

University of Manchester

Scope 3 Commuter Survey Analysis

2017

The University of Manchester has estimated the Carbon Dioxide equivalent generated by the University's Staff and Students in the process of their travel to and from the university campuses. This type of emission is known as Scope 3 Commuter Emissions.

In April/May 2017, campus respondents were asked questions on their modes of travel, distance travelled, vehicle specification, and vehicle occupancy. This information was converted into kilograms of Carbon Dioxide Equivalent (kg CO₂e) emissions based on HEFCE's *Measuring Scope 3 Emissions – Transport*, and DEFRA's *2016 Guidelines to DEFRA GHG Conversion Factors for Company Reporting*.

A total of 555 staff provided responses via an online survey and 566 students were interviewed on campus or via an online survey from total populations of 10,109 and 39,066 respectively. These samples were used to estimate the total commuter emissions for the university with a maximum error margin of 5% to a confidence level of 95%.

Check that person interviewed is University of Manchester Student

Q1 What is your term-time postcode?
(Likely to be a Greater Manchester postcode e.g. M, SK, BL, OL, WA, WN; if not then double check that a term-time postcode has been provided)

Q2 How did you travel to campus today?
(Answer in boxes below and tick all that apply)

Q3 Please state distance (in miles) travelled for each mode on your one way trip to campus.

For Q2 allow respondents to provide modes themselves rather than providing them with the list.

If respondents only provide one mode, ask questions that will obtain more information, e.g. "How did you get from your house to the bus stop?" Refer to induction discussion.

Save time in Q3 by asking these questions alongside Q2, e.g. "How far did you drive?"

	Q2	Q3	
Car	<input type="checkbox"/>	<input type="text"/>	Go to Q4
Motorcycle	<input type="checkbox"/>	<input type="text"/>	Go to Q7
Van	<input type="checkbox"/>	<input type="text"/>	Go to Q5
Taxi	<input type="checkbox"/>	<input type="text"/>	Go to Q11
Bus	<input type="checkbox"/>	<input type="text"/>	Go to Q12
Coach	<input type="checkbox"/>	<input type="text"/>	
Rail	<input type="checkbox"/>	<input type="text"/>	
Tram	<input type="checkbox"/>	<input type="text"/>	
Cycle	<input type="checkbox"/>	<input type="text"/>	
Walk	<input type="checkbox"/>	<input type="text"/>	

Kilometres (km)	1	2	3	4	5	6	7	8	9	10
Miles	0.6	1.2	1.9	2.5	3.1	3.7	4.3	5.0	5.6	6.2

Sample of paper survey

This booklet contains analysis of the 2017 staff and student survey. In addition, comparisons with a survey conducted in 2015 are also provided. Technical assumptions, methodology and a summary of findings can be found in the accompanying technical note.

If you have any questions on the content of this booklet, please contact Julia Durkan on 0161 275 0343, julia.durkan@manchester.ac.uk

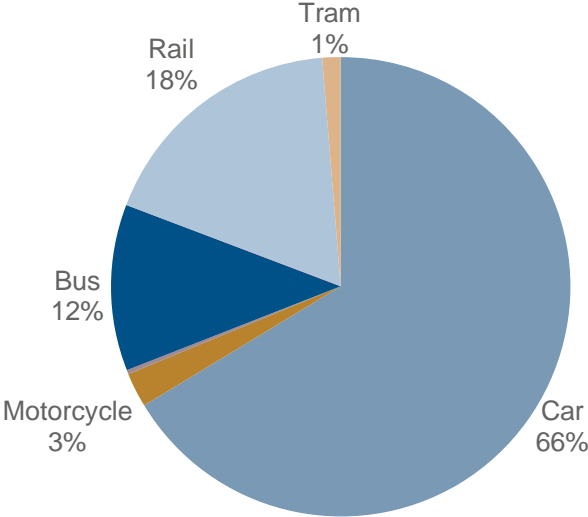
Total Staff and Student Emissions

Staff and Students will generate 9,470 tonnes of CO₂ equivalent in the process of their travel to and from the university campuses in 2016/2017.

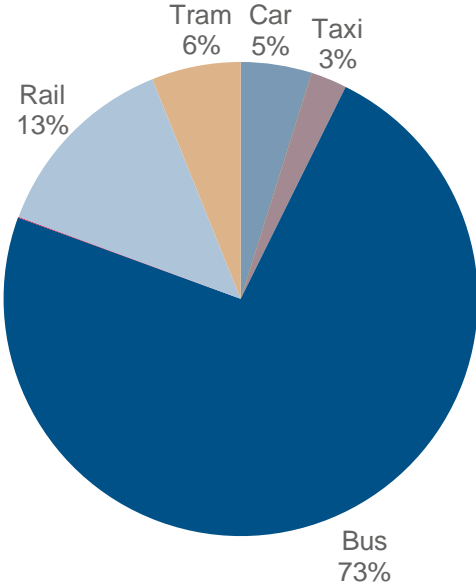
9,470 tonnes CO₂e

Grand Total Carbon Dioxide Equiv. Scope 3 Commuter Emissions

Staff emissions by mode



Student emissions by mode



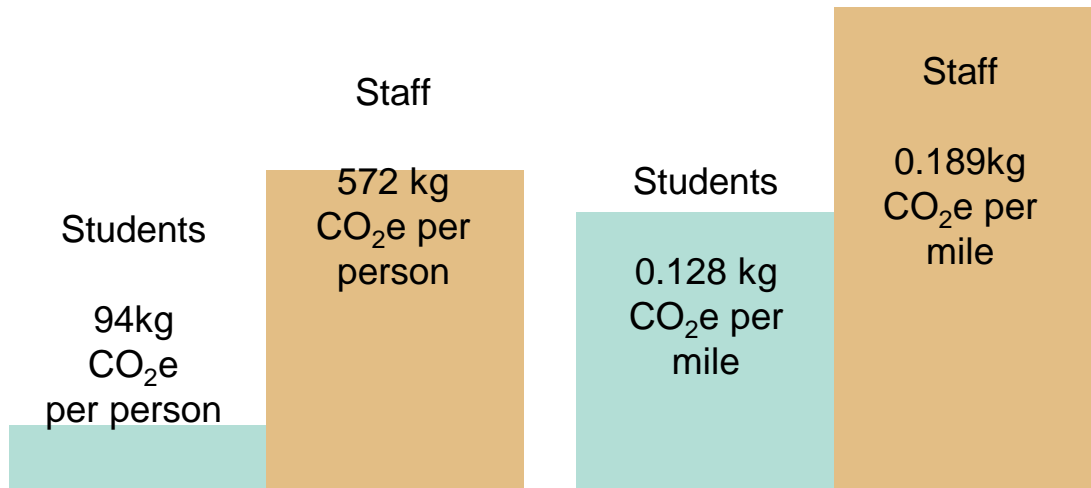
The majority of students' emissions are from bus travel whereas the majority of staff emissions are from car travel.

5,778 tonnes CO₂e (61%)

Total Staff Carbon Dioxide Equiv. Scope 3 Commuter Emissions

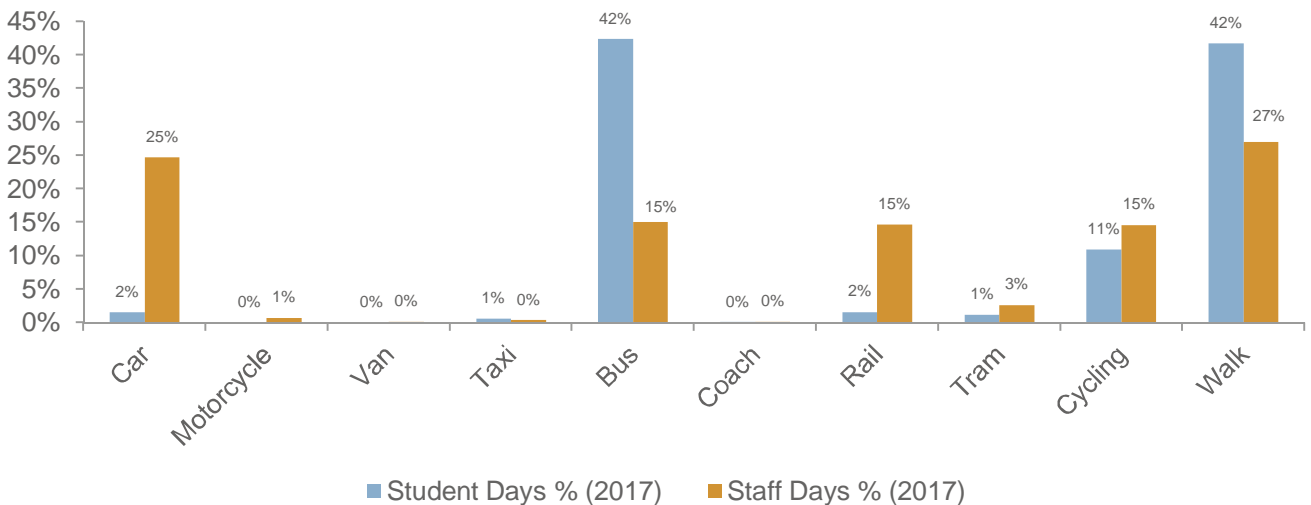
3,692 tonnes CO₂e (39%)

Total Student Carbon Dioxide Equiv. Scope 3 Commuter Emissions



Staff are responsible for 61% of emissions, and have the greater per person and per mile footprint. Students are responsible for 39% of emissions, however represent approximately 80% of the total university population.

Proportion of Annual Journeys made by Mode (all modes across journey)

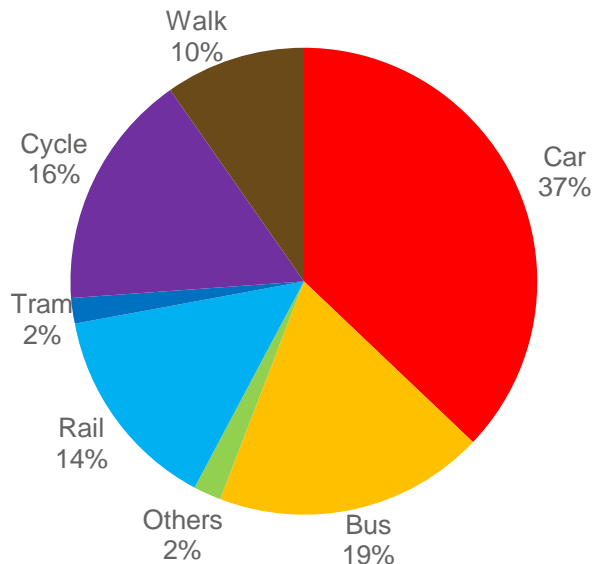


53% of students walk or cycle, compared to 42% of staff

Main Mode Choice

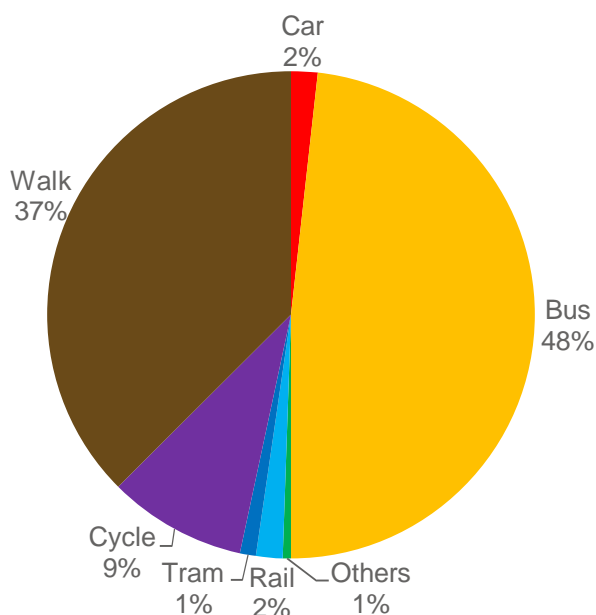
Staff main mode choice

The main mode choice for staff is car (37%). Public transport accounts for 35% of main mode choice. Walking and cycling accounts for 26% of main mode choice.



Students main mode choice

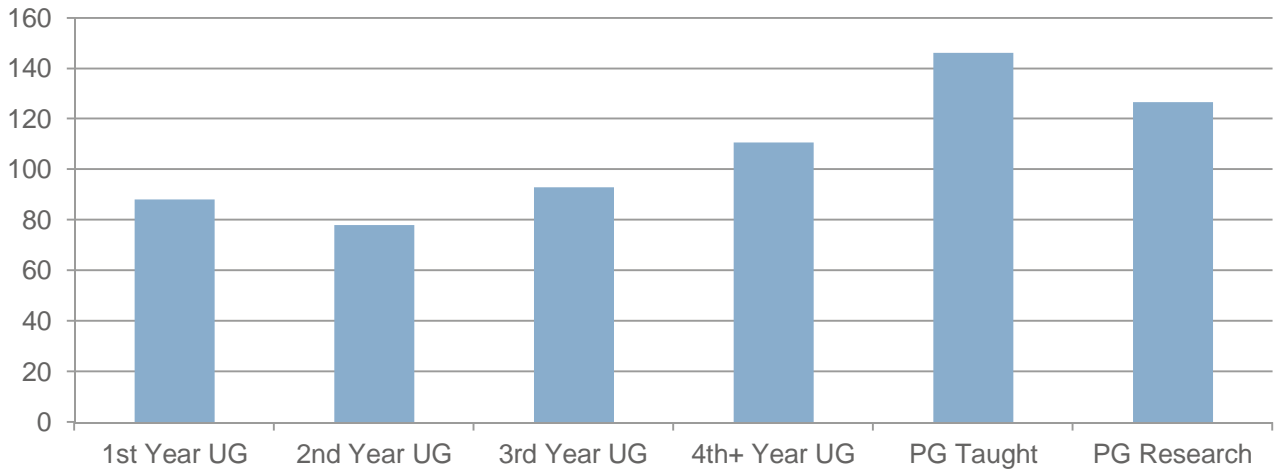
The main mode choice for students is bus (48%). Public transport accounts for 51% of main mode choice. Walking and cycling accounts for 46% of main mode choice.



The majority of staff travel by car whereas the majority of students travel by bus.

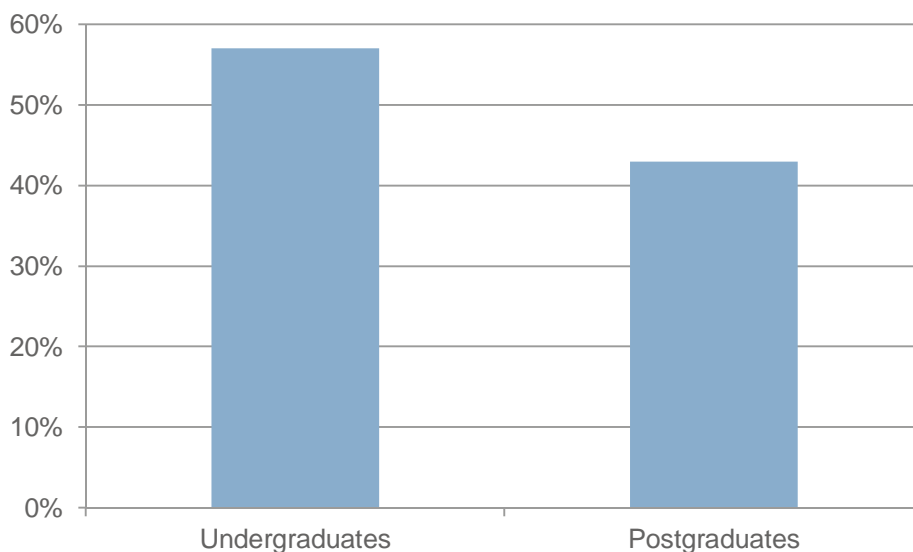
Emissions per student group

Year Group Emissions (Kg CO₂e per Student)



First and Second Year Undergraduates emit the least.

Undergraduate emissions increase after second year



Undergraduates are responsible for 57% of emissions. Postgraduates are responsible for 43% of emissions.

Summary Tables

Student Greenhouse Gas (GHG) Emissions (Kg CO₂e)

	Total			Per Student			Per Mile		
	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG
<i>Total Emissions</i>	3068390	623248	3691639	79	16	94	0.106	0.022	0.128
<i>Car Emissions</i>	149830	29467	179297	131	26	157	0.284	0.056	0.340
<i>Motorbike Emissions</i>	0	0	0	0	0	0	0.000	0.000	0.000
<i>Van Emissions</i>	0	0	0	0	0	0	0.000	0.000	0.000
<i>Taxi Emissions</i>	75330	15548	90878	132	27	159	0.367	0.076	0.443
<i>Bus Emissions</i>	2230638	474006	2704643	87	18	105	0.193	0.041	0.234
<i>Coach Emissions</i>	1786	378	2164	22	5	26	0.046	0.010	0.056
<i>Rail Emissions</i>	416328	74658	490985	463	83	546	0.079	0.014	0.093
<i>Tram Emissions</i>	194480	29192	223671	264	40	304	0.086	0.013	0.099
<i>Ferry Emissions</i>	613970	127493	741463	73	15	88	0.096	0.020	0.116
<i>Year 1 UG</i>	529330	107277	636606	65	13	78	0.126	0.025	0.151
<i>Year 2 UG</i>	643653	128880	772533	78	16	93	0.117	0.023	0.140
<i>Year 3 UG</i>	223027	46110	269137	92	19	111	0.136	0.028	0.164
<i>Year 4+ UG</i>	1125325	215476	1340801	123	24	146	0.091	0.017	0.107
<i>PG Taught</i>	396877	84316	481194	105	22	127	0.096	0.020	0.107
<i>PG Research</i>	807359	164457	971816	98	20	118	0.100	0.020	0.120
<i>Sackville Street Campus Emissions</i>	2254626	457490	2712116	73	15	88	0.045	0.009	0.054
<i>Oxford Road Campus Emissions</i>	3068390	623248	3691639	79	16	94	0.106	0.022	0.128

Staff Greenhouse Gas (GHG) Emissions (Kg CO₂e)

	Total			Per Staff			Per Mile		
	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG
<i>Total Emissions</i>	4825449	952341	5777790	477	94	572	0.158	0.031	0.189
<i>Car Emissions</i>	3190754	640560	3824030	743	149	892	0.302	0.061	0.363
<i>Motorbike Emissions</i>	118979	22819	141528	1030	198	1227	0.192	0.037	0.228
<i>Van Emissions</i>	11219	2334	13553	584	121	705	0.458	0.095	0.553
<i>Taxi Emissions</i>	12922	2667	15559	168	35	202	0.367	0.076	0.443
<i>Bus Emissions</i>	557483	118464	674662	201	43	244	0.193	0.041	0.234
<i>Coach Emissions</i>	1051	222	1271	55	12	66	0.046	0.010	0.056
<i>Rail Emissions</i>	877951	157438	1033420	356	64	420	0.079	0.014	0.093
<i>Tram Emissions</i>	64261	9646	73766	104	16	120	0.086	0.013	0.099

University of Manchester Scope 3 Commuter Survey Analysis 2015/2017 Comparison

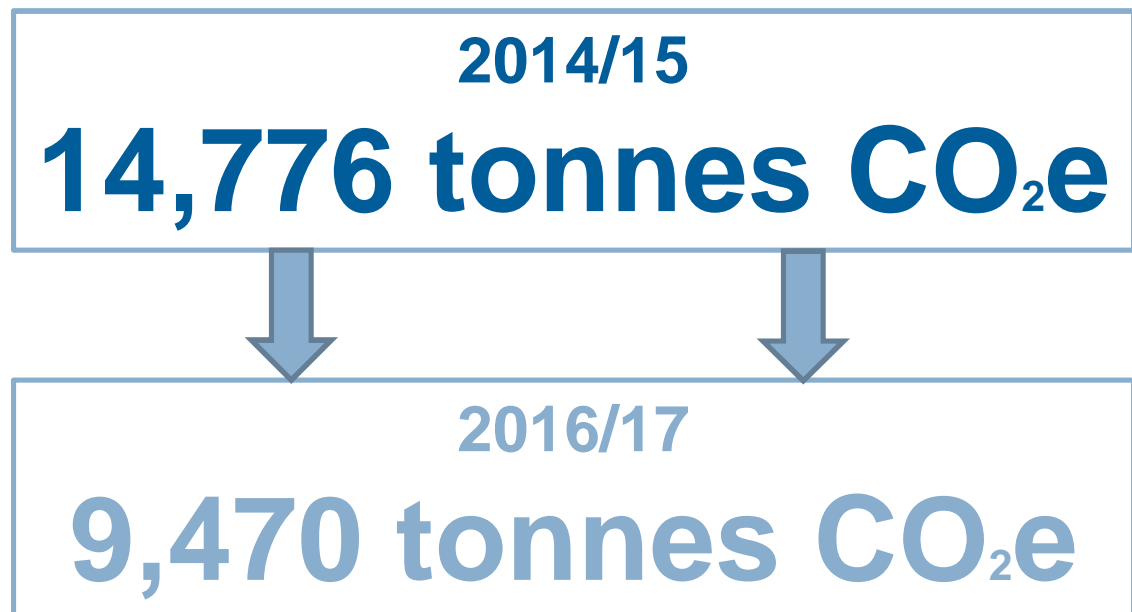
The following slides provide a comparison of the 2015 and 2017 surveys. The accompanying technical note provides further notes on technical assumptions made in the comparison.

Total Staff and Student Emissions

In 2014/15 staff and students generated 14,776 tonnes CO₂ equivalent in the process of their travel to and from the university campuses.

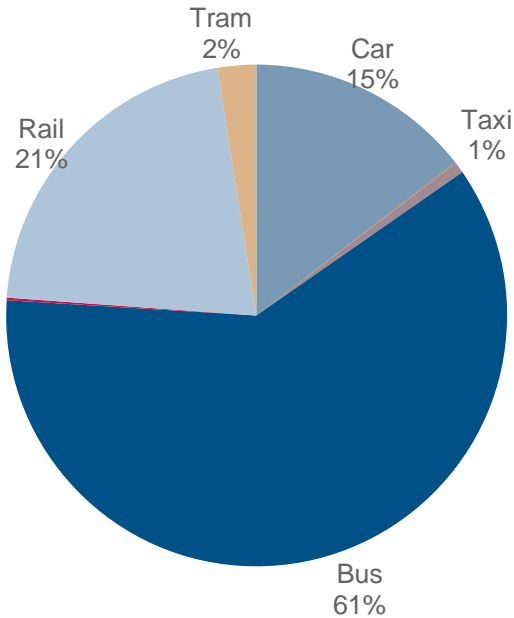
In 2016/17 staff and students will generate 9,470 tonnes of CO₂ equivalent in the process of their travel to and from the university campuses.

Grand Total Carbon Dioxide Equiv. Scope 3 Commuter Emissions

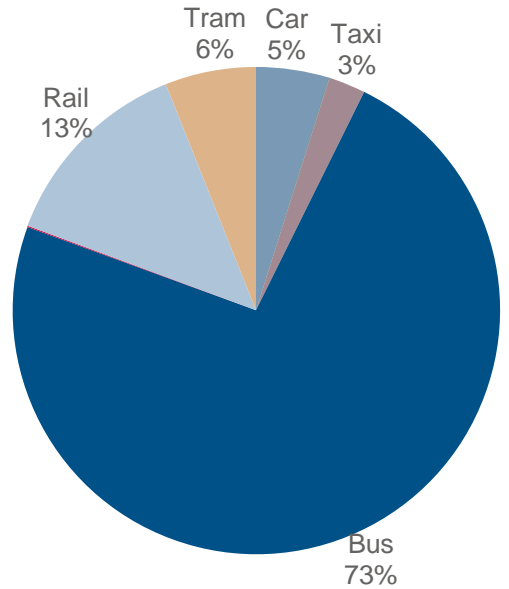


The total emissions generated by staff and students travelling to campus has decreased by 36%

Proportion Student Emissions by Mode (2015)

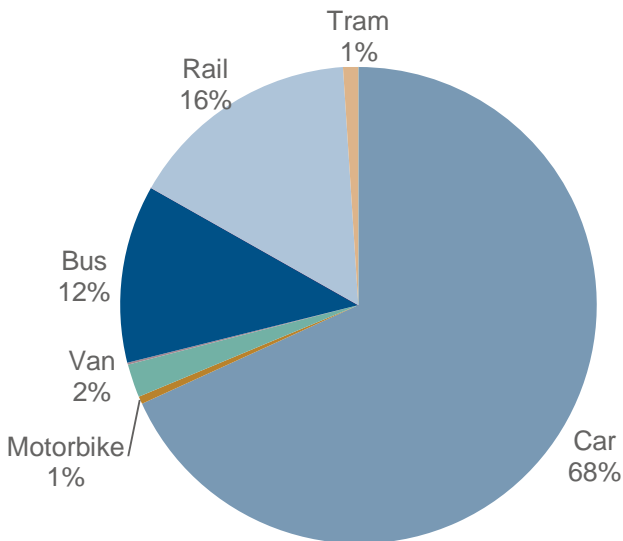


Proportion Student Emissions by Mode (2017)

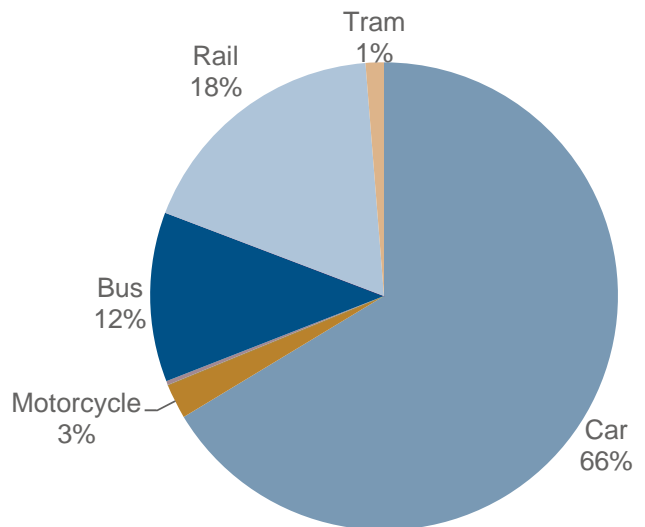


In 2017, the main student travel mode was bus contributing to 73% of student emissions, increasing by 12% since 2015.

Proportion Staff Emissions by Mode (2015)

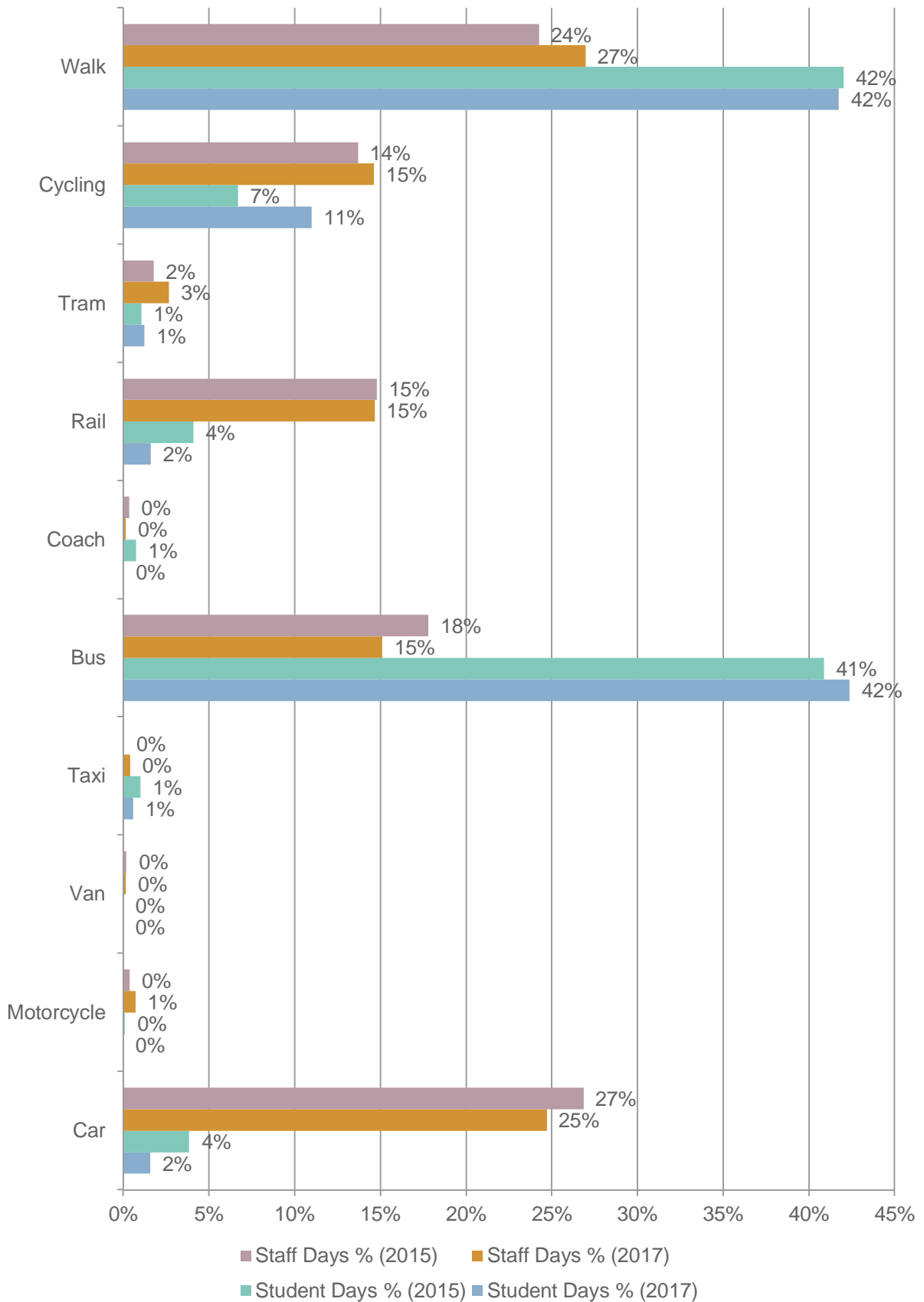


Proportion Staff Emissions by Mode (2017)



In 2017, the main staff travel mode was car contributing 66% of staff emissions, decreasing by 2% since 2015.

Proportion of Annual Journeys made by Mode (all modes across journey)

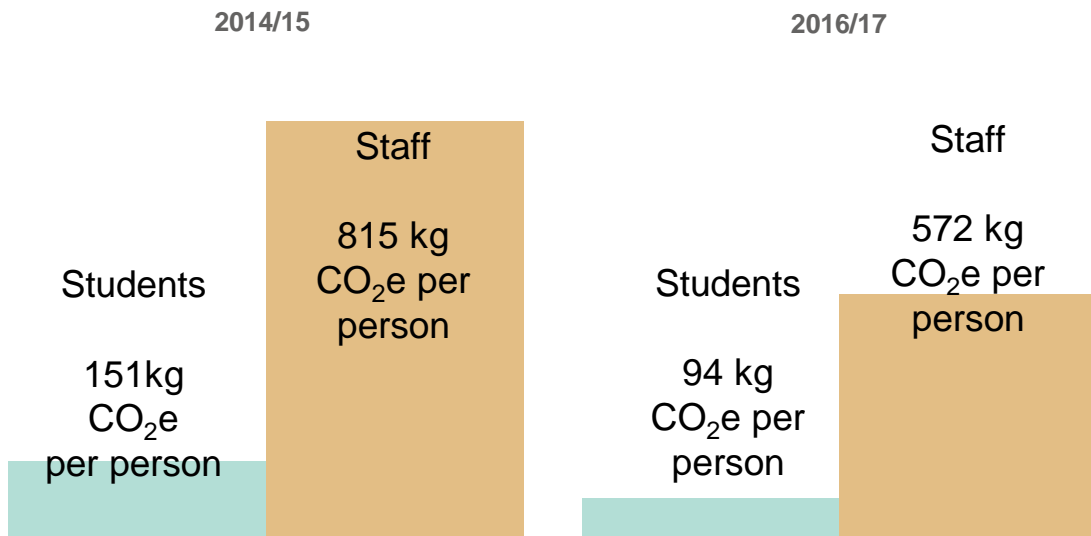


-3,184 tonnes CO₂e (-36%)

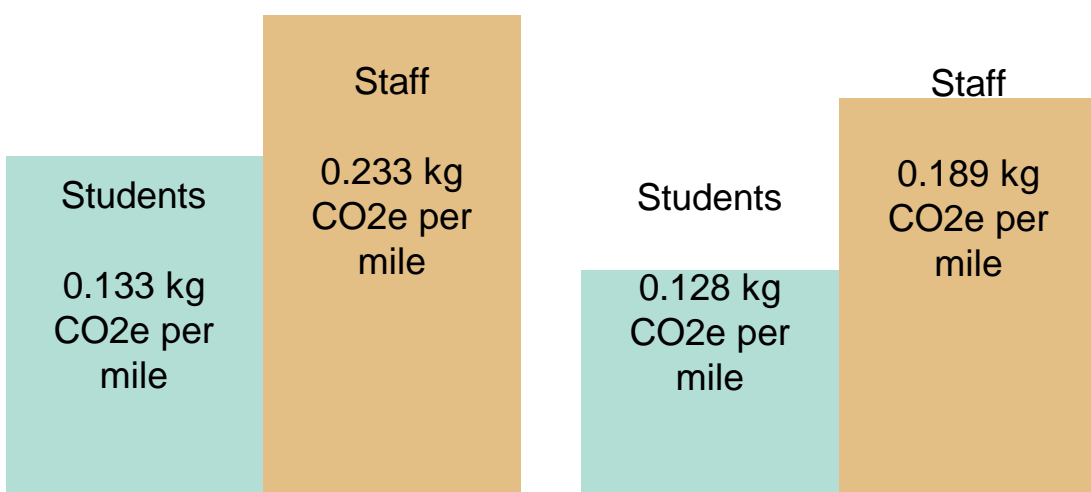
Net Change in Total Staff Carbon Dioxide Equiv. Scope 3 Commuter Emissions

-2,123 tonnes CO₂e (-37%)

Net Change in Total Student Carbon Dioxide Equiv. Scope 3 Commuter Emissions



The emissions generated by students and staff have decreased

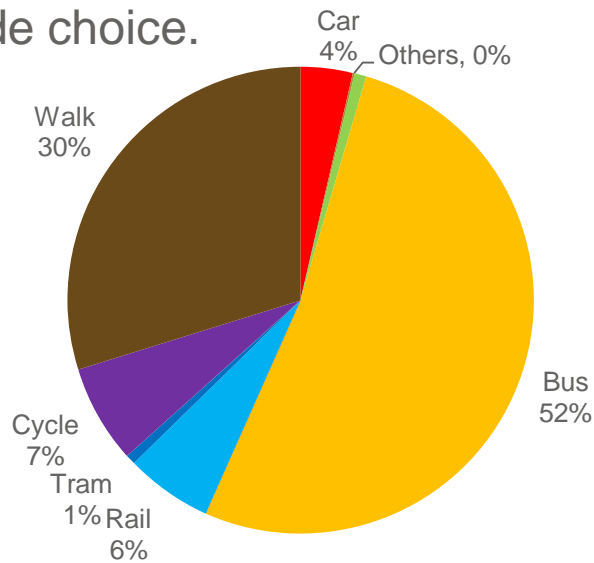


The emissions generated by students and staff has decreased.

Students Main Mode Choice

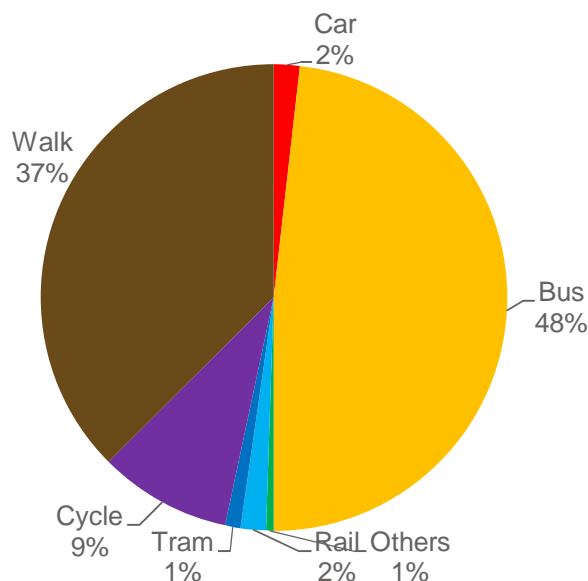
Students main mode choice (2015)

In 2015, the main mode choice for students was bus (52%). Public transport accounted for 59% of main mode choice. Walking and cycling accounted for 37% of main mode choice.



Students main mode choice (2017)

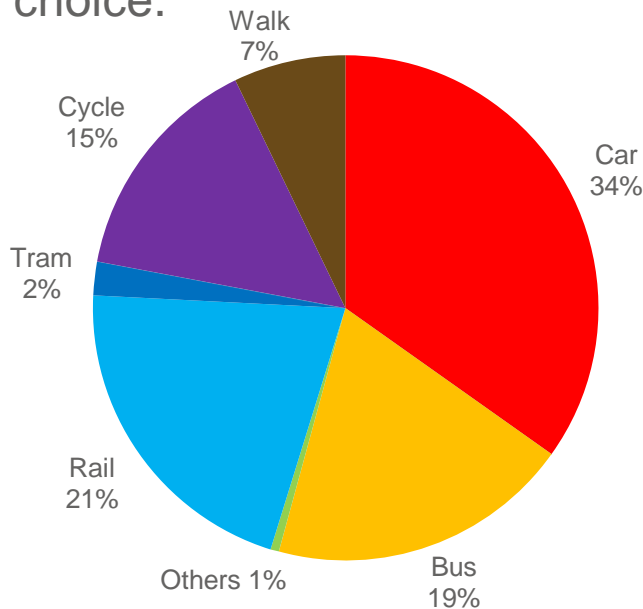
Main mode choice for students has remained broadly similar between the 2015 and 2017 surveys with bus remaining the main mode choice. Overall use in public transport has declined by 5% while walking and cycling has increased by 6%.



Staff Main Mode Choice

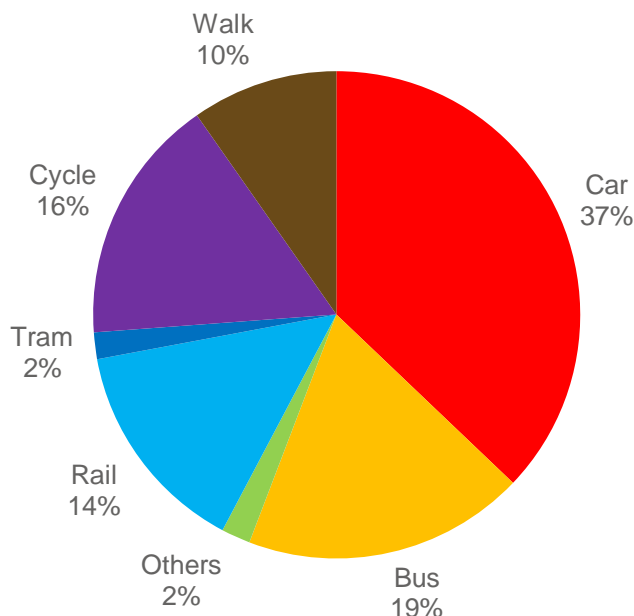
Staff main mode choice (2015)

In 2015, the main mode choice for staff was car (34%). Public transport accounted for 42% of main mode choice. Walking and cycling accounted for 22% of main mode choice.



Staff main mode choice (2017)

Walking and cycling has increased by 4%, and car use has increased by 3%. Rail use has decreased by 7% since 2016.



Summary Tables

2014/15: Student Greenhouse Gas (GHG) Emissions (Kg CO2e)

	Total			Per Student			Per Mile		
	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG
Total Emissions	5290022	1083696	6373717	138	28	166	0.111	0.023	0.134
Car Emissions	875826	173901	1049726	136	49	300	0.479	0.095	0.574
Motorbike Emissions	3459	670	4129	249	26	162	0.171	0.033	0.204
Van Emissions	0	0	0	0	0	0	0.000	0.000	0.000
Taxi Emissions	38822	8420	47242	102	22	124	0.286	0.062	0.348
Bus Emissions	3119674	675464	3795137	133	29	162	0.176	0.038	0.214
Coach Emissions	7653	1637	9290	25	5	30	0.047	0.010	0.057
Rail Emissions	1117588	204270	1321858	365	67	432	0.076	0.014	0.090
Tram Emissions	127000	19334	146335	147	22	169	0.099	0.015	0.114
Year 1 UG	824026	168571	992598	113	23	136	0.107	0.022	0.128
Year 2 UG	1068659	223746	1292405	137	29	165	0.121	0.025	0.147
Year 3 UG	1178699	242403	1421102	149	31	180	0.131	0.027	0.158
Year 4+ UG	432223	88478	520701	161	33	194	0.092	0.019	0.111
PG Taught	1168125	232883	1401008	147	29	176	0.098	0.020	0.125
PG Research	610203	121214	731416	170	34	204	0.107	0.021	0.134
Sackville Street Campus Emissions	173843	35113	208956	99	20	119	0.114	0.023	0.137
Oxford Road Campus Emissions	5042890	1032732	6075622	140	29	168	0.111	0.023	0.134

2016/17: Student Greenhouse Gas (GHG) Emissions (Kg CO2e)

	Total			Per Student			Per Mile		
	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG
Total Emissions	3068390	623248	3691639	79	16	94	0.106	0.022	0.128
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Taxi Emissions	75330	15548	90878	132	27	159	0.367	0.076	0.443
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	Total			Per Staff			Per Mile		
	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG
<i>Total Emissions</i>	7461914	1499628	8961541	678	136	815	0.194	0.039	0.233
<i>Car Emissions</i>	5081349	1030235	6111585	976	198	1174	0.510	0.103	0.613
<i>Motorbike Emissions</i>	39954	7828	47781	390	76	466	0.222	0.044	0.266
<i>Van Emissions</i>	163288	35674	198962	6368	1391	7760	0.865	0.189	1.054
<i>Taxi Emissions</i>	12301	2668	14970	160	35	195	0.286	0.062	0.348
<i>Bus Emissions</i>	887582	192177	1079759	286	62	348	0.176	0.038	0.214
<i>Coach Emissions</i>	1180	252	1432	23	5	28	0.047	0.010	0.057
<i>Rail Emissions</i>	1195099	218437	1413537	453	83	535	0.076	0.014	0.090
<i>Tram Emissions</i>	81161	12356	93516	186	28	215	0.099	0.015	0.114

2014/15 Staff Greenhouse Gas (GHG) Emissions (Kg CO2e)

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	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG	Direct GHG	Indirect GHG	Total GHG
<i>Total Emissions</i>	4825449	952341	5777790	477	94	572	0.158	0.031	0.189
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2016/17 Staff Greenhouse Gas (GHG) Emissions (Kg CO2e)