



THE UNIVERSITY
of EDINBURGH

The University of Edinburgh Travel Survey 2010



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1 Introduction

1.1 Colin Buchanan

1.1.1 Colin Buchanan (CB) has been commissioned by the University of Edinburgh (UoE) to design, manage and analyse their 2010 Staff and Student Travel Survey (SSTS).

1.2 Purpose and design of the 2010 SSTS

1.2.1 The UoE is committed to minimising the transport impacts of the University's activities through the adoption of a number of transport and travel related policies and the provision of Travel Plans (TPs).

1.2.2 In order to monitor the effect of measures already put in place to encourage staff and students to reduce their use of the private car for journeys to the UoE, the University has undertaken periodic travel surveys in 2000 (staff only), 2004, 2007 and now in 2010. The surveys also provide a valuable opportunity to gauge staff and student propensity to consider alternative travel modes, allowing the University to focus travel planning measures effectively.

1.2.3 For the second time the SSTS has been designed to collect information to calculate an estimate of the University's travel to work/study Carbon Footprint. For the first time, questions on business or study related travel have been incorporated within the SSTS to provide a benchmark and better understanding of this type of travel and the Carbon Footprint associated with it. This is referred to as business travel throughout the document.

1.2.4 The 2010 SSTS was designed as an entirely on-line questionnaire (with the exception of a small number of paper surveys distributed directly to staff without access to the internet at work). The survey was conducted from 15th to 26th March which is comparable with previous survey dates, and was made available to all staff and students across all UoE sites.

1.3 Integrated Travel Policy 2000

1.3.1 In 2000, the University Court adopted an Integrated Transport Policy to formalise the University's commitment to reducing the impact caused by commuting and business travel in recognition of the University as a major employer and trip generator.

1.3.2 Seven objectives are detailed within the Integrated Travel Policy to reduce the impact caused by travel including: developing Travel Plans for each University site, reducing the need for single occupancy car trips, endeavouring to exceed appropriate modal split targets as dictated by City of Edinburgh Council, reducing the need to travel & associated travel distances and reviewing the management of University business travel.

1.3.3 The Transport and Parking Manager is tasked with overseeing and implementing Integrated Travel Policy objectives. Their remit includes: policy and travel plan development and implementation, conducting SSTSs, external stakeholder negotiations, setting of overall targets for travel change, staff consultation and travel plan monitoring & review.

1.4 Existing site Travel Plans and monitoring

1.4.1 To date, Travel Plans are in place for a number of UoE sites:

- Central Area
- Pollock Halls
- King's Buildings
- Little France.

1.4.2 These site specific Travel Plans set out targets and specific measures to be implemented, the following measures have already been implemented across University sites:

- Shuttle Buses (serving various campuses);
- Shower and locker facilities;
- Pool cars for those who need a car for business travel;
- University of Edinburgh Bus Guide and Map;
- Transport and travel information on the website: www.ed.ac.uk/transport;
- Interest free staff travel loan for the purchase of public transport season ticket / bicycle purchase;
- Subsidisation of Lothian Buses Service 67, which operates between the City Centre and Easter Bush;
- Discount on One Ticket (for mixed mode public transport);
- Bicycles+: the University's Cycle to Work scheme;
- Bicycle User Groups at each main campus;
- Secure cycle stores in addition to Sheffield Racks;
- Bike Doctor visiting each University site every month in rotation;
- Discounts at bicycle shops;
- Bike Buddies Scheme for those who want a little support starting out;
- Free cycle training for learners / returners to cycling; and
- Emergency toolkits for bikes in specific locations.

1.4.3 Travel surveys are a vital monitoring tool to assess progress towards meeting Travel Plan targets while providing information about travel behaviour, the factors which influence travel behaviour and respondents propensity to consider change.

2 Key Findings

2.1 Introductions

2.1.1 The following paragraphs provide a summary of the key 2010 SSTS findings taking cognisance of previous surveys. A more detailed analysis of staff and students is provided in Chapters 4 and 5, respectively. The key findings and detailed analysis will be taken forward to develop recommendations for the advancement of the University's Travel Plans, illustrated in Chapter 6.

2.1.2 In all cases where a percentage is denoted within the text this refers to the weighted percentage of respondents who answered that particular question.

2.2 Mode share

2.2.1 Table 2.1 illustrates the 2010 SSTS *main* travel mode share (mode used to cover the greatest distance), highlighting that 86.7% of respondents travel to University by non car modes of transport. Correspondingly, Table 2.2 illustrates the 2007 SSTS Mode Share as labelled within the 2007 Survey Report. Car Sharers and Shuttle Bus patrons were taken account of in the 2010 SSTS through the car driver with passenger, car passenger and bus travel mode categories.

Table 2.1: 2010 SSTS Main mode share (Staff & Students)

Main mode	Mode share (%)
Walk/Run/Wheelchair	50.1
Bus	20.9
Cycle	10.5
Car Driver Alone	7.8
Rail	4.7
Car Driver with Passengers	3.4
Car Passenger	2.1
Motorcycle	0.4
Taxi	0.1

BASE RESPONSE =4874

Table 2.2: 2007 SSTS Mode Share (Staff & Students)

Mode	Mode share (%)
Foot	46.0
Bus*	24.2 (19.7% public bus; 4.5% shuttle bus)
Cycle	11.7
Car Driver Alone	7.1
Rail	4.8
Car Driver with Passengers	2.4
Car Passenger	1.8
Car Share	1.4
Motorcycle	0.4
Taxi	0.2

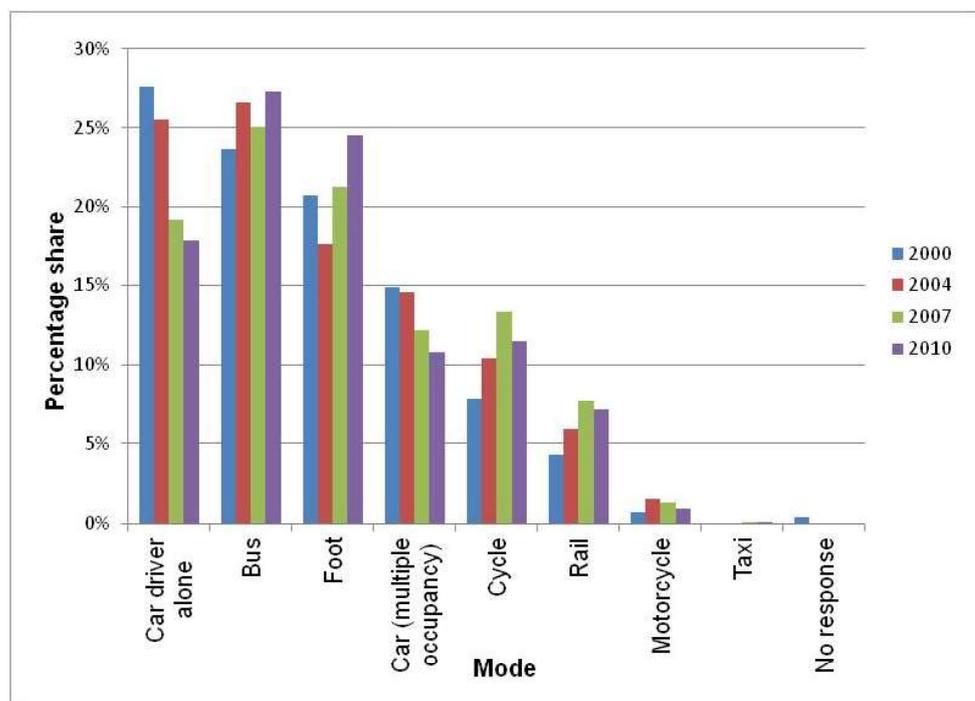
* Incl shuttle bus

2.2.2 Comparing the 2010 SSTS *main* mode share (combined staff and students), with the 2007 mode share shows the greatest percentage mode shift is towards walking, and is an increase from 46.0% to 50.1%.

2.2.3 It is important to recognise the wording of the 2010 SSTS Main Travel Mode question as respondents were asked to comment on their most *recent* journey only. The main mode of transport was the one identified as the mode used to cover the greatest distance on the journey to work / study. Where respondents gave more than one mode of transport covering the same distance, it was assumed that the respondent had misunderstood the question and because they use different modes on different days, they listed the details of each rather than for the most recent journey. This was accounted for in the analysis by a proportioning of the weighting accordingly.

2.2.4 Figure 2.1 illustrates a comparison of staff travel modes from the 2000, 2004, 2007 and 2010 surveys.

Figure 2.1: Staff travel modes 2000, 2004, 2007 and 2010



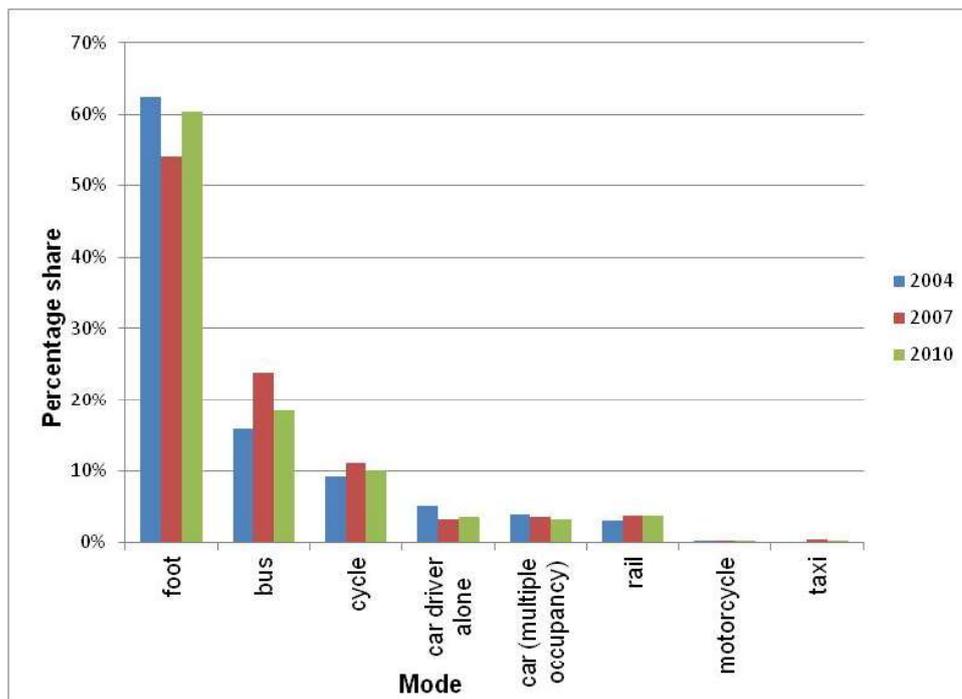
2.2.5 Since 2004 the bus has had the largest percentage mode share for staff, this remains the case with the 2010 SSTS. Since 2000 the bus has seen a mode share percentage increase of 4% for staff; 2010 figures indicate that approximately 27% of staff travel to work by bus.

2.2.6 Encouragingly the greatest percentage mode share shift for staff is a reduction in car drivers (alone) by 10% within 10 years, this now stands at 18% of staff travelling to work by a single occupancy vehicle journey. The car multiple occupancy mode share has also seen a shift reduction by 4% since 2000, thus reducing the total vehicle mode share for University staff by 14% in the last 10 years. 2010 figures show that approximately 11% of staff members travel to work by a multiple occupancy vehicle journey. Overall, car travel accounts for 28.7% of all staff journey's to work.

2.2.7 All other sustainable travel modes have seen an increase in their percentage mode share for staff since 2000; 4% for walking, 3% for rail and 3% for cycling. Overall, walking, cycling and rail account for 43% of staff travelling to work. However, the 2010 survey shows a slight reduction on 2007 figures.

2.2.8 Figure 2.2 demonstrates the student travel mode comparisons from the 2004, 2007 and 2010 SSTs.

Figure 2.2: Student travel modes 2004, 2007 and 2010



2.2.9 Since 2004 the travel on foot mode share has the highest percentage share for students. The 2010 walking mode share has increased by 7% since the 2007 survey, and now accounts for 61% of students travelling to university, but decreased by 2% since the 2004 survey.

2.2.10 The car driver alone and car multiple occupancy mode shares have each seen a decrease in their percentage share by 1% since 2004. The cycle mode share has also decreased by 1% since 2007. 2010 figures indicate cycling now accounts for approximately 10% of all students travelling to University, this is an increase of 1% on 2004 levels.

2.2.11 Since the 2004 survey bus travel by students has increased by 2%, however this is a decrease of 6% since the 2007 survey, which noted a buoyant bus travel mode share. Bus travel now accounts for approximately 18% of all students travelling to the university.

2.2.12 Mode share targets for journeys to work up to 2010 have been set by the City of Edinburgh Council within the Edinburgh Local Transport Strategy (LTS) 2007 to 2012. Table 2.3 highlights the staff and student mode share in relation to the LTS targets. It can be seen from the table that the existing UoE mode share for journeys to work / study are surpassing the 2010 targets set out within the LTS.

Table 2.3: Comparison of LTS targets with actual 2010 University mode share

Mode	CEC Local Transport Strategy target mode share 2010	University of Edinburgh actual mode share 2010
Walk	25%	50.1%
Cycle	4%	10.5%
Public Transport	22%	25.6%
Car	47%	13.3%

2.3 Travel for University purposes

2.3.1 For the first time, the 2010 SSTS sought detail on staff and student travel for purposes related to their employment or study (excluding commuting to University). This is referred to as 'Business Travel' in the following Chapters. Approximately 58% of staff and 30% of students indicated that they are required to travel for University purposes.

2.3.2 Of those staff and students who travel to other University sites or other locations within Edinburgh, the travel mode with the greatest mode share for staff is walking while the greatest mode share for students is the bus.

2.3.3 Staff and students travelling to locations within Scotland but outwith Edinburgh city boundaries tend to travel by rail; approximately 69% of staff and 50% of students choose this mode.

2.3.4 When travelling to other towns and cities in the UK approximately 69% of staff members indicate that they travel by rail for some journeys and 25% indicate that they drive. Similarly, approximately 42% of students sometimes use rail on journeys to other towns and cities throughout the UK and 17% indicated that they sometimes drive to these locations.

2.3.5 Approximately 65% of staff and 43% of students fly for reasons concerned with University business, with travel within the UK and Ireland being the most popular destination.

2.4 UoE carbon footprint estimate

2.4.1 The 2010 estimated total annual carbon footprint for staff and student travel to University, is illustrated in Table 2.3. Also summarised in Table 2.3 is the estimated 2007 total annual carbon footprint using up to date carbon emission factors.

Table 2.4: 2010 Estimated annual UoE carbon footprint for commuter travel

Staff/Student	2010 Estimated annual carbon footprint (tonnes of CO ₂)	2010 Estimated annual carbon footprint (tonnes of CO ₂) per individual ¹	2007 Estimated annual carbon footprint (tonnes of CO ₂)	2007 Estimated annual carbon footprint (tonnes of CO ₂) per individual ¹
Staff	6,596	0.63	4,027	0.51
Student	4,893	0.18	3,810	0.15
Total	11,489	0.41	7,837	0.33

¹ DEFRA 2009 carbon emission factors

- 2.4.2 Table 2.4 illustrates that students have a lower carbon footprint than staff, this is consistent with the recorded lower student motorised travel mode share. Approximately 70.6% of students travel by zero CO₂ emitting travel modes as opposed to 36.0% of staff.
- 2.4.3 Since 2007 carbon emission factors have been further refined and emission factors for bus are substantially higher than those published in 2007 and used in the 2007 survey. If the 2009 carbon emission factors are applied to the 2007 mode share, the annual estimated student CO₂ has increased by approximately 1,000 tonnes and the annual estimated staff CO₂ by approximately 1,500 tonnes.
- 2.4.4 It should be noted that the overall average distance travelled by staff to University has increased from 7.1 miles to 8.8 miles between 2007 and 2010. During the same time period the overall average distance travelled by students to University has increased from 3.8 miles to 4.4 miles.
- 2.4.5 The ability to travel by zero CO₂ emitting travel modes is dependant on a number of factors, however the greatest factor is often related to the distance between origin and destination. A 2 mile (3.2 km) origin-destination distance is commonly considered as an 'easy' distance threshold for walking and cycling for the majority of individuals.
- 2.4.6 The SSTS shows that 19.2% of staff live within less than 2 miles of their UoE site of employment, interestingly 4.3% of staff living within this threshold are currently car drivers. These individuals are ideal targets for the promotion of the health, environmental, social and economic benefits of sustainable travel.
- 2.4.7 The continued promotion and introduction of measures to encourage staff and students to travel by zero CO₂ emitting travel modes would reduce the University's annual carbon footprint dramatically, moreover, where walking and cycling are not always feasible, public transport and car sharing can also reduce an individual's and organisation's carbon footprint.
- 2.4.8 Using the survey questions relating to business travel a broad brush carbon footprint has been developed for staff and students, and this is summarised in Table 2.5 below.

Table 2.5: 2010 Indicative annual business travel UoE carbon footprint

Staff/Student	Estimated annual carbon footprint (tonnes of CO ₂)
Staff	11,175
Student	10,351
Total	21,526

- 2.4.9 It should be noted that approximately 63% of the carbon footprint is from trips involving air travel. 19.5% comes from private car use, 15% from rail and the remaining 2.5 % made up of bus, cycling, hire cars, motorcycles, taxi and university pool cars and shuttle buses.

2.5 Understanding travel behaviour

- 2.5.1 In order to understand why those travelling by car as the driver drove to University, the SSTS sought reason behind their travel choices; reasons included 'I don't like public transport', 'I have carer responsibilities' and 'I need to travel elsewhere on University business'.
- 2.5.2 Of those staff living within a 2 mile catchment of their employment location and driving to work, the most popular reason for travelling by car was 'I have a shorter journey time by car'. This is a subjective response and could be viewed as a perception of time as a 2

mile catchment is within the city boundary where the majority of sites are located and where peak hour congestion occurs.

2.5.3 The next most popular reason for staff driving to work who live within 2 miles of their employment location is 'I drive to other activities before/ after the University day' thus demonstrating that any travel behaviour change would be inconvenient for these individuals. Interestingly one of the least popular reasons for travelling by car was 'I lack a suitable alternative', demonstrating that these individuals are aware of the availability of other travel modes thus illustrating that the perception barrier to alternative travel may be low.

2.5.4 The responses include only 1 student who drives to University and who lives within 2 miles of the study location again believing he/she has a shorter journey time by car.

2.6 Preferred mode of travel

2.6.1 The survey asked staff and students if there are happy with their current mode of travel or if they would prefer to travel by a different mode. Approximately 32% of staff and 29.8% of students would prefer to travel by an alternative mode of transport. For staff and students the most popular preferred travel modes are cycling and walking.

2.7 Travel Plan measure awareness

2.7.1 As illustrated in Chapter 1 the UoE are committed to reducing the impact of commuting and business travel through a number of Travel Plan measures. The SSTS sought to measure staff and student awareness of such measures by asking if they have: used each measure; are aware of the measure but not used it; or are not aware of the measure. For staff the Travel Loan scheme has the highest level of awareness, the Bike Buddies scheme has the least awareness and the most popular measure in terms of uptake is the Shuttle Bus.

2.7.2 For students the provision of bicycle parking has the highest level of awareness, the Bike Buddies scheme again has the least awareness and the most popular measure in terms of student uptake is the Shuttle Bus.

2.8 Travel Plan measure suggestions

2.8.1 Staff and students were prompted to suggest additional measures the University could put in place to encourage sustainable travel. Some suggestions focused on:

Walking & cycling

- Improvements to the quality and quantity of shower and locker facilities (12 responses);
- Improvements to the quality and quantity of cycle storage facilities and cycle parking (15 responses); and
- Negotiate with Local Authority to develop and improve cycle paths/routes (20 responses).

Public transport & shuttle buses

- Improving the frequency of Shuttle Bus (12 responses); and
- Extending the Shuttle Bus to other UoE campus locations (10 responses).

Vehicle use & car parking

- Re-evaluate existing parking permit scheme criteria (20 responses).

Marketing & promotion

- Better promotion of existing measures / improvements to website (30 responses).

Working patterns and University facilities

- Flexible working /study patterns (8 responses).

2.8.2 A full list of staff and student comments relating to Travel Plan measures are provided in Appendix A.

2.9 Location of car parking

2.9.1 Given the nature of the parking permit system and the impact inappropriate or illegal parking may have on the surrounding local road network and neighbouring communities, it is vital the University are aware of where parking is taking place.

2.9.2 The results of the travel survey show that the majority of parking is reported to occur within University car parks.

3 SSTS methodology

3.1 The brief

3.1.1 Colin Buchanan has been commissioned by UoE to:

- develop an on-line travel survey designed to collect data to enable the ongoing monitoring of the University's commitment to travel planning while gauging travel mode share and attitudes to travel in correlation with previous surveys;
- develop a paper survey for a small minority of staff without access to a computer at work;
- ensure on-line surveys are designed to provide data to estimate the staff/ student travel to work/ study annual carbon footprint;
- incorporate business travel and UoE site to site travel within the SSTS for the first time;
- collect staff and student home postcode data via the online and paper surveys in order to map home locations using GIS; and
- assess accessibility utilising the software package Accession in order to identify existing public transport provision in relation to each University site and home locations.

3.2 SSTS questionnaire

3.2.1 Separate questionnaires were designed for staff and students. Both questionnaires share a number of similarities with the exception of a small number of differences to account for wording. Survey questions were designed to correspond with previous survey questions where appropriate.

3.2.2 The main areas considered within the survey were:

- Central Area
- Easter Bush
- King's Buildings / Royal Observatory
- Moray House / Holyrood Road
- New College / Mylne's Court
- NRIE / QMRI / Little France
- Pollock Halls of Residence
- Royal Edinburgh
- Summerhall
- Western General Hospital
- Other accommodation services sites

3.2.3 For the purpose of this survey the Central area includes George Square, Teviot Place, Old College, Chambers Street, Infirmary Street, Pleasance etc. The Easter Bush area includes the Roslin Institute.

3.2.4 A paper staff survey was circulated to staff without access to the internet at work. A total of 57 paper surveys were returned and amalgamated with the online staff survey results. A copy of the staff paper survey is provided in Appendix B. The online survey asked the same questions, but filtered out questions which were not relevant to the respondent as they progressed through the survey.

3.2.5 Questions included in the questionnaire captured information on:

- Staff / student category;
- Number of days per week worked / attending University;
- Main locations of work / study;
- Mode of transport on most recent journey to the University;
- One way distance travelled by each mode used;
- Engine size and fuel type (if car used as mode);
- Car driver / passenger status;
- Reason for travelling by car;
- Location of car parking;
- Preferred mode of transport;
- Awareness of Tripshare scheme;
- Awareness of existing Travel Plan measures;
- Business travel;
- Home postcode; and
- Other comments relating to travel to the University.

3.3 SSTS distribution

3.3.1 Staff and students were invited to complete the on-line survey by email which included a link to the survey. The survey could also be accessed via a link on the University's Transport and Parking Office website. To encourage staff and students to fill in the survey a prize draw was offered. The prizes ranged from £20 - £50 vouchers.

3.3.2 Reminder emails were sent out to both staff and students and posters put in public areas to maximise the response rate.

3.4 Carbon footprint calculation

3.4.1 Staff and students were asked to provide detailed information about the modes that they use on their normal journey to work and study, the distance travelled by each mode, and, if they travel by car, what size of engine the car has and what type of fuel it uses. At the end of the survey staff and students were provided with their annual carbon footprint, furthermore, they were able to change their mode of travel to see what effect that had on their annual carbon emissions.

3.4.2 The annual carbon footprint for each respondent could then be estimated using the UK Government supplied Carbon Conversion Factors (CCF) provided in Table C1 in Appendix C.

3.4.3 To calculate the daily carbon footprint (CF) the following calculation was used:

$$(\text{CCF of mode a} \times \text{distance} \times 2) + (\text{CCF of mode b} \times \text{distance} \times 2) + \dots = \text{Daily CF}$$

3.4.4 In instances where respondents stated that they are a car passenger or a car driver they were asked to state how many other people travel in the car with them. The CCF for the

car type they specified was then divided by the number of people in the car, before calculating the daily CF.

3.4.5 To calculate the annual CF the following calculation was carried out:

$$\text{Daily CF} \times \text{number of days per week at work} \times 47^* \text{ or } 30^{**} \text{ or } 44^{***} = \text{Annual CF}$$

*Total number of weeks per year staff work, assuming 5 weeks annual leave

**Total number of weeks per year undergraduates study

** Total number of weeks per year postgraduates study

Business travel

3.4.6 Information was collected for both staff and students on frequency, mode of travel and destinations for business trips. An indicative carbon footprint for business travel could then be determined using the carbon conversion factors (CCF) in provided in Table C.1 in Appendix C.

3.4.7 To calculate the annual business travel carbon footprint (CF) for staff the following calculation was used:

Travel within Edinburgh

$$(\text{Average distance}^* \times ((\text{frequency of trips (by mode)} \times 2) \times \text{CCF}) \times \text{factor}^{**} = \text{Annual CF}$$

* Average distance = 6km, taken from the Edinburgh Tram model developed by CB as the overall average distance traveled within Edinburgh for all trips types. This was agreed with Transport Initiatives Edinburgh as an acceptable average journey length. As distances were not specified within the travel survey, this provides the best estimation of journey length for business purposes in the Edinburgh area.

** frequency of trips given per week x 47 for staff and x 32 for students

frequency of trips given per month x 12 for staff and x 8 for students

frequency of trips given per year was not factored

Travel outside Edinburgh (UK and abroad)

$$(\text{Population of city} / \text{average distance}^2) \times \text{frequency of trips by mode} \times \text{CCF} \times \text{**} = \text{Annual CF}$$

3.4.8 The Annual CF has been determined through the weighting of main cities (and business centres) from a given origin (Edinburgh) based upon population density and distances.

3.4.9 Main cities throughout the UK and abroad were selected as the most appropriate destinations for business travel. The cities selected were chosen using a common sense approach, taking into consideration the city's population, coupled with its' relative importance and standing within the international business arena.

3.4.10 The attractiveness of a city was calculated by firstly dividing the population of each city by the distance squared from Edinburgh. This produced a weighting factor for each city relative to the other cities considered within the analysis. This percentage was then applied to the number of total trips, hence producing a figure for total trips to the relevant city.

3.4.11 The total number of trips to each city was then applied to the frequency of trips by a particular mode of transport and subsequently to the carbon emission factor to give a carbon footprint.

- 3.4.12 It should be noted that the business travel carbon footprint will be very indicative and further studies into business travel would be required to determine this accurately.

3.5 Data validation

- 3.5.1 A large part of the data validation was undertaken by the on-line survey itself which was designed to prevent the submission of partially or incorrectly completed survey forms.
- 3.5.2 In addition CB undertook an extensive data validation exercise to ensure that the data could be used to produce a robust analysis of the University's travel to work / study behaviour.
- 3.5.3 This included the identification of the respondents' main mode of travel by cross referencing with the data on distance travelled by each mode (the main mode was identified as the mode which covered the greatest distance) and the car driver / passenger status to ascertain if a respondent was a car sharer.
- 3.5.4 The next two chapters provide detailed review of the findings for the Staff Travel Survey and Student Travel survey respectively.

4 Staff Survey Analysis

4.1 Response rates

4.1.1 Table 4.1 provides a breakdown of staff responses by their main employment location and their employment category: either academic or support staff. The number of valid staff responses is 1,814 out of a total University staff population of 10,933, equating to a survey response rate of approximately 16.6%. The 2007 survey saw a response rate of approximately 21.6%.

Table 4.1: Staff survey responses by employment location and category

Main location of employment	Total number of responses		Total number of staff		% Response	
	Academic	Support	Academic	Support	Academic	Support
Central Area	199	743	1764	3816	11.2	19.4
Easter Bush	38	54	202	237	18.8	22.7
King's Buildings / Royal Observatory	153	182	1036	1570	14.7	11.5
Moray House/ Holyrood Road	42	57	198	262	21.2	21.7
New College/ Mylne's Court	5	8	38	71	13.1	11.2
NRIE/ QMRI/ Little France	55	67	369	395	14.9	16.9
Pollock Halls of Residence	0	61	0	366	-	16.6
Royal Edinburgh	6	6	24	12	25	50
Summerhall	8	11	34	57	23.5	59.6
Western General Hospital	38	38	169	233	22.4	16.3
Other Accommodation Services site	0	29	0	67	-	43.2
Other Locations	3	7	3	13	100	53.8
TOTAL	547	1267	3837	7099	14.2	17.8

4.1.2 A significant percentage of staff respondents stated that they work at 'Other Accommodation Services sites' and 'Other Locations' as denoted in Table 4.1. In this instance where an individual noted an exact 'other location', for example the Roslin Institute, CB amalgamated their responses with the appropriate area. In the majority of cases this was applicable to the Central Area and Easter Bush.

4.1.3 Additionally, a number of staff respondents based at 'Other Accommodation Services sites' and 'Other Locations' indicated they were academic staff; post data cleaning, a few academic staff were changed to support staff.

4.1.4 As illustrated in Table 4.1, 14.2% of academic and 17.8% of support staff returned a valid questionnaire.

4.2 Weighting factor

4.2.1 To account for differential response rates, the weighting factors illustrated in Table 4.2 have been calculated. An individual weighting factor, calculated upon location of employment and whether the individual is an academic or support member of staff has been applied to the dataset prior to undertaking any analysis (where applicable and appropriate).

4.2.2 The weighting factors have been applied to this dataset prior to undertaking the data analysis. Therefore all data analysis in this chapter refers to the weighted data. It is important to note that all data referred to in this report is essentially an estimate based on the same of staff who responded to the survey.

Table 4.2: Staff weighting factor

Employment location	Total number of staff		Total number of responses		Weighting factor	
	Academic	Support	Academic	Support	Academic	Support
Central Area	1764	3816	199	743	8.86	5.14
Easter Bush	202	237	38	54	5.32	4.39
King's Buildings / Royal Observatory	1036	1570	153	182	6.77	8.63
Moray House / Holyrood Road	198	262	42	57	4.71	4.60
New College / Mylne's Court	38	71	5	8	7.60	8.88
NRIE / QMRI, Little France	369	395	55	67	6.71	5.90
Pollock Halls	0	366	0	61	N/A	6.00
Royal Edinburgh	24	12	6	6	4.00	2.00
Summerhall	34	57	8	11	4.25	5.18
Western General Hospital	169	233	38	38	4.45	6.13
Other Accommodation Services site	0	67	0	33	N/A	2.03
Other Locations	3	13	3	7	1.00	1.86
All Sites	3837	7099	547	1267	7.01	5.60

4.2.3 The base un-weighted response count is illustrated in subsequent analysis where applicable for reference purposes.

4.2.4 During the data verification it became apparent that, when providing information about their main mode of travel to work, a significant minority of respondents indicated that they sometimes change their main mode.

4.2.5 For example, a member of staff may sometimes take the bus, walk or cycle to work. This is an important and interesting piece of information which highlights the limitations of forcing respondents to identify their main mode as this is often not representative of their actual behaviour.

4.2.6 In recognition of these alternative modes, sub-entries were made to the dataset to represent each alternative mode recorded by each respondent. The weighting factors were adjusted to account for this. For example, a number of respondents indicated that they walk, cycle or take the bus. In such cases three records were maintained for the

respondent – one for each mode – and the weighting factor was adjusted by dividing the weighting factor for the individual by the number of modes i.e. three in this case.

4.3 Main mode of travel to work

4.3.1 Staff were asked to provide the mode or modes of transport used for travel during the most **recent** journey to work. The question gave respondents the opportunity to detail more than one transport mode, for example a staff member may drive to a park and ride site, travel by train, then walk to their work. The question was also designed to capture data for calculating the respondents carbon footprint for that particular journey.

4.3.2 The main mode of travel was identified as the mode used to cover the **greatest** distance to work. Table 4.3 illustrates main mode by location for University staff.

4.3.3 It is important to recognise the wording of the 2010 SSTS Main Travel Mode question as respondents were asked to comment on their most **recent** journey only. The main mode of transport was the one identified as the mode used to cover the greatest distance on the journey to work. Where respondents gave more than one mode of transport covering the same distance it was assumed they alternate between different modes on different days. This was accounted for in the analysis by a proportioning the weighting accordingly.

Table 4.3: Staff main mode of travel to University by site location

Site	Bus (%)	Walk /run/ wheelchair/ mobility scooter (%)	Car driver alone (%)	Cycle (%)	Car driver with passengers	Rail (%)	Car passenger (%)	Motorcycle (%)	Taxi (%)	TOTAL (%)
Central Area	31.3	30.2	9.2	10.2	5.3	10.4	2.5	0.8	0.2	100.0
Easter Bush	10.4	2.0	64.5	2.5	16.8	0.0	3.7	0.0	0.0	100.0
King's Buildings/ Royal Observatory	16.5	23.3	27.1	15.1	9.7	3.0	4.4	0.9	0.0	100.0
Moray House/ Holyrood Road	28.0	20.5	14.3	10.3	7.1	11.2	8.6	0.0	0.0	100.0
New College/ Mylne's Court	31.4	24.4	0.0	13.9	0.0	22.1	8.1	0.0	0.0	100.0
NRIE/ QMRI, Little France	32.0	11.3	24.4	15.5	9.3	4.2	2.5	0.8	0.0	100.0
Other Accommodations Services site	40.6	12.5	31.3	0.0	6.3	0.0	9.4	0.0	0.0	100.0
Other Locations	29.0	23.7	6.2	11.6	23.2	6.2	0.0	0.0	0.0	100.0
Pollock Halls	32.8	19.0	26.7	7.8	10.3	1.7	0.0	1.7	0.0	100.0
Royal Edinburgh	16.7	16.7	44.4	22.2	0.0	0.0	0.0	0.0	0.0	100.0
Summerhall	40.8	19.5	15.5	13.6	5.9	0.0	0.0	4.8	0.0	100.0
Western General Hospital	40.7	17.2	12.7	13.2	4.2	1.5	8.2	2.2	0.0	100.0
ALL SITES	27.3	24.5	17.9	11.5	7.3	7.1	3.5	0.9	0.1	100.0

BASE RESPONSES=1773 TABLE ORDERED HIGHEST PERCENTAGE MODE SHARE

4.3.4 The data shows that across all University sites 24.5% of staff walk/run/wheelchair or mobility scooter user, 34.4% use public transport, 11.5% cycle and 29.7% travel by private vehicle (including motorcycles, car passengers and taxi users). This highlights that 70.3% of staff travel to University via sustainable or active travel.

4.3.5 The most popular travel mode at each site and the corresponding travel mode share percentage is as follows:

- Central Area – 31.3% travel by bus;
- Easter Bush – 64.5% drive alone;
- King’s Buildings/ Royal Observatory – 27.1% drive alone;
- Moray House/Holyrood Road – 28.0% travel by bus;
- New College/ Mylne’s Court – 31.4% travel by bus;
- NRIE/QMRI/Little France – 32.0% travel by bus;
- Other Accommodation Services sites – 40.6% travel by bus;
- Other Locations – 29.0% travel by bus;
- Pollock Halls – 32.8% travel by bus;
- Royal Edinburgh – 44.4% drive alone;
- Summerhall – 40.8% travel by bus; and
- Western General Hospital – 40.7% travel by bus.

4.3.6 Out of the 12 staff employment locations, the bus has the greatest percentage mode share at 7 of these locations.

4.3.7 Table 4.4 illustrates the highest and lowest mode shares and at which locations they occur. As expected the highest car driver mode share occurs at Easter Bush, which is rural by nature and outwith Edinburgh City boundaries.

Table 4.4: Staff highest and lowest mode shares

Mode	Highest	Lowest
Bus	Summerhall	Easter Bush
Car driver alone	Easter Bush	New College/ Mylne’s Court (0%)
Car driver with passenger	Other Locations	Various (0%)
Car passenger	Other Accommodation Services Sites	Various (0%)
Cycle	Royal Edinburgh	Other Accommodation Services Sites (0%)
Motorcycle	Summerhall	Various (0%)
Rail	New College / Mylne’s Court	Various (0%)
Taxi	Central Area	Various (0%)
Walk/run/wheelchair/mobility scooter	Central Area	Easter Bush

4.4 Reason for driving to work

4.4.1 Those staff who indicated they travel to work by car as the driver were asked to select a reason or reasons for travelling by car. Table 4.5 illustrates the list of popular reasons for driving to work as provided in the questionnaire. Staff could select as many reasons as applicable and could also enter text for any reasons not identified within the available options. Table 4.5 also details the proportion of staff who selected each reason, split by their employment location and total distance travelled to work (including all travel modes).

4.4.2 It can be seen from Table 4.5 that the highest proportion of responses were made by drivers travelling over a distance of 10 miles to the University. The main reasons staff stated for driving to the University are a lack of suitable alternatives and that they have a much shorter journey time by car.

Table 4.5: Staff reasons for driving to University

Reasons for driving	2 miles or less (%)	2-5 miles (%)	5-10 miles (%)	Over 10 miles (%)
I lack a suitable alternative	0.0	1.6	4.0	11.2
I have a much shorter journey by car	0.4	3.8	8.5	11.0
I have carer responsibilities	0.4	2.2	4.2	5.9
I believe the car is the cheapest option	0.1	0.9	1.7	5.0
I needed to go to other University sites	0.1	1.2	3.2	3.6
I drove to other activities before / after University	0.4	2.1	3.6	3.6
I collect / dropped other on route	0.1	1.7	4.2	3.4
I needed to travel elsewhere on University business	0.0	0.7	0.6	2.4
I don't like public transport	0.2	0.5	1.4	1.4
I moved equipment from site to site	0.0	0.1	0.6	1.1
I have a mobility impairment / disability	0.0	0.2	0.5	0.3
I'm concerned about my safety	0.0	0.6	0.6	0.2
I don't know public transport timetables	0.0	0.1	0.2	0.1

BASE RESPONSES= 952

4.5 Car park location

4.5.1 Staff who indicated that their main mode of travel is by car as the driver, either alone or with passengers, were asked where they park. Table 4.6 demonstrates where staff park as a percentage of total parking acts at each location.

Table 4.6: Staff car parking

Location	Commercial car park (%)	University car park (%)	On-street parking-free (%)	On-street parking-metered (%)	Park & Ride (%)	No answer (%)	Total (%)
Central Area	2.8	68.5	6.2	0.6	17.4	4.5	100
Easter Bush	0.0	97.3	0.0	0.0	0.0	2.7	100
King's Buildings/ Royal Observatory	0.0	71.7	25.0	0.0	0.8	2.5	100
Moray House/ Holyrood Road	8.7	78.3	0.0	0.0	13	0.0	100
New College/ Mylne's Court	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NRIE/ QMRI, Little France	9.3	67.4	14	0.0	4.7	4.7	100
Pollock Halls of Residence	0.0	95.5	4.5	0.0	0.0	0.0	100
Royal Edinburgh	20.0	60.0	20.0	0.0	0.0	0.0	100
Summerhall	0.0	75.0	0.0	0.0	25.0	0.0	100
Western General Hospital	0.0	33.3	58.3	0.0	0.0	8.3	100
Other Accommodation Services Sites	0.0	100	0.0	0.0	0.0	0.0	100
Other Locations	0.0	66.7	33	0.0	0.0	0.0	100
All Sites	2.4	74.9	11.5	0.2	7.7	3.2	100

BASE RESPONSES=495

4.5.2 Table 4.6 highlights that the vast majority of staff who drive to work park in a University car park. For the majority of University sites there is limited long stay offsite free car parking within a reasonable walk. A relatively high proportion of staff have stated that they Park & Ride on their journey to work, however it is unknown if this is via a formal Park & Ride facility or on-street parking outside the controlled parking zone (CPZ).

4.6 Distance travelled

4.6.1 A total travel distance has been calculated based on the distances provided by staff for each travel mode they use. Table 4.7 shows that a significant proportion of staff live within an 'easy' (2 mile) walking and cycling distance of their employment location. Approximately 74.6% of staff reside within 10 miles of their work locations, therefore there exists potential to increase the mode share of more sustainable forms of transport, such as walking, cycling and public transport.

Table 4.7: Staff distance travelled to University by location

Distance	Central Area (%)	Easter Bush (%)	King's Buildings / Royal Observatory (%)	Moray House / Holyrood Road (%)	New College / Mylne's Court (%)	NRRI / QMRI, Little France (%)	Pollock Halls of Residence (%)	Royal Edinburgh (%)	Summerhall (%)	Western General Hospital (%)	Other Accommodation Services Site (%)	Other Location (%)
Under 2 miles	25.7	2.0	20.4	15.3	16.3	6.7	15.5	11.1	11.0	16.7	6.3	11.6
2 miles or over, but under 5 miles	33.2	15.0	39.1	35.9	38.4	34.4	32.8	38.9	42.9	37.4	40.6	41.1
5 miles or over, but under 10 miles	16.7	44.4	15.8	16.2	15.1	32.3	27.6	11.1	34.1	23.6	37.5	11.6
10 miles or over, but under 15 miles	7.5	17.1	5.1	5.1	7.0	9.1	10.3	16.7	6.0	2.7	6.3	23.2
15 miles or over, but under 25 miles	6.9	13.1	9.1	10.1	0.0	5.9	5.2	11.1	0.0	12.7	6.3	6.3
25 miles or over, but under 50 miles	7.6	4.1	8.5	15.3	23.3	9.2	8.6	11.1	6.0	6.9	0.0	6.3
50 miles or over	2.4	4.3	2.1	2.1	0.0	2.4	0.0	0.0	0.0	0.0	3.1	0.0
Total	100	100	100	100	100	100	100	100	100	100	100	100

BASE RESPONSES=1773

4.6.2 Encouragingly, as Table 4.8 indicates, only 4.4% of staff living within 2 miles of their employment location travel to work by private vehicle (including passengers and motorcycles), and approximately 76.8% walk.

Table 4.8: Staff distance travelled to University by main mode

Distance	Bus (%)	Car driver (%)	Car passenger (%)	Cycle (%)	Motorcycle (%)	Rail (%)	Taxi (%)	Walk (%)
Under 2 miles	7.4	3.0	1.1	11.2	0.3	0.2	0.0	76.8
2 miles or over, but under 5 miles	39.6	14.0	2.8	20.2	0.1	0.2	0.3	22.8
5 miles or over, but under 10 miles	42.3	36.2	4.2	9.8	1.8	1.9	0.0	3.7
10 miles or over, but under 15 miles	29.0	47.8	3.5	4.3	1.9	11.9	0.0	1.6
15 miles or over, but under 25 miles	16.7	50.6	6.2	0.3	1.7	24.5	0.0	0.0
25 miles or over, but under 50 miles	5.7	54.4	6.7	0.0	1.6	31.6	0.0	0.0
50 miles or over	0.0	36.0	6.3	0.0	0.0	57.6	0.0	0.0

4.7 Preferred Mode of Travel

4.7.1 Table 4.9 shows that the majority of staff are happy with their current travel arrangements. Encouragingly 15.3% of respondents would prefer to travel on foot or by bicycle on their journey to work.

4.7.2 On closer inspection of the preferred mode of transport, it can be seen that the staff who currently walk to the University are the happiest with their travel arrangements. Although the majority of car drivers (alone), 58.4%, are happy with their chosen mode of travel, a proportion (19.7%) would prefer to travel by more sustainable forms for transport, mainly bus or by bicycle.

Table 4.9: Staff preferred mode of travel by existing mode

Existing Mode	Preferred Mode							
	I'm Happy with my current travel arrangements	Cycle	Walk	Bus	Car, Driver alone	Car, sharing with others	Rail	Motorcycle
Bus	59.7	10.2	12.0	3.3	7.5	5.5	1.4	0.6
Car driver, alone	58.4	12.0	6.1	9.9	2.7	4.4	5.9	0.0
Car driver, with passenger	73.5	8.1	4.0	7.3	1.2	2.5	3.4	0.0
Car Passenger	62.4	11.1	12.6	2.5	3.1	1.4	4.2	2.9
Cycle	89.9	7.4	0.6	0.0	1.2	0.0	0.2	0.7
Motorcycle	85.0	0.0	2.8	0.0	0.0	5.6	0.0	6.6
Rail	82.4	3.0	4.2	2.6	2.0	1.4	3.8	0.6
Taxi	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0
Walk	82.5	7.6	3.8	3.7	1.7	0.0	0.7	0.0
Total	71.5	8.8	6.5	4.4	3.4	2.7	2.3	0.4

BASE RESPONSES=1739

4.8 Tripshare

4.8.1 The University of Edinburgh operate a private Tripshare scheme, which matches individuals with others wishing to travel in the same direction; allowing associated travel costs to be shared between them. The scheme is available to University staff and students only and individuals can share journeys throughout Scotland and the UK. Staff and students based at Easter Bush also have the option to join a scheme for the Bush Area.

4.8.2 Staff were asked about their awareness of the Tripshare scheme. Table 4.10 shows that approximately 52.6% of respondents have heard of the scheme, however only 6.1% are members with 1.3% currently active.

4.8.3 The results of the survey suggest 10.8% of staff currently car share, however it is clear that the majority undertake informal car sharing rather than using Tripshare.

Table 4.10: Staff Tripshare awareness

Response	No. of respondents weighted	% of respondents
No, I have not heard of the scheme	4,958	47.4
Yes, but I do not wish to join the scheme	4,369	41.8
Yes, I am a member of the scheme, but not active	497	4.8
Yes, I may consider joining the scheme	486	4.7
Yes, and I am an active member of the scheme	140	1.3

BASE RESPONSES=1732

4.9 Travel Plan measure awareness

- 4.9.1 In order to gauge existing awareness of the many UoE travel planning measures and better direct potential future promotions, Table 4.11 illustrates the percentage of respondents' awareness to each travel planning measure.
- 4.9.2 Staff awareness is relatively high for a number of measures designed to encourage cycling. However the uptake and general awareness of the University's Bicycles+ cycle to work scheme is relatively low. Based upon average distances staff have to travel to work there are a number of staff located within a reasonable cycling distance of their workplace, therefore a clear opportunity to encourage further travel by bicycle exists.
- 4.9.3 Table 4.11 shows that a high proportion of staff are aware of the University's Shuttle Buses and half of those who are aware have made use of this. However, there is a lack of awareness of some measures such as the discount One Ticket and the Lothian Buses Service 67 (subsidised by the University).
- 4.9.4 The results do indicate that overall there is a general lack of awareness of measures to encourage sustainable travel. The University Transport and Parking website provides a wealth of information on travel to the University, but awareness of this facility is relatively low and this should be targeted as a key service for disseminating the relevant travel information.

Table 4.11: Staff Travel Plan measure awareness

Measures	I am not aware of this measure	I am aware of this measure, but haven't used it	I have made use of this measure
	(%)	(%)	(%)
Discount on One Ticket (for mixed mode public transport)	74.7	24.2	1.2
Emergency toolkits for bikes in specific locations	73.1	25.6	1.4
Bike Buddies Scheme	63.6	35.7	0.8
Free cycle training for learners / returners	60.3	38.8	0.9
Bicycle User Group at each main campus	52.3	44.8	2.9
Lothian Buses Service 67	50.3	36.4	13.4
Discounts at bike shops	42.5	53.2	4.4
Pool Cars	41.8	49.7	8.5
Bike Doctor visiting each University site every month in rotation	39.9	55.7	4.4
Bicycles+ University of Edinburgh's cycle to work scheme	39.1	54.1	6.8
Travel information at www.ed.ac.uk/transport	36.9	42.6	20.45
Shower and Locker facilities	31.4	55.7	12.9
Interest free staff travel loan for season ticket/bicycle purchase	29.4	64.6	6.0
Secure sheltered bicycle parking	25.3	63.4	11.4
Bicycle parking	15.5	66.6	18.0
Shuttle Buses (serving various campuses)	13.3	44.6	42.1

BASE RESPONSES=1699

4.10 Staff travel to work carbon footprint

- 4.10.1 Table 4.12 details the carbon footprint for staff based upon the results of the travel survey.
- 4.10.2 Table 4.12 highlights that the annual staff carbon footprint is approximately 6,596 tonnes, which is an increase from 2007. Since undertaking the 2007 travel survey, carbon emission factors have been adjusted and more accurate emission rates have been identified. This includes a significant upward change in the carbon emission for buses. Therefore to provide a representative comparison, the current emission factors have been applied to the results of the 2007 travel survey and this is summarised in Table 4.12.

Table 4.12: 2007 & 2010 Staff travel to work carbon footprint

Staff Mode	2007			2010			
	Average distance (miles)	Annual estimated total CO2 (tonnes)	Annual estimated total CO2 per staff member (tonnes)	Weighted count	Average distance (miles)	Annual estimated total CO2 (tonnes)	Annual estimated total CO2 per staff member (tonnes)
Foot	1.4	0.0	0.0	3056.6	1.56	0.0	0.0
Bus	5.5	589.45	0.30	2978.4	5.51	1298.6	0.44
Car driver alone	11.0	2410.77	1.58	1856.9	12.52	3472.0	1.87
Cycle	3.0	0.0	0.0	1142.3	3.24	0.0	0.0
Rail	21.7	414.34	0.68	693.7	27.98	896.8	1.29
Car driver with passengers	9.5	281.87	0.57	573.8	12.07	469.2	0.82
Car passenger	7.5	101.56	0.44	432.9	9.06	275.2	0.64
Car share	11.9	156.86	0.66	104.3	13.04	104.4	1.00
Motorcycle	11.2	70.47	0.68	83.5	9.31	76.6	0.92
Taxi	6.0	1.54	0.26	10.4	2.50	3.4	0.32
		4026.9	0.51			6596.1	0.63

4.10.3 Applying the 2009 DEFRA carbon emission factors shows that the annual staff carbon footprint has increased. As indicated by table 4.13, this is due to the longer distances travelled by certain modes of transport such as rail in 2010 on the journey to work. Staff travelling under two miles to work has decreased by 2.3%, whilst those travelling 5 miles or over, but under 10 miles has increased 3.9%.

4.10.4 For the University as a whole, the average distance travelled by staff is 8.8 miles. This is an increase from 2007, for which the average distance travelled was 7.1 miles.

Table 4.13: Staff distance travelled to work

Distance	2007 percentage (%)	2010 percentage (%)
Under 2 miles	22.9	20.6
2 miles or over, but under 5 miles	38.7	34.5
5 miles or over, but under 10 miles	15.6	19.5
10 miles or over, but under 15 miles	6.6	7.3
15 miles or over, but under 25 miles	7.1	7.8
25 miles or over, but under 50 miles	6.9	8.2
50 miles or over	2.0	2.1
Total	100	100

4.11 Staff postcode and accessibility mapping

4.11.1 Appendix D provides a graphic representation of staff postcodes in relation to their *main* mode of travel by their employment location. Where a survey respondent has not provided a postcode or provided an incorrect postcode, their response is not included

within the figures contained in Appendix D. Where possible the mapping has been scaled to illustrate the greatest number of postcodes.

- 4.11.2 As can be expected, the postcode maps illustrate that the bulk of staff travelling by bicycle or on foot are clustered around their employment location.
- 4.11.3 Those who drive to work are dispersed across the Lothian area with a large percentage of staff living within the Edinburgh City boundary. Interestingly only a small proportion of staff drive from Fife, perhaps illustrating the difficulties of congestion on the Forth Road Bridge, with the bulk of Fife based staff choosing public transport, particularly the train.
- 4.11.4 Appendix D also illustrates accessibility mapping to each employment site as a destination point. The software package Accession maps accessibility within a given area from a grid point every 250m utilising every public transport stop and timetable in the region. In this case the region was confined to the Lothians and Fife in order to illustrate an 'appropriate' maximum travel time of 60 minutes during a weekday morning peak period to a given University destination.
- 4.11.5 The Accession outputs show that, with the exception of Easter Bush, all the University sites are within a 60 minute public transport journey time of the whole of Edinburgh and some settlements in Fife and Midlothian. In the majority of cases the main residential areas within Edinburgh are within a 45 minute public transport journey time.
- 4.11.6 Considering the Accession outputs in association with the postcode mapping, it is evident that the majority of University staff live within a 60 minute public transport journey time of their workplace.

4.12 University business travel

- 4.12.1 Questions relating to staff travel during the course of the University day and/or for University purposes were included within the 2010 SSTS for the first time, illustrated below as 'business' travel. Tables 4.14-4.21 illustrate the analysis of staff travel for University purposes.

Table 4.14: Staff business travel

Are you required to travel for work purposes i.e. to other University sites, to towns and cities in Scotland and the UK or internationally?	Academic		Support	
	Yes (%)	No (%)	Yes (%)	No (%)
	80.8	19.2	45.2	54.8

BASE RESPONSE=1677

Table 4.15: Staff business travel trips within Edinburgh

How often do you travel for work purposes between different University sites or to other locations within Edinburgh?	Several times per day	Once or twice per day	Three or four times per week	Once or twice per week	Less than once per week	Never
%	1.2	1.9	7.2	24.9	58.6	6.1

BASE RESPONSES=933

4.12.2 It can be seen in Table 4.15 that the majority of trips made on business within Edinburgh occur less than once per week, 58.6% (3419). A further 24.9% (1457) of staff members stated that they travel on business within Edinburgh once or twice per week.

4.12.3 Table 4.16 below shows that the main mode of travel for business trips within the Edinburgh area is via the shuttle bus, 19.2% of staff members (1050). It should be noted that non-car modes of travel make up approximately 77% of trips for University business related travel in Edinburgh.

Table 4.16: Staff business travel mode within Edinburgh

What mode of transport do you most frequently use to travel for work purposes between University sites or within Edinburgh?	Walk	Private Car	Bus	Shuttle Bus	Cycle	Taxi	Uni Pool Car	Rail	Hire Car	Motorcycle
%	18.3	18.4	18.0	19.2	12.8	6.7	3.9	2.3	0.3	0.1

BASE RESPONSES=879

Table 4.17: Staff business travel trips within Scotland but outside Edinburgh

How often do you travel for work purposes to other locations within Scotland?	Three or more times per week	Once or twice per week	Once to three times per month	Between 6 and 12 times per year	Less than 6 times per year	Never
%	0.6	1.9	6.2	12.7	50.5	28.1

BASE RESPONSES=933

4.12.4 Table 4.17 shows that on average there is a low frequency of business trips made to locations within Scotland but outside Edinburgh. Encouragingly it can be seen from Table 4.18 that for the majority of these trips rail is by far the most common mode of travel with 68.9% of staff choosing this mode (2889). This is further backed up by Table 4.19 which shows that 68.2% of those who travel to other cities and towns in the UK for work sometimes travel by rail.

Table 4.18: Staff business travel mode within Scotland but outwith Edinburgh

What mode of transport do you most frequently use to travel for work purposes to other locations within Scotland?	Rail	Private Car	Uni Pool Car	Bus	Hire Car	Motorcycle	Taxi	Cycle	Shuttle Bus	Walk
%	68.9	22.7	5.0	1.9	0.9	0.2	0.3	0.2	0	0

BASE RESPONSES=658

Table 4.19: Staff rail and car business travel

	Yes	No
Do you ever take the train to other towns or cities in the rest of the UK for work purposes?	68.2	31.8
Do you ever drive to other towns or cities in the rest of the UK for work purposes?	25.0	75.0

BASE RESPONSES=TRAIN 933, CAR 932

Table 4.20: Staff business trips by rail

How often do you travel for work purposes to other towns and cities in the rest of the UK by rail?	Three or more times per week	Once or twice per week	Once to three times per month	Between 6 and 12 times per year	Less than 6 times per year
%	0.3	0.6	4.6	16.4	78.1

BASE RESPONSES=603

Table 4.21: Staff business trips by car

How often do you travel for work purposes to other towns and cities in the rest of the UK by car?	Three or more times per week	Once or twice per week	Once to three times per month	Between 6 and 12 times per year	Less than 6 times per year
%	0.8	0.7	6.4	13.0	79.1

BASE RESPONSES=234

4.12.5 Tables 4.20 and 4.21 show that of those that travel by car and rail on business to other towns and cities in the UK, the majority make the trip less than 6 times per year.

Table 4.22: Staff travel by air

Do you ever fly for work purposes?	Yes (%)	No (%)
	64.9	35.1

BASE RESPONSES=932

Table 4.23: Staff business trips by air

How often do you fly for work purposes to the following locations?	Two or three times per month (%)	Once per month (%)	Once every 2 months (%)	Once every quarter (%)	Twice per year (%)	Once a year (%)	Never (%)
Within the UK or Ireland	1.3	2.6	4.7	11.7	21.6	39.2	19.0
Within Europe	0.3	2.0	5.1	8.1	18.5	38.5	27.5
To Middle East or Africa	0	0	0.1	0	1.0	5.7	93.2
To Far East, Australia or New Zealand	0	0	0	0.2	0.6	11.9	87.3
To North or South America	0	0	0.2	0.9	4.7	37.7	56.5

BASE RESPONSES (EACH QUESTION)=575

4.12.6 Tables 4.22 and 4.23 show that there are some business trips made by air travel, with the majority being to locations within the UK, Ireland and Europe. On closer inspection of Table 4.23, the frequency of these trips is low with the majority being made two or less times a year. The highest proportion of respondents stated that they travel within the UK, Ireland and Europe once a year.

4.12.7 The results of the travel survey suggest that the majority of business trips made by staff are to locations within Edinburgh. It is encouraging to see that for these trips, the most popular mode of transport is walking and for business trips outwith Edinburgh, and to other UK destinations, the most popular mode of transport is rail.

Business travel carbon footprint

4.12.8 The indicative annual business travel carbon footprint for staff is 11,175 tonnes.

4.13 Further Travel Plan measures and comments

4.13.1 Appendix A provides a full list of additional Travel Plan comments for staff.

5 Student Survey Analysis

5.1 Response rates & weighting factors

5.1.1 The University of Edinburgh's Annual Review for 2008/2009 indicates a total student population of 26,951 individuals. The Annual Review provides a breakdown of student numbers by College and study category only, this data has been applied to weight student responses to account for differential response rates. Table 5.1 illustrates student numbers as illustrated in the Annual Review.

Table 5.1: UoE Annual Review 2008/2009-Student Population

College	Undergraduate	Postgraduate (Taught and Research)	Total
Humanities & Social Science	10,862	4,771	15,633
Medicine & Veterinary Medicine	2,149	1,431	3,580
Science & Engineering	5,781	1,957	7,738

5.1.2 A base of 3,173 student surveys are utilised for analysis purposes, discounting wholly incomplete surveys which total 335. The student survey response rate is 12%; this is a reduction in response rates from the 2007 survey by 2%. Tables 5.2 and 5.3 illustrate the student weighting factor disseminated by college and study category; approximately 12% of undergraduates and postgraduates responded to the survey.

Table 5.2: Weighting factor undergraduate students

College	Undergraduate		
	UoE Review	Total Number of Respondents	Weighting Factors
Humanities & Social Science	10,862	1043	10.41
Medicine & Veterinary Medicine	2,149	290	7.41
Science & Engineering	5,781	896	6.45
Total	18,792	2,229	

Table 5.3: Weighting factor for postgraduate students

College	Postgraduate (Taught and Research)		
	UoE Review	Total Number of Respondents	Weighting Factors
Humanities & Social Science	4,771	496	9.62
Medicine & Veterinary Medicine	1,431	119	12.03
Science & Engineering	1,957	329	5.95
Total	8,159	944	

5.1.3 The weighting factors illustrated in Tables 5.2 and 5.3 have been applied to each University site. Appendix E provides a breakdown of student responses by College, study category and site, Table 5.4 summaries this breakdown.

Table 5.4: Student weighted survey responses by University site

Site	Total survey responses	Weighted responses	% of Survey responses by weighted responses
Central Area	1,737	16,142	11
Easter Bush	78	615	13
King's Buildings/ Royal Observatory	870	5,566	16
Moray House/ Holyrood Road	176	1,764	10
New College/ Mylne's Court	41	415	10
NRIE/ QMRI, Little France	102	896	11
Royal Edinburgh	9	79	11
Summerhall	48	377	13
Western General Hospital	37	409	9
Other Locations	75	689	11
Total	3,173	26,952	12

5.1.4 Weighting factors have been applied to the dataset prior to undertaking any analysis (excluding analysis displayed as a percentage). For reference purposes, the base (unweighted) count for each question is also illustrated as not all questions are applicable to all respondents.

5.2 Main mode of travel to University

5.2.1 Students were asked to think about their most *recent* journey to the University and detail what mode or modes they used to travel from their term time address to a class. Students were asked to detail their whole journey (e.g. walk, bus, walk), the distance covered by each mode and the time taken by each mode, thus providing the necessary information for the carbon footprint calculation and allowing the *main* mode to be identified.

5.2.2 The main mode of travel in this instance is the mode used to cover the greatest distance. Table 5.5 illustrates students main mode of travel by study location.

Table 5.5: Student main mode of travel to University by site location

Site	Walk/ run/ wheelchair / mobility scooter (%)	Bus (%)	Cycle (%)	Rail (%)	Car driver alone (%)	Car driver with passengers (%)	Car passenger (%)	Motorcycle (%)	Taxi (%)	TOTAL (%)
Central Area	70.6	14.9	7.6	2.9	2.3	0.7	0.8	0.1	0.1	100.0
Easter Bush	2.0	41.1	3.2	0.0	18.6	15.2	18.8	1.0	0.0	100.0
King's Buildings/ Royal Observatory	52.4	18.9	18.9	1.4	4.5	2.2	1.6	0.0	0.0	100.0
Moray House/ Holyrood Road	48.8	9.7	7.8	19.6	7.8	4.2	1.8	0.3	0.0	100.0
New College/ Mylne's Court	57.5	30.0	5.1	7.3	0.0	0.0	0.0	0.0	0.0	100.0
NRIE/ QMRI, Little France	9.1	62.0	14.7	0.0	9.2	2.7	2.2	0.0	0.0	100.0
Other Locations	59.4	15.6	7.7	7.6	1.9	4.9	1.1	1.9	0.0	100.0
Royal Edinburgh	21.2	46.8	18.8	13.2	0.0	0.0	0.0	0.0	0.0	100.0
Summerhall	73.7	11.6	3.0	4.0	2.0	4.0	0.0	0.0	1.6	100.0
Western General Hospital	26.8	48.7	15.8	4.0	0.0	3.8	0.9	0.0	0.0	100.0
ALL SITES	60.5	18.4	10.1	3.7	3.6	1.8	1.5	0.2	0.1	100.0

BASE RESPONSES= 3101

- 5.2.3 It is important to recognise the wording of the 2010 SSTS Main Travel Mode question as respondents were asked to comment on their most **recent** journey only. The main mode of transport was the one identified as the mode used to cover the greatest distance on the journey to study. Where respondents gave more than one mode of transport covering the same distance it was assumed they alternate between different modes on different days. This was accounted for in the analysis by a proportioning the weighting accordingly.
- 5.2.4 The data shows that across all University sites: 60.5% of students walk, 22.1% use public transport, 10.1% cycle and 7.2% travel by private vehicle (including motorcycles, car passengers and taxi users). This data is very encouraging highlighting that 92.7% of students travel to University via sustainable or active travel.
- 5.2.5 The most popular travel modes at each site and the corresponding travel mode share percentage is as follows:
- Central Area – 70.6% of students studying in the Central area walk/run or use a wheelchair or mobility scooter;
 - Easter Bush – 41.1% of Easter Bush Students use the bus;
 - King's Buildings/ Royal Observatory – 52.4% of students based at King's / Royal Observatory walk, run or use a wheelchair;
 - Moray House / Holyrood Road – 48.8% of students walk/run or use a wheelchair or mobility scooter;
 - New College / Mylne's Court - 57.5% of students walk;
 - NRIE/QMRI/Little France – 62.0% of students travel by bus;

- Other Locations – 59.4% of students walk to these locations;
- Royal Edinburgh – 46.8% of students use the bus;
- Summerhall – 73.7% of students walk; and
- Western General Hospital – 48.7% travel by bus.

5.2.6 Table 5.6 illustrates the highest and lowest mode shares and at which locations they occur.

Table 5.6: Student highest and lowest mode shares

Mode	Highest	Lowest
Bus	NRIE/QMRL/Little France	Moray House
Car driver alone	Easter Bush	Various (0%)
Car driver with passengers	Easter Bush	Various (0%)
Car passenger	Easter Bush	Various (0%)
Cycle	King's Building / Royal Observatory	Summerhall
Motorcycle	Other Locations	Various (0%)
Rail	Moray House	Various (0%)
Taxi	Summerhall	Various (0%)
Walk/Run/Wheelchair	Summerhall	Easter Bush

5.2.7 Due to the spread of University sites across the Edinburgh area it is not surprising that a number of locations are dependent on private vehicles; this is especially evident at Easter Bush and NRIE/ QMRI/ Little France where a vehicle mode share of 53.8% and 12%, respectively is noted. It is important to recognise that at Easter Bush 34.6% of those travelling by car are passengers.

5.2.8 Given the position of Moray House/ Holyrood Road this location has a higher private vehicle mode share than other City sites, an analysis of postcode data indicates this could be due to the significant number of students living outside the Edinburgh region.

5.3 Reason for driving to University

5.3.1 Those students who indicated that their main mode is the car as a driver were provided with a list of popular reasons why an individual may choose to drive. Students were asked to tick all that apply. Table 5.7 illustrates the proportion of students who selected each reason by the total distance they travel to University.

5.3.2 Of the 3.3% of students who drive, 10% live within 5 miles of their campus, 25% live between 5 and 10 miles and 65% live over 10 miles from their campus destination.

5.3.3 Of the respondents living over 10 miles from University 16% indicated that they believe they have a much shorter journey time by car. An analysis of these individuals' postcodes indicate that this is most likely to be the case as the majority live in the Fife, Falkirk, Perth & Kinross and Lanarkshire areas. 32% of these students indicated they drive because they need to go to other University sites, travel for University business, move equipment for University purposes, collect/drop off others and attend other activities prior to or after University. Only a small proportion of students drove because they don't know public transport timetables.

5.3.4 For those students travelling by car and living between 5 and 10 miles of their campus the most popular reason for driving is again the belief that students have a shorter journey time by car. It is important to recognise that this may only be a perception of time

and does not account for time in congestion which would impact on car journeys especially during the morning and evening peaks.

- 5.3.5 Due to the limited number of students who drive to University and live within 5 miles of the University it is inappropriate to summarise a reason for driving based on distance for these individuals, however it is positive to see so few students driving to University given the distances (2 to 5 miles) involved.

Table 5.7: Student reasons for driving to University (% of responses)

Reasons for Driving	2 miles or less (%)	2-5 miles (%)	5-10 miles (%)	Over 10 miles (%)
I have a much shorter journey time by car	0.3	2.9	9.1	16.1
I believe the car is the cheapest option	0.3	0.3	2.6	10.0
I lack a suitable alternative	0.0	0.6	3.2	9.6
I drove to activities before/after University	0.0	2.6	3.5	9.1
I have carer responsibilities	0.0	0.0	1.2	4.4
I don't like public transport	0.0	0.6	2.0	4.4
I collect / dropped others on route	0.0	0.9	2.0	3.8
I needed to go to other University sites	0.0	0.3	0.9	3.5
I needed to travel elsewhere on University business	0.0	0.0	0.3	0.6
I have a mobility impairment/disability	0.0	0.0	0.3	0.6
I'm concerned about my personal safety	0.0	0.9	0.3	0.6
I moved equipment from site to site	0.0	0.9	0.6	0.3
I don't know public transport timetables	0.0	0.0	0.3	0.0

BASE RESPONSES = 342

5.4 Car Park Location

- 5.4.1 Students who stated that their main mode of travel is by car as the driver either alone or with passengers were asked where they park. Table 5.8 illustrates where students park by location as a percentage of total parking acts at each location.

Table 5.8: Student car parking location

Location	University car park (%)	On-street parking-free (%)	On-street parking-metered (%)	Commercial car park (%)	Park & Ride (%)	Total (%)
Easter Bush	100	-	-	-	-	100
Other Locations	60	40	-	-	-	100
Central Area*	34.7	32.7	16.3	4.1	12.2	100
King's Buildings/ Royal Observatory	34.5	61.8	1.8	1.8	-	100
Moray House/ Holyrood Road	33.3	9.5	1.9	28.6	9.5	100
Summerhall	33.3	33.3	-	-	33.3	100
NRIE/ QMRI, Little France	22.2	55.6	-	22.2	-	100
New College/ Mylne's Court	-	-	-	-	-	-
Royal Edinburgh	-	-	-	-	-	-
Western General Hospital	-	100	-	-	-	100
All Sites	44.1	36.3	7.7	6.5	5.4	100

BASE RESPONSES=168

5.4.2 It can be seen in Table 5.8 that the highest proportion (44%) of students park within University car parks. It also shows that there are a considerable proportion of student car drivers parking on free on-street parking. Based on the location of study in relation to the location of the nearest free on-street parking e.g. Summerhall or NRIE/QMRI, it is likely that the students walk relatively far from the place they park to where they study. It is not at all surprising that the highest proportion of parking on-street is at King's Buildings since there is not a Controlled Parking Zone operating in the neighbouring residential streets. It is also high at the Western General because there is no student parking available on site.

5.5 Distance travelled

5.5.1 A total travel distance has been calculated based on the distances provided by students for each travel mode they use. Table 5.9 shows distance travelled to University by students, illustrating that 54.6% of students live within an 'easy' walking and cycling distance of their University campus (less than 2 miles).

Table 5.9: Student distance travelled to University by location

Distance	Central Area (%)	Easter Bush (%)	King's Buildings / Royal Observatory (%)	Moray House / Holyrood Road (%)	New College / Mylne's Court (%)	NRRI / QMRI, Little France (%)	Royal Edinburgh (%)	Summerhall (%)	Western General Hospital (%)	Other (%)
Under 2 miles	68.1	2.0	45.2	39.3	47.6	7.4	10.7	69.5	25.8	42.3
2 miles or over, but under 5 miles	19.9	9.9	42.3	20.7	29.6	59.8	36.7	8.4	47.7	29.0
5 miles or over, but under 10 miles	4.5	63.6	7.1	5.9	7.5	24.3	37.5	8.4	12.6	11.7
10 miles or over, but under 15 miles	1.9	13.8	1.4	6.0	7.5	1.7	0.0	4.2	6.1	1.9
15 miles or over, but under 25 miles	2.5	9.6	1.2	13.1	2.6	4.5	0.0	0.0	3.0	8.8
25 miles or over, but under 50 miles	2.1	1.0	1.9	9.2	5.1	2.2	0.0	7.6	3.0	4.8
50 miles or over	1.0	0.0	0.9	5.9	0.0	0.0	15.1	2.1	1.9	1.5
Total	100	100	100	100	100	100	100	100	100	100

BASE RESPONSES=3096

- 5.5.2 Of the students who live within 2 miles of the University, 99.4% travel to the University via sustainable means with the remaining 0.6% travelling by motorised vehicle.
- 5.5.3 It can be seen in Table 5.9 that on average students based in the Central Area and New College/Mylne's Court live the closest to their place of study. The majority of trips to this location are made by non-car modes of transport. In particular, the Central Area has a student walking mode share of approximately 72%, a cycling mode share of 7.6% and a public transport mode share of 17.8% and New College/Mylne's Court has a bus mode share of approximately 59%.
- 5.5.4 Encouragingly, as Table 5.10 indicates, only 0.5% of students living within 2 miles of their study location travel to work by private vehicle (including passengers and motorcycles) and approximately 85.6% walk.

Table 5.10: Student distance travelled to University by main mode

Distance	Bus (%)	Car Driver (%)	Car Passenger (%)	Cycle (%)	Motorcycle (%)	Rail (%)	Taxi (%)	Walk (%)
Under 2 miles	6.2	0.2	0.2	7.6	0.1	0.0	0.1	85.6
2 miles or over, but under 5 miles	35.7	5.0	1.3	20.8	0.1	0.1	0.0	37.0
5 miles or over, but under 10 miles	53.4	24.7	7.4	5.8	0.7	2.4	0.0	5.6
10 miles or over, but under 15 miles	51.0	18.4	4.2	1.3	0.0	19.0	0.0	6.1
15 miles or over, but under 25 miles	16.8	29.5	9.9	0.0	0.0	38.0	1.9	3.9
25 miles or over, but under 50 miles	18.9	34.4	4.5	0.0	0.9	39.9	0.0	1.4
Over 50 miles	3.6	14.6	1.2	0.0	0.0	78.3	0.0	2.2

5.6 Preferred mode of travel

- 5.6.1 Table 5.11 shows that the majority of students are happy with their current travel arrangements. Encouragingly 16.7% of respondents would prefer to travel on foot or by bicycle on their journey to the University.
- 5.6.2 On closer inspection of the preferred mode of transport, it can be seen that the students who walk and cycle to the University are the happiest with their travel arrangements. Although a high proportion of car drivers are happy with their chosen mode of travel, a proportion would prefer to travel by more sustainable modes of transport, mainly walking and cycling.

Table 5.11: Student preferred mode by existing main travel mode

Existing mode	Preferred Mode							
	I'm Happy with my current travel arrangements (%)	Cycle (%)	Walk (%)	Bus (%)	Car, sharing with others (%)	Car, Driver alone (%)	Rail (%)	Motorcycle (%)
Bus	41.3	14.4	18.1	6.8	8.1	9.6	1.2	0.5
Car driver, alone	47.1	7.7	10.2	11.0	9.3	2.2	12.0	0.4
Car driver, with passenger	55.8	16.0	3.0	6.3	2.3	6.1	10.4	0.0
Car Passenger	51.8	2.8	14.8	3.5	14.0	7.5	5.5	0.0
Cycle	82.9	10.2	1.4	2.2	2.3	0.1	0.0	0.9
Motorcycle	5.0	11.1	14.9	0.0	0.0	0.0	0.0	69.0
Rail	74.0	0.7	4.0	0.0	10.9	3.3	5.3	1.8
Taxi	0.0	0.0	38.8	22.4	0.0	0.0	38.8	0.0
Walk	79.0	10.8	2.5	3.8	1.6	1.6	0.3	0.4
Total	70.1	10.9	5.8	4.3	3.7	3.2	1.3	0.6

BASE RESPONSES=3066

5.7 Tripshare

5.7.1

In order to gauge how many students are aware of the Tripshare scheme, the SSTS incorporated an appropriate question. Table 5.12 shows that the vast majority of respondents (91.9%) have not heard of the scheme. It should be noted however that some informal car sharing does occur within the student population and particularly at Easter Bush (approximately 30%).

Table 5.12: Student Tripshare awareness

Response	% of Respondents
No, I have not heard of the scheme	91.9
Yes, but I do not wish to join the scheme	5.7
Yes, I may consider joining the scheme	1.4
Yes, I am a member of the scheme, but not active	0.7
Yes, and I am an active member of the scheme	0.3

BASE RESPONSES=3052

5.8 Travel Plan measure student awareness

5.8.1

The survey asked students awareness and use of the many UoE Travel Planning. Table 5.13 illustrates the percentage of respondents awareness of each measure.

Table 5.13: Student Travel Plan measure awareness

Measure	I am not aware of this measure	I am aware of this measure, but haven't used it	I have made use of this measure
	(%)	(%)	(%)
Bike Buddies Scheme	92.5	7.1	0.4
Emergency toolkits for bikes in specific locations	92.0	7.4	0.6
Free cycle training for learners/returners	89.5	9.9	0.5
Bicycle User Group at each main campus	82.3	16.6	1.1
Discounts at bike shops	77.0	21.5	1.5
Travel information at www.transport.ed.ac.uk	71.2	20.2	8.6
Bike Doctor visiting each University site every month in rotation	66.6	31.0	2.5
Shower and Locker facilities	62.0	29.8	8.2
Lothian Buses Service 67	54.0	33.6	12.4
Secure sheltered bicycle parking	33.0	58.8	8.2
Bicycle parking	18.6	60.9	20.5
Shuttle Buses (serving various campuses)	8.4	44.0	47.6

BASE RESPONSES=3017

- 5.8.2 Table 5.13 illustrates that with the exception of bicycle parking and the shuttle buses, there is a lack of awareness of each measure. It is important to note that a number of the above measures specifically support cycling, and as previously established, the 2010 SSTS highlights a 10% cycle mode share for students.
- 5.8.3 Students are aware of and utilising the University's free shuttle buses, a comparison with the 2007 SSTS indicates a shift of 2% away from students being unaware of the shuttle buses.

5.9 Student carbon footprint

5.9.1 Table 5.14 below details the carbon footprint for students.

Table 5.14: 2007 & 2010 Student carbon footprint

Student Mode	2007			2010			
	Average distance (miles)	Annual estimated total CO2 (tonnes)	Annual estimated total CO2 per student (tonnes)	Weighted count	Average distance (miles)	Annual estimated total CO2 (tonnes)	Annual estimated total CO2 per student (tonnes)
Foot	1.19	0.0	0.0	15946.7	11.86	0.0	0.0
Bus	4.72	1286.51	0.22	5104.4	6.77	1861.75	0.36
Cycle	1.95	0.0	0.0	2961.0	2.09	0.0	0.0
Car driver alone	11.99	1107.85	1.35	1082.8	13.92	1478.66	1.37
Rail	29.23	882.68	0.92	898.2	38.14	1078.04	1.20
Car driver with passenger	8.22	150.67	0.50	412.5	9.82	198.30	0.48
Car passenger	8.6	176.30	0.47	412.5	9.72	182.25	0.44
Car share	14.29	186.44	0.82	58.9	20.81	52.54	0.89
Motorcycle	4.95	5.75	0.30	44.2	7.58	17.56	0.40
Taxi	2.31	13.48	0.20	29.5	9.15	23.84	0.81
		3809.7	0.15			4892.9	0.18

5.9.2 Table 5.14 highlights that the annual student carbon footprint for travel to study is approximately 4,893 tonnes, which is an increase from 2007. As with the staff results, to provide a representative comparison, the current emission factors have been applied to the results of the 2007 travel survey and this is summarised in Table 5.14.

Table 5.15: Student distances travelled to University

Distance	2007 percentage (%)	2010 percentage (%)
Under 2 miles	57.9	60.0
2 miles or over, but under 5 miles	26.7	24.4
5 miles or over, but under 10 miles	7.6	6.6
10 miles or over, but under 15 miles	2.1	2.1
15 miles or over, but under 25 miles	2.4	3.2
25 miles or over, but under 50 miles	2.7	2.7
50 miles or over	0.6	1.0
Total	100	100

5.9.3 Applying the 2009 DEFRA carbon emission factors shows that the annual student carbon footprint has increased. As shown by table 5.15, and as is evident with staff travel to work figures, there is evidence to suggest that this is due to longer distances travelled in 2010 on the journey to the University. There has been an increase in the percentage of students travelling under two miles to get to university (2.1%), nonetheless there has also been an increase (0.4%) of students who travel 50 miles or over to get to university. Table 5.15 also displays an increase of 0.8% of students travelling between 15 and 25 miles to get to university.

5.9.4 For the University as a whole, the average distance travelled by students is 4.4 miles. This is an increase from 2007, for which the average distance travelled was 3.8 miles.

5.10 Student postcode and accessibility mapping

5.10.1 Appendix F provides a graphic representation of student postcodes in relation to their *main* mode of travel by their study location. Where a survey respondent has not provided a postcode or provided an incorrect postcode, their response is not included within the figures contained in Appendix F.

5.10.2 As with the staff postcode mapping, those students who travel to University by foot or bicycle are clustered around their study location. There is a general propensity to walk or cycle to University further than staff do.

5.10.3 As noted earlier, Edinburgh has an extensive bus network within the city boundary. Postcode mapping illustrates that the majority of students who travel by bus do so within the city boundary. Interestingly students also travel by bus from beyond the city boundary, more so compared to staff.

5.10.4 Appendix D also illustrates accessibility mapping to each study site as a destination point. The software package Accession maps accessibility within a given region from a grid point every 250m utilising every public transport stop and timetable in the region. In this case the region was confined to the Lothians and Fife in order to illustrate an 'appropriate' maximum travel time of 60 minutes to a given University destination.

5.10.5 As with the staff analysis, the outputs from Accession and the postcode mapping show that the majority of students are located within a 60 minute public transport journey time of their study location. This provides an excellent basis to further encourage public transport travel.

5.11 University business travel

5.11.1 Tables 5.16-5.25 illustrate the analysis of student travel for study purposes as a percentage of respondents to each question.

Table 5.16: Student business travel

As part of your studies, are you required to travel to other University locations in Edinburgh, to towns and cities in Scotland and the UK or internationally?	Yes (%)	No (%)
	30.2	69.8

BASE RESPONSES=3508

Table 5.17: Number of student business travel trips within Edinburgh

How often is it necessary to travel between different University sites or to other locations within Edinburgh for reasons connected with your studies?	Several times per day	Once or twice per day	Three or four times per week	Once or twice per week	Less than once per week	Never
%	2.2	5.3	12.4	24.2	37.8	18.1

BASE RESPONSES=916

- 5.11.2 It can be seen in Table 5.17 that the highest proportion of trips made for University purposes within Edinburgh occur less than once per week, 37.8% (2892). A further 24.2% (1847) of respondents stated that they travel on business within Edinburgh once or twice per week.
- 5.11.3 Table 5.18 shows that the main mode of travel for business trips within the Edinburgh area is by bus, 36.8% (2303) closely followed by walking, the shuttle bus and cycling. It should be noted that non-car modes of travel make up approximately 90% of trips made by students for University related business travel in Edinburgh.

Table 5.18: Student business travel within Edinburgh and travel mode

What mode of transport do you most frequently use to travel between University sites or to other locations in Edinburgh?	Bus	Walk/Run	Shuttle Bus	Cycle	Car	Rail	Taxi
%	36.8	21.4	14.5	12.3	9.9	4.6	0.4

BASE RESPONSES=760

Table 5.19: Number of student business travel trips within Scotland but outwith Edinburgh

How often do you travel between to other towns and cities within Scotland for reasons connected with your studies?	Three or more times per week	Once or twice per week	Once to three times per month	Between 6 and 12 times per year	Less than 6 times per year	Never
%	3.0	4.4	4.9	10.3	32.2	45.3

BASE RESPONSES=916

Table 5.20: Student business travel within Scotland but outwith Edinburgh and travel mode

What mode of transport do you most frequently use to travel to other towns and cities in Scotland for reasons connected with your studies?	Rail	Bus	Car	Cycle	Motorcycle
%	50.0	24.2	25.5	0.2	0.2

BASE RESPONSES=499

5.11.4 Table 5.19 shows that on average there is a low frequency of business trips made by students to locations outside Edinburgh. However, encouragingly it can be seen from Table 5.20 that the main mode of travel for these trips, as with staff, is rail, 50% (2090). It can also be seen that a relatively high proportion of students use the bus for business trips, 24.2% (1011). This is further backed up by Table 5.21 which shows that 41.6% of students who travel to other cities and towns in the UK on business sometimes travel by rail. Encouragingly 83.4% stated that they never drive to other towns and cities in the UK on business.

Table 5.21: Student rail and car travel

	Yes (%)	No (%)
Do you ever take the train to other towns or cities in the rest of the UK for reasons connected with your studies?	41.6	58.4
Do you ever drive to other towns or cities in the rest of the UK for reasons connected with your studies?	16.6	83.4

BASE RESPONSES=916

Table 5.22: Student business trips by rail

How often do you travel to other towns and cities in the rest of the UK by rail for reasons connected to your studies?	Three or more times per week	Once or twice per week	Once to three times per month	Between 6 and 12 times per year	Less than 6 times per year
%	1.4	2.9	7.2	20.1	68.4

BASE RESPONSES=375

Table 5.23: Student business trips by car

How often do you travel to other towns and cities in the rest of the UK by car for reasons connected with your studies?	Three or more times per week	Once or twice per week	Once to three times per month	Between 6 and 12 times per year	Less than 6 times per year
%	3.2	7.5	7.8	25.0	56.6

BASE RESPONSES=150

Table 5.24: Student business travel by air

Do you ever fly for reasons connected with your studies?	Yes (%)	No (%)
	42.6	57.4

BASE RESPONSES=916

Table 5.25: Student business travel locations by air

How often do you fly to the following locations for reasons connected with your studies?	One or more times per week (%)	Two or three times per month (%)	Once per month (%)	Once every 2 months (%)	Once every quarter (%)	Twice per year (%)	Once a year (%)	Never (%)
Within the UK or Ireland	0	0.2	0.3	1.7	7.5	12.4	21.6	56.4
Within Europe	0.2	0.0	0.6	3.6	7.9	16.1	37.9	33.7
To Middle East or Africa	0	0.0	0.0	0.0	0.7	3.4	10.2	85.7
To Far East, Australia or New Zealand	0	0.0	0.0	0.0	0.5	3.8	10.0	85.8
To North or South America	0	0.0	0.0	0.5	1.1	4.3	21.1	73.0

BASE RESPONSES (EACH QUESTION)=375

- 5.11.5 Tables 5.24 and 5.25 show that there are some business trips made by air travel, with the majority being to locations within the UK, Ireland and Europe. On closer inspection of Table 5.25, the frequency of these trips is low with the majority being made twice or less times a year. The highest proportion of respondents stated that they travel within the UK, Ireland and Europe once a year.
- 5.11.6 The results of the travel survey suggest that the majority of business trips made by students, as with staff, are to locations within Edinburgh. It is encouraging to see that for

these trips, the most popular modes of transport are non-car based and for business trips outwith Edinburgh and to other UK destinations the most popular mode of transport is rail.

Business travel carbon footprint

5.11.7 The indicative annual business travel carbon footprint for students is 10,351 tonnes.

5.12 Further Travel Plan measures and comments

5.12.1 Appendix A provides a full list of additional Travel Plan comments for students.

6 Travel Plan Recommendations

6.1 Introduction

6.1.1 The results of the 2010 travel surveys, and comparison of mode share with the 2007 and 2004 data, provide information with which to assess the efficiency of the existing Travel Plan measures.

6.2 Mode share targets

6.2.1 The University of Edinburgh Integrated Transport Policy 2000 states the following as one of its seven objectives:

“Endeavour to exceed appropriate modal split targets, set out on the City of Edinburgh Council’s Local Transport Strategy, that are relevant to specific University sites”

6.2.2 Whilst it does identify particular issues on a site specific basis, this travel survey analysis and review of existing Travel Plan measures does not go into the detail of the content of the site specific Travel Plans. This would require a more detailed assessment.

6.2.3 Table 6.1 compares the City of Edinburgh Council Local Transport Strategy (CEC LTS) mode share targets for travel to work, with the actual 2010 University mode share. It shows that the University as a whole has surpassed all targets by a considerable margin.

Table 6.1: Comparison of LTS targets with actual 2010 University mode share

Mode	CEC Local Transport Strategy target mode share 2010	University of Edinburgh actual mode share 2010
Walk	25%	50.1%
Cycle	4%	10.5%
Public Transport	22%	25.6%
Car	47%	13.3%

6.2.4 On a site specific basis, progress towards the CEC targets does vary considerably. In seeking to increase the sustainable mode share it is essential that the University identify where the greatest headway can and needs to be made. It is recommended that the development of Travel Plans for individual sites is prioritised on the basis of their car mode share, and that measures appropriate to each location are identified and targeted.

6.2.5 Later in this chapter the key issues for individual locations are identified and some initial suggestions are made about the types of measures that could be prioritised.

6.3 Promotion of existing measures

6.3.1 The results of the 2010 survey highlight a general lack of awareness of some Travel Plan measures by both staff and students. Raising awareness of measures is key to encouraging sustainable travel practice and it is recommended that the measures are re-invigorated to staff and students through the following mechanisms:

- Leaflets;
- University website;
- Travel days; and
- Personalised travel planning (where appropriate).

6.4 The carbon footprint

6.4.1 Estimating the University's annual carbon footprint is an important measure of the impact of staff and student travel behaviour in terms of the global environment. As a major employer and World-renowned institution the University recognises both its role in contributing to climate change and in the role it can take in leading by example by seeking to reduce its carbon footprint. For the first time, consideration has been given to the carbon footprint associated with business travel. However further investigation is required to more accurately identify the carbon footprint associated with business travel.

6.4.2 Following analysis of the 2010 SSTS it was estimated that the annual University of Edinburgh carbon footprint for commuter travel was 11,489 tonnes of CO₂; 6,596 tonnes of CO₂ were emitted by staff commuter travel and 4,893 tonnes of CO₂ from student commuter travel. The 2010 SSTS also allowed for an indicative estimate of the University's annual business travel carbon footprint to be drawn, this was estimated to be 21,526 tonnes of CO₂; staff contributed 11,175 tonnes of this whilst students contributed 10,351 tonnes.

6.4.3 The following is recommended:

- Communicate to staff and students the carbon footprint estimates and that the University is committed to reducing them by providing assistance to change to sustainable transport modes;
- Set carbon footprint reduction targets and monitor these through future travel surveys
- Provide an on-line carbon footprint calculator for staff and students to use as a means of monitoring their personal carbon footprint
- Provide advice to staff and students on how to reduce their travel to work / study carbon footprint.
- Develop a business travel diary which accurately identifies the carbon footprint associated with business travel.

6.5 Site specific measures

6.5.1 Site specific Travel Plans are available at some University sites.

6.5.2 Whilst the existing and future Travel Plan measures are applicable at all sites, to achieve modal shift it is important that measures are adjusted to account for the unique circumstances of each site. For example, measures to encourage walking and cycling should be emphasised at the centrally located sites, whereas measures to encourage car sharing should be emphasised at the more remote locations where the choice of modes is more limited.

6.5.3 Detailed measures for specific sites can only be drawn up through the development of site specific Travel Plans. However the 2010 Travel Survey has highlighted a number of issues upon which site specific measures may be developed. Measures which are particularly applicable to specific sites are discussed below, however many will be applicable to all sites:

Central Area

6.5.4 Central Area is highly accessible for sustainable modes of transport. The walking, cycling and public transport mode shares exceed the LTS mode share targets.

- 6.5.5 There has been an increase in staff bus travel and journeys on foot and encouragingly a reduction in car driver alone trips. There has been a significant increase in student trips on foot, however a small decrease in cycling and public transport trips.
- 6.5.6 To further encourage and maintain this excellent sustainable mode share it is recommended that the awareness of available Travel Plan measures is re-invigorated through the provision of leaflets, the use of the University website and consideration of a travel day.
- 6.5.7 In particular it is important to continue marketing cycling routes and ensure that onsite cycle parking facilities continue to adequately accommodate the cycling demand.

King's Buildings / Royal Observatory

- 6.5.8 The walking and cycling mode shares (38.4% for staff and 71.3% for students) are significantly higher than the LTS mode share targets for both staff and students. However the public transport mode share (19.5% for staff and 20.3% for students) falls just below the LTS target.
- 6.5.9 Since 2007 there has been a decrease in staff bus travel and cycle trips and an increase in travel on foot and car driver alone trips. Encouragingly there has been an increase in walking trips and public transport trips by students, and a reduction in car driver alone trips.
- 6.5.10 With walking and cycling identified as a main mode of transport for a number of staff and students at this location, it is important to continue marketing the use of these modes of transport and to ensure that onsite cycle parking facilities continue to adequately accommodate the cycling demand.
- 6.5.11 The CEC will be implementing measures during 2010/11 to create a cycle corridor from the city centre to King's Buildings. The Transport and Parking Office has already committed to assisting the CEC to promote the corridor, which should include measures to promote cycling.
- 6.5.12 Further marketing of public transport provision to staff through the use of leaflets and directing to the Lothian Buses website can assist in raising awareness of available services.

NRIE / QMRI at Little France

- 6.5.13 NRIE / QMRI is located on the periphery of Edinburgh and therefore it is expected that the walking mode share will be lower than the more central sites.
- 6.5.14 However encouragingly, since 2007 there has been increase in staff and student walking mode share and a small decrease in car driver alone trips by staff. Cycling has reduced for both staff and students.
- 6.5.15 CB understands that the University will be adding more secure and covered cycle parking at the site during summer 2010, and this will significantly improve cycle parking provision. CB is also aware that the CEC is planning to implement safety improvements on Old Dalkeith Road which should assist in creating a safer and more attractive cycle route to the site. Marketing of cycling routes to and from the NRIE / QMRI is an important mechanism in encouraging cycling trips, as is the offer of free cycle training to improve cycling confidence on-road.

Western General Hospital

- 6.5.16 Since 2007, there has been an increase in public transport and walking trips by staff and students, however there has been a decrease in cycling. Encouragingly there has been a significant decrease in staff car driver alone trips.
- 6.5.17 CB is aware that since the survey was carried out an additional secure cycle store has been added at the site by the University, together with similar new facilities provided by the NHS. These will have significantly improved the onsite facilities for cyclists. Measures to encourage cycling should be emphasised at this location.

Summerhall

- 6.5.18 Summerhall benefits from its location in relation to Edinburgh city centre and therefore displays a high sustainable mode share. Staff and students based at Summerhall will be relocating to Easter Bush in the summer of 2011. It is therefore recommended that travel planning at this site focuses on supporting staff and students in deciding how they will travel to Easter Bush (see below).

Easter Bush

- 6.5.19 The mode share for Easter Bush is relatively similar to 2007. It should be noted that data for the Roslin Institute is included in this. A Travel Plan is currently being prepared for this site based upon a 2009 travel survey and this will also take into account the results of this travel survey.

Moray House / Holyrood Road

- 6.5.20 Moray House / Holyrood Road has achieved a reduction in car driver alone trips and achieved increases in walking and cycling.
- 6.5.21 There has been a decrease in bus travel by both staff and students. It is recommended that further marketing on bus travel is undertaken at this location.

New College / Mylne's Court

- 6.5.22 No car driver alone trips were recorded at New College / Mylne's Court, most likely to be because there is no parking onsite. There has seen a significant increase in cycling by staff with a decrease in cycling trips by students.
- 6.5.23 The current sustainable mode share at this location is excellent and therefore continued marketing of the benefits associated with sustainable measures is recommended.

Pollock Halls of Residence

- 6.5.24 There has been a small increase in walking, travel by bus, car driver with passenger and car driver alone trips at Pollock Halls.
- 6.5.25 Consideration should be given to re-invigorating the sustainable travel opportunities associated with this site. This could be developed through leaflets / the University website and a travel day.

Royal Edinburgh

- 6.5.26 Royal Edinburgh was not included in the 2007 travel survey, however overall the existing sustainable mode share surpasses the 2010 mode share targets identified in the LTS.

6.6 Site specific Travel Plans

- 6.6.1 It is through the development, implementation, monitoring and evaluation of site specific Travel Plans that the University of Edinburgh will be able to continue to improve its sustainable transport mode share.
- 6.6.2 The travel survey analysis has identified how the mode share varies considerably across the University locations, reflecting how the accessibility of each location varies. Measures to encourage modal shift must therefore be refined and targeted to account for the individual characteristics and existing mode share of specific locations.
- 6.6.3 The preparation of site specific Travel Plans will provide the mechanism to introduce and target site specific measures.