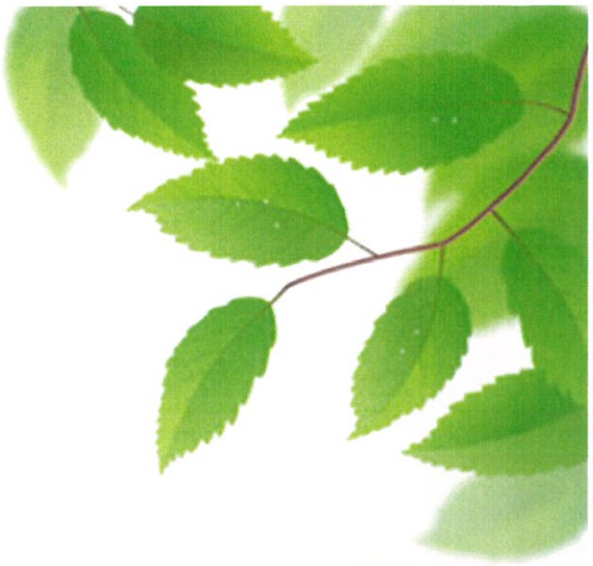
ACH

CONSULTING ENGINEERS



ACH Consulting Ltd

Carbon Footprint Report
2016 - 2017

13 October 2017

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Document Status

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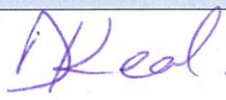
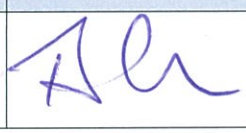
	Name	Signature	Name	Signature
Final	Debbie Keal Operations Manager		Brett Chick Director	

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Executive Summary

ACH Consulting has produced the following Carbon Footprint report for the April 2016 – March 2017 financial year. A carbon footprint is a valuable use of data that is available within the business, and quantifies the carbon emissions that an organisation has produced during a specific year. This is then related back to our base year (2014-2015) to inform trends and analysis.

ACH emitted a total of 62.52 tonnes of carbon dioxide equivalent (tCO_2e) for the full 2016-2017 financial year. This equated to 2.2 tCO_2e per Full Time Equivalent employee. These results show an 18% reduction in emissions per FTE from the baseline year of 2014-2015 when ACH originally commenced carbon emissions tracking. Over the previous 3 years, since commencing the monitoring of our carbon footprint, overall emissions volumes have stayed reasonably static regardless of a 20% increase in staff numbers and more than a 70% increase in turnover.

During the 2016-2017 the largest emissions source that ACH produced resulted from the use of company cars (Diesel and then Petrol), which is in line with all previous years.

This report has included ideas which ACH are exploring to help reduce emissions from vehicle use and create efficiencies through planning and education of staff. Priority recommendations have also been identified to assist ACH to continuously improve their approach to measuring and managing their carbon footprint. These include:

1. Continue to measure our carbon footprint and establish data collection processes for those data points excluded from the 2016-2017 financial year footprint;
2. Increase the accuracy and comprehensiveness of our carbon footprint by undertaking an annual waste audit to identify waste to landfill carbon emissions;
3. Develop a low carbon strategy to identify and prioritise objectives, targets and a programme of action to reduce our key carbon emissions. This is best presented in the form of a sustainability report which also collates other social and environmental initiatives and aspects of our business.

Contents

1. Introduction

1.1 What is a Carbon Footprint

Carbon footprints provide a snapshot of carbon dioxide emitted to the atmosphere as a result of an individual or organisation's activities. The data collected over time can identify trends, inform management planning and guide strategy for organisations looking to improve their sustainability performance by reducing their carbon footprint.

1.2 About ACH Consulting

ACH Consulting (ACH) is a structural and civil engineering consultancy based in Auckland. Our main services include structural engineering, land development, public infrastructure, forensic engineering and stormwater, wastewater and water supply services. ACH for the 2016-2017 year employed approximately 28 full time equivalent staff (FTEs).

ACH wish to better understand their carbon footprint and inform management planning, and to demonstrate a commitment to reducing their environmental impact. ACH have recently recertified to ISO14001:2015 and support this by identifying new low-carbon opportunities and initiatives. They are also aware that, increasingly, customers are requiring suppliers to demonstrate a commitment to sustainability through mechanisms such as carbon footprint monitoring and management. This is particularly true of ACH's key customers in the public sector, such as Watercare and Auckland Council.

1.3 Scope and Boundary of the Carbon Footprint

ACH's carbon footprint was calculated for 2016-2017 and is compared against the base year of 2014-2015.

The boundary of the footprint includes all of ACH's operations. However, the scope of the carbon footprint was limited to data which was readily available, including air travel, company vehicle use, electricity usage and taxi fares associated with ACH's business activities.

Exclusions from the calculations are described in Table 1.

Table 1 – Exclusions in calculations		
Activity	**GHG Protocol Scope(1)**	**Reason**
Waste Data	Scope 3	No data was available for the April 2016 – March 2017 period
(1) The Greenhouse Gas Protocol identifies three different types (Scope 1, 2 and 3) of emissions for organisations to report on as identified in Table 2 below.		

1.4 Methodology

The Greenhouse Gas Protocol (www.ghgprotocol.org) has informed the development of ACH's carbon calculator and the reporting process.

Table 2 identifies the various datasets for ACH that were entered into the carbon calculator including the emissions factors used. Exclusions are noted in Section 1.3.

Table 2 – Datasets used in ACH 2016-2017 Carbon Footprint			
GHG Protocol Scope	**Transaction Type**	**Unit**	**Emission Factors**
Scope 1 – Gross direct emissions	Company Car (Diesel)	Litre	0.00272
	Compay Car (Petrol)	Litre	0.00236
Scope 2 – Gross indirect emissions	Electricity	KWh	0.000138
Scope 3 – Gross other indirect emissions	Domestic Air Travel	KM	0.00016

2. ACH Carbon Footprint

2.1 Overview

ACH emitted a total of 62.52 tonnes of carbon dioxide equivalent (tCO_2e) for the 2016-2017 financial year. This equated to 2.2 tonnes per Full Time Equivalent employee, based on the average FTE figure of 28 for the 2016-2017 financial year period. Table 3 provides a breakdown of emissions by source. The greatest proportion of emissions resulted from company car use, followed by electricity use.

Table 3 – Emissions by Source

Emissions Source	Total tCO_2e	Percentage of Emissions
Company Car – Diesel	30.83	49%
Company Car – Petrol	22.63	36%
Electricity	7.44	12%
Air Travel – Domestic	1.63	3%

The breakdown of emissions by source is further illustrated in Figure 1 below.

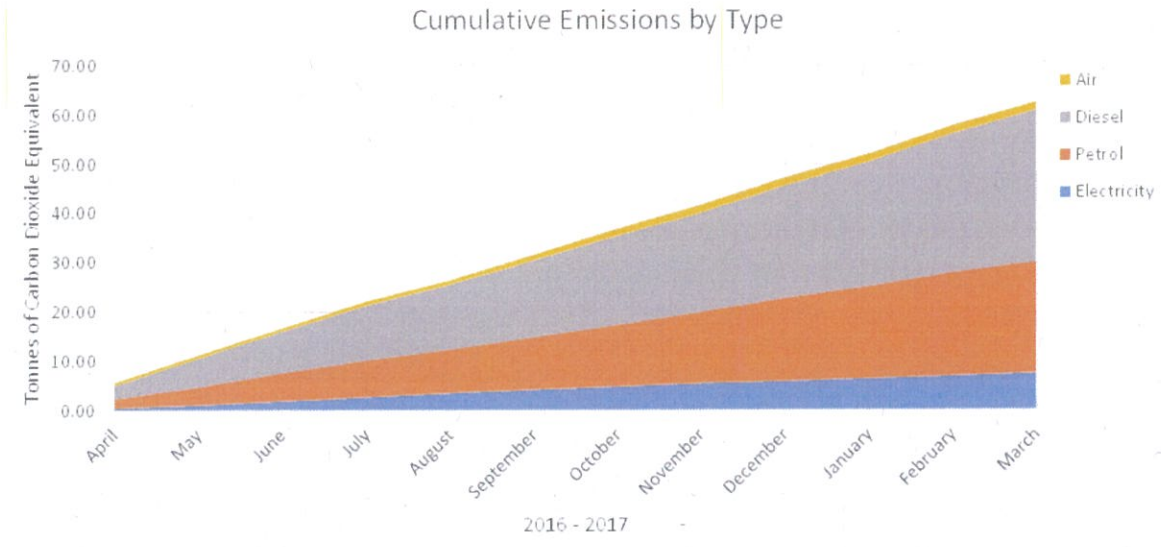

Figure 1 Cumulative Emissions by Type

ACH's total carbon emissions per month are detailed in Figure 2 with April and July showing the highest level of activity resulting in peaks of carbon dioxide emissions.

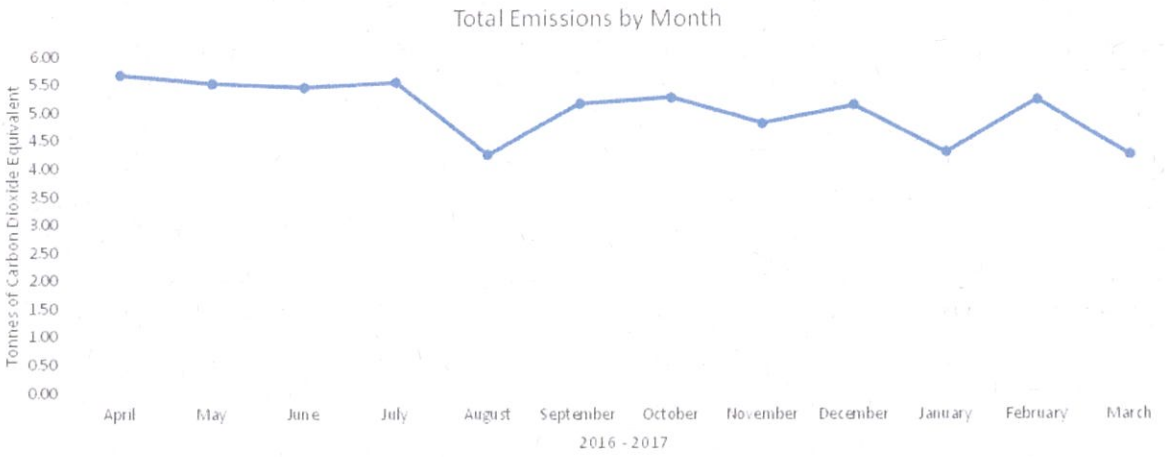

Figure 2 Total Emissions per Month

3. Next Steps to Reducing our Carbon Footprint

3.1 Recommendations

ACH has taken important steps towards reducing their carbon footprint by actively and continually identifying and reporting on their carbon footprint. The next step is to assess and further develop a strategy to manage these emissions and to improve on the accuracy and completeness of the carbon footprint. The following priority recommendations have been identified to help ACH on this journey:

- Continue to measure our carbon footprint and establish data collection processes for the data excluded from the 2016-2017 financial year footprint;
- Increase the accuracy and comprehensiveness of ACH's carbon footprint by undertaking an annual waste audit to identify waste to landfill carbon emissions; and
- Develop a low carbon strategy to identify and prioritise objectives, targets and programme of action to reduce ACH's key carbon emissions (this could be integrated into existing ISO14001 processes at ACH). This is best presented in the form of a sustainability report which also collates other social and environmental initiatives and aspects of our business.

3.2 Reduction Ideas

The ACH activity with the largest footprint and the greatest number of reduction opportunities is company car use. Ideas for reducing company car carbon emissions are listed below:

- Reducing emissions from company cars can be done by utilising technology. Meetings via skype, conference call and other media communications can replace face to face meetings and reduce the need for company car use. This may also create efficiencies in time management as it removes the journey time completely.
- Planning site visits or meetings back to back that in similar locations can save fuel consumption and driving time for employees. This may involve planning in advance and an increase in internal communication.
- The choice of car that a company provides for use has an impact on overall emissions. Firstly the AA considers Diesel Cars to produce a lower level of carbon dioxide per KM. In general, fuel efficient cars can help keep fuel costs and fuel emissions down. The Energy Efficiency and Conversation Authority (EECA) of NZ provide a simple online tool to compare fuel economy.

- Ensure that company cars have been serviced regularly keeping in mind the following maintenance aspects:
    - Underinflated tyre pressure increases fuel consumption by 4% (EECA);
    - Tyre choice can effect a car's fuel consumption. A tyre brand that meets the EECA energy wise standards can reduce fuel consumption by 7% compared to the average tyre.
- Fuel Efficient Driver training can be used to educate staff on areas that reduce fuel consumption (and reduce emissions) if a journey cannot be avoided.

The second area where opportunities exist to reduce our carbon footprint is electricity use. Some reduction ideas are listed below:

- Ensure all equipment is turned off each night rather than entering into sleep mode or stand by. This includes computers, monitors, charging stations and kitchen appliances.
- Replace all light bulbs with energy efficient compact fluorescent bulbs that last much longer.
- Use natural light where possible instead of blinds and artificial light.