deer Market, residents were invited to learn about and explore alternative forms of transportation including Red Deer Transit!

- **World Car Free Day** in September encourages residents to explore alternative transportation options to single occupancy vehicles, such as carpooling, using the city's transit service or cycling. Events included free transit all day, a booth at the Saturday market, and a corporate departmental challenge. Close to 70 City staff participated in World Car Free Day, and 50 public pledges were made by residents to choose alternative transportation in the future.



- **Kick it to the Curb**, held in June and October, tied into the Waste Reduction goals of the EMP, encouraging residents to repurpose unwanted goods by placing them at their curb, free for the taking by other residents.



- **Spooktacular**, held in October, is a Halloween themed, waste reduction and diversion education event at the Waste Management facility. The event aims to educate residents about opportunities to reduce, reuse and recycle in Red Deer. Many individuals and families took part in learning about the landfill and diversion pad operations through an in-depth tour, e-waste collection, and educational displays. Approximately 225 people attended the event.



Partnerships

It has been suggested that a healthy environment within a city contributes to a rich quality of life for all. In order to build awareness of environmental well-being; partnerships are fundamental. Working successfully with others to implement the Environmental Master Plan over the last five year has led to more achievements than if the municipality tried to go it alone. Partners range from local groups to large national and international bodies. All share the common drive to work for environmental improvements. With each, The City has been fortunate to collaborate for shared successes and progress. In this way, local partners such as The Red Deer Public Library, Red Deer River Watershed Alliance, Waskasoo Environmental Education Society, Parkland Airshed Management Zone, Red Deer's Community Associations, Local School Boards, Red Deer College, Red Deer Sheraton Hotel, NOVA Chemicals, Lafarge Canada, Primary Care Network, and Re-Think Red Deer, the Plan has been able to expand its outreach and achieve a broader set of actions than The City working alone. National, International, and province wide partners such as Green Energy Doors, Alberta Environment and Parks, Carpool.ca, Alberta Bike Swap, The Heart and Stroke Foundation, and ICLEI also supported and enhanced Environmental Master Plan successes.

Results Reporting

In order to support a deep understanding of the condition of our environment, the EMP annual report records and tracks progress on metrics and associated targets for the plan's 19 metrics. This data is detailed in **Table A: 2015 Report on Metrics and Measures**.

In most cases the following information is noted:

- The 2009 baseline measure (some baselines are for a later year in instances where data was not available or had to be collected and tabulated),
- The 2014 results – as reported in last year's annual report for comparative purposes,
- The 2015 results – being released here as part of this year's annual report, and
- Our most immediate targets for that metric (targets in the Plan are generally set for 2015, 2020, and 2035)



The table indicates whether the results for Red Deer as a City and as a Community met the 2015 (5 year short term) target, if it was partially met, or if it has not been met. Overall, the results and metrics show a solid amount of progress has been made in five years of plan implementation. However, there remain areas that are challenging and will need larger focus to achieve the set targets. Of the 19 areas of measurement, results are:

- Target Achieved in 7 out of 19 metrics, including:
 - potable water consumption
 - natural areas
 - man-made green areas
 - integrated pest management
 - length of trail kilometres per resident
 - “footprint” of per capita land consumption
 - use of renewable energy

- Target has not been achieved for 8 metrics, including:
 - fuel consumption per capita
 - modal split
 - community gardens
 - greenhouse gas emissions (corporate measurement) (*note: target is a medium term 2020*)
 - building energy: average building intensity
 - waste diverted
 - amount of residential solid waste
 - overall per capita disposal rate

- Partial achievement for two metric measures:
 - dwelling unit proximity to community amenities (measures the share of households within 400 metres, a comfortable walking distance of common amenities, targets for distance to transit stops and trails/green space were achieved, however the measure fell a bit short for proximity to commercial sites and schools)
 - air quality (air quality is measured by reporting on a group of compounds in the air, targets for all compounds have been met with the exception of fine particulate matter air quality (PM^{2.5}))



□ Metrics with targets not yet established:

- The remaining 2 metrics (water quality of receiving bodies and urban forestry) have no established targets or metrics. The necessary studies/research have been delayed for both water quality of receiving bodies and urban forestry therefore, over the five years of EMP reporting, no progress has been made related to determining appropriate targets or baselines.

In reviewing the 2015 results, and the five years of implementation efforts that have taken place within the Red Deer community to move forward, it is important to recognize successful progress. Achievements in the focus areas of water conservation and ecology have been substantial, achieving targets well in advance of the anticipated timelines. However, the progress has not been as strong in other focus areas. Obviously, it is disappointing to experience delays or setbacks in working towards any goal. The Environmental Master Plan goals are no different. It would be natural to want to succeed immediately at everything; natural but not realistic. The EMP is a long range plan for the very reason that not all actions and goals will be met right away. Some actions will take longer to take hold and have an impact. There have also been some obstacles or barriers that may be impeding progress. These barriers might be financial, technological, or resource based which we need to determine how to overcome. In some cases, there have even been delays in understanding how to establish the best metric to correspond to an environmental focus goal. Because The City is firm in its commitment to implementation of the EMP actions, and firm in its desire to show corporate leadership, The City will be reviewing the EMP in 2017 and paying particular attention to strategies to overcome the obstacles experienced, and to addressing the components of the plan that have not advanced as quickly as the community wanted.

As well, as have been presented in previous years, The City will publish a public report card highlighting the key 2015 EMP results. The public report card is about more than just reporting results; it is also about engaging residents, local business operators, land owners, city staff, and partners and encouraging action. Everyone shares the environment and therefore we all need access to information to learn how management and stewardship actions are progressing and to understand the role we can play as well as the challenges that lay ahead.



Table A: 2014 Report on Metrics and Measures

Benchmarks and Metrics Results 2013-2014

EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
WATER					
Potable water consumption provided through municipal water supply, per capita (L/cap/day)	Residential: 242 L/cap/day Industrial/ Commercial /Institutional (ICI): 135 L/cap/day	Residential: 195 L/cap/day ICI: 112 L/cap/day * Data from Environmental Services. **Note that water consumption can be dependent on weather conditions.	Residential: 203 L/cap/day ICI: 110 L/cap/day * Data from Environmental Services. **Note that water consumption can be dependent on weather conditions.	Decrease by 8% (to 222.64 and 124.2 L)	Yes While there was an increase between 2014-15, the overall Five Year Trend saw continued success at achieving and even exceeding water conservation targets.
Water Quality of Receiving Bodies *Measurement will be defined by results from the Urban Impact Risk Assessment for AB Environment	TBD – 2015 Collection of baseline data not yet complete.	*2014 update- First two years of data have been collected. Baseline and targets will be established in 2016 in conjunction with the Urban Impact Risk Assessment for Alberta Environment.	*2015 update- First three years of data have been collected. Baseline and targets will be established in 2016 in conjunction with the Urban Impact Risk Assessment for Alberta Environment.	To be set in 2016 (note extension to previous target date).	In progress. Results to form part of the Five Year Review of the Environmental Master Plan in 2017.



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
ECOLOGY					
Natural Areas: Land within the city's developed area devoted to native natural features (native tree stands, wetlands, seasonal streams, grasslands, and associated biodiversity)	Total Natural Area = 863 ha	Total Natural Area = 999.11 ha	Total Natural Area = 916 ha	Increase by 5% (to 906 ha)	Yes The amount of natural areas calculated fell between 2014 and 2015 because the decision was made to remove the lands at Red Deer College and at Michener Centre as they were considered privately owned. However, the total still achieves and exceeds the 5 year goal set by the EMP targets.
Man Made Green Areas: land devoted to man-made natural features (city parks, turf areas shrub beds and naturalization areas).	809 ha	Total Man-Made Green Area = 853.84 ha	Total Man-Made Green Area = 872 ha	Increase by 5% (to 849 ha)	Yes The 2015 results indicate achievement of the target.



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
Integrated Pest Management: Volume of toxic pest control product used per acre of municipally owned land (ml/acre)	210 ml/acre	2014: 901,440 ml herbicide + 0 ml insecticide = 901,440 ml 901,440 ml / 4579 acres = 197 ml/acre	2015: 519,010 ml herbicide + 0 ml insecticide = 519,010 ml 519,010 ml / 4418 acres = 117 ml/acre	Decrease by 2% (to 205.8 ml/acre)	Yes Target has been met and continued success achieved in 2015.
Urban Forestry: Urban forest coverage (percentage of area within city's developed area covered by tree canopy)	TBD by 2014, now extended	Terms of Reference for this Plan are being drafted/under review. Anticipated completion by end of April 2016.	Update 2015: RFP is complete and will the plan is slated to begin in 2016.	No target set. Plan completion extended to 2016 or longer.	No target set.
TRANSPORTATION					
Total Fuel (gasoline and diesel) consumption data for the city annually (Note this metric replaces Vehicle Kilometres Travelled (VKT) per capita/day by car used in 2011)	1257 litres/capita Total gasoline and diesel consumption: 112,998,927 litres	1232 L/cap Total gasoline and diesel consumption= 121,487,130 L	1344 L/cap Total gasoline and diesel consumption= 135,461,347 L	Target is 1156 L/cap Target reflects a goal of reduction of 1.3% per year and equates to an overall 8% reduction by 2015 from the baseline year (2009).	No. Short term (5 year) target not achieved. While results for 2009-2013 were variable, there had been an overall downward trend. In 2014 and 2015, the fuel consumption increased.



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
Modal Split: Percentage of different modes of transportation used to travel to work	Car: 88% Transit: 4% Pedestrian or Bike: 7% Other: 1%	Same as 2012 *Note –most recent results are 2011 Census figures from Statistics Canada next federal census is 2016.	Same as 2012 *Note –most recent results are 2011 Census figures from Statistics Canada next federal census is 2016.	2016: Car: 86% Transit: 5% Pedestrian or Bike: 8% Other: 1%	No. New federal census data will not be available until 2016-2017.
Dwelling Units within 400 metres of: 1) public trails, parks or other green space, 2) at least 5 basic amenities represented by commercial zoned properties or school sites*, and 3) Transit stops* *Council approved in 2012 Annual Report refinement of this metric to amenities represented by commercial and school sites and all transit stops.	2012 served as our baseline**. 1) Public trails, parks or green space = 100% 2) Commercial zoned property = 56% and existing schools = 38% 3) Transit stops = 97% **Baseline calculation does not include residential units not in an urban neighbourhood (e.g. Central Park is not included)***Measurement is completed as the crow flies.	1) Public trails, parks or other green space = 100% 2) Commercial zoned property = 55% and existing schools = 39% 3) Transit stops = 99% Dwelling units within 400 metres of all of these parameters = 24%	1) Public trails, parks or other green space = 100% 2) Commercial zoned property = 55% and existing schools = 40% 3) Transit stops = 99% Dwelling units within 400 metres of all of these parameters = 24%	1) Public trails, parks and other green space = 100% 2) Commercial zoned property = 60%, and existing schools = 45% 3) Transit stops = 97%	Yes and No. The target set for proximity to trails and parks as well as transit stops is achieved. The target for proximity of all dwelling units to commercially zoned sites and schools was not met.



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
<p>Length of bicycle/ pedestrian routes (km/capita) measured in lane kms. Includes bike routes (shared) and bike lanes (dedicated), multi-use trails (including asphalt and concrete surface trails in parks and shared trails (includes non-hard surface trails such as boardwalk, aggregate, wood chip, & pedestrian only trails).</p> <p>** note wording and definitions refined in 2012 to ensure clarity and inclusion of trails that reflect the transportation goals of the EMP</p>	<p>1 km ratio to every 672 persons</p> <p>(2009 Census: 89,891 persons)</p>	<p>Bike Lanes Shared 7.3 km <u>Dedicated 12.2 km</u> TOTAL 19.5km</p> <p>Park Multi-Use Trails Concrete 12.1 km <u>Asphalt 95.4 km</u> TOTAL 107.5 km</p> <p>Shared Trails Boardwalk 0.76 km Aggreg. 36.7 km Dirt 8.3 km <u>Brick 0.38 km</u> TOTAL 46.1</p> <p>Cumulative total 173.1 km With a population of 98,585 the ratio of bike/pedestrian routes to residents is 1 km: 570 residents</p>	<p>Bike Lanes Shared 7.3 km <u>Dedicated 12.2 km</u> TOTAL 19.5km</p> <p>Park Multi-Use Trails Concrete 13.3 km <u>Asphalt 99.0 km</u> TOTAL 112.3 km</p> <p>Shared Trails Boardwalk 0.87 km Aggreg. 36.6 km Dirt 8.3 km <u>Brick 0.5 km</u> TOTAL 46.3</p> <p>Cumulative total 178.1 km With a population of 100,807 the ratio of bike/pedestrian routes to residents is 1 km: 566 residents</p>	<p>Increase by 5% (to 1 km ratio to every 639 persons)</p>	<p>Yes.</p> <p>This target has been achieved even with population growth in all years from 2011 to 2015.</p>
BUILT ENVIRONMENT					
Our Development Footprint	Baseline (2011)			1% per year from baseline data	Yes.
"Per Capita Land Consumption" in	740.8 m ² /person	716.8 m ² /person	692.6 m ² /person	2015 – 4% drop from 2011 figure	The 5 Year Target Development Footprint/per capita
		Figure broken into land use categories:	Figure broken into land use categories:		



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
metres squared per person <i>Definition: "Per Capita Land Consumption" is the total amount of land within the city that has an urban type zoning (and is or will be imminently used for urban uses) plus roads divided by the current Red Deer population. Note: This metric replaced Development Density in Council's approval of 2012 Annual Report.</i>	Figure broken into land use categories: -Commercial: 40.7 m ² /person -Industrial: 96.2 m ² /person -Institutional: 91.0 m ² /person -Parks / Open Space: 151.5 m ² /person - Residential: 200.2 m ² /person - Roads: 161.2 m ² /person TOTAL: 740.8 m ² /person	-Commercial: 31.9 m ² /person -Direct Control: 14.9 m ² /person -Industrial: 105.4 m ² /person -Parks /Open Space/Institutional: 201.8 m ² /person -Residential: 192.7 m ² /person -Roads: 170.1 m ² /person TOTAL: 716.8 m ² /person	-Commercial: 30.7 m ² /person -Direct Control: 13.8 m ² /person -Industrial: 95.5 m ² /person -Parks /Open Space/Institutional: 202.2 m ² /person -Residential: 187.8 m ² /person -Roads: 162.6 m ² /person TOTAL: 692.6 m ² /person	711 m ² /person	land consumption was achieved.
Community Gardens: The land devoted to community gardens and urban agriculture in area (m ² /capita)	0.4 m ² /cap Note: This combined the total garden plot area as per the City Garden Plot Program with the raised bed garden space as per	Total City managed plots: Large: 101 (12,120m ²) + Med:127 (7,620 m ²) = 19,740 m ² Total Community Orchard/Food Forest: Parkside Food Forest 200 m ² (fruit trees)	Total City managed plots: Large: 43 (5,160 m ²) + Med:184 (11,040 m ²) + Small: 22 (660 m ²) = 16,860 m ² Total Community Orchard/Food Forest: Parkside Food Forest	Increase to : 0.5 m ² /capita by 2015	No. Red Deer has not achieved our target yet, it is being worked on. The 2015 target was highly ambitious.



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
	the Community Garden model (smaller, raised bed gardens that are funded by City and managed by community).	+150 m ² (Saskatoon hedge) = 350m ² Mountview /Sunnybrook Orchard +100m ² = 350 +100 = 450m ² Total community partnership gardens: 81 raised beds (435m ²) TOTAL GARDEN AREA=19,740 + 450 + 435 = 20,625m ² = 20,625m ² / 98,585 or 0.21 m² / capita	350 m ² + Mountview /Sunnybrook Orchard 100m ² + Central Food Forest 150 m ² + Lancaster Green Orchard 60m ² + Waskasoo Orchard 30 m ² = 690m ² Total community partnership gardens: 98 raised beds (549m ²) TOTAL GARDEN AREA=16,860 + 690 + 549 = 18,099m ² / 100,807 or 0.18 m² / capita		
AIR					
Greenhouse Gas emissions per capita in tonnes (CO ₂ equivalent)	Baseline 2010: Corporate= 138,980 tCO ₂ e or 1.55 tonnes/	Corporate= 142,941 tCO ₂ e or 1.45 tonnes/person Community: TBD	Corporate= 132,820 tCO ₂ e or 1.32 tonnes/person Community: TBD	Corporate Target = 30% by 2020 and 50% by 2035 as per 2010 Corporate GHG Inventory	Not yet. The City of Red Deer is working towards reduction of corporate emissions and has set a mid-



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
	person Community: TBD <i>** Note there were miscalculations in baseline figures those were amended, and the 2010 actual was 138,980 not 137,000 tCO2e.</i>			(2020- 97,286 tCO2e or 0.965 tonnes/ person 2035 – 69,490 tCO2e or 0.689 tonnes/ person Community: TBD	range target for 2020. Community GHG Inventory (Community Energy and Emissions Plan) was started in 2015 and will provide the baseline data.
Air Quality: maintain and lower ambient concentrations of airborne pollutants, not exceeding maximums defined by the Canada Wide Standard and AB Environment	PM2.5: 15.9µg/m3 (2007-2009) Canada Wide Standard metrics for: Ozone: 57.5 ppb (2007-2009) Sulphur Dioxide SO2: 0.44 ppb (2005-2009)	PM2.5: 30 µg/m ³ (2011-2013) * exceeds CAAQS Ozone: 52 ppb (2011-2013) SO ₂ : 0.23 ppb (2010-2014) NO ₂ : 11.27 ppb (2010-2014) CO: 0.16 ppm (2010-	PM2.5: 26 µg/m ³ * (2012-2014) Ozone: 55 ppb* (2012-2014) <i>* Calculated values prior to the removal of trans-boundary flows and exceptional events (TF/EE).</i> SO ₂ : 0.24 ppb** (2011-2015) NO ₂ : 10.8 ppb** (2011-2015)	By 2015: PM2.5: 20µg/m3 Canada Wide Standard metric Ozone: 58 SO2: 0.42 ppb NO ₂ : : 11.5 ppb	Yes and No. Air quality measures are meeting targets set for 2015 with the exception of for Fine Particulate Matter (PM 2.5). Increased PM 2.5 placed Red Deer at a level where the Canadian ambient air quality standards (CAAQS), were exceeded.



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
	Nitrogen Dioxide NO ₂ : 12.1ppb (2005-2009) Carbon Monoxide CO: 0.25ppm (2005-2009)	2014)	CO: 0.16 ppm^ (2011-2015) ** Average measured at both Red Deer monitoring stations ^ Measured at Riverside monitoring station only	CO: 0.24ppm	
ENERGY					
Building Energy: Average Building Intensity (equivalent KWh/sq. ft. and sq. m)	Baseline (2012) 36.6 ekWh/sq. ft. 393.4 ekWh/sq.m.	42.74 ekWh/sq. ft. 460 ekWh/sq. m.	44.4 ekWh/sq. ft. 478 ekWh/sq. m.	*By 2015, 5% reduction from 2012 levels. (to 34.77 ekWh/sq. ft. and 373.73 ekWh/sq. m.) By 2020, 20% reduction from 2012 levels. (to 29.28 ekWh/sq. ft. and 314.72 ekWh/sq. m.) By 2035, 50% reduction from 2012 levels. (to 18.3 ekWh/sq. ft.	No. This metric saw a 21% increase from the baseline measure.



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
				and 196.7 ekWh/sq. m.) <i>*Based on targets set in Environmental Master Plan Appendix E Benchmarking Tool</i>	
Renewable energy sources: percentage of energy utilized by The City of Red Deer that is produced through green sources (such as renewable resources and energy captured from waste)	15%	25% <i>* Civic Yards vehicle wash produced and sent 6,660 kWh of power to the grid. The amount of power generated by solar panels at Civic Yards is no longer being tracked. Green energy purchased for 2014 was 11,842 MWH of EcoLogo certified green energy/48,230 MWH. ** Data provided by Electric Light & Power.</i>	30% <i>*Civic Yards vehicle wash sent 6,420 kWh of power to the grid. Total production by the wash building and building #300 is unknown. The total generation amount by Civic Yards solar panels is no longer being tracked. Green energy purchased for 2015 was 14,500 MWH of EcoLogo certified green energy/48,162 MWH. ** Data provided by Electric Light & Power.</i>	Increase to 30%	Yes.
WASTE					
Weight of Solid Waste: total weight of solid waste generation by single-	183 kgs / capita /year	Replaced by two new, more precise measures directly aligned with the Waste		Decrease by 10% by 2015 (to 164.7)	Replaced, as below.



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
family residences (kgs / capita /year)		Management Master Plan (adopted by Council May 2013).			
Amount of Residential Solid Waste*: <i>Measured as residential garbage in kilograms collected curbside in the city per household per year</i>	641 kg <i>Annual kg of garbage per residential curbside account</i>	656 kg <i>Annual kg of garbage per residential curbside account</i>	619 kg <i>Annual kg of garbage per residential curbside account</i>	2016 target is 550 kg; 2020 target is 450 kg ; 2023 target is 400 kg	Not yet. The metrics indicate solid waste has decreased but has not achieved the short-term target as yet (set for 2016).
*Note: new metric					
Overall per capita disposal rate: <i>(meaning the total amount of solid waste disposed at the waste management facility including residential, multi-family residential, institutional, and commercial waste measured per year per capita and excluding waste from regional customers)</i>	Unknown	899 kg/capita	872 kg/capita	2016 target is 700 kg/capita; 2020 target is 600 kg/capita; 2023 target is 500 kg/capita.	Not yet. The metrics indicate overall disposal rate has decreased but has not achieved the short-term target as yet (set for 2016).



EMP Metrics by Focus Area	2009 Baseline	2014 Results	2015 Results	2015 Target	Met The 5 Year Target?
Population	89,891	98,585	100,807	100,807	
*Note: new metric					
Waste Diverted: percentage of waste diverted per year per tonne of waste land-filled.	10%	14%	15.6%	Increase to 20%	Not yet. While diversion has increased from the baseline, additional diversion is needed to meet the EMP goal.

Recommended Adjustments for Future Reporting

The EMP has been instrumental in propelling Red Deer forward in all seven focus areas over the past five years. However, the plan must work to stay current over time with new achievements and advancements in some of the areas. For this reason, metrics or their targets are occasionally updated to reflect progress being made in a particular plan focus area.

The Water Conservation, Efficiency and Productivity Plan (CEP), adopted by City Council in May 2016, recommended revising the Environmental Master Plan metric's target for Water Consumption. It reviewed the potable water consumption provided through municipal water supply and suggested more aggressive per capita (L/cap/day) targets. The rationale for this change is largely around the fact that the mid-range (2020) EMP target has already been achieved by the residential and ICI sectors. Therefore, the CEP recommended revising this target, as well as the long term (2035) target. The CEP also recommended the addition of a new metric and target for water losses, not currently included in the EMP. Water losses refers to the usage of water that goes unaccounted for (unmetered); an example would be water leaks from pipe breaks or water loss from vandalized hydrants. Addressing/incorporating these metrics and targets will support the Environmental Master Plan goal of conserving water to a larger extent moving forward. For this year (effective 2016 reporting), the following changes to the EMP are recommended:



- Water Focus Area-** Revise the Water metrics to align with the targets outlined in the Water Conservation, Efficiency and Productivity Plan (CEP). The Environmental Master Plan’s mid-range (2020) targets for per capita water consumption for both the residential and ICI sectors have already been surpassed; suggesting Red Deer is ready to step water conservation up a notch. The newly adopted CEP presents targets that are more aggressive and ambitious for water conservation and will include the water loss targets from the CEP.

Therefore, Administration recommends the following adjustments to the Environmental Master Plan metrics and target to align the EMP and the CEP plans, and will be presenting this recommendation to City Council:

Current EMP Metric	Current EMP Target	2015 Results	Proposed Target
Potable water consumption provided through municipal water supply, per capita (L/cap/day)	15% drop by 2020 25% drop by 2035	Residential: 16% drop (203 L/cap/day) ICI: 18% drop (110 L/cap/day)	22% drop by 2020 30% drop by 2035
None – proposing to add: Maximum total annual water losses recorded	None established	Total = 11%	10% maximum of total water use attributed to losses by 2020; 7% maximum of total water use attributed to losses by 2035;



2015 Year End Status - Actions and Initiatives

Over and above recording metrics, this report also considers all actions recommended for implementation by the EMP. The table below identifies general year end status and progress of the top priority actions under the EMP and also the short term actions that were, for the most part, focused on completion by 2015.

More detailed information has been provided to The City's Departments and to the Senior Managers in order that they have current and complete status specifics; and so that these Departments can continue ongoing implementation progress.

In total there are 118 actions defined by the Environmental Master Plan:

- 27 are immediate/top priority actions.
 - As top priority, the plan's expectation was that these actions would have been completed by the end of 2012. Some actions were deferred or required additional implementation time as identified in the table.
- 29 are short-term actions
 - Expected completion was the end of 2015.
- 50 are medium-term actions
 - Expected completion is by the end of 2020.
- 12 are long-term actions
 - Anticipated completion is by the end of 2030.

So what is held over from immediate/top priority items?

- All of the immediate/top priority actions are complete or underway, except for two, as of the end of 2015. Specifically, 25 out of 27 have advanced, with 12 actions having been completed/concluded.
- Two immediate/top priority actions have been deferred/inactive at the current time. As of the end of 2015, these are: Advanced Metered Infrastructure for electrical metering (water metering advances to facilitate this program are occurring and in progress) and exploration of District Energy potential in high-density neighbourhoods.



What about the short term priority items?

- In total, 27 plan actions are labelled short term priority, with the expectation that completion was to take place by the end of 2015. At this time, all are in progress, ongoing, or completed. Additional information can be found in **Table C** below.
- For details around medium and longer term actions, please refer directly to the Environmental Master Plan.

To summarize the most significant findings dealing with immediate/top priority actions are below:

Table B: At a Glance - Top Priority Action Progress January- December 31, 2014

		Action	Responsible Department	Description of Progress	Status
		Water (4 Top Priority actions)			
✓	1	Prepare an Integrated Storm Water Management Plan	Engineering	In Progress. Draft plan prepared by consultant and being reviewed by cross-department team.	In Progress
✓	2	Develop environmental standards for City buildings including water conservation measures	Public Works/ Environmental Services	Water conservation standards complete - Corporate Water Conservation Policy Adopted. Other actions (other environmental standards) /Green Building Standards are for future start.	In Progress/ Completed
✓	3	Review water and wastewater rate structures, which will draw attention to the value of water.	Environmental Services	Project completed and fully implemented.	Completed
✓	4	Replace water meters with Advanced Metered Infrastructure (AMI) technology in conjunction with replacement for electrical meters.	Environmental Services	Review of the Advanced Metering (AMI) is underway. With regard to water meters installations to begin in 2015 and will carry forward into future years. With regard to the electrical metering replacements, The City is investigating an AMI pilot project for 2016.	In Progress
		Ecology (3 Top Priority actions)			
✓	5	Enhance the existing City set-back policy to include water body and ecological protection related to Environmental Reserve setbacks under the Municipal Government Act	RPC	Exceeded MGA minimums by using the provincial <i>Beneficial Management Practices Guide Stepping Back from the Water.</i>	In Progress
✓	6	Prepare and implement an Urban Forest Management Plan	RPC	Urban Forest Management Plan is slated for completion in 2016 (approved as part of 2014	In Progress.



		Action	Responsible Department	Description of Progress	Status
				FAR).	
✓	7	Partner with community and development stakeholders to share ideas, explore opportunities and develop conservation tools to preserve green space such as a land conservation trust, land purchase, land swaps, tax incentives and reserve dedications.	RPC	Parks has partnered with various community groups, special interest groups, and developers to share ideas and explore opportunities. Limited opportunities to explore alternative conservation methods.	Completed.
		Transportation (3 Top Priority actions)			
✓	8	Incorporate high level core directions of the EMP into the Integrated Transportation/Movement Study as appropriate; Integrate sustainability principles such as active transportation.	Development Services		Completed.
✓	9	Engage the community to participate in walkability audits in their neighbourhoods.	Engineering	Engineering continues to complete the Safe Routes to School through its capital program	In Progress.
✓	10	Partner to establish regional commuting resources such as transit services, carpooling, shuttle and emergency ride programs.	Transit	BOLT regional transit service has been established and has been in operation since September 2013. Ridership is steadily growing; contributing to the reduction of single occupancy vehicles.	In Progress.
✓	11	Partner with school boards to implement a walking school bus program to encourage students to walk to school in 3 or more schools.	Engineering	No uptake in Red Deer from schools or the community.	Concluded.
		Built Environment (4 Top Priority actions)			
✓	12	Develop city-wide infill guidelines and standards that emphasize minimum densities, compact form and environmental design standards.	Planning Department	Neighbourhood Planning and Design Standards (NPDS) address small scale infill development.	Completed.
✓	13	Undertake studies of both residential and commercial/industrial density in Red Deer to establish informed baselines and goals for future density targets.	Planning Department	Municipal Development Plan has been updated to require 17 du/ha residential development increase from 14 du/ha.	Completed.
✓	14	Partner with a developer to identify an infill pilot project on City land to demonstrate environmental design standards.	Land & Economic Development;	Timberlands RFP (not infill but new development with high emphasis on sustainability). The Downtown Investment Attraction Plan (DIAP) has now been completed which give some guidance on under utilized sites.	In Progress.



	Action	Responsible Department	Description of Progress	Status
✓	15 Work with the community and developers to create a community garden stewardship initiative to facilitate the establishment and stewardship of additional community garden plots. Aim to introduce a new community garden each year for ten years.	RPC	Several achievements and successes in delivering this program: 1) Densifying garden plot development – garden use has increased by 93.1% in 5 years versus a population growth of 9.7%. ○ accomplished through forcing denser planting areas 2) Creating Community Run Gardens –In 2014, The City has expanded to 81 planters covering an area of 450 M ² (an increase of 675%). Note: The 2014 Capital funding for gardens is fully expended and new funding is not anticipated until 2017. Adding Urban Orchards and Permaculture to parks	In Progress.
	Air (4 Top Priority actions)			
✓	16 Conduct a GHG inventory analysis, and develop a corporate GHG emissions reduction plan	Environmental Services	GHG inventory analysis report has been completed/ accepted as a planning tool by City Council. Plan is being implemented.	Completed.
✓	17 Identify large emitters of pollution within The City's corporate operations. Identify strategies to mitigate the effects.	Environmental Services	Recreation facilities are conducting audits/assessment. Waste Management Facility has been reviewed for methane capture but design is underway for flaring. Other facilities reviewing data.	In progress.
✓	18 Develop a Climate Change Adaptation and Mitigation Plan	Environmental Services	Project has completed part one plan which was adopted by Council in 2014. Part 2 forthcoming and linked to Community Green House Gas reporting and potentially to the Community Energy and Emissions Plan.	In progress.
✓	19 Work with industries that have the most opportunity to reduce air pollution by identifying large emitters and potential strategies to mitigate their effects.	Environmental Services	Advisory Committee formed by the Government of Alberta in which The City has representation. Industrial partners are also represented. The focus of the committee is on reducing air pollution/responding to fine particulate matter exceedances. Red Deer report scheduled for release in 2016.	Completed.



		Action	Responsible Department	Description of Progress	Status
		ENERGY (4 Top Priority actions)			
	20	Replace electrical meters with Advanced Metered Infrastructure (AMI) technology for both residential and Industrial, Commercial, and Institutional (ICI) customers to allow them to better track, understand and modify consumption.	EL&P	No change in 2014 - will continue to assess possible actions over the next 2 - 5 years	On Hold
✓	21	Expand energy efficient street light program and work towards reducing the effects of light pollution.	EL&P		Completed/ Ongoing.
	22	Explore District Energy potentials in high-density neighbourhoods.	EL&P	Potential consideration in 2016.	On Hold
✓	23	Partner with renewable energy providers and community stakeholders to provide information about private renewable energy options.	EL&P	EL&P works with retailers to facilitate applications for solar installations. Red Deer's 2015 Year End: 23 residential solar installs producing 78.54kW; 6 commercial sites producing 104.52kW	Ongoing
		WASTE (4 Top Priority actions)			
✓	24	Update the Waste Management Master Plan	Environmental Services	Waste Management Master Plan (WWMP) approved by Council.	Completed.
✓	25	Review tipping fee structure to identify opportunities to encourage (incent) diversion	Environmental Services	Implemented differential fees in 2014.	Completed.
✓	26	Create an education campaign, toolkits and pilot projects around household and community composting	Environmental Services	Program launched in 2012 and has run successfully each year following, including 2015. More than 830 households trained and supported to learn to backyard compost.	Completed/Ongoing.
✓	27	Partner with developers and builders to advance recycling and diversion of construction waste on development sites	Environmental Services	Broad stakeholder consultation occurred as part of developing the WWMP, as well the plan considered construction waste diversion programs.	In Progress.



Short Term Actions

As significant, particularly this fifth year of annual reporting, are the findings dealing with the 27 short term actions. These actions had a timeline goal of completion for 2015. Progress results are summarized in **Table C** below. At this time, all are in progress, with 17 considered completed (and in some cases ongoing).

Table C: At a Glance – Short Term Priority Action Progress January- December 31, 2014

		Action	Responsible Department	Description of Progress	Status
		Water (5 Short Term (by 2015) actions)			
✓	1	Promote Naturescaping Contest	Environmental Services	The principles of naturescaping have been incorporated into the Healthy Yards program. Program information continues to be available on City's website. Naturescaping and rain water gardens are being explored in water conservation planning and implementation.	Completed.
✓	2	Create a rain water capture program to promote the use of rain water for irrigation, building on the success of the existing rain barrel sales program.	Environmental Services	Rain barrel promotion established in 2015 - coupon program was successful in partnering with the private sector to support the community to install rain barrels. Additional education provided via city web page.	Completed/In Progress.
✓	3	Explore using waste water effluent for irrigation at Riverbend Golf Course.	Environmental Services	This initiative has been researched. Based on complexity and cost of establishing the infrastructure, golf course and recreational user needs, current diversion licensing which allows the Golf Course draws water directly from the River, and construction requirements for an effluent reuse project; the use of wastewater effluent for golf course irrigation is not seen as feasible and therefore not recommended. Should there be a change to the water diversion license for River Bend Golf Course in the future, reconsideration could be made to supply treated wastewater for irrigation. However, at this time, the exploration project is deemed completed.	Completed.
✓	4	Establish a water quality monitoring program at key points along the Red Deer River and creek tributaries to determine the city's impact, analyse the river's capacity to handle pollutants, and develop methods to mitigate impacts	Environmental Services	Report for the River & Tributary Study complete and is available. River sampling completed again in 2015. After 2016, the project will provide 5 year overview of data with recommendations for further sampling.	In Progress.



		Action	Responsible Department	Description of Progress	Status
✓	5	Review the salt management plan for road maintenance with a focus on minimizing salt used	Public Works	The City of Red Deer has a formal salt management plan that provides operational guidance to effectively use salt (Sodium Chloride) to achieve traction control and anti-icing objectives. Salt, similar to other ice melting chemicals, is effective only at specific operating temperatures and corresponding concentrations. The City of Red Deer minimizes the amount of salt used in winter operations by effectively varying the salt to sand concentrations based on the most effective concentration for the daily temperature. By applying salt at varying concentrations appropriate for the daily roadway surface temperature, the effectiveness of the traction control program is increased while minimizing the net use of salt.	In Progress.
		Ecology (2 Short Term (by 2015) actions)			
✓	6	Re-evaluate storm water management policy relating to use of facilities as part of the municipal reserve requirement as outlined in the Neighbourhood Planning Guidelines	Planning Department	The Neighbourhood Planning & Design Standards (NPDS) clarify criteria for reserve dedication. SWM facilities are not listed as a suitable feature to include in MR dedication, therefore, no longer using dry ponds for recreation facilities, and maximum of 1 hectare of upland of storm pond for use of Municipal Reserve.	Completed (2014)
✓	7	Continue to enforce tree planting and native species requirements for new developments through the Land Use Bylaw	RPC	Ongoing: Acceptable species list is provided in the Engineering Design Guidelines and Contract Specifications. Enforced through a variety of mechanisms related to new development.	Completed/Ongoing.
		Transportation (1 Short Term (by 2015) action)			
✓	8	Evaluate trails and pathways mapping and technology resources to better connect people to the parks, pathways and trails system.	Engineering	Engineering's GIS group is able to support.	In Progress.
		Built Environment (3 Short Term (by 2015) actions)			
✓	9	Update the Neighbourhood and Industrial Planning Guidelines and Standards to emphasize compact, pedestrian oriented development patterns, including increasing the minimum density for new development.	Planning Department	NPDS implement this action, and MDP update to 17 du/ha. As noted, previously, the Industrial Guidelines have not been amended, although the adoption of eco-industrial design guidelines and eco-industrial overlay district provide a strong basis for future work on industrial guidelines.	In Progress
✓	10	Encourage redevelopment of Brownfield sites in accordance with Greater Downtown Action Plan.	Planning Services Division	In progress. RFP for the Retention and Recruitment Action Plan (RRAP) to be awarded in 2015 brownfields will be part of this study.	In Progress



		Action	Responsible Department	Description of Progress	Status
✓	11	Increase accessibility to locally produced food by creating a year-round Market in accordance with recommendations made in the Greater Downtown Action Plan and Community Culture Vision Plan.	RPC	Project moving forward in cooperation with Planning Services.	In Progress.
		Air (1 Short Term (by 2015) action)			
✓	12	Establish a community idle free program	Environmental Services	Program continued in 2015 reaching out to schools, businesses, agencies, and the general public. All program targets completed. Program remains in place.	Completed/In Progress.
		ENERGY (3 Short Term (by 2015) actions)			
✓	13	Develop environmental standards for City buildings and facilities that include guidelines for increased energy conservation of buildings (directed by policy 9.13 of the MDP).	Environmental Services	Water conservation standards completed and approved, other actions (other environmental standards) are for future start.	In Progress.
✓	14	Explore the potential of increasing the amount of energy captured from the City's wastewater facilities	Environmental Services	A Cogeneration unit was built in 2014 (to convert digester gas into electricity for use in the plant), it is expected to be running in early 2016. A bio-solids master plan and nutrient recovery plan is being planned for 2016. Lighting upgrades have occurred; installing LED lighting as a replacement to older, energy intensive lighting systems.	Completed.
✓	15	Explore rate structure to promote conservation.	EL&P	New utility policy completed and approved by Council, 4002-CP, in 2013. No significant changes in 2015. Future changes to be considered potentially in 2017.	Completed.
		WASTE (1 Short Term (by 2015) action)			
✓	16	Lobby the provincial government to develop and implement waste diversion programs	Environmental Services/ Advocacy Committee	AUMA resolution was submitted in 2013.	Completed.
		CORPORATE STRATEGIES (11 Short Term (by 2015) actions)			
✓	17	Identify an internal Champion. (First Steps: Work with an interdepartmental management-level group to confirm/determine the internal champion of the EMP.)	CLT	Elaine Vincent, Director of Development Services served in this role.	Completed.



Environmental Master Plan 2015 Annual Report: Reporting on Benchmarks, Metrics, and Priority Actions



		Action	Responsible Department	Description of Progress	Status
✓	18	Establish an inter-departmental commitment to collaboration	Environmental Master Plan Champion	Departments are striving to collaboration through various initiatives including those at the Green Team.	Completed/Ongoing
✓	19	Implement the Core Direction of Encourage, Educate, Engage, Enable, and Expect	Environmental Services	This was incorporated in 2012 as part of the annual reporting/public report card.	Completed/Ongoing
✓	20	Find Ways to Report Progress and Updates	Environmental Services	This was incorporated in 2012 as part of the annual reporting/public report card.	Completed/Ongoing
✓	21	Advance Partnerships	Environmental Services/EAC; City Advocacy Team	Environmental Services continues its presence in the community to educate and encourage EMP implementation. Members of Council and Administration continue to work with various community groups in the area of environmental stewardship and leadership.	Completed/Ongoing
✓	22	Continue to engage the Environmental Advisory Committee	Environmental Services	EAC is engaged through regular reporting to committee by Environmental Services. In 2017 the Committee will be reorganized to contribute to an Environmental Master Plan update.	Completed/Ongoing
✓	23	Improve existing development guidelines to reinforce environmental targets.	Planning Department	As per report in 2013, NPDG : approved by Council October 2013. Engineering Guidelines : the NPDG will initiate changes to the Engineering guidelines in 2014/2015.	In Progress.
✓	24	Align corporate procedures with environmental goals	Legislative and Governance Services	A review of existing policies is currently underway to ensure alignment with the Governance Framework. Corporate sustainability policies adopted addressing water conservation, efficient lighting, and sustainable operations.	In Progress
✓	25	Embrace the Performance Benchmarking System.	All Departments, CLT	Complete and ongoing commitment to continue.	Ongoing
✓	26	Identify the responsibility for data maintenance and monitoring	All Departments	The Annual Report protocol has begun to solidify these approaches. Ongoing improvements.	Completed/In Progress.
✓	27	Commit to regular reporting back to the community, partners, and stakeholders.	Environmental Master Plan Champion	Completed each year since the Plan's adoption with an annual community report in 2011, 2012, 2013, 2014 and now the Five Year Report for 2015. Ongoing commitment to continue.	Completed/Ongoing



Results Summary

The 2015 annual report, which is the fifth reporting year and represents a 5 year short term goal check-in point, details the progress made to move closer to Red Deer's environmental sustainability goals. The report indicates measured achievement across all seven focus areas. The Environmental Master Plan will undergo a review and internal refresh in 2017 based on the five year milestones and in close consideration of these results. Although there will be a review undertaken in 2017 to consider necessary recalibrations, at this time there are three recommendations for the consideration of Council in advance of the Environmental Master Plan Review.

Recommendations

1. That Council update the water conservation metric targets to align with the newly adopted Water Conservation, Efficiency and Productivity Plan (CEP) and in recognition that existing medium range target levels have already been met. The recommended adjustment is to increase the potable water conservation target to a 22% decline by 2020 (from the existing 15% target) and to a 30% decline by 2035 (from the existing 25% target).
2. That Council add a metric and target in the Water Focus area of the EMP related to reducing water losses to align with the newly adopted Water Conservation Efficiency and Productivity Plan (CEP). The recommended metric for consideration is: "Maximum total annual water losses recorded" with a target of 10% maximum of total water use attributed to losses by 2020; and 7% maximum of total water use attributed to losses by 2035.
3. That Council endorse the 2015 Environmental Master Plan Annual Report as presented.

Funding and Supporting Actions and Big Undertakings

During the first five years of the plan implementation, special funds have been approved from time to time by City of Red Deer Council for specific actions to be undertaken as identified in the Environmental Master Plan. These funds are established from The City's four utilities and a share from the tax base. The earmarked funds allowed start up and initiation of plan



implementation. The funding has provided the means for several significant actions from the plan to move forward. Some of the initiatives which got under way as a result of these special funds are:

- Corporate greenhouse gas inventory analysis and the development of a corporate greenhouse gas emissions reduction plan
- Strategies research and planning to “green” the municipal fleet
- establishment/reaffirming of a community idle-free program (to reduce/eliminate vehicle idling)
- promotion of home energy audits and tool kits to help citizens make their homes more energy efficient (partnership with Red Deer Public Library)
- climate change adaptation and mitigation planning (partnership with ICLEI)
- developing environmental standards for City owned buildings - water conservation standards component
- community residential composting education program to divert waste
- Partnerships with surrounding municipalities and local employers to establish regional community resources such as carpooling, and new transit options (partnership with Green Trip)

With these funds, and with the support of other partners and resources, implementation of the plan is well established within the Corporation of The City of Red Deer and within the broader community. The Environmental Master Plan has successfully set a foundation for advancing environmental leadership within our city.

Upcoming Environmental Master Plan Review

Based on a strong commitment to environmental sustainability in the Red Deer community, and in recognition that environmental management issues evolve quickly, City Council directed that a review of the EMP occur in 2017. This timeline coincides with the end-date for the short term actions set in the EMP (5 year mark is the end of 2015). This review is an opportunity to build on past and current successes. The review will look at the plan’s metrics, associated targets and the actions being used to reach targets. The intent is to ensure Red Deer remains on the best path for our community. Further, the review would sustain momentum already made on environmental action by The City, partners, and residents; yet allow for the chance to address possible new actions that were not envisioned 5 or 6 years ago and to reshape actions where there has not been sufficient progress to take the next steps. A review after the 5-year data collection point also responds to commitment outlined in the Plan regarding regular reviewing and re-engages partners to a larger extent than is possible with the typical/regular annual reporting.

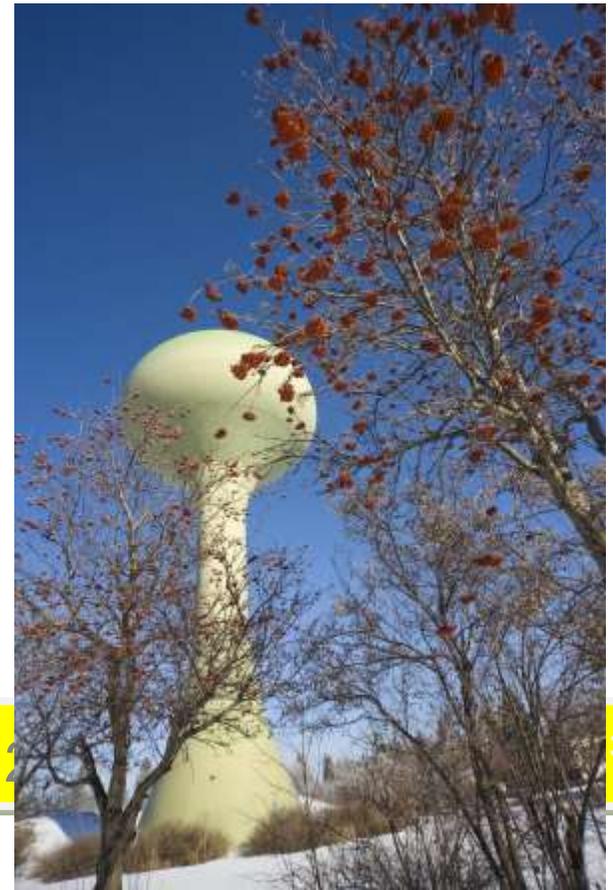


A newly established citizen advisory group is being designed related to environment. This group may potentially support the Environmental Master Plan review in 2017. A public participation strategy with a terms of reference for this group is expected to come forward to Council in the Fall of 2016. In addition to a possible role for the new citizen advisory group, the 2017 EMP review will engage City Departments and partners to consider aspects such as:

- Review city plans and strategies adopted after 2011 for linkage to EMP actions
- Capturing changes that Council has already directed or adopted each year during annual reporting (for instance the change of the VKT (vehicle kilometers travelled) metric to fuel sales metric when the kilometers data proven unavailable, or the refinement of the density metric under Built Environment)
- Keep the plan up to date & current with changes in the science or technology (e.g. LED changed a lot in the last 5 years, AMI status varied)
- Conduct an Internal Review of the Actions and progress with input of all Departments as the major partners/implementers and also input from the most key/chief external partners such as PAMZ, WEES, RDRPL
- Audit existing actions and adding new actions with the intent to investigate and assess how the actions are contributing to plan implementation and to achieving plan objectives
- Renew the City's Commitment to environmental leadership– since the short term timelines have been met and then reminding all stakeholders that the next targets are the medium term (10 year to 2020)

Closing Thought

In the five years since the plan was first approved there have been many strides forward in addressing key issues, tracking progress, and improving Red Deer's



environmental sustainability. It has been said that what gets measured, gets done. Five years of EMP Annual Reports would be evidence to that statement. The City of Red Deer is proud of the past five years of ongoing commitment to the objectives of the plan and the success in tackling important actions and maintaining momentum to move forward. Progress has occurred both on the part of The City of Red Deer but especially on the part of citizens, key stakeholders and partners. Environmental Master Plan progress has benefited from commitment by so many excellent agencies, organizations, and individuals in the community during 2015 to advance the Plan's goals. Special acknowledgement to all Environmental Master Plan partners and community stakeholders over the last five years – thank you for joining together with The City to make these strides forward. Also thank you Red Deerians for taking action and supporting positive change to improve our environmental sustainability. Let's look forward to the next five years and ongoing achievements and sustainability advancements!



APPENDIX ONE – Year End Status Reports

Year End Status Reports of Plans Adopted under the direction of the Environmental Master Plan

- Greening the Fleet Study – 2015 Annual Reporting
- Waste Management Master Plan – 2015 Annual Reporting
- Corporate Green House Gas Emissions Analysis and Reporting



May 30, 2016

Greening the Fleet

Public Works

Status

INTRODUCTION

The Environmental Master Plan identified opportunities to reduce Green House Gas (GHG) emissions in our community by Greening the Fleet. Greening the Fleet simply means to; reduce the environmental impact of our fleet, be fiscally responsible and be mindful of social benefits. The current status of the primary initiatives taken to Green the Fleet is as follows.

I) ALTERNATIVE FUEL VEHICLE IMPLEMENTATION (CNG)

Background: In 2014, Council approved the Compressed Natural Gas (CNG) Transit Bus Proposal. It was determined that the use of CNG fuel in full size Transit buses will significantly reduce GHG emissions since Transit consumes two-thirds of all fuel used by the City subfleets. Implementing a CNG fueling infrastructure will make it viable to expand CNG into other subfleets, increasing synergies and further reducing GHG emissions.

Potential Benefits: Migrating to a CNG Infrastructure for Transit Buses, Paratransit Buses, Pickup Trucks (1 ton, ¾ ton, ½ ton), HD Dump and Utility Bed Trucks has the potential to reduce petroleum consumption and environmental impact by decreasing fuel consumption and increasing fuel savings.

Current Status: The CNG project is well underway with the purchase and delivery of 11 CNG busses expected to arrive in Q4 2016. Construction of the CNG fueling station and associated building modifications will commence in June and are scheduled to be operational by November 2016.



Next Possible Actions:

- Provisions have been incorporated into the CNG fueling station design to allow for the staged implementation of a retail fueling element for non-City owned CNG units. Additional information can be obtained from the Public Works Department in terms of the additional resources required to accelerate this aspect/implement a retail element operational.

II) IDLE FREE INITIATIVE

Background: In 2008, The City of Red Deer launched a fleet wide idle free initiative. To support this initiative, The City deployed signs, placed decals on vehicle doors, created an information card, and acknowledged employees with exemplary idling behaviors.

Potential Benefits: For a relatively low implementation cost this initiative has potential to increase fuel efficiency thereby reducing the emissions footprint and increasing significant operational cost savings fleet wide.

Current Status:

In 2015, the Idle Free program was re-launched as the “Idling Gets You Nowhere” Program. Fuel saving information has been interactively shared with staff at the Civic Yards through the deployment of several ‘green’ cork boards that showcased monthly idle free and fuel saving practices. Coffee cards were rewarded to successful draw applicants that answered fuel saving questions correctly.

Idle Free practices or more specifically a cultural shift away from excessive idling, will require the continual support of operational supervisors and management. Fleet Services will continue to support the Idle Free program and acknowledge individuals who lead this change.

Although anti-idling devices and equipment have not been retrofitted into existing fleet units, some market ready elements have been included in our more recent replacement units and are in service today. A good example of this technology is the inclusion of a maximum idle governor that turns off the vehicle when cabin temperature set points and battery capacities have been reached.

Next Possible Actions:

- Keep the momentum of the – “Idling Gets You Nowhere” Program going by implementing metrics to track progress and establishing / defining achievable goals
- Encourage good behavior and enforce policy



- Install more anti-idling devices and equipment to vehicles
- Expand GPS system to more units to collect fuel use and driver behavior

III) SMART DRIVER INITIATIVE

Background: Implementing a Smart Driver Training program was identified as an achievable project that could significantly reduce operational costs and GHG emissions fleet wide.

Potential Benefits: Implementing Smart Driver Training fleet wide has the potential to improve fuel efficiency thereby decreasing fuel consumption and high maintenance costs.

Current Status: The Smart Driver training is currently delivered to all new drivers and drivers needing to refresh their driving training certification, fleet wide. Some elements of the Smart Driver training include: driving within the speed limit, coasting around corners, not over-using the brakes, not being on and off the accelerator, non-aggressive driving, and low rpms for fuel efficiency. Though training is being provided, it is difficult to determine if the Smart Driver training is being practiced by individual drivers.

Next Possible Actions:

- Install driver information systems to show real-time efficiency of the vehicle and effects of driving behavior
- Develop driver incentives
- Civic Spirit Smart Driver Tips

IV) VEHICLE RIGHT- TYPING

Background: Initially started in 2009 to reduce overall capital expenditures and operating costs, The City is currently attempting to Right-type equipment with the input of subfleet representatives to ensure optimized vehicles are being purchased and utilized.



Potential Benefits: Right-typing has potential for a sizable operational cost and emission footprint reduction by purchasing smaller fuel efficient replacement vehicles fleet wide.

Current Status: Public Works Fleet Service continues to guide subfleets into selecting vehicle types that are best suited for their daily operations. However, in the absence of a finalized corporate Fleet Policy, right typing will not reach its full potential. Conversations with subfleet representatives are ongoing but operators are not always receptive to this process.

Next Possible Actions:

- Develop a Vehicle Right-Typing section within the Fleet Policy
- Invite Subfleet Representatives to help create the policy which may encourage receptivity and compliance with the policy

V) VEHICLE RIGHT-SIZING THE FLEET

Background: It was identified that Right Sizing the fleet has potential to increase the unit utilization by partnering and pooling resources with the subfleets.

Potential Benefits: Right-Sizing the Fleet has potential for generating savings by reducing operational costs (vehicle leases, new acquisitions, preventative maintenance) in accordance with the size of the fleet.

Current Status: The City Public Works Fleet Services is developing a strategy to create a pilot program where specific construction equipment will be pool resourced and made available for City operations. Through this successful roll out, we can garner support to expand this pooling concept. Like the Idle Free initiative, support and leadership from frontline supervisors, superintendents and managers will be needed to create a cultural change in the way we maximize the use of our resources.

Next Possible Actions:

- Develop a Vehicle Right-Size section within the Fleet Policy
- Invite input and policy creation from Subfleet Representatives



CONCLUSION

Several Greening the Fleet initiatives are underway and in various stages to meet the directive of reducing our GHG emissions on our community as identified by the EMP. Some initiatives are progressing slower than others but the next possible actions have been identified to assist us with the momentum of these projects.



June 15, 2016

Waste Management Master Plan (WMMP)

Environmental Services

Report on WMMP Activities in 2015:

Stemming from the Environmental Master Plan, the Waste Management Master Plan was approved by Council on May 13, 2013, making 2015 the second full year of plan implementation. This report provides an update of progress made in 2015 under the various action categories contained in the WMMP.

2015 Metrics

Covered in the main body of the Environmental Master Plan annual report.

2015 Activities

Education / Promotion Approaches

- Community Engagement
 - Annual “Spooktacular” event was held for the public to celebrate Waste Reduction Week in October. The 2015 event included landfill, interpretative centre, and diversion pad tours, as well as a “reuse fair” collecting items that may otherwise have entered the waste stream to be reused by Culture Services or the Red Deer Museum and Art Gallery in program crafts (e.g. egg cartons).
- Government Leadership
 - Staff are piloting a corporate waste diversion strategy in Public Works beginning July 2015.
 - A team of staff from Financial Services, Environmental Initiatives, and Waste Management Section began developing updates for the Procurement Policy to encourage waste reduction, diversion and other sustainability goals. A draft policy was produced and submitted to the Directors.

Residential Waste Reduction / Diversion



- Continued Composting at Home program empowering Red Deer residents to backyard compost. The program was recognized by the Recycling Council of Alberta, winning an “R’s of Excellence” award in the social marketing category.
- Expanded the residential recycling program to include plastics numbered 1-7, excluding film plastic and Styrofoam.
- Began planning for reducing the weekly residential waste collection limit from 5 units to 3 units, for 2016 implementation.
- Designing enhanced multi-family recycling, for 2016 implementation.

Industrial, Commercial and Institutional (ICI) Waste Reduction

- Developed corporate waste diversion program with the intent to use it as a pilot/model to help assist the ICI sector.
- Expanded wood waste diversion at the Waste Management Facility to include white dimensional lumber, in addition to pallets, which were already being diverted.
- Began assessing aggregate recycling, to determine if the diversion already occurring in the private sector is meeting customer needs, or if there is a need to also offer this service at the Waste Management Facility.
- Drafting an “ICI Toolkit” to provide businesses with the tools/information to divert their waste successfully.
- Designing ICI food waste diversion pilot, for 2016 implementation.

Green Cart Pilot Program

- Launched on April 27, 2015 with approximately 2,000 households receiving weekly collection of organics, including yard waste, food waste and pet waste.
- The pilot project was designed to make progress towards the goals in the Waste Management Master Plan of reducing Red Deer’s disposal rate to 500 kg per capita per year, by composting the organic materials collected. It was also designed to trial various aspects of residential organics diversion, automated cart collection and educational methods to learn what would work best for a City wide program.
- Community based social marketing principals were incorporated in the education and outreach materials developed for the program.
- Extensive data collection occurred in 2015 and will continue for the length of the pilot. Data collected includes how many Green Carts were set out for collection, participants’ opinions about the program, how much Green Cart material was collected and the composition of materials in households’ Green Carts and waste.



What's next in 2016:

- Continued monitoring and assessment of Green Cart Pilot.
- Blue and Black Cart pilots, implementation in spring 2016.
- Reduce residential waste collection limit to 3 units per week.
- Begin food waste diversion pilot with the ICI sector
- Implement enhancements to multi-family recycling program



August 11, 2016

Corporate Green House Gas Inventory and Plan – Update 2015

Environmental Services

Background

- Developed in 2012, this plan investigates the Corporate Green House Gas (GHG) emissions of The City of Red Deer using 2010 as the baseline data year
- The Inventory and Plan stems from the Environmental Master Plan’s Air focus area: the inventory data is captured as one of the Air metrics and the reduction plan is a top priority action within the EMP
- In addition to inventorying the corporate GHG emissions within The City, the document contains recommendations for emissions reduction and sets the targets for medium and long term GHG reductions.
- The Inventory and Plan document was adopted by Council as a planning tool on April 2, 2013
- Recommends 30% reduction from 2010 levels by 2020 and 50% by 2035
- As 2015 is the fifth year of inventory data collection, a comprehensive review of The City of Red Deer GHG data was undertaken this year by external third party auditors.

2015 Summary

2010	2011	2012	2013	2014	2015
138,980 tCO ₂ e	133,320 tCO ₂ e	138,036 tCO ₂ e	136,401 tCO ₂ e	142,941 tCO ₂ e	132,820 tCO ₂ e
	-4.07%	+3.54%	-1.18%	+4.8%	-7.1% from 2014 -4.4% from 2010

Data suggests these fluctuations are not weather related: in three of the five years after the baseline emissions were inversely related to cold and snow.

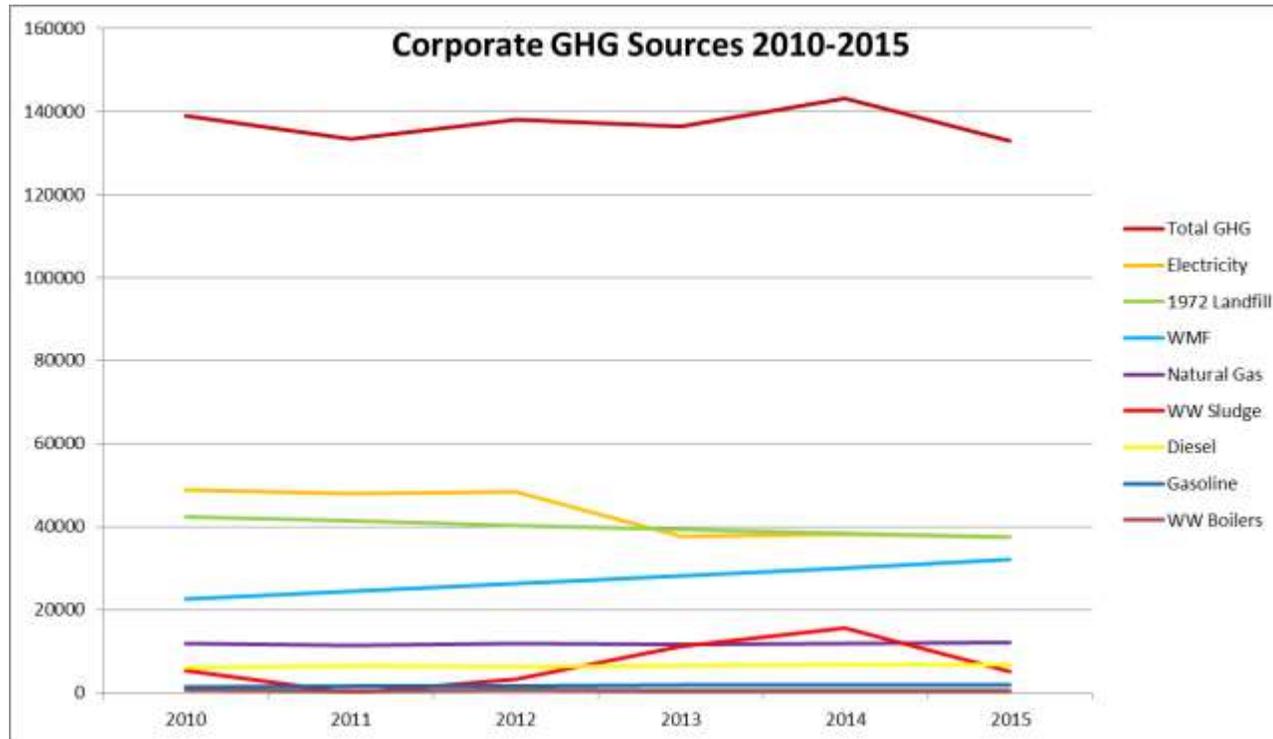
	2010	2011	2012	2013	2014	2015
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GHG	138,980 tCO ₂ e	133,320 tCO ₂ e	138,036 tCO ₂ e	136,401 tCO ₂ e	142,941 tCO ₂ e	132,820 tCO ₂ e
% change GHG	-	-4.07% LESS GHG	+3.54% MORE GHG	-1.18% LESS GHG	+4.8% MORE GHG	-7.1% LESS GHG
Average winter temp	-2.9 C	-5.7 C	-4.6 C	-5.9 C	-7.1 C	-4.4 C
% change in temp	-	-97% COLDER	+19% WARMER	-28% COLDER	-20% COLDER	+38% WARMER
Total winter snowfall	23 cm	97 cm	72.5 cm	174.5 cm	112.2 cm	96.3 cm
% change in snowfall	-	+322% SNOWIER	-25% LESS SNOW	+141% SNOWIER	-36% LESS SNOW	-14% LESS SNOW

The emissions trend seems to be most closely linked to emissions from wastewater sludge.

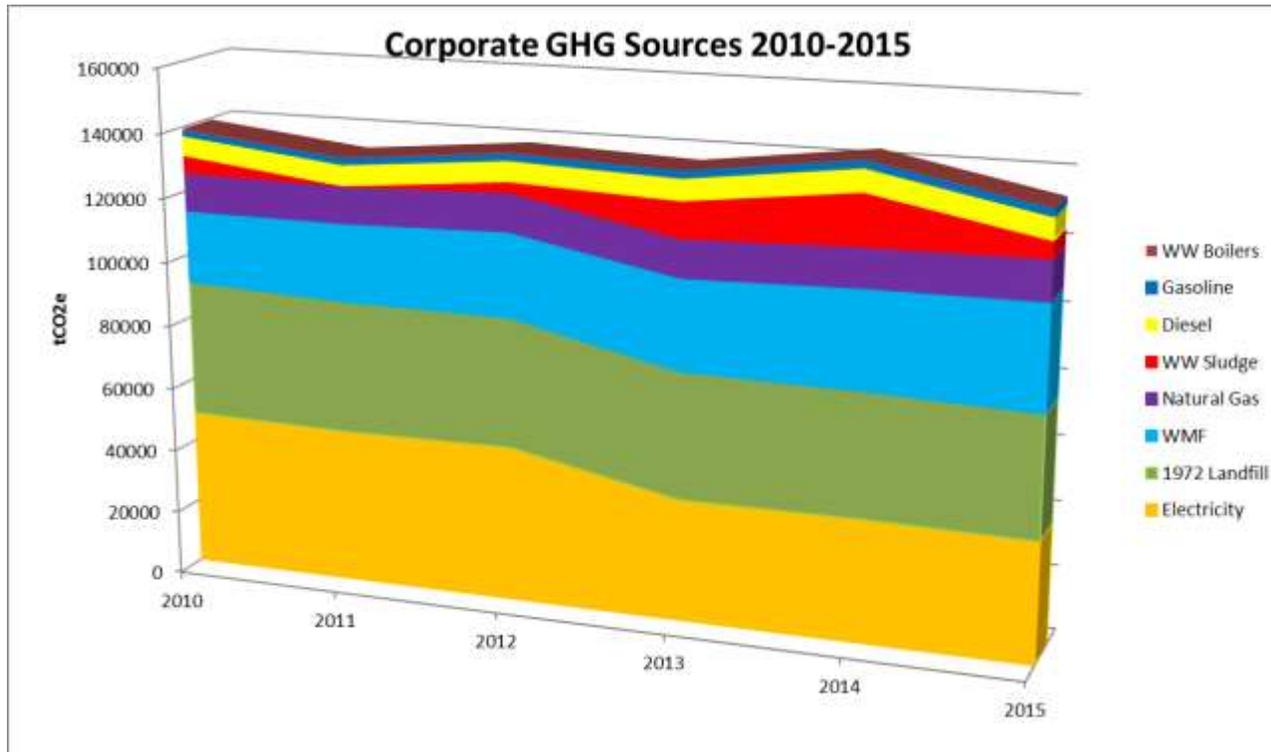




Otherwise, emissions are fairly flat: increasing emissions from the new Waste Management Facility are currently offset by decreasing emissions from the 1972 Landfill (this will change as more waste is added to the Waste Management Facility and emissions from the 1972 Landfill continue to decline); natural gas, diesel, gasoline and wastewater boilers emissions are stable.

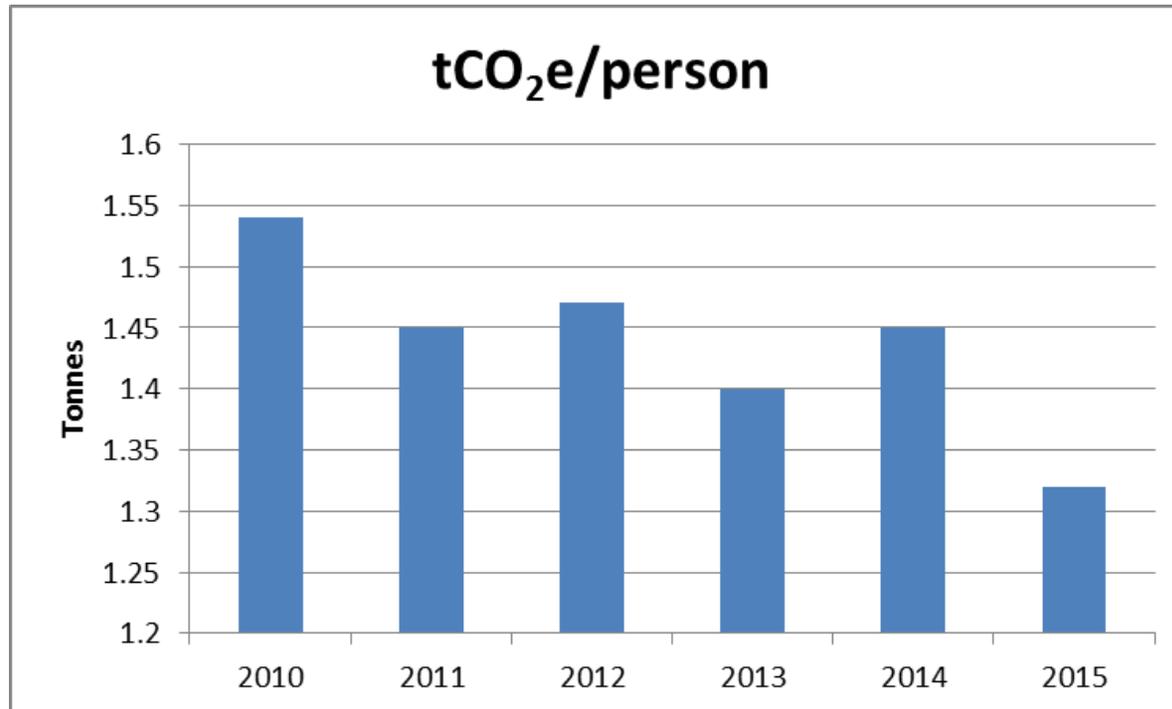
The exception is electricity, which has decreased and held steady since 2012.





This flat emissions projection can be seen as somewhat positive since Red Deer’s population continues to grow.





We should be cautious in our optimism however because the reduction targets are based on absolute emissions. This is important because (as per the 2010 Corporate Greenhouse Gas Inventory):

“The intent of absolute targets is to set a cap for the annual quantity of GHG emissions being released into the atmosphere. Scientists have estimated the absolute maximum concentration of CO₂ in the atmosphere and corresponding annual emissions. This is a ‘fixed’ number. To avoid ‘catastrophic climate related events’, it is commonly accepted that we need to reduce emissions to 1990 levels for all future years... Absolute targets are the only way to control actual emissions and address climate change on a global level.”

Actions taken in 2015



- Collicutt Centre reduced GHGs by 440 tonnes, mostly in relation to their new co-generation unit
- Methane capture at Waste Management Facility was delayed awaiting approvals from Alberta Environment
- Residential curbside organics collection piloted starting in April 2015
- Co-generation commissioning in progress at Wastewater Treatment Plant
- Green Purchasing Policy drafted but next steps are not clear
- Water Conservation Policy 4704-CA adopted to guide City staff with the selection and implementation of water conservation and efficiency measures at City facilities
- City streetlights being replaced with LEDs as they burn out

What's Next

- Continue to work on high priority actions for Behaviour Change, Operations & Maintenance and Capital Investment strategies
- Audit Corporate GHG Inventories from 2011 to 2014 to ensure they are accurate



Corporate GHG Actions: Status 2015

GHG Reduction Strategy		Affected Departments	Responsible Department	Priority	Status
Behavioural Change Strategies & Savings					
1	<p>Develop awareness and education programs to institutionalize good energy savings habits e.g. Turn off all equipment and lighting when buildings are unoccupied; do not change thermal comfort settings</p>	All	Environmental Services Partner with Green Team	High (2015)	<p>Future start</p> <ul style="list-style-type: none"> - The Green Team created, and the City Manager approved, the Environmental Sustainability Policy (4705-CA) that addresses issues like lighting, event management, paper use and transportation management in the organization - Green Tribute Award created to recognize staff who are spearheading green actions that make our corporation more sustainable - Building maintenance actions are identified in the main body of the EMP actions reporting.
2	<p>Nominate GHG reduction champions in each department Identify team members across The City's departments and services who will champion the implementation of the GHG reduction program</p>	All	Environmental Services Partner with Green Team	High (2015)	<p>Future start</p> <ul style="list-style-type: none"> -The Green Team has a renewed mandate/terms of reference identifying representatives from across the organization. -The Team is prepared to champion environmental sustainability initiatives and each year establishes a work plan identifying team priorities. The Team can be approached regarding this set of actions for 2017.
Operations and Maintenance Strategies & Savings					



GHG Reduction Strategy		Affected Departments	Responsible Department	Priority	Status
3	<p>Promote better driving practices to reduce corporate vehicle use and fuel consumption e.g. fuel-efficiency driver training program; carpooling and alternative modes of transportation</p>	All Fleet users	Transit Public Works Engineering	High (2015)	In progress - see Greening the Fleet update for details
4	<p>Develop green operating procedures for all facilities and municipal operations e.g. Regularly maintain equipment; use the “dead band” temperature method: no heating/cooling between 19-24C; only replace equipment with highest energy efficiency model</p>	All departments with facilities	Facilities Management	High (2015)	In progress - Corporate Water Conservation policy adopted (4704-CA) adopted to guide City staff with the selection and implementation of water conservation and efficiency measures at City facilities - Corporate Environmental Sustainability Policy (4705-CA) adopted that addresses issues like lighting, event management, paper use and transportation management
5	<p>Establish a green procurement policy that prioritizes GHG reductions i.e. define green criteria that will be used to evaluate purchases of products and services including energy efficiency and renewable technology requirements for equipment and other purchases and green facility requirements for all retrofits and new facilities</p>	All purchasers of goods	Environmental Services Financial Services	High (2015)	In progress - Draft Green Purchasing Policy developed - Environmental Initiatives piloting green purchasing with office supplies and RFPs



GHG Reduction Strategy		Affected Departments	Responsible Department	Priority	Status
6	<p>Conduct facility energy audits to identify measures or system upgrades that will reduce the energy use and/or cost of operating your buildings e.g. Establish a list of priority facilities with high energy consumption and high GHG emissions intensity</p>	All departments with facilities	?	High (2015)	In progress - Conducted at Collicutt and Waste Water Treatment Plant as part of program from Municipal Climate Change Action Centre
7	<p>Consider retro-commissioning of buildings and equipment to optimize existing equipment performance and your operations and maintenance procedures</p>	All departments with facilities	?	High (2015)	Collicutt Centre incorporated co-generation unit to reduce conventional electricity use. Improvements to lighting, weather stripping and hot water tanks we also made at various recreational facilities.
8	<p>Continue to implement building lighting upgrades e.g. Upgrade bulbs and install occupancy and light sensors</p>	All departments with facilities	Facilities Management	High (2015)	In progress - Undertaken at City Hall, some arenas and recreation centres, fire halls
9	<p>Maintain fleet vehicles to improve performance: e.g. Start an enhanced vehicle maintenance program to ensure all existing vehicles are operating at maximum fuel efficiency and use low-emitting fuels in vehicles as allowed by manufacturer (e.g. biofuels)</p>	All Fleet users	Fleet Transit	High (2015)	Future start



GHG Reduction Strategy		Affected Departments	Responsible Department	Priority	Status
Capital Investment Strategies & Savings					
10	Expand energy efficient street light program	EL&P	EL&P	High (2015)	In progress - LED lighting required in new neighbourhoods - Replace burned out lights with LED - City-wide replacement program scheduled to start in 2016
11	Green the municipal fleet e.g. Upgrade to fuel-efficient vehicles: consider electric or hybrid models, vehicles that achieve NRCan's "ecoEnergy for Vehicles" awards, or micro-compact vehicles	All Fleet users	Public Works (Fleet)	High (2015)	In progress - see Greening the Fleet update for details
12	Generate renewable energy on-site e.g. On-site installation of solar hot water, PV solar panels, wind turbines, geothermal	All departments with facilities	?	Low (2035)	In progress - Solar energy collected at Civic Yards at Buildings 300 and 900 - Investigate expansion as part of Alberta Municipal Solar Program in 2016
13	Use flared WWTP methane to replace natural gas consumption	Environmental Services	Environmental Services: Wastewater	Medium (2020)	In progress - C o-generation commissioning in progress - To be online in 2016



GHG Reduction Strategy		Affected Departments	Responsible Department	Priority	Status
14	Investigate landfill methane capture opportunities	Environmental Services	Environmental Services: Waste	Medium (2020)	In progress - Feasibility study complete and recommends capturing methane at WMF; amount and composition of landfill gas will be examined and recommendations made regarding how to handle the gas going forward
15	Commit to ongoing waste management best practices e.g. curbside organics collection and composting, methane capture & co-generation, new WWTP and water treatment technologies to minimize methane release, improve energy/water efficiency	Environmental Services	Environmental Services: Waste, Water, Wastewater	Low (2035)	In progress - Curbside organics collection pilot program started in April 2015 and scheduled to be implemented city-wide in 2017/18 - New high lift pump, boilers and HVAC systems at Water Treatment Plant replaced with more energy efficient models
Innovations in Low Carbon Technologies					
16	Low Carbon Technologies i.e. those that produce fewer GHGs than existing technologies that perform that same function (for example, solar power and hybrid-electric vehicles).	Unknown	Unknown (this will be revisited on the next iteration of the Corporate GHG Inventory report)	Low (2035)	Future start
Accountability					



GHG Reduction Strategy		Affected Departments	Responsible Department	Priority	Status
17	Reporting i.e. report annually as an appendix to the Environmental Master Plan Annual Report to maintain tracking and accountability.	All	Environmental Services	High (2015)	In progress - Started as part of 2014 EMP annual report

