APRIL 2013

Cornerstone Architecture:

2012 Greenhouse Gas Inventory Report

zerofootprint™

Cornerstone Architecture

2012 Greenhouse Gas Inventory

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1.0 INTRODUCTION

→ Cornerstone Architecture Inc. ("Cornerstone") has engaged Zerofootprint Software Inc. ("Zerofootprint") to calculate the greenhouse gas (GHG) emissions for its business operations for the 2012 calendar year. Cornerstone, established in 1991, has expertise in a variety of institutional, educational, administrative, and assembly projects with sustainable design as a core focus of the business. Zerofootprint conducted Cornerstone's 2007 (base year), 2008, 2009 and 2011 GHG inventories. Choosing to continue tracking GHG emissions illustrates Cornerstone's commitment to responsible environmental management. Based in London, Ontario, Cornerstone operates with 18 employees and occupies 3,187 square feet of office space in 2012.

Zerofootprint has determined the GHG emissions associated with Cornerstone's electricity consumption, employee ground travel, paper usage, waste, shipping, and food. This was done through data collection, calculation, and analysis. This report describes the methodology and results of the 2012 GHG inventory.

2.0 METHODOLOGY

→ This greenhouse gas inventory was undertaken in accordance with the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD)'s "*Greenhouse Gas Protocol – A corporate accounting and reporting standard (revised edition).*" Launched a decade ago, the Greenhouse Gas (GHG) Protocol provides organizations with the tools needed to assess organizational and operational boundaries, measure their carbon footprints, and report the results. It is recognized internationally as the preeminent methodology for quantifying and reporting corporate GHG emissions and forms the basis of national and international voluntary reporting frameworks.

2.1 BOUNDARIES

One of the first steps in establishing a GHG inventory is determining the boundaries upon which the inventory will be built. The scope of a corporate inventory is defined by both organizational and operational boundaries.

ORGANIZATIONAL BOUNDARIES

Under the GHG Protocol, organizations can use either the Equity Share or Control approach. The equity share approach uses an organization's share of equity, or the financial ownership percentage, to account for its share of GHG emissions.

Similarly, the control approach accounts for the GHG emissions for all operations that the organization has control over (financial or operational).

An operational control approach has been taken to collect and report Cornerstone's 2012 GHG emissions.

OPERATIONAL BOUNDARIES

The GHG Protocol defines the operational boundary as the scope of direct and indirect emissions, broken down as scopes 1, 2 or 3. Scope 1 emissions are direct emissions that occur from sources owned or controlled by the organization. Scope 2 emissions are indirect emissions attributed to purchased electricity. Scope 3 emissions are optional and include all other indirect emissions. The following activities (sources) and scopes have been included in Cornerstone's 2012 inventory:

Scope 1 – There are no reported scope 1 emissions in Cornerstone's inventory. Natural gas consumption for heating is the most common Scope 1 emissions for offices in Canada. However, electricity is used to run a heat pump system at Cornerstone and hence, it is captured as part of Scope 2 emissions.

Scope 2 – Electricity consumption. Electricity consumption is considered as Scope 2 emissions, which occur off-premise and not directly at Cornerstone.

Scope 3 – Employee ground travel, paper usage, waste, shipping, and food. These are all Scope 3 indirect emissions included in the inventory over which Cornerstone has operational control.

2.2 DATA COLLECTION & CALCULATIONS

Cornerstone provided data for the following activity types for 2012: electricity consumption, renewable energy purchases, employee ground travel, paper usage, waste generation, shipping, and food consumption. In order to accurately and comprehensively calculate an organization's carbon footprint, Zerofootprint considered all significant and measurable elements that produce GHG emissions. Table 1 outlines the information provided for each activity type.

All greenhouse gas emissions were calculated using GHG emission factors sourced from government and international agencies including Environment Canada, the United States Environmental Protection Agency, and the Greenhouse Gas Protocol, among others. Where emission factors differed, the local emission factor or calculation methodology took precedence. Emission factors are specific to each activity type and convert activity data into a quantity of greenhouse gas emissions.

Table 1: Data provided by Cornerstone

Activity	Scope	Information provided for 2012
Electricity	2	Total consumption in kWh
Purchase of green electricity from Bullfrog power	NA	Amount purchased in kWh
Ground travel	3	Total distance driven and car type by employee
Paper usage	3	Paper type, number of sheets used and % recycle content
Waste disposal	3	Total weight of each material type
Shipping	3	Shipping method, weight transported and total distance traveled
Food consumption	3	Number and type of meals

3.0 RESULTS

→ Zerofootprint assessed the emissions resulting from Cornerstone's business operations for 2012. Greenhouse gas emissions are expressed in tonnes of carbon dioxide equivalents (CO_2e). In 2012, emissions totaled 9.22 tonnes CO_2e.

Table 2 provides emission results grouped by scope. Scope 3 (indirect) emissions represent the largest source of emissions at approximately 55%. Scope 2 (indirect), only consisting of electricity, made up the remainder of emissions (45%). There were no Scope 1 emissions since Cornerstone does not consume any fuel (or natural gas) on-site and does not own fleet vehicles. Emissions normalized by area and by employee are also shown in Table 2.

Figures 1 and 2 summarize Cornerstone's 2012 GHG emissions for each activity type expressed in tonnes of CO_2e and by percentages, respectively. The largest contribution to total emissions came from electricity consumption at 4.14 tonnes of CO_2 in 2012, or 45% of total emissions. The second largest was the contribution from ground travel, at 3.09 tonnes of CO_2e or 34% of total emissions. The remaining factors were waste, paper, food and shipping at 10%, 6%, 4% and 2%, respectively.

Table 2: 2012 Emissions summary by scope

Scope	Tonnes CO_2e	% of total emissions	Tonnes CO_2e / m^2	Tonnes CO_2e / employee
Scope 1	NA	NA	NA	NA
Scope 2	4.14	45%	0.014	0.23
Scope 3	5.08	55%	0.017	0.28
Total	**9.22**	**100%**	**0.031**	**0.51**

Figure 1: 2012 Emissions by activity type

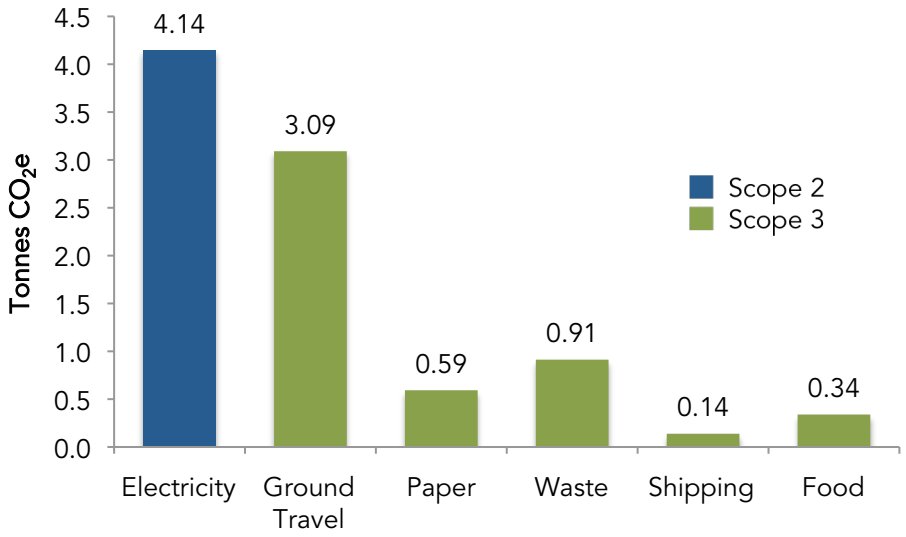
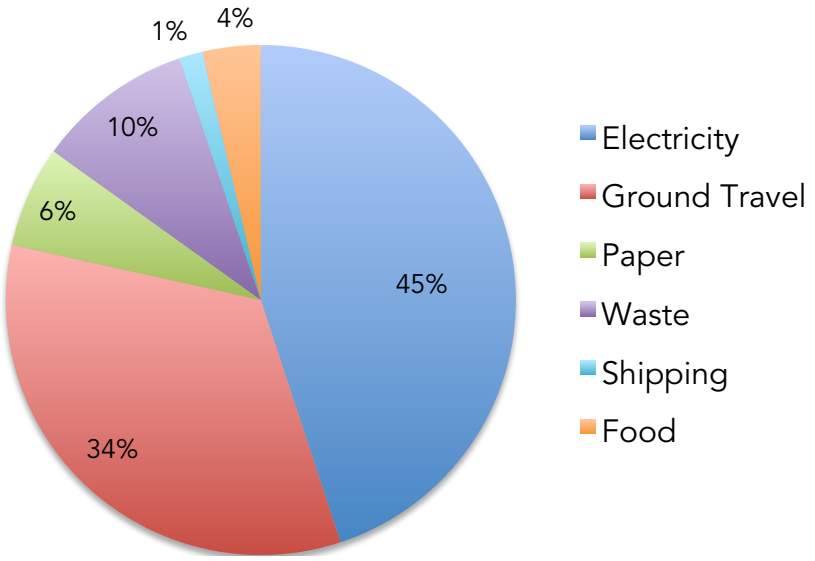


Figure 2: 2012 Percentage of total emissions by activity type



3.1 DETAILED EMISSIONS BREAKDOWN

The following tables provide a more detailed breakdown of emissions for each activity type. (Please note: numbers in tables are rounded and may not sum.)

ELECTRICITY

Cornerstone's 2012 emissions attributed to electricity is 4.14 tonnes CO_2e. Cornerstone continues to purchase EcoLogo-certified green electricity from Bullfrog Power. In 2012 Cornerstone purchased green electricity totaling 37,680 kWh to offset 91% of their emissions from their electricity use. Table 3 displays the carbon emissions avoided as a result. Emissions from both electricity consumed and green electricity purchased were calculated using the average Ontario grid electricity emission factor from *Canada's National Inventory Report: 1990-2009*.

Table 3: 2012 Summary of emissions from electricity consumption and offsets from purchased green electricity

Electricity	kWh / year	Tonnes CO_2e / year
Electricity consumed	41,422	Emissions = 4.14
Purchased green electricity from Bullfrog Power	37,680	Emissions offset = 3.77
Remaining amount		**0.37**

GROUND TRAVEL

Table 4 provides a breakdown of emissions from employee travel for 2012. Emission factors for vehicle types, expressed in tonnes of carbon dioxide equivalent per distance traveled, were found in the GHG Protocol. To increase calculation accuracy, Zerofootprint recommends collecting data on direct fuel consumption.

Table 4: 2012 Summary of emissions from employee business travel

Employee	Primary vehicle	Total distance traveled (km / year)	Tonnes CO_2e / year
Bob	Medium car 10.2L/100km	6,446	1.57
Jason	Medium car 10.2L/100km	978	0.24
Mallory	Medium car 10.2L/100km	878	0.21
Brad	Medium car 10.2L/100km	3,848	0.94
Jamie	Medium car 10.2L/100km	538	0.13
	Total	**12,688**	**3.09**

PAPER USAGE

Using lifecycle analysis research from the United States Environmental Defense Fund, emissions from paper usage were calculated based on paper type, number of sheets, and basis weights. The majority of Cornerstone's paper is uncoated freesheet copy paper or premium copy paper, as summarized in Table 5.

Table 5: 2012 Summary of emissions from paper usage

Paper Type	Total # of sheets / year	Tonnes CO_2e / year
Uncoated freesheet - Copy paper 8.5" by 11"	45,000	0.37
Uncoated freesheet - Premium copy paper 8.5" by 11"	10,000	0.08
Uncoated freesheet - Multi purpose coloured paper 8.5" by 11"	3,000	0.02
Uncoated freesheet - Copy paper 11" by 17"	7,500	0.12
Total	**58,000**	**0.59**

WASTE

Greenhouse gas emissions from waste were calculated using the United States Environmental Protection Agency's report "*Solid Waste Management and Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks, 2006*". The weight of each material disposed was provided by Cornerstone and used in the calculations. Table 6 provides a summary of waste-related emission results.

Table 6: 2012 Summary of emissions from waste

Material	Total weight disposed (kg / year)	Tonnes CO_2e / year
Food	104	0.16
Glass	208	0.15
Plastic	52	0.12
Paper and cardboard	52	0.28
Aluminum	104	0.20
Total	**520**	**0.91**

SHIPPING

Emissions from shipping by road freight were calculated using emission factors from the Greenhouse Gas Protocol. Cornerstone provided the product weights and distances traveled for all shipments made in 2012. Table 7 summarizes the shipping-related GHG emissions.

Table 7: 2012 Summary of emissions from shipping

Shipping mode	Total weight (kg / year)	Total distance traveled (km / year)	Tonnes CO_2e / year
Road freight	253.79	7591.10	0.14
		Total	**0.14**

FOOD

Cornerstone provided information on the number and type of company-catered meals in order to calculate emissions associated with food consumption in 2012. Table 8 summarizes this information. Emissions from food were calculated using assumed meal sizes and aggregated data on the average national diet according to the United Nations Food and Agriculture Organization Statistical database (FAOSTAT).

Table 8: 2012 Summary of emissions from food

Type of meal	Total # of meals / year	Tonnes CO2e / year
Breakfast - regular	182	0.27
Lunch - red meat	23	0.059
Lunch - vegetarian	4	0.0068
	Total	**0.34**

3.2 EMISSIONS COMPARISONS

In order to monitor progress and assess Cornerstone's performance, emissions have been tracked over time. Zerofootprint conducted Cornerstone's greenhouse gas emissions inventories for 2007 (baseline), 2008, 2009 and 2011. Figure 3 displays these results by activity types for 2007, 2008, 2009, 2011 and 2012. The floor area of office space remained constant at 3,187 square feet while the number of employees ranged from 12 and 18 over the reporting years. The activity types included in the inventories remained the same, with the exception of shipping, which was not included in the 2007 report. The total amount of emissions over the years shows a decreasing trend.

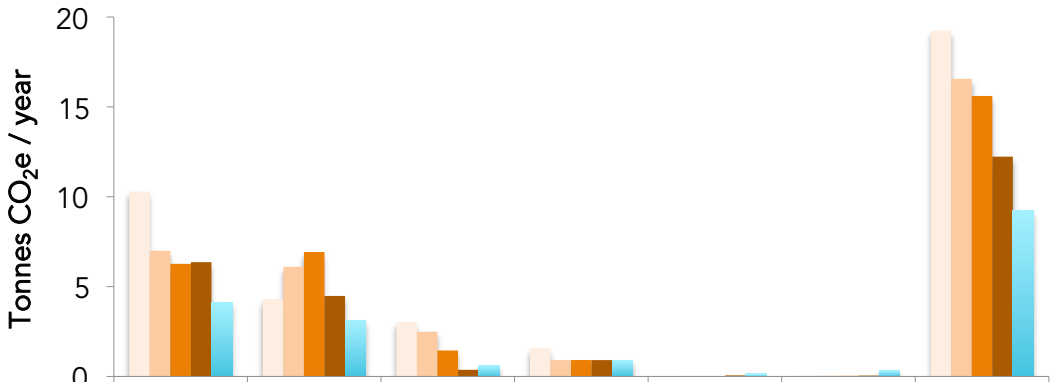
Comparing results from 2007 to 2008, Cornerstone significantly reduced its total emissions from 19.23 to 16.56 tonnes of CO_2e, a total of 2.67 tonnes, or nearly 14%. The largest absolute reduction was in electricity consumption, at 3.29 tonnes of CO_2e per year. The largest percentage reduction was in waste, with a 42% reduction from 2007 to 2008. Ground travel was the only activity in which emissions increased (by 1.79 tonnes of CO_2e or 41%). In order to make a more accurate comparison, emissions from shipping were omitted. With this omission, a reduction amount of 2.70 tonnes of CO_2e was observed from 2007 to 2008.

From 2008 to 2009, Cornerstone's total greenhouse gas emissions continued to decrease. Emissions changed from 16.56 to 15.61 tonnes of CO_2e, a total of 0.95 tonnes, or nearly 6%. The largest emissions reduction and percentage reduction was in paper usage at 1.05 tonnes of CO_2e or 42%. Ground travel was the only activity in which emissions increased (by 0.83 tonnes of CO_2e or 14%).

From 2009 to 2011, the total emissions continued to decrease from 15.61 to 12.23 tonnes of CO_2e (3.38 tonnes of CO_2e or approximately 22%). While ground travel and paper decreased by 35% and 74%, respectively, there was an increase in electricity by approximately 2%, in food by 38% and in shipping by almost 3 times. The emissions from waste continued to remain constant at 0.91 tonnes CO_2e since 2008.

Finally, the total greenhouse gas emissions in 2012 were calculated to be 9.22 tonnes CO_2e, which was a 25% decrease compared to 2011. This decrease was due to electricity (35% reduction) and ground travel (31% reduction). Although Cornerstone consumed more electricity in 2012 compared to 2011, the Ontario grid emission factor decreased significantly resulting in lower emissions for 2012. Emissions from paper, shipping and food actually saw an increase from 2011 to 2012. However, because these activities made up a smaller percentage of the total, the overall carbon footprint was not significantly affected. Cornerstone determined that their waste control did not change since 2011 and therefore remained at 0.91 tonnes CO_2e.

Figure 3: 2007, 2008, 2009, 2011 and 2012 Emissions breakdown



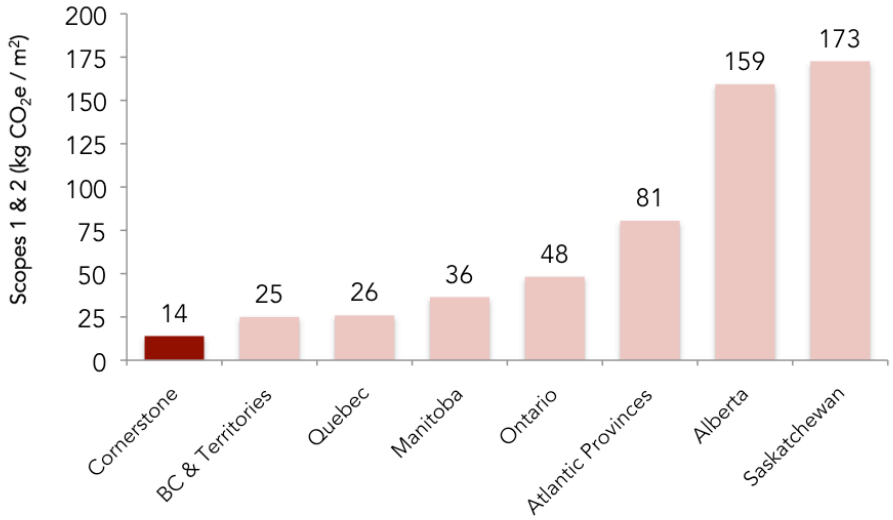
	Electricity	Ground travel	Paper	Waste	Shipping	Food	Total
2007	10.28	4.31	3.03	1.57		0.04	19.23
2008	6.99	6.1	2.49	0.91	0.03	0.04	16.56
2009	6.27	6.93	1.44	0.91	0.02	0.036	15.61
2011	6.36	4.48	0.37	0.91	0.06	0.05	12.23
2012	4.14	3.09	0.59	0.91	0.14	0.34	9.22

4.0 BENCHMARKING

COMPARISONS WITH OFFICES IN CANADIAN PROVINCES

→ Greenhouse gas emissions from Cornerstone were benchmarked against the "office" sector across Canadian provinces. The office sector consists of insurance, real estate, rental and leasing, professional, scientific and technical services, and public administration. Data was obtained from Natural Resources Canada – Office of Energy Efficiency for the most recent year available (2010). Zerofootprint performed additional calculations using the data obtained to derive the metrics for comparisons. Figure 4 compares the sum of Scope 1 and 2 emissions between Cornerstone and the office sector average in Canadian provinces. The results are arranged from lowest to highest emitters and are displayed in kg of CO_2e per m^2. It is important to note the difference in reporting years between Cornerstone and the provincial averages. Different reporting years have different weather patterns that influence the demand for energy, and thus the GHG emissions. Scope 1 and 2 emissions from the office sector across Canadian provinces averaged 78 kg of CO_2e per m^2 and ranged from 25 to 173 kg CO_2e per m^2. Cornerstone was the lowest emitter among the group, emitting only 14 kg CO_2e per m^2. Compared to Ontario's office sector, Cornerstone's GHG emissions were approximately 3 times less.

Figure 4: Comparison of emissions between Cornerstone and the Canadian office sector



COMPARISONS WITH OTHER ORGANIZATIONS

Data used for benchmarking other organizations in the banking and accounting industries is publicly available on websites, responses to the Carbon Disclosure Project, and published sustainability reports. The data ranged from 2007 to 2012. Zerofootprint performed additional calculations using the data to derive the comparison metrics. Area and employee were the variables used to normalize the emissions across organizations.

Figure 5 compares Cornerstone with other financial institutions in Canada. The data is displayed in kg of CO_2e per m^2 for the sum of Scope 1 and 2 emissions. The emissions from these organizations, including Cornerstone, ranged from 14 to 153 kg CO_2e per m^2, with an average of 87 kg CO_2e per m^2. Cornerstone was the lowest emitter among the group.

Figure 5: Comparison of emissions by area between Cornerstone and other organizations

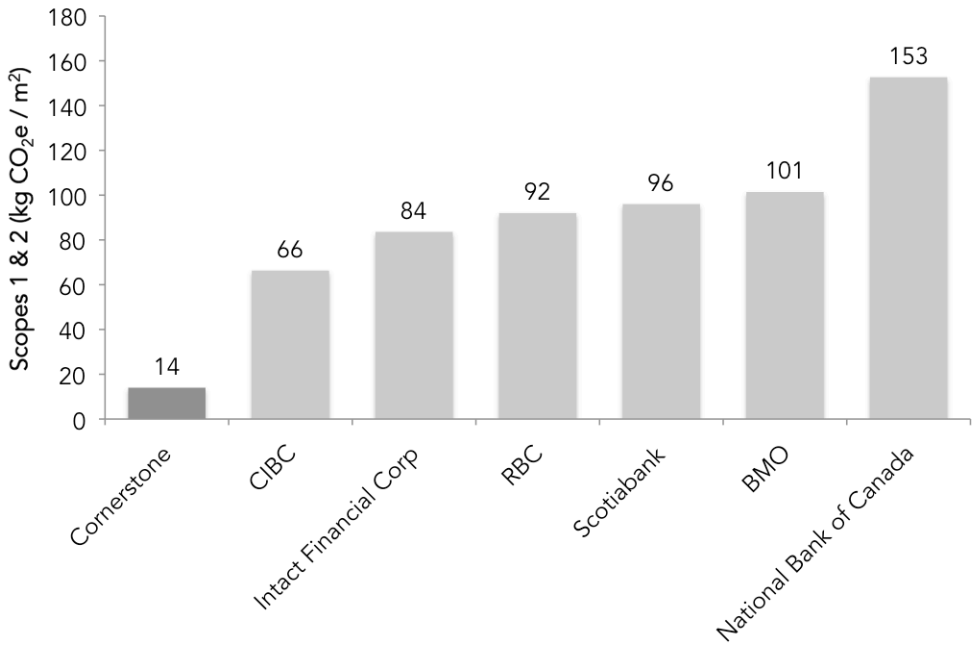
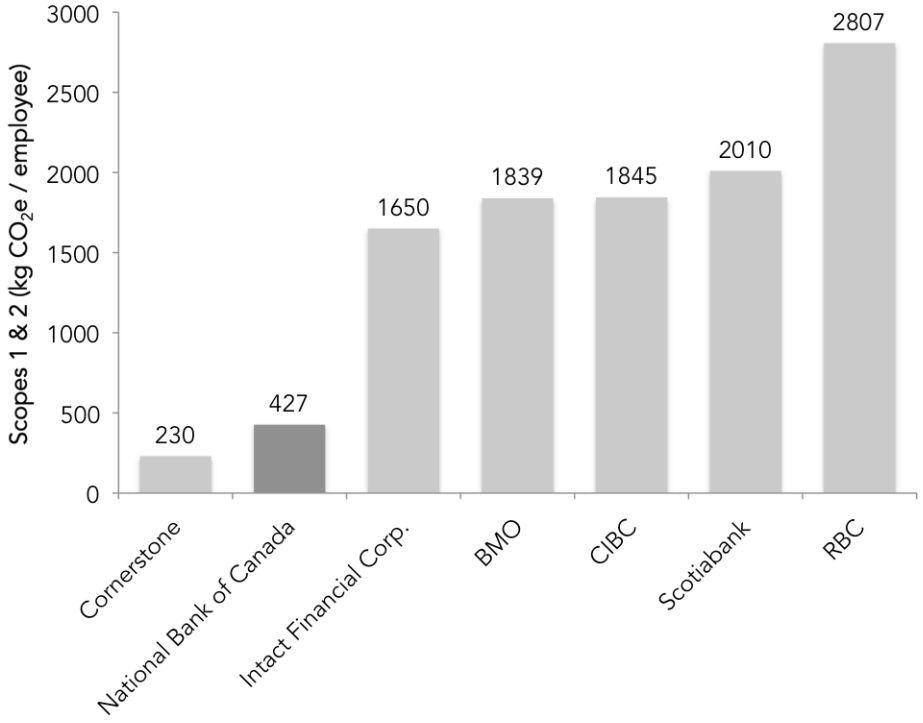


Figure 6 compares Cornerstone with other financial institutions in Canada for the sum of Scope 1 and 2 emissions per employee. Emissions ranged from 230 to 2,807 kg of CO_2e per employee, with an average of 1,544 kg CO_2e per employee. Cornerstone was the lowest emitter among the group, 197 kg CO_2e per employee lower than the National Bank of Canada.

Figure 6: Comparison of emissions by employee between Cornerstone and other organizations



5.0 ANALYSIS & CONCLUSIONS

→ Cornerstone Architecture has made progress towards becoming a sustainable, carbon conscious company. Between the 2007 baseline year and the current 2012 inventory, Cornerstone has reduced its total greenhouse gas emissions by approximately 10 tonnes of CO_2e. It is also important to factor in that Cornerstone has increased the number of employees to a total 18 in 2012, comparing to 2011 when there were only 14 employees.

In 2012, Cornerstone's GHG emissions from business operations were primarily from electricity consumption and ground travel. As noted previously, electricity consumption increased from 2011 to 2012, but GHG emissions have decreased 35% as a result of a lower Ontario grid emission factor. Also, with the purchase of green electricity, Cornerstone was able to 'offset' 91% of its electricity footprint. These efforts are to be applauded and next year the company should strive to offset 100% of their emissions. A continued interest in pursuing energy reduction strategies will help enhance Cornerstone's sustainability initiatives and lower its carbon footprint.

The total emissions from ground travel were 3.09 tonnes of CO_2e or 31% lower compared to 2011. While the number of vehicles driven remained the same, the total distance travelled decreased from 18,404km to 12,688km. There is also a

significant decrease in emissions by 55% compared to 2009, when ground travel was the highest. This might have been as a result of a change in business practices that required less ground travel. Zerofootprint has concluded that the implementation of previous recommendations, such as the use of public transportation for longer distances or enrollment in a car-share program, had a significant effect on the overall ground travel emissions. Further reductions in ground travel emissions could likely be achieved but possibly not at the same high rate.

While the emissions related to paper usage were decreasing from 2007 until 2011, it increased by 60% from 2011 to 2012, but still 80% less than the value in 2007. Comparing 2011 to 2012, the paper types varied as well as the number of sheets used from 22,150 to 58,000. This could be related to the increased number of employees working at the office, or Cornerstone's improved productivity.

There were two significant sources of increase over the past year: shipping and food. Shipping emissions increased by more than double. While the total distance travelled by freight reduced from 8,038 km to 7,592 km, the total weight transported increased by 0.106 tonnes to 0.254 tonnes. This indicates an increased in productivity, as Cornerstone has increased the number of drawings sent out from the office.

Emissions from food also significantly increased by more than 6 times. The number of lunch meals and breakfasts served at the office increased from 26 to 209. This year, Cornerstone orders a "breakfast tray" once a week for meetings for approximately 10 people.

Zerofootprint also compared Cornerstone's greenhouse gas emissions normalized by area and by employee with other offices across Canada and within the banking and accounting industries. These comparisons showed that Cornerstone was amongst the lowest emitters in all categories.

5.1 EQUIVALENCIES

The emissions resulting from Cornerstone's business operations can be expressed in equivalences using activities or metrics that are more relatable. Table 9 provides a summary of these metrics.

Table 9: Equivalencies

Cornerstone's 2012 emissions of 9.22 tonnes of CO_2e are equivalent to…
→ Taking 9 one-way flights between Toronto and Los Angeles
→ Going through 384 barbeque propane cylinders
→ Burning 21 barrels of oil
→ The carbon sequestered by growing 236 seedlings to 10 years of maturity
→ Emissions saved by taking 2 average-sized cars off the road in Canada

6.0 REDUCTIONS

→ This section outlines simple reduction measures that Cornerstone could use to reduce its environmental impact.

ELECTRICITY

Over the past 5 years, Cornerstone has managed to minimize its electricity consumption and the resulting CO_2 emissions. In 2012, Cornerstone offset 91% of its electricity emissions. The resulting emissions are 0.37 tonnes CO_2e.

Although Cornerstone has lower energy consumption than its peers, Zerofootprint has identified certain measures that could help Cornerstone achieve further reduction in electricity consumption.

Seasonal use of blinds could help reduce the need for air conditions in the summer and heat in the winter. For example, closing the blinds and covering the windows during the summer months could save electricity consumption from air conditioning by 4% for every degree not lowered. In the winter season, opening the blinds or window coverings can help the office capture heat and take advantage of the daylight.

For electronics, turning off computer monitors during a 1 hour lunch break can help save 234 kWh, or 0.5% of Cornerstone's 2012 electricity consumption. By changing

the computer settings to sleep mode or shut down during off business hours, 1,343 kWh or 21,130 kWh may be saved which is equivalent to approximately 3% or 51% of Cornerstone's 2012 electricity consumption.

GROUND TRAVEL

Ground travel is the second largest emission source from Cornerstone's 2012 greenhouse gas inventory. While emissions from ground travel have been significantly reduced since 2009, further reductions could be achieved by continuing to implement prior recommendations of using web-conferencing, biking, walking, public transportation, and car-share programs. Car choice can also be very significant. Switching to hybrid cars could have saved up to 58% of ground travel emissions in 2012. In addition, to improve calculation accuracy, fuel consumption data or specific make/model/year of the vehicles should be collected.

PAPER

Emissions from paper have decreased significantly over the past 5 years, with the largest reduction between 2009 and 2011. Overall paper usage has decreased approximately 80% since 2007. However, over the past year, paper type varied within the office and the number of sheets increased from 22,150 to 58,000. Cornerstone is encouraged to continue going paperless, and use paper with 100% recycled material.

WASTE

Waste production habits have remained constant since 2008. Waste emissions could be reduced by reducing waste, reusing materials, composting organic waste, and increasing recycling. Make it easy for employees by placing well-labeled compost and recycling bins throughout the office. Have a designated tray for paper only printed on one side to be reused. Cornerstone is encouraged to continue using reusable cutlery and dishes in the office.

SHIPPING

Compared to 2011, 2012's shipping footprint has more than doubled. While the distance travelled for freight was significantly less, the amount of weight transported increased. Shipping emissions can be reduced by decreasing the number, weights, and distances of packages, and by switching to less carbon-intensive methods such as bike couriers. Condensing shipments into less frequent but larger packages can

make each trip more efficient. Recycling plastic bags and shredded paper as packing materials can also decrease the weight.

FOOD

While in previous years there was no considerable change in food emissions, this year Cornerstone increased its food footprint by 85%. In 2012, there were 183 more meals served within the office than in 2011. Consider serving vegetarian or vegan meals, as animal products have the highest carbon intensity of all foods. Also, consider local and organic meals for business events. Buying locally and from farmers' markets saves emissions from the transportation of food.

OFFSETTING

Zerofootprint encourages an approach to carbon footprint reduction that begins with accurate measurement, followed by actions for reduction, and finally, the acquisition of carbon offsets to balance the remaining carbon emissions. Offsetting your carbon emissions provides a responsible option to neutralizing the climate change impacts of the emissions that are not easily reducible, or that are not within your organization's control. Zerofootprint holds a diverse portfolio of high quality offsets which reside on the CSA CleanProjects and reduction registries, meaning these projects have been determined to be consistent with ISO 14064 or that these offsets have been verified by a third party.