



Environmental Master Plan 2016 Annual Report: Reporting on Benchmarks, Metrics, and Priority Actions

(January to December 2016)



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Introduction

Many components make up a healthy environment. To maintain environmental health and to achieve sustainability, ongoing stewardship of all components is needed. For this reason, City of Red Deer Council adopted the Environmental Master Plan (EMP) in 2011 with the endorsement and encouragement of many community organizations and stakeholders. The EMP serves as the Environmental Pillar of Red Deer's Municipal Sustainability Framework and works with the other four pillars (social, cultural, economic, and governance) to support the quality of life of our community. Red Deer's progress towards improving environmental performance and the achievements in reaching goals set in the EMP is a strong priority for the community and the municipal organization.



Red Deer River and Historic Train Bridge

The EMP was created to guide progress towards improved environmental sustainability. To achieve this, the Plan presents clear goals and measurable environmental targets and recommendations for action by The City of Red Deer and the wider community. The plan's goals and objectives capture all dimensions 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 environmental goals. Over the last number of years, The City and partners have demonstrated an ongoing commitment to implementing the plan's goals. Collaboration and leadership from many partners has allowed important environmental improvements to take shape.



The City is committed to annually reporting progress towards the various plan targets. In order to be conscious of continual improvement 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 ones as the targets and objectives generally have not changed; but some aspects will differ given the fact that The City, through 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, The City of Red Deer 2010 Corporate Greenhouse Gas Inventory, and Downtown Red Deer's Investment Attraction Plan (DIAP). Soon to join this body of work is the Urban Forest Management Plan which got underway in 2016. In fact, the 2016 Environmental Master Plan Annual report includes detailed annual updates on these specific stand alone reports as they take on their own set of initiatives and implementation targets, but which specifically link back to the EMP. These annual updates, under the overall umbrella of the EMP, can be found in the appendices of this report.

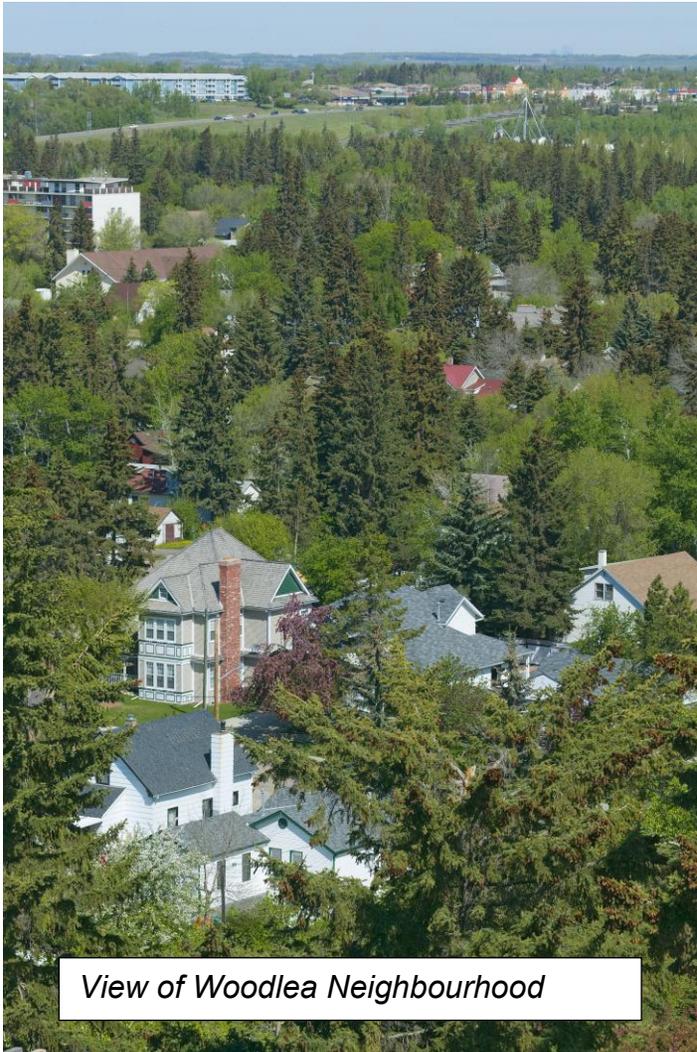
The Plan's Focus Areas

The EMP identifies 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 20 metrics, each with short term and longer term targets for the life of the plan. This current report presents information for the 2016 calendar year alongside the 2015 results, for comparative purposes from year to year.



Cronquist House, Bower Ponds





View of Woodlea Neighbourhood

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.

Why Produce an Annual Report?

The EMP was approved as a tool to support environmental action 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 and recognize the things that may need to be reconsidered or reset where progress is not moving ahead in the way expected. Each year, the annual report serves as a means to bring forward adjustments or changes to City Council for consideration.

The EMP is a 25 year plan with shorter term and longer term goals. In 2016, Council approved the undertaking of a five year review of the plan to determine how best to continue progress and move forward with our sustainability goals as a community committed to the EMP. This review is presently underway.

As has been done yearly since the Plan's adoption, The City will be sharing annual report results not just in the form of this detailed document but also as a report card to the community available on The City web page.



2016 Year Highlights

During 2016 several groups, partners, and individuals contributed to progress and efforts for environmental priorities within Red Deer.

Celebration and Education Events

The plan was recognized within the local community throughout the year in a few ways:

- Seven celebration days were held in 2016, with each celebration day supporting each of the EMP's focus areas. These events, open to all residents, were also aligned 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, held in March aimed at helping the public focus on conserving energy. Energy conservation links to the EMP's energy targets. Many residents, businesses, and City facilities participated by turning off all non-essential lights.
 - ***World Water Day***, another United Nations' recognized event, also held in March and highlighted the importance of water resources. Water conservation is a key EMP metric and The City partnered with Re-Think Red Deer by having a booth at the EcoLiving Fair promoting water conservation, specifically rain barrels, including how to install and maintain them.

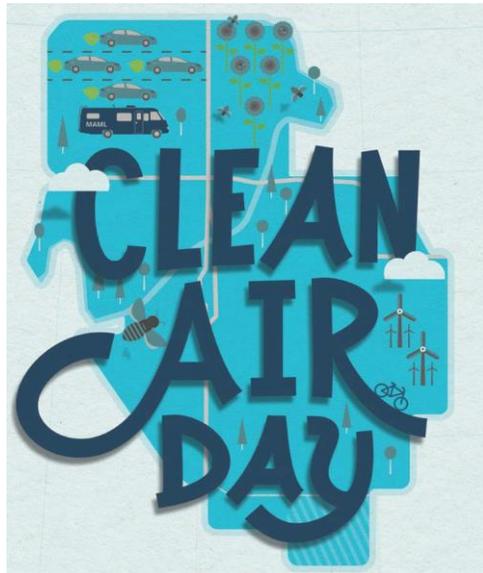


- **Earth Day** is a national celebration that takes place in April, and supports the Ecology goals of the EMP. The Kerry Wood Nature Centre hosted Earth Day in 2016, working with The City to invite residents to the Centre to learn about pollinators.

- **Jane's Walk**, part of an international series of free walking tours named after Urbanist Jane Jacobs running in over 100 cities world wide. Volunteers led Red Deer's walks during a warm first weekend of May to celebrate the built environment. The concept of the weekend is to invite residents to attend citizen-led guided walks, explore the city with a personal take on local culture and planning issues, connect with other residents, and consider the links between environment and urban developments. Nine walks were held in Red Deer, with 125 people attending.

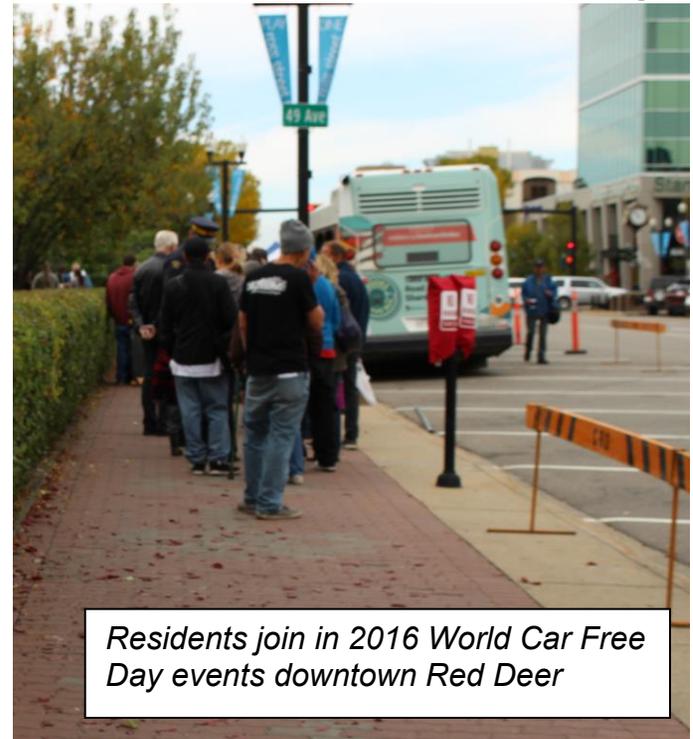


- **Clean Air Day** was celebrated in June in partnership with Parkland Airshed Management Zone (PAMZ). Clean Air Day is celebrated across Canada as part of Environmental Week to raise awareness of air quality issues and encourage activities that promote air quality and a healthy environment. As part of Clean Air Day a wonderful luncheon event was organized by PAMZ to hand out the Blue Skies Awards. The awards recognize individuals, businesses and organizations taking exemplary steps to improve air quality in central Alberta. Winners shared their learnings and successes with all attendees.



occupancy vehicles, such as using the city's transit service or cycling. Events included free transit all day and a display booth set up downtown with interactive games promoting car free travel.

- **World Car Free Day**, September 22, encouraged residents to explore alternative transportation options to single



Residents join in 2016 World Car Free Day events downtown Red Deer





Red Deer College student chefs serve a delicious lunch at the Feed 500 event

- **Feed 500 – Food Waste Reduction** - More than 800 kilograms of food was rescued and transformed into a feast at Feed 500 Red Deer on September 22, 2016. The event, organized in partnership by The City of Red Deer, Red Deer College and the Recycling Council of Alberta, brought attention to the issue of food waste by creating a delicious meal with edible food that would otherwise have been thrown away.

- **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.



Partnerships

Working together with others to implement the Environmental Master Plan over the last six years has led to many successful achievements. Partnerships have been formed locally, nationally, and internationally; each with the objective of working towards environmental improvements. Local partners include 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. National, International, and province wide partners such as Green Energy Doors, Green Communities Canada, Alberta Environment and Parks, Carpool.ca, Alberta Bike Swap, The Heart and Stroke Foundation, and ICLEI also supported and enhanced Environmental Master Plan successes. With each, The City has been fortunate to collaborate for shared successes and progress.



Results Reporting

To support and grow understanding of the condition of our environment, the EMP annual report records and tracks progress on metrics and targets for the plan's 20 metrics. This data is detailed in **Table A: 2016 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 2015 results – as reported in last year's annual report for comparative purposes
- The 2016 results – being released here as part of this year's annual report, and
- Our most immediate targets for that metric which is now the 2020 medium term targets (targets in the Plan were generally set for 2015, 2020, and 2035)

The table indicates whether the results for Red Deer as a City and as a Community are on track to meet the 2020 (10 year medium term) target, as the 2015 report focused on the short term (5 year) targets.

Of the 20 areas of measurement, results are:

- Metrics On Target:
 - Water consumption
 - Water Quality of Receiving Bodies
 - Annual Water Losses
 - Natural areas
 - Man-made green areas
 - Integrated pest management
 - Dwelling unit proximity to community amenities
 - Length of trail kilometres per resident
 - Community Gardens



- Waste diverted
- Amount of residential solid waste
- Overall per capita disposal rate

- Metrics Not On Target:
 - Fuel consumption per capita
 - Development “Footprint” of per capita land consumption

- Metrics Requiring Further Clarity:
 - Modal Split (Federal 2016 data not available yet)
 - Greenhouse Gas emissions (corporate)
 - 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})
 - Building energy: average building intensity
 - Use of renewable energy

- Metrics With No Established Targets:
 - The remaining 1 metric (urban forestry) has no established targets or metrics. The necessary study is underway therefore, at the time of EMP reporting; no targets or baselines had been established.

As in previous years, The City will also publish a public report card highlighting the key 2016 EMP results. In addition to reporting publically on environmental progress results; the report card is also intended to engage local residents, local business operators, land owners, city staff, and partners to encourage continued 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: 2016 Report on Metrics and Measures

Benchmarks and Metrics Results 2015-2016

EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
Population	89,891	100,807	99,832		
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: 203 L/cap/day ICI: 110 L/cap/day * Data from Environmental Services. **Note that water consumption can be dependent on weather conditions.	Residential: 192 L/cap/day ICI: 108 L/cap/day * Data from Environmental Services. **Note that water consumption can be dependent on weather conditions.	Decrease by 22% (to Residential: 189 L/cap/day and ICI: 105 L/cap/day)	Yes on track.
Water Quality of Receiving Bodies * Based on the Red Deer River Watershed Alliance's Integrated Water Management Plan water quality objectives.	Total phosphorus: 0.017 mg/L Total nitrogen: 0.381 mg/L Total suspended solids: 4 mg/L Dissolved oxygen: 10.4	* Baseline and targets approved for 2016 forward.	Total phosphorus: 0.0135 mg/L Total nitrogen: 0.410 mg/L Total suspended solids: 3.4 mg/L Dissolved oxygen:	Do not exceed: Total phosphorus: 0.017 mg/L Total nitrogen: 0.381 mg/L Total suspended solids: 4 mg/L Dissolved oxygen: 10.4	Yes and No. 2016 marks the first year that baseline results and targets have been included in the EMP. We continue to learn about and implement best practises and Low Impact Development (LID) techniques to



EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
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	mg/L E.Coli: 9 counts/100mL		11.2 mg/L E.Coli: 11 counts/100mL	mg/L E.Coli: 9 counts/100mL	reduce our impact on water quality.
Annual water losses recorded	2015 = 15% <i>* Note: reporting process has been refined resulting in an adjustment to the benchmark. Original CEP reporting of 11% loss for 2015 did not include reservoir capacity and pipe capacity.</i>	15%	11%	10% maximum of total water use attributed to losses by 2020	On Track towards 2020 target
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 = 916 ha	Total Natural Area = 914 ha	Increase by 10% (to 949 ha)	On Track towards 2020 target 2016 calculations were completed in Yardstick in order to provide consistency between Environmental Master Plan and Yardstick/Parks reporting.
Man Made Green Areas: land	809 ha	Total Man-Made Green Area = 872	Total Man-Made Green Area = 870 ha	Increase by 10% (to 890 ha)	On Track towards 2020 target



EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
Population	89,891	100,807	99,832		
devoted to man-made natural features (city parks, turf areas shrub beds and naturalization areas).		ha			2016 calculations were completed in Yardstick in order to provide consistency between Environmental Master Plan and Yardstick/Parks reporting.
Integrated Pest Management: Volume of toxic pest control product used per acre of municipally owned land (ml/acre)	210 ml/acre	2015: 519,010 ml herbicide + 0 ml insecticide = 519,010 ml 519,010 ml / 4418 acres = 117 ml/acre	2016: 533,610 ml herbicide + 0 ml insecticide = 533,610 ml 533,610 ml / 4408 acres = 121 ml/acre	Decrease by 5% (to 199.5 ml/acre)	While the volume of pest control product applied increased by 4 ml/acre between 2015 - 2016, since 2009 Red Deer's application volume has dropped and in 2016 remained below the volume target set for 2020.
Urban Forestry: Urban forest coverage (percentage of area within city's developed area covered by tree canopy)	TBD by 2014, now extended to 2017	Update 2015: RFP is complete and will the plan is slated to begin in 2016.	Update 2016: Plan is being drafted, range of metric options being explored, anticipated completion 2017-2018.	No target set. Plan completion anticipated 2017-2018.	No target set as of yet.
TRANSPORTATION					
Total Fuel (gasoline and	1257 litres/capita	1344 L/cap	1424 L/cap	Target (2015) =1156 L/cap	No.



EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
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diesel) consumption data for the city annually (Note this metric replaces Vehicle Kilometres Travelled (VKT) per capita/day by car used in 2011)	Total gasoline and diesel consumption: 112,998,927 litres	Total gasoline and diesel consumption= 135,461,347 L	Total gasoline and diesel = 142,187,220	Target equates to an overall 8% reduction by 2015 from the baseline year (2009). No target set for 2020 or 2035.	Fuel consumption has increased.
Modal Split: Percentage of different modes of transportation used to travel to work	Car: 88% Transit: 4% Pedestrian or Bike: 7% Other: 1%	Car: 89% Transit: 4% Pedestrian or Bike: 5% Other: 2% (Source: 2011 Census, released 2012) *Note –most recent results are 2011 Census figures from Statistics Canada next federal census is 2016.	Car: 89% Transit: 4% Pedestrian or Bike: 5% Other: 2% (Source: 2011 Census, released 2012) * Note: 2016 Census results not yet available. Results not available until 2017.	2016: Car: 86% Transit: 5% Pedestrian or Bike: 8% Other: 1%	No/unknown. New federal census data will not be available until later 2016 or 2017.
Dwelling Units within 400 metres of: 1) public trails, parks or other green space,	2012 served as our baseline**. 1) Public trails, parks or green space = 100% 2) Commercial	1) Public trails, parks or other green space = 100% 2) Commercial zoned property =	1) Public trails, parks or green spaces = 100% 2) Commercial zoned property = 59%; and existing	1) Public trails, parks and other green space = 100% 2) Commercial zoned property = 60%, and existing schools =	Yes. Target for proximity to trails and parks and to transit stops is achieved. Target for



EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
Population	89,891	100,807	99,832		
<p>2) at least 5 basic amenities represented by commercial zoned properties or school sites*, and</p> <p>3) Transit stops*</p> <p>*Council approved in 2012 Annual Report refinement of this metric to amenities represented by commercial and school sites and all transit stops.</p>	<p>zoned property = 56% and existing schools = 38%</p> <p>3) Transit stops = 97%</p> <p>**Baseline calculation does not include residential units not in an urban neighbourhood (e.g. Central Park is not included)</p> <p>***Measurement is completed as the crow flies.</p>	<p>55% and existing schools = 40%</p> <p>3) Transit stops = 99%</p> <p>Dwelling units within 400 metres of all parameters = 24%</p>	<p>schools = 37%</p> <p>3) Transit stops = 99%</p> <p>Dwelling units within 400 meters of all parameters = 23%</p>	<p>45%</p> <p>3) Transit stops = 97%</p> <p>*Target for 2015 no further targets have been set</p>	<p>proximity to commercially zoned sites and schools is on track to be met.</p>
<p>Length of trails/ bicycle/ pedestrian routes</p> <p>(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</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 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></p>	<p>Bike Lanes Shared 7.3 km <u>Dedicated 12.2 km</u> TOTAL 19.5km</p> <p>Park Multi-Use Trails Concrete 18.8 km <u>Asphalt 106.8 km</u> TOTAL 125.6 km</p> <p>Shared Trails Boardwalk 0.87 km Aggreg. 36.6 km Dirt 7.9 km <u>Brick 0.5 km</u> TOTAL 45.6</p>	<p>Increase by 10% (to 1 km ratio to every 605 persons)</p>	<p>Yes.</p> <p>The 2020 target has been achieved.</p>



EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
Population	89,891	100,807	99,832		
surface trails such as boardwalk, aggregate, wood chip, & pedestrian only trails). ** note wording and definitions refined in 2012 to ensure clarity and inclusion of trails that reflect the transportation goals of the EMP		TOTAL 46.3 Cumulative total 178.1 km With a population of 100,807 the ratio of bike/pedestrian routes to residents is 1 km: 566 residents	Cumulative total 190.7 km With a population of 99,832 the ratio of bike/pedestrian routes to residents is 1 km: 524 residents		
BUILT ENVIRONMENT					
Our Development Footprint "Per Capita Land Consumption" in 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</i>	Baseline (2011) 740.8 m ² /person Figure by land use category: -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	692.6 m ² /person Figure by land use category: -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	699.5 m ² /person Figure by land use category: -Commercial: 31 m ² /person Direct Control: 13.9 m ² /person Industrial: 96.5 Parks /Open Space/Institutional: 204.2 m ² /person Residential: 189.7 Roads: 164.2 m ² /person	674 m ² /person 1% decrease per year from baseline data 2020 – 9% drop from 2011 figure	No. The measured development footprint of Red Deer increased between 2015 and 2016. To be on track to meet the 2020 target this measured footprint will need to decrease.



EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
Population	89,891	100,807	99,832		
<i>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>	m ² /person TOTAL: 740.8 m ² /person	TOTAL: 692.6 m ² /person			
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 the Community Garden model (smaller, raised bed gardens that are funded by City and managed by community).	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 350 m ² + Mountview /Sunnybrook Orchard 100m ² + Central Food Forest 150 m ² + Lancaster Green Orchard 60m ² + Waskasoo	Total City managed plots: Large: 43 (5,160 m ²) + Med:250 (15,000 m ²) + Small: 51 (1,530 m ²) = 21,690 m ² Total Community Orchard/Food Forest: Parkside Food Forest 500 m ² +Mountview /Sunnybrook Orchard 100m ² + Central Food Forest 150 m ² + Lancaster Green Orchard 60m ² + Waskasoo Orchard 30 m ² = 840m ²	Increase to : 0.75 m ² /capita by 2020	Yes. More community garden plots have been opened in recent years, Red Deer's per capita measure increased between 2015 and 2016 so we are moving in the right direction. However, growing at the rate necessary to meet the target set for 4 years from now is recognized to be highly ambitious.



EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
Population	89,891	100,807	99,832		
		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	Total community partnership gardens: 109 boxes/raised beds (622m ²) TOTAL GARDEN AREA=21,690 + 840 + 622 = 23,152m ² / 99,832 or 0.23 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/person Community: TBD <i>** Note there were miscalculations in baseline figures those were amended, and the</i>	Corporate= 132,820 tCO ₂ e or 1.32 tonnes/person Community: TBD	Corporate= 128,359 tCO ₂ e or 1.29 tonnes/person Community: TBD	Corporate Target = 30% by 2020 and 50% by 2035 as per 2010 Corporate GHG Inventory (2020: 97,286 tCO ₂ e 2035: 69,490 tCO ₂ e) Community: TBD	Moving in the right direction, but current reductions are slower paced. The City of Red Deer is working towards reduction of corporate emissions. Baseline and targets not available or set for community emissions. The Community GHG



EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
Population	89,891	100,807	99,832		
	2010 actual was 138,980 not 137,000 tCO _{2e} .				Inventory (CEEP: Community Energy and Emissions Plan) underway.
Air Quality: maintain and lower ambient concentrations of airborne pollutants, not exceeding maximums defined by the Canada Wide Standard and AB Environment	<p>PM2.5: 15.9µg/m³ (2007-2009)</p> <p>Canada Wide Standard metrics for: Ozone: 57.5 ppb (2007-2009)</p> <p>Sulphur Dioxide SO₂: 0.44 ppb (2005-2009)</p> <p>Nitrogen Dioxide NO₂ : 12.1ppb (2005-2009)</p> <p>Carbon Monoxide CO: 0.25ppm (2005-2009)</p>	<p>PM2.5: 26 µg/m³* (2012-2014)</p> <p>Ozone: 55 ppb* (2012-2014) <i>* Calculated values prior to the removal of trans-boundary flows and exceptional events (TF/EE).</i></p> <p>SO₂: 0.24 ppb** (2011-2015)</p> <p>NO₂: 10.8 ppb** (2011-2015)</p> <p>CO: 0.16 ppm^ (2011-2015)</p> <p><i>** Average measured at both Red Deer monitoring stations ^ Measured at Riverside monitoring station only</i></p>	<p>PM2.5: 26 µg/m³ (2013-2015) Unofficial results only – as Government of Alberta is reviewing this data.</p> <p>Ozone: 55 ppb (2013-2015) Unofficial results only – as Government of Alberta is reviewing this data.</p> <p>SO₂: 0.061 ppb</p> <p>NO₂: 10.5 ppb</p> <p>CO: 0.17 ppm</p>	<p>By 2015: PM2.5: 20µg/m³</p> <p>Canada Wide Standard metric Ozone: 58</p> <p>SO₂: 0.42 ppb</p> <p>NO₂: : 11.5 ppb</p> <p>CO: 0.24ppm</p>	<p>Yes and No. Air quality measures meet targets set for 2015 with the exception of Fine Particulate Matter (PM 2.5). (Note: the EMP set only short term standards).</p> <p>PM 2.5 levels reported in the past placed Red Deer at a level where the Canadian ambient air quality standards (CAAQS), were exceeded. These standards were passed federally in 2013 to replace the Canada Wide Standard.</p> <p>Note: weather patterns greatly impact air quality measurement. Variation in weather, such as winter inversions, essentially act as a “lid”</p>



EMP Metrics by Focus Area	2009 Baseline	2015 Results	2016 Results	2020 Target	Progress to the 10 Year Target?
Population	89,891	100,807	99,832		
					over the city and trap any air pollution by interrupting typical dispersal patterns.
ENERGY					
Building Energy: Average Building Intensity (equivalent kWh/sq. ft. and sq. m)	Baseline (2012)^ 42.5 ekWh/sq. ft. 457 ekWh/sq.m. <i>^ Note: baseline measure revised this year to address math errors or other corrections (e.g. consistency of square meters and square feet)</i>	45.2 ekWh/sq. ft. 486 ekWh/sq. m. <i>^ Note: 2015 data amended to address changes or corrections (e.g. some rental office space no longer in City inventory such as Alexander Way building)</i>	42.3 ekWh/sq. ft. 455 ekWh/sq.m	*By 2020, 20% reduction from 2012 levels. (to 34 ekWh/sq. ft. and 365.6 ekWh/sq. m.) By 2035, 50% reduction from 2012 levels. (to 21.3 ekWh/sq. ft. and 228.5 ekWh/sq. m.) <i>*Based on targets set in EMP Appendix E Benchmarking Tool</i>	Moving in the right direction, but current reductions are slower paced. This metric has decreased slightly from the baseline measure.
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)	15%	30% *Civic Yards vehicle wash sent 6,420 kWh of power to the grid. Total production by the wash building and building #300 is unknown. Green energy purchased in 2015 was 14,500 MWh of EcoLogo	30% *Civic Yards vehicle wash sent 6,120 kWh to the grid. Total production by the wash building and building #300 is unknown. EcoLogo certified green energy purchased for 2016 was 30% (14,500 MWh) but this is discontinued for 2017	40%	More analysis is required. In the past to meet the target, EcoLogo certified green energy purchases were made. For budget reasons, these purchases were discontinued. This target may need to be altered or other



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Population	89,891	100,807	99,832		
from waste)		certified green energy/48,162 MWH. <i>** Data provided by Electric Light & Power.</i>			strategies identified.
WASTE					
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>	619 kg <i>Annual kg of garbage per residential curbside account</i>	552 kg	2016 target is 550 kg; 2019 target is 450 kg ; 2023 target is 400 kg	Moving in the right direction. <i>Note: There was a change in 2016 with different utility billing software. This impacted the number. Half the decrease from 2015 is due to the account number reporting change, and half is due to less waste.</i>
Overall per capita disposal rate: <i>(meaning total amount of solid waste disposed measured per year per capita and excluding waste from regional customers)</i>	Unknown	872 kg/capita	799 kg/capita	2016 target is 700 kg/capita; 2020 target is 600 kg/capita; 2023 target is 500 kg/capita.	Moving in the right direction, but current reductions are slower paced.
Waste Diverted: percentage of waste diverted per year per tonne of waste land-filled.	10%	15.6%	16%	Increase to 30%	On Track.



2016 Year End Status - Actions and Initiatives

This report is intended as a record of progress relating to environmental metrics, it also considers the actions recommended for implementation within 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 2016.

In total there are 116 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.
- 27 are short-term actions
 - Expected completion was the end of 2015.
- 49 are medium-term actions
 - Expected completion is by the end of 2020.
- 13 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 2016. Specifically, 26 out of 27 have advanced or been completed/concluded.
- One immediate/top priority actions deferred/on hold as of the end of 2016: Advanced Metered Infrastructure for electrical metering (water metering advances to facilitate this program are occurring and in progress).

What about the short term priority items?

- In total, 29 plan actions are labelled short term priority, with the expectation that completion was to take place by the end of 2016. At this time, all are in progress, ongoing, or completed. Additional information can be found in **Table C** below.



Details around medium and longer term actions can be found directly in 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, 2016

		Action	Responsible Department	Description of Progress	Status
		Water (4 Top Priority actions)			
✓	1	Prepare an Integrated Stormwater Management Plan	Engineering	Plan prepared by consultant and reviewed by cross-department team. Next steps to be determined.	Completed.
✓	2	Develop environmental standards for City buildings including water conservation measures	Engineering and RPC have taken over Corporate green building policy Public Works/ Environmental Services	Water conservation standards complete - Corporate Water Conservation Policy Adopted. Green Building Policy has shifted to ENG as Lead - This item continues to be a work in progress. The City of Calgary was engaged to help develop a policy that fits for Red Deer. RPC Notes: RPC (Projects) is building facilities to meet the requirements noted in our 4704-CA Policy Water Conservation . RPC / ES partnering to complete a Water Audit for select facilities (Kinsmen, Collicutt and GCP Field House). Recommendations stemming from the Audit report will inform future facility upgrades / requests for funding.	In Progress.
✓	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 began in 2015 and will carry forward into future years. This project is severed from the electrical meter project, as the electrical metering replacements timeline differs.	In Progress.



		Action	Responsible Department	Description of Progress	Status
		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	A setback precedent and policy is being formalized through the planning around Hazlett Lake. In the future, this can be used as a standard for planning around water bodies. The update to the MGA will likely include a new land reserve type called Conservation Reserve. This will help municipalities protect environmentally sensitive areas that do not fit within the definitions of Environmental Reserve. The latter's definitions will also be further clarified.	In Progress.
✓	6	Prepare and implement an Urban Forest Management Plan	RPC	Urban Forest Management Plan got underway in 2016 (approved as part of 2014 FAR). Urban Forest Innovations Inc was contracted with plan completion Fall 2017.	In Progress.
✓	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 been working with the Federal government related to the Eco-gift program for land south of Red Deer College. As mentioned above, there may be a new land reserve type called Conservation Reserve	Completed.
		Transportation (4 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 Engineering	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. Carpool.ca was shifted from ENG due to lack of resources to Environmental Services. The program has now concluded	Concluded.



		Action	Responsible Department	Description of Progress	Status
✓	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	(2015/2016 Update) Walking School Bus: Engineering Services set out to create a Walking School Bus Program at three major schools to promote walking and reduce congestion around schools. Despite gaining the support of the Catholic and Public School Boards, the key impediments of the program were concerns expressed by parents due to winter weather, supervision, and perceived safety issues. The results and key learnings of the Engineering's endeavor to implement a Walking School Bus are outlined in detail in a report. Without adequate parent and school support this program is unlikely to succeed, as such this program will not be pursued.	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. 2016 Note as reported by Planning Department: 59 Avenue Planning Study on 2017-2018 Work Plan will look at density and infill.	Completed.
✓	14	Partner with a developer to identify an infill pilot project on City land to demonstrate environmental design standards.	Land & Economic Development;	Development 2 is finalizing Commercial Development in Timberlands which included photo voltaics, low impact development approaches for storm water infiltration, smart meters and LEED silver building shell design.	Completed.
✓	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	City Garden Plot Program and Neighbourhood Garden Plot Program is complete. Parks also works with developers to identify "potential" garden sites in NASPs. While the Neighbourhood Garden Plot Programs are	Completed.



		Action	Responsible Department	Description of Progress	Status
				community led and driven, The City is involved as an important resource: encouraging networks, fielding questions, engaging in Province-wide information sharing.	
		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. It will undergo the 5 year audit in 2017.	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 Greenhouse 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 Response report released by the Government of Alberta in 2016.	Completed.
		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	Currently remains on hold. Placeholder for 2020 in the 2018 Capital Plan.	On Hold.
✓	21	Expand energy efficient street light program and work towards reducing the effects of light pollution.	EL&P	During 2016 approximately 5,000 conversions of street lights were completed. Several more conversions are planned for 2017 completion.	Ongoing.
✓	22	Explore District Energy potentials in high-density neighbourhoods.	Note: Lead shifted to ENVS	Implementing District Energy was evaluated for Riverlands. Major front end costs, return on	Completed.



		Action	Responsible Department	Description of Progress	Status
				investment, and uncertainty of buy-in by private sector were challenges identified.	
✓	23	Partner with renewable energy providers and community stakeholders to provide information about private renewable energy options.	EL&P	Installed solar powered sites increased from 26 to 31 in 2016. Generating capacity increased from 162.9 kW in 2012 to 199.3 kW in 2016. Key City of Red Deer departments are collaborating to work together to be a consistent reliable resource for all residents and enhance consumer protection as stakeholders navigate a new market with new funding options, products and sales approaches.	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, these fees continue.	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 2016.	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

Also significant, are the findings dealing with the 27 short term actions. These actions had a timeline goal of completion for 2015/2016. Progress results are summarized in **Table C** below. At this time, all are complete or in progress, and in some cases ongoing.

Table C: At a Glance – Short Term Priority Action Progress January- December 31, 2016

		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 and rebate established to support the community to install rain barrels. Additional education provided via city web page.	Completed.
✓	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. Ongoing - still need to develop methods to mitigate impacts. The City of Red Deer has established a water quality metric and will bring forward information on a pharmaceuticals metric as requested by Council.	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	No 2016 Update provided. Public Works previously reported: 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.
✓	7 Continue to enforce tree planting and native species requirements for new developments through the Land Use Bylaw	RPC	Parks reviews landscape plans to ensure tree and shrub plantings are appropriate for Red Deer's climate. We also encourage plantings that are native and are not water heavy. This objective fed into the landscaping requirements in the new Riverlands LUB.	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	As work continues following the Multimodal Transportation Plan this can be explored further.	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	Neighbourhood Planning and Design Standards implement this action, and Municipal Development Plan update to 17 du/ha. 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	In Progress



		Action	Responsible Department	Description of Progress	Status
				industrial guidelines.	
✓	10	Encourage redevelopment of Brownfield sites in accordance with Greater Downtown Action Plan.	Planning Services Division	<i>Downtown Red Deer's Investment Attraction Plan</i> was undertaken in 2016. It was approved by Council as a corporate planning tool on May 26, 2016. Details relating to the Plan can be found in the Appendices of this report including its role in efforts to stimulate development on underutilized sites.	Complete
✓	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	While Parks is not directly pursuing this, non-City groups are currently doing so.	In Progress.
		Air (1 Short Term (by 2015) action)			
✓	12	Establish a community idle free program	Environmental Services	Program continued in 2016. All program targets completed. Program remains in place.	Completed.
		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/ Engineering	Water conservation standards completed and approved, other actions (other environmental standards) are in progress with Engineering as a Lead.	In Progress.
✓	14	Explore the potential of increasing the amount of energy captured from The City's wastewater facilities	Environmental Services	The building of a cogeneration unit started in 2014 (to convert digester gas into electricity for use in the plant). Due to a number of challenges, operation of the unit has been delayed. Targeting for the end of 2017 to be up and running. At this point, no further capture initiatives are planned. They will be considered upon further plant expansion.	Completed.
✓	15	Explore rate structure to promote conservation.	EL&P	Rate structures are reviewed on an ongoing basis. The department will evaluate and propose options as issues are identified and opportunities for changes present themselves.	In Progress.
		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.



		Action	Responsible Department	Description of Progress	Status
		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.
✓	18	Establish an inter-departmental commitment to collaboration	Environmental Master Plan Champion	Departments are striving to collaborate through various initiatives including those at the Green Team.	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.	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.	Ongoing.
✓	21	Advance Partnerships	Environmental Services/EAC; City Advocacy Team	Advocacy efforts continue. City Advocacy efforts related are: MGA input, Big City Charter Advocacy, Low income transit advocacy.	Ongoing.
✓	22	Continue to engage the Environmental Advisory Committee	Environmental Services	A broader citizen engagement process with the establishment of a Citizen Engagement Group will be established in 2017. The group will be an integral part of the EMP refresh.	Completed.
✓	23	Improve existing development guidelines to reinforce environmental targets.	Planning Department	As per report in 2013: Neighbourhood Planning and Design Standards approved by Council October 2013.	In Progress.
✓	24	Align corporate procedures with environmental goals	Legislative Services	LS has worked with The City's corporate Green Team on developing corporate policies to support environmental initiatives. The Environmental Master Plan is to be updated in 2017/18 and LS will provide support to the Citizen Engagement group that will be instrumental in this work.	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. Ongoing commitment to continue.	Completed/Ongoing



Results Summary

The 2016 annual report indicates measured achievement across all seven focus areas. The Environmental Master Plan will undergo a review and refresh in 2017 giving close consideration to these results.

Recommendations

As the review of the Environmental Master Plan is underway (initiated in 2017), no recommendations for edits or changes to the Plan are suggested at this time.



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

- Greening the Fleet Study – 2016 Annual Reporting
- Waste Management Master Plan – 2015 Annual Reporting (no 2016 report available at time of printing)
- Corporate Greenhouse Gas Emissions Analysis and Reporting 2016
- Downtown Investment Attraction Plan - 2016 Annual Reporting



July 2017

Greening the Fleet

Public Works

Status

INTRODUCTION

The Environmental Master Plan (EMP) identified opportunities to reduce Greenhouse 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 we have 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, $\frac{3}{4}$ ton, $\frac{1}{2}$ 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 and 17 new CNG buses were delivered in 2016. Construction of the CNG fueling station and associated building modification is complete and the ribbon cutting ceremony for the new CNG buses will be occurring on July 11.



Procurement for an additional 10 CNG Transit buses is in progress with a 2018 / 2019 delivery. Procurement for 6 new CNG Paratransit buses is in progress with expected delivery by Q4 2017.

Next Possible Actions:

- Provisions have been incorporated into the CNG fueling station design to allow for the stage implementation of a retail fueling element for non-City CNG units. If desired, we can report what additional resources would be required to accelerate this stage implementation and make 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.

In 2015, the Idle Free program was re-launched as the “Idling ‘Gets You Nowhere” Program. Fuel saving information was 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.

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

Current Status:

In 2016, the ‘green’ bulletin boards strategically remain throughout the Civic Yards. The “Idling ‘Gets You Nowhere” Program with idle free facts and fuel saving practices are dormant for the time being.

The cultural shift away from excessive idling is still encouraged but requires persistent advocacy from operational supervisors and management. Fleet Services will continue to advance the “Idling ‘Gets You Nowhere” and acknowledge individuals who lead this change.



In 2016, per the directive of City Council, Fleet purchased an electric car to share among the various subfleets. Aligning with the Environmental Master Plan the purchase of this vehicle will help us understand the electricity demand while lowering emissions.

Next Possible Actions:

- Ignite – “Idling Gets You Nowhere” Program
- Implement metrics to track progress
- Define 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 “low hanging fruit” 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 implemented for all new drivers and drivers needing to refresh their driving training certification, fleet wide. Some of the Smart Driver training includes: driving within the speed limit, coasting around corners, not over-using the brakes, not being on and off the accelerator, non-aggressive driving, low rpms for fuel efficiency and more.

Next Possible Actions:

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



- Display Smart Driver Tips on the Green Cork Boards at the Civic Yards

IV) VEHICLE RIGHT- TYPING

Background: Initially started in 2009 to reduce overall capital expenditures and operating costs, the City is currently taking steps 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.

Next Possible Actions:

- Develop a Vehicle Right-Typing section within the Fleet 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 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.



Fleet kept 7 vehicles that were supposed to be sent to auction for the Fleet pool. The Fleet pool provided short term and seasonal leases to subfleets at substantially lower lease rates thereby reducing operational costs by more than \$47,000 to date.

Next Possible Actions:

- Develop a Vehicle Right-Size section within the Fleet Policy

CONCLUSION

Numerous Greening the Fleet initiatives are advancing in various stages to meet the directive of reducing our GHG emissions on our community as identified by the EMP. The next possible actions have been identified to help drive these initiatives forward.



2016

Waste Management Master Plan (WMMP)

Environmental Services

Report on WMMP Activities in 2016:

The Waste Management Master Plan (2014) was approved by Council on May 13, 2013, making 2016 the third full year of plan implementation.

2016 Activities

Education / Promotion Approaches

- Government Leadership
 - After a successful pilot project with the Public Works Department, the corporate waste diversion program was expanded to all departments located at the Civic Yards.

- Community Engagement
 - Held Feed 500 on September 22, 2016 where 1,750 servings of food were served made from rescued food that would have otherwise been thrown away. The goal of the event was to raise awareness of and promote action on food waste. As part of an international movement, Red Deer was the second Canadian city to host an event of this type and the first smaller City to scale the event to our population, with most events being held by large Cities (e.g. London, Paris and Vancouver) and being Feed 5,000 events.

Residential Waste Reduction / Diversion

- Continued the award winning Composting at Home program, providing the opportunity for another 200 Red Deer households to learn how to back yard compost.



- Following the expansion of the blue box program to accept plastics number 1-7, the weekly residential waste collection limit was reduced from 5 units to 3 units effective May 16, 2016. An advertising campaign was launched to support educating residents about both these changes to the residential collection program.

Industrial, Commercial and Institutional (ICI) Waste Reduction

- The corporate waste diversion program was developed and expanded with the intent to use the program as a pilot/model to help assist the ICI sector.
- After review, it was determined the aggregate recycling opportunities provided by the private sector were meeting the local demand for this service. However, an internal pilot was conducted with diverting concrete from Public Works construction projects to assess the opportunities to divert and reuse this material.

Automated Cart Pilot Project

- In May 2016 the Green Cart pilot was expanded to include Blue and Black Carts for recycling and garbage, respectively and every other week collection was introduced for Blue and Black Carts, while Green Cart collection remains weekly.
- The Green Cart pilot program had been 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, every other week collection, 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 2016. Data collected included how many households set out their carts for collection each week, 2 surveys to collect participants' opinions about the program, how much recycling, organics



and garbage was collected, contamination rates and feedback from the contractors collecting the carts and composting the Green Cart materials.

What's next in 2017:

- Continued monitoring and assessment of Automated Cart Pilot to support development of a recommendation for city wide implementation of automated cart collection.
- Further expansion of the Corporate Waste Diversion program to City Hall and the Fire Halls.
- Pilot zero waste public events by trialing highly visible waste and recycling containers at public events and utilize learnings from the pilot to develop a zero waste events guide for event organizers.



July 12 2017

Corporate Greenhouse Gas Inventory and Plan – Update 2016

Environmental Services

Background

In 2012 the “Corporate Greenhouse Gas Inventory” Report was completed and subsequently approved by Council as a planning guide on April 2, 2013. This initiative stems from the Environmental Master Plan under the Air Focus section. The intent was to identify GHG emissions from The City of Red Deer’s corporate activities and then develop a baseline inventory. This report outlined The City has already started implementing GHG reduction initiatives and set forth a path to enhance its reductions. The Report recommended a 30% reduction from 2010 and a 50% reduction by 2035 in greenhouse gas emissions.

2016 Summary

A summary of the results of tracking the GHG emitted by The City operations follows in the table below. The figures show total tonnes of carbon dioxide equivalent (tCO₂e) emitted in that calendar year and the percentage increase or decrease from the previous year. In the final column the percent decrease from baseline year 2010 over the life of the plan is shown.

2016 Year over Year Emissions Summary Table

2010	2011	2012	2013	2014	2015	2016
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	128,359 tCO ₂ e
	-4.07%	+3.54%	-1.18%	+4.8%	-7.1%	-3.4% -7.6% from 2010

Given that one of the sources of GHG is the heating and cooling of City buildings, it could be asked if the fluctuations relate to annual temperature averages. Similarly does a heavier snow fall year result in increased emissions (e.g. more plows operating)? However, the [Data](#) suggests these fluctuations are not weather related: in four of the six years after the baseline

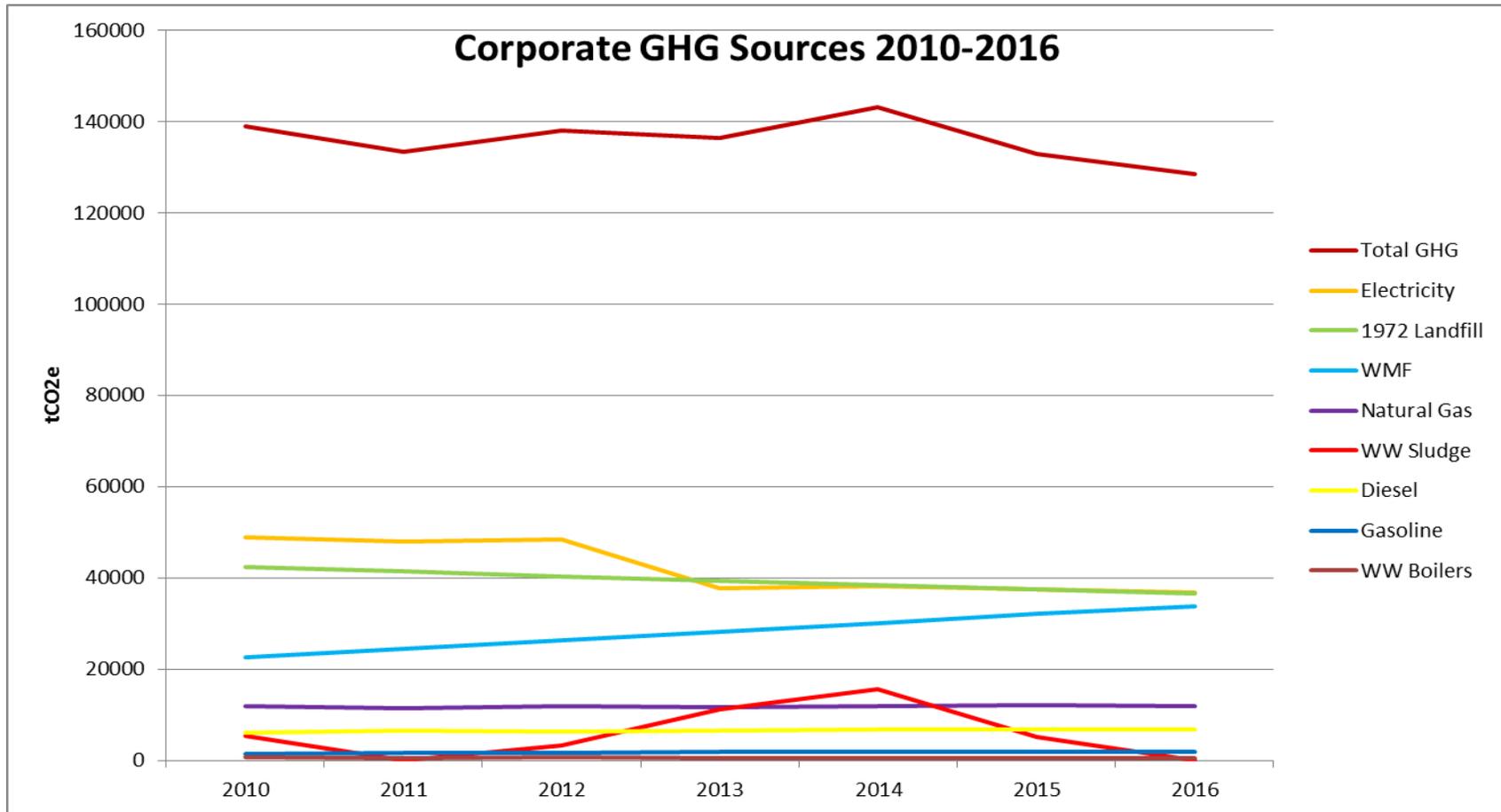


emissions were inversely related to cold and snow. In looking at the emissions trend, fluctuations seem to be most closely linked to emissions from wastewater sludge. Ongoing work in understanding and addressing GHG emissions in the corporation are important to better understand sources, fluctuations, and reductions potential.

	2010	2011	2012	2013	2014	2015	2016
GHG	138,980 tCO2e	133,320 tCO2e	138,036 tCO2e	136,401 tCO2e	142,941 tCO2e	132,820 tCO2e	128,359 tCO2e
% year to year change GHG	-	-4.07% LESS GHG	+3.54% MORE GHG	-1.18% LESS GHG	+4.8% MORE GHG	-7.1% LESS GHG	-3.4% LESS GHG
Average winter* temp	-2.9 C	-5.7 C	-4.6 C	-5.9 C	-7.1 C	-4.4 C	-4.2 C
% change in year to year temp	-	-97% COLDER	+19% WARMER	-28% COLDER	-20% COLDER	+38% WARMER	-4.5% COLDER
Total winter snowfall	23 cm	97 cm	72.5 cm	174.5 cm	112.2 cm	96.3 cm	123.8 cm
% change in year to year snowfall	-	+322% SNOWIER	-25% LESS SNOW	+141% SNOWIER	-36% LESS SNOW	-14% LESS SNOW	+29% MORE SNOW

* winter temp includes Jan-Mar and Oct-Dec

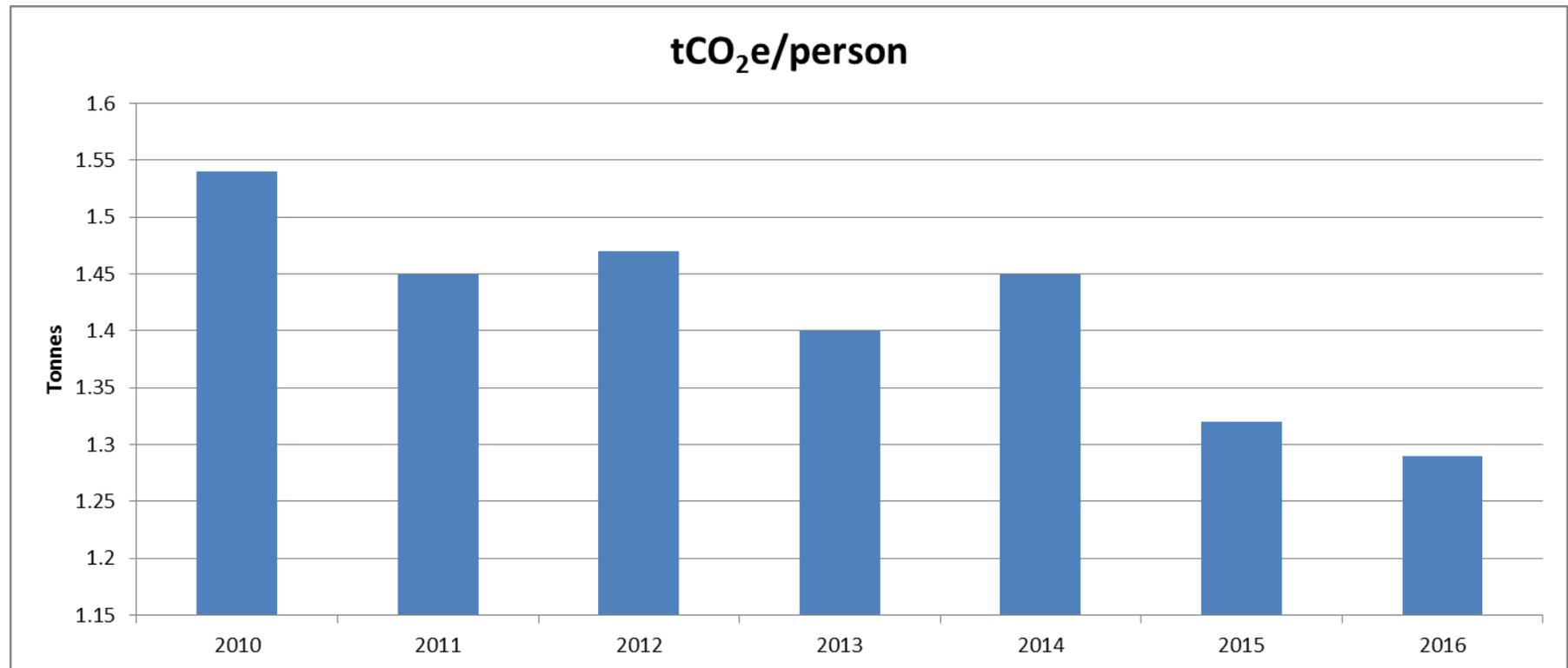




Aside from fluctuations in waste water sludge, the other sources of emissions appear fairly flat: increasing emissions from the new Waste Management Facility are currently offset by decreasing emissions from the 1972 Landfill (this will change as more waste is added to the Waste Management Facility and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



Electricity emissions have 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 2016

- Audit completed with no substantial changes
- Design and RFP for methane capture infrastructure at Waste Management Facility
- Residential curbside organics collection expanded to 2000 households
- Unit limit for garbage collection reduced to 3 units and all numbered plastics included in recycling collection
- Co-generation commissioning in progress at Wastewater Treatment Plant
- Green Purchasing Policy drafted
- Environmental Sustainability Policy 4705-CA adopted to communicate The City's expectations of employees related to environmentally sustainable practices in the workplace
- Streetlights replacement with LEDs in progress throughout the city

What's Next

- Use Environmental Master Plan refresh to embed actions
- Continue to work on high priority actions for Behaviour Change, Operations & Maintenance and Capital Investment strategies



Corporate GHG Actions: Status 2016

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 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
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)	No action reported.
Operations and Maintenance Strategies & Savings					
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)	See Greening the Fleet update



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>	<p>All departments with facilities</p>	<p>Facilities Management</p>	<p>High (2015)</p>	<p>No action reported.</p>
<p>GHG Reduction Strategy</p>		<p>Affected Departments</p>	<p>Responsible Department</p>	<p>Priority</p>	<p>Status</p>
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>	<p>All purchasers of goods</p>	<p>Environmental Services Financial Services</p>	<p>High (2015)</p>	<p>In progress</p> <ul style="list-style-type: none"> - Draft Green Purchasing Policy developed - Environmental Initiatives piloting green purchasing with office supplies and RFPs - Purchasing incorporated environmental considerations into the new promotional items contract including: <ol style="list-style-type: none"> 1. Education of employees on what would be considered a green and sustainable product 2. No more POs and cheques to pay invoices; only use credit card 3. Encouraging bulk orders as much as possible 4. Ongoing monitoring of orders size, frequency, content with Staples 5. Their green product offering was criteria in the RFP.



6	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	All departments with facilities	Facilities Management	High (2015)	No action reported.
7	Consider retro-commissioning of buildings and equipment to optimize existing equipment performance and your operations and maintenance procedures	All departments with facilities	Facilities Management	High (2015)	No action reported.
8	Continue to implement building lighting upgrades e.g. Upgrade bulbs and install occupancy and light sensors	All departments with facilities	Facilities Management	High (2015)	In progress at various facilities including: Recreation Facilities and City Hall.
9	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)	All Fleet users	Fleet Transit	High (2015)	See Greening the Fleet update
	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 - City-wide replacement program in progress
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)	See Greening the Fleet update - Electric vehicle was purchased and added to the City fleet in 2016
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	Facilities Management	Low (2035)	In progress - Solar energy collected at Civic Yards at Buildings 300 and 900 - Investigated expansion as part of Alberta Municipal Solar Program
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 - Operated 401 hours (2016-17) and produce over 200,000 KWH of power
14	Investigate landfill methane capture opportunities	Environmental Services	Environmental Services: Waste	Medium (2020)	In progress - Preparations to install methane collection infrastructure started, including design and RFP



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 with 1000 households and expanded to 2000 households in 2016 - 3 stream waste diversion throughout Civic Yards starting December 2016
	GHG Reduction Strategy	Affected Departments	Responsible Department	Priority	Status
	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	Low (2035)	No progress reported.
	Accountability				
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



July 2017

Built Environment Focus Area:

Downtown Red Deer's Investment Attraction Plan (DIAP)

Planning Services

Introduction

The Environmental Master Plan (EMP) identifies a Built Environment goal of creating “vital, well integrated, compact communities that minimize negative environmental impacts”¹. Activities which support compact urban form and minimum densities, environmental design standards, integrated parking, and underutilized site redevelopment are germane to this focus area.

1) *Downtown Red Deer's Investment Attraction Plan (DIAP) – Stimulating Development on Underutilized Sites* (Section 3)

Background

The EMP recommends encouraging the redevelopment of brownfield sites (in accordance with Greater Downtown Action Plan). To help further this work, the *Downtown Red Deer's Investment Attraction Plan* was undertaken in 2016.

The DIAP was approved by Council as a corporate planning tool on May 26, 2016. The plan is comprised of three key areas of focus: 1) Business Retention and Investment Attraction, 2) Parking Management, and 3) Stimulating Development on Underutilized Sites. Underutilized sites, for the purposes of the DIAP, includes both greyfield and brownfield sites. The plan provides a detailed overview of the legislative and policy landscape both locally and provincially surrounding underutilized sites development, as well as an assessment of promising practices, and recommended strategies for The City to explore in efforts to stimulate development on underutilized sites.

¹ EMP, pg. 38



Benefits

Brownfield site redevelopment is recognized as an effective strategy in the mitigation or elimination of health/safety risks related to contaminated sites, restoration of environmental quality, reducing urban sprawl, reducing GHG emissions, supporting more compact urban form, and promoting ecological health.

Potential initiatives stemming from DIAP recommendations could have positive impacts contributing to *Environmental Master Plan* goals of reduced environmental contamination in our city, reduced pressure for greenfield development, and improved air quality resulting from more compact urban redevelopment and the resulting reduction in transportation needs.

Current Status

Forthcoming *Municipal Government Act* changes will have an impact on how municipalities manage brownfield redevelopment moving forward. In order to establish the necessary policy base to support future efforts around brownfield redevelopment, City Administration is preparing to bring forward a *Brownfield Sites Bylaw*, intended to establish parameters for The City regarding brownfield redevelopment and incentive programs.

The development of the *Brownfield Sites Bylaw* is contingent on forthcoming MGA changes, and next steps will be determined subsequent to these being adopted.

2) Downtown Residential Attraction Study Project

Background

The EMP recommends that The City “explore tax and other incentives to facilitate downtown reinvestment complimentary to the Greater Downtown Action Plan”².

To further previous guiding work the municipality has done, such as the *Economic Development Strategy*, *Downtown Red Deer’s Investment Attraction Plan*, and *Greater Downtown Action Plan*, The City applied for provincial funding for a “Downtown Residential Attraction Study”.

Benefits

The aim of the study is to increase the number of residents living in our downtown, which will have a direct impact on improving the downtown local business environment and increasing downtown investment.

² EMP pg 39



Current Status

Administration has awarded the contract for this work and will begin detailed project planning in Q3, 2017.

3) *Downtown Red Deer's Investment Attraction Plan (DIAP) – Parking Study (Section 2) & Parking Management Strategy (2017)*

Background

The *Environmental Master Plan* recommends that The City “include consideration of parking practices and policies that encourage public transit use and alternative forms of transportation”³. *Municipal Development Plan* policy 16.2 directs The City to “prepare and maintain transportation plans for Red Deer incorporating polices, standards and proposals related to the movement of private and commercial vehicles, transit (including special needs), **parking**, bicycling and walking”⁴.

As noted, the DIAP (2016) includes a *Parking Study* component along with recommended short, medium and long-term actions to help improve municipal parking management activities. To guide the prioritization and implementation of these parking actions, Administration worked with Council in 2016 to develop parking management principles intended to ensure integrated parking management policies and procedures, and support balanced implementation moving forward.

Developed to guide implementation of the stated parking principles and objectives, the *Parking Management Strategy (2017)* strives to achieve efficient and effective public parking management while supporting business vitality and sustainable transportation policies. In support of *Municipal Development Plan* and *Environmental Master Plan* direction, principle # 3 within the strategy compels administration to “promote, establish and maintain programs and facilities that encourage the use of alternative modes of transportation including public transit, car/van pooling, taxis, auto-sharing, cycling and walking”.

Benefits

Integrating parking management activities aligned with multimodal transportation, economic development, and financial leadership objectives will help ensure that public parking management supports broad corporate and community objectives in a comprehensive manner.

³ EMP, pg 38

⁴ MDP, pg 46



Current Status

The 2017 *Parking Management Strategy* will be used to guide the development of Corporate Administrative policies regarding integrated parking management moving forward.

4) Riverlands Area Redevelopment

Background

The future vision for Riverlands has been well established, and continues to be refined. In 2015, The City initiated a conceptual design process of Riverlands, to build on the valuable work that has been done and begin to create some imaginative and inviting designs, focusing on Alexander Way and the Riverwalk. The conceptual design was prepared with a people-first design approach, evolving the plan around public space and public life. Using the conceptual design as a basis, and through additional public engagement, the Area Redevelopment Plan (ARP) and the Land Use Bylaw (LUB) were both updated in 2016. Red Deer City Council approved the updated ARP and LUB for Riverlands in December of 2016.

Benefits

The redevelopment of the Riverlands neighbourhood hits the mark on a number of concepts that support some of the priority policies identified within the EMP, and also some of the recommendations from the DIAP. At a fundamental level, this redevelopment project will encourage new development within existing underutilized lands.

The redevelopment of Riverlands will have a positive influence on a number of the focus areas from the EMP. For example, consider Ecology; the Riverlands plan includes preservation of existing natural areas, development of additional green spaces and naturalized parks. The increased density requirements and the very nature of redevelopment will help improve our metrics relating to the Built Environment; the per capita land requirements will be much less than the targets set in the EMP and the plan includes space for high quality community gardens. Riverlands will also be leading the way for urban development in Red Deer from a mobility perspective and also with regards to energy efficient buildings.

The DIAP recommends Marketing as one of the focus areas, and this is also one of the key focus areas for Riverlands – to attract top quality developers, businesses and to bring new residents into the downtown. The investment that The City is making in Riverlands with new infrastructure, including new parks, walkable streets, and public plazas will also help with retention and intensification of the existing businesses in the area. The DIAP also recommends focusing on underutilized lands, and Riverlands is currently one of the City's largest holdings of underutilized lands with 25 acres of vacant land currently owned by The City, and a number of other vacant sites within the neighbourhood. The investment that The City is currently making in Riverlands will help attract and incentivize private investment and development in the area.



Current Status

The planning and visioning stage for Riverlands is complete, and we are now well into the implementation phase. The first major capital project in Riverlands for 2017, the replacement of a major water trunk main is almost complete, and additional utility upgrades and installations are just getting started.

Next Steps

Capital construction in 2017 and 2018 will focus on Alexander Way, 45 Street and the Civic Plaza. Later this summer, the official kickoff to the marketing campaign for the redevelopment of the community will start the land sale process, with a goal of having the first new development project break ground in 2018.

5) Timberlands

Background

Red Deer's Timberlands neighbourhood addresses a number of focus areas with the *Environmental Master Plan*. The *EMP* states that the goal for the **Built Environment** is "to create vital, well-integrated, compact communities that minimize negative environmental impacts". Additionally, the **Ecology** section focuses on devoting more natural elements and materials with man-made community features, and the **Transportation** section states its goal as prioritizing active and public transportation.

Benefits

Implementing environmentally sustainable initiatives into our communities allow for lower City maintenance costs, more efficient land use, improved walkability and ultimately more housing options for Red Deerians. Timberlands North also exemplifies to Red Deer's private developers how to incorporate these principles into their communities.

Current Status

Timberlands North implements a number of environmentally sustainable initiatives that address the Built Environment, Ecology and Transportation sections of the *EMP*. Low Impact Development (LID) principles have been incorporated in a number of ways throughout the Timberlands community. LID design, such as the planting of native vegetation allows for improved drainage, more absorption, and increased stormwater infiltration, reducing impacts on natural wetlands and watercourses. As well, designing green spaces to mimic natural landscape elements (such as hardy trees and grasses) allow existing natural environments to flourish and reduce the amount of maintenance required. A greater dedication to trees means as the



community matures, the increased tree canopy will reduce potential risk of 'heat island effect'. Site furniture such as benches and gazebos in public spaces are made of durable materials to withstand aging, needing to be replaced less frequently. Timberlands has unique pedestrian-friendly LED lighting whose height is lower than the average community light pole, reducing the amount of light pollution spilled up and out of the community. And the commercial district was developed to include photo voltaic, meaning solar energy powers the stores.

The Timberlands community was designed to be a more walkable community, with bus stops peppered throughout the community, lower street lamps to provide more pedestrian-friendly lighting, as well as illuminated bollards and signage to identify pedestrian corridors, parks and trails. Traffic calming curb bump-outs and textured paving patterns where sidewalks meet crosswalks also help identify crosswalks. Sidewalks in residential areas are separated from the road by tree-lined boulevards, increasing the feeling of safety for the pedestrian, as well as providing a visually-appealing streetscape. Lastly, Timberlands North achieves higher density and efficiency of land use through creative community design, grid pattern street layout and a mix of housing products. The design of the Wide Shallow lots included shared back-fences, and saw the elimination of rear lanes, while carriage house (R1C) lots provide the opportunity for two units on one property, as a second home can be built above the rear detached garage. Additionally, living spaces have been incorporated into the commercial district with Live-Work product and Mixed Use commercial on the ground floor and living space above.

