



Historic Royal Palaces is the charity that looks after:

Tower of London
Hampton Court Palace
Banqueting House
Kensington Palace
Kew Palace
Hillsborough Castle

We help everyone explore the story of how monarchs and people have shaped society, in some of the greatest palaces ever built.

We raise all our own funds and depend on the support of our visitors, members, donors, sponsors and volunteers.

Historic Royal Palaces

Sustainability Report

2014/15



Sustainability information is reported freely by Historic Royal Palaces although publication is not required under the Royal Charter, contract with the Department of Culture, Media & Sports and Charity regulations we are governed by.

This is the third year we are publishing our records and actions on the sustainability topic. However there are still limitations with the availability at a granular level and the accuracy of HRP's sustainability data. We continue to work with all stakeholders to improve data gathering process and quality of information. Energy consumption figures are based on billed amounts and are therefore subject to adjustments in subsequent periods.

1. Our approach to sustainability

Historic Royal Palaces is committed to the values of sustainability in the work it undertakes to help everyone explore the palaces and estates it looks after and in the management of its operations.

Conservation is at the heart of HRP's mission, so managing the palaces and the estate with as little environmental impact as possible is important to us. Through our conservation work, we give our buildings, interiors, collections, designed historic landscapes and natural landscapes, species and habitats a future as long and valuable as their past, for the benefit of future generations.

We strive to embed sustainability in HRP's work culture by launching initiatives that encourage good sustainability behaviours with staff (i.e. switching off electronic equipment, setting computers & printers settings to minimise paper waste, improving recycling facilities) and by ensuring that sustainability thinking forms part of project planning mandates and is delivered at a local level through the budgeting process (i.e. boiler replacement and installation of new water/electric meters).

Over the years, in addition to fulfilling our statutory requirements in terms of waste and packaging legislation, we have implemented a strategy of incremental investments across the Palaces and the estates which seek to minimise our impact on the environment.

2. Energy reduction

Energy reduction in prestigious historic buildings is always a challenging task. Nevertheless over the years, a number of initiatives have been implemented and we continue to invest in schemes to drive reductions in consumption of electricity and gas.

Energy consumption is monitored through a network of sub-meters installed across the estate, enabling areas for improvement to be identified and targeted, in collaboration with employees and contractors across the organisation.

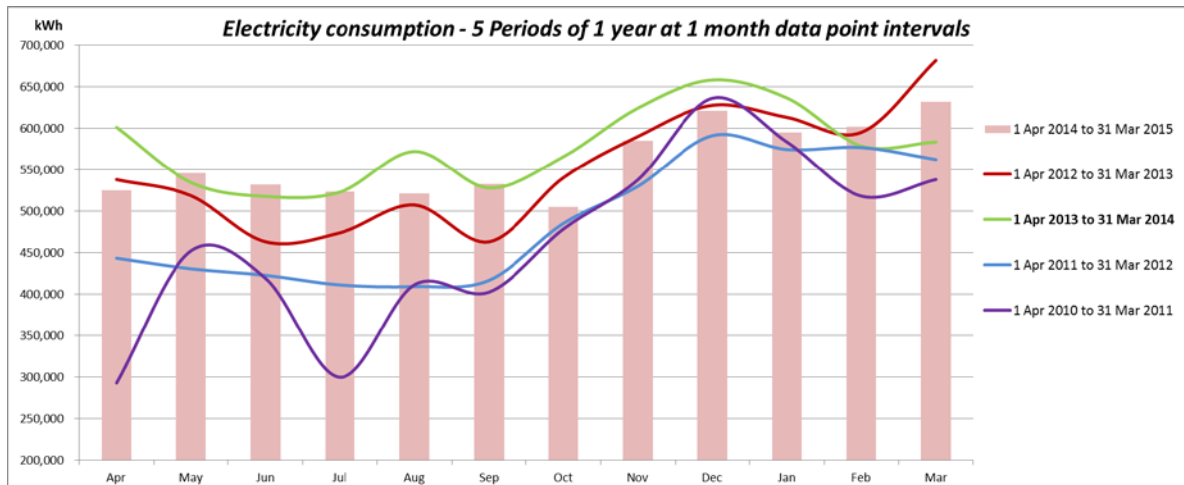
The data presented includes Stafford Retail Warehouse which came into full use in 2010, but it excludes Hillsborough Castle which came under our responsibility in April 2014.

a. Electricity consumption

The table and graph below show trends in electricity consumption over the last five years.

Electricity in KWh	1 Apr 2010 to 31 Mar 2011	1 Apr 2011 to 31 Mar 2012	1 Apr 2012 to 31 Mar 2013	1 Apr 2013 to 31 Mar 2014	1 Apr 2014 to 31 Mar 2015
Total 5 Palaces + Stafford Unit 3	5,571,622	5,855,744	6,613,600	6,924,611	6,721,201
YoY percentage change in consumption - increase/(reduction)		-5%	5%	13%	5%
					-3%

Figures for electricity consumption are sourced from TEAM (Energy Auditing Agency Ltd)



Over the years, we have driven energy savings on electricity through ongoing initiatives:

- Improvements in shut down procedures at nights and week-ends.
- Installation of inverters on motors in plant rooms.
- Increased use of low energy lighting and conversion to LED lighting (light-emitting diode) - now 80% coverage at the White Tower. These lamps use up at least 75% less electricity and last 25 times longer than traditional fittings, reducing energy and maintenance costs. They also produce less heat than tungsten halogen fittings, helping to maintain a comfortable environment for visitors, staff and the works of art in our palaces.
- Upgrades in the lighting controls across the estate.

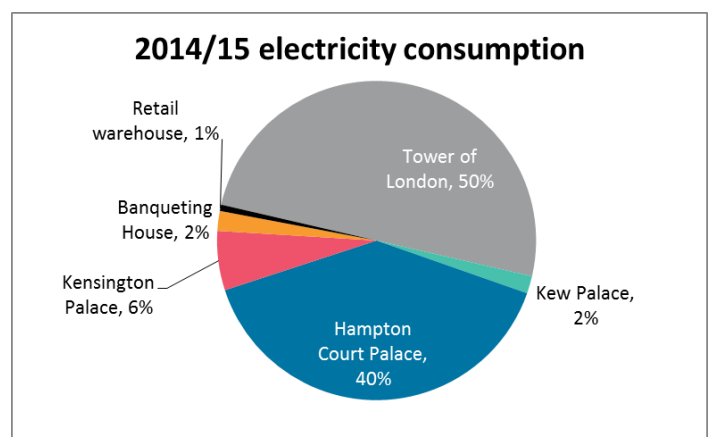
In 2014/15, we installed:

- Sub-metering within the Tower of London which will enable more careful monitoring of the electrical consumption.
- New water chillers, stainless steel cooling towers, chilled water pumps, pressurisation unit and associated plant supplying the Waterloo Block at the Tower. Making use of improved controls on the plant enables the use of energy efficient “night purging” in the Jewel House which is expected to reduce consumption within the building by some 6% due to the efficiency of the system.

Electricity consumption decreased year-on-year for the first time in three years, - 3% over 2013/14, with the Tower of London and Kensington Palace the key drivers for this reduction. However consumption remains 9% higher than the last five-year average.

The increase has impacted all our sites, albeit at various rates, with 2014/15 breakdown by site as shown opposite:

The long-term increase in consumption is explained by changes in activity:



- In three of our palaces, we have significantly changed our catering provision. We opened brand new catering outlets - café at Kensington, restaurant at the Tower in 2012 (adding 3-6% incremental consumption at the Tower depending on the years), seasonal café at Hampton Court in 2013. We have also taken responsibility for electric consumption at the kitchen of our main outlet at Hampton Court.

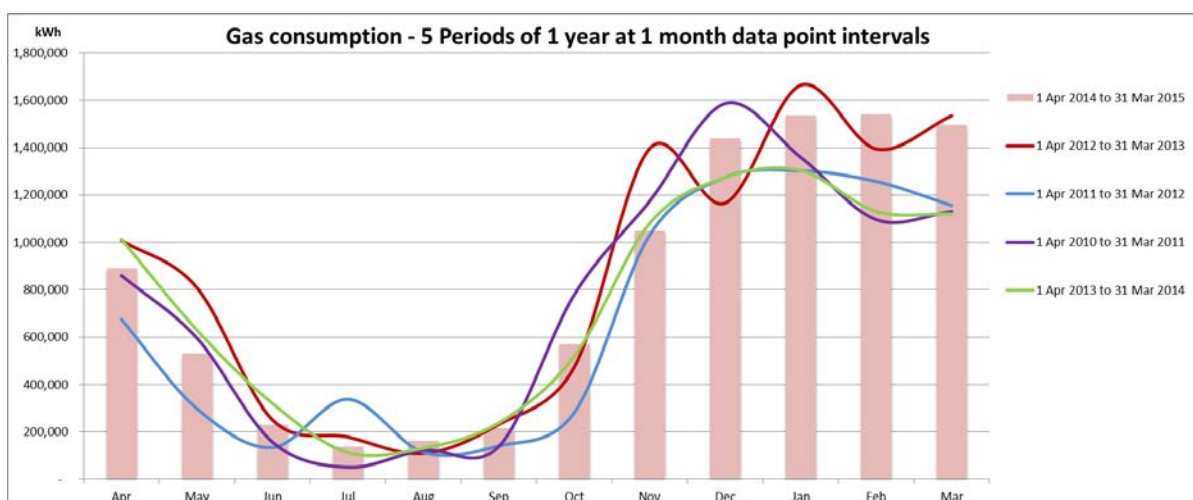
- We continue to open more spaces for public routes (e.g. Mint Street exhibition at the Tower, Cumberland Gallery at Hampton Court) and staff offices and we use more audio visual equipment for our exhibitions and events.
- At the Tower, we now use the Tower's electrical supply instead of generators for the winter and summer moat events, thereby saving the cost of the generators and fuel deliveries. The costs are borne by the external events' providers.
- We have guaranteed opening hours/days and have also trialled seasonal late night openings with a café at Banqueting House
- The Olympics factor for the significant increase in summer 2012 at Hampton Court.
- More generally colder and prolonged winters have an impact on electric consumption through the provision of portable office radiators.

b. Gas consumption

The table and graph below show trends in gas consumption over the last 5 years. There is no gas consumption on our Kew sites.

Gas in KWh	1 Apr 2010 to 31 Mar 2011	1 Apr 2011 to 31 Mar 2012	1 Apr 2012 to 31 Mar 2013	1 Apr 2013 to 31 Mar 2014	1 Apr 2014 to 31 Mar 2015	
Total 4 Palaces + Stafford Unit 3	9,052,853	8,004,376	10,219,359	8,877,730	9,784,792	
YoY percentage change in consumption - increase/(reduction)		14%	-12%	28%	-13%	10%

Figures for gas consumption are sourced from TEAM (Energy Auditing Agency Ltd)



Over the years and working closely with British Gas, HRP has targeted reduction in consumption of gas by implementing the following initiatives:

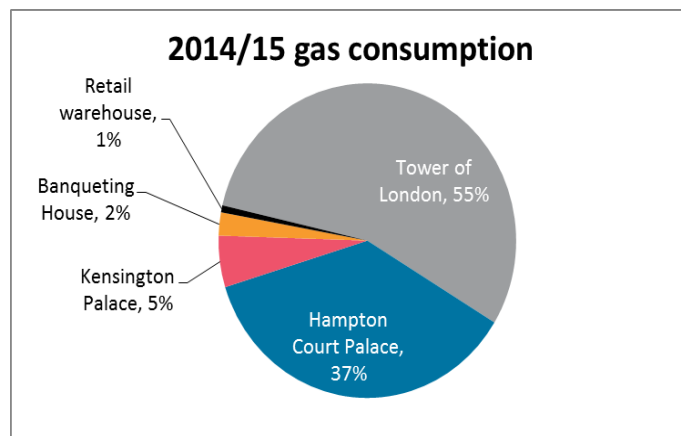
- Draught proofing of historic windows at Hampton Court
- Roof space insulation installed at all three major palaces and lagging on pipes
- Optimisation of boilers' timers at the Tower of London and Hampton Court.

In 2014/15, we invested in our boilers system, with the State Apartments at Hampton Court now served by a new heating system. A new bank of condensing boilers has been installed, along with new ancillary equipment and controls. Several other apartments have been connected to this system, thus removing the need for individual boilers. This is expected to:

- Improve temperature control
- Provide a good basis for further updates in the palace's heating circuits
- And result in a 30% improvement in energy efficiency against the old systems

As a result of the above, gas consumption has reduced by 8-12% over the last five-year average at Hampton Court and Kensington. However for HRP overall gas consumption has increased by 10% over 13/14 and 11% over the last five-year average driven by steep increases at the Tower and Banqueting House.

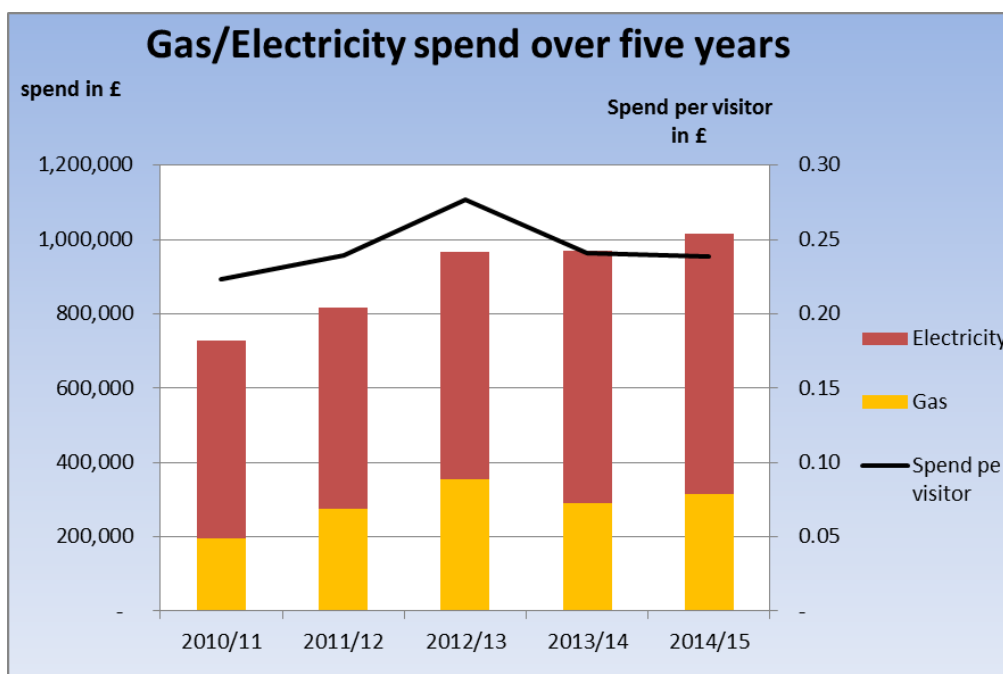
The breakdown by site in 2014/15 is shown opposite:



c. Electricity and Gas spend

The combined spend on gas and electricity in 2014/15 increased by 9% and 3% over the previous year. In both instances, this is directly related to the increase in consumption.

However spend per visitor on gas and electricity combined remained unchanged from last year at 24p per visitor.



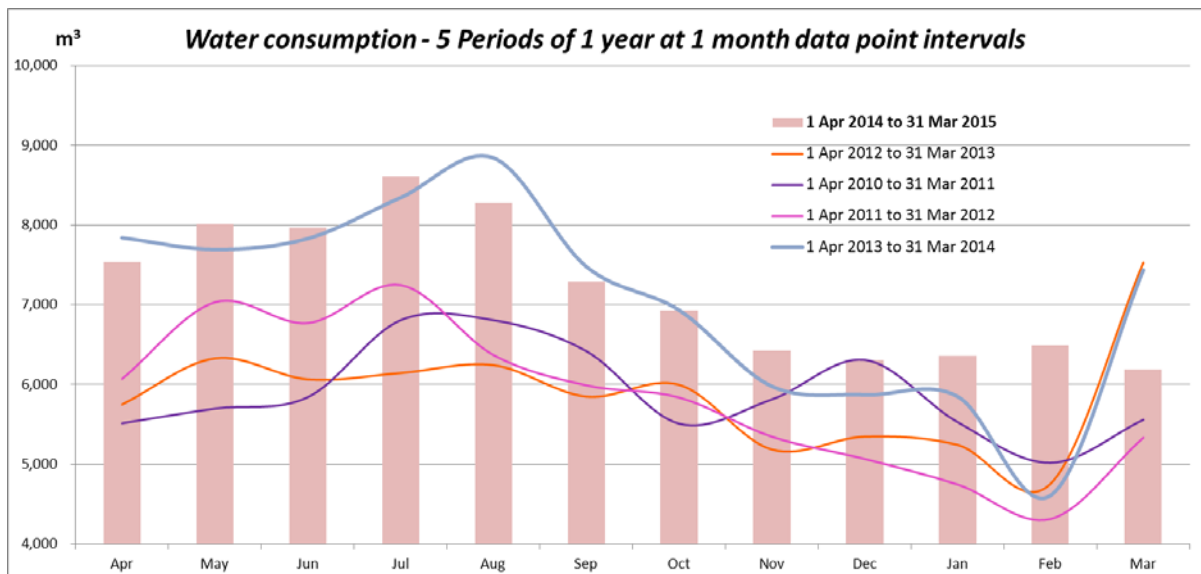
As heating is heavily reliant on gas and electricity, consumption of both is still largely dependent on the severity and length of winter. However we continue to work on initiatives which will reduce energy costs.

- At the Tower, we have replaced the cooling towers in the Waterloo Block and changed the building management system to allow the air conditioning system to make more use of 'free cooling'.
- At Hampton Court, we have installed more efficient boilers within the Royal Tennis Court area and the west end of the Barrack Block, replaced the largest commercial boiler in Round Kitchen Court and upgraded the Cumberland Suite to bring a new heating system and full LED lights throughout.
- Whenever, we carry out full scale refurbishment to areas such as toilets, e.g. Base Court at Hampton Court, we include a range of modern energy saving devices such as taps that only flow for a limited time and infra-red lighting sensors. At HCP, we have phased out the inefficient portable electric conductor heaters in place of more efficient units with built in timers and thermostatic control.

d. Water consumption and spend

The table and graph below shows trends in water consumption over the last five years. To reflect more meaningful trends, data excludes Kew which is the responsibility of RBGK, Kensington due to significant gaps in data and Hillsborough which has just come under our management in April 2014.

Water in m ³	1 Apr 2010 to 31 Mar 2011	1 Apr 2011 to 31 Mar 2012	1 Apr 2012 to 31 Mar 2013	1 Apr 2013 to 31 Mar 2014	1 Apr 2014 to 31 Mar 2015
Total 3 Palaces + Retail unit	70,837	70,138	70,446	84,720	86,395
YoY percentage change increase/ (reduction)	-15%	-1%	0%	20%	2%



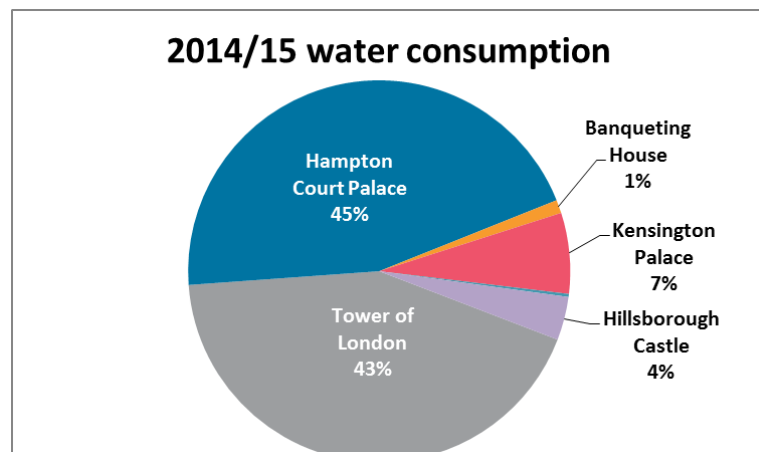
Figures for water consumption are sourced from TEAM (Energy Auditing Agency Ltd)

Consumption of water has increased by 2% over 2013/14 (4% if we include Kensington and Hillsborough). This is mainly driven by Hampton Court Palace (+12% year-on-year) and Banqueting House (+9% year-on-year).

The increase results from a combination of events:

- Longer opening period for the Fountain Court café at Hampton Court Palace
- Demand of the Kitchens garden at Hampton Court
- Growth in staff and visitors at all palaces. The increase in visitors at Banqueting House (+15%) and Hampton Court (+3%) is of particular importance as we estimate that more than 80% of water demand is consumed by visitors in public areas.

The breakdown by site in 2014/15 is as follows:



Sustainability Report 2014/15

Nevertheless, progress has been made over the years, and especially since 2009/10. Consumption per visitor (expressed in litres per visitor in the table below) has reduced by 1% over last financial year and 13% over 2009/10.

	1 Apr 2009 to 31 Mar 2010	1 Apr 2010 to 31 Mar 2011	1 Apr 2011 to 31 Mar 2012	1 Apr 2012 to 31 Mar 2013	1 Apr 2013 to 31 Mar 2014	1 Apr 2014 to 31 Mar 2015	14/15 compared to last year	14/15 compared to last 5 year average %
Consumption (litres per visitor)	26	22.4	20.6	22.3	23.0	22.7	-1%	-1%
YoY percentage change increase/(reduction)	-42%	-14%	-8%	8%	3%	-1%		

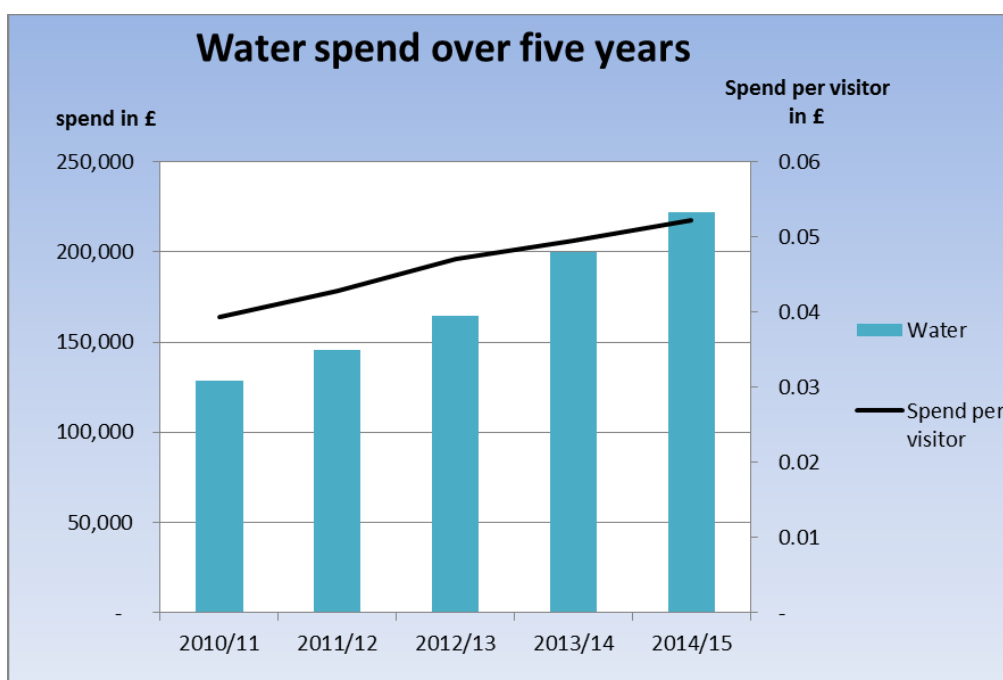
The installation of automated meter readings across the main palaces has enabled close monitoring of water leaks and allowed for prompt repair.

At the Tower of London, grey water is used to irrigate the lawns in the moat and flush some of the public toilets. Half the visitor toilets have been fitted with sensor taps. Working with Thames Water, the water pressure was reduced at the taps, thereby reducing overall consumption.

At Hampton Court, rain water and river water is used for the majority of irrigation and all visitor urinals are fitted with an electrical flow rate controller. The refurbishment at KP has allowed the introduction of sensor mixer taps and low flush toilets in all public areas.

Spend on water has increased significantly over the last five years reaching a compound annual growth rate of 15% since 2010/11. When analysed against visitor numbers however, the rate of increase of water spend per visitor is circa 7%.

This reflects the increase in activity, in particular with the changes in catering outlets at most palaces over the years.



3. Waste

a. Waste management at our sites

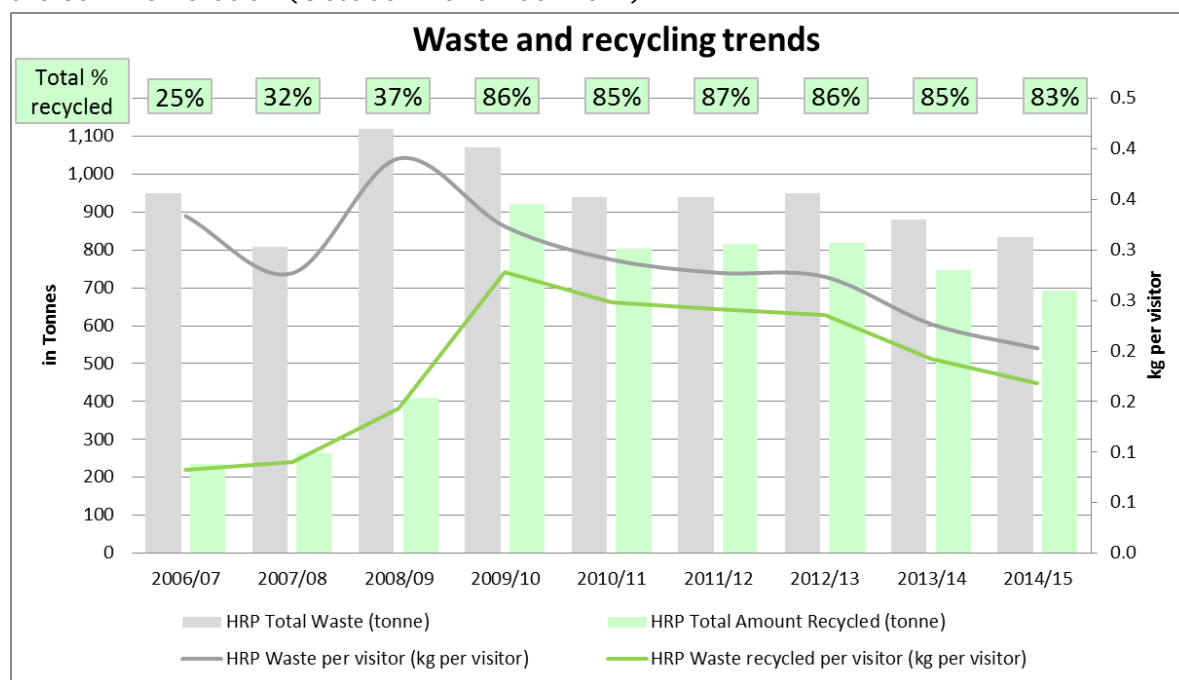
We continue to focus on waste management and increased re-use and recycling. This has resulted in most palaces reaching greater than 80% waste recycling for six years in a row.

HRP (all palaces excl. Kew)	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Total Waste (tonne)	949	808	1121	1069	940	939	949	880	835
Total Amount Recycled (tonne)	234	263	410	922	802	816	817	746	694
Total % Recycled	25%	32%	37%	86%	85%	87%	86%	85%	83%
Waste per visitor (kg per visitor)	0.33	0.28	0.39	0.32	0.29	0.28	0.27	0.23	0.20
Waste recycled per visitor (kg per visitor)	0.08	0.09	0.14	0.28	0.25	0.24	0.24	0.19	0.17

Figures above are sourced from our contractor, MITIE.

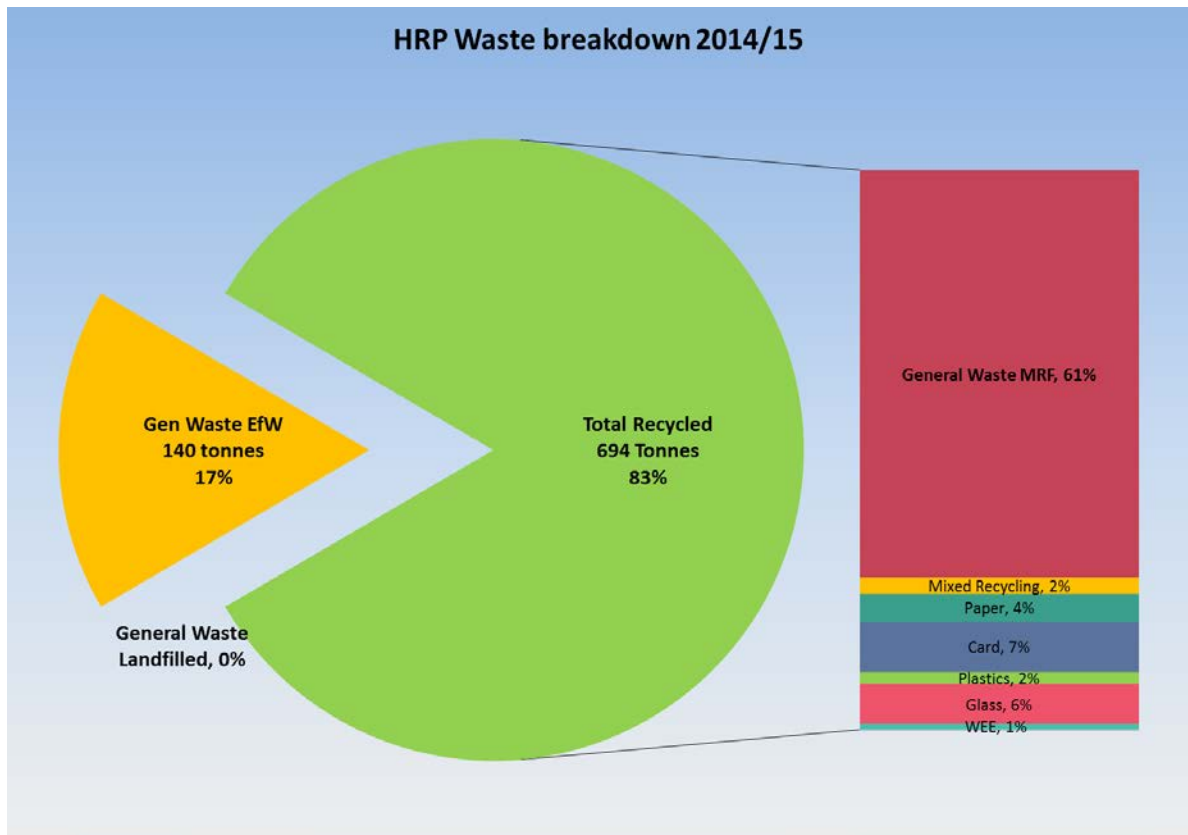
In 2014/15, no waste was sent to landfill and palaces reached recycling rates of 86% at Banqueting House, 85% at Hampton Court Palace, 83% at the Tower of London and 62% at Kensington Palace in 2014/15. Due to local constraints of space, regulation and logistics, Kensington Palace recycling percentages are always lower.

This is all the more commendable as this was achieved with the backdrop of the millions of non-paying visitors who came to view the 'Poppies' installation at the Tower of London and we experienced a 31% increase in waste collected at HRP's palaces during the peak of the commemoration (October-November 2014).



In 2014/15, 23% of the total waste generated from our palaces was recycled directly on site. Of the remaining waste, approximately 80% was recycled off site at a dedicated sorting facility and 20% was incinerated, thereby generating energy.

Total waste recorded in 2014/15 is further split as follows:



The following initiatives have contributed to this achievement to date:

- Installation of well sign-posted recycling points in staff and public areas, including at large-scale events such as the Music Festival and the Ice Rink.
- Our employees encouraged to take responsibility for and participate in good environmental practices.
- Specific cardboard collection from the retail shops and compacting at the retail warehouse for recycling.
- Construction waste is collected in skips for all projects and segregated either on-site or off-site at dedicated facilities. Metal and electrical cables are collected separately.
- Used computer, photocopier and printer cartridges are recycled at all palaces and an approved contractor removes equipment to comply with the waste Electrical and Electronic Equipment Regulations (WEEE).

The Gardens and Estates department is also a key contributor to HRP improvements:

- The team continued to recycle 95% of their green waste, which is shredded and never taken off site.
- This in turn also reduces the need for transportation off site. We also shred a small proportion of waste paper on site to add to the green waste for compost which is gradually more peat-free.
- In addition, a dedicated skip is available for collecting used plastic flower pots and trays, and oil is stored and then taken off site for professional recycling.
- No hazardous waste was disposed of by the team during the period of reporting. This has been partly brought about by an overall reduction in the use of harmful pesticides and a greater reliance on the use of organic products and regular feeding to ensure plants are healthy and can better resist pest and disease attacks.
- Recovered timber is collected at Hampton Court in a separate area for use as fire wood on the Tudor Kitchens Great Fire.

In forthcoming years, improvement to waste management will be brought about by TSS our new cleaning contractor since April 2015. This includes introduction of central waste hubs into office areas, waste division at source and segregation between general waste and dry/mixed waste.

b. Initiatives with our catering supplier

CH&Co under the specialist brand name Ampersand will have been our caterer across our estate for four years by 1st October 2015, providing both exclusive day catering for visitors and occasional events catering for private and business customers.

They make every effort to:

- Closely monitor food deliveries and preparation to reduce levels of unusable food in order to reduce food waste
- Monitor popularity of menu items and scale back on food that is frequently wasted
- 'Buy British' and use 'Red Tractor' products (UK's leading farm and quality food assurance scheme launched by the food industry to promote clearer labelling and ensure food originates from a trustworthy source) where possible. This, in turn, supports local producers and reduces food miles. They use nominated suppliers for fruit and vegetables, specialist fish distributors.

In the New Armouries outlet at the Tower of London, in cooperation with our caterer we have successfully demonstrated composting as a means of removing food waste from our waste streams through partnering with Simply Waste, a company that collects food waste for anaerobic digestion. More work will be undertaken in the future to roll out the programme across our palaces.

4. Travel

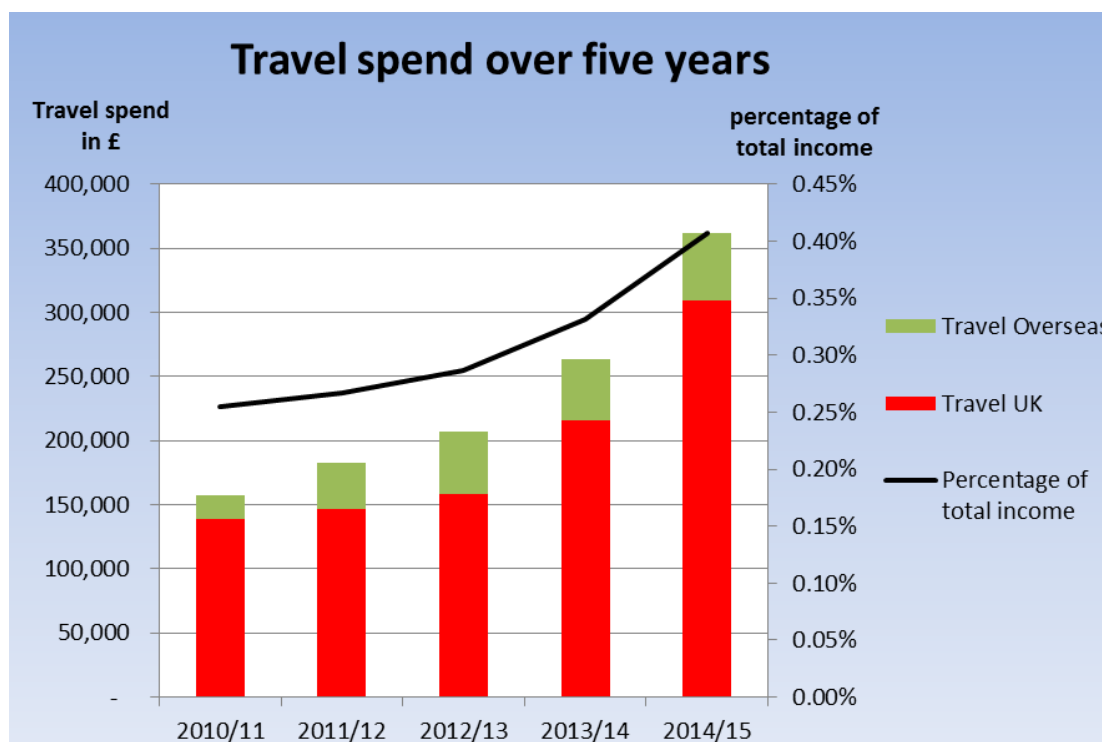
Staff travel spend in 2014/15 has increased by 75% over 2013/14, a marked increase compared to the 27% year-on-year seen in prior years.

This was all driven by UK travel up by 43% and has a direct correlation with Hillsborough Castle in Northern Ireland coming under Historic Royal Palaces' responsibility on 1st of April 2014. This major change for HRP has required significant work being done by a number of teams based in England as well as extensive travel from our Northern Irish colleagues for training. This is likely to continue for a number of months but will slow down when teams are settled.

Overseas travel expenditure went up by 11% during the same period, driven by our fundraising efforts in North America in particular..

Annual travel spend per headcount has increased steadily over the last five years from £222 in 2010/11 to £406 in 2014/15.

However travel remains a small proportion of HRP total spend and as a percentage of total income it has only marginally increased from 0.25% in 2010/11 to 0.41% in 2014/15.



HRP is committed to mitigate the increase in travel in future. Video conference facilities have been installed at three sites, including our Hillsborough site in the last quarter of 2014/15 and we are exploring the use of new digital tools such as application sharing solutions and use of webcam for key personnel to complement the video conferencing facility.

5. Biodiversity

Environmentally friendly initiatives are not limited to inside spaces. Some of the 'greenest' places under our responsibility are, not surprisingly, the parks and gardens. Maintaining and encouraging diverse ecosystems within Home Park and the palaces' gardens is a vital part of the management of HRP estate. We seek to enhance the biodiversity value of the estate through sympathetic management. This includes a commitment to the sustainable management of habitats of wildlife conservation importance by:

- Leaving fallen timber and deadwood on site to create habitats for saproxylic species
- No longer adding chemical controls to waterways and water features
- Introducing reed beds and marginal aquatic planting for filtering and habitat creations
- Devising biodiversity mitigation plans when carrying out conservation work on palaces, garden walls, etc.

We also regularly conduct targeted surveys and biological recording of key habitats and species to monitor change and the impact of management practices and activities. Recent externally commissioned surveys have been conducted for small mammals, terrestrial and aquatic invertebrates, bats, amphibians, reptiles, birds and fungi. These surveys help to further our understanding of existing habitats and species influence management practices. They can also be used for education purposes.

In the spring of 2014, we also open to the public free of charge the restored Kitchen Gardens, which is operated to show how food was produced for the king's table at the palace. The Tiltyard was used as the royal kitchen garden throughout the 18th century and this recreation is faithful to its time, right down to the types of gardening displays used to cultivate rare heritage fruit and vegetable.

Historic Royal Palaces works in partnership with a number of local wildlife conservation groups and organisations which enable us to share knowledge of best practice to help coordinate effective working.

In September 2014 Home Park (excluding the footprint of the open areas used during the RHS Flower Show) together with Bushy Park and Hampton Court Golf Course were designated a biological Site of Special Scientific Interest (SSSI) - Bushy Park and Home Park SSSI. An SSSI is a conservation designation awarded by Natural England (England's statutory nature conservation body) and denoting a protected area in the United Kingdom. The denomination recognises extensive areas of good quality acid grassland as well as scarce and notable plants, rare occurrence in Greater London. This also highlights the successful management of the park.