

The logo for JBA group, featuring the letters 'JBA' in a bold, white, sans-serif font above the word 'group' in a smaller, white, sans-serif font. The logo is set against a teal-colored rounded square background.

**JBA**  
group

# Environmental Report 2017

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## Environmental management policy

The JBA Group is committed to minimising the environmental impact of its operations and activities, as far as is reasonably practical, and using its influence to promote better environmental outcomes. Concern for, and protection of, the environment is integral to our professional activities and the management of the Group.

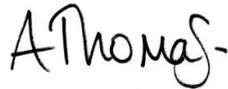
We maintain an ISO 14001:2015 certified Environmental Management System that is appropriate to the nature, scale and environmental impacts of our activities and services. We are committed to the continual improvement of our environmental management system, the prevention of pollution and reducing our per capita carbon emissions.

We comply with all legislation, standards, statutory and other obligations, client policies and best practice, where required, reasonably possible and relevant to our activities, environmental aspects and the jurisdictions in which we operate.

## Environmental report

This report summarises the environmental performance of our operations in terms of our waste, carbon emissions and use of resources. It includes an assessment of our carbon footprint. It covers the period from 1 November 2016 to 31 October 2017 and includes the following subsidiary operating companies trading within the JBA Group: Jeremy Benn Associates Limited, JBA Risk Management Limited, JBA Consulting Engineers and Scientists Limited (Ireland) and JBA (IoM) Limited. A small number of staff from these companies work from non JBA offices where their environmental impact cannot be separated out from the main occupant. It is therefore excluded from this report but is likely to be offset by a similar number of non JBA staff who operate at JBA offices.

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# Carbon footprint

A printed copy of the main text in this document will result in a carbon footprint of 165g if 100% post-consumer recycled paper is used and 210g if primary-source paper is used, assuming the report is printed in black and white on A4 paper and in duplex.

# Abbreviations

BVM	Belle Vue Mills, Skipton
CAD	Computer Aided Design
CO <sub>2</sub>	Carbon dioxide
Defra	Department for Environment, Food and Rural Affairs
EMS Rep	Environmental management system representative
EPI	Environmental performance indicator
Group	JBA Group Limited
IoM	Isle of Man
IT	Information technology
ISO	International Standards Organisation
JBA	JBA Group Limited
KWh	Kilowatt hours
Kg	Kilograms
LRQA	Lloyd's Register Quality Assurance
OPW	Office of Public Works

# Summary of our 2016-17 performance

## Overview

We have continued to demonstrate sound environmental management of our activities during the year from November 2016 to October 2017. In particular, we have:

- Reduced our per capita carbon footprint
- Reduced our per capita paper consumption and increased the proportion of recycled paper we purchase
- Reduced the per capita emissions from our office energy use and included additional offices in our monitoring programme
- Reduced the per capita emissions associated with our business mileage
- Extended our waste monitoring programme to include all UK, Ireland and Isle of Man offices

## What we measured

We recorded our paper use.

We measured the energy used within our offices.

We recorded our business travel.

We recorded our water use.

We recorded the waste produced by our offices.

We assessed our carbon footprint.

## Our targets

We set ourselves targets against key environmental performance indicators (EPIs). In 2016-17 our targets were:

- **Paper use** – to reduce our per capita paper use by 1% compared to the previous year
- **Energy consumption** – to reduce our per capita CO<sub>2</sub> emissions by 1% compared to the previous year
- **Travel emissions** – to monitor and report business travel emissions and encourage low carbon modes of transport for commuting and business travel
- **Office waste** – to monitor and report business waste from at least 90% of our offices

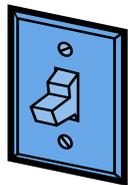
## Performance against our targets



### Paper use

Our target for 2016-17 was to reduce our per capita paper use by 1% compared to our 2015-16 paper use.

We **exceeded this target** as we reduced our per capita paper use by 7.9%. This is in addition to the significant reductions that have been achieved in previous years.



### Energy emissions

Our target for 2016-17 was to reduce our per capita energy emissions, in those offices where we can measure JBA energy use, by 1% of the emissions recorded in 2015-16.

We **exceeded this target** as our per capita energy emissions decreased by 15% in those offices where JBA energy use is metered. This continues the downward trend of previous years.



### Travel emissions

Our target for 2016-17 was to monitor and report our business travel emissions and encourage low carbon modes of transport for commuting and business travel.

We **achieved this target** by monitoring and reporting business travel emissions, promoting the JBA Travel Hierarchy, providing facilities at our offices to encourage cycling and operating our Environmental Reward Scheme to reward staff who use low carbon methods of travel for their commute.



### Office waste

Our target for 2016-17 was to monitor and report business waste from at least 90% of our offices.

We **achieved this target** with business waste being reported from all JBA offices in the UK, Ireland and Isle of Man.

## Objectives for 2017-18

We are moving from targets to an objective and outcome based performance monitoring system for 2017-18. Provisional proposals for 2017-18 are:

### Objective

Reduced carbon footprint from the operational activities of the JBA Group.

### Key actions

Reduce per capita CO2 emissions from our paper use.  
 Reduce per capita CO2 emissions from our energy use.  
 Encourage no and low carbon modes of transport for business travel and commuting.  
 Minimise business waste sent to landfill.  
 Monitor and report on consumption of natural resources within our operational activities.

### Outcome

Recognition as an environmentally responsible business. Year on year reduction in carbon emissions.

Improved environmental management of projects.

Improve environmental risk assessment in projects.  
 Improve reporting of environmental incidents.  
 Identification and mitigation of potential environmental impacts.  
 Identification of good environmental design.

Recognition as an environmentally responsible business. Certification to ISO 14001:2015 and EIA Quality Mark.

Improved influencing of stakeholders to achieve better environmental outcomes.

Record our overall contribution to environmental management good practices.  
 Provide staff training in the application of environmental good management techniques and tools.  
 Contribute to national environmental records.

Evidence of our professional expertise, innovation and value to the environment.

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# Environmental performance indicator audit results - year to 31 October 2017

## 1.1 EPI1: reduce per capita paper use by 1% compared to previous year

Target achieved  
Per capita paper use fell by 7.9%

Table 1-1: Paper use							
	Virgin paper used (kg)	Recycled paper used (kg)	Total paper used (kg)	Paper used per capita (kg)	Change in per capita paper use (kg)	Change in per capita paper use (%)	Recycled paper use (%)
2015-16	714	3,350	4,064	9.71	-0.23	-2.31%	82.4%
2016-17	583	3,639	4,222	8.94	-0.77	-7.93%	86.2%

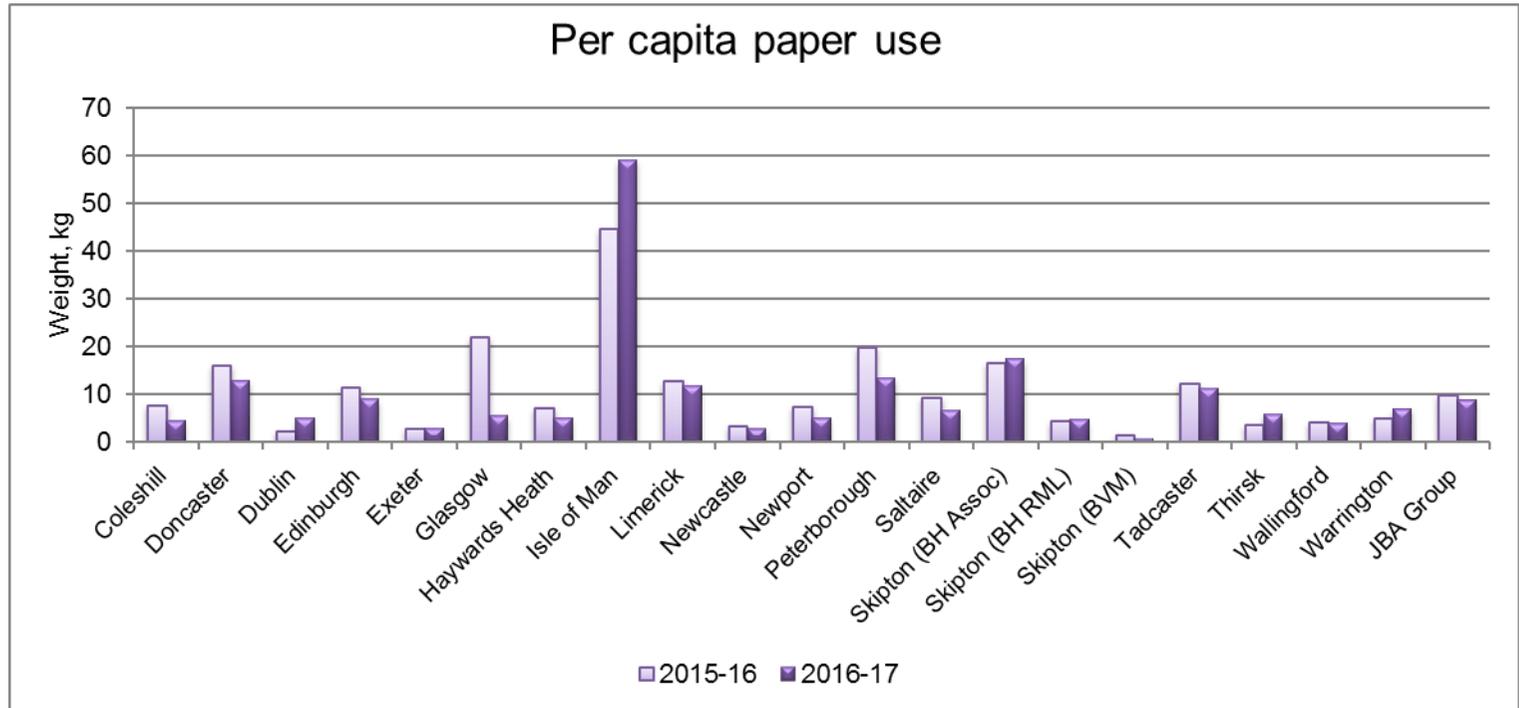
Table 1-1 shows that we achieved our target to reduce our per capita paper use by 1% compared to 2015-16. In 2016-17 we achieved a 7.9% reduction with our paper use dropping from 9.71kg to 8.94kg per capita. This is in addition to significant reductions achieved in previous years: five years ago, the equivalent figure was 14.0kg per capita.

Figure 1-1 compares per capita paper use at each of our offices during 2016-17 and 2015-16. This demonstrates both the year-on-year decrease and the wide variation in paper use across our offices. Monitoring our paper use enables us to provide each office with a realistic annual target based on their paper use the previous year. Individual office targets allow us to focus our attention on those offices where per capita paper use is highest and where there is the greatest potential for future reductions.

The variation reflects differing client requirements and types of projects our offices undertake: our Isle of Man clients require hard copy plans and reports, as do the internal drainage boards served from our Doncaster office; the design work undertaken at our Tadcaster, Peterborough and Edinburgh offices also requires the production of paper drawings. In all these offices we are encouraging our clients to reduce their requirement for hard copy documentation and the results of this can be seen in substantial reductions in per capita paper use at Doncaster and Tadcaster over the last three years. Our head office in Skipton, and to a lesser extent our Limerick office, hosts and provides materials throughout the year for workshops and training courses where delegates require paper-based materials.

On average, each member of staff uses two reams of paper less than five years ago

Figure 1-1: Per capita paper use at our offices and across the JBA Group



## 1.2 EPI2: reduce annual per capita CO<sub>2</sub> emissions from our measured energy use by 1%

Target achieved  
Per capita emissions from our measured energy use fell by 15%

Table 1-2: Energy emissions					
	Total CO <sub>2</sub> emissions from energy use at monitored offices (kg)	Total CO <sub>2</sub> emissions from energy use extrapolated for all offices (kg)	Per capita CO <sub>2</sub> emissions from energy use at monitored offices (kg)	Change in per capita CO <sub>2</sub> emissions at monitored offices (kg)	Change in per capita CO <sub>2</sub> emissions at monitored offices (%)
2015-16	173,420	258,488	560	-25	-4.3%
2016-17	186,788	256,277	476	-84	-15%

Table 1-2 shows that we exceeded our target to reduce per capita CO<sub>2</sub> emissions in offices where we can measure our energy use. Our purchasing decisions and energy efficient operational procedures enabled us to reduce our measured per capita emissions by 15%.

We monitor the energy used by 83% of our staff

We calculate our energy use data from meter readings at offices where JBA energy consumption can be measured separately from that of other occupants. In 2016-17, we measured our energy consumption at the 14 offices listed below - 3 more than last year. 83% of our staff work in these monitored offices and so this data provides a good estimate of overall JBA energy use as the offices vary in terms of size, location and work type.

Doncaster	Dublin <b>New!</b>	Edinburgh	Glasgow <b>New!</b>
Haywards Heath	Isle of Man	Limerick	Newport
Saltaire	Skipton, Broughton Hall	Skipton, BVM <b>New!</b>	Tadcaster
Wallingford	Warrington		

61% of the electricity we use is from renewable sources

Figure 1-2 compares the energy used per capita at offices where JBA energy use is measured and Figure 1-3 shows the resulting CO<sub>2</sub> emissions. Our most significant energy use is electricity and thus it is important that we concentrate our efforts on managing our electricity use. We already purchase electricity from renewable sources for our Doncaster, Glasgow, Skipton Broughton Hall, Tadcaster and Wallingford offices and this year we were able to do the same for our Newport office. In 2016-17, 61% of the electricity used across the JBA Group came from renewable sources.

Figure 1-2: Measured per capita energy use

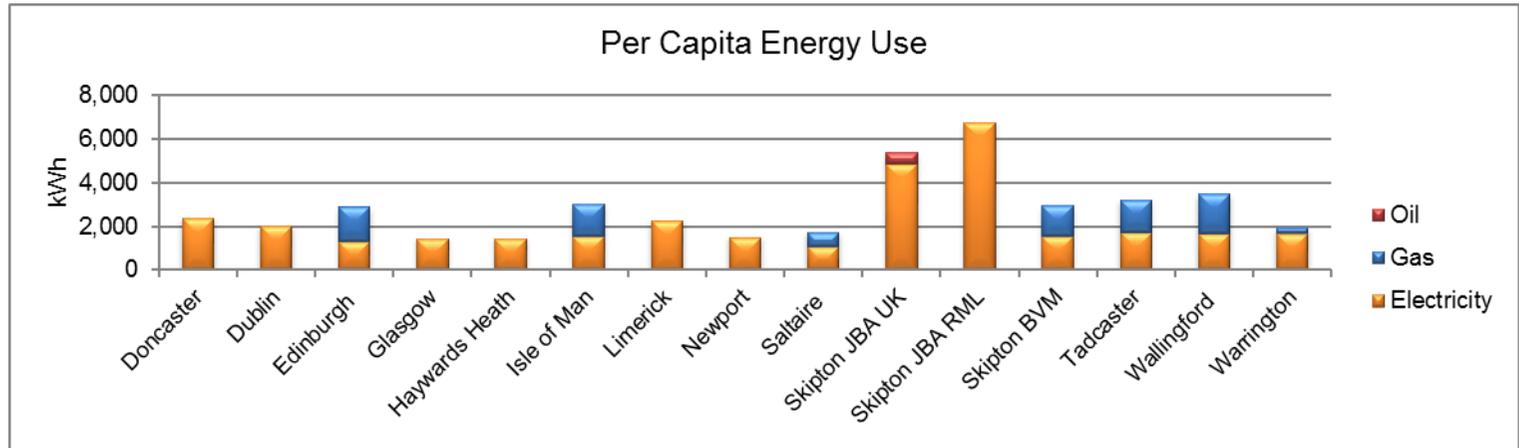
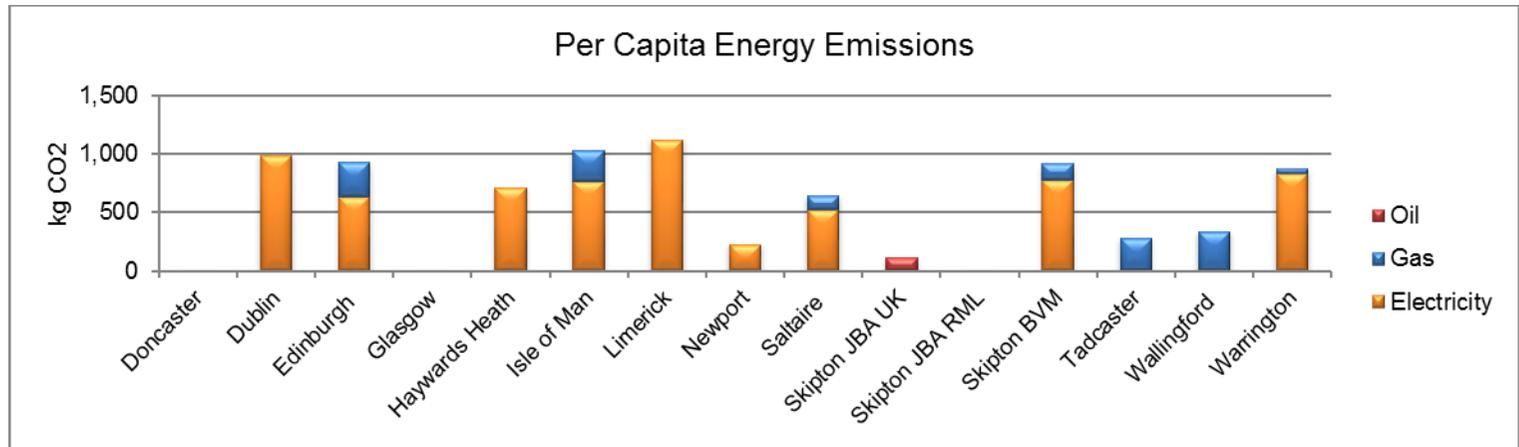


Figure 1-3: Per capita emissions from measured energy use



### 1.3 EPI3: monitor and report our business travel emissions and encourage low carbon modes of transport for commuting and business travel

Target achieved



Per capita emissions from our business travel fell by 9%

We support low carbon commuting and business travel

Table 1-3: Travel emissions		
Target		Activities
i	Monitor and report business travel emissions	Quarterly reporting Annual reporting
ii	Encourage low carbon modes of transport for commuting and business travel	Promotion of the JBA Travel Hierarchy Improved office facilities Environmental Reward Scheme

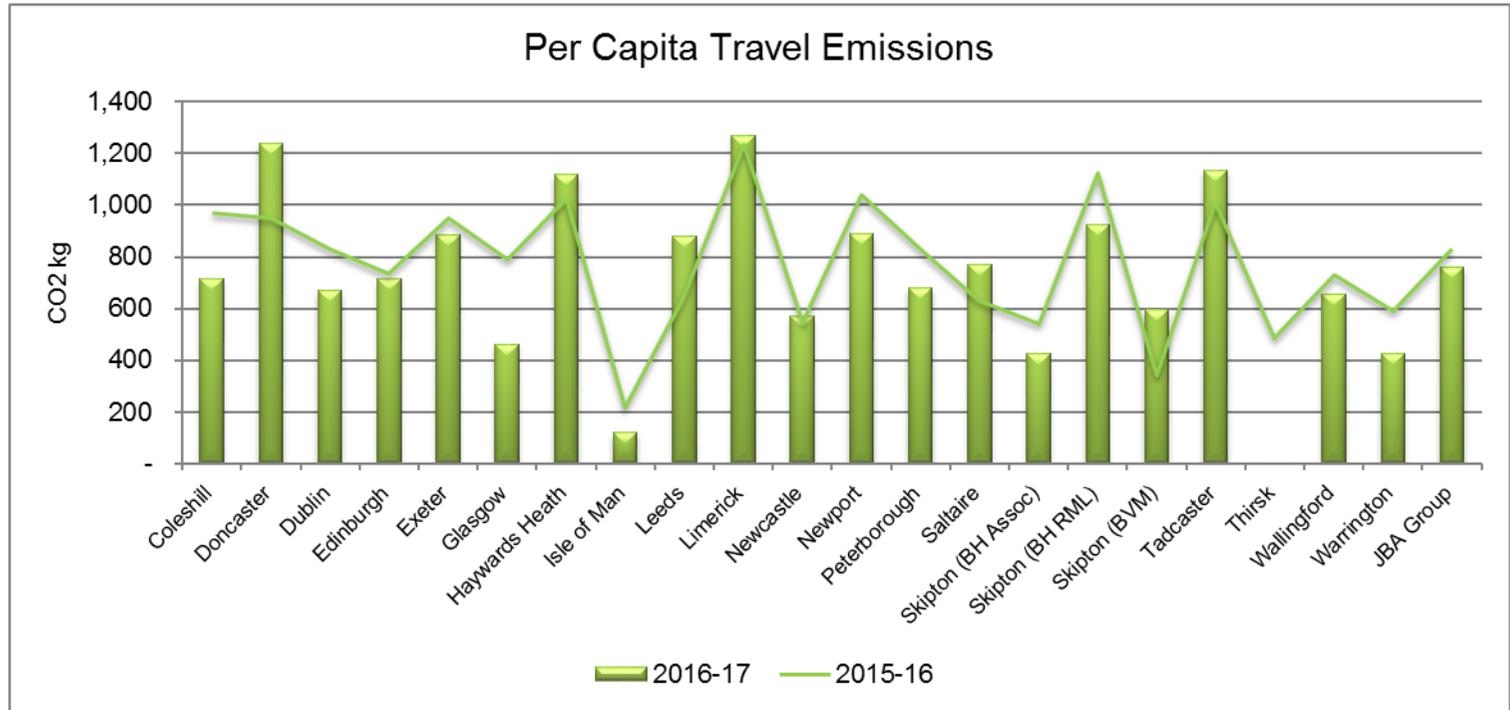
We achieved both elements of this target in 2016-17.

We recorded our business travel emissions through our pool car, purchase order and expense systems and we reported the results to staff on a quarterly basis. Figure 1-4 compares the per capita travel emissions recorded for each of our offices in 2016-17. Across the JBA Group, our per capita travel emissions were 9% lower than the previous year. Our average travel emissions are 207 gCO<sub>2</sub>/mile.

We encouraged our staff to adopt low carbon commuting practices through a variety of actions.

- We provided office facilities that support cycling, such as showers and secure cycle storage
- Our Edinburgh office took part in the Bike to Work promotion and came first in their category
- We promoted the JBA Travel Hierarchy
- We offered a financial incentive via our Environmental Reward Scheme

Figure 1-4: Per capita emissions from our business travel



## 1.4 EPI4: monitor and report business waste from at least 90% of our offices

Target achieved



We monitor and report business waste from all UK, Ireland and IoM offices

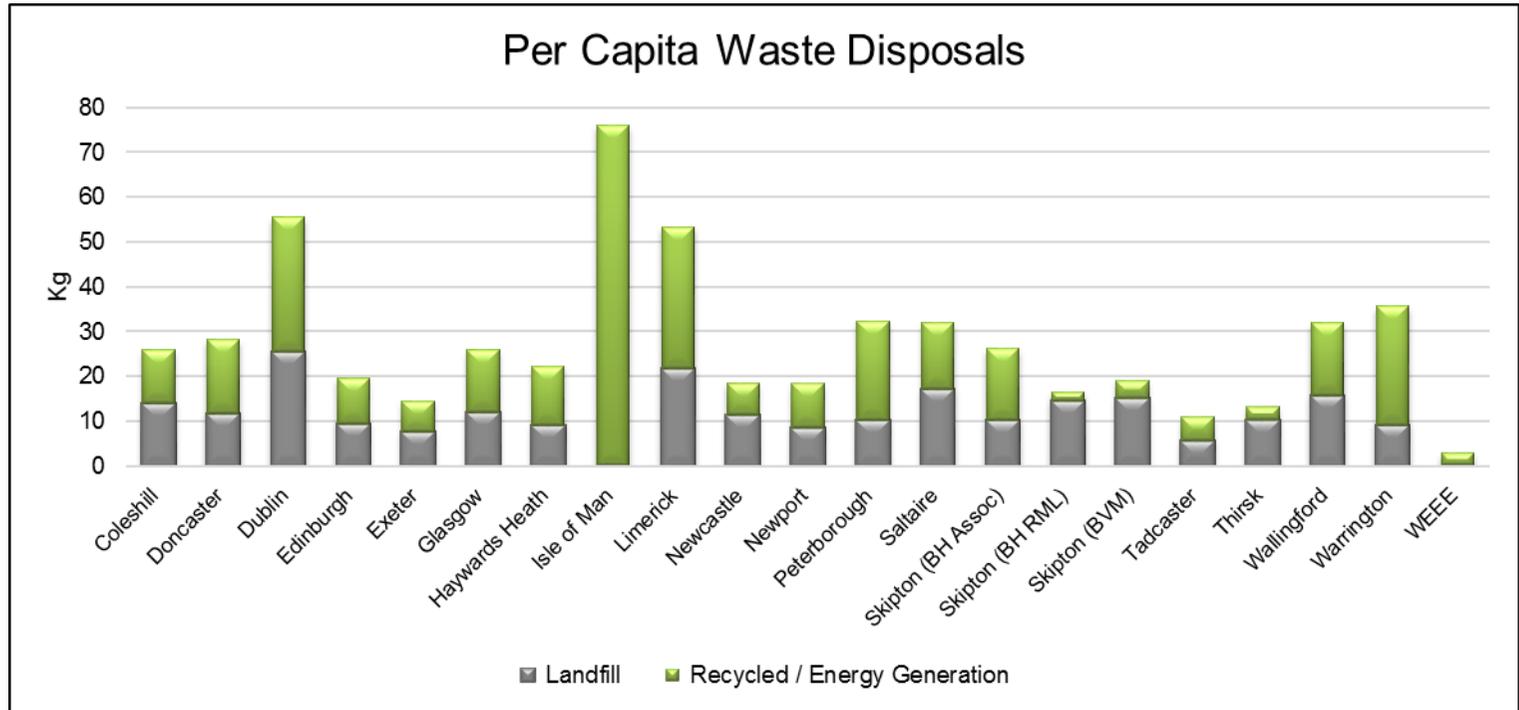
**Table 1-4: Business waste**

Target	Activities
Monitor and report business waste from at least 90% of our offices	Waste records Quarterly reporting Annual reporting

We achieved this target in 2016-17.

In 2016-17 we extended our business waste monitoring processes to include our Isle of Man office and we improved how we monitor recyclable waste in one of our Skipton offices. We now monitor the amount of business waste each of our UK, Ireland and Isle of Man offices disposes of and identify how much is sent to landfill and how much is recycled or sent for energy generation. This data is reported to management and staff on a quarterly basis and is shown in Figure 1-5.

Figure 1-5: Per capita business waste



# Environmental achievements beyond our EPIs

## 2.1 Certifications

### ISO 14001:2015

Our EMS is  
ISO 14001:2015  
certified

In January 2017, the environmental management system of JBA Group was awarded ISO 14001:2015 certification following an external assessment by Lloyd’s Register Quality Assurance (LRQA). This confirmed the successful transition of our certification from ISO 14001:2004 and acknowledged that our environmental management system enables us to:

- enhance our environmental performance;
- fulfil our compliance obligations; and
- achieve our environmental objectives.

In September 2017, the ISO 14001:2015 certification of our environmental management system was renewed for three years following an external recertification assessment by LRQA.

Figure 2-1: ISO 14001:2015 certificate



## 2.2 Environmental services provided by JBA

As an environmental consultant, concern for, and protection of, the environment is integral to our professional activities. This section provides just a few examples of the ways our work interacts with and benefits the environment.

We are the OPW's environmental and ecological consultant of choice

### OPW Environmental Framework

JBA Consulting Engineers and Scientists has been appointed to the Office of Public Works' (OPW) Environmental Framework in Ireland and has won the contract for environmental services for the arterial drainage maintenance section.

This establishes JBA as the environmental and ecological consultant of choice for the OPW and is a credit to the environment and ecology teams in Ireland (with help from the UK hydrogeology, ecology and hydromorphology teams) who have developed an excellent relationship with the client.

### Project design

#### Example 1: America Farm Bridge

The existing structure was in reasonable condition but below the required capacity. Reconstructing the bridge was an option, but was not the most sustainable means of delivering the right outcome. Using the principles of the carbon hierarchy - *build nothing, build little, build smart* - our design team reduced the scope of work but still achieved the right outcome for the project.

Our innovative and sustainable solution was to adhere carbon fibre strips to the underside of the bridge to spread the load and effectively increase its bearing capacity. This solution avoided significant structural alteration to the bridge and reduced the required works to small scale surface preparation to allow the placement of the carbon fibre strips. This saved circa. £13k and one week on the contract in addition to health and safety and environmental benefits.

#### Example 2: Foss Barrier

We challenged the local authority planning department's specification of an oxidising cladding material for the new pumping station building which was located in a conservation area.

We were concerned about the pollution risk of the material and the potential for contaminants to enter the adjacent watercourse as we were aware that the site is regularly inundated by flood water. We were successful in securing agreement to use an aesthetically acceptable alternative that we had sourced. In addition to the environmental benefits, this reduced costs by £94k.

We use our design skills to achieve better environmental outcomes

### Example 3: Morpeth

Sustainability considerations drove our temporary works design for a 1m deep piling platform in the River Wansbeck. We used legato blocks topped with aggregate instead of the traditional approach of installing stone over concrete pipes. Our solution generated a £34k cost saving and cut 10 days from the programme. The environmental benefits to this approach included a reduced risk of water pollution due to minimal disturbance to the bed, reduced waste due to the blocks being reused and an overall carbon reduction of 21t.

We considered sustainability in the design and construction of a flood storage reservoir, comprising a 57m long and 5m high earth embankment. Working collaboratively with Northumberland County Council we tested and assessed the suitability of fill material from arisings from the nearby Morpeth Bypass scheme. 11 tonnes of fill material were sourced from the bypass works located one mile from the site - the nearest alternative supply was 25 miles away. The material was reused under the CL:AIRE Definition of Waste: Code of Practice. This diverted waste from landfill and reduced the use of virgin material, saving 264t of carbon.

## 2.3 Paper and printing

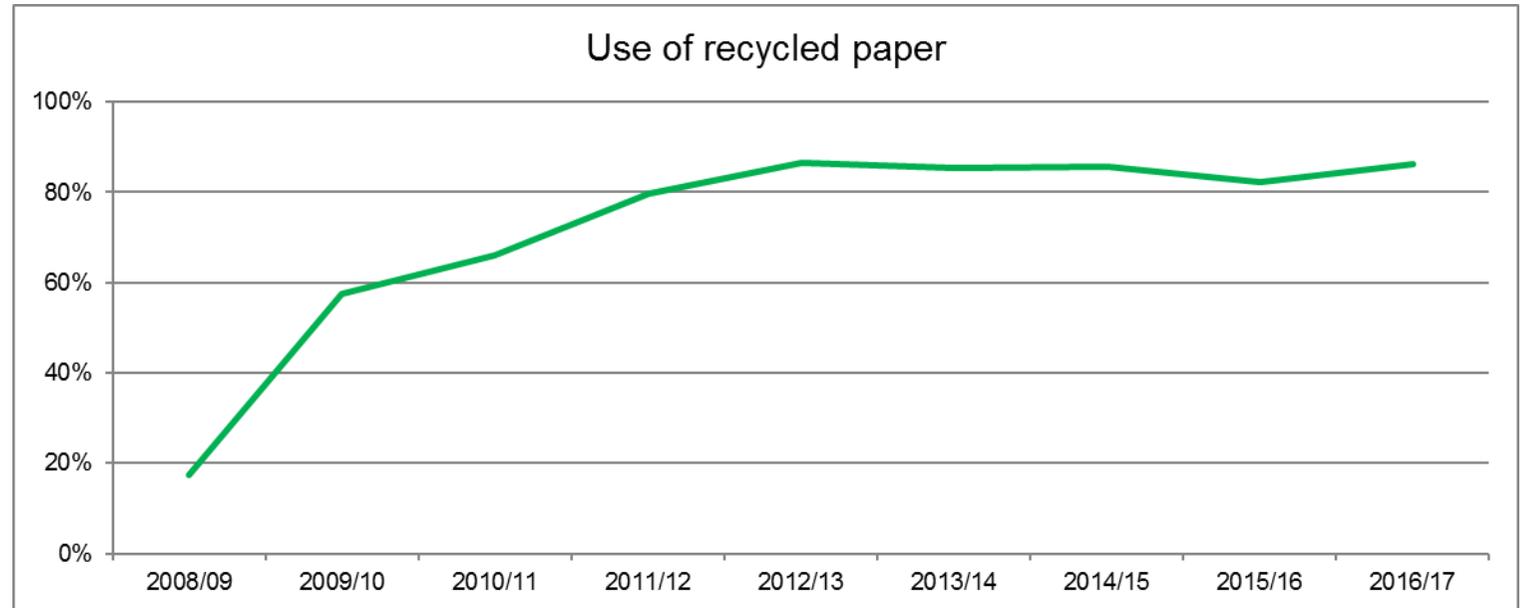
We prevented 500kg of CO<sub>2</sub> emissions by using recycled paper

### Recycled paper

By using recycled paper instead of 100% virgin paper we have avoided almost 500kg of CO<sub>2</sub> emissions. This is approximately equivalent to the emissions produced by driving 1,650 miles in an average car, boiling a kettle 32,250 times, or using an LCD TV continuously for 121 days.

Over 86% of the paper we used in 2016-17 came from recycled sources. This continues a trend that has seen the proportion of recycled paper we use increase from 17% to 86%, as shown in Figure 2-2.

Figure 2-2: Trend in use of recycled paper



Over 86% of the paper we use comes from recycled sources

We help boost demand for recycled print cartridges

### Print cartridges

Several JBA offices purchase remanufactured print cartridges for their printers. This boosts the demand for remanufactured print cartridges and helps to reduce our environmental impact by

- saving substantial amounts of fossil fuels;
- lowering the pollution created in extracting virgin resources;
- decreasing the fuel used in transporting products;
- eliminating landfill waste; and
- supporting local economies.

### Digital documentation

We issue and store documents electronically, wherever possible, and continue to expand our use of electronic instead of paper documentation.

Internally, we use digital purchase orders, the majority of our HR records are digital and we store supplier invoices electronically. The vast majority of our project documentation is digital and we also distribute newsletters, bulletins and learning and development documentation via our intranet.

### Design review software

The use of Design Review software enables CAD drawings to be digitally reviewed using comment boxes and approval stamps. Using this software has significantly reduced the requirement for printed drawings, particularly in major projects such as the Smithton and Culloden project.

### Scrap paper

We use scrap paper, such as out of date headed paper, for note pads and draft prints.

### Awareness

We encourage staff to keep their printing requirements to a minimum and have attached stickers to our printers to remind staff of the environmental and financial costs of printing.

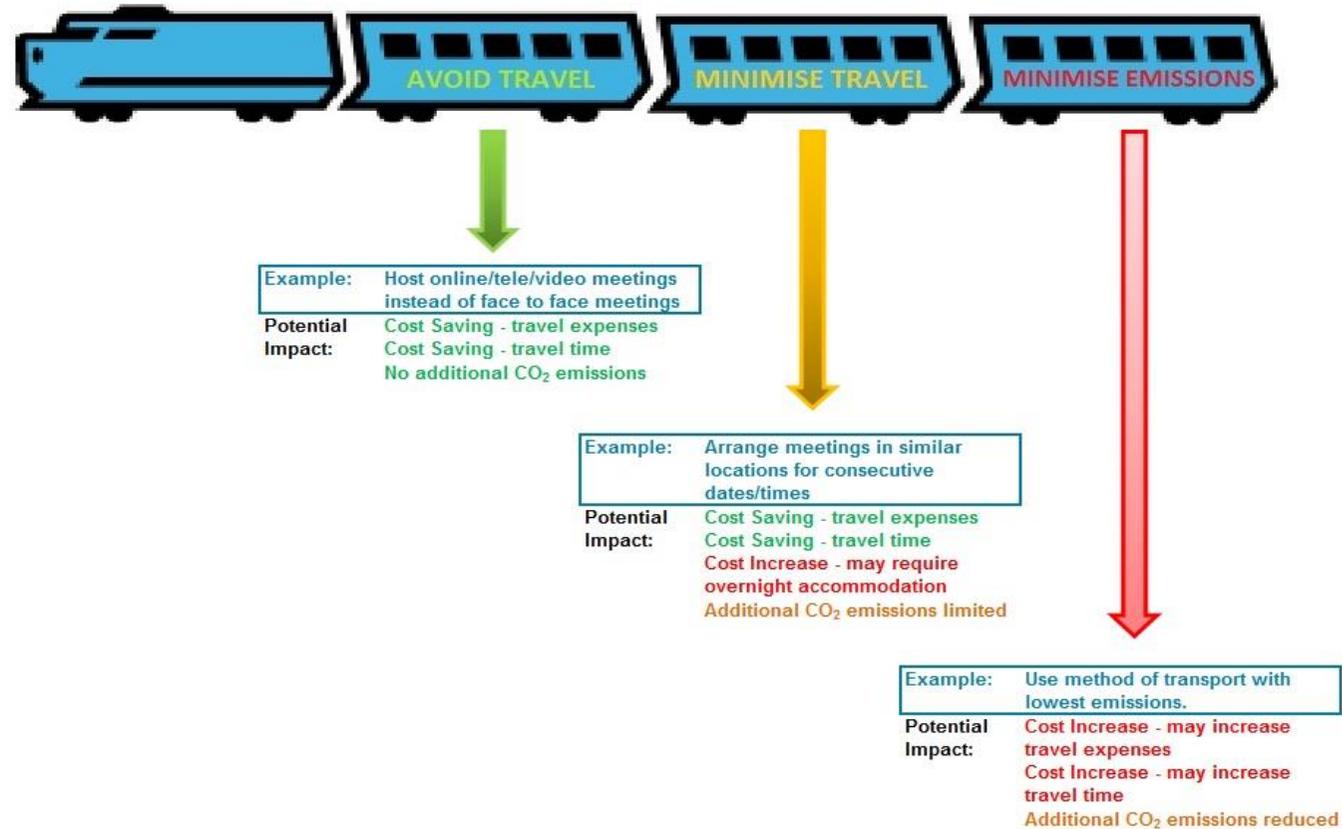
We use Design Review software to reduce printing requirements

## 2.4 Business travel

### The JBA travel hierarchy

We promote a travel hierarchy within JBA that encourages staff to avoid travel where possible and to minimise the environmental impact of any essential travel by using a low carbon means of transport. We remind staff about the travel hierarchy at office and team meetings, in internal news items and during internal audits.

Figure 2-3: JBA travel hierarchy



We used public transport for 29% of our business travel miles

Our vehicle fleet is low on emissions and high on fuel economy

### The JBA vehicle fleet

We maintain a fleet of company vehicles for essential business travel that cannot be undertaken by public transport. These are low emission, fuel efficient vehicles apart from three utility vehicles that are required to meet our off-road access needs; their use is restricted to such purposes.

Table 2-1 shows the average CO<sub>2</sub> emissions and fuel economy of our fleet. The changes we made to our fleet in 2016-17 resulted in average CO<sub>2</sub> emissions decreasing by 3 gCO<sub>2</sub>/km and average fuel economy increasing by 2 mpg.

Table 2-1: JBA vehicle fleet					
Vehicle	CO <sub>2</sub> (g/km)	Fuel (mpg)	Vehicle	CO <sub>2</sub> (g/km)	Fuel (mpg)
Grey Corsa Exc AC CDTi Ec	88	86	Silver Astra Estate CDTi	119	63
Silver Astra 1.6 CDTi Ecofl	94	79	Grey Astra 2.0 CDTi 16v S	124	60
Red Astra Design CDTi	95	79	Silver Astra CDTi Breeze	130	58
Silver Astra 1.6 CDTi Excite	97	76	White Combo Van 1.3 CDTi	130	57
White Astra 1.6 CDTi	97	76	White Combo Van 1.3 CDTi	130	57
Black S60 R-Design D2	103	72	White Astra Van Club CDTi	132	57
Silver Astra CDTi Exclusive	104	72	White Doblo Van	148	55
Silver Focus 1.6 TDCi	115	64	White Ranger XL D/Cab 4x4	192	35
Blue Astra 1.7 CDTi 16v Ecoflex	119	63	White Boxer 335 L3 HDi	195	41
Dark Grey Astra SRI CDTi	119	63	White Fourtrax TDL Fieldman	244	30
<b>Average across the fleet</b>				<b>129</b>	<b>62</b>

Taking the train  
avoided  
110,000 kg of  
CO<sub>2</sub> emissions

### Public transport

In accordance with the JBA travel hierarchy, we used public transport for 29% of our business mileage in 2016-17; this equated to over 500,000 miles. Taking the train in preference to making a journey by car reduced our CO<sub>2</sub> emissions by over 110,000 kg. Where practical, we use trains and ferries in preference to planes for journeys from the UK to Ireland.

### Car hire

If public transport is not a viable option and company vehicles are not available, we use low emission hire cars for essential business travel.

In 2016-17 we joined the Enterprise Car Club which enables us to combine public transport with car hire by providing access to short term hire vehicles at rail stations. This makes it possible for us to travel by rail even if our destination is not close to a station.

### Cycling

To encourage staff to cycle, we pay a generous expenses rate to staff who use a bicycle for business travel. This has resulted in a significant increase in the mileage cycled by staff on JBA business; in 2016-17 staff cycled 20 times as far as four years ago.

### Awareness

Our project managers regularly include estimates of the potential carbon emissions savings for a range of transport and meeting options in tender submissions. This helps to raise awareness amongst our staff and clients of the potential that exists to reduce carbon emissions by making changes to the way we work.

### Rewarding low carbon commutes

In 2016-17, the JBA Environmental Reward Scheme paid over £27,000 to staff as reward for regularly using low carbon methods of commuting. Under this scheme, staff who walk, cycle, car-share or use public transport to travel to work for a significant proportion of their journeys are entitled to receive a financial bonus.

189 members of staff qualified for this reward in 2016-17, a 4.4% increase on the previous year.

Our staff cycle  
20 times as  
many miles on  
JBA business  
as 4 years ago

We reward  
low carbon  
commutes

## 2.5 Waste

Our Edinburgh office has reduced its use of plastic dispensers

### Waste minimisation

We manage our waste in accordance with the waste hierarchy and minimise the waste that we produce by reducing, re-using and recycling resources.

### Plastic

Our Edinburgh office has reduced their use of plastic dispensers by buying cleaning and hygiene products in bulk and refilling and re-using the original containers. This has reduced the number of dispensers sent for recycling.

### Electrical equipment

Wherever possible we re-use our electrical and IT equipment within the Group but if an item reaches the end of its useful life within JBA we dispose of it via a central contract managed by our IT department. Our current contract is with Data Managed Disposals who provide a service to re-use or recycle redundant electrical equipment in a secure, certified and auditable fashion using techniques recommended by Defra. Data Managed Disposals is a licensed upper tier waste carrier and complies with all relevant legislation, including the UK WEEE Regulations and the UK Data Protection Act. Items are collected from a central JBA office to minimise the mileage associated with disposing of our electrical equipment.

### Batteries

Where possible we use rechargeable batteries in our equipment. We return waste batteries to the manufacturer for recycling.

### Recycling

Wherever possible, our offices recycle their waste. We now recycle the following items at the majority of our offices:

- batteries
- CD/DVDs
- organic waste
- print consumables
- card
- electrical equipment
- paper
- tetra-pak cartons
- cans
- glass
- plastic bottles

Our redundant electrical items are re-used or recycled

Our offices recycle multiple waste streams

## Our Tadcaster office is a lower tier waste carrier

### Paper and card

All offices have arrangements in place with licensed waste management companies to recycle waste paper; these include for the secure disposal of confidential waste paper, where required, and in some offices, paper towels.

Our Tadcaster office is registered as a lower tier waste carrier to allow staff to take excess cardboard from new IT and electrical equipment to the local recycling centre.

### Organic waste

Several offices collect and dispose of their organic waste via compost bins to avoid sending it to landfill.

### Print consumables

We return used print consumables to the manufacturer for re-use or recycling. Where this is not possible, we dispose of them via Office Green. This is an office products waste collector that operates a zero waste to landfill policy. Cartridges are re-used where possible and what can't be re-used, including associated packaging, is recycled. Office Green collection schedules are organised to prioritise reducing their carbon footprint over speed.

To minimise the mileage incurred in collecting our used print consumables we have placed collecting boxes at a number of our offices. Print consumables from other offices are taken to one of these offices when staff are travelling for other purposes.

### CDs and DVDs

We co-ordinate the collection of waste discs and send them to Polymer Recycling for destruction, recycling and retrieval of raw materials. Polymer Recycling guarantees to recycle 100% of the discs, jewel cases and inserts using no chemicals and creating no waste.

Where possible, collections from several offices are combined into fewer, larger packages to reduce the environmental impact of packaging and transportation. Transportation between offices occurs when staff are visiting for other reasons. Small quantities of waste disks are sent to Polymer Recycling via the post to minimise the carbon footprint of transportation. Larger quantities are collated and delivered from our Warrington office, which is close to Polymer Recycling's site.

## Zero landfill from our used ink cartridges

## We recycle CDs and DVDs

We hold virtual meetings and webinars to help reduce our business mileage

## 2.6 Virtual communications

### Office 365

We have migrated our systems to Microsoft's Office 365 environment which gives all staff access to Skype for Business.

It is now standard practice for staff to use Skype as the go-to means of communication instead of travelling to face-to-face meetings. Skype gives all staff increased functionality during teleconferences and phone calls; remote file sharing and viewing is now routine.

Skype also supports our overseas communications, with both clients and staff. By doing so, it reduces the need for overseas travel.

### Teleconferences

All staff have access to teleconference facilities provided by Arkadin. Where Skype is not appropriate, Arkadin is used throughout the Group as a normal method of hosting internal and external meetings. This helps to reduce our environmental impact by removing the need for business travel.

### Webinars

In addition to meetings, we use our virtual conferencing facilities for broadcasting webinars, training courses and presentations to all offices. This avoids the need for the presenters to travel to each JBA office thus reducing the mileage, carbon emissions and staff costs.

## 2.7 Office management

Office representatives raise awareness

### Environmental management system representatives

We have a designated Environmental Management System Representative (EMS Rep) at each of our offices. EMS Reps play a key role in monitoring our environmental performance and raising awareness of our environmental processes and procedures such as our travel hierarchy, switch off when not in use policy and waste management procedures.

Our offices are close to clients and public transport

### Office location and size

Environmental issues are a key consideration when we select locations for our offices. These include commuting distances for staff, proximity to client offices and accessibility by public transport. Our Exeter, Isle of Man, Newcastle and Wallingford offices, for example, are located very close to key clients and our Haywards Heath, Newcastle, Newport, Saltaire, Skipton BVM and Warrington offices are all within walking distance of train stations.

We manage our office space to ensure each office is an appropriate size for its current population. This helps us to run energy efficient offices by avoiding empty space. In 2016-17 our Peterborough office moved to a new location that offers significant improvements in terms of energy efficiency, building layout and office size.

We use energy efficient lighting and install accessible power switches

### Lighting and equipment

Our Doncaster, Warrington and Skipton offices have motion sensitive lights; the lights in our Haywards Heath office are on a timer; many offices, such as Coleshill, Exeter and Newcastle have lighting in banks that can be switched on and off as appropriate. This all helps to minimise unnecessary energy consumption.

We fit desktop power supplies to new desks and as part of office moves which makes it much easier for equipment to be switched off when not in use and thereby reduces power requirements and the related emissions.

We restrict the purchase of wireless keyboards and mice to minimise our use of batteries.

We monitor our use of processing machines and remind staff that, in line with our *switch off when not in use* policy, they should be turned off if not being used.

## We installed double glazed windows

### Office improvements

Our office in the Isle of Man has had a new door and energy efficient double-glazed windows fitted, with surrounds to the windows sealed. This has significantly reduced heat loss and improved heating efficiency.

We have decommissioned and removed air conditioning units from our Skipton office that were not in use, to remove the risk of refrigerant leakage.

### Energy Saving Easter

We repeated our Energy Saving Easter initiative to raise awareness and promote good environmental practices in our offices. We encouraged staff to be even more vigilant than usual in terms of switching off unnecessary electrical equipment over the Easter break and we monitored the energy used in our offices when they were closed.

## We monitor our water use

### Water monitoring

We monitor water use at any of our offices where JBA water use is separately metered. Previously, this was only possible at our Tadcaster and Wallingford offices but water use at our Doncaster office is also now being monitored.

## We support local communities and social enterprises

### Local suppliers

Where possible we support the local economies around our offices by using local suppliers. Our head office uses locally based HR advisers, pension administrators, financial auditors and solicitors. All our offices use local cleaning and maintenance companies and, where possible, we use surveyors located close to our projects.

### Social enterprise

We support Newground by subscribing to its environmental and health and safety legislation update service and attending its training events. Newground is a social enterprise that distributes its profits in the form of grants to environmental and community projects to help regenerate local communities.

## 2.8 Connecting with the environment

We support environmental initiatives, activities and fund-raising events

### 30 days wild

In June, we again supported the Wildlife Trust's 30 Days Wild initiative. This aimed to help our staff feel happier, healthier and more connected to nature. We asked staff to send in wildlife photos from their commute, lunch break, evenings or weekends every day for 30 days.



### Mountain walking

A team from JBA regularly takes part in the Yorkshire Three Peaks Challenge. Taking in the peaks of Phen-y-Ghent, Wharfedale and Ingleborough this is a fantastic opportunity for our employees to get out and enjoy the natural environment together.

JBA supported Water Aid by registering a team for the Glenridding Circuit of the Water Aid Mountain Challenge. Despite appalling weather, the participants had a great day out and the money raised will help WaterAid bring clean water and sanitation to areas where it makes a massive difference to people's lives.



### Running, canoeing and cycling

Staff from Skipton joined forces to take on the Sue Ryder Manorlands PaintRush, a 5km colour run with obstacles designed to promote team work and raise vital funds for the charities.

An intrepid group from our Coleshill office completed the Birmingham half marathon between the town centre and Cadbury World.

Wallingford staff completed the Treehouse 10k in Cholsey, a fund-raising event organised by the Friends of Treehouse School and spent an evening together exploring the watery environment of the Thames by canoe.

Four staff from our Haywards Heath office rode together and successfully took on the 30km Haywards Heath to Brighton Bike Ride including the infamous Ditchling Beacon.



## 2.9 Carbon sequestration

### Catgill Wood

We established  
and maintain  
new woodland

In 2007, we established a new woodland, Catgill Wood, on land within the Broughton Hall Estate in North Yorkshire under an agreed management scheme. We planted over 5,000 mixed native broadleaf trees on a 1.62 hectare area of land. Based on research by the Forestry Commission<sup>1</sup>, Catgill Wood is expected to sequester 8.75 tonnes of CO<sub>2</sub> each year.

Although the CO<sub>2</sub> sequestered by Catgill Wood represents a small proportion of our carbon footprint, Catgill Wood is a very tangible sign of the importance we attach to our environmental performance. Establishing and maintaining the wood clearly demonstrates our commitment to the environment and has enthused and involved staff – in its original creation, its ongoing maintenance and as a recreational resource.

Figure 2-4: Catgill Wood



<sup>1</sup> Forestry Commission Publications. Climate Change Information Pack, Sheet 6 Mitigation: Planting More Trees.

# Carbon footprint

We measure our carbon footprint as the CO<sub>2</sub> emissions that result from energy use in our offices and our business travel.

## 3.1 Emissions from our energy use

Total CO<sub>2</sub> emissions from our energy use down by 17% since 2010

**Table 3-1: CO<sub>2</sub> emissions from energy use**

Year	Total energy used <sup>1</sup> (kWh)	Total green energy used (kWh)	Total non-green energy used (kWh)	Equivalent emissions <sup>2</sup> (kg CO <sub>2</sub> )	Emissions per capita <sup>1</sup> (kg CO <sub>2</sub> )	Change in total emissions (kg CO <sub>2</sub> )	Change in total emissions (%)	Change in emissions since 09-10 (%)
2009-10	928,938	151,527	777,411	308,474	1,402			
2015-16	1,554,280	806,320	747,960	262,240	627	+38,978	+17%	-15%
2016-17	1,420,752	703,124	717,628	256,277	542	-5,963	-2.3%	-16.9%

Notes: 1 Data recorded at offices where JBA energy use can be monitored extrapolated to estimate usage at unmonitored offices.  
 2 Carbon emissions calculated using formulae from [www.nef.org.uk/energyadvice/CO2calculator.htm](http://www.nef.org.uk/energyadvice/CO2calculator.htm)

Per capita energy use emissions cut by 61% in 7 years

Our total energy use and emissions are calculated from a combination of recorded and estimated data. Recorded data is used for offices where JBA energy use is metered but for multi-occupant offices where JBA energy use is not separately metered, energy use and emissions have been estimated using a per capita average from our monitored offices.

JBA has continued to expand during 2016-17 but we have managed our energy use to minimise any increase in emissions. Our per capita emissions have continued to fall; in 2016-17 they were 61% less than seven years ago.

Table 3-1 shows an 8.6% decrease in our total energy use and a 2.3% decrease in the associated emissions. Our current emissions are now almost 17% lower than in 2009-10; this is despite a 115% increase in full time equivalent staff and an increase in the number of JBA offices and floor area.

### 3.2 Emissions from our business travel

Emissions per business mile remained constant

**Table 3-2: CO<sub>2</sub> emissions from all business travel**

Year	Total miles	Change in miles	Total emissions (kg CO <sub>2</sub> )	Change in emissions (kg CO <sub>2</sub> )	Emissions per capita (kg CO <sub>2</sub> )	Emissions per mile (kg CO <sub>2</sub> )
2009-10	713,781		146,570		666	0.21
2015-16	1,582,777	- 165,936	319,658	- 55,098	765	0.20
2016-17	1,761,446	+178,669	364,960	+45,302	759	0.2

Notes: Emissions calculated using the conversion factors current at the time (source: www.defra.gov). For 2016-17 these are:

Train	0.074	Bus/coach	0.044	Plane	0.252	Ferry	0.184
Hire car	0.251	Pool car (petrol)	0.251	Pool car (diesel)	0.231	Personal car	0.297
Motorbike	0.183	Bicycle	0				

Per capita travel emissions reduced

Table 3-2 shows that both our annual travel mileage and the associated emissions increased in 2016-17, but our per capita emissions decreased.

Travel is a necessary part of our work dictated by the location and nature of our projects and we strive to minimise its environmental impact wherever possible.

### 3.3 Overall Group emissions

Overall carbon footprint increased by 6.8%

Per capita carbon footprint decreased by 6.5%

Table 3-3: Total JBA Group emissions							
	Energy use emissions (kg CO <sub>2</sub> )	Travel emissions (kg CO <sub>2</sub> )	Total emissions (kg CO <sub>2</sub> )	Total emissions per capita (kg CO <sub>2</sub> )	Annual change in emissions (kg CO <sub>2</sub> )	Annual change in emissions (%)	Change in emissions since 2009 (%)
2009-10	308,474	146,570	455,044	2,068			
2015-16	262,240	319,658	581,898	1,392			
2016-17	256,277	364,960	621,237	1,301	+39,339	+6.76%	+36%

Table 3-3 shows our overall carbon footprint calculated by combining the CO<sub>2</sub> emissions from our energy use and our business travel.

In 2016-17 our overall carbon footprint increased by just under 7% but our per capita carbon footprint decreased by 6.5% compared to the previous year. This compares to a 13% increase in full time equivalent staff numbers within the JBA Group and an increase in the number of JBA office buildings and floor area.

Since 2009-10 our total emissions have increased by 36% compared to an increase in staff numbers of 115%.

## Summary of our performance for the financial year 2016-17

**Table 5-1: Environmental performance summary**

	Target: 2016-17	Results: 2016-17	Results: 2015-16	Year on year change	Percentage difference	Target achieved in 2016-17
<b>EPI 1 Paper use</b>						
Per capita (kg)	1% per capita reduction in kg	8.94	9.71	- 0.77	- 7.9%	yes exceeded by 6.9%
<b>EPI 2 Energy emissions</b>						
Per capita (kg CO <sub>2</sub> )	1% per capita reduction in kg CO <sub>2</sub> at metered offices	476	560	- 84	- 15%	yes exceeded by 14%
<b>EPI 3 Travel emissions</b>						
Business travel emissions	Monitor and report	achieved	achieved	n/a	n/a	yes
Commuting and business travel	Encourage low carbon modes of transport	achieved	achieved	n/a	n/a	yes
<b>EPI 4 Business waste</b>						
Monitor and report business waste		achieved	n/a	n/a	n/a	yes
Carbon footprint (tonnes)		621	582	+ 39	+ 6.8%	
Carbon footprint per capita (tonnes)		1.3	1.4	- 0.09	- 6.5%	

## Environmental performance indicators, targets and actions for the year ahead

We are moving from targets to an objective and outcome based performance monitoring system for 2017-18. Provisional proposals for 2017-18 are:

### Objective

Reduced carbon footprint from the operational activities of the JBA Group.

### Key actions

Reduce per capita CO2 emissions from our paper use.  
 Reduce per capita CO2 emissions from our energy use.  
 Encourage no and low carbon modes of transport for business travel and commuting.  
 Minimise business waste sent to landfill.  
 Monitor and report on consumption of natural resources within our operational activities.

### Outcome

Recognition as an environmentally responsible business. Year on year reduction in carbon emissions.

Improved environmental management of projects.

Improve environmental risk assessment in projects.  
 Improve reporting of environmental incidents.  
 Identification and mitigation of potential environmental impacts.  
 Identification of good environmental design.

Recognition as an environmentally responsible business. Certification to ISO 14001:2015 and EIA Quality Mark.

Improved influencing of stakeholders to achieve better environmental outcomes.

Record our overall contribution to environmental management good practices.  
 Provide staff training in the application of environmental good management techniques and tools.  
 Contribute to national environmental records.

Evidence of our professional expertise, innovation and value to the environment.



Offices at:

Coleshill  
Doncaster  
Dublin  
Edinburgh  
Exeter  
Glasgow  
Haywards Heath  
Isle of Man  
Leeds  
Limerick  
Newcastle upon Tyne  
Newport  
Peterborough  
Saltaire  
Skipton  
Tadcaster  
Thirsk  
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