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AYLESBURY VALE DISTRICT COUNCIL

Democratic Services

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2 June 2017

ENVIRONMENT AND LIVING SCRUTINY COMMITTEE

A meeting of the Environment and Living Scrutiny Committee will be held at **6.30 pm** on **Tuesday 13 June 2017** in **The Olympic Room, Aylesbury Vale District Council, The Gateway, Gatehouse Road, Aylesbury, HP19 8FF**, when your attendance is requested.

Membership: Councillor M Winn (Chairman); Councillors S Jenkins (Vice-Chairman), M Bateman, S Chapple, A Cole, S Cole, P Cooper, B Everitt, B Foster, T Hunter-Watts and R King

Contact Officer for meeting arrangements: Craig Saunders; csaunders@aylesburyvaledc.gov.uk;

AGENDA

1. APOLOGIES

2. TEMPORARY CHANGES TO MEMBERSHIP

Any changes will be reported at the meeting.

3. MINUTES (Pages 3 - 8)

To approve as correct records the Minutes of the meetings held on 22 March, 2017 and 17 May, 2017, copies attached as appendices.

4. DECLARATIONS OF INTEREST

Members to declare any interests.

5. VALE OF AYLESBURY HOUSING TRUST - ANNUAL UPDATE (Pages 9 - 10)

To consider the attached report.

Contact Officer: Will Rysdale (01296) 585561

6. SUSTAINABLE TRAVEL PLAN (Pages 11 - 66)

To consider the attached report.

Contact Officer: Alan Asbury (01296) 585112

7. EMISSIONS REDUCTIONS / PROGRESS REPORT (Pages 67 - 90)

To consider the attached report.

Contact Officer: Alan Asbury (01296) 585112

8. HECA REPORT (Pages 91 - 112)

To consider the attached report.

Contact Officer: Alan Asbury (01296) 585112

9. LOCAL CLIMATE IMPACTS (Pages 113 - 148)

To consider the attached report.

Contact Officer: Alan Asbury (01296) 585112

10. WORK PROGRAMME

To consider the future work programme. Meetings are scheduled as follows:-

- 20 September 2017: Food Service Plan 2017/18
- 2 November 2017: No items as yet

Previously requested items:

- Update from the County Council on road repairs
- Housing acute needs

ENVIRONMENT AND LIVING SCRUTINY COMMITTEE

22 MARCH 2017

PRESENT: Councillor M Winn (Chairman); Councillors S Jenkins (Vice-Chairman), M Bateman, S Chapple, S Cole, B Everitt and B Foster. Councillor A Macpherson attended also

APOLOGIES: Councillors P Agoro, A Bond and A Cole

1. LONDON TERRORIST INCIDENT

Prior to the commencement of the formal business of the meeting, a one minute silent tribute was held to the memory of those killed in a terrorist incident in London earlier in the day.

2. MINUTES

RESOLVED –

That the minutes of the meeting held on 20 December 2016 be approved as a correct record.

3. COMMUNITY SAFETY UPDATE / STRATEGY 2017-2020

Prior to the commencement of the formal business, the Committee received an update from the Assistant Director for Community Fulfilment outlining the staffing structural changes that had taken place within the Community Safety team as part of the Commercial AVDC programme. They were also introduced to Mr Chris Oliver who had joined the team as the Community Safety Advisor.

The Committee received a report and was informed about current crime levels, a summary of activity on the delivery of the Aylesbury Vale Community Safety Partnership (AVCSP) Plan and also updated on some of the recent and future changes taking place in connection with community safety. The Annual Plan for 2016/17 and the draft plan for 2017/18, as well as the Community Safety Strategy 2017 – 2020 were all included as appendices to the Committee report.

Members were informed that recorded crime in 2016/17 had increased by 4.4% (286 crimes, year to date) compared to the same time in 2015/16. This was partly due to changes made by the Home Office in how crime figures were recorded and which had been introduced from April 2015. Increased had taken place in the following categories:

- All crime (excluding fraud).
- Violent crime.
- Robbery.
- Burglary (homes).
- Homophobic crime.

It was reported that Racially or Religiously aggravated crime had fallen despite the national trend which had seen an increase attributed to Brexit. It was, however, recognised that both hate crime and homophobic crime was under reported. As well as this, Homophobic crime was greatly under reported so the increased figure was interpreted as an indication of increased victim confidence to report incidences.

The Thames Valley Police Commander for Aylesbury Vale provided Members with more information and context to the crime figures. It was explained that the number of

reported burglaries had been falling over the past few years and the increase now was due to numbers returning to a normal level. It was believe that the perpetrators were organised 'professionals' who operated deliberately on the edges on District jurisdictions and that had led to the increase of burglaries in rural outbuildings. The Police were working with Community Safety Officers to address this through offering support and advice on keeping homes safe and offering tools and other property marking equipment. Members were also informed that the Community Safety team supported campaigns that had been conducted nationally through social media, an example of which was the "White Ribbon" campaign which aimed to reduce male violence against women and girls. In addition, a local Prison Governor had joined the Bucks Community Safety Partnership to support the rehabilitation of offenders.

The Committee was informed of upcoming projects for 2017/18 which focussed on tackling crime and creating resilience within communities. Prevention was also a key aspect of the projects, an example of which was the Vulnerable Tenancy Group. This aimed to support those who were at risk of losing their homes and of being exploited by criminal gangs. Another aspect of the project was tackling anti-social behaviour, which was often a symptom of complex issues within families and communities. AVDC officers were working with the Police and Crime Commissioner, housing providers and the police to intervene and offer a Community Based Resolution.

Members sought additional information and were informed:-

(i) that there were no plans to reduce the number of PCSOs, although part funding provided by the County Council for some posts had been reduced.

(ii) that the final outcome of the ongoing Thames Valley Police review of CCTV was still awaited. It was acknowledged that CCTV was useful for evidence gathering and as a crime deterrent.

(iii) and given an update on the Restorative Justice Service operated by the Thames Valley Partnership.

(iv) that Ward level information on individual crimes was accessible on-line from www.police.uk and by entering a local postcode.

(v) that enthusiasm for communities being resilient was expected to be maintained through frequently engaging with the local volunteers. As it stood, the team had more volunteers than could be trained.

(vi) that the CSP had obtained some "Sportivate" funding that could be used for 'diversionary' activities for young people, i.e. to support local football/cricket/sport activities.

(vii) that although 42% of people had stated that they felt safe or very safe in the Aylesbury town centre during the evening, this survey had only covered a small sample and the town centre was a safe place to visit in the evening.

(viii) that the Neighbourhood Policing teams were continuing to work in communities, which included educating people on the difference between calling '101' to report crime and other concerns that did not require an emergency response and '999' to report emergencies when a crime was happening or someone was in immediate danger.

(ix) that new students to Buckingham university were provided with a welcome pack to help them assimilate into the local community.

(x) on the types of actions and responses the police were able to take regarding off road motor bikes (anti-social behaviour) in some parts of Aylesbury.

Members also commented:-

- that they would like to see the police more practically involved with large town centre events, with particular reference made to the Christmas parade in Buckingham.
- that it would be helpful for local Councillors to be provided with a guide to anti-social behaviour / safeguarding / prevent, which explained who they should contact and how to feed back information to the Community Safety Partnership

and the police. This would also help Councillor with their Ward work and being able to signpost local residents.

- that consideration was of the potential ASB impacts due to an influx of workers caused by HS2 and any other large infrastructure developments in Aylesbury Vale.

RESOLVED –

(1) That the Thames Valley Police Commander for Aylesbury Vale be thanked for attending the meeting and briefing Members on current issues and the new strategy.

(2) That the scrutiny committee was supportive of the Aylesbury Vale Community Safety Partnership (AVCSP) Strategy 2017-20 and the Annual Plan for 2017/18, as submitted to the meeting.

4. WORK PROGRAMME

The Committee considered their future work programme as submitted to the meeting. Members commented that future agenda items could include receiving an update from the County Council on road repairs, Housing acute needs and the Food Service Plan 2017-18.

RESOLVED –

That the current work programme be noted.

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ENVIRONMENT AND LIVING SCRUTINY COMMITTEE

17 MAY 2017

PRESENT: Councillors Bateman, S Chapple, A Cole, S Cole, Everitt, Foster, Hunter-Watts, Jenkins, King, Renshell and Winn.

APOLOGY: Councillor Cooper

1. ELECTION OF CHAIRMAN

RESOLVED –

That Councillor Winn be elected Chairman of the Committee for the ensuing year.

2. APPOINTMENT OF VICE CHAIRMAN

RESOLVED –

That Councillor Jenkins be appointed Vice-Chairman of the Committee for the ensuing year.

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Environment and Living Scrutiny Committee
13 June 2017

VALE OF AYLESBURY HOUSING TRUST (VAHT) - UPDATE REPORT

1 Purpose

1.1 To inform Members that Matthew Applegate, Chief Executive, of the Vale of Aylesbury Housing Trust (VAHT) will present an update on VAHT's operations over the past 12 months and a briefing on its strategic direction for the next year.

2 Recommendations

2.1	Note the report and update presented at the meeting.

3 Supporting information

3.1 When AVDC's housing stock was transferred to VAHT in July 2006, VAHT undertook to fulfil a range of commitments to transferred tenants. AVDC undertook two reviews of the 'Transfer Promises' and found that VAHT had fulfilled the majority.

3.2 Since these reviews at the request of AVDC the Chief Executive of VAHT has attended scrutiny on an annual basis. He has again agreed to present his annual update and provide a briefing on VAHT's strategic direction for the coming year and beyond.

4 Resource implications

4.1 None

Contact Officer	Will Rysdale - 0296 585561
Background Documents	Transfer Agreement and the Formal Consultation on Aylesbury Vale District Council's proposal to transfer all of its homes to Vale of Aylesbury Housing Trust (the Offer Document)

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Environment and Living Scrutiny Committee
13 June 2017

SUSTAINABLE TRAVEL PLAN

1 Purpose

1.1 To update Environment and Living Scrutiny members on the production of the Council's Sustainable Travel Plan.

2 Recommendations

2.1 That Committee members note the production of the updated Sustainable Travel Plan and consent to its endorsement and publication on the Council's website.

3 Executive summary

3.1 This report is to update the Committee on the Council's Sustainable Travel plan which covered the period 2011-13. Whilst this is normally a two yearly produced document, it was delayed for reasons of the wholesale review and adaption of the Council's fleet in 2013/14 .

3.2 The document is formed of two parts; a travel plan (appendix 1) and an action plan (appendix 2). The travel plan sets out activities, measures and targets whilst the action plans sets out means and methods by which to achieve these aims and targets.

3.3 Both are two year duration documents and set the scene until 2019.

3.4 The documents discuss the changes to the way that the Council travels about its business, use of rail and bus services, cycle and walking trends and use of highly efficient, low emission car pool and daily hire cars.

3.5 The publication of a Travel Plan sets the scene for the way in which the Council demonstrates its environmental leadership. The way that the Council travels effects it's emissions, fuel costs and savings as well as demonstrating a strong lead locally and nationally. The Councils award winning changes to fleet have demonstrated a 47% (£104,000 annual) cost reduction. This is exemplified in awards and national press recognition, The local population benefits from improved emissions, less congestion and the availability of electric charging infrastructure as well as seeing encouragement of business to follow suit.

4 Supporting Information

4.1 The Sustainable Travel Plan sets out the successes achieved since the last iteration. Primary amongst these are the adaption and roll out and retender of the Council's Pool Car scheme with Enterprise Rent A Car.

4.2 This scheme has achieved its target of £100,000 saving by delivering over £104,000 over its second twelve months. It has reduced emissions by more than half, reduced trips made, cars on the road, congestion and emissions.

4.3 The scheme has also been widely applauded by both private and Public sector industry; gaining the silver award in the prestigious National Energy Savings Trust Fleet Hero Awards 2015. It was also highlighted by BVRLA at one of 10 best practice case studies for public and private sector in July 2016 and has been widely publicised in national and local press (see appendix). The Council has also been accepted as Low Carbon Company which required it to pledge to achieve 5% Electric Vehicles on its fleet by 2020. A target that the Council, met in 2015 and exceeded in 2016.

4.4 Indeed the Council's fleet successes have also played some small part in exceeding the Council's Carbon reduction target of 34% by 2020 (in line with the central government target). A target that was exceeded (36.5%) in 2016, a full 4 years early. See earlier report.

4.5 On the back of the scheme, the Council has had some success in marketing and selling expertise to other bodies including Bucks CC, Adur and Worthing Council, Southern Health Trust as well as delivering paid for presentations at the Houses of Parliament and Cardiff City Hall to UK and Welsh public sector and government departments.

4.6 As an adjunct to the car scheme, the Council's Arriva Bus Subsidy launched as a pilot in 2009 has been relaunched to all five local bus companies. This allows members and staff a 50% discount on all bus journeys that start or end in Bucks on production of their Council ID and Travel Choice card.

4.7 The Council now has ten designated car share bays at Gateway, alongside four motorcycle bays, fifty covered bicycle sheds, along with showers and ten EV parking bays served by two slow (3.3kW), two fast (7kW) and three rapid (43kW) chargers.

4.8 Recent research demonstrates that urban Nitrogen Dioxide (NO_2) emission levels have been exceeding legal limits since 2010, leading to significant numbers of excess deaths. Following a Cross Party MPs report in 2016, recent Government announcements mean that the Council will be required to act on addressing air quality. Aware of this, the Sustainability Team have been looking at additional EV charging infrastructure both on street, to certain car parks and at centralised charging stations. This is being considered alongside the car park strategy currently under way.

4.9 The council continues to support Bucks Car share to assist staff to car share on their commute to and from work.

4.10 The report also touches on work at Pembroke Road to demolish and extend the site and assist the Council through a separate Pembroke Road specific staff survey, in its decision over plans for parking as part of the redevelopment plan.

4.11 A summary of details for this particular site specific survey is set out as follows. Of 46 responses received from a possible 107 staff, 46% drive their own vehicle to work with 24% walking and 9% cycling. In terms of car sharing, whilst 20% did this daily, the majority (67%) never car share. Of all respondents, with the exception of four car drivers, all live in the HP18 to HP23 area. Full results can also be found at Appendix 10. This survey was conducted at the request of managers to assist them in providing information for County Highways.

4.12 Targets for the travel plan have been redeveloped to allow the Council to drive forward its work. This includes targets to reduce single occupancy car journeys; increase car sharing, cycling and walking; reducing business travel; increasing the EV fleet and reducing emissions.

5 Reasons for Recommendation

5.1 The report serves as an update to members on the Sustainable Travel Plan report published in 2012 and asks members to note the position and request that the officers be asked to continue to work towards addressing solutions to improve the Council's mitigation to Climate Change through transport and travel related measures within the reduced resources available. This will

mean setting priorities and focusing on those actions which can achieve the greatest impact.

6 Resource implications

There are no direct additional resource implications relating to this report other than those already funded.

Contact Officer	Alan Asbury 01296 585112
Background Documents	Travel Plan 2011

Aylesbury Vale Sustainable Travel Plan

"To secure the economic, social and environmental wellbeing of the people and businesses in the Vale"

AYLESBURY VALE
DISTRICT COUNCIL

Published June 2017 Appendix 1

Aylesbury Vale District Council **Appendix 1**

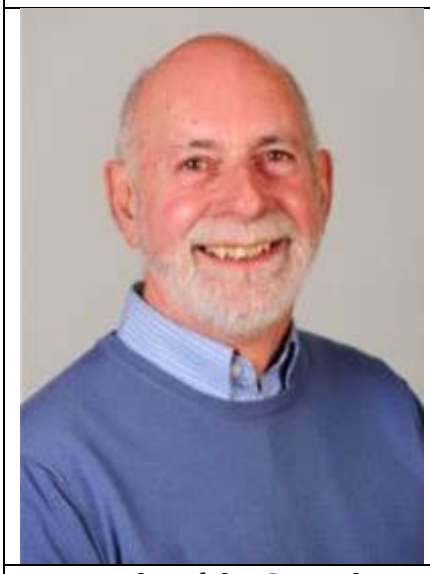
Sustainable Travel Plan 2017 – 2019

Appendices:

Foreword

Travel Plans offer an unique opportunity for organisations to work with Members, employees and visitors to help minimise the traffic impacts they have on the environment and transport network.

With thanks to all staff and in particular, to the following members and officers for their support in producing this Sustainable Travel Plan.

Cllr Neil Blake	Cllr Sir Beville Stanier
	
Leader of the Council	Portfolio Holder for Environment
Mr Andrew Grant	Mr Alan Asbury
	
Chief Executive Officer (CEO)	Sustainability and Energy Manager & Author

The Council's last published travel plan covered the two year period 2011 to 2013. The Travel Plan process was halted in 2014 with the comprehensive changes put in place on staff business travel. Following the completion of this project and results from surveys conducted in 2015 and 2017, this document alongside the Councils Travel Action plan represents the current and future position of sustainable travel for the Council.

A Travel Plan can deliver a range of social, environmental, economic and health benefits. For example, increased cycling and walking can lead to a healthier workforce, and more car sharing will result in fewer single occupancy car journeys leading to less congestion, less air pollution and reduced greenhouse gases.

The proximity of the Gateway offices and conference centre in the spring 2012 brought together the majority of office staff onto one site. Proximity to train stations at Aylesbury and Aylesbury Parkway (with park and ride options at the latter), along with bus stops for route 2 and route 16 buses and the National Cycle Network, represents an excellent opportunity for the council to produce a realistic and achievable Travel Plan that help to encourage positive travel behaviour.

Beyond this, with the full redevelopment of the Pembroke Road satellite site commencing 2017 and due to complete in the summer of 2019, the Travel Plan will assist the Council to continue to lead by example.

As the district continues to grow and prosper with an additional 33,000 homes to be built by 2030, we will need to give serious thought to how we move around in order to help make Aylesbury Vale an increasingly sustainable place to live, work and play.

Summary

The Travel Plan and associated Action Plan set out a series of targets and measures towards achievement of sustainable travel. Reviewed every two years, the measures aim to improve local air quality, public and officer health and provide value for money.

The targets in the 2011-13 travel plan have been met in large degree.
The Gateway site has been made more welcoming for those arriving on foot, by bicycle and by public transport with additional locking and covered bicycle sheds and cycle stands that are proximate to the building entrance.
10# car parking spaces have been installed and clearly designated for Car Sharing users only. There are now 10# Electric Vehicle Charging Bays (6 of which are rapid charger bays), along with motorcycle parking bays and bays for disabled people. These are publicly available charge points for which a charge is made but this includes solar powered energy, use of free wi-fi and free coffee (subject to additional purchase).

Introduction

Sustainable transport options have been instigated and promoted with:

- 50% discount in all five bus services starting or ending in Bucks
- 34% Chiltern Railways discount across all Chiltern Trains
- Removal of all essential and casual payments
- Introduction of a low carbon (sub 100g/km CO_2) pool car fleet

- Installation of viable teleconference hubs and facilities.

All of the above is publicised internally so as to assist members and officers to make informed travel choices.

In 2016, the Council became a Go Ultra Low Company. This is in recognition of how the Council have included electric vehicles in their fleets. In gaining this status, the Council agreed to have at least 5% of EVs by 2020. In reality, the Council had already achieved and exceeded this figure in 2015.

The Council's fleet is now 47% more efficient than it was in 2013 - the last year before the changes to grey fleet were introduced and the end of the last Travel Plan (2011-2013).

In November 2015, the scheme won silver at the 10th National Energy Savings Trust Fleet Hero Awards in London.

The scheme has also been highlighted as best practice by the trade body BRVRA at: http://www.bvrla.co.uk/sites/default/files/documents/research/bvrla_grey_fleet_final_0.pdf

Details of a selection of press articles related to the scheme can be found at Appendix 7. The Council's achievements since the last Travel Plan in 2013 have been nationally recognised:

		
Go Ultra Low Company Award 2016	Fleet Hero Silver Award 2015/16	National Trade Recognition 2016

Saving £90,000 in the first year of the new car scheme roll out, it went on to deliver a further £104,000 in year two and has reduced grey fleet carbon emissions by more than 50%.

The scheme has resulted in a reduction of cars on our roads, reduced emissions, improved air quality and ensured that the Council is operating an efficient and well managed fleet alongside access to half price bus travel and a one third price reduction on Chiltern Railway travel. This has improved the Council's reputation on fleet and carbon reduction issues nationally.

By taking the lead on this, the Council has since delivered charged for training and consultancy services to:

- County Councils
- District and Borough Councils
- National Health Trusts
- Transport infrastructure providers
- London Boroughs

We have delivered national presentations to:

- Buying Business Travel Forum, Grange City Hotel, London (May 2017)
- Government Departments (DEFRA, EA, DWP, Police Service) at the Houses of Parliament (Nov 2016)
- Welsh Government (Welsh LGA, NHS) in Cardiff (Apr 2016)

Targets (Duration of Sustainable Travel Plan)

Targets for 2017-19 have been set using a baseline of the staff travel survey undertaken in 2015 and again in March 2017, the Travel Plan aims to:-

1. Reduce the number of single occupancy journeys from 77% to 50%
2. Increase the number of people regularly car sharing once per fortnight or more from 6.6% to 20%
3. Increase the number of people cycling at least once a week from 1% to 5%
4. To increase the number of people walking to work at least once per week from 5% to 10%
5. Continue to reduce business travel by at least 10%
6. Enhance the EV content of the fleet by at least 10% and continue to enhance our ‘Go Ultra Low Company’ credentials
7. Develop new and creative solutions to reduce emissions, while avoiding undue impact on the motorist.

Background

What is a Travel Plan and who is it for?
A Travel Plan is a strategy aimed at improving travel choices and reducing reliance on the car, particularly single occupancy car journeys. Travel Plans are developed by organisations that want to make a commitment to reducing the impact of travel and transport on the environment, and those that want to look at new ways of managing their transport needs.

This is achieved by:

- Providing realistic alternatives to the car
- Making alternatives to driving alone more attractive
- Reducing the need to travel
- Managing car parking provision

In respect of reducing the Council's carbon emissions, reducing congestion and leading by example, it is implicit on Council officers to consider alternative travel arrangements. These might include:

- Use of the Car pool scheme
- Car Sharing
- Working from Home
- Walking
- Cycling
- Use of Public Transport
- Use of more efficient means of transport
- Reducing journeys made

A Travel Plan can address any of the following issues:

- Commuter journeys
- Business travel
- Fleet management
- Visitors to the site
- Potential for Pool Cars

Delivered effectively, the Travel Plan will impact upon everyone across the organisation, albeit to different extents. For some employees, the Travel Plan will help to encourage and enable a shift away from single occupancy private car use, whereas others may simply read the Travel Plan and become aware of the alternatives available. In either scenario, the Travel Plan will make a positive difference.

By removing essential users that were previously paid a lump sum payment and mileage rates, along with casual users who were generally paid a greater mileage payment, significant savings have been made. This has lead to a culture change in the way that officers drive and consider how they work.

Description of the Organisation

The council employs around 450 staff and has 59 elected members. Whilst office staff work predominantly full time, a number are part time and the majority of all staff work flexible hours. In practice this means that they may work their hours according to need but must achieve their weekly hours. Whilst Pembroke Road opens its doors at 5:45am Gateway staff may start their day at 7:30am and finish in the office by 7:45pm Monday to Friday.

A smaller number of members and officers attend evening meetings, typically 6:30pm to up to 10:30pm. These meetings represent the main operating hours of elected members. Other significant site travel use will be associated with the Oculus Conference Centre.

Benefits to the organisation of developing a Travel Plan

An increasing number of businesses are adversely affected by increasing levels of traffic, congestion and on-site parking problems.

Travel Plans help by:

- Providing a means of doing a 'stock take' of the current situation, problems and opportunities to enable changes to take place
- Improving staff wellbeing, health and fitness
- Reducing fleet management costs (through such activities as driver training) and mileage expenses (through encouraging business car share, virtual meetings and recognising avoidable meetings).
- Improving site access
- Assisting with recruitment and retention by providing and encouraging flexible working and promoting public transport as a means of accessing employment
- Improving company image
- Influencing local key business decision makers and building better relationships with the local community.
- Promoting the Council as best practice to other public and private sector organisations as delivering best practice in fleet management and alternative vehicle use.
- Reducing congestion in the local area
- Reducing Nitrogen Dioxide (NO_2) emissions through reduced car journeys and congestion and more efficient petrol or non exhaust emitting vehicles.
- Improving the situation in the Air Quality Management Areas (AQMAs).
- Reducing the number of car parking spaces required leading to options to sell these spaces for conference or business users.

The development of a Travel Plan can also assist in meeting wider business objectives, including: air quality initiatives, increased public transport use when linked with the Urban Traffic Management System (UTMS – real time information), energy efficiency and waste minimisation.

The Government's Air Pollution Plan launched in May 2017, places the onus of action squarely with Local Government. They will be required to new and creative solutions to reduce emissions as quickly as possible. This follows investigations that demonstrate that nitrogen dioxide emissions (largely from diesel vehicle exhausts) have been above legal

limits in almost 90% of UK urban areas since 2010. These fumes are estimated to cause 23,500 premature deaths per year. This issue was declared a public health emergency by a cross party committee of MPs in April 2016.

How the Travel Plan fits into the Business

AVDC's Vision Statement

The Council's vision statement sets out what the Council are working to achieve.

"To secure the economic, social and environmental wellbeing of the people and businesses in the Vale"

To enable us to realise our vision, we are all working:

- To **enable essential infrastructure for growth and sustainability** of the area be it physical or social
- To **ensure fair and speedy access to essential services** and their referral to partners
- To **provide a healthy and dynamic institution** for making effective decisions about the area, to which everyone can contribute
- To **stimulate, innovate and enable economic growth** of the area, its regeneration and the attraction of inward investment
- To **provide or commission services and products** that customers and businesses have agreed add value to their lives

Our vision should be the foundation for everything we do here at AVDC, across all services. By referring back to the vision statement, we can ensure that we continue to move in the same direction, adapting and growing, whilst keeping the wellbeing of our residents and businesses at the centre of everything we do.

The development of the New Council Travel Plan accords with the Council's vision and in particular:
"To enable essential infrastructure for growth and sustainability of the area be it physical or social"
And
"To ensure fair and speedy access to essential services and their referral to partners"

In addition, the Travel Plan assists the Council to facilitate change through existing Council policies and strategies, these include:-

- Home Working Policy
- Car Loan Policy
- Car Parking Policy
- Climate Change Action Plan
- Carbon Management Plan
- Environmental Policy

Council Travel Plan Objectives

The results of the Council Travel Survey undertaken in 2015 and 2017 (straddling the beginnings and current situation with the new car scheme) together with policy guidance and the assessment of existing effective Travel Plans, has helped to formulate the following aims:-

- To positively support sustainable travel
- To encourage walking, cycling or public transport for journeys to work and for business when appropriate
- To reduce the need to travel
- To reduce car journeys undertaken
- To reduce business vehicle emissions
- Provide improved travel information
- To encourage car sharing
- To enhance flexible working
- To promote a corporate approach to home working
- To gain a better understanding of all travel generated by the Council
- To integrate the Council Travel Plan into long term business planning
- To lead by example

Travel Plan Components

Travel Plan measures can include lobbying for improvements in public transport by increasing services, providing travel information, enabling public transport initiatives and improving pedestrian and cycle access to and from a site.

Changes to working practices can assist in enabling more flexible working conditions such as flexi-time and promoting working from home.

Walking and cycling can be promoted through the provision of improved signage of routes, cycle parking, changing and shower facilities, and discounts on equipment and interest free loans for public transport season tickets.

Travel Plans can also seek to increase car occupancy through car sharing schemes and car park management.

New Developments

The Council Local plans states that…. Between now and 2033 more than 30,000 homes are planned to be constructed in the Vale.
https://www.aylesburyvaledc.gov.uk/aylesbury-vale-district-local-plan-early-stages
Proposals Map:
https://www.aylesburyvaledc.gov.uk/proposals-map

Targets

Two Year (Duration of Travel Plan) Targets

It is important to set targets so that we can progress towards achieving the aims of the Travel Plan and positively influencing the targets to be monitored.
Targets for 2017-19 have been set using a baseline of the staff travel survey undertaken in 2015 and 2017, the Travel Plans aims to:-

1. Reduce the number of single occupancy journeys from 77% to 50%
2. Increase the number of people regularly car sharing once per fortnight or more from 6.6% to 20%
3. Increase the number of people cycling at least once a week from 1% to 5%
4. To increase the number of people walking to work at least once per week from 5% to 10%
5. Continue to reduce business travel by at least 10%
6. Enhance the EV content of the fleet by at least 10% and continue to enhance our 'Go Ultra Low Company' credentials
7. Develop new and creative solutions to reduce emissions, maintain of improve on current CO2 and mpg vehicle requirements, while avoiding undue impact on the motorist.

Additional targets will be generated by the bi-annual review of the Travel Plan and as new projects come on stream.

Implementation and Action Plan

A successful Travel Plan is dependent upon identifying measures that seek to achieve its aims.

The District Council already has a number of measures in place to support and encourage staff to travel in a sustainable way. The results of the Council Travel Surveys have provided an invaluable source of information to help identify the additional measures required to improve travel choices both to and from, but also within work.

The previous Action Plan set out the following key measures

- To remove all essential and casual business car allowances.
- To replace grey fleet use with an externally controlled pool and daily hire fleet
- To set up regular and distance users with specific lease vehicles
- To ensure that all new fleet operate at sub 100g/Km of CO_2 emissions.
- To make the site safe, convenient, attractive and welcoming for those arriving on foot, by bicycle and by public transport.

- To install car parking spaces for Car Sharers, Electric Vehicle Charging Bays, and Disabled People.
- To provide sustainable transport options (see appendix 9) on all literature and websites pertaining to office and conference centre use so as to provide information to make an informed travel choice at the earliest opportunity.
- To provide easily understood information on sites relating to public transport; routes, maps, timetables etc.

These have all been achieved.

Marketing and Awareness Raising

Securing staff commitment to the Travel Plan and maintaining awareness is essential to its success. The 25% response rate to the Council Travel Survey indicates that there is already a high level of staff interest in travel issues.

Of most interest from the staff survey which took answers from 89 respondents is that the number of single occupant car drivers remains stubbornly high at 39% travelling alone every day of the working week.

Another interesting finding is that despite the fact that there was huge resistance to the car pool scheme, not least because of perceptions that business journeys conducted within the commute would no longer happen. The survey results suggest that there has effectively been no change to this in all of the last 3 surveys. See Q11, Appendix 8.

A separate survey conducted with staff at Pembroke Road. This to establish needs given the redevelopment of the site during the operation of this Travel Plan. Some 46 responses were received from a possible 107 staff and of these, 46% drive their own vehicle to work with 24% walking and 9% cycling. In terms of car sharing, whilst 20% did this daily, the majority (67%) never car share. Of all respondents, with the exception of four car drivers, all live in the HP18 to HP23 area. Full results can also be found at Appendix 10.

To build on this level of interest it is essential that the Travel Plan, and in particular new measures, including this document and the associated Action Plan, be effectively communicated on a regular basis.

The Travel Plan acts as an important marketing tool in its own right, highlighting those facilities already available to staff to encourage sustainable travel.

In addition, as measures develop further they will continue to be promoted through similar marketing and awareness raising activities to ensure the Travel Plan targets are continually worked towards. In addition appropriate campaigns in association with the County Council Transport for Bucks team will be promoted to add further focus.

Monitoring and Review

This Travel Plan has set clear targets and progress will be monitored by way of a two yearly review which will generate an annual progress report.

In addition, it will be necessary to review the Travel Plan document to respond to changes in local circumstances, staff and operational requirements.

It is envisaged that the Staff Travel Survey will be repeated every second year, with the next follow up survey due to be undertaken in summer 2019.

Monitoring of the plan will be driven by the Council's Sustainability Officer following the Council's deletion of the Sustainability Team in 2016.

From the survey snapshot, some 44% of staff (329) used their car to come to work daily, five days per week.

Constraints and Challenges

As with any plan there are constraints and challenges to the implementation of the action plan. Having assessed all users, certain users such as LEAP and Council elected Members were excluded from the scheme. This was because the former were externally funded and their travel patterns meant that they were covering the whole of the UK with large amounts of sports equipment. The Members typically travel in the evening and generally this trip is from home to office and return. As such, the system simply didn't work for either group.

Maintaining Awareness

Staff turnover means that inductions and middle manager support are essential in ensuring that newly appointed officers are aware of the requirements of the schemes. Continued promotion of the travel options available to staff is required to ensure that targets are achieved. The Travel Plan and Action Plan will be uploaded onto the Intranet "Connect" for member and officer consumption and the Internet for public awareness alongside instructions and FAQs pertaining to the pool car scheme.

Travel Plan Status

The Travel Plan will deliver a range of marketing and other initiatives as an internal transport strategy document in its own right. However, many of the medium and long term actions will be dependent upon the following:-

- Corporate Priorities
- Continued Member and Senior Management support
- Consultation with employees, members and Unison
- Funding
- Resources
- The support of external partners

The Travel plan is supported by the Travel Action Plan which sets out the actions to be addressed as a result of the recent Travel Surveys which have helped to consolidate this document.

Conclusion

The Council's travel plan and action plan sets out the methods by which we will strive for continual improvement in the way we do business. It is an all encompassing report taking on all aspects of staff travel and commuting. Whilst the Council does not need to involve itself in commuting, as a large public sector employer, we recognise the need to lead by example to encourage car share and sustainable forms of transport.

Having targeted and addressed all areas of business travel from the launch of the car scheme in 2014 and, following its success, its retender and relaunch, it is important for the Council to continue improving and enhancing the system in place. To this end we are working with Enterprise to promote the scheme as best practice across the UK and to improve the internal controls and booking arrangements so as to further hone the travel booking experience.

The Sustainable Travel Plan is a fluid piece of work that will change as technology comes to the fore. Fleet technologies to replace our EV and extended range electric vehicles are already coming to market and the Council will continue to lead from the front in developing work around these solutions to meet our travel needs.
The Travel Action Plans sets out the proposals for the future of this plan to 2019.

APPENDICES

Appendix 2

Travel Action Plan
Attached separately

Appendix 3

Staff Involvement and Case Studies

The Council Travel Plan will be driven by Robert Smart, the Sustainability Officer, within Commercial Property. This role will include taking the lead, where appropriate, in the delivery of the Travel Plan implementation and Action Plan.

However, in order to be effective, the Travel Plan needs to be a corporate document, which can be fed into at any time by anyone.

This work needs to focus on the primary targets. Specifically, how members and officers use their cars when at work, how business journeys can be avoided, minimised, shared.

Experience

Travel Plans have evolved from travel demand strategies, first introduced over 25 years ago in the United States as a result of the 1974 OPEC oil crisis. International policies set up at the Rio Earth Summit (1992) and Kyoto Climate Change Conference (1997) support the development of Travel Plans, by highlighting concern at levels of pollution arising from transport emissions and identifying the need to take positive action. More recently, the Paris Accord in 2015 set out a need to hold global temperatures at a $2^{o}C$ increase.

Case Study 1:- AVDC and Arriva Bus Subsidy

With the success of the trial bus subsidy in 2009, this was reintroduced with the Enterprise Car scheme in December 2014. The Council support this with a subsidy of 30% alongside 20% paid by Arriva and the other 4 bus companies. This provides half price tickets to members and officers.

Case Study 2:- AVDC Cycle to Work Scheme

The Government's Cycle to Work Initiative promotes employers in the UK to participate in a cycle to work interest-free loan scheme for their employees. Many local authorities and large organisations currently operate this scheme.

There are number of benefits to both staff and AVDC, but in financial terms it gives rise to National Insurance savings of 12% for the council and an average 40-50% savings to staff through purchase via gross salary and on the purchase of the bike itself.

Employees select a bike and then 'hire' it from their employers and pay back the cost of the bike by monthly instalments taken from their salary before tax. At the end of the hire scheme, which usually lasts 12 or 18 months, the bikes are sold to the employee at a 'fair market value rate' (i.e. second-hand price).

The savings are significant for employees as they are deducted from gross, not net pay, giving staff a tax exemption - saving on income tax, NI contributions and VAT by deducting the cost of the bicycle from their gross salary. A bicycle can be used for non-work purposes, with no need for employers to monitor usage or for employees to keep mileage logs. A survey on this was conducted in July with results awaited.

Case Study 3:- Introduction of car pool

Since the replacement of grey (private) cars with a new pool fleet, staff have benefited from new, fortnightly cleaned and valeted cars that are checked for tyre damage, fluid levels and other security aspects every 2 weeks. The scheme reduced wear and tare and increased mileage on personal cars, reduces congestion by taking 220 cars off the road and replacing them with a pool of 8 and has cut the Council's emissions by more than half

Case Study 4

"I saved over £420 on petrol alone in a year…"
One Council employee travelling in from Oxfordshire and car sharing twice per week estimates that they have saved £16/week or £842 in just 12 months. The 50 mile daily round trip has also saved over 27.8 kilogrammes of CO_2^e emissions/week or 1.45 tonnes of CO_2^e per year.
If you would like to look for a car share partner either within the Council, Bucks CC or in the further afield visit www.buckscarshare.co.uk

Appendix 4

Low Carbon Travel Options - Site and Facilities Assessment – the current situation

Pedestrian access/facilities

The Gateway Offices on Gatehouse Road are well served by road, rail and pedestrian links. The site is within a 15 minute walk of the main pedestrianised area of Aylesbury Town Centre and a similar walking distance from the towns rail and bus stations.

Cycle access/facilities

The Gateway Offices are directly connected via a cycle/pedestrian route which is routed around the car park of the site. This connects to the Sustrans National Cycle Network.

The Sustrans routes aside, Aylesbury has an extensive network of 'Gemstone' cycle routes. It is recognised that at present not all cycle routes link up. However, many of the missing links are proposed routes on the published cycle map and work is progressing to prioritise these links so that the schemes might be delivered in coming years.

The Gateway Offices offers the following cycle parking provision:-
A selection of covered and securely locked cycle parking areas with capacity for up to 50 bikes. This is monitored by CCTV.

Showers and Lockers

The following shower facilities are available in The Gateway Offices:-
Office 5a: 2 ground floor showers (1 male, 1 female)
Office Phase 3: 4 ground floor showers (2 male, 2 female)

Motorcycle access/facilities

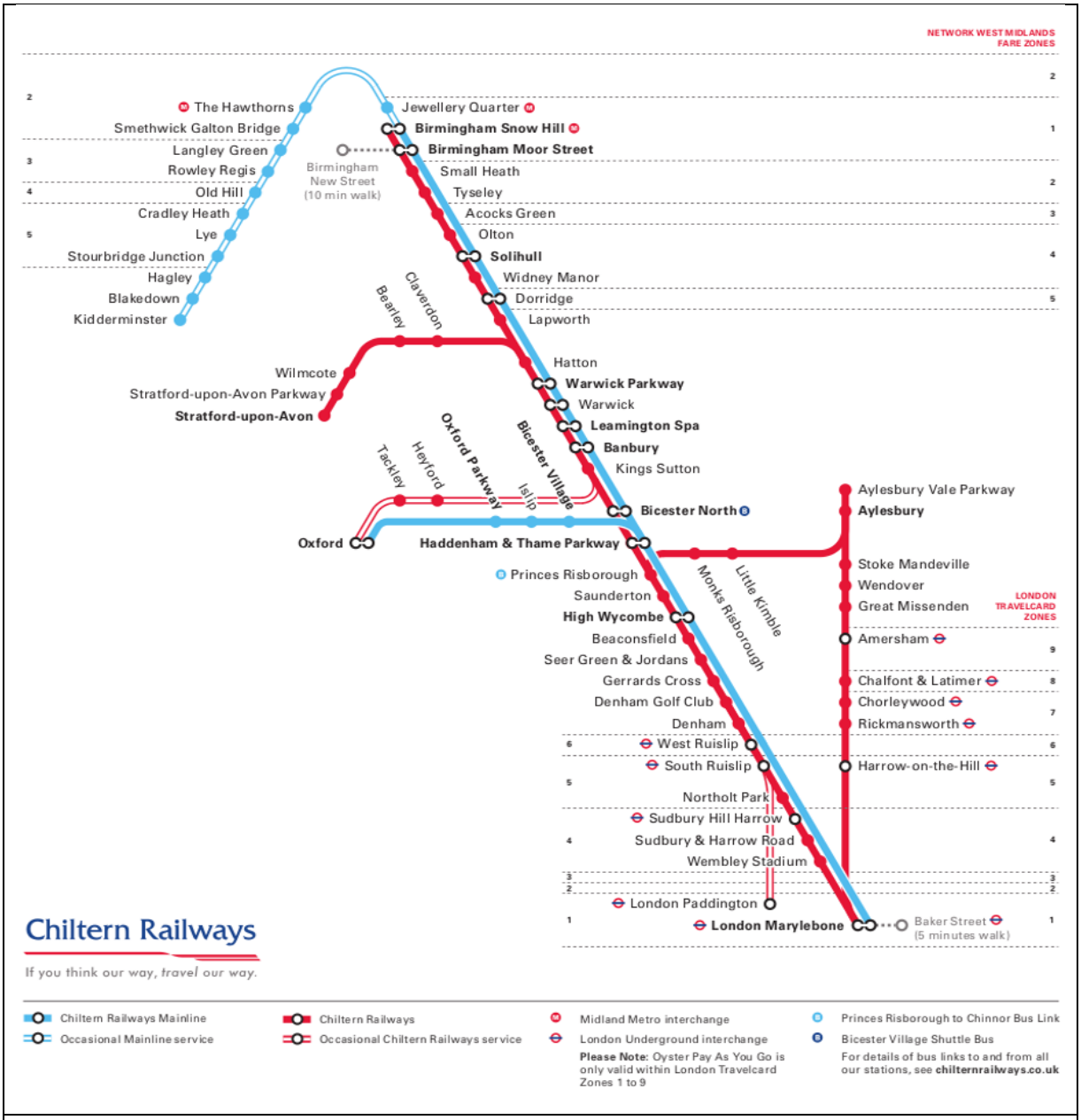
Motorcycle parking is available in the main car park
Motorbikes are also permitted to use the covered cycle parking area located outside the west facing wall.

Public Transport

Rail services

It takes approximately 15 minutes to walk from the Gateway Offices to Aylesbury rail station.

Route of services from Aylesbury railway station which are served by Chiltern Trains www.chilternrailways.co.uk are listed below:-



Route Map for Chiltern Trains Services to London and the South

Trains operate every hour:
To from London
To and from Princes Risborough
Full timetable details can be found at: https://www.chilternrailways.co.uk/live-train-times

Members and officers can also use alternative stations on the Chiltern Railways line (for example Bicester North, Haddenham and Thame Parkway, Princes Risborough, High Wycombe, Stoke Mandeville) to London Marylebone which will reduce their mileage to stations that are closer to home. All Chiltern train stations within Buckinghamshire qualify for the agreed 34% discount.

Bus Services

There are five bus companies operating in the Vale area. These are coordinated by Bucks County Council. Timetables for all can be found at:
http://www.buckscc.gov.uk/services/transport-and-roads/buses-and-trains/bus-timetables/

Where route is not known, then a journey planner is available at:
http://www.travelinesoutheast.org.uk/se/XSLT_TRIP_REQUEST2?language=en&timeOffset=15

The Bus companies that operate these routes are:

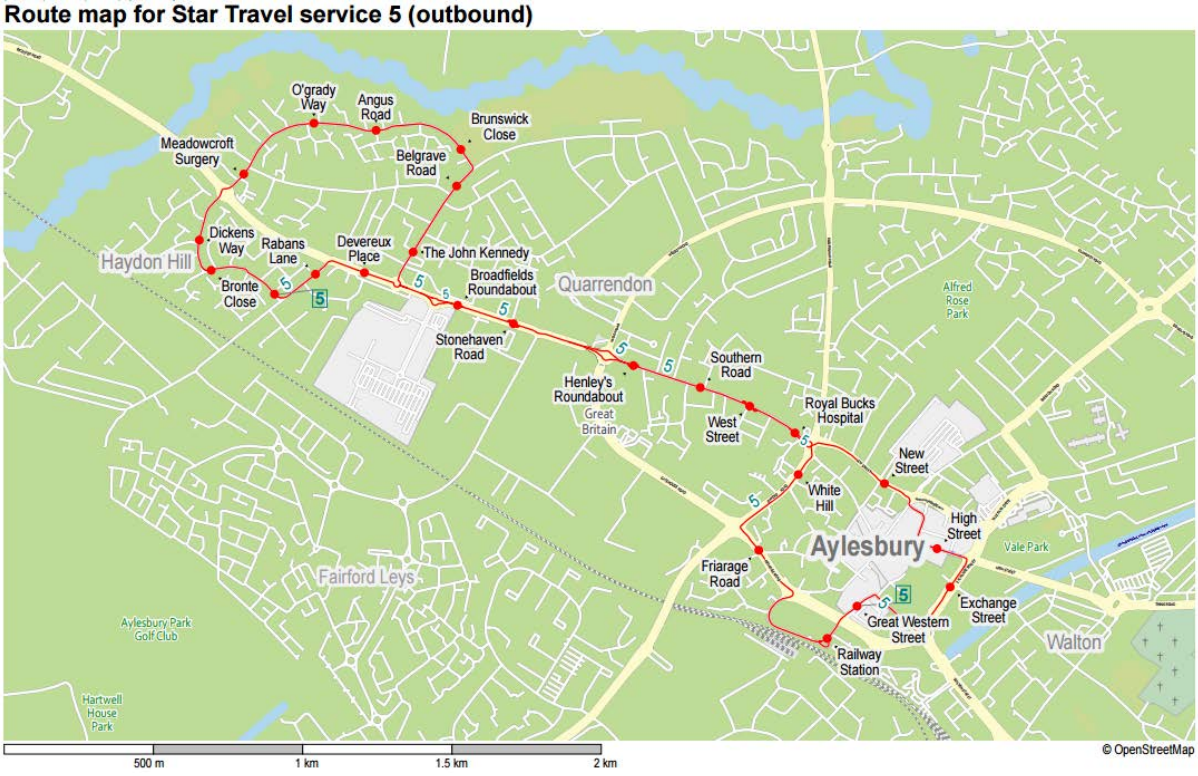
1. https://www.arrivabus.co.uk/beds-and-bucks/places1/aylesbury/
2. http://www.zands.co.uk/bus-routes/
3. http://startravelbuses.co.uk/
4. http://redlinebuses.com/
5. https://www.redrosetravel.com/

All five of these companies accept the Councils ID and Travel Choice card as proof to permit the agreed 50% travel discount on buses that start or finish in Buckinghamshire.

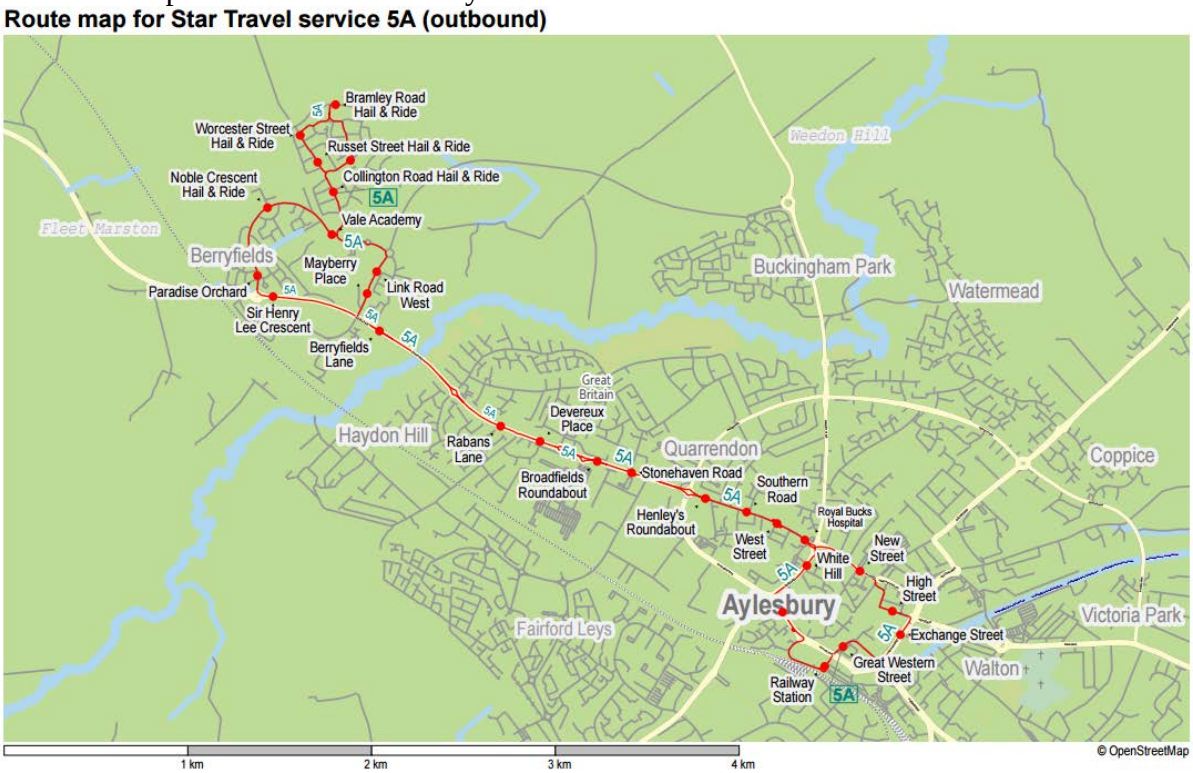
The Gateway offices are around 15 minutes' walk from Aylesbury's bus station.

The site itself is adequately served by the Henley's roundabout bus stops either side of Bicester Road. These provide frequent links to and from the town via the Aylesbury Vale Parkway Rail station park and ride - bus number 16. Most bus stops in town now benefit from Adshel shelters with 'real time' information as part of the Automated Traffic Management System.

Star Travel operate Bus 5 at Henley's Roundabout

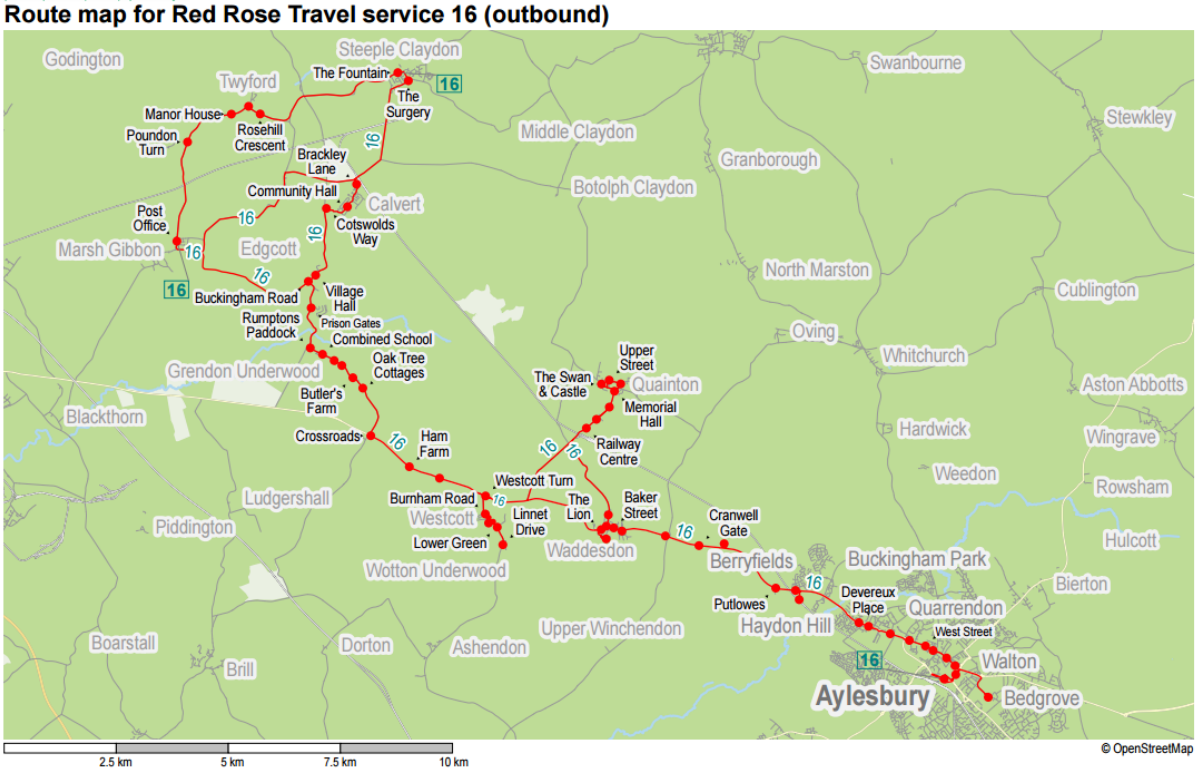


Star Travel operate Bus 5A at Henley's Roundabout



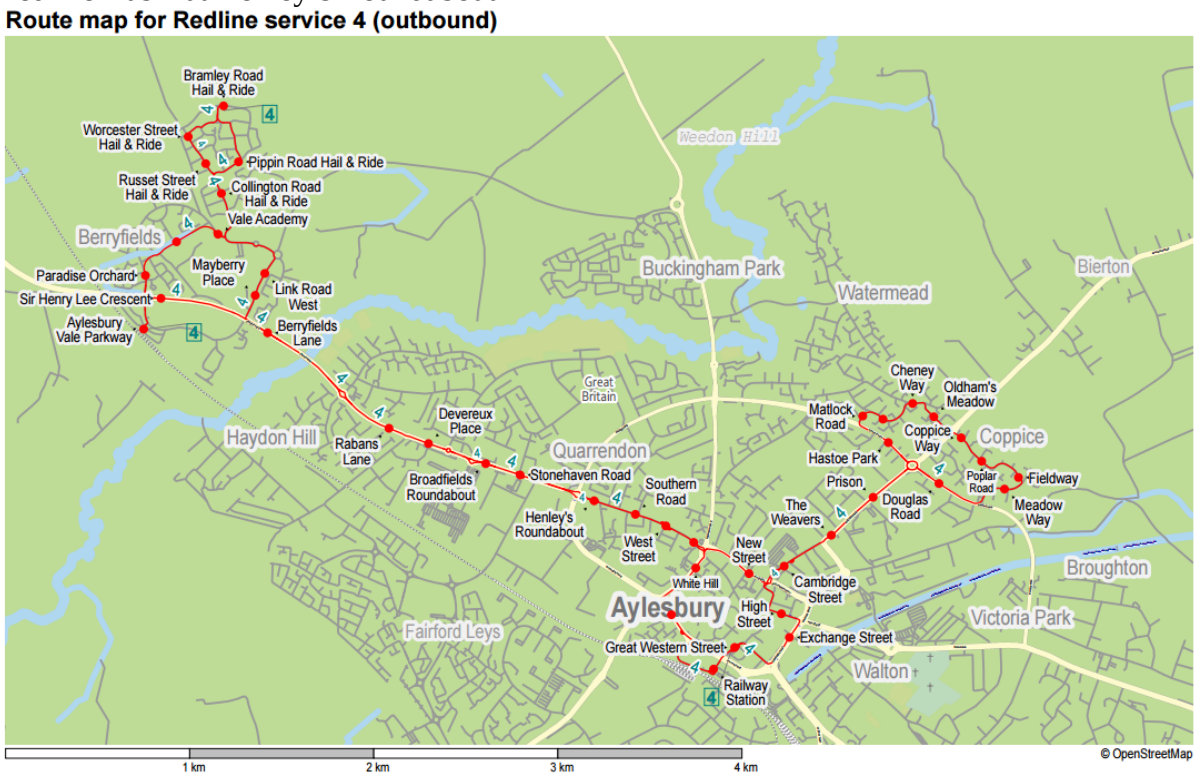
Number 5 and 5A Bus times can be found at:
http://www.travelinesoutheast.org.uk/se/XSLT_TTB_REQUEST?language=en&itdLPxx_dateDay=20170309&dateDay=20170309&command=direct&net=set&line=01005&sup=D&project=y08&itdLPxx_direction=H&direction=H&contentFilter=TIMINGPOINTS&outputFormat=0&itdLPxx_displayHeader=false&itdLPxx_operatorCodeForTTB=STAR

Red Rose Travel Bus 16 at Henley's Roundabout



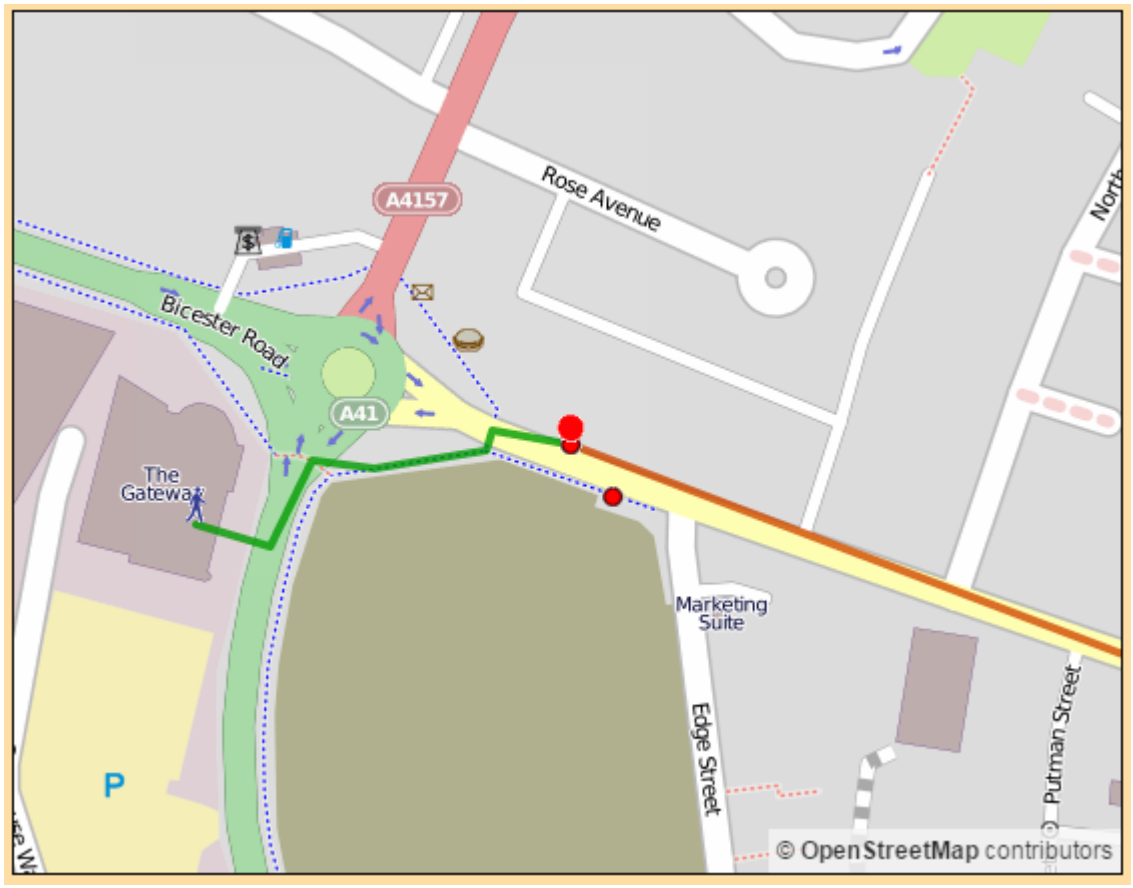
Number 16 bus times can be found at:
http://www.travelinesoutheast.org.uk/se/XSLT_TTB_REQUEST?language=en&itdLPxx_dateDay=20170309&dateDay=20170309&command=direct&net=set&line=01016&sup=B&project=y08&itdLPxx_direction=R&direction=R&contentFilter=TIMINGPOINTS&outputFormat=0&itdLPxx_displayHeader=false&itdLPxx_operatorCodeForTTB=RRTR

Redline Bus 4 at Henley's Roundabout



Bus times can be found at:
http://www.travelinesoutheast.org.uk/se/XSLT_TTB_REQUEST?language=en&itdLPxx_dateDay=20170309&dateDay=20170309&command=direct&net=set&line=01004&sup=%20&project=y08&itdLPxx_direction=H&direction=H&contentFilter=TIMINGPOINTS&outputFormat=0&itdLPxx_displayHeader=false&itdLPxx_operatorCodeForTTB=RLNE

The Henley's Roundabout Bus stop is shown below:



Pool Hire Cars

The Council has instigated pool and daily hire cars using an electronic booking system for business journeys. By removing the need to pay allowances, the Council is able to operate a safe new fleet with near complete control. This avoids concerns over vehicle condition and MOT and helps the Council to control its annual mileage.

Further benefits include

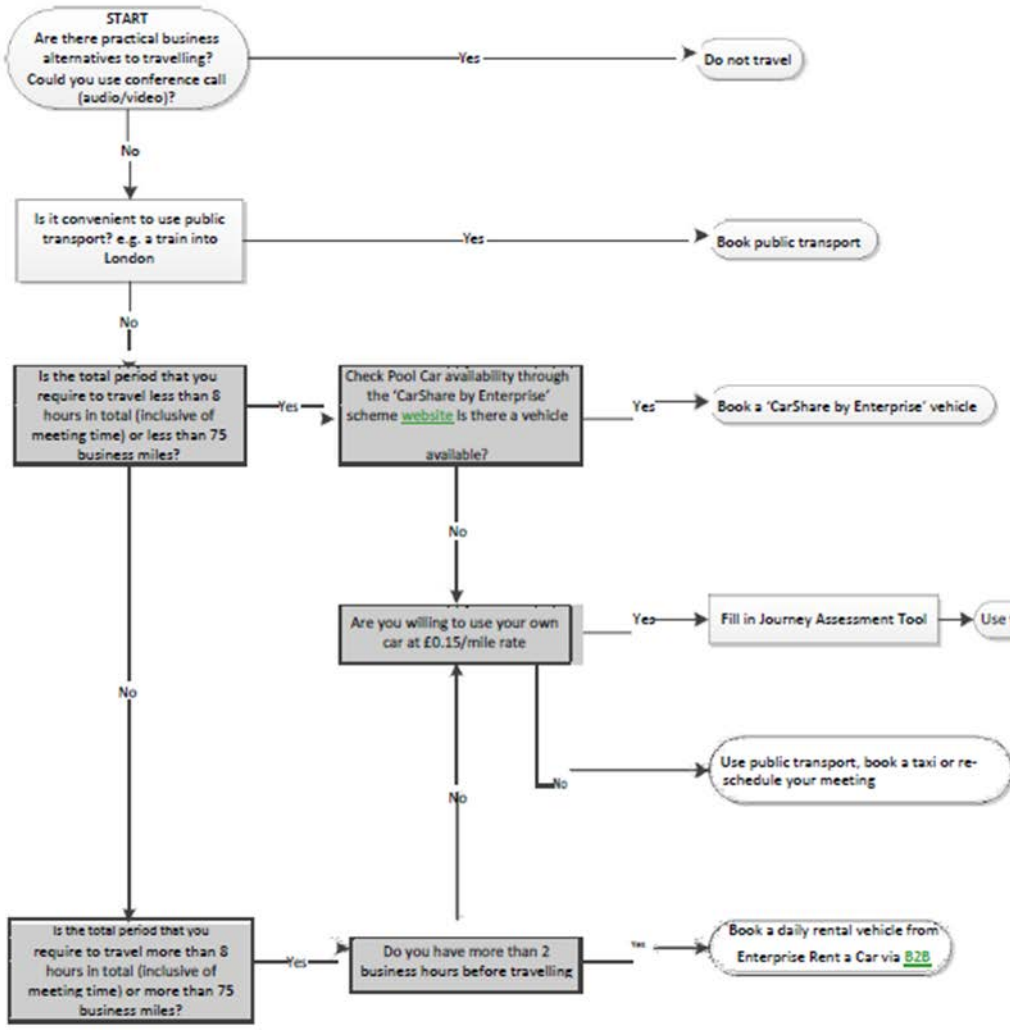
- Reduced mileage
- Reduced payments and costs to Council
- Removal of lump sums
- Reduced journeys
- Reduced congestion
- Reduced CO_2 and NOx (specifically NO_2) emissions
- Oversight and control of fleet
- Reduced risk (corporate manslaughter)
- New vehicles
- Reduced mileage, damage, wear and tear on own car
- H&S – Tyre, fluid checks, clean and valet
- Removal of essential 'policy' 3 separate trips per week

The Council seeks to encourage sustainable travel. Have you considered the following options for your visit to the site?

Car Share: visit - www.Buckscarshare.co.uk
Bus: Bus timetables and costs can be found at:
http://www.arrivabus.co.uk/south-east
Train: services operate between Aylesbury Vale Parkway, Aylesbury and stations to London via Chiltern Railways. More details at:
http://www.chilternrailways.co.uk
Electric Vehicle: the Gateway has 4 "Chargemaster" Electric Vehicle Charging points that can be accessed for a small fee from reception. Full charge takes up to 6 hours. There are also 3 Rapid chargers operated by Charge Your Car (CYC) for which payments are made through registration at http://chargeyourcar.org.uk/
Walking: The site is a 20 minute walk from Aylesbury town centre and Aylesbury Railway Station.
Cycling: Some 50 cycle racks are available at the Gateway offices and showers, lockers and drying areas are also available. For details of routes to site visit: www.sustrans.org.uk
Park and Ride: Parking at Aylesbury Vale Parkway station on the A41 Bicester Road costs £3.50 for the day and bus route 16 operates this route in to/out of Aylesbury via Gateway every hour.
Alternatively, do you **need to visit the site**? Web services are available now in many areas. For more details visit: www.aylesburyvaledc.gov.uk or call 01296 585858.

AVDC TRAVEL DECISION TREE

AVDC is committed to adopting more sustainable and cost effective travel behaviours. Employees should only travel v
there is no practical business alternative. When travel is necessary, employees should assess their different journey op
from below.



Appendix 5

Activities

Car Parking

The Gateway Offices are served by the on-site car park. Priority parking is given to conference and events delegates on days of events and staff are asked to vacate the front bays (closest to the doors). With expectation of a multi storey car park between Perry's and the new apartments in the overflow car park, a revised car parking policy is under consideration. The Council's park strategy is currently (at time of publication) under holistic review.

Car Sharing

Dedicated car sharing bays are available in the Gateway car park to car sharers arriving before 09:30. These bays are adjacent to visitor bays.

Business Travel Options

With the introduction of video, web and audio conferencing at Gateway, these options are be encouraged as a first consideration before attendance at meetings and conferences that require excessive time in relation to the meeting itself and officer travel time to and from the event.

A flowchart setting out preferred route to communication is set out below:

Staff that are defined as essential users, were entitled to either a lump sum payment and mileage rate as set out below. Casual users are paid a slightly greater mileage payment with no lump sum payment. There are a small number of staff that are non-essential but have a contractual obligation to have a car available for work. Finally there are a smaller and decreasing number of lease allow staff that receive a lump sum and a limited per mile payment.

Low Emissions (Electric Vehicle) vehicle charging

The Council successfully negotiated funding from the Government via SEEDA for the installation of two dual headed electric vehicle charging posts – sufficient to charge 4 vehicles at any one time. The charge posts themselves allow a full charge to be achieved in around 6 hours and cabling has been installed to permit the Council the flexibility to enhance these chargers to rapid 2-3 hour charge in future should the need arise and as technology improves. The "Chargemaster" posts are also modular in design meaning that as technology advances with options such as cashless payments, the post heads can be removed and systems updated.

Interest Free Loans for Staff using Public Transport

The Council is considering a loan scheme for staff that travel to work by public transport, to enable them to purchase season tickets. Should the proposal reach approval, application forms for these loans would be available from People and Payroll.

Home Working Policy

To enable the Council to maximise employee effectiveness and productivity but at the same time provide more flexibility to working lives, the Council is committed to supporting Home working. The policy includes for Hot Desking - where the employee wishes to work at home on an ad hoc basis, which is to the benefit of the employee allowing flexibility and meets the business needs whilst also minimising the need for on-site accommodation and a ‘one desk each’ provision.

Visitors

The Council is keen to encourage its residents to contact the Council by whatever method they are most comfortable with. The Customer Services Centre is to remain at High Street, certainly for the duration of this plan. However, with a move to the Gateway and with technological advances, there are now more methods than ever available for the public to interact with the Council without the need to drive in to achieve face to face contact. These include telephone, virtual conferencing, internet access, social media and in terms of available services include planning applications on line, ability to set up internet payments and information on waste collection services etc.

Appendix 6

FAQ's

Haven't we done this before?

The Council first developed a Travel Plan in 2001 which was not progressed to Cabinet. The first Council Travel Plan was adopted by Cabinet in August 2009 and has delivered a number of benefits for employees including showers and lockers, improvements to cycle parking, a greater take up of car sharing and a well-used bus subsidy pilot.

Will I lose my car parking permit?

There are no plans to remove parking entitlements at present.

I like driving and don't want to change…

Whilst there will always be cases where car driving is the only viable option, with requirements to free up space at the Gateway for periodic conference events it is appropriate to consider alternatives. From the survey it can be seen that there are many people who want to change the way they travel, even if it's only one day a week during the summer.

One purpose of the Travel Plan will be to make it easier, safer and more enjoyable for these people to travel to work.

How can I find someone to car share with?

As many other organisations in Buckinghamshire have already done, we are Full members of www.buckscarshare.co.uk which enables users to register their route and range of start and finish times and see who is available to offer a space to you or accept a space with you. This resource is extremely user friendly and plots your preferred route to and from work showing users both near where you live and on route to and from work that you might be able to come to an arrangement with. Contacting any of these people is then at your discretion and a template e-mail is drafted for you which you can alter if you so choose.

The measures in the Action Plan don't go far enough

It is important to be realistic in terms of what the Travel Plan can achieve and by when. The Travel Plan needs to have the support of Members, employee's and the union. It is important to re-launch the Travel Plan with a series of low cost/quick win measures which will generate a sense of momentum and support.

It says in my contract that I need to bring my car in everyday…

Those entitled to essential user allowance only need to bring their vehicle to work if they need to use it for business travel on that day. However, if they are not using their car at least 3 times per day for legitimate business use, then their essential user allowance would be assessed anyway.

Appendix 7

Recent positive national press includes:

- https://tinyurl.com/PublicSectorFocusMarApril2017
- http://www.fleetnews.co.uk/fleet-management/rental/nine-things-you-need-to-know-about-corporate-car-sharing
- http://www.fleetnews.co.uk/fleet-management/grey-fleet/mobility-mobilising-the-occasional-use-business-driver
- http://www.fleetnews.co.uk/news/car-industry-news/2016/05/09/enterprise-helps-district-council-save-90-000
- http://www.fleetnews.co.uk/fleet-management/grey-fleet/grey-fleet-nothing-was-off-the-agenda
- https://www.carplus.org.uk/guildfords-enterprise-expansion-smnjun16/
- http://fleetworld.co.uk/new-car-pool-scheme-to-save-aylesbury-vale-district-council-163100k-a-year/
- https://goodpracticeexchange.wordpress.com/tag/aylesbury-vale-district-council/
- http://evfleetworld.co.uk/nissan-leafs-to-help-aylesbury-vale-district-council-achieve-major-fleet-savings/
- http://www.businesscar.co.uk/news/2015/aylesbury-vale-district-council-saving-100k-a-year-by-using-car-sharing

and Locally:

- http://www.buckinghamtoday.co.uk/news/council-introduces-pool-cars-to-stop-staff-claiming-expenses-1-6491469
- http://www.buckinghamtoday.co.uk/news/new-travel-policy-which-includes-15p-mileage-rate-pays-off-for-district-council-1-7372508

http://www.northants-chamber.co.uk/news/article/electric-vehicles-and-car-sharing-to-save-a-council-100000-a-year

Appendix 8

Survey Focus

The findings of the travel survey have provided the basis for identifying a focus for Travel Plan measures.

Single person car drivers have been identified as a target for directing change as currently 73% of respondents use a car of which 70% drive in on their own as their main mode to travel to work. (See Graph 2) (This figure was 68% in 2008 survey).

The biggest target market for encouraging more walking are employees who live less than 2 miles from the Gateway Offices – this amounts to 16% of staff. (See Graph 1) (This figure was 22% in 2008 survey)

The biggest target for encouraging cycling are employees who live within 5 miles of the Gateway Offices – representing almost 29% of staff. (See Graph 1) (Represents the same figure as 2008 survey)

Public Transport Improvements

The Council does not have any direct responsibility for the operational effectiveness of public transport in the District. Therefore, improvements to services such as the bus network will be achieved through lobbying rather than direct intervention.

Details of public transport options are set out below:

Public Transport Options to Bus/Train station	**Train**	**Bus**	**Walk**	**Cycle**	**Taxi**
Aylesbury Station	1 mile. 10 minutes bus ride to Bus station on route 2 or 16 and 5 minute walk	Route number 2 runs every 15 minutes throughout the day	15 minute walk	Aylesbury Station is a 5 minute cycle ride	5 minute taxi ride
Aylesbury Vale Parkway	2 miles. 10 minutes bus ride on route 16	Route number 16 runs every hour throughout the day	20 minute walk	Aylesbury Parkway Station is a 10 minute cycle ride	8 minute taxi ride
Aylesbury Bus station	1 mile. 10 minutes bus ride to Bus station on route 2 or 16	Route 2 runs every 15 and 16 every hour throughout the day	20 minute walk	Aylesbury Bus Station is a 5 minute cycle ride	5 minute taxi ride

Infrastructure improvements for cyclists and walkers

Similarly, the District Council is not the Highway Authority, a role which is performed by Buck County Council.
Improvements to the cycle and pedestrian network will be sought in partnership with the Highway Authority.

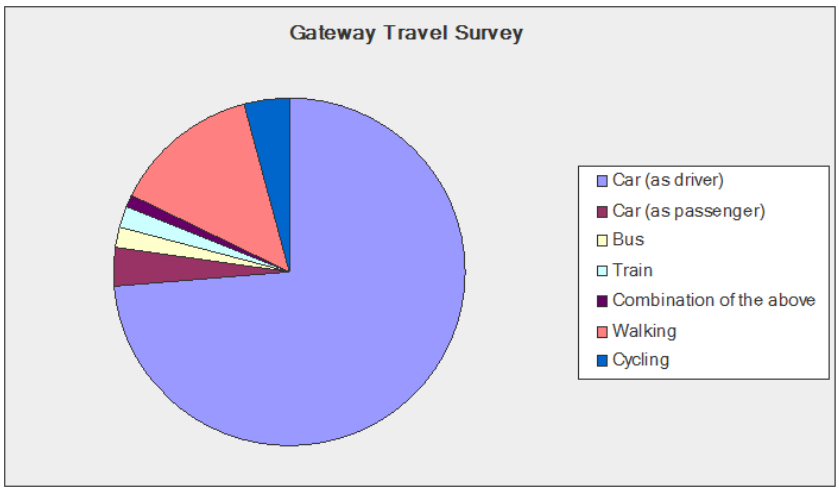
Summary Council Travel Survey (2011)

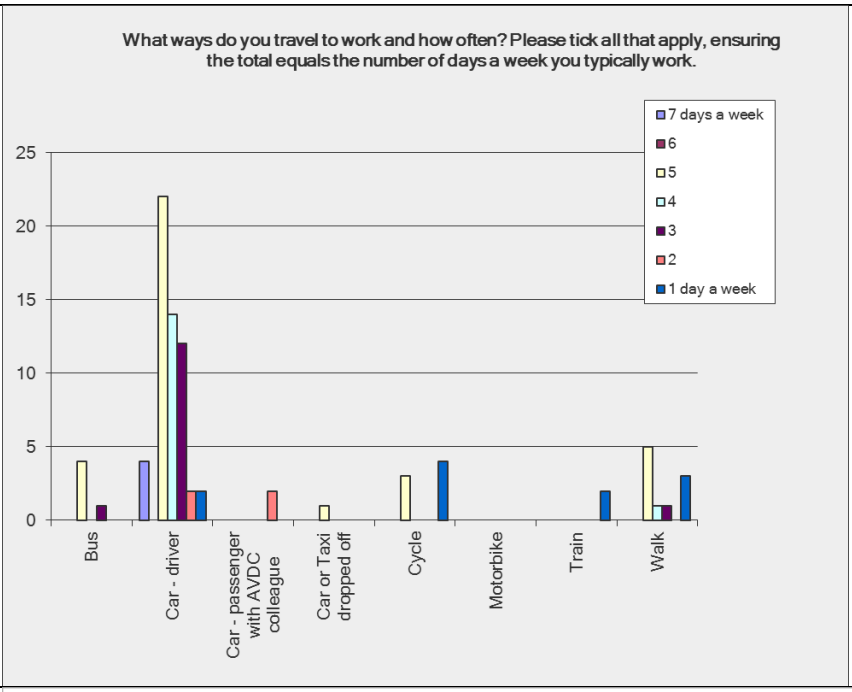
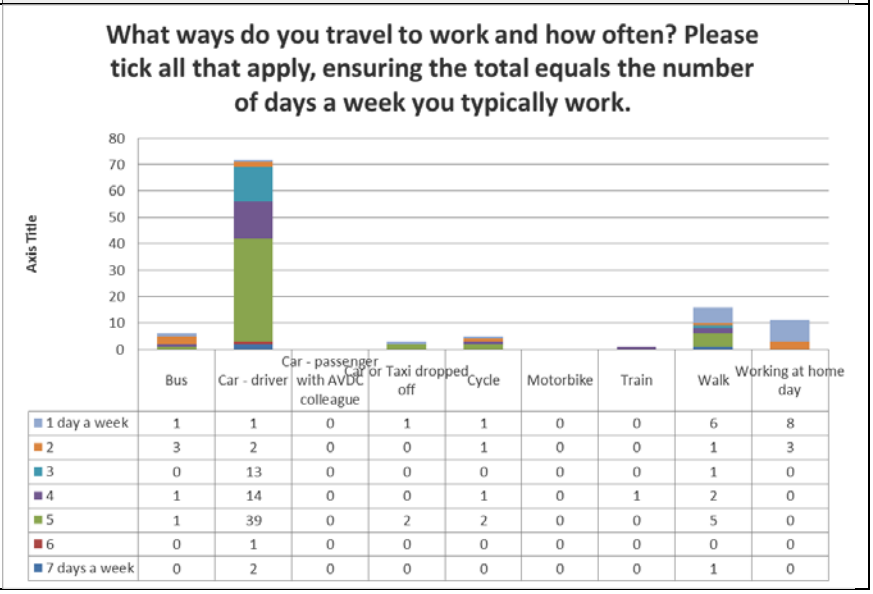
The most important aspect of the Council Travel Plan is to take into account the views of those it is expected to impact upon. To assist with this, a Council Travel Surveys were conducted using Survey Monkey on 'Connect' in 2015 and 2017. The Surveys generated some 282 responses representing a 60% response rate. In market research terms, this is a 'very high' response and illustrates the strength of feeling towards accessing the place of work.

Key Headlines from the 2011 survey

228 out of 282 work five days a week
121 officers live less than 5 miles from the Gateway
No surveys were conducted in 2013 as such comparison is between June 2011 2015 and Mar 2017

Question 1 asks how officers generally travel to work

2011 Survey Results	

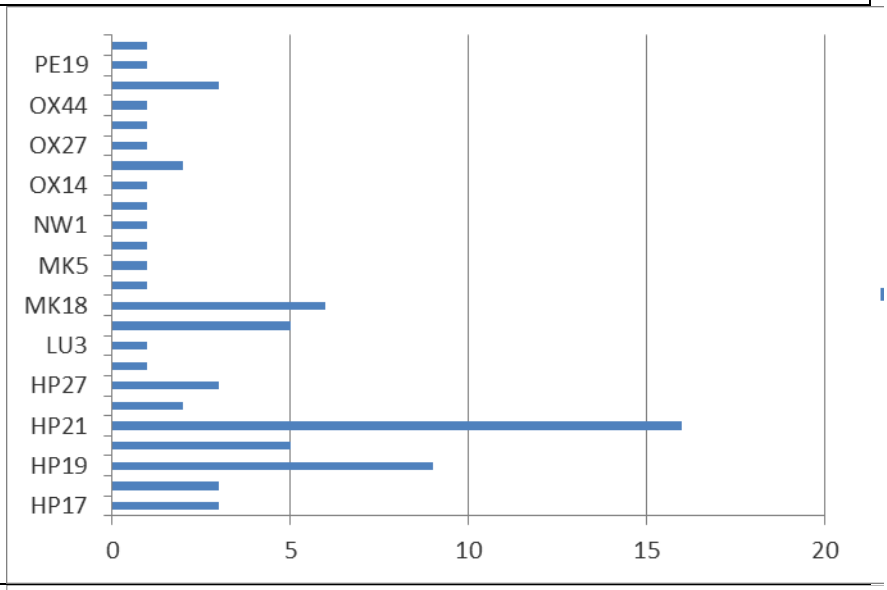
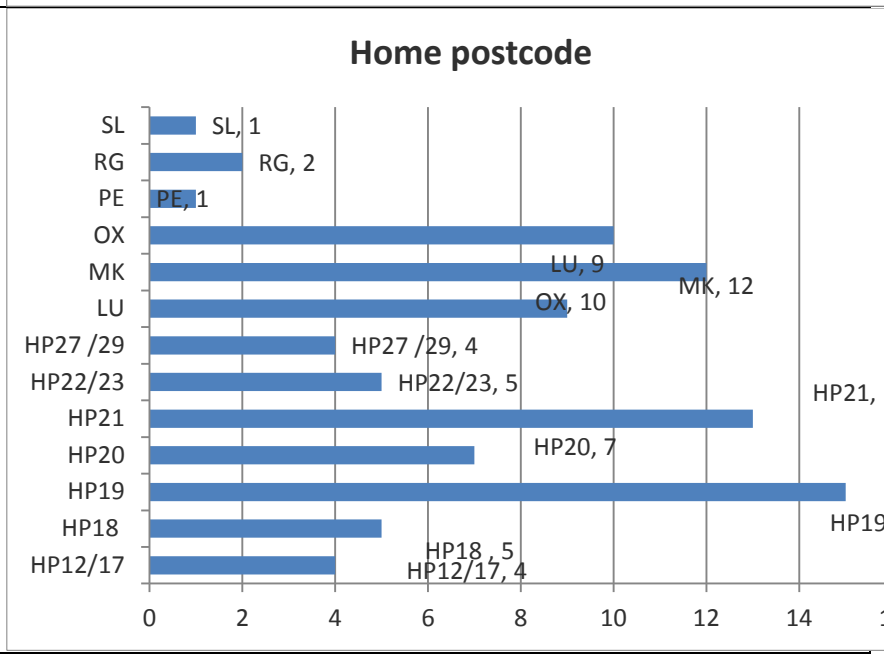
2015 Survey Results	
2017 Survey Results	

	Bus	Car - driver	Car - passenger with AVDC colleague	Car or Taxi dropped off	Cycle	Motorbike	Train	Walk	Working at home day
1 day a week	1	1	0	1	1	0	0	6	8
2	3	2	0	0	1	0	0	1	3
3	0	13	0	0	0	0	0	1	0
4	1	14	0	0	1	0	1	2	0
5	1	39	0	2	2	0	0	5	0
6	0	1	0	0	0	0	0	0	0
7 days a week	0	2	0	0	0	0	0	1	0

2011: 112 (40%) would consider car sharing with colleagues. This against 44% (55 of 126 respondents) that said they would in 2008 survey.
155 think car sharing would not be feasible due to lack of flexibility and 130 due to hours of work.
That said, there is evidence from the survey that officers tend to arrive and depart at similar times. As can be seen below, the vast majority of staff arrive between 8:00 and 8:30 (26%) and between 8:30 and 9:00 (41%).
2015: Dominant transport use was car driver (alone) 56 or 69 respondents
2017: 74% of staff don't or never car share. Of the 89 responses, over 70% of staff now drive their own car to work. The next highest band is walking at 15%.

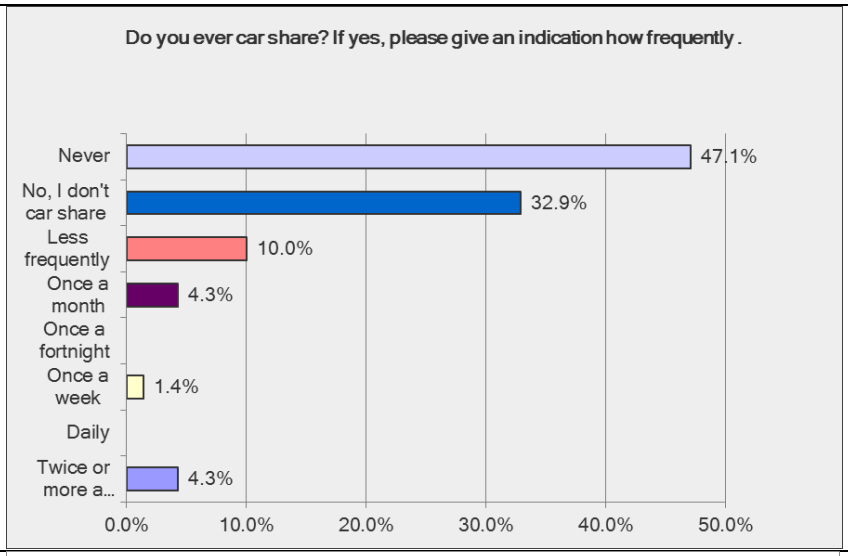
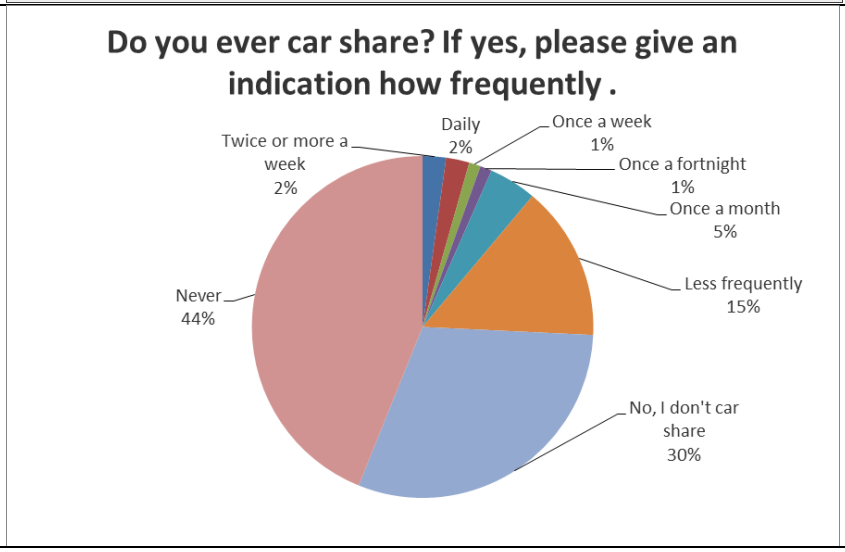
Question 2 and 3 relate to vehicles registration details

Question 4 relates to home postcodes.

2011 Survey Results	
2015 Survey Results	
2017 Survey Results	

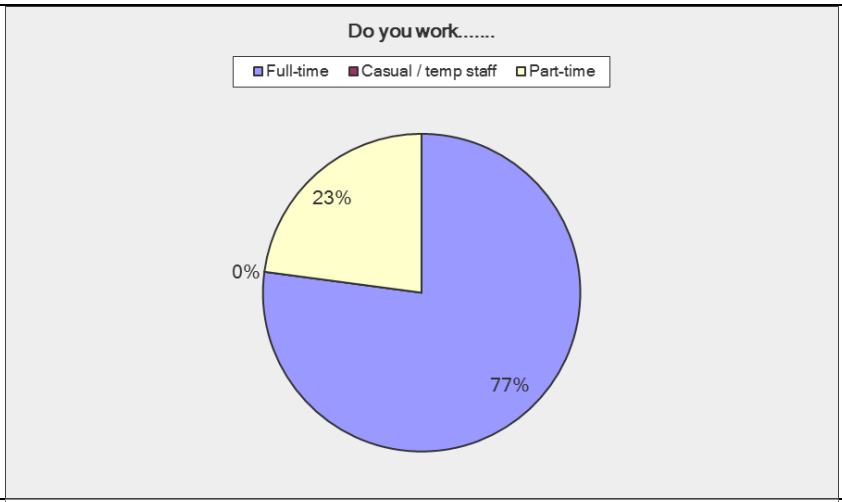
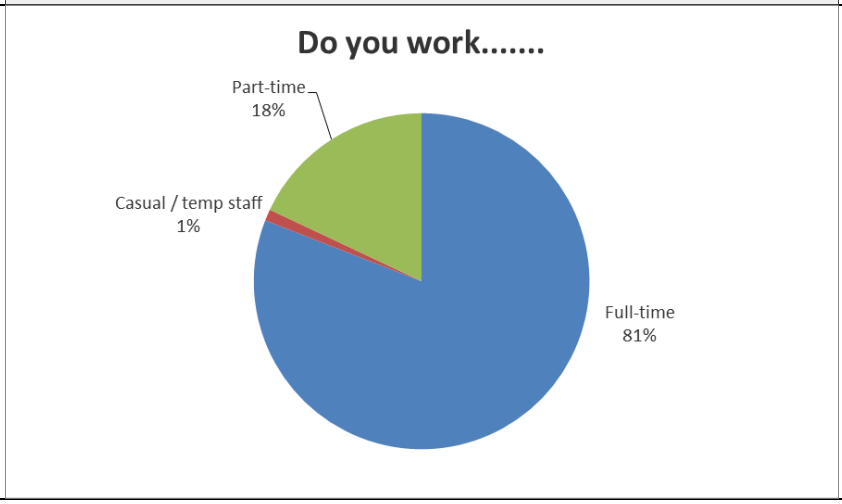
2015: of the 70 respondents to this question, the majority 16 live in HP21 with 9 living in HP19. 2017 HP19 is now the dominant postcode (15%). Followed closely by HP21 (13%).

Question 5: Car Sharing

2011 Survey Results	
2015 Survey Results	
2017 Survey Results	

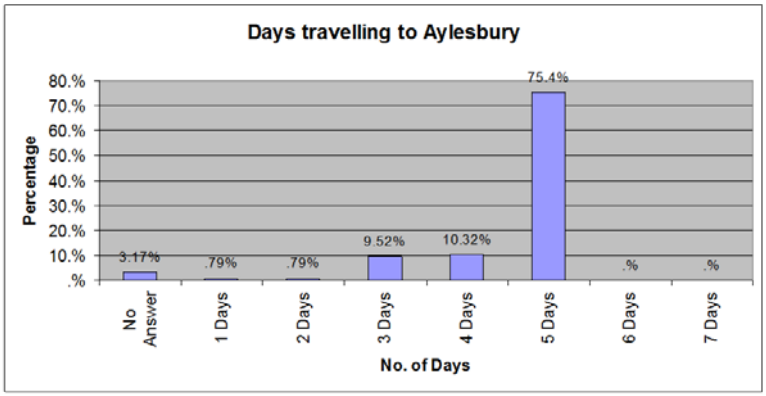
2015: When asked 'do you ever car share'. The highest responses were 'never 33/70) and No (23/70). This equates to 80%. The next highest response was less than monthly at (7/10) 10%. 4.3% (3/17) car share twice or more a week and 4.3% (3/70) once a month.

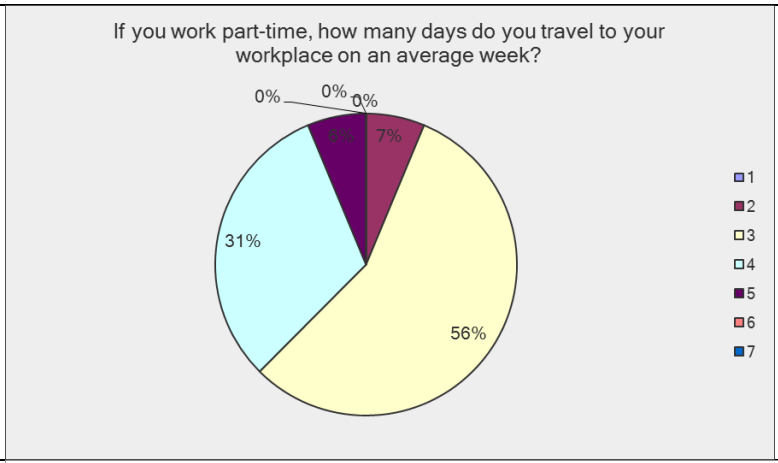
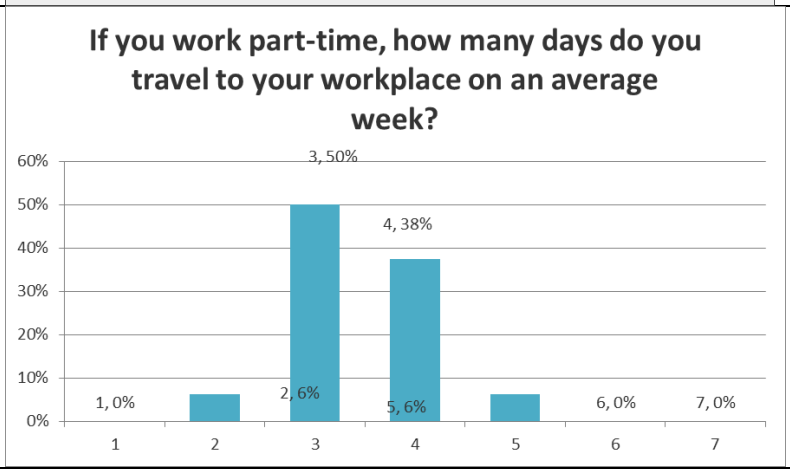
Q6: When asked how they work:

2011 Survey Results	
2015 Survey Results	
2017 Survey Results	

2015: Responses show 77.1% (54/70) Full Time with 22.9% (16/70) Part Time. 2017, of 89 responses, an increased number (81%) now work full time compared with 2015.

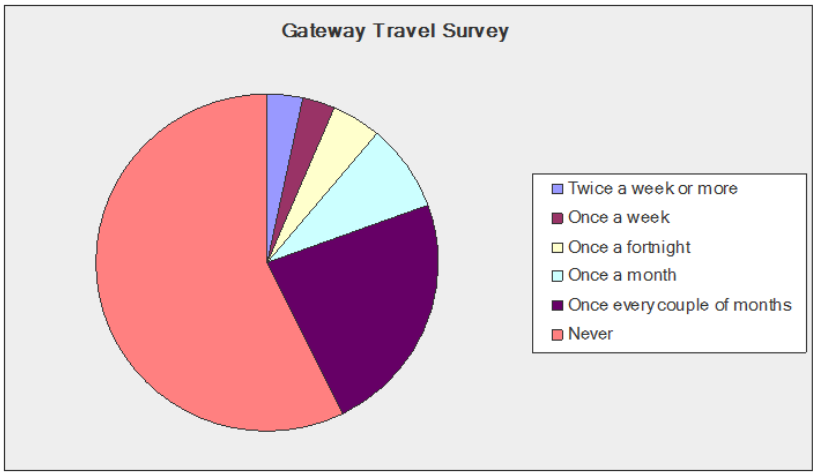
Q7: How many days do you travel to the office on an average week?

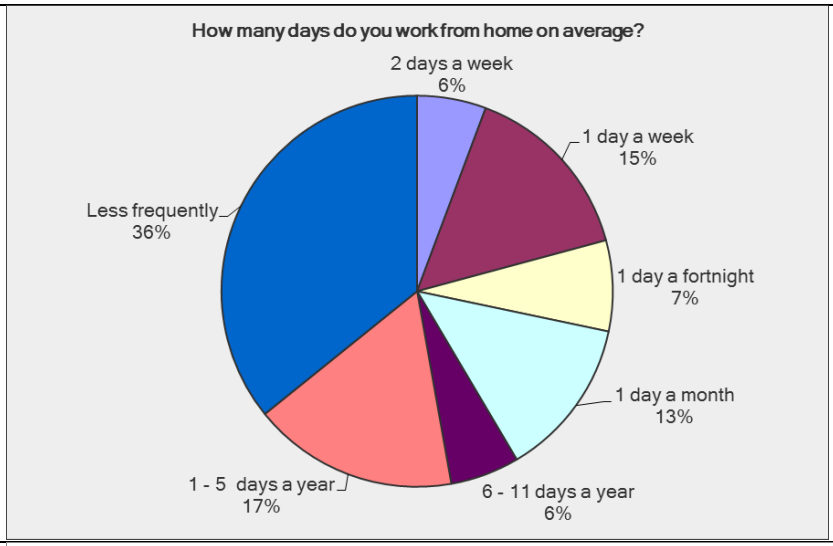
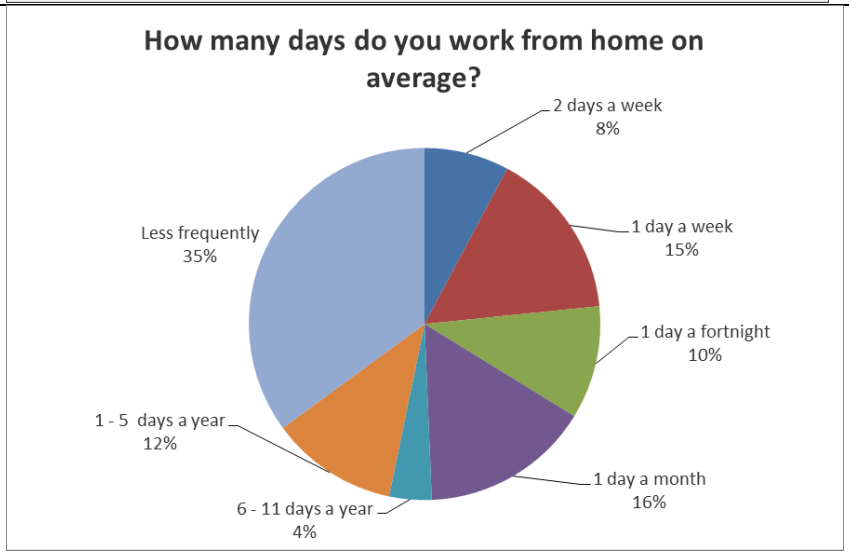
2008 Survey Results	

2015 Survey Results	
2017 Survey Results	

2008: 75.4% of staff worked at the office 6 days per week.
2015: Although only 16 officers answered this question, highest response was 3 days (9/16) 56.3% followed by 4 days (5/16) 31.3%. 2017: Only 16 staff answered this question but of those that did, 3 days (3.5%) and 4 days (4.38%) scored highest.

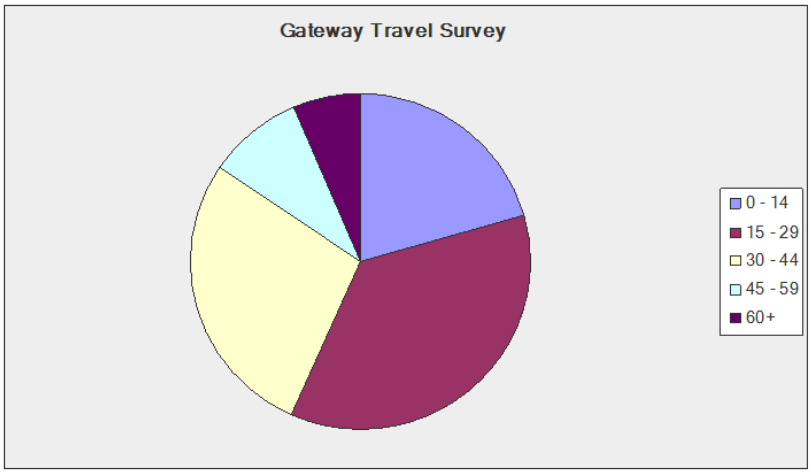
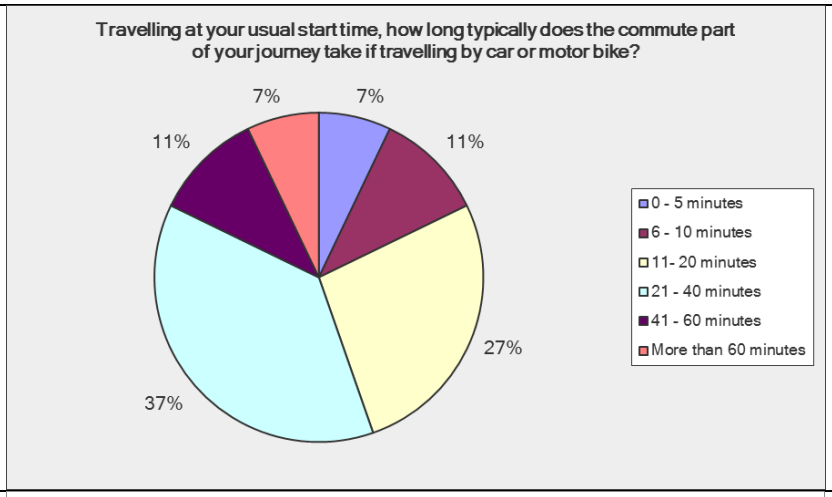
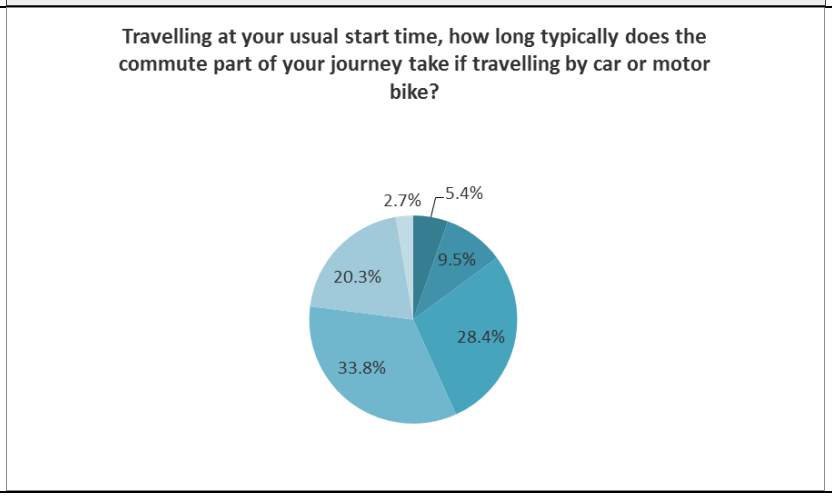
Q8: Relates to the above and asks how many days a week staff work from home.

2011 Survey Results	

2015 Survey Results	
2017 Survey Results	

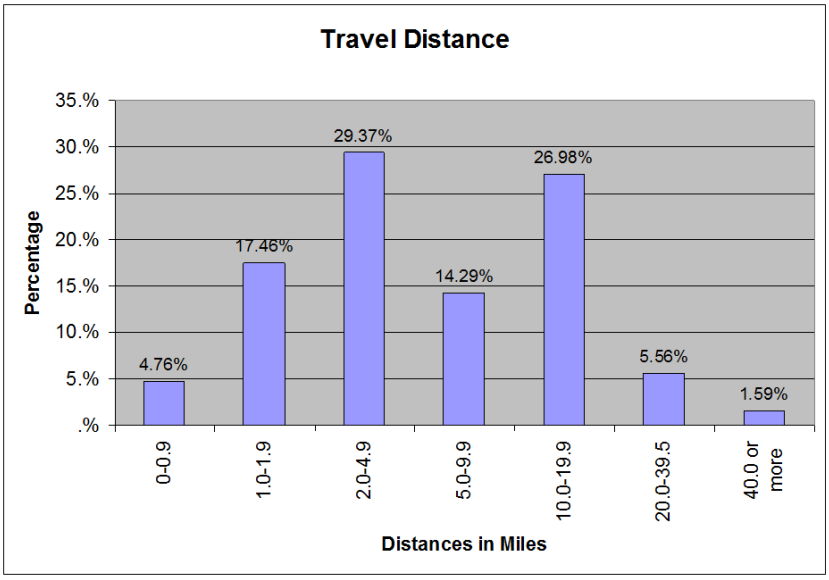
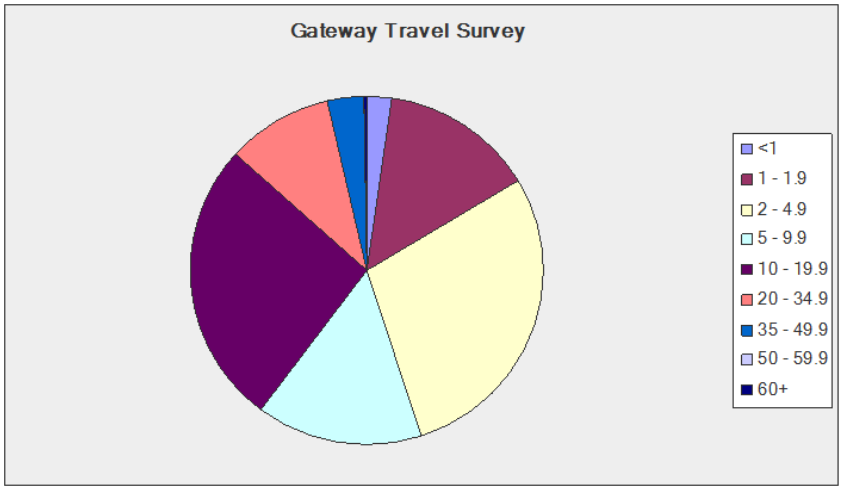
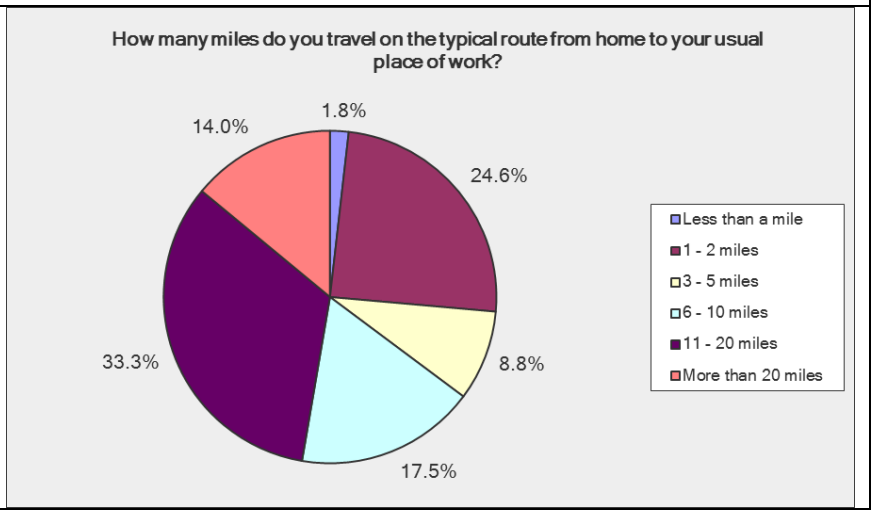
2011: The reason given by 35% of this 57% for never working from home was that their job role does not allow it. A number 23 (8%) of individuals have been told by their line manager that they cannot. This should be investigated to establish real and perceived need to ensure that service delivery will not be adversely impacted. Home working is a corporate policy that will assist with desk sharing, limited car parking and the need to reduce car travel.
2015: 53 of 7 answered this question with highest number 35.8% WfH less than 1-5 times per year. This followed at 17% by 1-5 times per year and 1 day per week at 15.1%. 2017: Working from home showed 77 responses. 47% WfH 1-5 times per year less. 1 Day per week remains almost as 2015 at 15.6%.

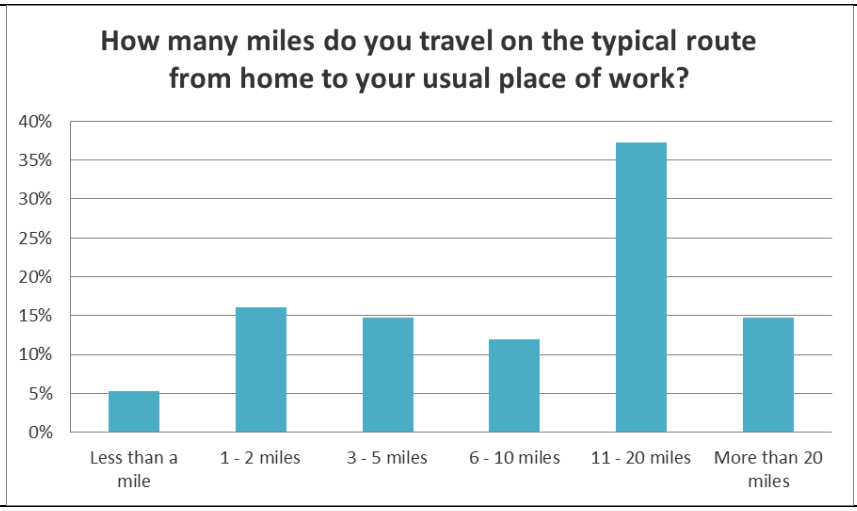
Q9: Length of time taken to travel (by motor vehicle)

2011 Survey Results	
2015 Survey Results	
2017 Survey Results	

2015: The highest figure here was 21-40 minutes at 37.5% of the 56 responders. 0-10 minutes came in at 17.8%. 2017, once again, of the 89 responses, the most frequently occurring travel time for work is 21-40 minutes (33.8%) followed by 11-20 minutes (28.4%).

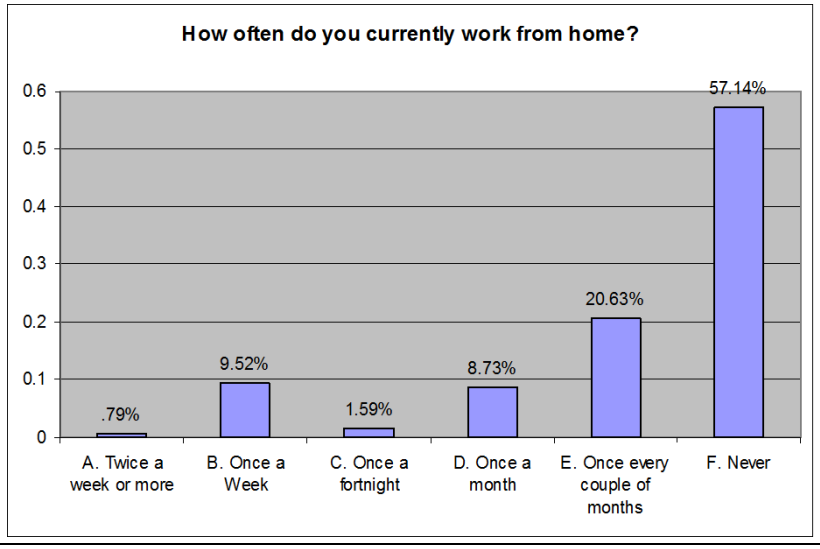
Q10: Miles Travelled from home to work

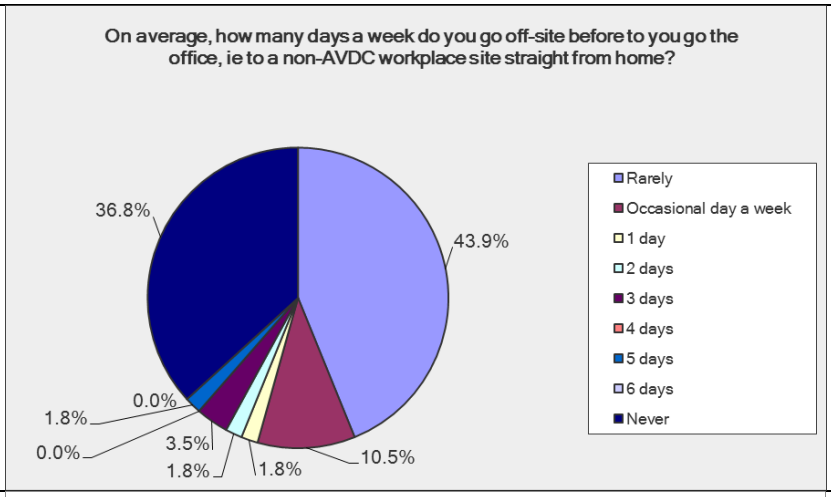
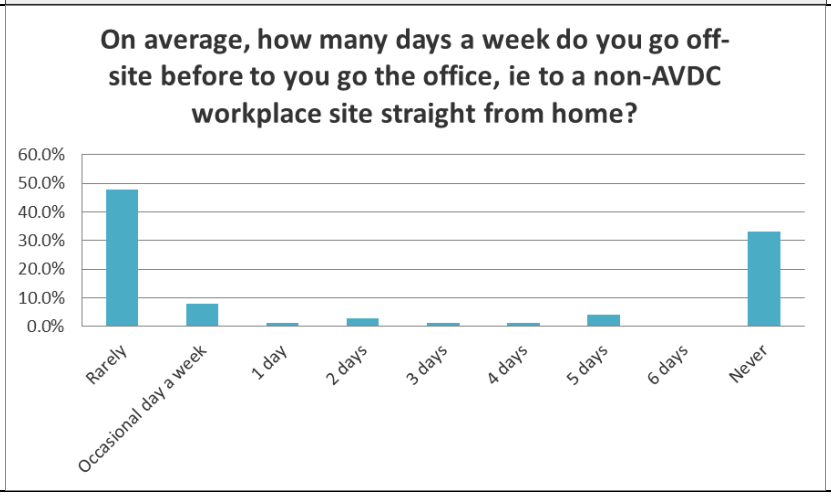
2008 Survey Results	
2011 Survey Results	
2015 Survey Results	

2017 Survey Results	

2011: 16.3% of staff responding live less than 2 miles from the Gateway with a further 28.7% living between 2 and 5 miles away.
2015: Of the 57 that responded, 26.4% live within 2 miles, a further 8% live between 3 and 5 miles away with the majority (33.3%) living 11-20 miles away. 2017. If the 89 responses, 21% travel less than 2 miles to work. The majority, 37% live between 11 and 20 miles away.

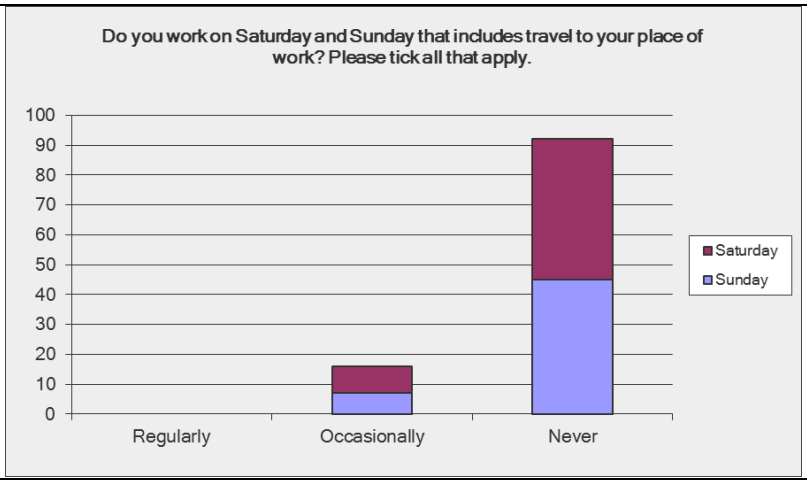
Q11: How many days a week do you site visit on way/way home?

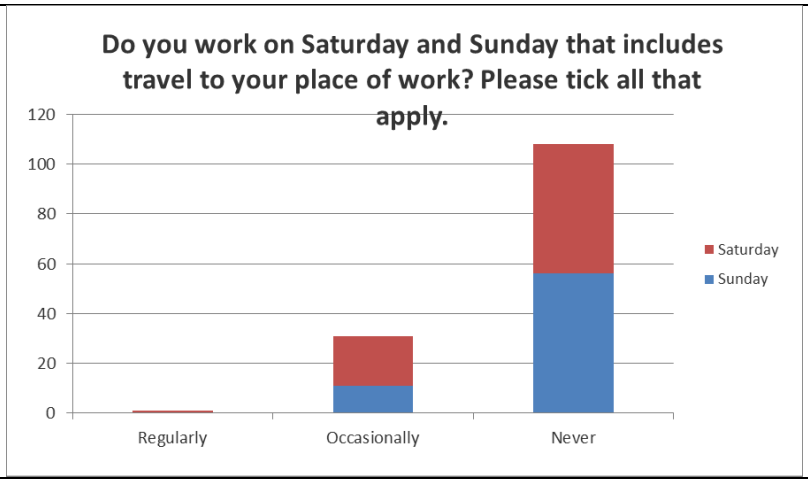
2008 Survey Results	

2015 Survey Results	
2017 Survey Results	

2015: Of 57 respondents, 43.9% rarely and 36.8% never do this. Only 10.5% do this on an occasional day a week. 2017: No real changes here to the way that staff travel for business during their commute since 2015. Interestingly here is no significant change since 2008 when 78% rarely or never did this. As such the change to the grey fleet in 2014 seems to have made no real difference to this.

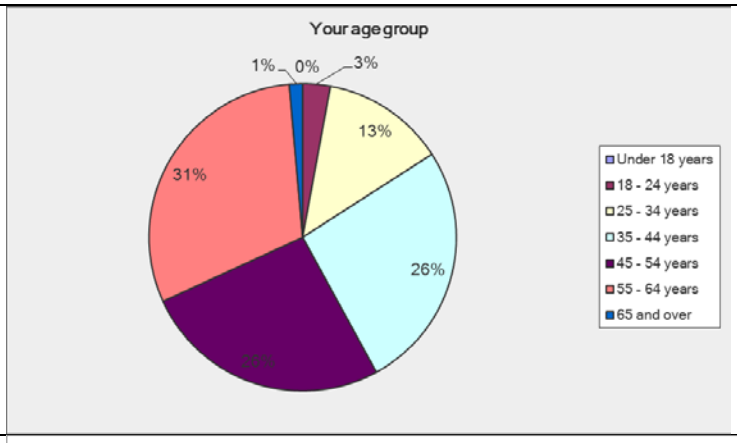
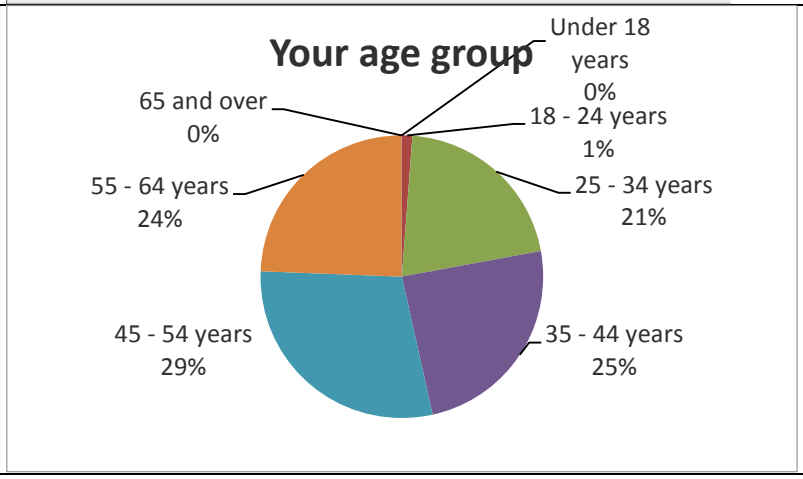
Q 12: Asks if staff work on Saturday or Sunday

2011 Survey Results	
2015 Survey Results	

2017 Survey Results	

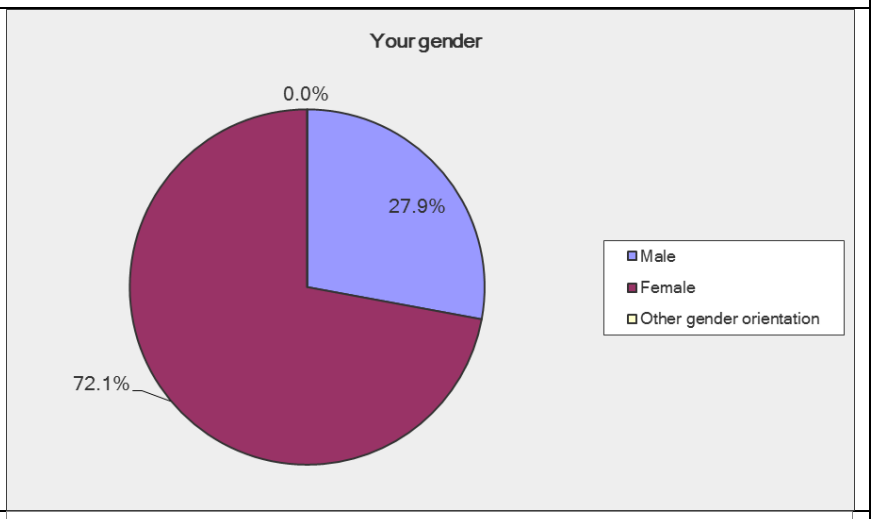
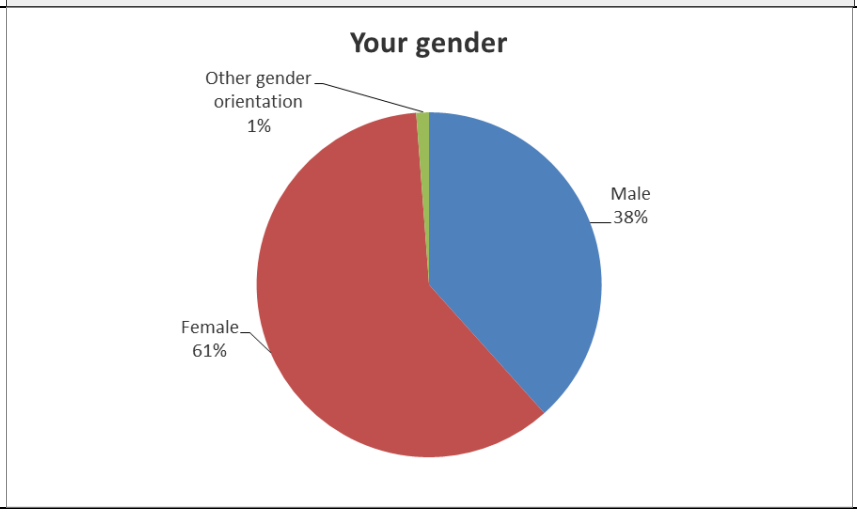
2015: of the 56 that answered the question, 9/56 worked Saturday occasionally with 7/56 occasionally on Sunday. 47/56 never worked Saturday with 45/56 never working Sunday. 2017 shows a slight increase in weekend working compared to 2015.

Q13: Relates to age group of the respondent:

2011 Survey Results	
2015 Survey Results	
2017 Survey Results	

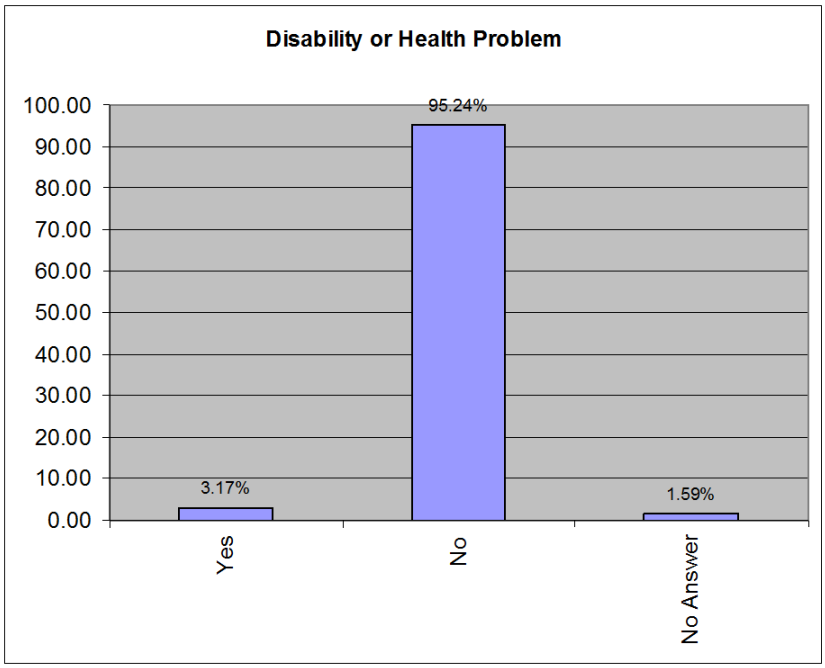
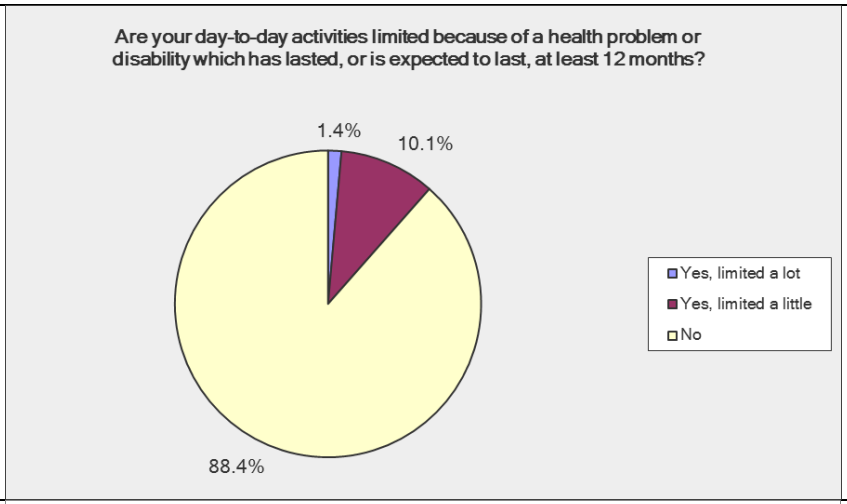
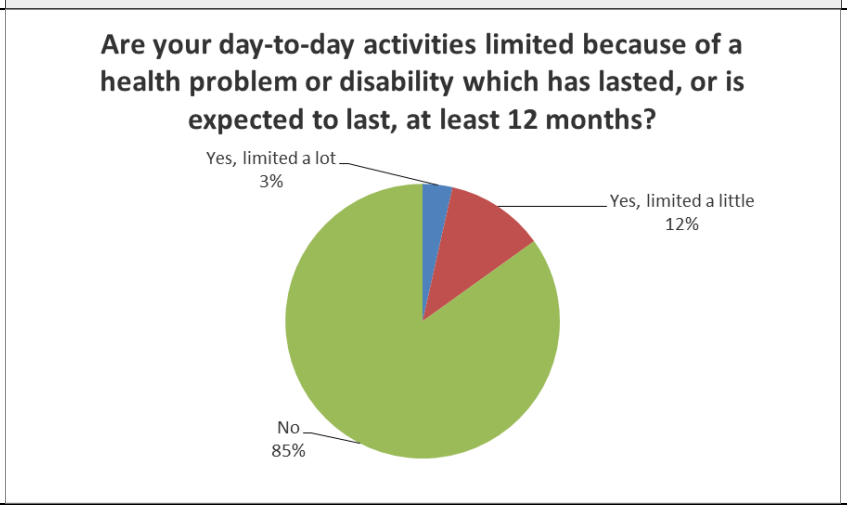
Of the 69 responses, the highest was 55-64 (30.4) followed by 35-44 and 45-54 that each had 26.1%. There were no under 18 respondents. 2017: Of 89 responses, the majority (29%) fell into the 45-54 year age range.

Q 14: Gender

2011 Survey Results	
2015 Survey Results	
2017 Survey Results	

2015: Of 68 responses, 72.1% were female. 2017: Of 89 responses, 38% were male and 61% female.
Q15 relates to ethnicity.

Q16: relates to disability or health problems potentially affecting travel choice

2008 Survey Results	
2015 Survey Results	
2017 Survey Results	

2015: Of 69 responses, the majority 88.4% had no issues, 10.1% had minimal and 1.4% had a lot. 2017. Of 89 responses, 85% had no issues, 12% had a little and 3% a lot.

Appendix 9

References and Further Information
Travel Plans
Travel Plans:- www.travelplans.org.uk
Department for Transport:- www.dft.org.uk
Energy Savings Trust:- www.est.org.uk

Car Sharing
Lift share:- www.liftshare.org
Bucks Car Share:- www.buckscarshare.co.uk

Cycling and walking
Sustrans and the National Cycle Network:- www.sustrans.org.uk
Cycling England:- www.cyclingengland.co.uk
Information about leisure and organised walks in your area.
http://www.wfh.naturalengland.org.uk/
An urban route planner website. Aylesbury has been mapped on this system.
http://walkit.com/ -
Linked to Change4Life. This is a website which provides information about walks in the local area. http://www.walk4life.info/ -

Health
Everyday sport:- www.everydaysport.co.uk
Physical Activity in Hampshire:- www.hants.gov.uk/sport

Public Transport
Stagecoach:- www.arrivabus.com
National Rail Enquiries:- www.nationalrail.co.uk
South West Trains:- www.chilterntrains.co.uk

Appendix 10
Survey Data from Pembroke Road

Post Code	Method of Transport	Days per week	Frequency of Car Share
HP19 0XS	Car- Passenger with AVDC Collegue	4	Daily
HP21 8HR	Car- Driver	5	Daily
HP19 7RD	Car- Driver	4	Twice or more a week
HP20 1UE	Walk	7	Never
HP1 2LH	Car- Driver	5	Never
HP21 9TT	Cycle	5	Never
HP19 9OZ	Car- Driver	5	Never
HP18 0XN	Car- Passenger with AVDC Collegue	5	Daily
HP21 8RP	Car- Passenger with AVDC Collegue	5	Never
HP19 9NN	Car/Taxi- Dropped Off	4	Never
HP19 9BU	Car- Driver	2	Once a Month
HP21 4PA	Walk	4	Never
HP19 9QQ	Walk	5	Never
MK2 2DB	Car- Driver	5	Never
HP21 9PN	Cycle	5	Never
HP20 1BX	Car- Driver	5	Daily
HP21 8JD	Walk	5	Never
HP19 7QL	Car- Passenger with AVDC Collegue	5	Daily
HP21 8FR	Car- Driver	4	Less Frequently
HP18 0LX	Car- Driver	5	Never
HP19 9JN	Car- Passenger with AVDC Collegue	5	Never
HP21 9JH	Car- Passenger with AVDC Collegue	5	Daily
HP19 7QG	Car- Driver	4	Daily
HP21 8JF	Motorbike	7	Never
HP20 1NH	Walk	5	Never
HP21 7PJ	Walk	5	Never
HP19 9AA	Bus	5	Never
HP19 9DW	Car- Driver	4	Daily
HP19 9TZ	Car/Taxi- Dropped Off	4	Never
HP21 7LW	Car- Driver	1	Never
HP21 7LW	Cycle	4	Never
HP19 8AD	Walk	4	Never
HP20 1JJ	Walk	4	Never
HP20 1XZ	Walk	4	Never
HP23 4DF	Car- Driver	5	Never
HP21 7RY	Walk	4	Never
LU7 9AL	Car- Driver	5	Never
HP23 5HQ	Car- Driver	5	Never
HP21 8DN	Car- Driver	5	Less Frequently
HP20 2EA	Walk	5	Never
MK18 4EB	Car- Driver	6	Never
HP18 0NA	Car- Driver	5	Daily
HA5 3HY	Car- Driver	5	Never
HP18 0ZU	Car- Driver	4	Once a Week
HP21 7RS	Cycle	7	Once a Fortnight
HP19 7TH	Car- Driver	5	Never

Summarised:
AVDC Staff (Pembroke Road) Travel Method Used

	Number	%
Bus	1	2
Car- Driver	21	46
Car- Passenger with AVDC Collegue	6	13
Car/Taxi- Dropped Off	2	4
Cycle	4	9
Motorbike	1	2
Train	0	0
Walk	11	24
Total	**46**	100

AVDC Staff (Pembroke Road) Car Sharing

	Number	%
Daily	9	20
Less Frequently	2	4
Never	31	67
Once a Fortnight	1	2
Once a Month	1	2
Once a Week	1	2
Twice or more a week	1	2
Total	**46**	100

Contractors (Pembroke Road) Travel Patterns

	Number	Number	Percentage	Percentage
Contractors	**Suez**	**J O'Connor**	**Suez**	**J O'Connor**
Drive car to work	15	3	48	23
Ride motorcycle to work	3	0	10	0
Bicycle to work	7	1	23	8
Walk to work	6	0	19	0
Drive Company vans	0	6	0	46
Collected by company van	0	3	0	23
Total	**31**	**13**	100	100

COUNCIL ACTION PLAN
2017 to 2019

ACTION	ANNUAL COST	BUDGET	TIMESCALE	COMMENTS	CHANGE SINCE 2013 and Comments
Enterprise Car Share (Pool) and Daily Hire					
Review of Car Scheme savings (benefits realisation)	Officer time	Sustainability	Achieved 2013/14	Financial Review of the project from inception to end of first year	Completion of new pool, lease and daily hire car scheme introduced on 1 Dec 2014 on a one year trial with Enterprise. £90,000 savings in year 1.
Removal of all Essential, Casual and Lease allowances	Officer Time	Corporate Travel	Achieved 2014	Scheme set up to save £100,000 per year, take control of risk and fleet, reduce emissions and congestion and remove all allowances.	Scheme embedded and under continual improvement. Saved a further £104,000 in its second year.
Trial adaptions to booking websites	Officer and Volunteer time	Corporate Travel	Spring 2017	Group of high user volunteers recruited to trial new all encompassing booking system	ETD' trial extended to iron out anomalies. Aim to go live Summer 2017
Transfer of admin to Payroll Team	Officer Time	Finance	Achieved 2016	Complete handover of booking enquiries and invoice handling from A Asbury	Complete new scheme introduced 30 Nov 2015
Retender scheme	Officer Time	Sustainability	May-Nov 2018	Scheme taken to the market, retendered and re procured to ensure best value for money and best package available.	3 year review of existing City Car Club and Enterprise Scheme. £104,000 savings in year 2.
Scheme contract relet	Officer Time	Sustainability and NBM	30 Nov 2015 to 30 Nov 2018	Contract relet with Enterprise	As above. All cars must be sub 100g/km CO2 and with fuel efficiency of at least 74mpg (combined)
Phase out of historic Lease payments	Officer Time	Payroll and Finance	2017/18	Staged reduction of payments made to staff for historic lease allowance	3 Year staged removal of this allowance from 1 Dec 2014
Electric/Hybrid Pool Cars	SEEDA and OLEV	Corporate Travel	2020	Installation of 2 dual slow/fast chargers and 3# Rapid chargers at Gateway. Nissan Leaf EV cars replaced April 2016 with up to date version. Council to increase EV fleet by at least 3 EV cars by 2020.	Installed following successful funding bids and augmented by inclusion of 3# Nissan leaf pure EV cars to Car Share (pool) fleet and 2# BMW i3 EV Range Extenders to Company Car fleet.
Replacement of parking Services van with EV car	Parking	Parking	Achieved 2016	Assessed, options reviewed and Nissan Leaf procured at best possible rate.	Council Parking diesel van replaced with EV car charged in Hampden House MSCP with significant emission and cost reductions.
Sale of product as consultancy	Officer Time	Sustainability	Ongoing	Negotiated contract and NDA with Enterprise to sell products on commission	Concept now recognised as best practice nationally and consultancy advice on how to do similar sold to various organisations.
External Revenue Streams					
Open up Car Scheme	Officer time	Sustainability	2016-2019	Offer car scheme to local business/NHS and local people. On hold pending agreement from Insurance	Interest received from public and NHS CCG.
Village Car Share Scheme	Officer Time	EU ESIF Funding Bidding	2016 - 2018	Deliver charged for Village based car scheme in the North of the Vale to augment/replace bus service	Bid to BTVLEP carbon fund for ESIF not taken further due to Bucks focus. Consideration of SEMLEP Carbon funding. Awaiting Council decision.
Company Car Lease Scheme					
Review Mileage and claims data	Officer time	Sustainability	Achieved. Ongoing	Review of data collected from Bailiffs and Building Control and submitted to Internal Audit	Complete new scheme introduced 1 Dec 2014
Review replacement of leases	Officer Time	Sustainability	2017/18	Lease cars proven to be a positive method of reducing mileage and payments and providing a safe and fit for purpose operational fleet.	3 Years from car delivery dates between Jan 2015 and Apr 2015 plus one in Jan 2016 and one in mid 2016
Improving Staff Information and Raising Awareness					
Up to date Green Travel Plan	Officer time	Sustainability	2019	An official review of the progress and update of the Travel Plan	Delayed until 2017 in order to capture new fleet scheme
Weekly Travel to Work Day	Officer Time	Sustainability	Achieved. 2015	Encourage staff to try other modes of travel now that personal car use is not required for business – particularly staff that live within 5 miles of Gateway	Carried out with Café for free breakfast deal in 2015. No longer resources available.
Publicity Campaign	Officer Time	Corporate Travel	2017	Official re-launch of Travel Action Plan key actions on Intranet 'Connect' to promote awareness.	Following completion of travel survey 2015 and 2017 and if accepted by Cabinet June 2017

ACTION	ANNUAL COST	BUDGET	TIMESCALE	COMMENTS	CHANGE SINCE 2013 and Comments
Travel Plan and Action Plan	Officer Time	Sustainability	2017	Action Plan to be placed on Connect for all staff and new starters.	Following acceptance by Cabinet June 2017
Customer Information					
Improved Information for Staff	Officer Time	Sustainability	Ongoing	Improved pictorial details in cars as to how to book, fuel, charge, drive etc. FAQs revise on Connect. Induction information of new starters supplied to HR. Super users signed up for EV charging advice and instruction.	Information reviewed annually or as significant changed are introduced.
Improved Customer Information	Officer Time	Sustainability	Ongoing	Relaunch of Car Share to work map	Requires resources to relaunch
Promoting Car Sharing					
Encouragement of Bucks Car Share / Lift Share	County funded	BCC Budgets	On-going	Ongoing promotion and regular search for suitable matches	Promoted within surveys and as part of annual publicity campaigns
Guaranteed Ride Home Arrangement (for car sharers)	120	Corporate Travel	Ongoing and subject to 2 yearly review	Budget required to ensure guaranteed lift home after reasonable efforts have been made by officer/line manager to secure a free or low cost alternative (where officer has come to work via car share or public transport in the expectation that they would have been able to return using a similar mode).	Agreed by Cabinet August 2009 - Proposal to refresh this agreement within travel plan 2017 at the agreement of Cabinet June 2017. This arrangement has never yet been used by staff.
Encouragement of business car share	Potential saving	Corporate Travel	Ongoing	Where more than one officer/member are attending a meeting, training event, seminar, conference for Council business, an annual recognition (at Star Awards) should be made to the driver who (from mileage forms) achieves the highest amount of car sharing incidents.	Make better use of data and developments from Enterprise - Resource required
Car Share bays	Officer Time	Sustainability	Ongoing	Encourage use linking to car share map	Survey July 2011: 22% of staff would be encouraged to car share with designated spaces. Survey 2017 shows negligible car sharing at less than 7%
Promoting Public Transport					
Continue with Office Managed Oyster Cards	Potential saving – Officer time	Corporate Travel	Ongoing	Cards to supplement journeys to London for meetings or conferences are now in place	In place and operating well
Promote Chiltern Trains Travel 34% Discount	Officer Time	Corporate Travel	Ongoing	As part of car booking flowchart linked to hierarchy (telephone/conference call, public transport, car pool etc.)	New Travel Choice cards produced by AVDC and agreed by T4B 2015
Promotion of 50% Bus subsidy to staff with all 5 Bus Companies	c £5000	Corporate Travel	Ongoing	Half price bus travel on production of staff ID and Travel Choice Card for any bus journey starting of finishing in Bucks.	Agreed from 1 Dec 2014 as part of Car Scheme incentives package to staff and following success of pilot scheme with Arriva in 2009. Question over usefulness of scheme raised in 2017 staff survey resulted in responses that 40% of staff responding said that they used this scheme either regularly or occasionally.
Promote sustainable travel in websites and appropriate media	Officer time	Corporate Travel	Ongoing	Suggestions for alternative travel forms made available with appropriate links	Resource required
Encourage take up of working at home where practical / feasible and not adversely impacting on service to customers	Officer Time	Corporate Travel	Ongoing	Ensure all are aware of the possibility if interested and ensure corporate approach is enacted across all divisions to allow interested staff to partake of this option (except in cases where office cover is critical). Ensure recording and monitoring of this information through IT software	Successfully operating with very flexible flexi-hours.
Continuation of Cycle Loans/salary sacrifice	Small NI revenue stream	Corporate Travel	Ongoing	Scheme remains popular with several users and continual use of cycle shelters.	Staff can sign up by visiting: www.cyclescheme.co.uk/7872d4

ACTION	ANNUAL COST	BUDGET	TIMESCALE	COMMENTS	CHANGE SINCE 2013 and Comments
Government policy on Clean Air	Significant	Anticipated funded by central Government via bidding	During plan 2017-19	Local authorities will now "be expected to develop new and creative solutions to reduce emissions as quickly as possible, while avoiding undue impact on the motorist". Relates to Council's 3 Air Quality Management Areas.	Would make a justifiable case for the renewable powered and battery back up Electric Vehicle (EV) charging hub discussed previously. Also lends credence to the proposal for on-street parking EV charging infrastructure (which we're in discussion with County highways on). http://www.cleanenergynews.co.uk/news/transport/air-quality-plans-offer-modest-proposals-on-local-level-as-critics-decry-fa
East West Rail and the A421 Oxford to Cambridge Expressway	Significant	Government	10-15 years	In 2012, the Government made a commitment to the East-West Rail line to address the current connectivity issues to the east and west by rail. When open, this will connect Aylesbury and Winslow by rail to Milton Keynes and Oxford/Bicester. This must be linked to suitable supply infrastructure and where necessary, standalone renewable generation and storage EV stations to ensure adequate and appropriate electric vehicle charging is provided throughout this route. Integration of routes between Winslow and Aylesbury must ensure electric and low carbon alternative fuel car club/share opportunities.	Already agreed but now starting to take shape in the VALP.
HS2	Significant	Government	15 Years	While seen as a key part of national infrastructure, High Speed 2 (HS2) contributes little if anything to the overall infrastructure needs of the district. Working with partners, the council will work to minimise the impacts of the project both during construction and operation. The HS2 scheme should co-ordinate with local projects and not delay the provision of necessary infrastructure at Aylesbury or the delivery of East-West Rail.	Incorporated in the VALP following the projects receipt of Royal Assent.
VALP and the Garden Town				Measures included in the above in order to support sustainable travel	
Implement Station Plans (integrating public transport) at district wide rail stations	Officer Time	BCC Budget	On Hold	Work on-going and lead by Bucks CC Transport for Bucks.	Preliminary work carried out with BCC and Mitchell 2010 - Discussions ongoing with Network Rail and Chiltern Railways. Requires resources to move forward.
Flexible and Home Working					
Continue Hot Desking and more defined WfH activity	Unknown	Included in Gateway office move plan	Ongoing	Results in more flexible working patterns and likely increase in home working and reduced staff commuting.	Hot desking and desk reduction by 30% established by Gateway project team. Leasing of parts of building has allowed this trend to continue successfully.
Connected Knowledge Strategy	Ongoing	Corporate Travel	Ongoing	Provides staff with the ability to work from any location, particularly from home. With expectation to reduce journeys.	
Video, web, audio conferencing	Unknown (part of Gateway offices project)	HR/IT	Ongoing	Encourage use and dispel myths surrounding of these systems – several of which are already in place at the Gateway office. Take-up has been limited.	New technology is available within certain meeting rooms but needs to be more comprehensively promoted and training given in order to better mainstream its usage. Potential is enhanced following removal of incentives to drive.
Resourcing					
Make use of students to carry out spreadsheet work and analysis	No cost	N/A	As Required	Skills sets lend themselves well to high school and grammar school 6th form students.	Aylesbury High School students have been used successfully to deliver on some of this work
Pembroke Road Specific					
Travel plan Inclusion for redeveloped site	No Cost	N/A	Completed	Separate survey conducted April 2017 to Pembroke Road staff	
RCV parking and reversing provisions	Unknown	Redevelopment	Ongoing	To be discussed with Bucks highways re finding safest solution	
Staff parking provisions	Unknown	Redevelopment	Ongoing	Under consideration following results of staff survey	

ACTION	ANNUAL COST	BUDGET	TIMESCALE	COMMENTS	CHANGE SINCE 2013 and Comments
Refuse and Recycling Fleet routing	Unknown	Waste	Ongoing	This was updated and telematics and camera solutions are all being tendered for an holistic solution.	
Management and Monitoring					
Utilise postcode database to establish and help link up Council drivers and potential passengers for car share purposes.	Officer Time	Sustainability	2017	Permit accurate and manageable access to DVLA CO_2 emissions data and approximate home locator (part of postcode) to provide details for commuting.	On-going. Requires resourcing.
Record licence data from DVLA	Officer Time and cost per enquiry	Finance/Payroll	Ongoing	Car scheme 2014/15 required staff to provide drivers licence to line manager for check and sign off. this has now been superseded by electronic checks to DVLA carried out by enterprise	New method removed cost, saves time and leads to new staff being granted access to cars much more efficiently.
Maintain and enhance work with Land and Air Quality Team to ensure joined up policies	Officer Time	Sustainability Air Quality	2017	Explore merit of combining Air Quality strategy with Carbon Management Strategy to improve efficiency and effectiveness. Following Travel plan action link directly to AQ action Plan: 1. Electric car charging points; 2. Travel Plan effectiveness; Urban Traffic Management System (UTMC) = sustainable travel	Requires resourcing following the redundancy of the Sustainability Team and given the Govermnments Air Quality Plan launched in May 2017 which places actions to achive results with local authorities.
Establish Travel Reporting and Budget Information	Officer Time	Sustainability	Annually	Important if Council wish to reduce mileage	Will require resourcing
Encourage Efficient Driving Techniques	Officer Time	Health and Safety Budgets	2017	To raise awareness of simple steps to reduce fuel use, tyre, brake and engine wear	Driving simulator brought in to train volunteer staff 2010. Requires resourcing to move this forward.
Encourage walking, cycling or public transport for journeys to work and for business when appropriate as part of the Gateway office move plan	Officer Time	Corporate Travel	At Gateway Completion	Provision of improved locker facilities for cyclists.	Completed
				Provision of up to 30 enhanced secure cycle parking facilities proximate to office with locker facilities.	Completed
				Provision of facilities for staff to dry clothes	Completed
				Investigate Cycle 2 Aylesbury Bicycled hire scheme to provide a discount on new bikes/equipment	Completed
				Promote the provision of	
				a cycle mileage allowance	
				for employee business trips	
				undertaken by bike.	Under review
				Provide information on routes and walking times to key destinations within central Aylesbury	Requires resourcing
				Provide improved intranet travel information and provide directions to the Gateway office and Oculus by sustainable modes.	Under consideration

ACTION	ANNUAL COST	BUDGET	TIMESCALE	COMMENTS	CHANGE SINCE 2013 and Comments
Project ASPIRE to achieve 'channel shift' – move from face to face to technological communications.	Officer time		On going	Council are already starting to see the impact of channel shift though and despite the poor economic growth and an increase in demand for services face to face visits fell by 7% in 2010/11	
Redevelopment of website to enable residents to transact with us more easily.	Ca £3,000 and Officer time	Project Aspire Budget	Complete 2016	Based on analysis of what people are doing on the site, updating the navigation to ensure that the most popular pages are easier to find	
	VALP and Garden Town				

It should be noted that whilst the majority of resource implications set out above are for officer time. Officer time carries with it a cost and results in work in other areas being delayed.

COUNCIL'S PROGRESS TO ADDRESS CLIMATE CHANGE THROUGH EMISSIONS REDUCTIONS

1 Purpose

1.1 To update Environment and Living Scrutiny members on achievements towards reducing Carbon Dioxide (CO_2) and Greenhouse Gas (GHG) emissions against agreed Climate Change reduction targets.

2 Recommendations

2.1 That Committee members note the position and that the officers be asked to continue to work towards seeking reductions in the Council's carbon footprint in order to continue to address climate change and assist the Council to achieve significant financial savings to help sustain its operations.

3 Executive summary

3.1 This report is to update the Committee on the Council's progress made towards the achievement of CO_2 emissions against our target (see appendix 2). It also refers to reductions made against all green house gases for which the Council does not have a target (see appendix 3) but for which the Council is obligated to report to Government upon.

3.2 The Council committed to tackling Climate Change in 2008 following the production and publication of its first Carbon Management Plan. This proposed and committed the Council to a target of 22% reduction in CO_2 emissions by 2013. The Council also formally adopted the Nottingham Declaration on Climate Change in 2009.

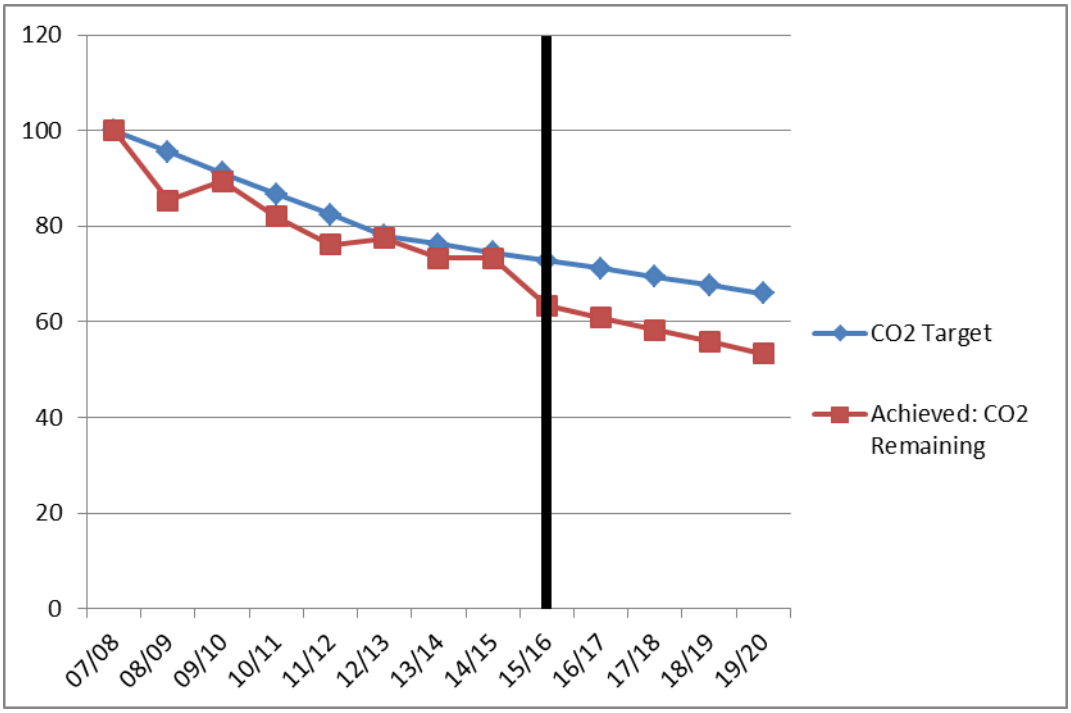
3.3 Since then, the Council has made large strides towards the addressing of achievement of these targets through energy and fuel reductions across our estate and fleet.

3.4 After achieving the target 22% CO_2 reduction one year early in 2012, the Council set an ambitious annualised target with a focus to reach a 34% CO_2 reduction by 2020 (placing the Council in line with the Central Government target).

3.5 The most recent independently audited (by the National Energy Foundation) figures, demonstrate that the Council has exceeded this target a full four (4) years early.

3.6 The graph below sets out the achievement at April 2016 (vertical black line) of a 36.6% reduction in CO_2 emissions. This means that the Council is now 63.4% away from achieving its zero carbon ambition and amongst the most successful Councils in the country in this regard.

3.7 *Graph of targets against actuals:*



3.8 The graph sets out the target set in 2008 and the target revised again in 2013 following the early achievement of the first target. The black vertical line shows the point at which data is provided until (April 2016). The blue line shows the Council's target for Carbon reduction. As can be seen, the red line is the actual carbon reductions achieved to this point. The vertical axis shows 100 as 100% or 7,753 tonnes of CO_2 (which was the Council's total carbon footprint at its baseline year of 2008), reducing year on year. The graph has been extended to 2020 (the Council's target year) and extrapolated between 2016 and 2020 based on a 2.5% year on year saving to that point.

3.9 In the period 2007/8 to 2015/16, the Councils CO_2 emissions have been driven down from 7,753 tonnes to just 4,913 tonnes. A full 36.6% reduction amounting to a saving of 2,840 tonnes or 2.84 million kg of CO_2. According to the US EPA, that's the equivalent emissions of 37.6 tankers full of petrol consumed. As has been discussed, energy and fuel savings have a direct correlation to carbon savings and cost savings. As such, this carbon reduction has also delivered an annual financial saving of over £240,000 in energy costs savings to the Council.

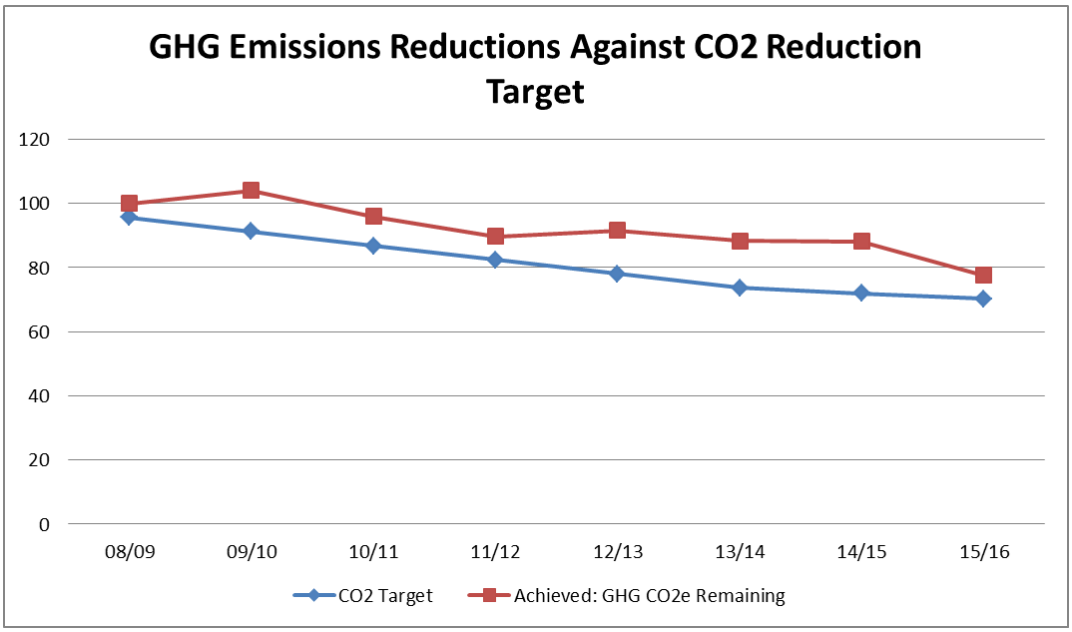
3.10 The Council has also been reducing its basket of greenhouse gas (GHG) emissions (Carbon Dioxide CO_2, Methane CH_4, Nitrous Oxide N_2O, Hydrofluorocarbon HCFC-22, Perfluorocarbon CF4 and Sulphur Hexafluoride SF_6) commonly termed greenhouse gas emissions or CO_2 equivalents (CO_2e). Clearly the Council has a more limited ability to control many of these GHG emissions, Methane for example, a powerful GHG is derived from such areas as farming and landfill. Suphur Hexafluoride is used extensively within circuit breakers in sub stations and whilst it leaks in small amounts, it has a global warming potential some 22,800 times greater than CO_2.

3.11 The graph below sets out the achievement, also to April 2016 but from a baseline of 2008/09 as prescribed by Central Government.

3.12 Because the Council has never had a specific target by which to reduce GHG emissions, the blue line representing the aforementioned CO_2 emission target has been inserted merely for reference. Actual GHG reductions (red line) over

the period from 2008/09 have reduced from 6,826 tonnes to 5,542 tonnes; a reduction of 1,284 tonnes. This is equivalent greenhouse gases emitted by an average family car driving 3,077,306 miles.

3.13 *Graph showing GHG Emissions against the Council's CO_2 Target:*



3.14 As can be seen above, the GHG reductions are again beginning to move towards the Council's CO_2 target. Given that GHG emissions account for the equivalent of these six major greenhouse gases, this is most encouraging.

3.15 The savings have been delivered based on a range of activities. These have included installations of energy efficient technologies across our estate, the enhanced control of equipment and better use of metered data along with the control of vehicle emissions through the introduction of the car fleet.

4 Supporting Information

4.1 The tables below set out the numbers behind the graphs. Table 1 shows CO_2 reduction figures:

4.2 *The table shows 36.6% reduction achieved against what was a 27% target by 2016. It also demonstrates the potential of a remaining 63.4% of CO_2 available to be reduced.*

CO2 Tonnes	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Stationary	5205	2584.2	2662.9	1787.2	1501.6	1884.1	1527.5	2056	1564.1
Leisure	0	2444	2405.1	2756.7	2694.7	2565.1	2830.1	2482.8	2215.1
Fleet	2548	1472.8	1736.9	1707.1	1619	1570.4	1503.7	1455.1	1412.1
Business Mileage	0	123.9	122.3	107.7	92.7	84.2	77	80.9	46.5
Total CO2	7753	6624.9	6927.2	6358.7	5908	6103.8	5938.3	6074.8	5237.8
Carbon Ofset from Renewa	0					93.9	251	393.5	324.5
Total Inc Carbon Offset	7753	6624.9	6927.2	6358.7	5908	6009.9	5687.3	5681.3	4913.3
Green Tariff (not used in calculatic		906.3	548.6	76.1	408.4	605.8	964.5	725.2	442.4
Target Reduction	0	4.4	8.8	13.2	17.6	22	24	25	27
Percentage Reduction from 07/08		14.6	10.7	18.0	23.8	22.5	26.6	26.7	36.6
Percentage Reduction from 08/09 baseline			-4.6	4.0	10.8	9.3	14.2	14.2	25.8
Percentage Reduction rom 09/10 baseline				8.2	14.7	13.2	17.9	18.0	29.1
CO2 Tonnes	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
CO2 Target	100	95.6	91.2	86.8	82.4	78.0	76.3	74.6	72.9
Achieved: CO2 Remaining	100	85.4	89.3	82.0	76.2	77.5	73.4	73.3	63.4

4.3 Table 2 shows GHG reduction figures for the period from 2008/19 (the baseline year for GHG emissions):

CO2e Tonnes	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Scope 1	3222.54	3444.56	3352.04	3007.39	3157.1	3283.84	2981.31	3091.52
Scope 2	3082.5	3150.22	2715.66	2623.62	2684.44	2405.24	2807.3	2060.67
Scope 3	1367.69	1384.62	1298.57	1252.32	1268.41	1315.68	1337.93	1103.62
Total CO2	7672.73	7979.4	7366.27	6883.33	7109.95	7004.76	7126.54	6255.81
Carbon Offset from Renewables	0				87.6	232.8	364.8	302.18
Total Inc Carbon Offset	7672.73	7979.4	7366.27	6883.33	7022.35	6771.96	6761.74	5953.63
Green Tariff (not used in calculations)	846.75	511.74	70.89	378.62	565.04	894.71	672.4	411.93
Target Reduction	0	4.4	8.8	13.2	17.6	22	24	25
Total	**6825.98**	**7467.66**	**7295.38**	**6504.71**	**6457.31**	**5877.25**	**6089.34**	**5541.7**
Out of scope						38.22	35	48
Percentage Reduction from 07/08 baseline		-4.0	4.0	10.3	8.5	11.7	11.9	22.4
Percentage Reduction from 08/09 baseline			7.7	13.7	12.0	15.1	15.3	25.4
Percentage Reduction rom 09/10 baseline				6.6	4.7	8.1	8.2	19.2
CO2 Tonnes	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
CO2 Target	95.6	91.2	86.8	82.4	78.0	73.6	71.9	70.2
Achieved: GHG CO2e Remaining	100	104.0	96.0	89.7	91.5	88.3	88.1	77.6

5 Reasons for Recommendation

The report serves as an update to members on the energy and carbon report delivered in December 2016 and asks members to note the position. The report requests that the officers be asked to continue to work towards seeking reductions in the Council's carbon footprint in order to continue to address climate change but in the knowledge that the resources within the Sustainability Team will be reduced as part of the restructure of the Council.

6 Resource implications

There are no direct additional resource implications relating to this report other than those already funded. All in house energy efficiency measures are funded through the Salix ring fenced energy fund which is a 0% loan from Government matched by the Council. This fund has already recycled four (4) times and continues to deliver proven savings of over £240,000 per annum.

Contact Officer Alan Asbury 01296 585112
Background Documents Environment and Living Scrutiny Energy Report December 2016

NATIONAL ENERGY FOUNDATION

improving the use of energy in buildings

Carbon dioxide emission analysis 2015-16

A NEF report for

AYLESBURY VALE DISTRICT COUNCIL

Prepared for Robert Smart and Alan Asbury

Prepared by:	**Viviane Boyd, Energy Specialist**	**Date: 20.02.2017**
Edited by:	**Filippos Papadopoulos, Energy Specialist**	**Date: 10.03.2017**
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Date: 13 March 2017
Version: 2
Status: Final

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1. EXECUTIVE SUMMARY

This report outlines the carbon dioxide emissions resulting from Aylesbury Vale District Council operations for the full financial year 2015-16. Base year is 2008/09 as per revision in 2012 which also include 2007/08 emissions for reference.

In this report, all emissions are provided in tonnes of Carbon Dioxide (tCO_2) and utilise the carbon conversion factors defined by the government in June 2015- from the excel table entitled "conversion factors 2015 – Full set" (https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2015). Please note that these emissions are true values and not corrected for weather differences.

This report covers the council's carbon dioxide emission based on four activity sectors as described below from, 2007/08 to 2015/16:

- Stationary: includes corporate buildings (offices), car parks, community centres, pavilions, toilets and some miscellaneous sites (water fountains etc.)
- Leisure
  - Aqua Vale Centre
  - Swan Pool
  - Waterside Theatre
- Fleet
  - AVDC own fleet
  - SITA Waste vehicles
  - JOC Ground maintenance vehicles

- Business Mileage. Staff travelling with their vehicles for business purposes.

Table 1: Summary 2015/16 emissions compared against previous years.

Tonnes of CO_2	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	% change from 08/09	% change from 14/15
Stationary	5,205.0	2,584.2	2,662.9	1,787.2	1,501.6	1,884.1	1,527.5	2,056.0	1,564.1	-39%	-24%
Leisure		2,444.0	2,405.1	2,756.7	2,694.7	2,565.1	2,830.1	2,482.8	2,215.1	-9%	-11%
Fleet	2,548.0	1,472.8	1,736.9	1,707.1	1,619.0	1,570.4	1,503.7	1,455.1	1,412.1	-4%	-3%
Business Mileage		123.9	122.3	107.7	92.7	84.2	77.0	80.9	46.5	-62%	-43%
TOTAL	**7,753.0**	**6,624.9**	**6,927.3**	**6,358.7**	**5,908.0**	**6,103.8**	**5,938.3**	**6,074.8**	**5,237.7**	**-21%**	**-14%**
Carbon offset from renewable						93.9	251.0	393.5	324.5		
TOTAL inc carbon offset	**7,753.0**	**6,624.9**	**6,927.3**	**6,358.7**	**5,908.0**	**6,009.9**	**5,687.3**	**5,681.3**	**4,913.2**	**-26%**	**-14%**
Green tariff		906.3	548.6	76.1	408.4	605.8	964.5	725.2	442.4		

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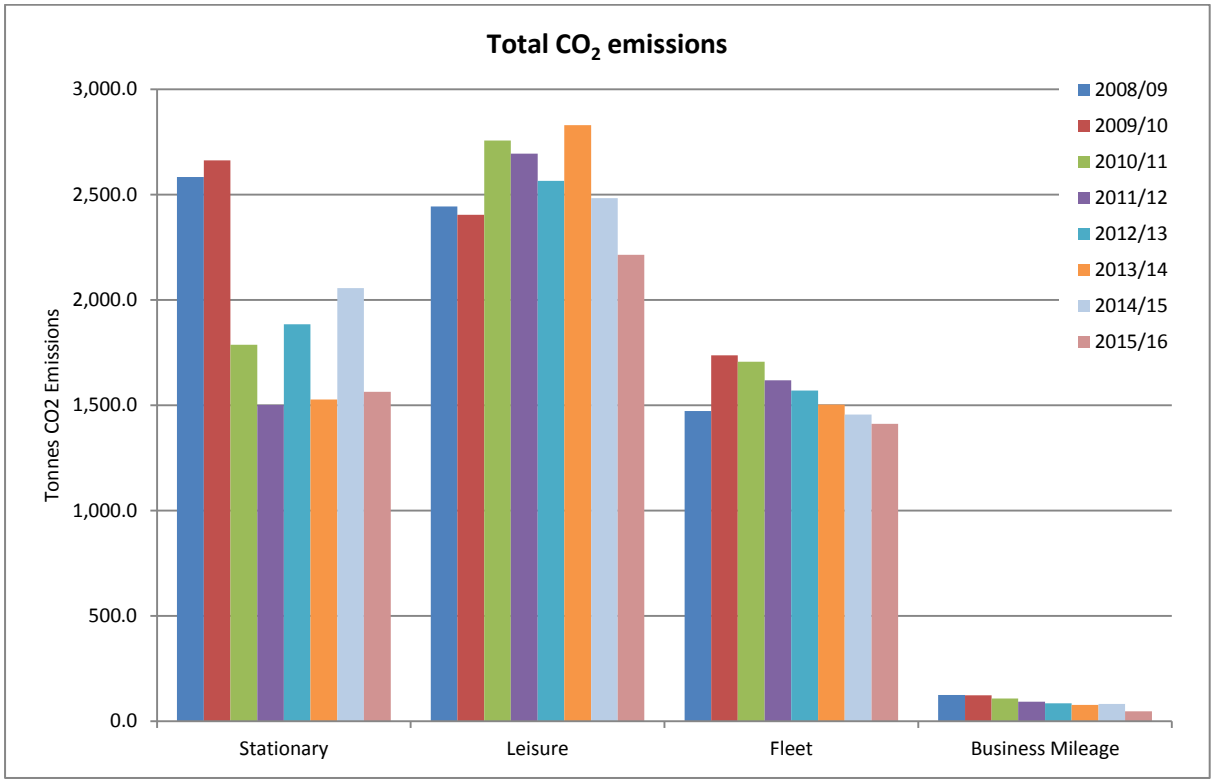

Figure 1: Total CO_2 emission contribution per business activity for 2015/16 compared against previous years. (Omitting 2007/08 from graph due to combined information)

Comments:

AVDC baseline for Carbon emission reporting is 2008/09.

Over the past eight years, Aylesbury Vale District Council has reduced its total carbon emissions from all sources by 26% compared to 2008/09 this is including carbon offset from renewables/ self-generation of electricity, but not including the benefit of the Green tariff contracts.

The Council reduction target is to maintain a 2.5% reduction per year, every year up to 2020. This year the Council has achieved a 14% reduction compared to 2014-15

A large number of sustainable systems have been installed since 2012/13. These are mainly within leisure centres and office blocks. Solar photovoltaic (PV) panels and thermal, air source heat pumps installed at Gateway offices and a Combined Heat and Power unit at the Aqua Vale centre. Another set of solar PV panels have been installed at the Hawkslade Community centre (10kWp) (Oct 2014)

Electricity generated through the solar PV units, totalise a saving of 324.5 tCO_2 .

Hence with the inclusion of the renewable elements, AVDC has reached an overall reduction of 37% below 2007-08 level of carbon dioxide emission.

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Electricity supplied to corporate buildings under a green contract from renewable sources, was secured for Non-Half-Hourly supply (NHH) sites until end of 2016 however Half-Hourly supply (HH) sites were moved to normal electricity contract in October2015. The total of 442.4 tCO_2 avoided emissions has been achieved this year. Details are included within Stationary section of the report under "green tariff".

2. STATIONARY

The council collates meter reading data in order to calculate the electricity and gas consumed in its corporate/stationary buildings. The recorded consumptions are unified into kWh in order to apply the carbon conversion factors defined by the Government in June 2015 "conversion factors 2015 – Full set".

Table 2: Summary 2015/16 emissions compared against previous years.

Tonnes of CO2	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	**% change from 08/09**	**% change from 14/15**
Car Parks	501.0	551.0	520.0	365.0	647.0	485.0	672.4	499.0	0%	-26%
Community Centres	226.0	250.0	256.0	181.0	209.0	188.0	264.9	165.6	-27%	-37%
Leisure	606.0	528.0	9.0	7.0	5.0	4.0	0.0	-		
Miscellaneous	121.0	107.0	90.0	80.0	54.0	62.0	29.6	59.2	-51%	100%
Offices	1,036.0	1,111.0	811.0	811.0	884.0	720.0	966.5	776.4	-25%	-20%
Pavilions	73.0	87.0	84.0	43.0	61.0	53.0	98.8	52.0	-28%	-47%
Toilets	22.0	29.0	16.0	14.0	24.0	15.0	23.8	12.0	-45%	-49%
Total	**2,584.0**	**2,663.0**	**1,787.0**	**1,502.0**	**1,884.0**	**1,528.0**	**2,056.0**	**1,564.1**	**-39%**	**-24%**
Solar saving					2.2	4.2	6.5	7.7		
Green Tariff	906.3	549.0	76.1	408.0	605.8	964.5	725.2	442.4		

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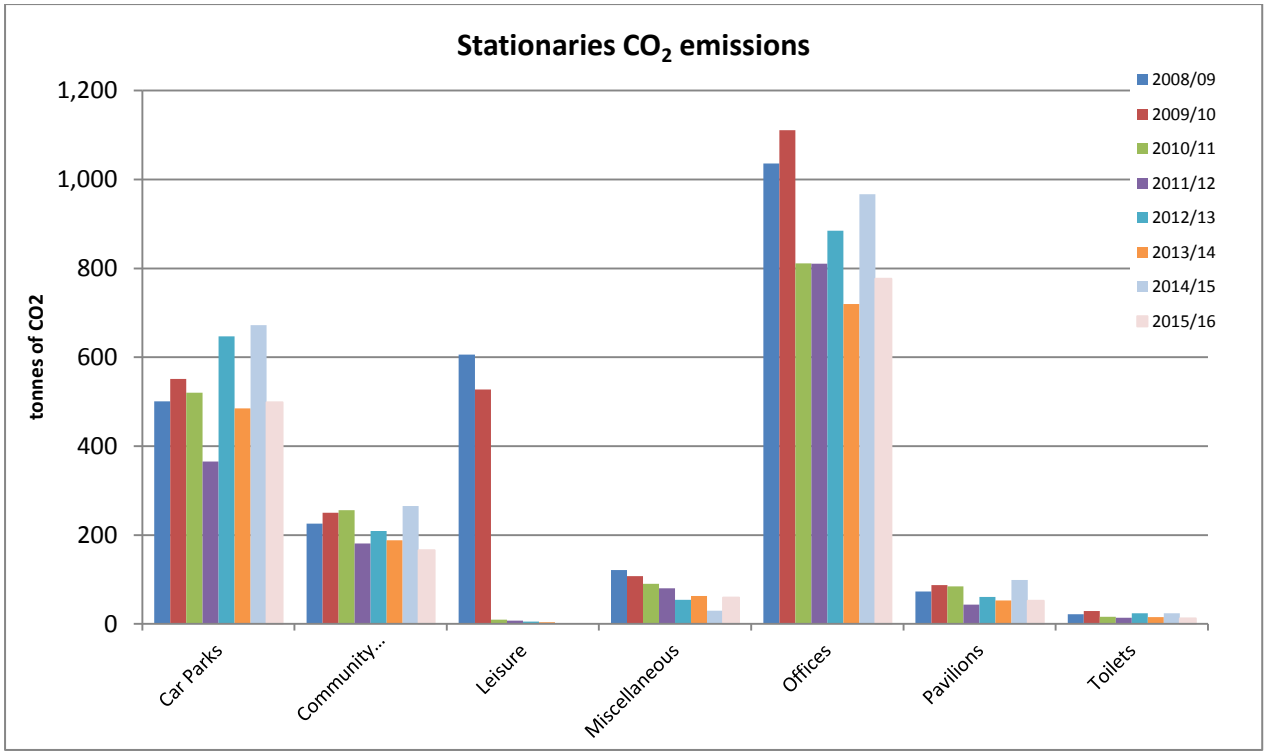

Figure 2: Total CO_2 emission contribution per facilities for 2015/16 compared against previous years.

Comments:

A solar photovoltaic and a solar thermal system were installed at the Gateway Offices in July 2012. The Solar PV (10kWp) array is expected to generate 8,000 kWh/annum. Over the past four years the PV array has generated an average of 7,650kWh per year.

Within the past year (Oct 14) another set of solar photovoltaic panels have been installed at the Hawkslade Community centre (10kWp), for its full year of operation this PV array has generated 9,003 kWh. Total self-generated electricity amounts to 16,835 kWh for 2015-16.

The "Leisure" section within the stationaries has included the Old Gaol museum and the Civic Centre. Both establishments are no longer part of the reporting list for carbon management however the section remains to show past influence.

Car parks related emissions decreased significantly compared to last year -26%. This year Friarscroft car park is showing higher energy consumption. Waterside MSCP reported the same level of consumption as last year however Upper Hundreds car park reported energy consumption has reduced by half. The lighting refurbishment, in place at Upper Hundreds MSPC (2013-14) and Hampden House MSCP demonstrate the potential reductions in emissions possible, as this work continues.

Most Community Centres have achieved reduction in their gas and electricity consumptions However Bedgrove Buildings gas consumption increased by a significant amount (100 MWh).

Most offices have decreased their energy consumption this year. However the High Street Offices, electricity consumption continues to increase despite energy measure installed.

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For the public conveniences there is a decrease in energy consumption.

Miscellaneous energy use: three new car parks and street lighting have been included within the reporting list. The feeder pillar, The Academy, reported 81 MWh of electricity consumption compared to 4MWh last year.

Overall carbon emissions related to Stationary for this financial year 2015/16 have decreased by 24% compared to 2014/15.

Green tariff and renewable energy provision for the corporate buildings respectively amount to 891,247 kWh and 16,834.8 kWh, totalising a carbon offset of 442.4 and 7.72 tCO_2.

3. LEISURE

The council collates the recordings of meter readings in order to calculate the electricity and gas consumption in its Leisure centres. The recorded consumptions are unified into kWh in order to apply the carbon conversion factors.

Table 3: Summary 2015/16 emissions compared against previous.

Tonnes of CO_2 updated to 2013 emission factor	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	% change from 08/09	% change from 14/15
Aqua Vale	1,793.9	1,849.7	1,653.2	1,496.0	1,504.1	1,741.6	1,332.8	1,197.8	-33%	-10%
Swan Pool	650.1	555.4	542.4	487.0	489.4	532.0	549.3	509.5	-22%	-7%
Waterside Theatre			561.1	711.7	571.5	556.4	600.8	507.8		-15%
TOTAL	**2,444.0**	**2,405.1**	**2,756.7**	**2,694.7**	**2,565.1**	**2,830.1**	**2,482.8**	**2,215.1**	**-9%**	**-11%**
Carbon offset CHP unit electricity generation					91.8	246.8	387.0	316.2		-18%
TOTAL					**2,473.3**	**2,583.3**	**2,095.8**	**1,898.9**		-9%

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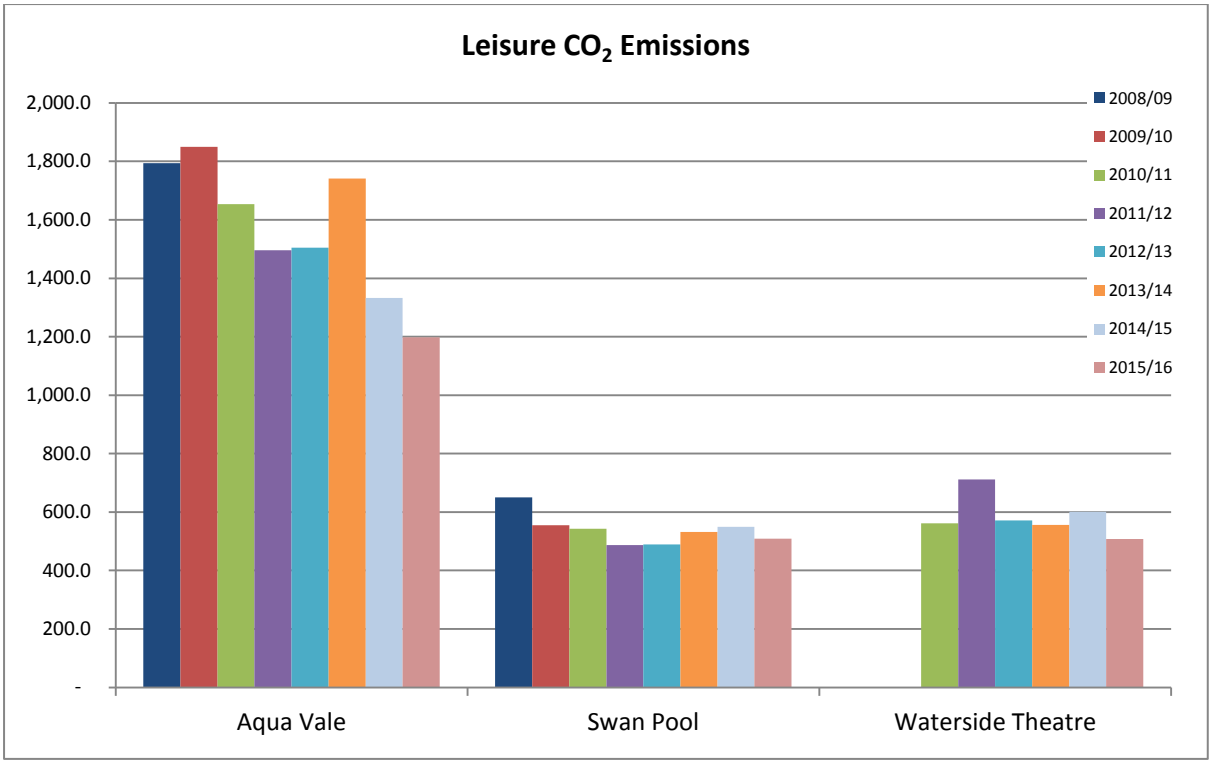

Figure 3: Total CO_2 emission contribution per centre 2015/16 compared against previous years.

Comments:

This year the Aqua Vale centre related emissions have decreased by 10% compared to last year

Swan pool related emissions are showing a reduction of 7% compared to last year. Last year Intensive refurbishment was planned for the centre. The reduction may largely be attributed to this.

Waterside theatre energy data were much lower than last year. Waterside theatre related emissions show a reduction of 15%.

Carbon offset is calculated from the electricity generated via the Combined Heat and Power installed at the Aqua Vale centre.

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4. FLEET

For the council's fleet, the data received collates the amount of fuel used by the different vehicles in use by AVDC and contractors staff. Carbon dioxide emissions are evaluated by applying respective conversion factors to the fuel consumption.

Table 4: Summary of fleet related emissions for 2015/16 compared against previous years.

Tonnes of CO_2	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	% change from 08/09	% change from 14/15
AVDC fleet	1,472.8	1,373.8	1,394.5	1,320.8	1,299.9	1,252.5	1,219.6	1,213.9	-18%	0%
SITA fleet		212.8	201.7	196.8	201.9	218.4	204.4	162.8		-20%
AVA/JOC		150.4	110.8	101.4	68.6	32.8	31.2	35.4		13%
TOTAL	**1,472.8**	**1,736.9**	**1,707.1**	**1,619.0**	**1,570.4**	**1,503.7**	**1,455.1**	**1,412.1**	**-1%**	**-3%**

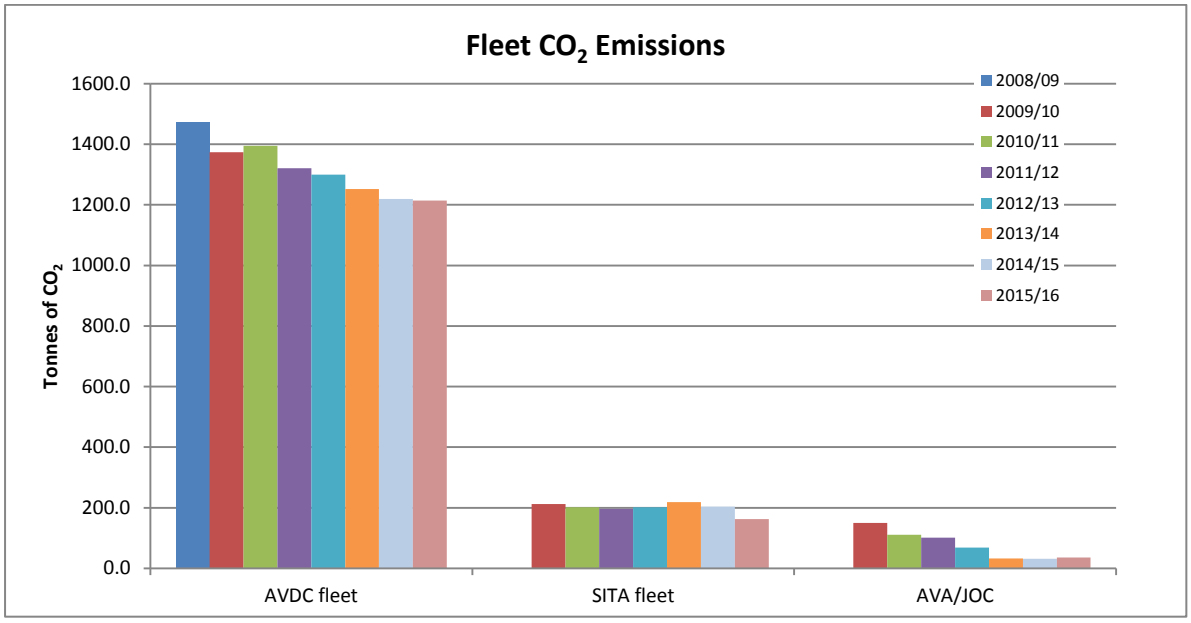

Figure 4: Total CO_2 emissions contribution per fleet 2015/16 compared against previous years.

Comments: A minimal reduction of 3% in emissions, compared to last year.

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5. BUSINESS MILEAGE

Emissions from the council's business mileage were reported more accurately, however still totalised under unknown fuel and average engine size.

Table 5: Summary 2014/15 emissions compared against previous years.

Tonnes of CO2	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	% change from 08/09	% change from 14/15
Business mileage	123.9	122.3	107.7	92.7	84.2	77.0	80.9	46.5	-62%	-43%

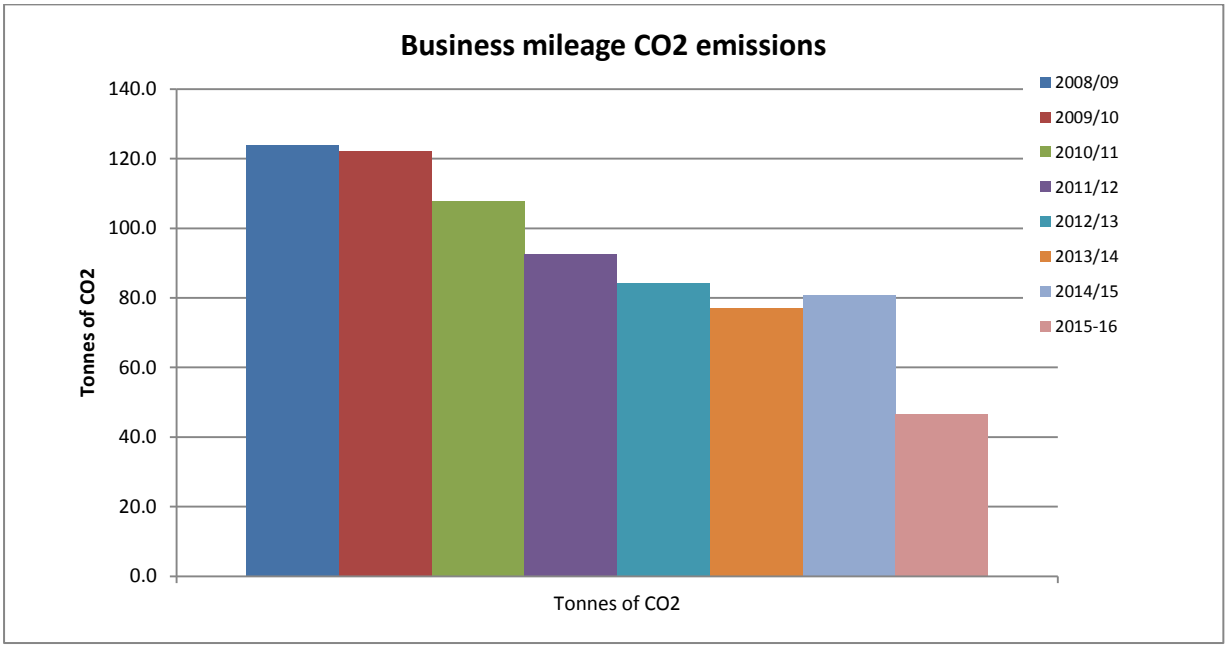

Figure 5: Total CO2 emission contribution for 2015/16 compared against previous years.

Comments:

This year the calculation shows a decrease in business mileage emissions by 43% compared to last year. This year's mileage reporting included the use of two electrical fleet cars which totalised 8,683 miles, amounting to 5.5% of the total mileage completed.

Although important, this area of emissions still provides the smallest opportunity for CO_2 emission reductions.

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6. GAS NORMALISATION

Degree days are a simplified form of historical weather data. They are commonly used in monitoring and targeting to model the relationship between energy consumption and outside air temperature.

Heating degree days (HDD) are used for calculations that relate to the heating of buildings.

Heating degree-day figures come with a "base temperature", and provide a measure of how much (in degrees), and for how long (in days), the outside temperature was below that base temperature. In the UK, the most readily available heating degree days come with a base temperature of 15.5°C.

Heating degree days are often used to normalize the energy consumption of a heated building so that, in theory, the normalized figures can be compared on a like-for-like basis. The simplest way to normalize energy-consumption figures is to calculate the kWh per degree day. Simply divide each kWh figure by the number of degree days in the period over which that energy was used, in this report each year's consumption is divided by the respective yearly HDD. In theory, dividing by the degree days factors out the effect of outside air temperature, so you can compare the resulting kWh per degree day figures fairly.

The normalized kWh, results from multiplying the kWh per degree day figures by a single "average year" degree-day value (in this case I used 2,167 degree days as the multiplier - an average-year value calculated from the last 20 years' worth of degree-day data from the Midlands UK region [source http://vesma.com/ddd/regular.htm]). This gives you normalized equivalents of the original kWh figures which can, in theory, compare fairly.

Table 6: Calculation table per year:

Year	Amount used (kWh)	Number of degree days (DD)	kWh per DD	Normalised consumption (2,167 - 20 yrs avrg HDD Midlands)
2008	9,354,131.0	1,921	4,869.4	10,552,005.1
2009	9,228,785.7	2,007	4,598.3	9,964,513.5
2010	8,810,264.1	2,189	4,024.8	8,721,718.8
2011	7,393,746.0	1,819	4,064.7	8,808,272.4
2012	8,501,457.0	2,498	3,403.3	7,374,962.9
2013	9,608,289.5	2,290	4,195.8	9,092,211.0
2014	8,186,543.0	2,067	3,960.6	8,582,602.2
2015	9,040,925.4	1,976	4,575.4	9,914,820.5

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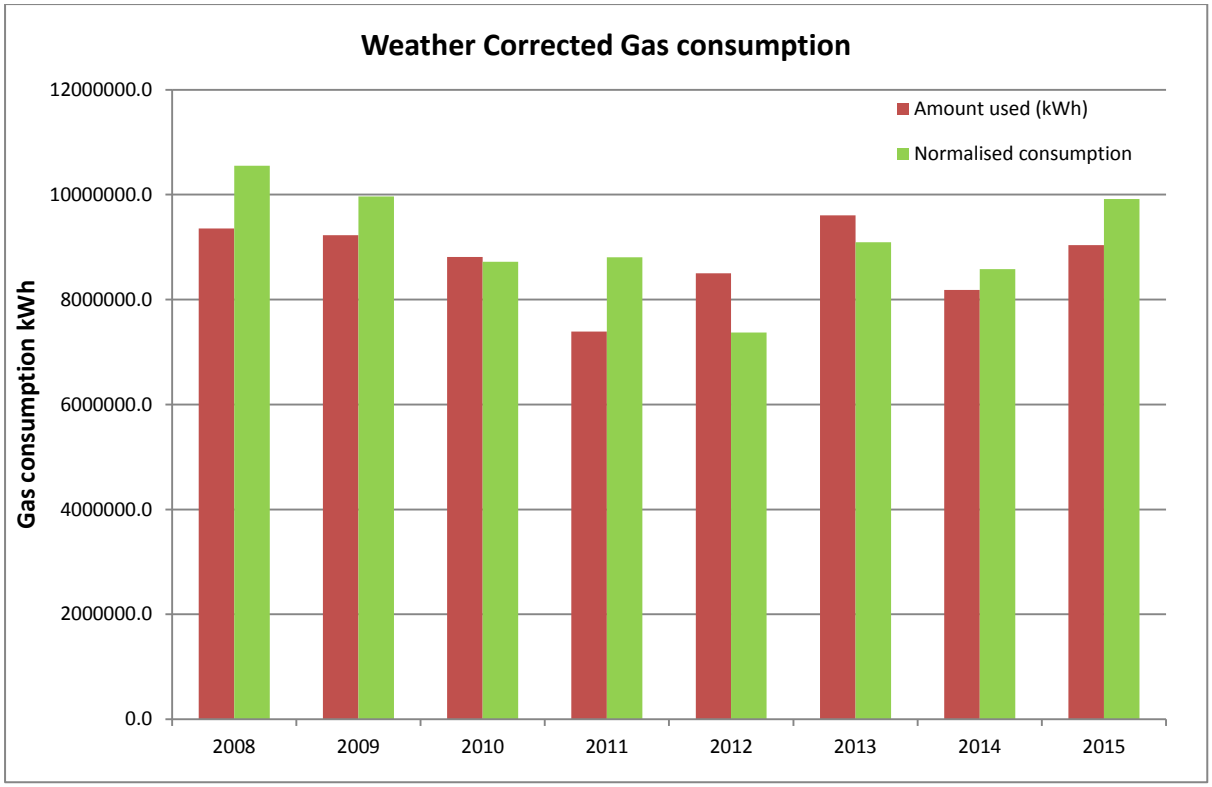

Figure 6: Gas consumption actual vs corrected (normalised) consumption.

The gas consumption over the past 8 years averages 8,765 MWh with a normalised consumption averaging 7,715 MWh.

The **Figure 6** demonstrates that across its corporate buildings AVDC is keeping below the normalised consumption referring to the weather in the Midlands.

This gives the ability to monitor and target in the following field:

- Calculate and track budget accurately
- Assess savings achieved by energy efficiency measures
- Detect abnormal consumption caused by hidden faults or human error

7. RECOMMENDATION

- Green tariff contracts for NHH and HH sites ended in March 2016. If Green contracts are not pursued, it would be valuable when procuring energy to assess competitor's energy mix and report emissions using provider own emission factor (market base calculation).
- Continue Investment in smart cars and electric vehicle fleet for staff business mileage
- Bedgrove Buildings – an investigation of gas consumption would be beneficial as its consumption more than doubled compared to last year.
- Feeder Pillar - The Academy, the increase in consumption from 4.5 MWh last year to 81.6 MWh is quite significant to request an investigation. It is to be noted that this is also a new addition compared with 2013-14 data collection.

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Green House Gases Analysis 2015/16

A NEF report for

AYLESBURY VALE DISTRICT COUNCIL

Prepared for Robert Smart & Alan Asbury

Prepared by:	**Viviane Boyd, Energy Specialist**	**Date: 28.02.2017**
Edited by:	**Filippos Papadopoulos, Energy Specialist**	**Date: 09.03.2017**
Authorised by:	**David Dentith, Quality Manager**	**Date: 10.03.2017**

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Date: 13 March 2017
Version: 2
Status: Final

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1. INTRODUCTION

This report outlines the Greenhouse Gas (GHG) emissions resulting from Aylesbury Vale District Council operations according to Emission reporting guidance. All reported emissions are expressed in tonnes of Carbon dioxide equivalent (tCO_2e) and utilise the conversion factors defined by DEFRA in "June 2015-environmental reporting guidance and the GHG-conversion-factors web based tool". The Kyoto Protocol and the second assessment report of the Intergovernmental Panel on Climate Change (IPCC) covers six main GHGs: carbon dioxide (CO_2), methane (CH_4), hydrofluorocarbons (HFCs), nitrous oxide (N_2O), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6). These define the GHG emissions reported as tonnes of CO_2 equivalents (CO_2e) using Global Warming Potential (GWP) factors.

Aylesbury Vale District Council reports on GHG emissions from council operations in the following sectors: corporate buildings, leisure centres, business travel, owned and contracted fleet. Emissions are calculated based on data provided for the heating and electricity supply to buildings and leisure centres, amount of fuel used by waste/ recycling/ maintenance activities from council-owned fleet and sub-contracted services, along with mileage claimed for staff business travel.

The GHG emissions are categorised between Scopes 1 – 3, where;

Scope 1 (Direct emissions): GHG emissions from combustion in owned or controlled boilers, furnaces, vehicles. This includes natural gas or other types of fuel to heat buildings, whose carbon dioxide emissions have been calculated on the basis of the gross calorific value (CV) according to DEFRA guidelines. This scope also includes travel undertaken in vehicles owned or controlled by Cherwell District Council (fleet).

Scope 2 (Indirect emissions): Emissions from purchased electricity "generation" for council-owned buildings. Compared with previous years this section has been divided into two different parts – one from electricity generation, which are reported within Scope 2, and a second one from Transmission & Distribution which are counted within Scope 3 (Detailed in Table 2).

Scope 3 (Indirect - labelled Well to Tank [WTT]): Emissions occurring at sources which the council do not own or control and which are not classed as Scope 2 emissions. Emissions from miles travelled for business purposes in staff owned vehicles, contracted services with no control and emissions from extracting, processing and transporting of fuel. This year Scope 3 includes emissions from Electricity "Transmission & Distribution" (T&D) as well as the WTT for the generation and WTT for T&D.

All scopes has been removed: Going forward users will be required to report using factors that are specifically categorised in the 3 main scopes, Scope 1, 2 and 3, (plus outside of scopes). Users may need to update historic reporting to ensure comparison is possible.

Outside of Scopes biogenic portion to diesel and petrol scope 1 factors from 'average biofuel blend: The 2013 conversion factor release is the first year in which the biogenic conversion factors for forecourt fuel have been made available to organisations to ensure they fully report their emissions from blended forecourt fuel sources.

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2. SUMMARY – GHG EMISSIONS

Table 1: AVDC GHG emissions by scopes

Tonnes of CO_2e	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	% change from 08/09	% change from 14/15
Scope 1	3,222.54	3,444.56	3,352.04	3,007.39	3,157.10	3,283.84	2,981.31	3,091.52	-4%	4%
Scope 2	3,082.50	3,150.22	2,715.66	2,623.62	2,684.44	2,405.24	2,807.30	2,060.67	-33%	-27%
Scope 3	1,367.69	1,384.62	1,298.57	1,252.32	1,268.41	1,315.68	1,337.93	1,103.62	-19%	-18%
TOTAL	**7,672.73**	**7,979.40**	**7,366.28**	**6,883.32**	**7,109.95**	**7,004.76**	**7,126.54**	**6,255.81**	**-18%**	**-12%**
Carbon Offset					87.6	232.8	364.8	302.18		-17%
Green tariff	846.75	511.74	70.89	378.62	565.04	894.71	672.40	411.93	-51%	-39%
TOTAL	**6,825.97**	**7,467.66**	**7,295.39**	**6,504.70**	**6,457.29**	**5,877.21**	**6,089.31**	**5,953.63**	**-19%**	**-9%**
Out of Scope						38.22	35.41	47.66		35%

3. SUPPORTING NOTES

1. **Organisation info:** Aylesbury Vale District Council, Buckinghamshire, England. Council offices, 66 High Street, Aylesbury, Bucks, HP20 1SD.

2. **Reporting period**: 1 April 2015 - 31 March 2016

3. **Reporting tool**: Government Environmental Reporting Guidelines and "June 2015-GHG-conversion-factors web based tool".

4. **Change in emissions:** Total GHG emissions have reduced by 870 tCO_2e compared to last year 14/15; as a percentage this is a reduction of 12%. This year renewable installations have generated a saving in emissions of 302.2 tCO_2e which is a lower achievement than 364.8 tCO_2e in 14/15. The green tariff contracts were reconsidered through the year which resulted with the Half-Hourly sites ending renewable energy supply by Oct 15. The Non-Half-Hourly sites continued until end March 2016.

5. **Since base year:** The GHG emissions have decreased by 18% from 2008/09 and 22% from 2009/10 (not shown in the table above). This does not include the reduction from renewables.

6. **Additional information:**

    a. **Corporate buildings/ stationaries:** The LED refurbishment measures at the main offices took place throughout 2015-16.

    b. **The waste and recycling service:** This is based on the waste/ recycling collection by the council fleet, not for the treatment of waste or recycled materials.

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c. **Leisure Facilities**: The Combined Heat and Power unit installed at the Aqua Vale leisure electricity generation has amounted to 636,969 kWh this year. Slightly lower than last year due to maintenance shutdown.

d. **Carbon Offset:** Carbon offset started in July 12 with the installation of solar PV at Gateway Office. Followed in October 2014 with a new solar photovoltaic systems of 10 kWp installed at Hawkslade community centre. This year full benefit of self-generation via solar PV totalised 16,834 kWh of electricity and reduced emissions by 7.8 tCO_2e. The CHP unit at the Aqua Vale centre, generated this year 636,969 kWh of electricity, avoiding 294.4 tCO_2e.

e. **Green Tariff:** Some of the Electricity contracts were renegotiated through 2015-16. The total emissions avoided via the "green" supply amounts to 411.9 tCO_2e.

7. **Approach:** Council has followed the Government's Guidance on how to measure and report greenhouse gas emissions.

8. **Operational scopes:** Council has measured its scope 1, 2 and significant scope 3 emissions

Table 2: Detailed operational scopes

Tonnes of CO_2e	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Scope 1								
Gaseous Fuel	1,732.7	1,694.4	1,631.7	1,369.4	1,574.6	1,768.3	1,514.3	1,667.6
Liquid Fuel	1,489.9	1,750.2	1,720.3	1,637.9	1,582.5	1,515.5	1,467.0	1,423.9
Total scope 1	**3,222.5**	**3,444.6**	**3,352.0**	**3,007.4**	**3,157.1**	**3,283.8**	**2,981.3**	**3,091.5**
Scope 2								
Electricity generation	3,082.5	3,150.2	2,715.7	2,623.6	2,684.4	2,405.2	2,807.3	2,060.7
Total scope 2	**3,082.5**	**3,150.2**	**2,715.7**	**2,623.6**	**2,684.4**	**2,405.2**	**2,807.3**	**2,060.7**
Scope 3								
Liquid Fuel business	182.9	123.0	108.4	93.3	84.7	75.7	81.4	46.7
Electricity T&D	239.7	249.4	218.7	224.2	212.1	205.7	245.5	170.1
WTT Elect generation	428.0	427.0	363.3	372.8	402.6	379.7	427.5	307.1
WTT Elect T&D	33.3	33.9	29.3	31.9	31.8	32.4	37.4	25.4
WTT Gaseous fuel	168.3	165.7	168.6	141.5	162.7	270.0	203.3	224.5
WTT Liquid Fuel	315.6	385.7	410.4	388.6	374.5	352.2	342.9	329.8
Total scope 3	**1,367.7**	**1,384.6**	**1,298.6**	**1,252.3**	**1,268.4**	**1,315.7**	**1,337.9**	**1,103.6**
Total emissions	**7,672.7**	**7,979.4**	**7,366.3**	**6,883.3**	**7,110.0**	**7,004.8**	**7,126.5**	**6,255.8**
Carbon Offset					87.6	232.8	364.8	302.2
Green Tariff	846.8	511.7	70.9	378.6	565.0	894.7	672.4	411.9
Overall Total	**6,826.0**	**7,467.7**	**7,295.4**	**6,504.7**	**6,457.3**	**5,877.2**	**6,089.3**	**5,541.7**
Liquid (bio)fuel out of scope						38.2	35.4	47.7
Outside scope	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**38.2**	**35.4**	**47.7**

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9. **Base year**: 2008/09 has been the reporting base year for the past 5 years.

10. **Targets**: The Council has achieved an 18% reduction in its GHG emissions since base year 2008-09 without including carbon offset from renewable installations or green tariff.

11. **Council contact** is Rob Smart, Sustainable Officer on 01296 585112. Email: RSmart@aylesburyvaledc.gov.uk

12. **External Assurance:** AVDC GHG emission analysis has been carried out by an external organisation, The National Energy Foundation NEF (Viviane.boyd@nef.org.uk) on behalf of the Council.

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Environment and Living Scrutiny Committee
13 June 2017

HOME ENERGY CONSERVATION ACT (HECA) UPDATE

1 Purpose

1.1 To update Environment and Living Scrutiny members on the production of the Council's mandatory production and submission of a HECA report every 2 years as set out in legislation of 1995 and revised in 2017.

2 Recommendations

2.1	That Committee members note the production of the updated HECA Report and agree to its publication on the Council's website.

3 Executive summary

3.1 The report (see appendix 2), has been produced this year by the National Energy Foundation who have partnered with Aylesbury Vale District Council for many years in order to help us to address issues such as affordable warmth and fuel poverty though a joined-up and collective approach county-wide.

3.2 The production and publication of the Council's HECA report and submission for 2017 is a mandatory requirement of all district and borough council's across the UK and must be carried out every other year (due again in early 2019). The Home Energy Conservation Act (1995) has been reissued by the Department for Business, Energy and Industrial Strategy (BEIS) in January 2017. This report meets their new requirements.

4 Supporting Information

4.1 The HECA report uses Council and Government held data to assess Council's by Ward (Lower Super Output Areas). The report assesses demographics, insulation measures introduced, hard to treat properties and Index of Multiple Deprivation (IMD) statistics to come up with mapping that highlights areas of concern. These are areas that the Council may then focus upon when addressing affordable warmth issues.

4.2 The report uses data showing a population of 174,100 in 2011 and recognising a large growth in residents aged between 60 and 64 along with a 12% increase in those with chronic health or disability.

4.3 Whilst Aylesbury Vale scores very highly (well) amongst other Local authorities for IMD, there are pockets of significant deprivation in Quarrendon, Southcourt and Gatehouse Wards where some LSOAs feature in the top 20% in England.

4.4 Whilst energy consumption in Vale households has fallen, it is still significantly above the national average (34% above for electricity and 47% above for gas).

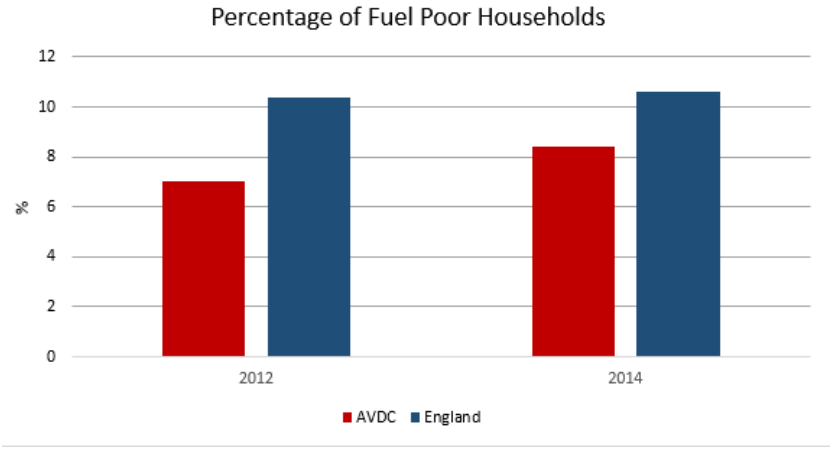
4.5 With the failure of the Green deal, the UK Government are shortly to announce ECO 2T. The next iteration of the ECO scheme aimed at those that need help most with insulation and other energy efficiency measures. As a consequence of the removal of government insulation grants, removal of the Green Deal and the delays in the introduction of ECO 2T, insulation measures across the UK as well as Aylesbury have fallen significantly.

4.6 The Chief Executive at Chiltern and South Bucks Council has agreed and signed a Statement of Intent to tackle fuel poverty as part of the Bucks Affordable Warmth Network. This is in partnership with the National Energy Foundation, Age UK, Prevention Matters and the Fire Service. A similar statement is currently being considered at Aylesbury Vale District Council. With changes in Council structures, it has been agreed that the Environmental Manager will henceforth be the named officer with the Group Manager – Specialist Services committing budget for this process, at least in the short term.

5 Conclusion

5.1 Since the last report in 2015, there has been an increase in fuel poverty in the Vale, not least because of the high prevalence of off mains gas areas in the region. This change is common across the UK. However, with 8.4% of Aylesbury Vale households now considered to be fuel poor, the increase of 1.4% since 2012 is markedly higher than the previous reporting period that was showing a 0.1% decrease.

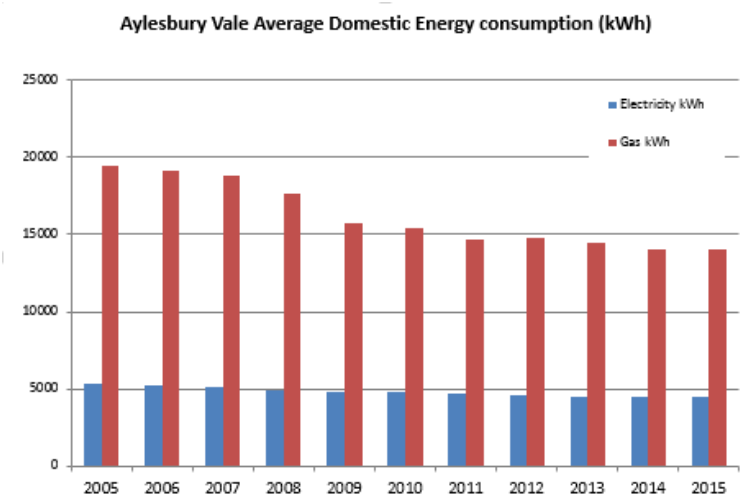
5.2 The graph below sets this out:



5.3 Solar PV installations at 295/10,000 households in the Vale compare favourably against a national average figure of 224/1000. This must be contextualised by the fact that the UK is not uniformly radiated by the sun and, as such, the Vale has very good solar resource. Also, many of these installations will have been delivered upon able to pay households.

5.4 There are encouraging trends regarding household energy consumption. Electricity consumption has fallen by 10% and gas by 20% between 2005 and 2015 (see graph below). However, statistically, consumption in the Vale is still 34% and 47% above the national average.

5.5



5.6 This report sets out progress made by Aylesbury Vale District Council since the previous HECA submission in March 2015. Increases in fuel poverty and a large proportion of off-mains gas households suggest that there is still scope to further improve the energy efficiency of some households within the district.

5.7 However, support available from both the Affordable Warmth Network and local or national funds (following the expected launch of ECO 2T), put the Council in a strong position to be able to achieve improved energy efficiency across the district over the coming reporting period.

6 Reasons for Recommendation

The report serves as an update to members on the mandatory HECA (1995) process and requests that members note the position.

7 Resource implications

There are no direct additional resource implications relating to this report other than those already funded.

Contact Officer	Alan Asbury 01296 585112
Background Documents	Cabinet Report 2015

Home Energy Conservation Act (HECA)
Progress Report
2017

Aylesbury Vale District Council

Prepared by the National Energy Foundation

Contents

1. HECA Requirements and Background

This report is mandatorily required every two years as per the 'Guidance to English Energy Conservation Authorities (ECA's) pursuant to the Home Energy Conservation Act (HECA) 1995' issued by the Department for Business, Energy and Industrial Strategy (BEIS) in January 2017. This report aims to set out how Aylesbury Vale District Council will improve the energy efficiency of its residential accommodation.

1.1. Process and Methodology

The process for producing this report involved the data analysis and production of Lower Super Output Area (LSOA) / ward level maps for Aylesbury Vale district to better understand energy use, fuel poverty and demographic factors which may be influencing these. Additionally, undertaking a review of relevant policies, plans and schemes in place to address energy issues, along with outlining potential priorities that should be considered by the district over the next reporting period.

Data analysed has been collated from Census information, statistics from the Department of Business, Energy and Industrial Strategy (BEIS) and Department of Communities and Local Government (DCLG), Home Energy Efficiency Database (HEED) information and data provided from the local authority itself (a full list of data sources can be found in section 6 at the end of this report).

1.2. General Profile of Aylesbury Vale District

Since the 2001 census, the total population of Aylesbury Vale has increased by 5% from 165,748 to 174,100, making it the largest district (both geographically and now by population) in Buckinghamshire. Similar to surrounding districts, Aylesbury Vale is experiencing a significantly ageing population, with the largest growth of 47% experienced in residents aged between 60 and 64. Aylesbury Vale has also seen a 12% increase of those who described themselves as having a long-term health condition or disability that limits everyday activities. This suggests that over the coming years, demand for support services (including those around keeping warm and well) and suitable housing is likely to increase.

2. Data Analysis

2.1. Index of Multiple Deprivation (IMD)

Aylesbury Vale is ranked 283 out of 326 English Local Authority districts in terms of multiple deprivation (with lower numbers indicating greater levels of deprivation) making it the most deprived district in Buckinghamshire (by Buckinghamshire standards). Deprivation is most prevalent in Quarrendon, Southcourt and Gatehouse wards of Aylesbury, where some Lower Super Output Area's (LSOA's) feature in the top 20% of most deprived areas in England.

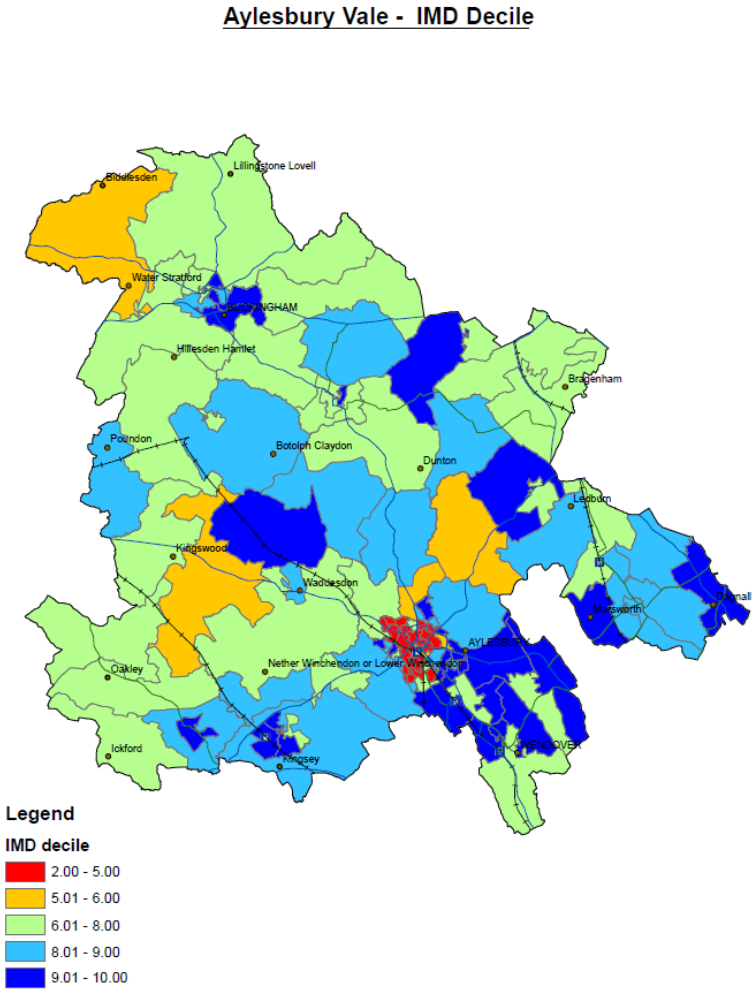


Figure 1: IMD Decile for Aylesbury Vale District. DCLG, 2015

2.2. Fuel Poverty

There are now two definitions in use for fuel poverty the UK. The previous 10% definition *(where a household is deemed fuel poor when having to spend over 10% of disposable income to pay for energy)* is no longer in use in England, but is still implemented in Northern Ireland, Scotland and Wales.

In England, the Low Income, High Cost (LIHC) is now used to measure fuel poverty and considers a households to be fuel poor if:

- They have required fuel costs that are above average
- If they were to spend that amount, would be left with a residual income below the official poverty line

Under the LIHC definition, 8.4% of households in Aylesbury Vale are considered to be in fuel poverty, showing a 1.4% increase from 2012. Although this remains below the national average, this differs from the previous reporting period which saw a 0.1% decrease. When assessing the issue in numerical terms, the number of households in fuel poverty has increased from 4,828 to 6,038, reiterating the need for further energy efficiency support within Aylesbury Vale district.

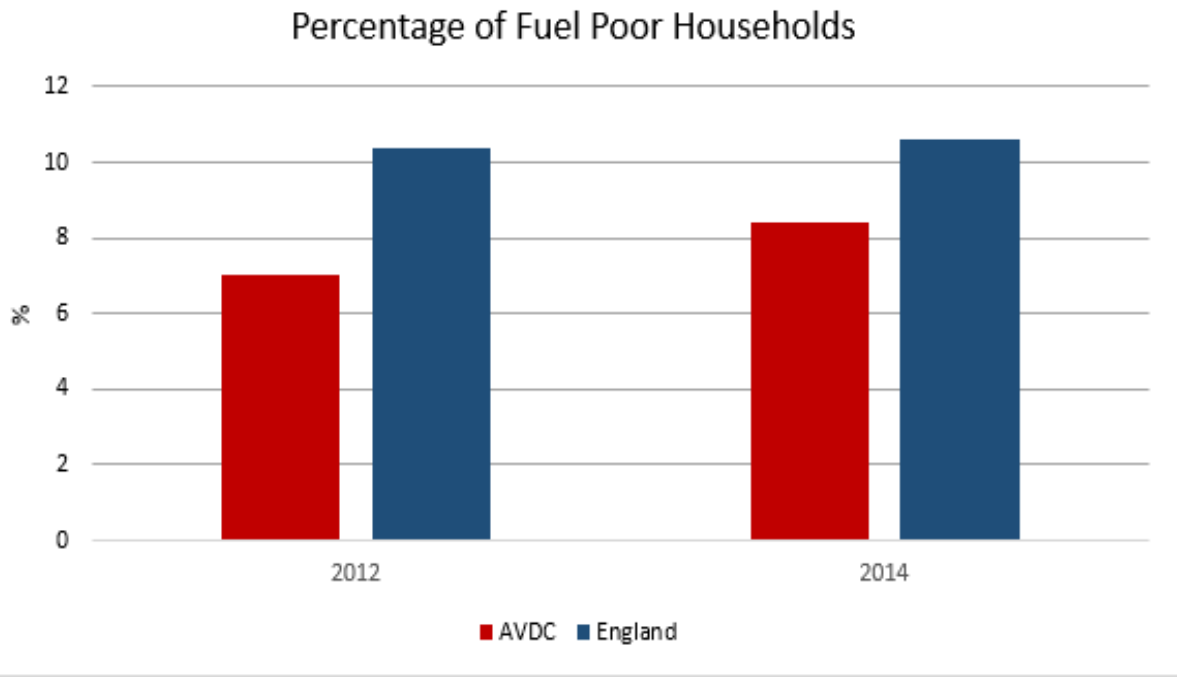


Figure 2: Percentage of Fuel Poor households under LIHC. BEIS, 2015

Aylesbury Vale - Fuel Poverty 2015
Low Income High Cost

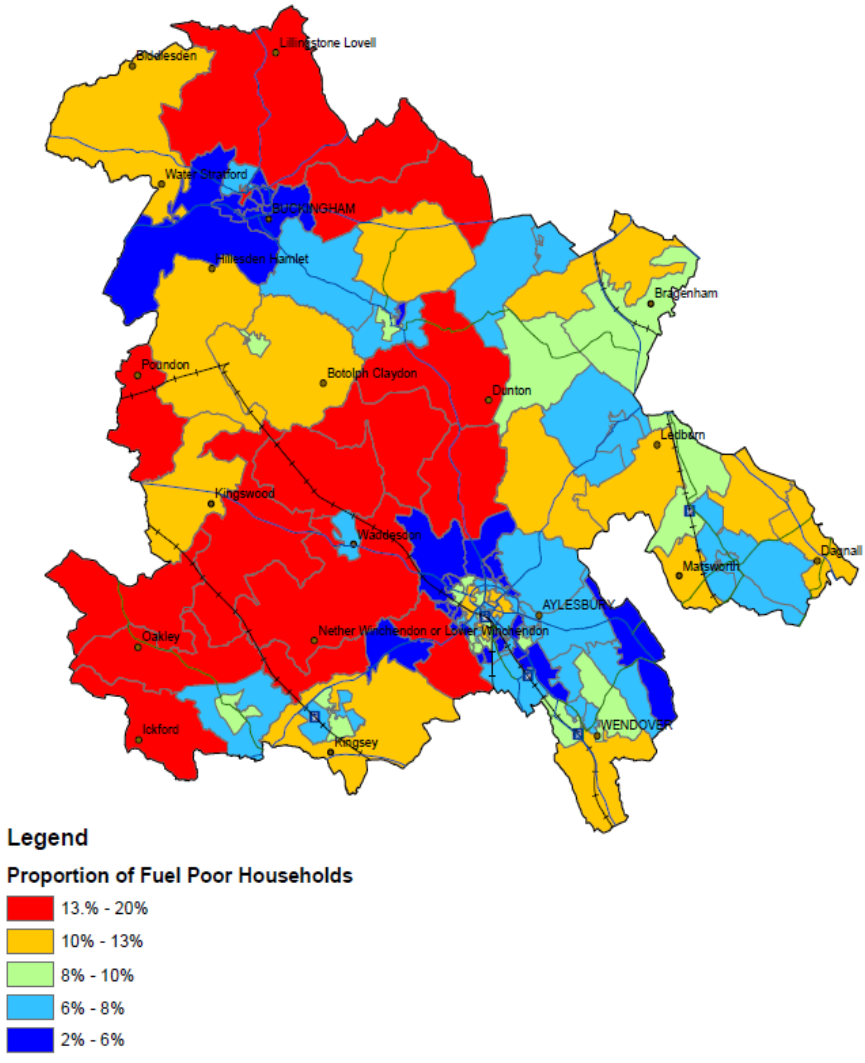
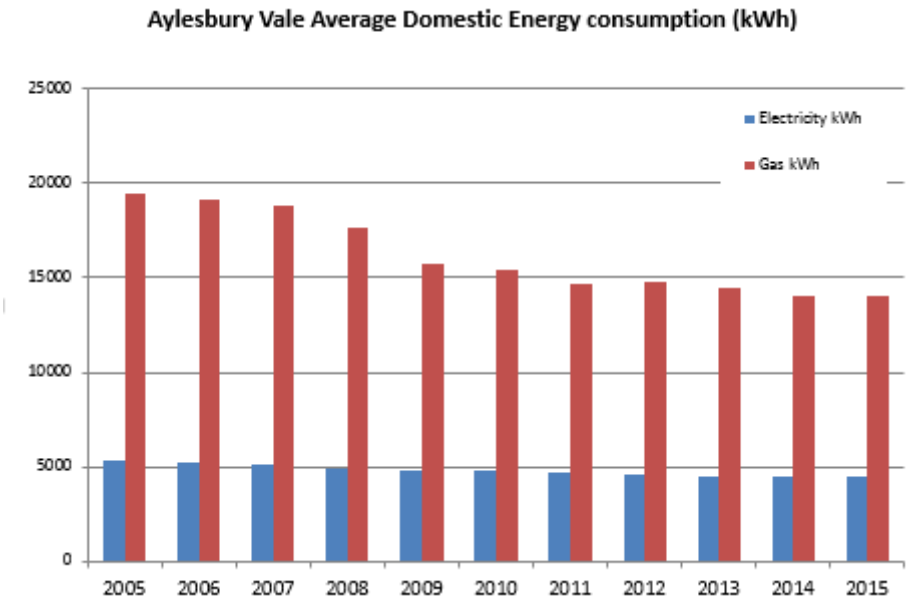


Figure 3 Mapped fuel poverty data for AVDC. BEIS, 2015.

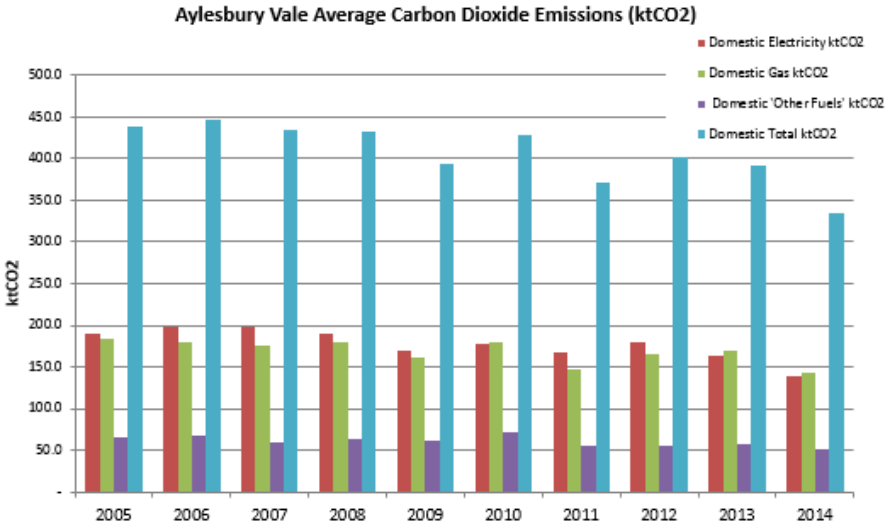
2.3. Energy Consumption

Average annual domestic electricity consumption fell by 10% between 2005 and 2015, with domestic gas consumption falling by 20% over the same time period. Despite this, overall domestic electricity consumption is 34% above the national average and gas even higher at 47%[1].



2.4. Domestic Emissions

Average building related CO^2 emissions in 2014 were 2.3 tonnes per person, showing a decline of around 0.4 tonnes per person since 2012 and 2013[2].



[1] Source: https://www.gov.uk/government/statistical-data-sets/regional-and-local-authority-electricity-consumption-statistics-2005-to-2011 and https://www.gov.uk/government/statistical-data-sets/gas-sales-and-numbers-of-customers-by-region-and-local-authority

[2] Source: https://www.gov.uk/government/statistics/local-authority-emissions-estimates

2.5. Cavity Wall and Loft Insulation

Since 2015, the Council has received 226 building control notifications for installation of Cavity Wall Insulation. Overall, there has been no update on statistics around cavity and loft insulation installs since the previous reporting period, with data still showing a steady increase in both types of installs. In terms of cavity wall insulation installs, between 2012/13 Aylesbury Vale was slightly below the GB average, with 865 installs per 10,000 households taking place compared to the GB ratio of 904 per 10,000. Loft insulation installs are slightly closer to the GB average, with 1,247 per 10,000 households occurring in Aylesbury Vale compared to the GB average of 1,365 per 10,000. This shows that there is still scope for residents within the district to take advantage of offers under ECO2 Transition (ECO2T) over the next reporting period.

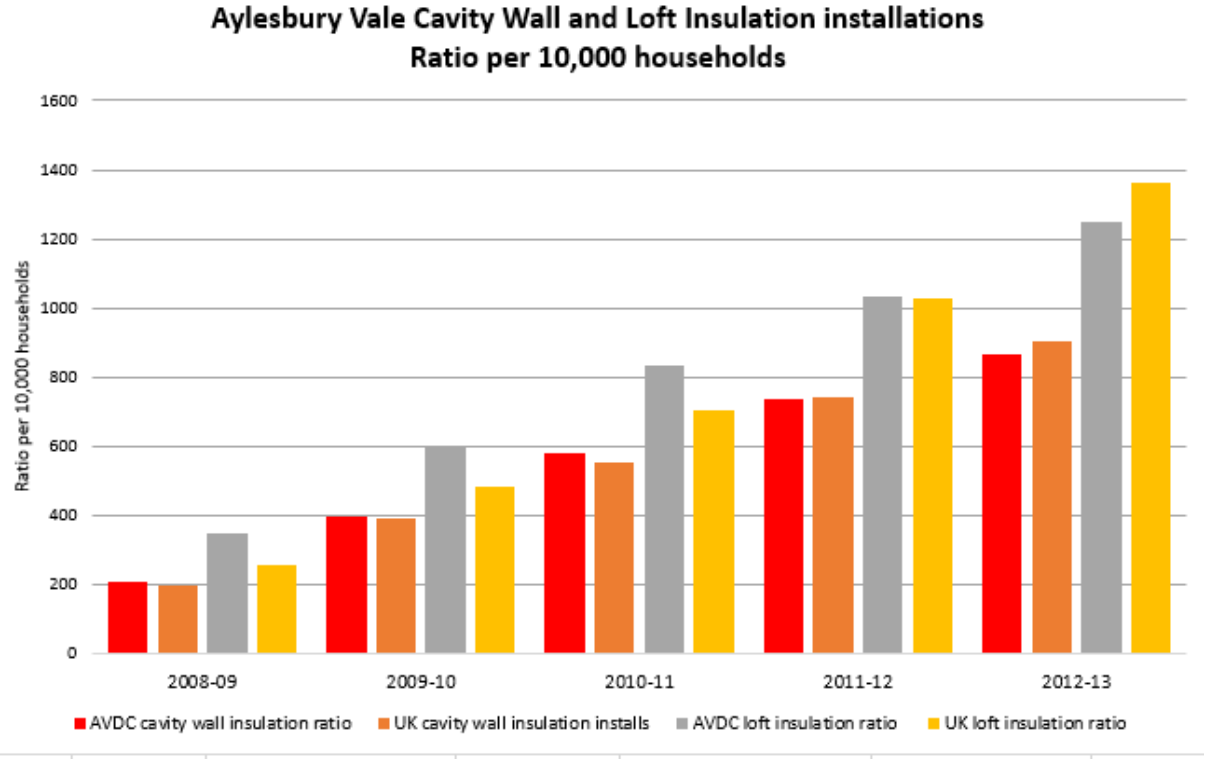


Figure 4: Ratio of cavity wall and loft insulation installs per 10,000 households. BEIS, 2017[3]

[3]Source: https://www.gov.uk/government/collections/interactive-maps-trends-in-fuel-poverty-energy-use-and-energy-efficiency-measures

2.6. Solid Walls

Data around Solid Walls has not been updated since the previous reporting period and has been obtained from the Home Energy Efficiency Database (HEED). This data details the energy efficiency of a sample number of households within a district. It must be noted that HEED reports on aggregated data, with no address level records available. An example being that data is mainly collated from installation data gathered from the Carbon Emission Reduction Targets (CERT), Community Energy Saving Programme (CESP) and Energy Assistance Package (EAP), so will be biased towards measures installed under these schemes (such as loft and cavity wall insulation)[4]. Therefore, information extrapolated is not representative of the entirety of Aylesbury Vale and should be viewed with caution.

In total, 38,693 out of 72,241 (53.6%) households have been included in the Aylesbury Vale HEED sample. As highlighted in the table below, of the 17,976 households where external wall type is known, 8 (0.0%) have external wall insulation and 173 (0.4%) have built insulation (which simply refers to new build properties with already built in insulation). 1,948 (5%) of solid wall households where the wall type is known to be solid are known to be uninsulated.

Measure	Number of installations	Percentage of sample
Cavity Wall Unfilled	1,308	3.4%
Cavity Wall Filled	14,539	37.6%
Solid Wall – Uninsulated	1,948	5%
Solid Wall – Externally Insulated	8	0%
Solid Wall – Internally Insulated	-	-
Solid Wall – Build Insulated	173	0.4%
Unknown insulation	20,717	53.5%
Total	**38,693**	**100%**

[4] Source: http://www.energysavingtrust.org.uk/scotland/businesses-organisations/data-services/heed

2.7. Off gas network

In 2014, approximately 11,000 properties in Aylesbury Vale were not connected to the gas network, representing 16% of total households in the district. This is higher than the average experienced across the South East, where it is estimated that 10% of households are not connected to mains gas. The village of Brill has the highest percentage of off-gas households at 89%. However, Aylesbury is rural in character, and many of the areas with over 46% of off-gas properties such as Water Stratford, Biddlesden, Dunton, Nether Winchendon and Marsworth are rural villages. The two major towns of Aylesbury and Buckingham have low levels of off-gas properties (ranging between 0% and 20%).

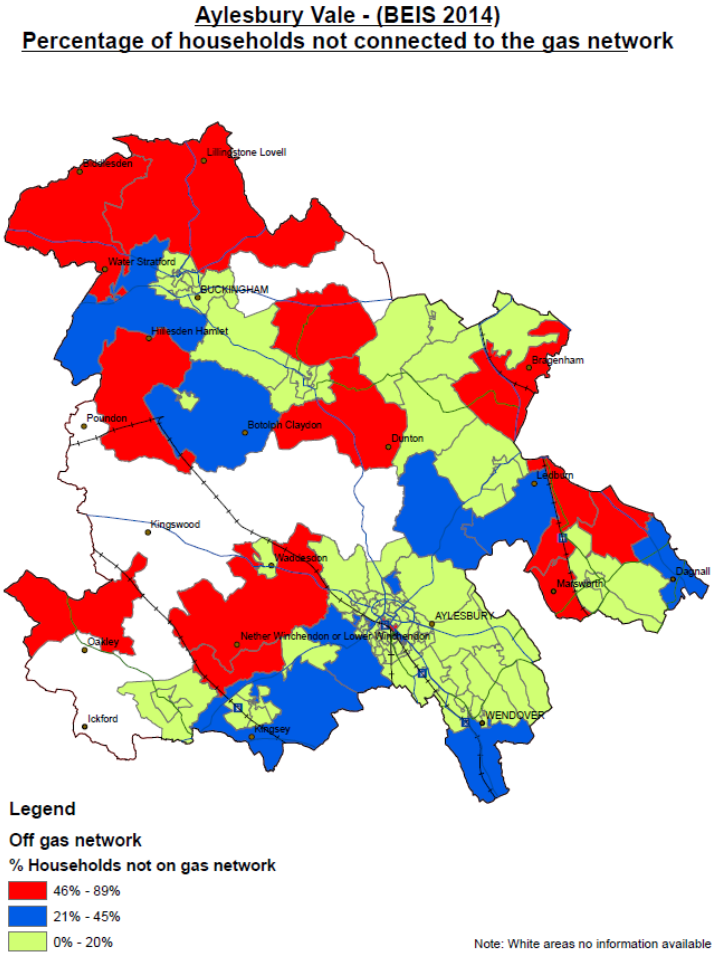


Figure 5 Percentage of off-gas households. BEIS, 2014

2.8. Condensing boilers

As previously identified, there has been no update on HEED data since the previous reporting period in terms of the number of condensing boilers within Aylesbury Vale district. From the sample data displayed below, 17.2% of households have a regular condensing boiler, with 14.2% having a less efficient non-condensing boiler.

Measure	Number of installations	Percentage of sample
Non-Condensing Regular Boiler	5,079	13.1%
Condensing Regular Boiler	6,600	17.1%
Unknown	24,622	63.6%
Non-Condensing Combination Boiler	413	1.1%
Condensing Combination Boiler	21	0.1%
Back Boiler	539	1.4%
Electric Storage Heaters	583	1.5%
Community Heating	-	-
Heat Pump	130	0.3%
Warm Air	210	0.5%
Room Heaters	2	0%
Other	494	1.3%
Total	**38,693**	**100%**

2.9. Solar PV Installations

Ratio of Solar PV installs per 10,000 households has continued to increase and remains above the UK ratio. In June 2016, 295 domestic solar PV installs occurred per 10,000 households in Aylesbury Vale compared with the UK ratio of 224 per 10,000 households. Efforts should be made to ensure that this increase continues over the next reporting period.

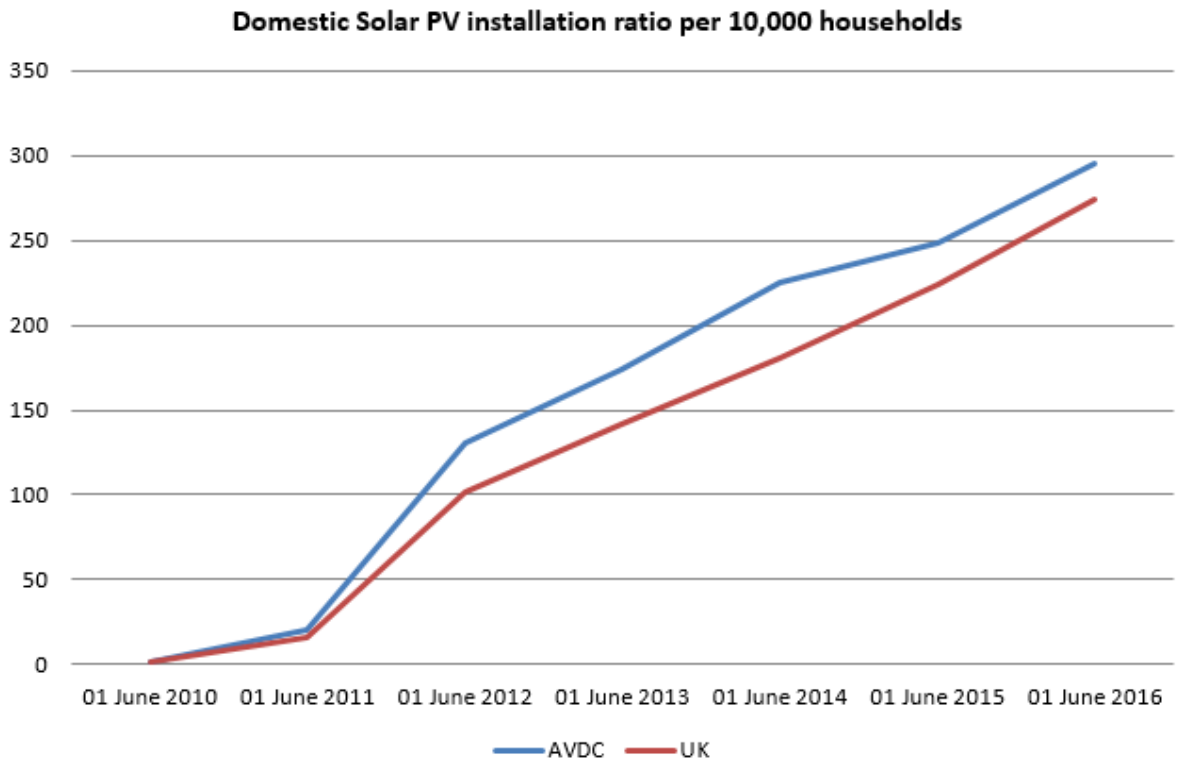


Figure 6: Domestic Solar PV installations per 10,000 households. BEIS, 2017[5].

[5] Source: https://www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy/about/statistics

3. Measures to deliver energy efficiency improvements in housing

Key messages from the data:

- The increase in the percentage of fuel poor households in the district suggests that the energy efficiency of some properties needs to be improved. Aylesbury Vale should continue to encourage residents to investigate local and national offers that may assist with this.
- Cavity wall insulations installs are on par with the national average, with loft insulations slightly below. This may be due to the fact that majority of lofts in the district already have sufficient insulation, but suggests there is still scope for residents to take advantage of potential ECO2T and future ECO3 funding to help top this up
- Large proportions of the district are still not connected to the mains gas network. Currently, Aylesbury Vale has levels higher than the South East average for off-gas households and these properties are likely to have inefficient and expensive heating systems. Efforts must be made to increase awareness of this issue and access to any potential funding upgrades to more efficient systems in the future.
- High proportions of off-gas and solid wall households occur in more rural areas of the district. This highlights the importance in ensuring that promotion of support available reaches all parts of the district
- Domestic energy consumption continues to fall but still remains above the national average.

3.1. Locally available financial incentives

Flexible Home Improvement Loan (FHIL)

Aylesbury Vale District Council offers Flexible Home Improvement Loans of up to £30,000 to homeowners over the age of 60 to allow work that will assist in making homes safer, warmer, healthier and more comfortable to live. This takes away the worry of the initial upfront cost of large scale improvements and the flexible nature allows repayments to be suited to the resident, which can even be when the property is sold. This is not exclusively for energy efficiency improvements, but many residents choose to use it in this manner. Since 2015, 10 FHIL's have been signed off and further information around installed measures can be seen below.

Aylesbury Vale Flexible Home Improvement Loan Funded Measures
3 boiler installations
6 window/door replacements
4 roofing/pointing works

Minor Works Grant

This grant is replaced by the 'Essential Repairs Grant' from April 2017 and it offers means-tested grants for homeowners either over the age of 60 or for households with children under the age of 10 of up to £2,500. This can be used for essential repairs to make non-decent properties safer for occupants. Since April 2015, one Minor Works Grant has been signed off and was used towards replacement external doors and a replacement window.

Affordable Warmth Funding

The Council along with its partners on the Health and Wellbeing Board and local Affordable Warmth Network will continue to collectively and individually seek funds to support targeted affordable warmth work within the district. Key sources of funds, in addition to funding already provided by the Council, will potentially include Public Health (through Buckinghamshire County Council), Buckinghamshire Clinical Commissioning Group (CCG) and energy utilities. Since March 2015, the Network has been looking at the potential of a project linking fuel poverty and health. This resulted in the pilot project Better Housing, Better Health which ran between January and December 2016.

- **Better Housing, Better Health (BHBH)**

Funded by the British Gas Energy Trust and running alongside Oxfordshire and Buckinghamshire local authorities, this provided grants of up to £2,500 each for 40 Buckinghamshire residents for energy efficiency improvements. A total of 13 referrals were received from residents in Aylesbury Vale and this resulted in grant funding for 7 eligible residents equating to just over £15,000. The scheme proved so popular that a waiting list was created for residents and Aylesbury Vale Council were able to provide grants for a further two residents on the waiting list for replacement boilers. Due to high demand for this project, Aylesbury Vale council alongside the Affordable Warmth Network will continue to try and seek funding to keep the referral mechanism, which came to an end in December 2016.

- **Affordable Warmth Helpline – Outcomes since March 2015**

Between April 2015 and March 2017, the following outcomes have been received by Aylesbury Vale residents contacting the Buckinghamshire Affordable Warmth helpline.

Outcome	Number of residents
Telephone advice	148
Signposted for further support/measures	94
Outreach events	16
Face to Face advice	511

3.2. Nationally available financial incentives

Energy Company Obligation (ECO)

ECO2 Transition (ECO2T) is due to begin in April 2017 and will have a renewed, more flexible focus on reducing carbon emissions along with concentrating funding on the fuel poor and those who are on low incomes. With an increase in the percentage of fuel poor households evident in Aylesbury Vale, ECO funding may be vital in improving the energy efficiency of households to ensure the level of fuel poverty does not continue to rise. ECO2T is comprised of two strands with differing criteria/measures that can be installed under each:

- **Home Heating Cost Reduction Obligation (HHCRO)**

More commonly known as the Affordable Warmth element, eligibility for this will be better targeted and extended to social housing with Energy Performance Certificate (EPC) bands E, F or G. As this obligation now covers social housing, the Council will be identifying and promoting the funds to newly eligible households through its links with the Buckinghamshire Affordable Warmth Network and its partners.

- **Carbon Emissions Reduction Obligation (CERO)**

This aspect is aimed towards more expensive measures such as solid wall insulation and is based around the amount of carbon that can be saved through insulating the property.

4. Local Energy Efficiency Ambitions and Priorities

Analysis of demographic, energy consumption and energy efficiency data shows that the council will need to adopt the following approaches in order to reduce CO_2 emissions and tackle fuel poverty.

- The increase in the percentage of fuel poor households and an ageing population within the district suggests that the council should continue to promote targeted local programmes that will help improve the efficiency and warmth of properties
- Areas with above average off-gas properties should be encouraged to explore options to upgrade to greater energy efficient measures (including insulation and heating systems). The council should also promote ways in which residents can potentially switch to mains gas, where practical and assist with this in any way possible.
- Both loft and cavity wall insulations remain fairly close to national averages. Aylesbury Vale should continue to promote to residents potential ECO offers, encouraging those who think they may be eligible to contact the Buckinghamshire Affordable Warmth Network.
- Working with planners on emerging Garden Town plans for Aylesbury, policy guidance and Council influence re-planned new build and potential retrofit

4.1. Commitments

The council has made public commitments through the adoption of the Carbon Trust's 5 year Carbon Management Programme (2007/8 – 2013/14)[6], with a targeted 22% carbon reduction within its own estate exceeded by early 2013. Aylesbury Vale continues to be a part of the Buckinghamshire Affordable Warmth Network which aims to tackle fuel poverty, incidents of poor quality housing and improve energy efficiency. This is through providing impartial energy efficiency advice, income maximisation services and onward referrals to other local support services that may benefit the resident.

4.2. Carbon Emissions targets

Having achieving a 22% reduction in carbon emissions by 2013, Aylesbury Vale District Council has now agreed a 2.5% year on year carbon reduction until 2020. This puts the council in line with the nationwide target of a 34% reduction in carbon emissions by 2020. Recently independently reported figures suggest that the Council has exceeded this target with a 36% reduction to April 2016.

4.3. Fuel Poverty targets

Aylesbury Vale has not set out any specific fuel poverty targets outside of those already identified council programmes and funded assistance. The council will continue to work alongside the Affordable Warmth Network to implement schemes and actions set out in the countywide Buckinghamshire Affordable Warmth Strategy. Alongside this, the Council will also address

[6] https://www.aylesburyvaledc.gov.uk/sites/default/files/page_downloads/CD-ENV-008-AVDC-Carbon-Management-Plan-2007-8-to-2012-13-Revised-Aug-2010-.pdf

identifying and targeting households under new 'flexible eligibility' aspect of ECO2T over the next reporting period and awaits clarity in national policy in this area.

4.4. Renewables

As highlighted, Aylesbury Vale remains above the national average in terms of domestic solar PV installations and there has been some community-focused PV discount scheme activity within the district. Solar PV (<30kWp) and solar thermal have also been installed on Council owned estate and ideally, this would increase over the coming years. Aylesbury Vale has worked alongside Buckinghamshire County Council in the development of a countywide energy strategy, where the increase in locally generated heat and power forms an important part of future milestones.

4.5. Smart Meters

With many areas within the district featuring a high percentage of off-gas households, the council is working alongside a countywide initiative run by Community Impact Bucks which hopes to raise awareness of the smart meter roll out to off-mains gas residents. Although no specific district plans have been agreed, information around Smart Meters will be provided where appropriate through Affordable Warmth events within the district.

4.6. Minimum Energy Efficiency Standards in Private Rented Sector

A recently launched "Aylesbury Property First" will potentially provide a future forum opportunity to meet and discuss energy related issues with Vale Landlords to help increase awareness of relevance to their business and their tenants.

Currently, Aylesbury Vale council visits properties and checks EPC's following a complaint from a tenant to ensure that minimum standards are being met. It is unlikely that there will be any additional resources within the Council to enforce minimum energy efficiency standards in the private rented sector. Currently, this activity is undertaken within the Environmental Health team and it is likely that additional activity will be integrated within this.

AVDC Building Control ensures boilers meet requirements by the installers being a member of a competent person scheme and self-certifying their own work. On the rare occasion that works are not carried out under a competent person's scheme, installs would be assessed as compliant by members of the Building Control team upon receipt of the details of the boiler and its commissioning data.

5. Conclusion

To summarise, this report sets out progress made by Aylesbury Vale District Council since the previous HECA submission in March 2015. Increases in fuel poverty and large proportions of off-mains gas households suggest that there is still scope to further improve the energy efficiency of some households within the district. However, support available from both the Affordable Warmth Network and local or national funds put the Council in a strong position to be able to achieve improved energy efficiency across the district over the coming reporting period.

6. Data sources

BEIS, 2013. Interactive maps: trends in fuel poverty, energy use and energy efficiency measures. Retrieved from: https://www.gov.uk/government/collections/interactive-maps-trends-in-fuel-poverty-energy-use-and-energy-efficiency-measures

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DCLG, 2015. English indices of deprivation 2015.Retrieved from: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015.

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LOCAL CLIMATE IMPACTS PROFILE (LCLIP) UPDATE

1 Purpose

1.1 To update Environment and Living Scrutiny members on the production of the Council's second Local Climate Impacts Profile (LCLIP) addressing climate change adaptation issues.

2 Recommendations

2.1	That Committee members note the production of the updated LCLIP and agree to its publication on the Council's website.

3 Executive summary

3.1 This report is to update the Committee on the Council's Climate Change Adaptation measures. Adaptation involves adjusting systems, processes or methods of working so as to increase the resilience to changes and risks posed by climate change.

3.2 The LCLIP (see appendix 2) is a document first produced in 2008. As the first district council LCLIP in the country at the time, it set out to assess the period 2000 to 2008 using archived news and local weather data for the Vale and North Bucks region.

3.3 Extreme weather occurrences in the news were matched to extremes of weather (rain, drought, flood, snow, ice, storms etc.) events in the locality. These were then discussed with stakeholders from public sector departments to provide information about the effects that these occurrences had caused to services and the disruption and costs of these.

3.4 It is an accepted fact that extreme weather events will become more frequent over the coming years. Adapting to what will become normal business will become necessary and will save organisations, including the Council, significant costs. The cross party endorsed review paper http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/sternreview_index.htm written by the economist Sir Nicholas Stern in 2006 stated:

3.5 Unabated climate change could cost the world at least 5% of GDP each year. If more dramatic predictions come to pass, the cost could be more than 20% of GDP.

3.6 In contrast, the cost of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change can be limited to around 1% of global GDP, if actions are taken early.

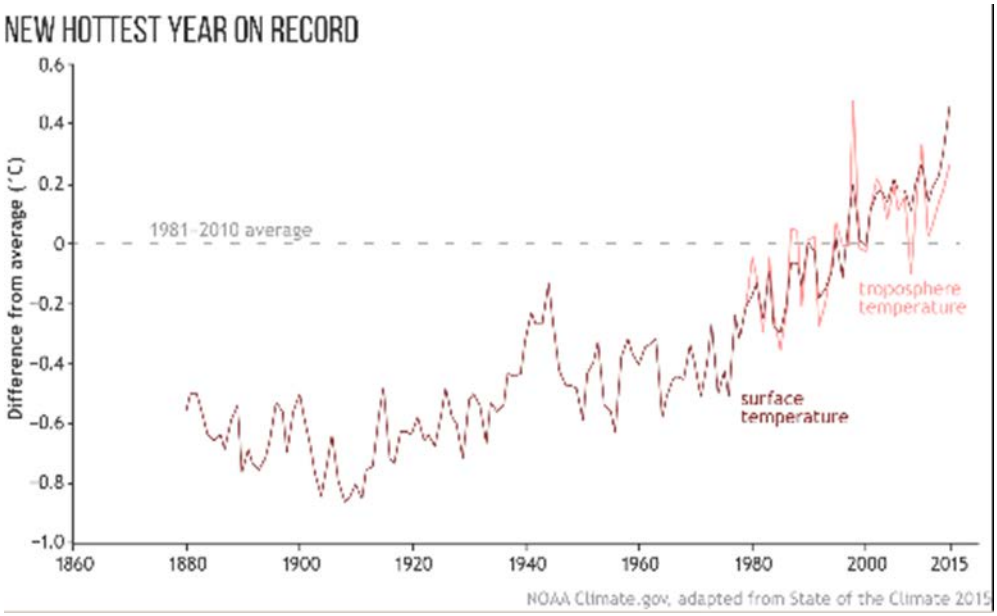
3.7 The attached LCLIP is an update on this first LCLIP and sets out the continuing period 2008 to 2016.

4 Supporting Information

4.1 The case for a changing climate is set out in the graphs below: The 2015 Paris accord requires the world's average global temperatures to plateau at 1.5C above pre (1750AD) industrial levels.

4.2 In 2015 it was announced that global average temperatures had already reached 1C above pre industrial levels (see graph at 4.8 below provided

byhttps://www.carbonbrief.org/scientists-confirm-multiple-climate-records-broken-in-2015):



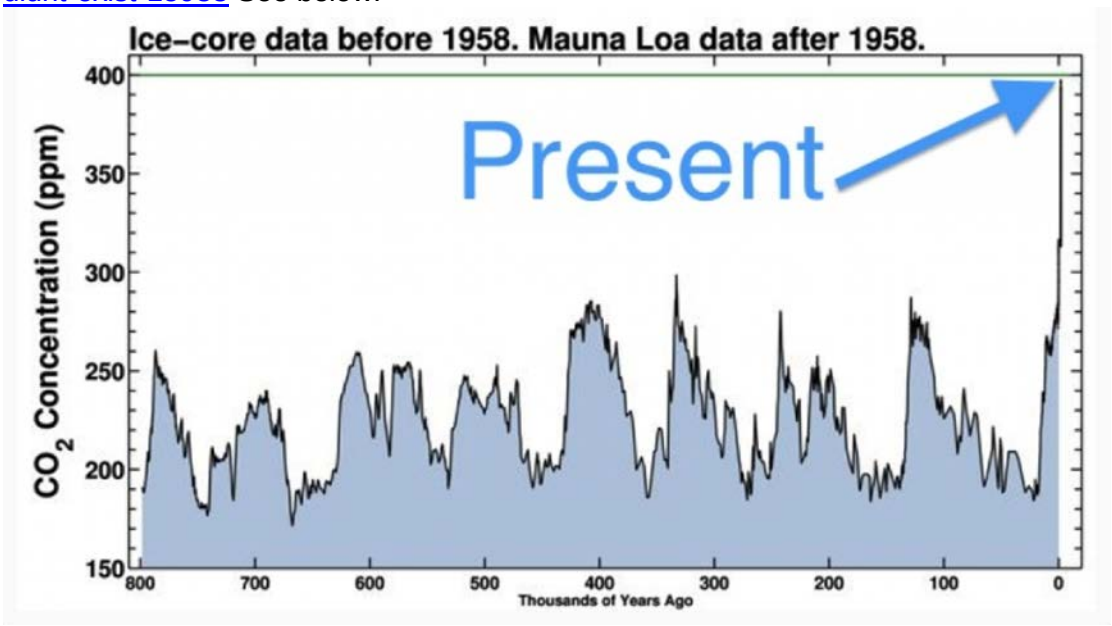
4.3 The first 9 months of data for 2016 show that global temperatures surpassed those of 2015.

4.4 Clearly whilst national governments argue over the achievement of an aspirational target of 2°C with a real aim of 1.5°C maximum temperature increase from pre industrial levels, the world has already made a 1°C temperature increase.

4.5 Mitigation (carbon reduction measures) alone will be insufficient to address this issue. Building in resilience to a changing climate with consequent increased severity and frequency of extreme weather events is crucial to the maintenance of workable operations and services.

4.6 This trend is more concerning when measured into geological time periods using ice core data. In 2015, CO_2 levels in the atmosphere hit 400.8 parts per million, most recently 401.57 (Oct 2016). From ice core data (see graph at 4.11 below), this is the highest figure in over 800,000 years (see graph below), a time before humans existed. http://www.climatecentral.org/news/the-last-time-co2-was-this-high-humans-

didnt-exist-15938 See below:



4.7 UK Councils have expended a great deal of effort on Climate Change mitigation (reducing CO_2 emissions). Indeed Aylesbury Vale Council has been at the forefront of this, overachieving on both of its ambitious targets. However, activities that involve adapting to a changing climate (wetter summers, flash floods, more frequent and violent storms etc) have been comparatively ignored.

4.8 Aylesbury Vale District Council led the way in 2008 with the publication of the first UK District authority LCLIP in partnership with Bucks County Council and working with partner agencies. This new LCLIP, picks up where the last one ended and brings the Council's adaptation endeavours up to date.

4.9 The findings of the new LCLIP which was commissioned by a second year student from the University of Manchester, demonstrate that the need to adapt and become more resilient to the weather effects of a changing climate are just as pressing as ever.

4.10 Examples highlighted for the Council include a £45,000 cost to overhaul Council personal protective equipment (PPE) due to extreme weather conditions, an insurance claim of £30,000 for a single skid and crash accident caused by wet roads and, by contrast, a £10,000 saving made by the omitting of one grass cut due to drought conditions.

4.11 **Recommendations**

4.12 In 2008, a partnership approach was recommended to tackle the impacts of extreme weather and adapt to the effects of climate change. This still stands now, as the impacts that extreme weather has affects both district and county services.

4.13 The coordination of resource deployment between services and delivery partners; joint support and a better use of available resources.

4.14 The use of GIS was also previously mentioned as a method with which to map historical weather events thus providing valuable insights into where these events are most likely to occur and the potential impact they have. This as well as providing the ability to map the impacts of management strategies against these weather events.

4.15 Extreme weather costs should be recorded more meticulously to ensure all potential costs savings can be identified.

4.16 Again, as discussed in 2008, mini climate profiles could be conducted on specific areas within AVDC and BCC.

4.17 Continue to advise, enable and encourage residents to apply for the Repair and Renewal grant money provided by Central Government, in response to (for example) the 2013/2014 Willows floods.

4.18 To ensure that culvert/watercourse/drainage infrastructure owners are aware of their responsibilities.

4.19 Continue to ensure that recycling remains containerised within wheeled bins so as to ensure it is not blown over the roads and pavements in times of high winds such as those experienced during 'Doris' on 22/23 February 2017.

4.20 Renew the locations where strategic flood defences and sandbag barriers could have a positive effect in decreasing flood risk.

4.21 Development of an information campaign in relation to flood-risk and property level protection by individuals.

4.22 The above is a long list of recommendations. On completion of the Council restructure, a view will need to be taken as to which actions can be progressed within the reduced resources available.

5 Reasons for Recommendation

The report serves as an update to members on the LCLIP report published in April 2008 and asks members to note the position. It requests that the officers be asked to continue to work towards addressing solutions to improve the Council's resilience to Climate Change, whilst recognising that the Sustainability resource has been reduced.

6 Resource implications

There are no direct additional resource implications relating to this report other than those already funded. The report was carried out by the University student at no cost to the Council.

Contact Officer	Alan Asbury 01296 585112
Background Documents	Cabinet Report 2008

A Local Climate Impacts Profile of Aylesbury Vale

February 2017

Authored by: Hannah Pool – University of Manchester
Edited by: Alan Asbury – for Aylesbury Vale DC

Image of 2014 Willows Flood: Courtesy of The Bucks Herald (2015)

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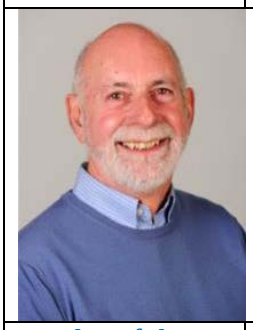
1. Executive Summary

Cllr Neil Blake	Cllr Sir Beville Stanier	Mr Andrew Grant	Ms Hannah Pool	Mr Alan Asbury
				
Leader of the Council	Portfolio Holder	Chief Executive Officer (CEO)	Author	Initiator and Editor

1.1. Background

The weather has the potential to impact public services and local authorities in many different areas of service. Some in a positive way, yet more commonly in a negative fashion. With the acceptance of a changing climate, the influence that weather has on local authorities in the 21st century will continue to become more prevalent.

Back in 2008, Aylesbury Vale District Council in partnership with Bucks County Council produced the first UK District Local Climate Impacts Profile (LCLIP). This highlighted the importance of preparation by local authorities for the present and future effects of climate change. (Refer to LCLIP 2008 document for more background). Adapting to a changing climate must be embedded to prepare for the potentially damaging consequences that the weather can have on local authority service delivery, finances, staff resources, and reputation.

Under the Government's 'Sustainable Communities Plan', over 30,000 homes are to be built in Aylesbury Vale by 2033, with a forecast requirement for industry of 22 ha of land for provision of local jobs, businesses and transport infrastructure. The scale of this development potentially presents an opportunity to develop and implement solutions to begin to tackle some of the challenges presented by climate change, as well as minimising the impact of this development on the environment.

The climate we will experience in the next 30 years will be driven largely by historical anthropogenic (man made) emissions which will continue to accumulate, and thus it will be necessary for local authorities to begin to adapt to the threats faced and become more resilient to the effects of extreme weather, over and above any mitigation measures put in place.

Organisations cannot attempt to adapt to climate change unless the true impact of the weather on its staff and services is measured and assessed. The goal of this climate profile is to identify and quantify the impact that the weather has on local authorities, extending on from the 2008 profile.

1.2. Summary of Results

The local climate impact profile has provided clear evidence that extreme weather has a number of impacts to both district and county services. However, it is impossible to quantify the extent of the impacts under current reporting mechanisms as most financial costs are not quantified and staff time dealing with the weather impacts is rarely recorded with any accuracy.

A summary of the extreme weather events from January 2008 through to July 2016 is included in section 4 and Appendix 2, explaining the type of weather event and the resulting impacts on the local community and authority. In sections 4 and 5, impacts of the weather events specific to AVDC's and BCC's service areas are detailed.

However it should be noted that the impacts of changing weather and a changing climate are not completely negative. Hotter summers have been seen to have a positive effect on some leisure activities and tourism, whilst potential milder winters may reduce healthcare and allow for less interruptions to transport infrastructure and waste management issues.

1.3. Identified Costs

Due to the limited data available regarding costs, the financial and operational costs identified from this project are detailed below as annual costs and potential savings.

AVDC

- **Insurance Claims**
  - £30,000 for a single skid and crash incident due to wet roads
  - £7,500 for a whiplash incident due to wet roads
  - £16,000 from staff accidents

- **Design Services**
  - £3,000 nitrogen gas injection in Vale Park flood storage area
  - £45,000 PPE equipment overhaul due to extreme conditions

- **Leisure – Green Spaces**
  - Saving of £10,000 in dropping of one grass cut due to droughts

BCC

- **Maintenance**
  - £540 for single ambulance wheel and tire replacement due to potholes
  - £1,000 - £2,000 clearing highway of trees due to wind

Broader Region

- **Insurance Costs**
  - £2,000,000 per year in Hertfordshire, Bedfordshire and Buckinghamshire due heavily to extreme weather events
- **Staff time**
  - Water rescue capability cost of overtime at £40,000 - £50,000

Despite the financial costs identified seeming insignificant compared to the overall operating capital of the authorities, many go unreported and thus the overall impact is largely unknown and therefore an unidentified risk. Better reporting practices could uncover more of these additional costs and the frequency with which they occur.

The largest cost of extreme weather to local authorities seems to be the potential for it to disable the delivery of services such as waste collection, and the subsequent and significant impact on finances. This in itself is sufficient to place the increasing prevalence of extreme weather and a changing climate as a corporate high risk that seriously requires urgent monitoring and addressing.

1.4. Specific Recommendations

- In 2008, a partnership approach was recommended to tackle the impacts of extreme weather and adapt to the effects of climate change. This still stands now, as the impacts that extreme weather has affects both district and county services.
- The coordination of resource deployment between services and delivery partners; joint support and a better use of available resources.
- The use of GIS was also previously mentioned as a method with which to map historical weather events thus providing valuable insights into where these events are most likely to occur and the potential impact they have. This as well as providing the ability to map the impacts of management strategies against these weather events.
- Extreme weather costs should be recorded more meticulously to ensure all potential costs savings can be identified.
- Again, as discussed in 2008, mini climate profiles could be conducted on specific areas within AVDC and BCC.
- Continue to advise, enable and encourage residents to apply for the Repair and Renewal grant money provided by Central Government, in response to (for example) the 2013/2014 Willows floods.
- To ensure that culvert/watercourse/drainage infrastructure owners are aware of their responsibilities.
- Investigate the use of recycling being containerised within wheeled bins so as to ensure it is not blown over the roads and pavements in times of high winds such as those experienced during ‘Doris’ on 22/23 February 2017..
- Renew the locations where strategic flood defences and sandbag barriers could have a positive effect in decreasing flood risk.
- Development of an information campaign in relation to flood-risk and property level protection by individuals.

2. Background

2.1. Introduction to the Local Climate Impacts Profile (LCLIP)

An LCLIP is a methodology to help organisations to better understand the impact that weather can have on their performance and operations. It uses local media archives and weather station data to develop a picture of how an area, such as a local authority and community is impacted by weather events.

Weather and Climate Defined

The difference between weather and climate is a measure of time. Weather is the conditions of the atmosphere over a short period of time. Climate is how the atmosphere "behaves" over relatively long periods of time. Climate is typically defined as the average weather conditions over a 30 year (or greater) period.

The LCLIP was developed by the UK Climate Impacts Programme (UKCIP), funded by DEFRA, and was originally trialled by Oxford County Council, where identification of extreme weather events were found to costing the authority in excess of £16 million over a 10 year period.

The Aylesbury Vale LCLIP has been conducted in partnership with Aylesbury Vale District Council, Buckingham County Council and Buckingham Strategic Partnership.

An overview of extreme weather has been conducted from January 2008 through to July 2016, making use of historical newspaper archives of the Bucks Herald.

2.2. Extreme Weather Impacts

Extreme weather events fall into 4 different categories:

- Sun – Heat
- Rain – Flooding, flash flooding
- Storms – Wind, Lightning
- Snow, Ice and Hail

The impacts from extreme weather events on local authorities commonly fall into four main categories:

- Service delivery
- Capital and operational cost
- Employee time
- Reputation

3. The Local Climate and Weather

3.1. The Local Climate

Historical climate averages can be obtained through the UK Met Office and relate to the local weather events in the period of study from 2008-2016. The Met Office compiles historical climate averages specific to local areas. These are over a period of 30 years, as this is the length of time for which average weather has to change in order to be deemed as climate change. Climate periods are 30 years plus.

3.2. The Local Weather

The local historical weather data has been compiled with data provided by a weather station based in Iver[i1]. This station is located in the South of the county, outside of the Aylesbury Vale District. However it was the nearest station able to provide the weather data from 2008 to 2016. Average weather conditions from 2008-2016, This station was also used in the 2000-2008 LCLIP for comparability. Maximum and minimum temperatures as well as maximum precipitation (mm) have been compiled into line graphs (see section 3.5).

3.3. Weather vs. Climate

Local authority decisions are typically assisted with data from historical weather scenarios, for example planning and development, where implications such as (for example) a 1 in 100 year flooding event are used to inform the decision making process.

It is becoming more apparent that the weather is becoming more unpredictable as the climate is changing, whether by anthropogenic means or not. Past years' weather are not necessarily representative of future weather events. As such, using historical scenarios to inform the decision making process may not be the best, most informed way to base future scenarios and decision making processes on. However, it does provide trends that can be logged, graphed and modelled.

3.4. Future Climate

The consequences of extreme weather events within Aylesbury Vale provide a good indication of what we may face in the next few decades as a result of a changing climate. It is suggested we may encounter[2]:

- Higher average temperatures in summer and winter
- Changes in seasonal rainfall patterns
- Rising sea levels (of less direct impact to Aylesbury)
- More very hot days/heatwaves
- More intense downpours of rain
- Higher intensity storms

The diagrams below detail the predicted climate scenarios for southeast UK, showing precipitation and temperature changes in response to low and high carbon dioxide emissions scenarios[3].

[1] Data kindly obtained from Iver Weather Station at www.iverweather.co.uk
[2] Information obtained from www.ukcip.org.uk

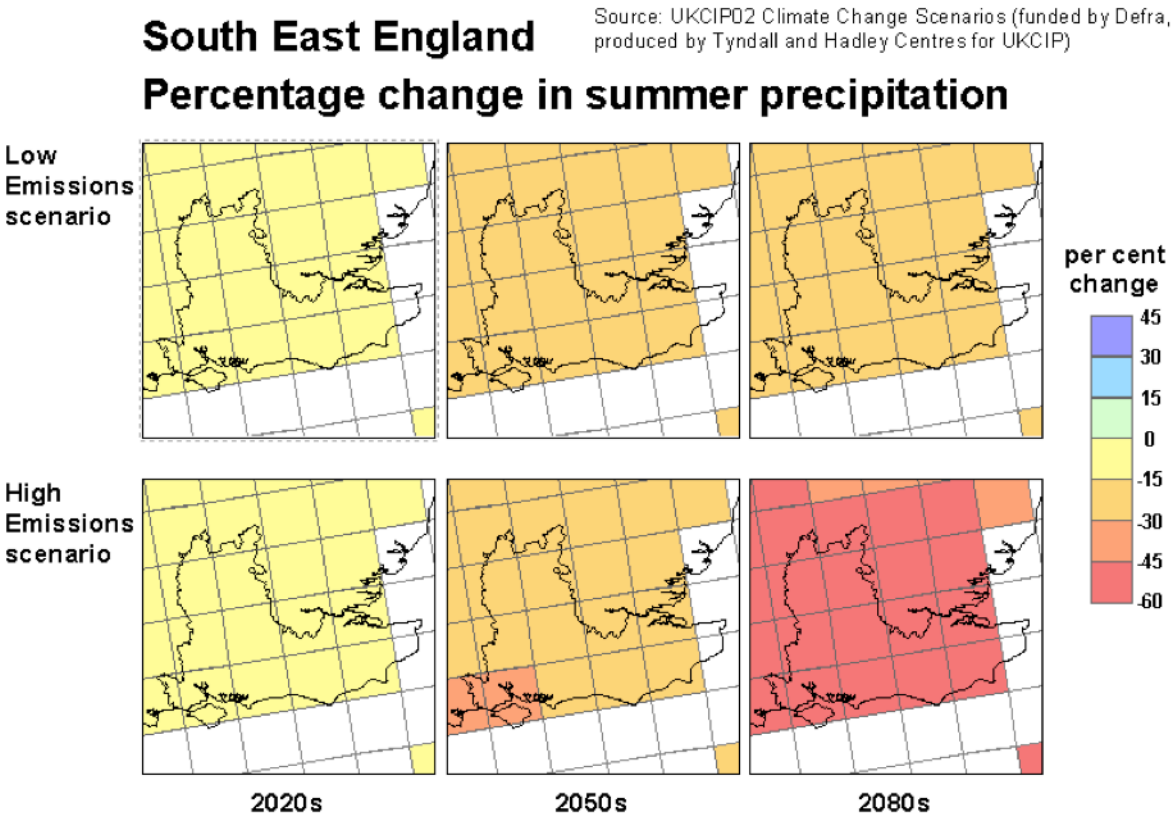


Figure 1: Future summer precipitation changes

[3] Information obtained from www.ukcip.org.uk

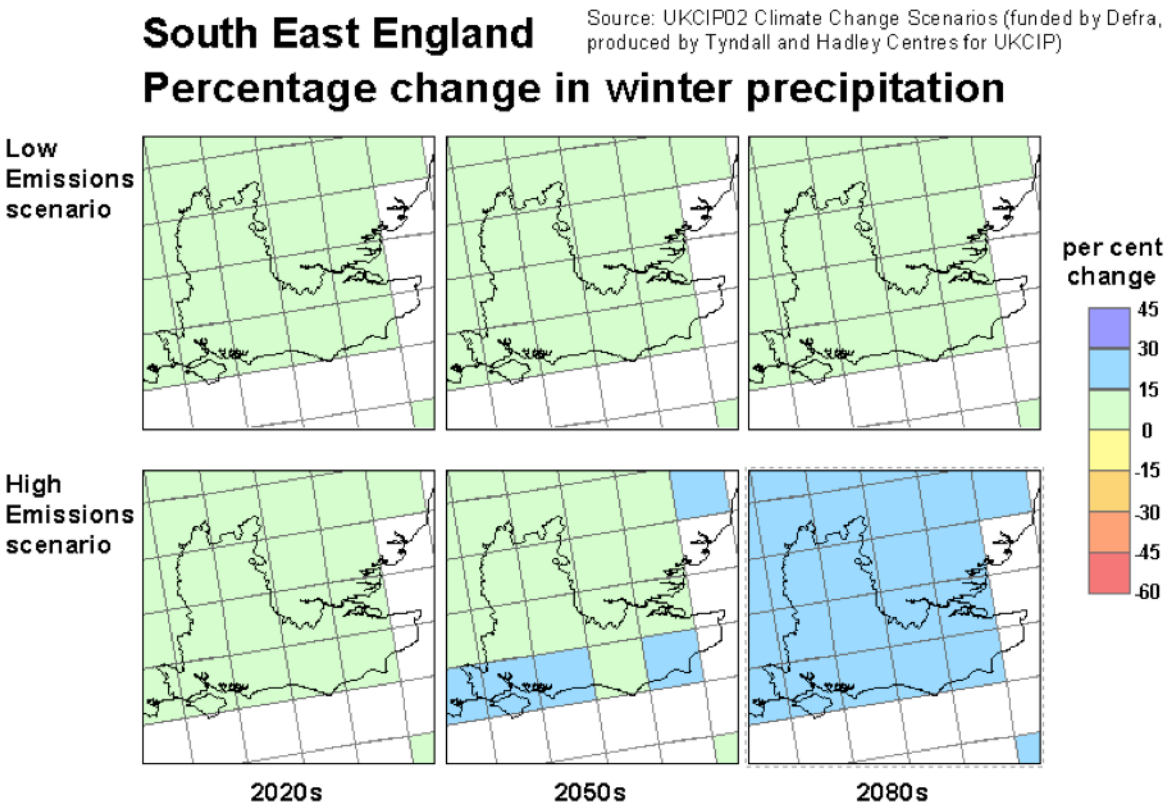


Figure 2: Future winter precipitation changes

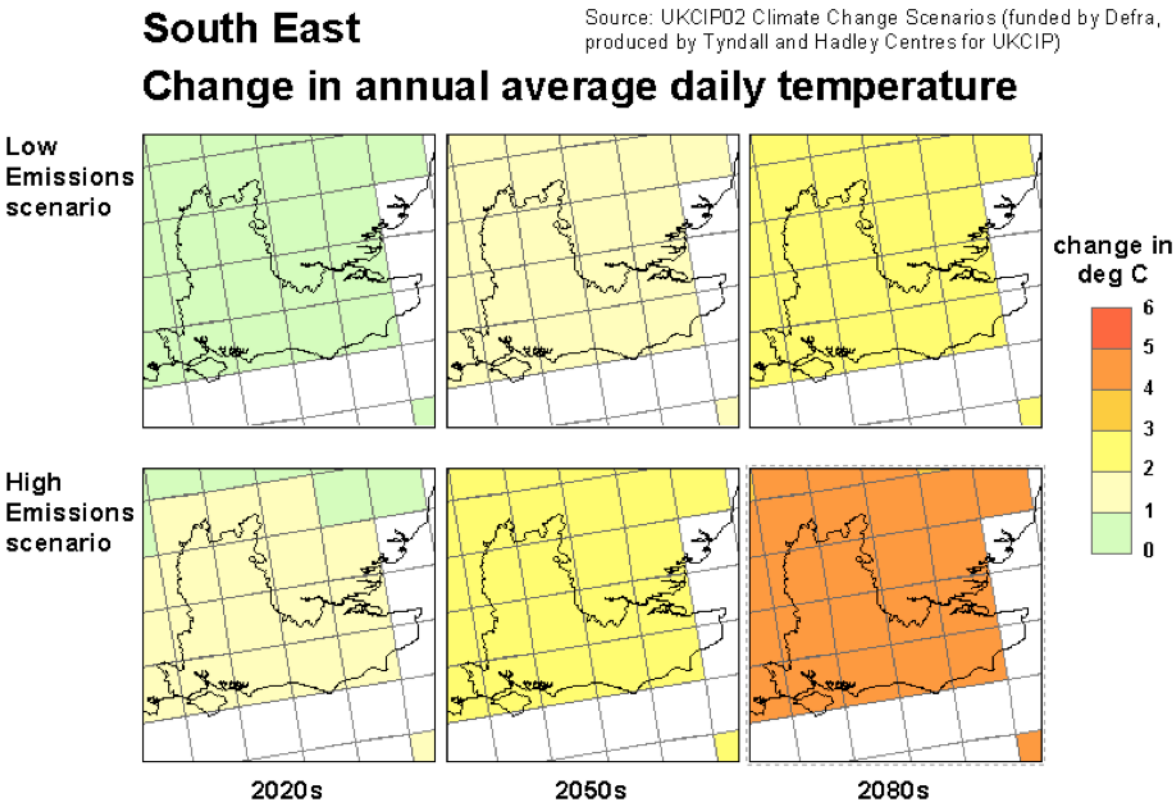


Figure 3: Future temperature changes

3.5. Results

Maximum and minimum temperatures, as well as maximum precipitation (mm) from 2008-2016 have been collected from www.weatheronline.co.uk and the data compiled into line graphs. This visually describes the changing weather across the past 8 years, and can be married up to the affects on services on the ground subsequently described in sections 4 and 5 (see Appendix 2 also).

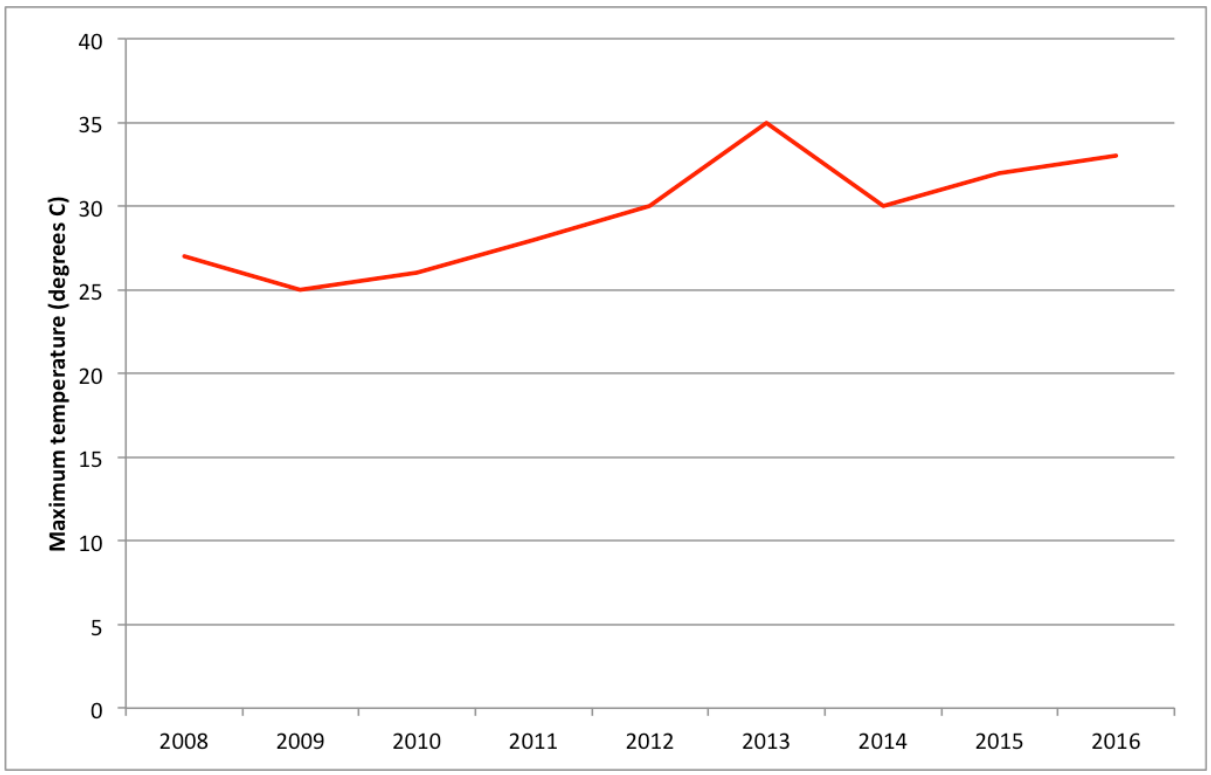


Figure 4: Maximum temperature 2008-2016

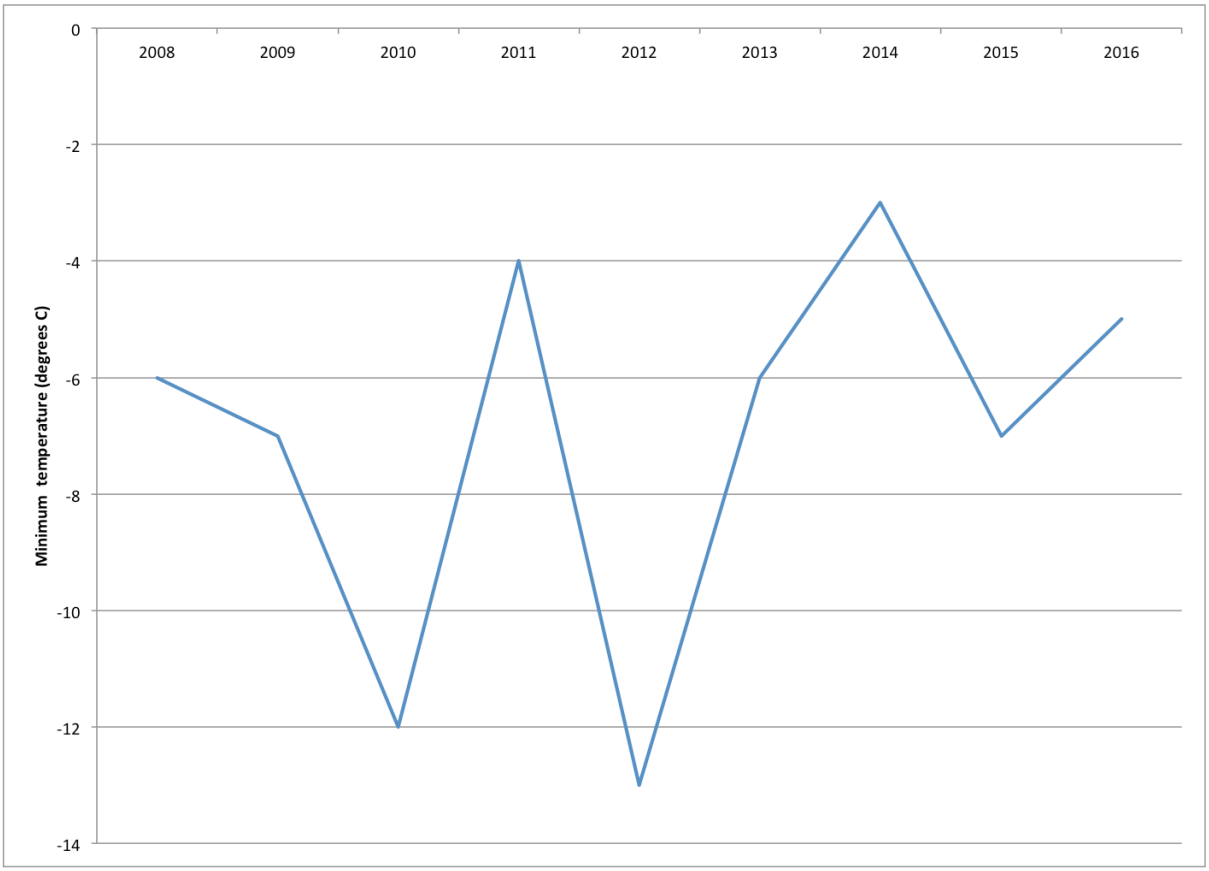


Figure 5: Minimum temperature 2008-2016

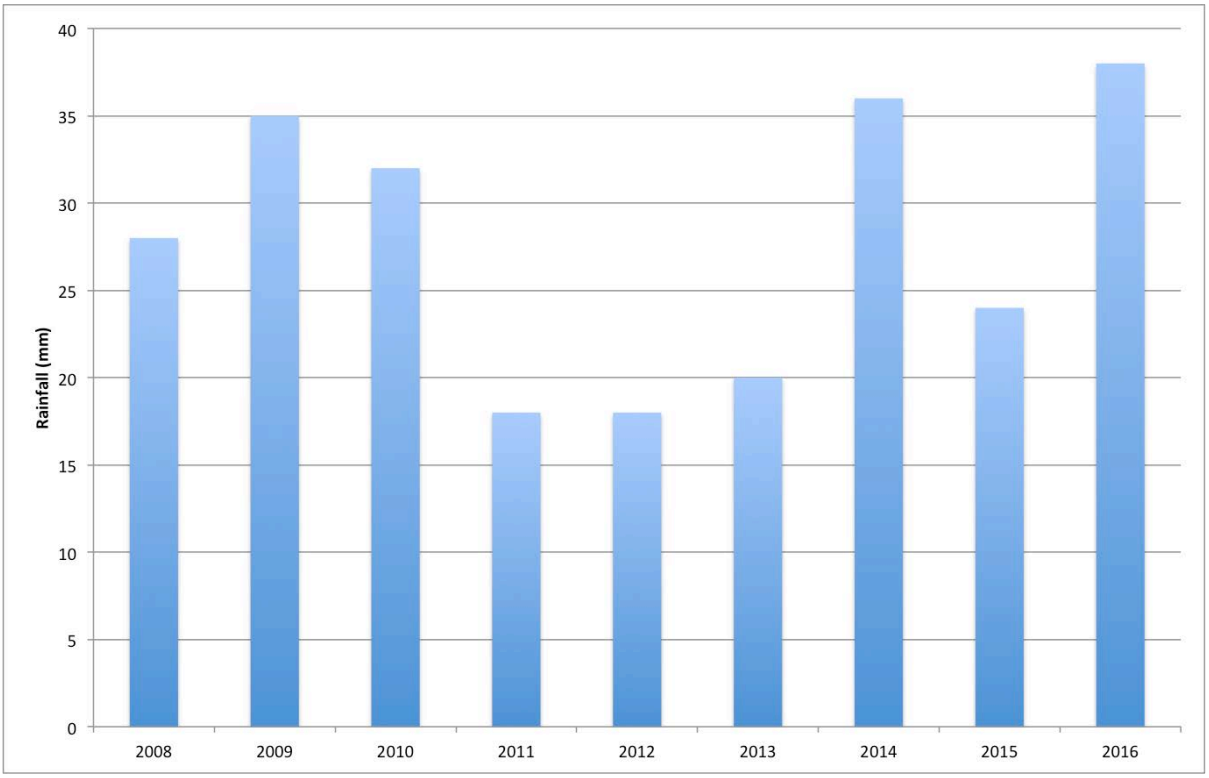


Figure 6: Maximum precipitation 2008-2016

4. AVDC Service Impacts

4.1. Storms

- **Damage to Infrastructure**
    - **Property Services –** No data available.
    - **Insurance Claims –** No data available.
    - **Fallen trees** – some leading to power line damage
    - **Embankment slippage near Banbury** – Disruption to the whole of the Chiltern Railways network
- **Loss of Power – Property Services**

No data available.

In terms of responding to the effects of Doris, below is what UK Power Networks stated on 24 February 2017 at 09:22:
•We have extra engineers working to clear the damage and restore the power as quickly as possible.
•We have arranged a greater number of call advisors to take your phone calls, and have opened up extra call centres, staffed by volunteers from different departments across the company, to answer your calls.
•We've been calling back as many vulnerable customers as we can to keep them updated and to ensure there is no threat to their safety and wellbeing.

In terms of adaptation, below is a summary of the UK Power network planned approach:
What did we do to prepare for this weather?
•We worked very closely with the Met Office before the storm and put in robust plans to minimise the disruption you may experience from a storm of this scale.
•We arranged additional staff to cover all key roles, and increased the volume of engineers, call centre staff and additional resources to be available at short notice.
•Our emergency teams reviewed existing plans and our customer champions were made available.
•We invest in a partnership arrangement with the British Red Cross and requested that they were ready to activate their volunteers to support vulnerable customers in areas where power supplies are affected.
•We provided improved information updates for local authorities and parish councils so they can join the effort to help inform local areas too.

- **Fallen Trees – Leisure**

The main concern with regards to wind is falling trees, as they can be inspected as thoroughly as possible but heavy wind can still cause them to fall. Storms paralyse normal services, for example the closure of public parks until the recovery process is well underway.

Very high winds may also cause trees to fall into and block roads. However this is usually dealt with in a short response period (typically one to two hours). In the unlikely event of a major blockage, an extra day of work would have to be paid to clear the road; This may cost £1,000 to £2,000 for the extra day. This impacts upon the ability of public transport such as buses to resume normal service. Similar problems occur if trees fall on railway lines.

- **Outside Events – Leisure**

No data available.

- **Leaf Sweeping – Contract Services (Waste)**

Wind can cause issues with litter picking and leaf sweeping. However it can also aid the process by directing the debris into a corner, allowing for easier clearance.

Alternatively, heavy winds cause dust to be blown around in roads and thus sweeper crews are sent out on a reactionary basis after storms. The streets must be kept clear all year round to prevent dust build up in case there is an unexpected high wind.

- **Recycling Collection Bins – Environment Services/Contract Services**

Access to tipping stations is reduced in times of high wind, as landfill sites are closed down. This has a knock-on effect meaning that vehicles cannot be emptied and thus collection the next day cannot commence on time. This can potentially lead to crew working overtime and consequently incurring additional costs. However, It has not been possible to identify these costs for this report.

Another issue relates to the blowing over of recycling bins; This is an issue due to recyclables not being placed within internal bin bags,. When bins arte toppled, refuse and recycling can be spread around the streets leading to complaints to be made. This causes additional work for the crew and may have an indirect impact on council reputation and service delivery.

- **Health and Safety for Staff Travelling – Contract Services (Waste)**

Staff unable to get into work in times of high winds due to safety, which subsequently delays services such as waste collection. This may lead to overtime payments having to be made and can be damaging to the service reputation.

- **Emergency Services**

High winds may cause emergency vehicle responses to patients to be extended, especially if trees are blocking the road as a result of winds. However this impact is dependent to a large extent on whether the area is rural or urban.

Wind causes disruption to houses however there is little evidence to say whether this has an impact on people medically. The main issue regarding wind is the logistics of getting around.

- **Public Transportation – Transport Services**

Wind has an impact on longer bus routes, such as those that involve travelling on a dual carriageway. If this is the case in heavy wind, a single decker rather than a double will be used on the service for safety. However, if this is a busy route this may result in numerous people being left without a bus service due to lack of space on the buses. The bus companies consulted were unable to put a quantifiable figure on this.

Tree fall due to wind may cause a breakage to the bus windscreens, which then have to be replaced at a costs of over £1,000 (specialist curved panelled windscreens). Similarly and anecdotally an event that occurred where glass smashed over a passenger due to an impact caused by the wind, resulted in a £3,000 insurance claim and additional costs for damage to the bus and the knock-on effect of the bus being out of service, bringing the total cost of damage for this single incident to over £5,000. Trees may also block watercourses but sometimes clear by themselves; if not, this is an issue that is supposed to be dealt with by the riparian owners.

Trains have to travel slower in heavy wind. For example, in February 2016 a 50mph speed limit was put in place by National Rail for services from Haddenham to Birmingham. This halved the capacity of the Chiltern rail trains that operate on this route resulting in stranded passengers. This may have an indirect affect on the reputation of Chiltern Railways and National Rail and in compensation claims. However, no quantified cost was available. Lightning storms can hit the signal equipment on the railway tracks and cause short circuiting. As a direct consequence, trains cannot the operate until the equipment is replaced.

4.2. Rain/Flooding

- **Leisure Services**

The flooding of Vale Park would result in customers unable to use Aqua Vale swimming pool. As this is built on Vale Park, this results in a loss of revenues. However this largely is where the impacts would end. Vale Park is a water retention area and so is designed to flood. Aqua Vale is built with reinforced concrete and as such is designed to withstand floods. If Swan Pool in Buckingham were to flood, there would be more serious problems due to it being located on the side of a hill. When Hayden Hill park flooded (even though this is designed to happen as a flood storage area), a number of customer complaints were received.

If football pitches become too wet they cannot be played on. This leads to cancelled games and causes administrative issues in the need to reschedule. This can lead to concerns raised at the end of the football season. This must be factored against the risk of injury to players of playing on wet grass.

If there is a prolonged period of heavy rain and children's' playgrounds become flooded, there is a potential for the loss of the shock absorbing impact of the ground material. This can lead to high labour costs of relaying. However this cost was not able to be provided.

- **Vegetation Growth**

    - **Customer Services**

      Heavy rain can impact grass cutting as the wet ground can result in wheel spin. As a result, the grass isn't cut and a day of work is lost. This can also lead to complaints from the public, damaging reputations.

    - **Green Spaces**

      Overgrown grass in green spaces if grass is unable to be cut due to long periods of heavy rain. This may lead to obstructed views which can be detrimental to traffic movements.

- **Delays in Construction – Design Services and Property Services**

Extreme weather may exacerbate any potential weaknesses in existing infrastructure, however no specific data is available.

- **Land Drainage Issues – Design Services**

Previously a small shower could flood Vale Park due to its raised water table as a result of hard layers of soil beneath. The instigation of measures to introduce £3,000 worth of nitrogen gas, injected into the ground to relieve the compression in the soil has lead to the resolution of this issue now.

- **Refuse Collection Delays – Contract Services**

Delays in services due to rainfall. If the roads flood, staff and contractors may be unable to get in to work. Also, because of the way that landfill sites are constructed, they become similar to a quagmire and thus landfill trucks can sink into them and become stuck. This results in huge amounts of maintenance damage and can result in major costs, through repairs and replacements along with delays to services. Heavy rain may make access to rural areas challenging, and can cause these areas to be missed out and refuse collection delayed.

Image Courtesy of Buckingham and Winslow Advertiser 10th May 2012

Heavy rain has also result in flooding at the Council's waste and recycling depot due to being surrounded by the Grand Union Canal on one side and a tributary of the Ouse on the other. This has the potential to damage valuable material in the recycling sheds. The 2014 Willows floods almost had this impact. However sandbags were deployed just in time to ensure no material was damaged.

- **Environmental Health**

An issue with flooding at the waste depot is that because of the diesel use and vehicle wash along with other chemicals are used on site, water running through the site can carry this into the main brooks. In the most recent flood event, water ran off so quickly that there was very little that could be done to prevent water contamination.

- **Emergency Response**

    - **Housing Needs**

    One of the main issues in terms of heavy rain and subsequent flood events is the housing of people somewhere safe if their home were to flood. The Willows flood event in February 2014 was due to a large amount of rain falling on saturated ground. This estate was on a known floodplain clearly identified on Environment Agency flood maps. 79 properties in the estate were flooded. However, only two households were evacuated to an overnight rest centre arranged for the night by AVDC. The cost of this centre is £100 per person per night due to overtime costs for staff. Concerns were raised that AVDC's response to this event were too slow and that agencies appeared unprepared for surface water flooding in an area with no known history of this; at the time, this incident was not flagged as being "major".

    - **Design Services**

Sandbags are only provided in exceptional circumstances by AVDC, such as properties in imminent risk of flooding, or in the protecting of vital infrastructure. AVDC were criticised in this flood event for not deploying sandbags. However the 2007 Government sanctioned Pitt Review identified the weakness of relying on sandbags; instead community or property level protection should be used.

- **Biodiversity**

Bat populations struggle in wet years as they struggle to fly and catch their prey. This sort of increasing weather event can negatively impact biodiversity.

4.3. Sun/Heat

- **Anti-Social Behaviour and Crime – Environment Services**

An increase in anti-social behaviour is observable in the warmer months of the year, predominantly as more people, especially younger people, are out in the streets and parks. Tree climbing can be a problem as, although it does not seem an issue, tree branches could fall and pose a safety threat to climbers or passers by.

- **Internal Cooling – All Services**

An ongoing issue in offices in warmer months is internal cooling, with complaints significantly increasing as specific summer day temperatures reach up to 32^{O}C. As with the heat events encountered 1-3 July 2015).

Large trees can assist with internal cooling due to shading. This can save costs on internal cooling through mechanical air-conditioning and reduce urban heat island effects. However, a large tree can cost hundreds of pounds to plant, and may fail or die during this process. Also, trees can limit what further developments may be put in place, often leading to a reluctance to plant them.

When internal temperatures are a localised issue, an increasing number of portable air conditioning units and fans may be purchased. Whilst providing a cooling effect, these have a negative impact on carbon dioxide emissions and energy consumption as well as having significant cost implications. Moreover, the extract from these units leads to increased temperatures around them which in turn has negative effects on the local environment.

- **Green Spaces Trees and Water Use – Leisure**

Irrigation is often used in the warmer months to water the plants and grasses in the surrounding areas. Some areas are left to go dry as they are not a high priority. However others where it is a more decorative area such as in the town centre, need to be frequently watered in order to look aesthetically pleasing. The planting around the Council's Gateway office and conference centre have been sourced as drought resistant, not least because of the 15 month dry spell that preceded the completion pf then building in April 2012.

Grass cuts are stopped in periods of hot, dry weather, as the grass does not grow as much. Dropping one grass cut saves around £10,000 for the open spaces team.

However this reduction in cuts can only be achieved up to twice per year or else the contractors would be unable to pay for staff and machinery. As such, in times of intense droughts the contractors are deployed elsewhere. Only one such non-cut has been enacted since 2012.

Previously, annual bedding schemes were in place with attractive plants and flowers planted every summer. This carried significant cost , not least because of the need for regular watering. Instead the Council are now proactive rather than reactive with regards to hot weather and droughts. Perennials and drought-resistant plants are planted instead, thus saving money. This is a clear example of a resilience strategy that has been put in place to prepare for the effects of a more extreme climate.

- **Access to Green Spaces – Leisure**

High temperatures in the summer lead to football pitches being unable to be played on, as dry grass patches appear due to a lack of water and high temperatures. This can take a long time to repair, as the grass seed needs to grow and be watered and monitored regularly.

Sudden limb drop on trees is a problem that although is not fully understood, is thought to be linked to hot weather due to the timber getting dry. This may happen even if a tree is inspected and well maintained. If someone is hit by a falling branch, depending on the severity of the injuries there may be inquests and claims.

- **Reduced Garden Waste – Contract Services/Recycling**

Fly tipping decreases slightly in summer periods. Also, when there have been prolonged periods of hot weather there is no water and so nothing is growing in the gardens. Therefore less garden waste is collected; there is a link with garden waste and weather. The more that is collected, the more it impacts upon the rounds, with an extra tip costing £200. Therefore in this sense the hot weather can be beneficial.

Services may also be slightly worse in the hot months, as the crew members carrying out the services such as waste collection or street cleansing, will struggle in the heat. This may lead to complaints. Their hours are often annualised, with longer hours in the summer and shorter hours in the winter due to reduced daylight.

- **Increased Visitor Numbers – Leisure**

Extreme hot summers increase the footfall of people coming to swim. Also, solar gain in the swimming pool heats the leisure centre and can lead to a cost saving. This may be countered in some areas (outside of the pool areas) where additional air conditioning is required to meet comfort levels

- **Crew Health and Safety – Waste Collection**

2013 was a very hot summer; As a result, re-usable bottles, sunscreen and caps were provided to the crew as a safety precaution. This cost in total around £1,000-£2,000. Hot weather in August 2015 had four crewmembers taken down with heatstroke, with two having to take a long time off work to recover. This is a direct cost to the service.

4.4. Snow, Ice and Hail

- **Staff Absence – All Services**

Staff may become unable to get into work due to the unsafe roads. However, due to improved IT systems at the Council, most staff can still work from home as they can access their IT systems using Citrix and similar systems. This is of course less the case with services such as waste and recycling collection; If the crew are unable to get into the buildings then the services cannot go ahead. 2010 was one of the worst years for cancelled services as a result of this.

If staff are unable to get into the leisure centre then no one else can, thus the doors are kept shut, as it is not an essential service. In this case the contractors would lose the revenue.

- **Refuse Collection Delays – Contract Services (Waste)**

Snow causes collection problems. For example at the end of 2009/2010 there were major issues with snow and low temperatures leading to six major staff accidents costing £16,000 based on hours lost due to people unable to get to work. There is a lack of understanding amongst the public that assume that if a vehicle can go out, then surely it is safe to collect; the snow and ice can often make it unsafe for the crew to do the collections.

Aylesbury Vale District Council refuse crews collecting in the snow. Image Courtesy of Pintertest.

If crew cannot be sent out during the week due to snow and/or ice, the service may have to move to a Saturday thus there is a cost in paying overtime. It is also an inconvenience for the public. External suppliers affect the service so even if there is no snow in the

district, if there is snow in Wales that can directly impact contractors coming in. This occurred in Christmas 2013 and as a consequence, waste had to be diverted elsewhere; 180 tonnes were diverted to landfill. This caused resident complaints and affected the Council's reputation due to a lack of understanding, as they could not appreciate the link to snowfall in Wales.

- **Salting Car Parks – Parking Services**

Car parks and footpaths have to be de-iced, especially if they are a through-route such as the Vale Park route through to the leisure centre. Tarmac can be de-iced using salt and grit. However natural stone (often used on pavements) requires the use of urea, which is very expensive. A weather watch programme in partnership with the county council sends out alerts if the temperature will drop below -2^{o}C, thus gritters are sent out and paid per operation. During most winters there are 15 operations. However there were only 12 in 2015 which had the result of significant savings on costs. Car parks are expensive to salt because they are such large spaces. Salt cannot be put down near tree roots as it kills them, building up in the soil as a contaminant. This is an issue that needs to be resolved.

- **Safety – Contracted Services**

Personal protective equipment for the waste collection crew had to be reviewed due to the very cold weather, snow and ice in 2010. Snowshoe fittings were provided for all the crew. Unfortunately, due to the long distance that crews walk every day, these fittings would break daily. Each snowshoe costs £5 per pair, for 100 crew members and had to be replaced daily. This was a huge cost. Overall, the overhaul of the PPE equipment cost £45,000. Due to these changes, roughly £20,000 worth of PPE equipment was lost as it is now not used.

There are more slips trips and falls with crewmembers, as well as a couple of vehicle accidents in the snow and ice. This can impact upon service delivery as it may slow them down; the crew will collect more slowly in order to be careful on the slippery roads.

5. BCC Services Impacts

5.1. Storms

- **Damage to Infrastructure – Rail Services**

Leaf fall due to high winds can become mulched on railway lines, leaving behind a greasy trail. Train wheels do not have grooves or 'tread' in them and when they are running at high speeds, they have a small surface area of the wheel touching the rail. Consequently, it is easy for them to get into a skid. Trains braking heavily due to leaf fall leaves flat spots on the wheels which are not good for the wheels, axles or tracks. There are only so many times this can be fixed before new wheels are required. Replacing wheels is a large and expensive job. Trees may also fall onto the tracks due to high winds; one or two times yearly a train carriage or unit is lost due to tree damage from high winds.

- **Service Impacts – Waste Management**

The main issue related to high winds and storms is the blowing over of recycling bins. This is an issue as due to recyclables being lightweight and not being placed in bin bags, they are spread around the streets thus causing complaints to be made. This causes additional work for the crews and may have an indirect impact on council reputation and service delivery.

- **School Closures – Children and Young People**

No data available.

- **Operational Problems – Rights of Way and Access**

No data available.

- **Staff Health and Safety – All Services**

No data available.

- **Fallen Trees – Transport Services**

Similarly to the aforementioned impacts of storms upon AVDC services.

5.2. Rain/Flooding

- **Health and Safety – Transport Services**

A period of heavy rainfall in January 2016 saw a trainee driver driving at night going into a skid and colliding into the back of another vehicle. The insurance claim to date for that incident is £30,000.

- **Emergency Response - Floods**

The Willows 2014 flood was a combination of pluvial and fluvial flooding and a blocked culvert. As a result of these floods, AVDC officers determined that a flood alleviation feasibility study should be commissioned. The estimated cost of this study was to be £24,000; AVDC offered to finance 1/3 of the costs, with BCC and the EA also funding 1/3. The costs of this study could also be claimed back from the flood-affected households that agreed to contribute a proportion of their Repair and Renewal Grant.

The Repair and Renewal Grant gave £5,000 per property but this wasn't enough for a property level protection scheme. As a result, four properties signed up to pool their £5,000, giving enough money to buy property level protection equipment for those properties.

- **Operational Problems – Contracted Services (Waste)**

    - **Waste Management**

    Floods lead to high volumes of water-damaged goods needing to be collected by waste services. This is often bulky waste and needs to be disposed of in landfill, at a cost of £34 per item. However this was a subsidised service after the 2014 Willows floods.

    Contaminated sandbags need to be disposed of carefully, requiring deep burial in landfill. This has an additional cost however this data was unavailable.

- **Flooded Roads – Transport Services**

    - **Emergency Services**

    Floods may affect ability to access, especially villages where the roads may be blocked. Heavy rain also impedes driving progression and so it may take longer for emergency vehicles to reach those in need.

    - **Public Transport**

    Revenue may go down as fewer buses are able to operate or fewer people are able to access the buses. Also, in periods of heavy rain, fewer people use buses as people tend to take buses to do things such as outdoor and leisure activities, which they will not do in rain.

    The flood manager in the county deals with floods on the road. Preventative measures such as clearing drains, gullies and culverts of leaf blockages ahead of the rain must be done. Putting in place measures to ensure the public know what is occurring, such as through putting messages out to radio stations or in bus shelters; this is two or three days worth of time so costs a few hundred pounds per flood incident. It is hard to put these measures in place, as flood incidents are often unpredictable.

    Often the flooding is localised in which case buses can usually divert around it.

- **Local Businesses/Economy**

    No data available.

5.3. Sun/Heat

- **Transportation Infrastructure Damage – Transport Services**

  - **Buses**

Heat may cause road melt, causing the roads to become sticky thus people cannot keep driving on them as car tyres will get damaged. This results in diversions and road closures, impacting upon transport services.

When the weather is very hot, for example 18th and 19th July 2016, buses overheat quite frequently. Consequently, someone is paid overtime to fill the bus radiators in the bus station with water and changeover those that have overheated. This gives a lost mileage of 1.5%/2% per day when typically this is as low as 0.3% per day; so on that day if every 0.1 is 10 miles the bus company will have lost 200 miles. This means that customers over a 200 mile distance wouldn't be able to get a bus that day due to overheating problems. This has negative impacts on service delivery and subsequently on the company's reputation.

The real impact of overheating engines is seen on routes that cannot afford to get new buses. These may overheat on the roads, which require an engineer to drive and swap the buses around, or tow the bus back to the maintenance garage. This involves additional costs although the total amount is not available.

  - **Trains**

Rail buckling due to heat is unusual on modern tracks. However on the older lines such as Little Kimble and Monks Risborough this may happen. Most heat incidents are as a result of signal failure due to equipment overheating; it has to be cooled down before it can be replaced and this affects services. On July 19th 2016, there were three failures in the same day.

- **Reduced Garden Waste – Waste Management**

When there have been prolonged periods of hot weather, there is no water and so nothing is growing in the gardens. Therefore, less garden waste is collected; there is a link with garden waste and weather. The more that is collected, the more it impacts upon the rounds, with an extra tip costing £200. In this sense, the hot weather can be beneficial.

- **Internal Temperatures – Transport Services**

Buses under five years old have good air conditioning. As they get older, this becomes less efficient, with the very old vehicles having no air conditioning at all. This causes issues in terms of passenger comfort. An increased use of air conditioning also decreases the fuel efficiency of the buses and therefore has cost implications.

Air conditioning in trains is a challenge as there is a winter and summer setting but nothing in between. As such, it is hard to meet passenger demands for appropriate temperatures. This leads to passenger inconvenience. The 2013 summer was very hot,

and the harder working air conditioning led to engines having to work harder but trains going slower, as the air conditioning uses the engine output.

- **Emergency Services**

Additional workload is generated through dehydration and heat exhaustion. The heat may exacerbate existing respiratory problems. The main solution is to educate people to keep out of the sun and to stay hydrated. Another issue is that with prolonged heat, a downburst of water makes the road surface more slippery and thus leads to increased car accidents. The more people out and about, the more call-outs there are, for example the August 2016 bank holiday weekend.

- **Public Transport Usage**

If the weather is hot and sunny, generally more passengers will travel by bus which increases revenues. This is a positive impact of extreme weather on services. A hot bank holiday weekend will give good figures, especially on the Oxford 280 service as many people want to make the most of such good weather to take tourist related journeys.

5.4. Snow and Ice

- **Emergency Response**

Snow and ice have the worst effect on the emergency services, with a spike in admissions seen in the winter pressures period of mid/end November through to March, and especially around Christmas and bank holidays, and after Christmas parties. The main issue with snow is the inability to reach people who require an emergency vehicle. This has a huge impact on service deliverance. There are some four-wheel drive vehicles available, however it is too expensive to run just four-wheel drives.

Ambulance vehicles have a very poor grip and so the council's are relied upon heavily to do their part and grit the road surfaces to make travel easier. Having to travel at a slow speed through the snow and ice avoids more accidents being caused.

Sharing of ambulances across the borders occurs if there aren't enough in one county for example if the demand is very high. This increases the running cost due to travelling further, and the price of filling up the tank of an ambulance with fuel is roughly £120.

Every call out costs around £256, so if there is a particularly busy day due to numerous crashes and falls from snow and ice, it will be very expensive.

- **Health and Safety – All Services**

An increase in the number of slips trips and falls is seen when the conditions are particularly icy; the frail and elderly especially may not survive an injury from this type of accident. There is also an increase in admissions from hypothermia, thus potentially putting a strain on the emergency services.

Every year, £2,000,000 is paid out in insurance claims across Hertfordshire, Bedfordshire and Buckinghamshire, with 10% of that being due to passenger falls as a result of icy conditions. A claim for whiplash comes to roughly £7,500 per event.

If roads aren't gritted properly, black ice may cause bus and other vehicle crashes. This puts the bus out of service and can cause a lot of problems in service delivery.

- **Staff Absences – Contracted Services (Waste)**

Staff being unable to get into work means that fewer waste collection services may be run. Snowy roads also mean the truck may be unable to go out and collect rubbish, especially in more rural areas, thus affecting services delivery. Similarly, the truck may not be able to get into landfill due to snow and ice and so if the weather is really bad the material may not be sent off for treatment or disposal. The main impact is the public interruption of service.

- **Damaged Infrastructure – Transport and Emergency Services**

Potholes are a large issue caused as a result of icy weather conditions. These can, cause damage to the suspension and wheels of an ambulance, which is very costly; Replacing new tyres and wheels of an ambulance can cost up to £540 per occurrence, plus time off road with limited numbers of vehicles available to replace them. Smeaton Close has numerous potholes, and going over the same pothole 24 times in one day can have a huge impact on both the driver and the vehicle (i.e bus of refuse vehicle). Someone may be put out of work and there could be long-term damage to the bus with massive claims on suspension. These are a very serious issue.

Enough snow will potentially lead to services not being run, and occasionally schools close partway through a day so transport has to be deployed earlier to collect the children. In 2009/2010 big snow events caused lots of services to not operate. This had a huge impact on the number of passengers travelling, especially on routes used by the elderly. Alterations to services may be made, for example missing out Naphill and Lacey Green on the 300 route and going straight down the main road instead. This of course causes certain areas to become temporarily isolated.

Equipment failures may occur on railway tracks due to snow and cold weather; a common issue is snow and ice in point work so points can't move freely, especially if they are not fitted with point heaters. Contingency timetables can be deployed in such extreme weather events. Train operating companies can plan to avoid the use of certain points and deploy resources to critical locations. There is moisture in the diaphragm of horns that can freeze in cold temperatures, causing the horn to become damaged and as a direct consequence, for safety reasons, the train cannot then operate. This impacts service delivery and causes maintenance costs. Well-placed investment makes a huge difference to resilience.

6. Conclusion

Throughout the duration of this project, it has been evident that the effects that extreme weather can have on front line services were largely understood amongst those service delivery officers that were spoken to.

Despite this, there appear to be a lack of proper mechanisms in place for recording the impacts. For example, data relating to the economic costs that frequently occur as a result of extreme weather events were unobtainable or not properly recorded by the services that were affected. This makes it difficult to accurately quantify the precise costs of extreme weather.

At the start of this process, an eight-year media search of the Bucks Herald was conducted for the period between 2008 to 2016 (inclusive) in order to identify all weather related events that resulted in impacts to the local public services and authorities. This was related to specific extreme weather events, found through www.weatheronline.co.uk and www.Iverweather.co.uk (see Appendix 2).

The services most impacted by extreme weather events appear to be public transport, specifically trains and buses, and the waste collection services, predominantly due to the inability of the vehicles to travel on the roads/tracks, and the inability of staff to get into work due to the extreme weather. This is especially true in snow events, such as the 2009/2010 snow events that caused "utter chaos on Aylesbury roads"[4] (see Sections 4.4 and 5.4: Snow/Ice). The huge cost of a PPE overhaul for the waste collection service can also be attributed to a changing climate and a rise in extreme weather events.

It is clear here that snow/ice and heavy rain/flooding events cause the most problems. An example here is the 2014 Willows flood, which caused huge problems for all services, but predominantly the emergency services and emergency response due to the issues involved with housing those whose homes had flooded. However this event cannot be attributed directly to climate change, although it does show a clear example of the potential scale and nature of the extreme weather events we may begin to experience more regularly as a result of a changing climate.

It is evident that some measures are beginning to be put in place in order to adapt to the impacts of a changing climate and more extreme weather scenarios. The injection of nitrogen gas into the ground in Vale Park has been shown to be an effective solution in reducing the likelihood of flooding in the park. Any flood events here would directly impact footfall and thus financial benefits to the Aqua Vale swimming pool and other surrounding services. As such, this measure is beneficial.

The heat waves experienced in the summer of 2014, with temperatures reaching over 25^{o}C from 17th-27th July, and 1-2 July 2015 with temperatures reaching up to 35^{o}C could become the norm for summers in the next few decades. Heat waves such as this have huge impacts on infrastructure, with roads melting and train signalling equipment failing, as well as a closure of leisure facilities due to the extreme heat and discomfort. This also has further implications, such as an increase in the number of hospital admissions and potentially deaths due to heatstroke, dehydration and exacerbated respiratory problems.

[4] Bucks Herald (2010)

The previous LCLIP from 2008 outlined this as a potentially worsening issue, and this still continues to be the case. It is evident therefore that more work must be done to prepare for these effects.

Despite the vast evidence of the detrimental impacts a changing climate can have, it must be recognised that it can generate opportunities and benefits too. For example, warmer summers will bring an increase in customers to leisure services such as Aqua Vale swimming pool. It is important that both the benefits and threats are understood and quantified by simple time and cost reporting as this will provide a valuable insight into the true impact of extreme weather events.

Recommendations (see Section 1.4) describe how GIS could be used in order to map extreme weather events and their impacts, as well as mapping the effects of implementing measures to prevent against these impacts. This was mentioned in the 2008 LCLIP and remains relevant.

Further work could also lead to the establishment of trigger levels and thresholds' identifying areas that could assist in reducing the impacts of extreme weather events. Once trigger responses are established, a more proactive emergency response could occur rather than that which has previously occurred.

7. Appendices

Appendix 1: National Indicators Influenced by Severe Weather:

Nearly 12% of previous National Indicators' can be potentially influenced by the weather. These include:

NI Nº	NI Title
8	Adult participation in sport
15	Serious violent crime rate
16	Serious acquisitive crime rate
17	Perceptions of anti-social behaviour
20	Assault with injury crime rate
21	Dealing with local concerns about anti-social behaviour
22	Perceptions of parents taking responsibility for the behaviour of their children
23	Perceptions that people in the area treat one another with respect and consideration
24	Satisfaction with the way police and local government dealt with anti-social behaviour
25	Satisfaction of different groups with the way police & local government dealt with anti-social behaviour
27	Understanding of local concerns about anti-social behaviour and crime by the local council and police
32	Repeat incidents of domestic violence
33	Arson incidents
34	Domestic Violence
39	Alcohol harm
41	Perceptions of drunk and rowdy behaviour as a problem
47	People killed or seriously injured in road traffic accidents
48	Children killed or seriously injured in road traffic accidents
49	Number of primary fires & related fatalities and non-fatal casualties
178	Bus services running on time
187	Tackling fuel poverty
189	Flood and coastal erosion risk management
197	Improved local biodiversity

Appendix 2: Historical Weather Events Summary:

2008

- March 21st: 40km/h winds recorded.
- April 6th 2008: Snow in Aylesbury: Minimum temperatures -3 degrees; news headline "Let it Snow".
- July: Maximum temperatures reaching 28 degrees.

2009

- Very cold April: 21st and 29th reached minimum temperatures of 1 degree.
- Very dry September: most days without rain; maximum was 1mm precipitation
- December minimum temperatures stayed below 0 all month
- December 18th -6 degrees
- December 23rd 8mm precipitation – news headlines from the 18th: "Schools closed after overnight snow"; "Heavy snowfall causes rush hour gridlock in Aylesbury"; "Severe weather warning"; "Snow possibly in excess of 40cm"

2010

- January 16th: below 0 degrees; 7mm precipitation; news headlines read "Utter chaos on Aylesbury roads"; "Weather warning: heavy snow on its way to Bucks"
- Snow continued throughout January and February due to very cold weather e.g. -13 degrees on February 13th, and precipitation e.g. 9mm on 27th Feb, 12mm on 28th
- Minimum temperatures below 0 from 24th November – 9th December
- Peaks of -8 degrees on 28th November; -12 degrees on 20th December

2011

- February 4th: 40km/h winds recorded
- Hot September: above 25 degrees from 28th-30th; "Hottest end to September since 1985" (BBC News, 2011) – average temperatures thought to be 29 degrees; good for businesses such as Travelodge

2012

- February 2012: "Schools stay open despite the snow" – minimum temperatures below 0 from 1st-13th February, reaching -7 on the 4th and -12.5 on the 11th, coupled with precipitation e.g. 6mm on 5th February
- March 11th – 13th 2012: "Drought leaves water levels running low"; "Drought leads to hosepipe ban" – 0mm precipitation from 8th-16th March and from 18th-30th
- Rain throughout April and early May e.g. 17mm on 29th April, 12mm 3rd May led to some small scale flooding: May 16th: "Chiltern Hills vintage vehicle rally at Aylesbury cancelled because of flooding"
- November 2012: "Flood alert as heavy rain soaks Aylesbury Vale" – 17mm on 20th/21st November and 13mm on 24th

2013

- January 18th until 23rd saw snow and average temperatures of -0.4 degrees – "Schools out as weather claims numerous closures with more snowfall on the way"
- Minimum temperatures below 0 from 12th-28th January
- January 23rd: "Car crash in Fairford Leys due to the snow"

- May: “Weather watch: things are hotting up after the worst of the wet, bitterly cold spring of 2013” – March minimum temperatures mainly remained between 0-5 degrees, reaching -4 on the 30th
- Warmer summer, reaching maximum 33 degrees on July 22nd
- December 2013: “severe weather warnings” (floods) – 13mm precipitation on 22nd and 15mm precipitation on December 23rd

2014

- February 7-10th: “Homes damaged by knee-deep water as floods hit Aylesbury”; “more than 180 flood call-outs as rain continues to fall” – led to 18 fallen trees, road closures etc.
- February 6th: 11.2mm precipitation; 9.1mm on the 7th; 10.2mm on the 8th
- August 6th 2014: “Weather watch: one of the hottest summers on record” due to maximum temperatures above 25 degrees from 17th-27th July
- Highs of 31.6 degrees on 17th, 32.4 degrees on 18th, 30.7 degrees on 23rd and 31.6 on the 24th.

2015

- 1st until 3rd July 3 hottest days of the year: 30 degrees plus
- August 22nd: maximum temperature above 30 degrees
- December 5th: 40km/h winds recorded

2016

- February 8th 2016: “100mph winds as Storm Imogen batters Britain” – mean wind force (km/h) recorded: 36 on February 7th, and 35 on February 9th
- May 2016: “Britain could be hotter than Ibiza this weekend” – May 8th maximum temperature recorded was 28.6 degrees
- 1st-7th July very dry: 0mm precipitation recorded
- 18th July maximum temperature of 28 degrees recorded

Appendix 3 - Contributors:

The Council and the author wish to thank officers and staff from the following organisations for their help and assistance in producing this report:

Aylesbury Vale District Council

- Building Control
- Biodiversity and Arboriculture
- Leisure (parks, fields and centres)
- Forward Plans
- Sustainability
- Grounds Maintenance and Street Cleansing
- Emergency Planning and Health and Safety
- Environmental Health Services
- Recycling, Waste and Community Spaces

Buckinghamshire County Council

- Transport for Bucks
- Bucks Highways
- Strategic Flood Management
- Waste Disposal
- Social, elderly and residential care

Bucks and Milton Keynes Fire and Rescue
Network Rail
Chiltern Railways
Arriva Shires Buses
NHS Aylesbury Vale CCG
Age UK Buckinghamshire
South Central Ambulance Services SCAS

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