
Transport Carbon Management Plan (TCMP)

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Owner: Philip Longton

Approval route:
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1. Introduction

Lancaster University recognises the need to reduce its carbon emissions. The impact of fossil fuel consumption on our environment and the resulting global warming and climate change, as well as consequential resource depletion are major issues, which as an institution we need to address. The current financial background makes it very important to reduce costs. There are opportunities through this plan to make contributions to reducing costs associated with University travel.

Lancaster University is a leading University in terms of environmental research and teaching. This is a strong reason for the university to be ambitious in its carbon emission targets and in the projects it implements in order to achieve them. The University's main Carbon Management Plan (CMP) recognises this position, incorporating a range of projects from the conventional to the cutting edge. The longer term carbon emissions reduction targets for 2020 and 2050 will only be achieved through the deployment of all available technologies.

The University first published its Carbon Management Plan in January 2010. The CMP envelops all scope 1 and 2 carbon emissions of the institution. This Transport Carbon Management Plan (TCMP) relates to certain scope 3 emissions. The Department for Environment, Food and Rural Affairs (DEFRA) classify emissions into three scopes. Scope 1 emissions are direct emissions that relate to activities owned or controlled by an organisation that release emissions straight into the atmosphere. A transport example includes the University's fleet of vehicles. Scope 2 emissions are indirect resulting from the consumption of purchased utilities such as electricity and gas. The vast majority of transport emissions are classified as scope 3. These are all other indirect emissions which occur at sources not owned or controlled by the organisation. This includes all commuter travel and business travel (unless undertaken in a vehicle owned or leased by the University – scope 1).

Lancaster University's Travel Plan (TP) was first developed in 2004 with the aim of supporting and facilitating the developments anticipated in the University's Strategic Plan in a way that ensures the travel needs of staff, students and visitors are sustainable. The TP focuses on commuter travel and includes a SWOT analysis for commuting, modal share analysis, targets and a management strategy. The Travel Plan has been recognised by the Department for Transport (DfT) as national best practice and in 2011 Lancaster University was awarded the title of ‘Commuter Friendly Workplace of the Year’ by ACT Travelwise.

2. Scope of TCMP

Lancaster University related travel emissions cover staff and student commuting and all forms of business and academic travel. Business travel can involve the use of the University’s own fleet of vehicles, hired vehicles or vehicles owned by employees of the organisation (grey fleet). Business air travel is likely to be a significant contributor to carbon emissions. Staff and students also travel by rail and other forms of public transport for business or academic purposes.

This first version of TCMP simply covers student and staff commuter travel only and excludes other travel related emissions. The TCMP has been prepared covering this limited scope because good baseline data is available for student & staff commuting. There are existing targets for commuting and a range of successful projects from the TP that form part of this document. The TCMP uses existing modal share data and modal shift targets and converts these into baseline carbon emissions for commuter travel and commuter carbon emission targets fully consistent with the TP.

In future, this plan will be revised to encompass all sources of transport emissions associated with Lancaster University. It is envisaged that the Travel Plan and Transport Carbon Management Plan will be merged in 2015 to form a single management strategy for all transport activities associated with Lancaster University.
3. Objectives

The objectives of the TCMP are taken from the Travel Plan and comprise the following:

- Reduce further the dependence on single occupancy travel by car, by encouraging alternative modes of transport
- Help the University reduce its carbon footprint
- Reduce parking pressure
- Enhance public perceptions of the University and all who work there
- Contribute to the health of all who work or use the site
- Ensure the site is economically and environmentally sustainable

The objectives of the TCMP will be reviewed when the scope of the TCMP is widened to include other travel emissions. This TCMP is being developed from the TP, in light of the key objective from the TP which requires the University to reduce its carbon emissions.

4. National and Higher Education Sector Guidance and Targets

Through the Climate Change Act 2008, the UK Government has set out to reduce carbon emissions by 34% by 2020 and by 80% by 2050 against 1990 levels. It can be reasonably assumed that these targets cover all scopes of emissions as there are no separate targets covering emissions solely from transport. However, the Government aims to achieve around one fifth of its targeted carbon reductions through the transport system.

The Higher Education Funding Council for England (HEFCE) published a carbon reduction strategy for higher education in January 2010. The strategy includes the adoption of national government targets for 2020 and 2050 for the higher education sector. HEFCE have assessed institutional greenhouse gas emissions for 2005 (more comprehensive data is available for HE sector institutions for 2005) and compared these to 1990 sector emissions, producing revised baseline emissions for individual HE institutions and sector wide targets for 2005. Set against a 2005 baseline for higher education institutions (HEIs), this is equivalent to a reduction of 43% by 2020 and 83% by 2050.

Lancaster University has adopted these targets for its Carbon Management Plan so that the University’s carbon reduction targets are consistent with those of HEFCE and in line with the Government’s national targets for 2020 and 2050. Lancaster University’s Scope 1 & 2 carbon emissions in 2005 were 29,131 tCO2e.

Lancaster University has its own specific targets for travel for 2012 & 2015 published in the Travel Plan. These targets cover staff commuting and student commuting according to the proportion of that group that travel to campus by each mode of transport. This first edition of the TCMP converts these existing targets into carbon reduction targets for 2012 and 2015. Future reviews of TCMP would take into account the UK Government and any sector guidance/targets then available as current targets for travel are only agreed as far as 2015.

5. Transport Carbon Footprint and Targets
5.1.1 **Student** Commuter Travel – *Mode Share* Actual and Targets

<table>
<thead>
<tr>
<th>Student travel (non residents)</th>
<th>Actual</th>
<th>Actual</th>
<th>Target</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car alone</td>
<td>22%</td>
<td>19%</td>
<td>17%</td>
<td>15%</td>
</tr>
<tr>
<td>Car share</td>
<td>11%</td>
<td>9%</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>Cycling</td>
<td>5.5%</td>
<td>10.5%</td>
<td>12%</td>
<td>14%</td>
</tr>
<tr>
<td>Bus/coach</td>
<td>57%</td>
<td>55%</td>
<td>56%</td>
<td>57%</td>
</tr>
<tr>
<td>Walking</td>
<td>3%</td>
<td>6%</td>
<td>6.5%</td>
<td>7%</td>
</tr>
<tr>
<td>Motorbike/moped</td>
<td>1%</td>
<td>0.3%</td>
<td>0.5%</td>
<td>1%</td>
</tr>
<tr>
<td>Taxi</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>0.4%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

5.1.2 **Student** Commuter Travel – *Carbon Emissions* Actual and Targets

<table>
<thead>
<tr>
<th>Student travel (non residents)</th>
<th>Actual t/CO2e</th>
<th>Actual t/CO2e</th>
<th>Target t/CO2e</th>
<th>Target t/CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car – alone or sharing</td>
<td>1369</td>
<td>1269</td>
<td>1136</td>
<td>1002</td>
</tr>
<tr>
<td>Cycling</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bus/coach</td>
<td>839</td>
<td>807</td>
<td>821</td>
<td>836</td>
</tr>
<tr>
<td>Walking</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motorbike/moped</td>
<td>29</td>
<td>9</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Taxi</td>
<td>6</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>2243</td>
<td>2090</td>
<td>1972</td>
<td>1859</td>
</tr>
</tbody>
</table>

**Summary**

- Actual: CO\(^2\) emissions from student commuting fell by 153 tonnes between February 2006 and November 2007. This is a reduction of 6.8%.
- Target: By 2012 target emissions should fall by a further 118 tonnes or 5.6% on 2007 levels.
- Target: By 2015 target emissions should fall by a further 231 tonnes or 11.1% on 2007 levels.

**Notes**

- Targets are based on agreed mode share targets in the Travel Plan for 2012 and 2015.

**Assumptions**

- All carbon calculations are rounded to the nearest whole tonne.
- Data inconsistencies existing between 2006 and 2007 in terms of distance between students’ term-time address and campus. 2006 – measured in bands of kilometres. Threshold of 10km from campus has been used. 2007 – measured in bands of miles. Threshold of 5m from campus has been used.
- All students commuting by taxi travel separately.
- No DEFRA conversion factors available for motorcycles for 2006 or earlier. The average CO\(^2\) emissions from UK motorcycles for 2011 has been used instead – 110g/km CO\(^2\) (Source: LCVP).
- No DEFRA conversion factors available for bus transport prior to June 2007. The DEFRA conversion factor of 0.0891 kg/CO\(^2\) per passenger km has been used for the 2006 and 2007 calculations for bus emissions.
- Reasonable average journeys lengths for each mode of travel have been assumed based on all data available (including cross tabulated survey results) and reasonable assumptions.
- No cross tabulation of results was conducted in February 2006 between the distance from term-time addresses to campus and the main mode of transport used. Therefore the nearest available data has been used to calculate the total commuting distance by car in February 2006.
- Vehicle emissions will remain the same in 2012 and 2015 as the conversion factors used for 2005 and 2007. In reality, vehicle emissions should reduce as more modern engines are less polluting.
• Student numbers will remain the same in November 2012 and November 2015 as they were in November 2007 (10,906).

5.2.1 Staff Commuter Travel – Mode Share Actual and Targets

<table>
<thead>
<tr>
<th>Staff travel</th>
<th>Actual</th>
<th>Actual</th>
<th>Actual</th>
<th>Target</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car alone</td>
<td>58%</td>
<td>55.8%</td>
<td>46.3%</td>
<td>53%</td>
<td>50%</td>
</tr>
<tr>
<td>Car share</td>
<td>13%</td>
<td>12.5%</td>
<td>14.6%</td>
<td>13%</td>
<td>14%</td>
</tr>
<tr>
<td>Cycling</td>
<td>12%</td>
<td>13%</td>
<td>14.1%</td>
<td>14%</td>
<td>15%</td>
</tr>
<tr>
<td>Bus/coach</td>
<td>9.5%</td>
<td>11%</td>
<td>18.8%</td>
<td>15%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Walking</td>
<td>5%</td>
<td>3.5%</td>
<td>3.0%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Motorbike/moped</td>
<td>1%</td>
<td>1%</td>
<td>0.3%</td>
<td>1%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Taxi</td>
<td>1%</td>
<td>0.2%</td>
<td>0.3%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Other</td>
<td>0.5%</td>
<td>3%</td>
<td>2.4%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

5.2.2 Staff Commuter Travel – Carbon Emissions Actual and Targets

<table>
<thead>
<tr>
<th>Staff travel</th>
<th>Actual t/CO2e</th>
<th>Actual t/CO2e</th>
<th>Actual t/CO2e</th>
<th>Target t/CO2e</th>
<th>Target t/CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car – alone or sharing</td>
<td>3070</td>
<td>2951</td>
<td>2371</td>
<td>2714</td>
<td>2560</td>
</tr>
<tr>
<td>Cycling</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bus/coach</td>
<td>42</td>
<td>63</td>
<td>113</td>
<td>90</td>
<td>93</td>
</tr>
<tr>
<td>Walking</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motorbike/moped</td>
<td>8</td>
<td>8</td>
<td>3</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Taxi</td>
<td>2</td>
<td>43</td>
<td>54</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>3131</td>
<td>3066</td>
<td>2542</td>
<td>2868</td>
<td>2722</td>
</tr>
</tbody>
</table>

Summary

- Actual: CO₂ emissions from staff commuting fell by 524 tonnes between November 2007 and April 2011. This is a reduction of 17.1%.
- Actual: CO₂ emissions from staff commuting fell by 589 tonnes between May 2003 and April 2011. This is a reduction of 18.8%.
- Target: By 2012 emissions are projected to increase by a further 326 tonnes or 12.8% on 2011 levels.
- Target: By 2015 emissions are projected to increase by a further 180 tonnes or 7.1% on 2011 levels.

Notes

- Most of the Travel Plan targets for 2012 and 2015 for staff commuter travel have already been achieved and will be reviewed after the Staff Travel Survey in November 2012. The above targets will then be revised as necessary.

Assumptions

- All carbon calculations are rounded to the nearest whole tonne.
- There are no Travel Plan targets for staff train travel for 2012 or 2015. The carbon footprint from staff train commuter travel in 2011 has been assumed as the same for 2012 and 2015.
- All staff commuting by taxi travel separately.
- Reasonable average journey lengths for each mode of travel have been assumed based on all data available (including cross tabulated survey results) and reasonable assumptions.
- Vehicle emissions will remain the same in 2012 and 2015 as the conversion factors used for 2003 and 2007. In reality, vehicle emissions should reduce as more modern engines are less polluting.
• The DEFRA bus conversion factor of 0.0891 kgCO\textsubscript{2} per passenger km (June 2007) has been used for the calculations for staff bus travel emissions for 2007 and 2003.
• The DEFRA conversion factor of 0.2075 kgCO\textsubscript{2}/km (June 2007) for average passenger car of unknown fuel type has been used to calculate the carbon footprint of staff commuter travel by car in November 2007.
• The earliest DEFRA conversion factors released were in July 2005. These have been used to inform the calculations for May 2003.
• Train travel was encompassed within the ‘Other’ travel modes category in the 2003 Staff Travel Survey and it was noted in the results that the ‘Other’ category mostly consisted of responses relating to train travel or staff who were given lifts. It has been assumed that the train mode share for May 2003 was half of the ‘Other’ responses so 0.25% has been assumed.
• Staff numbers will remain the same in November 2012 and November 2015 as they were in April 2011 (2,544 plus 330 tenant staff).

Future revisions to this edition of the TCMP will include the carbon emissions associated with other forms of transport.

6. Project Summary

6.1 Current Projects

A number of key projects and initiatives are currently in place as part of the University’s Travel Plan and Car Parking Policy. These initiatives aim to reduce single occupancy car use and therefore reduce carbon emissions associated with commuter travel. Examples include:

• Car parking management with parking charges and enforcement
• A restrictive car parking policy for students
• Subsidised annual staff bus passes
• Availability of discounted bicycles and accessories through the Cycle to Work Scheme
• An attractive car share permit for staff
• A web-based car sharing scheme for staff and students
• Improvements to facilities for cycle commuters
• A successful partnership with Stagecoach to deliver quality bus services to meet the demands of staff, students and visitors of the University with 20 buses per hour during term-time weekdays
• A limited number of free one-day parking permits for staff that commit to cycling or walking to work as their main mode of travel throughout the year.

Additional projects have also been developed recently to help quantify and reduce emissions associated with business travel. These include:

• Introduction of a mileage allowance for the use of staff bicycles on University business
• Development of a policy for the University’s fleet of vehicles
• Introduction of pool bicycles for the Facilities Division
• Appointment of a travel management company as part of the centralisation of University business travel bookings with robust carbon data collection
• Development of a new electronic business expenses claim system allowing the collection of carbon data and opportunities for tighter control on business travel.


The following future projects are to be considered for development over the next 3 years to help with the management and reduction of carbon emissions associated with all forms of University transport activity:

• Annual monitoring of transport carbon emissions and required reporting to HEFCE through the annual Estates Management Statistics (EMS) process
• Replacement of fleet vehicles with electric and/or lower carbon alternatives
• Development of a Sustainable Business Travel Policy to be implemented through the Expenses Policy to minimise the need for travel and where travel is necessary, to minimise emissions associated with that travel
• Further consideration into linking parking permit charges to vehicle emissions
• Expansion of the pool bicycle scheme
• Continuation of the subsidised annual staff bus passes and bus improvements agreed in partnership with Stagecoach
• Continuation of other key commuter initiatives such as the car share permit, car share scheme, cycle facility improvements and parking management and control.

As this document is revised to include additional sources of transport emissions other than from commuting and targets beyond 2015 are established, the list of projects will need to be expanded.

7. Governance and Reporting

Under the overall authority of the University’s Vice Chancellor, responsibility for the implementation and review of the TCMP will rest with the Carbon and Environment Management Team (CEMENT), led by the Environment and Travel Co-ordinator. The Carbon and Environment Management Team will report on the TCMP through the Carbon and Environment Executive Board (CEEB). Future editions of the TCMP will be recommended by CEEB to the University Management Advisory Group (UMAG) for approval. The ongoing maintenance and management of the plan will be the responsibility of the Environment and Travel Co-ordinator. Through the implementation of this plan, carbon management will become embedded in strategic planning of the University.

8. Monitoring and Review

This first edition of the Lancaster University Transport Carbon Management Plan (TCMP) covers the period 2012 to 2015. This is consistent with the second edition of the Lancaster University Travel Plan (TP), which covers the period 2010 to 2015. It is envisaged that in 2015/16 both the TCMP and TP will be revised, merged together and republished into one single overarching transport strategy for the University. It is expected that the new document would include targets for staff and student commuting mode share and carbon reduction as well as carbon reduction targets for business travel and transport emissions overall – scopes 1 and 3. The Government’s carbon reduction target for 2020 will be taken into consideration when the new targets are set. A strategy to achieve these targets will also be proposed.

It is recognised that the current scope of the first edition of the TCMP includes only staff and student commuting. Over the next three years, the TCMP will be updated to include all transport emissions associated with business and academic travel.

From 2012/13 HEFCE requires all HEIs to report on their scope 3 carbon emissions. Some sources of scope 3 transport emissions are mandatory to report (e.g. business travel by air, rail, car and motorcycle) whereas some sources are optional (e.g. commuting, business travel by bus, ferry and taxi). Lancaster University will endeavour to monitor and report on all of these mandatory and optional elements on an annual basis.