



MORRISON HERSHFIELD



2023

Carbon Footprint  
Assessment

# Morrison Hershfield 2023 Carbon Footprint Assessment

## Executive Summary

Morrison Hershfield completed this Carbon Footprint Assessment for Calendar Year 2023 (January 1, 2023 to December 31, 2023) to provide an understanding of Morrison Hershfield's environmental impact and greenhouse gas (GHG) emissions. In calculating our carbon footprint, we followed established standards, used industry-leading software, and consulted reputable sources.

This 2023 assessment followed the same methodology as in 2022 and again summarized our consumption of natural gas and electricity in our office operations, but also considered employee commuting emissions, business travel emissions and supply chain emissions from purchased goods and services.

We again partnered with the technology provider AVARNI Software for tools and guidance in conducting the carbon footprint. We continued to follow the Greenhouse Gas Protocol (reference: [www.ghgprotocol.org](http://www.ghgprotocol.org)), the most commonly used standard for carbon accounting, and gathered consumption data for Scope 1, Scope 2, and Scope 3 emissions for each office. Emissions were categorized according to the three scopes defined by the Greenhouse Gas Protocol: Scope 1, emissions originating from direct sources; Scope 2, emissions associated with purchased or acquired electricity, steam, heat, and cooling; and Scope 3, indirect emissions from sources such as supply chains, business travel, and employee commuting.

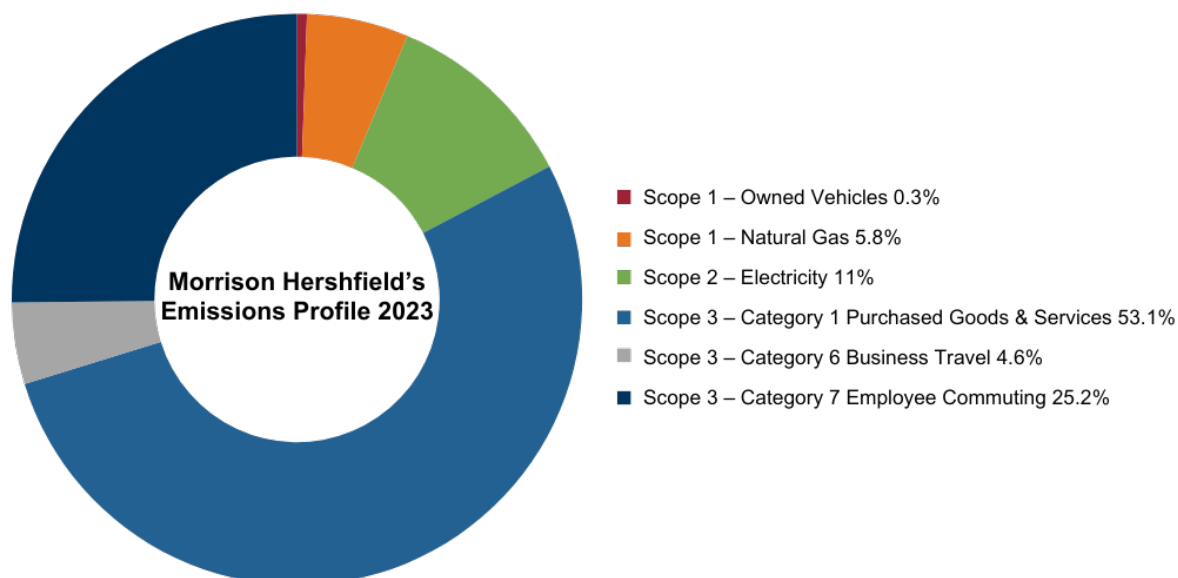
Morrison Hershfield's 2023 Carbon Footprint results for Scope 1, 2 and 3 emissions are shown in Table 1 below:

*Table 1: Total Emissions Summary (Scope 1, 2 and 3)*

Category	2023 GHG Emissions (t CO <sub>2</sub> e)
Scope 1 – Owned Vehicles	13.2
Scope 1 – Natural Gas	257
Scope 2 – Electricity	489
Scope 3 – Category 1 Purchased Goods & Services	2360
Scope 3 – Category 6 Business Travel	206
Scope 3 – Category 7 Employee Commuting	1122
<b>Total</b>	<b>4447 – 12% year over year increase</b>



Figure 1: Morrison Hershfield 2023



Since the carbon footprint calculation in 2019, our employee count has increased by 10.3% while over the same period we have reduced our total Scope 1 (natural gas) and Scope 2 (electricity) emissions by 36% which corresponds with a 42% reduction in emissions per employee.

While some of the decrease is attributable to improved electricity grid emissions factors in our operating markets, we continue to actively take measures that are having an impact, including improving the energy efficiency of the spaces we lease, relocating to more efficient buildings, investing in technology to support virtual teams and remote work, and promoting hybrid work options.

An analysis of our Scope 3 emissions included Categories 1 (Purchased Goods and Services), 6 (Business Travel), and 7 (Employee Commuting). These are the most critical categories under the GHG Protocol for a professional services firm like ours.

After the initial study of Morrison Hershfield's Scope 3 emissions in our 2022 report, we refined our operation boundary for Business Travel and Purchased Goods and Services in 2023 to our overhead activities and excluded project work associated emissions in these categories.

Scope 3 emissions over categories 1, 6, and 7 comprised 83% of our total emissions in 2023, an expected ratio for professional services firms like Morrison Hershfield.

# 1. Introduction

Morrison Hershfield is a market-leading, multi-disciplinary engineering firm contributing to the social well-being and economic prosperity of the communities we serve. As an employee-owned firm, we have the opportunity to set our own priorities, like a focus on environmental sustainability in our project work and internal operations. We understand the importance of reducing our carbon footprint as it contributes to both the state of the environment and poses health risks to individuals around the globe.

We currently employ over 1000 staff and support clients from our 23 offices in Canada, India, and the United States. By understanding the carbon footprint of our operations, active steps can be taken to improve energy efficiency, work environments for employees, and reduce overall consumption. This report outlines Morrison Hershfield's Carbon Footprint Assessment for the 2023 calendar year with comparisons to previous assessments in 2009, 2019 and 2022.

## 1.1 Carbon Footprint

A carbon footprint refers to the total amount of greenhouse gas emissions (GHG) released into the atmosphere due to human activity. These greenhouse gas emissions trap heat in the atmosphere, contributing to global warming and climate change.

Morrison Hershfield produces GHGs through the heating, cooling, and ventilation of offices, lighting, computers, any other electricity, or fuel used in offices, our supply chain, business travel, employee commute, and company-owned vehicles.

## 1.2 Project Overview

The purpose of this project is to conduct a comprehensive analysis of Morrison Hershfield's Carbon Footprint Assessment for 2023. By measuring and assessing the greenhouse gas emissions associated with various activities, this project aims to provide valuable insights into the environmental impact of our organization, as well as identify opportunities for emission reduction and sustainability improvements.

We partnered with the technology provider AVARNI Software for tools and guidance in conducting the carbon footprint. The technology includes capabilities to forecast carbon reduction pathways which will prove important as we formally commit to reducing our carbon footprint.



## 2. Methodology

### 2.1 Data Quality and Emissions Scope

This 2023 Carbon Footprint Assessment followed the same methodology and references detailed in the [2022 Carbon Footprint Assessment report](#). These details will not be repeated here except for the following clarifications.

The emissions scopes followed the GHG Protocol and included Scope 1 (Natural Gas Usage and Fuel for Company-owned Vehicles), Scope 2 (Electricity Usage), and Scope 3 (Category 1 – Purchased Goods and Services, Category 6 – Business Travel and Category 7 – Employee Commuting). In 2023, the operational boundary was limited to overhead related emissions in Scope 3 (i.e., project-related emissions were excluded).

Where energy consumption data was not available, the calculations used either estimates (small offices or shared workspaces) or 2022 data (in the case of larger offices with landlords that did not supply data).

For Scope 3 Category 7 - Employee Commuting we utilized the same survey data collected in June 2023 for our 2022 assessment. This data collection used a standardized employee commuting questionnaire sent to all employees that recorded the primary office travelled to, method of commute (including multi-mode commutes) and the distance travelled. The survey captured a robust dataset with a response rate of 50% that was extrapolated to the entire company. Our office occupancy rates have not changed year-over-year so the June 2023 survey results were extrapolated to the average employee headcount in 2023.

*Table 2: Available Natural Gas and Electricity*

Office	Natural Gas	Electricity
Atlanta	Not used	Primary
Baltimore	Primary	Primary
Burlington	Primary	Primary
St John's	Not used	Primary
Charlotte	Primary	Primary
Calgary	Primary	Primary
Denver	Estimated	Estimated
Edmonton	Primary	Primary
Florida	Not used	Estimated
Moncton	Primary	Estimated (2022 data)
Nanaimo	Primary	Estimated
Ottawa	Not used	Estimated (2022 data)
Portland	Not used	Primary

San Francisco	Primary	Primary
San Diego	Not used	Estimated
Seattle	Not used	Estimated (2022 data)
Salt Lake City	Primary	Primary
Toronto	Primary	Primary
Vancouver	Primary	Primary
Victoria	Estimated	Primary
Vizag	Not used	Estimated (2022 data)
Whitehorse	Not used	Primary
Winnipeg	Primary	Primary

## 3. Carbon Footprint Assessment Results

Morrison Hershfield's Carbon Footprint Assessment in 2023 was determined by evaluating natural gas, owned vehicles, electricity, employee commuting, business travel, and purchased goods and services using the described methodology. Results are presented in the following report sub-sections and where available results are also shown for previous our assessments.

### 3.1 Scope 1 & 2: Operations

Table 3: Scope 1 & 2 Emissions

Category	2009 (tCO <sub>2</sub> e)	2019 (tCO <sub>2</sub> e)	2022 (tCO <sub>2</sub> e)	2023 (tCO <sub>2</sub> e)	Change from 2019
Employee Count (#)	753	975	1001	1075	+10.3%
Scope 1: Owned Vehicles (t CO <sub>2</sub> e)	N/A	N/A	27.5	13.7	-
Scope 1: Natural Gas (t CO <sub>2</sub> e)	220	300	208	257	-14.3%
Scope 2: Electricity (t CO <sub>2</sub> e)	1297	859	544	489	-43.1%
Scope 1 & 2: (t CO <sub>2</sub> e)	1517	1159	780	760	-34.4%

Since the carbon footprint calculation in 2019, our employee count has increased by 10.3% while over the same period we have reduced our total Scope 1 (natural gas) and Scope 2 (electricity) emissions by 34% which corresponds with a 41% reduction in emissions per employee. Table 6 details our Scope 1 and Scope 2 emissions over the past four assessments.

Over the years the reduction in reliance on estimates and the improved electricity grid emissions factors in our operating markets have contributed to the decline in Scope 1 & 2 emissions. We also continue to see improvements in our emissions production due to relocating to more efficient buildings, energy efficiency, and space usage improvements in existing facilities. As we accommodate the needs of a hybrid workforce model, Morrison Hershfield has begun to reimagine our workspace needs.

### 3.2 Scope 3 – Employee Commuting (Category 7)

Table 4: Employee Commuting Emissions

Scope 3 - Category 7 Employee Commuting	2009	2019	2022	2023
Employee Count (#)	753	975	1001	1075
GHG Emissions (Annual t CO2e)	2230	1627	1045	1122
Intensity (Annual t CO2e/employee)	2.96	1.67	1.04	1.04

GHG emissions associated with employee commuting were assessed based on the results of a staff survey from June 2023 which included multi-mode transportation options. Though figures are shown in Table 4, fundamentally different methods were used to estimate employee commuting emissions in the 2019 and 2009 reports, so straight comparisons must use caution.

The employee commuting survey used for our 2023 analysis did reveal reduced commuting and a significant shift to a hybrid work environment. Approximately 20% of our workforce now works fulltime from home and about 20% chooses to work fulltime from the office. The remaining 60% of staff take a hybrid approach to their work location.

About 77% of those who commute to an office use gas powered cars, making this the preferred method of commuting. Electric and hybrid vehicles make up 5.5% of commuting trips. Just over 5% of our staff choose to walk or bike for their commute to work and 3.4% of commuters use public transit.

### 3.3 Scope 3 – Business Travel (Category 6)

Table 5: Business Travel Emissions

Scope 3 – Category 6 Business Travel	2022 GHG Emissions (t CO2e)	2023 GHG Emissions (t CO2e)
Airfares	70.2	132
Employee-owned vehicle non-commuting travel	20.3	22.6
Taxis/Ride-Sharing	15.4	21.7
Vehicle Rental	5.98	9.70
Transit, Tolls	-	20
Total	112	206

Comparisons to 2009 and 2019 results are not possible since this category was not included. Table 5 summarizes the 2022 and 2023 Business Travel emissions pertaining to our overhead activities. Emissions from project related travel are not within the operational boundary.

There was a continued return to more interoffice travel in 2023 which is reflected in the increased emissions, particularly from air travel. Business travel related GHG emissions





accounted for 2.6% of our total emissions in 2022 and for 4.6% in 2023. Emissions from air travel were up by almost 90% year-over-year.

### 3.4 Scope 3 – Purchased Good and Services (Category 1)

A substantial portion of our emissions (53%) stems from our supply chain, similar to other professional services firms. The primary contributors to emissions within our supply chain include office rent, software, staff expenses, sub-consultants, insurance and miscellaneous office expenses. Table 6 shows the breakdown of our Scope 3 Purchased Goods and Services Emissions.

*Table 6: Scope 3 Purchased Goods and Services Emissions*

Scope 3 – Category 1	2023 GHG Emissions (t CO2e)
Office Rent	689
Software	492
Staff Expenses	123
Sub Consultants	118
Insurance	107
Office Expenses	91
Accommodation	67
Audit and Tax	40
Cellular Charges	37
Online Services	36
Subscriptions and Publications	36
Equipment	30
Delivery and Postage	30
Marketing	28
Client Expenses	26
Conferences/Training	17
All Other Categories	393
Total	2360

### 3.5 Total Emissions Summary

The following tables describe Morrison Hershfield's total emissions summary (Table 7), natural gas and electricity emissions by office (Table 8 and 10), a break-down of the emissions from company-owned vehicles (Table 9), and our total Scope 3 emissions by country (Table 11).

Table 7: Total Emissions Summary

Category	2023 GHG Emissions (t CO2e)
Scope 1 – Owned Vehicles	13.2
Scope 1 – Natural Gas	257
Scope 2 – Electricity	489
Scope 3 – Category 1 Purchased Goods & Services	2360
Scope 3 – Category 6 Business Travel	206
Scope 3 – Category 7 Employee Commuting	1122
Total	4447 – 12% year over year increase

### 3.6 Emissions by Office

#### Scope 1: Natural Gas

Table 8: Natural Gas 2023 Emissions

Country	Office	Consumption (therms)	Emissions (t CO2e)	Emission Factors (kg CO2e/therm)
USA	Atlanta	-	-	-
USA	Baltimore	1584	8.42	-
Canada	Burlington	4701	25.0	5.31
USA	Charlotte	297	1.58	5.31
Canada	Calgary	10,352	55.0	5.31
USA	Denver	2143	11.4	5.31
Canada	Edmonton	7740	41.1	5.31
USA	Florida	-	-	-
Canada	Moncton	3.4	0.018	5.31
Canada	Nanaimo	106	0.564	5.31
Canada	Ottawa	-	-	-
USA	Portland	-	-	-
USA	San Francisco	769	4.09	5.31
USA	San Diego	-	-	-

USA	Seattle	-	-	-
USA	Salt Lake City	684	3.63	-
Canada	St. John's	-	-	-
Canada	Toronto	11,887	63.1	5.31
Canada	Vancouver	2093	11.1	5.31
Canada	Victoria	1915	10.2	5.31
India	Vizag	-	-	-
Canada	Whitehorse	-	-	-
Canada	Winnipeg	4130	21.9	5.31

### **Scope 1: Company-Owned Vehicles**

*Table 9: Company-Owned Vehicles 2023 Emissions*

Country	Office	Distance (km)	Emissions (t CO2e)
Canada	Edmonton	4,617	1.36
Canada	Vancouver	10,941	3.22
Canada	Vancouver	5,517	1.62
USA	Portland	8,082	2.38
USA	Salt Lake City	12,239	3.60
USA	Portland	9,139	2.69
USA	Seattle	10,145	2.98

### **Scope 2: Electricity**

*Table 10: Electricity 2023 Emissions*

Country	Office	Consumption (kWh)	Emissions (t CO2e)	Emission Factors (kg CO2e/kWh)
USA	Atlanta	267,93	88.0	0.33
USA	Baltimore	97,852	28.6	0.29
Canada	Burlington	47,104	1.20	0.03
USA	Charlotte	11,466	3.37	0.29
Canada	Calgary	231,326	135.2	0.58
USA	Denver	15,309	8.47	0.55

USA	Dallas	1,925	0.749	0.39
Canada	Edmonton	107,433	62.8	0.58
USA	Florida	7,118	2.72	0.38
USA	Houston	45,029	17.5	0.39
USA	Minnesota	11,217	3.92	0.35
Canada	Moncton	97.2	0.0001	0.29
Canada	Nanaimo	5,916	0.043	0.01
Canada	Ottawa	785,541	20.0	0.03
USA	Portland	118,696	18.4	0.15
USA	San Francisco	12,645	2.60	0.21
USA	San Diego	6,250	1.28	0.21
USA	Seattle	61,693	5.96	0.10
USA	Salt Lake City	27,957	19.85	0.71
Canada	St. John's	36,068	0.866	0.02
Canada	Toronto	750,018	19.1	0.03
Canada	Vancouver	360,274	2.64	0.01
Canada	Victoria	9,968	0.073	0.01
India	Vizag	74,482	52.7	0.71
Canada	Whitehorse	44,736	4.49	0.10
Canada	Winnipeg	42,200	0.046	0.0012

### **Scope 3: Purchased Goods and Services, Business Travel and Employee Commute**

*Table 11: Scope 3 2022 Emissions by Country*

Country	Headcount	Category 1: Purchased Goods and Services Emissions (t CO2e)	Category 6: Business Travel Emissions (t CO2e)	Category 7: Employee Commuting Emissions (t CO2e)
<b>Canada</b>	759	4,095	563	764
<b>USA</b>	175	957	214	150
<b>India</b>	67	148	0.64	131
<b>Total</b>	1,001	5,200	778	1,045

## 4. Conclusions

Morrison Hershfield's 2023 Carbon Footprint Assessment has provided valuable insights into our organization's environmental impact. By quantifying and assessing greenhouse gas emissions across various scopes and sectors, we have gained a deeper understanding of our contribution to climate change. Our findings have highlighted specific emissions sources and hotspots, enabling us to prioritize and target mitigation efforts accordingly and effectively.

In 2023 we continued to see improvements in many areas. Overall, our Scope 1 (natural gas) and Scope 2 (electricity) emissions have improved since our 2019 baseline. While our workforce has increased by 10.2%, we have reduced our total Scope 1 (natural gas) and Scope 2 (electricity) emissions by 34% which corresponds to a 41% reduction in emissions per employee. These reductions are due to intentional measures to improve the sustainability of our buildings but also due to a cleaner electricity grid in some regions resulting in improved emissions factors.

Driven in large part by the move to hybrid work, we have reduced our company total space requirement per employee by 24% since 2019.

Scope 3, Category 7 Employee Commuting GHG emissions unchanged on a per employee basis year-over-year but increased by 7.5% due to our growth in headcount. In 2023 we saw a continued preference for a hybrid work environment with overall daily office occupancy rates unchanged year-over-year. With the shift to hybrid work since 2019, employee commuting emissions have declined by 38% on per employee basis.

Scope 3, Category 6 Business Travel GHG emissions accounted for 2.6% of our total emissions in 2022 and for 4.6% in 2023. There was a continued return to more interoffice travel in 2023, with the emissions from air travel up by almost 90%.

Scope 3, Category 1 Purchased Goods and Services GHG emissions, as expected for a professional services firm, made up 53% of our total emissions. The primary contributors to this emissions category include office rent, software, staff expenses, sub-consultants, insurance and miscellaneous office expenses.