











YOUR PARK, OUR PLANET

London Legacy Development Corporation
Environmental Sustainability Report **2014**



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CEO STATEMENT

It has been a busy year for the London Legacy Development Corporation (LLDC) and we have made good progress towards our objective of creating a new heart for east London.

There is much that we can be proud of having achieved over the past year. We have installed over 45 hectares of biodiverse habitat; we have reused materials from the Olympics onsite; we have built on the excellent sustainability credentials of the Olympic venues; published guidance for all events, big or small, on how to host a sustainable event; and have put in place the measures necessary to enable our forthcoming development to achieve zero carbon. I am very proud that the first phase of our development will contain Queen Elizabeth Olympic Park's first onsite zero carbon homes.

I am pleased to report that of the 73 sustainability commitments we made, 88% have either been achieved or are on track for achievement.

We are not content to rest on our laurels - this coming year we will be establishing baselines for the Park now that it is fully open, and concentrating our efforts on ensuring that we continue to create sustainable new places, while protecting and enhancing the parklands. This year we're targeting lots of zeros - zero carbon and zero waste directly to landfill.

The environment is important to us and we consider the environment in all that we do, whether it's caring for the plant-life, building new neighbourhoods, or hosting world class sporting and local events.

After all, it's your Park, our Planet.

Dennis Hone

Chief Executive Officer, LLDC.





MY PARK, MY PLANET

Queen Elizabeth Olympic Park is a new heart for east London and a vibrant destination for all. On 5 April 2014 the full Park reopened to the public for the first time since the 2012 Games, with over 50,000 visitors taking part in the festivities. See what some of the first visitors had to say about the Park's transformation.



HOME



ENERGY



WATER



WASTE



MATERIALS



BIODIVERSITY



TRANSPORT



LIFESTYLES



DATA



INTRODUCTION

Welcome to the first Environmental Sustainability Report (ESR) of the London Legacy Development Corporation (LLDC).

The LLDC took over management of Queen Elizabeth Olympic Park in October 2012. Since then we have been working to transform the Park and its venues into London's newest and most vibrant neighbourhood.

The London 2012 Olympic and Paralympic Games were a resounding success – both in terms of sporting achievement and as the most sustainable Games of modern times. We are building on this legacy by putting sustainability at the heart of the Park and all our wider activities.

In April 2012 we published '[Your Sustainability Guide to Queen Elizabeth Olympic Park 2030](#)'. This set out our commitments across [seven key environmental themes](#) to ensure the Park continues to lead the way on sustainability.

This is our first annual review of progress against these commitments. We have also made commitments on socio-economic aspects of sustainability. Further information on these [priority themes](#) can be found on our [website](#).

Format of the report

This report provides an overview of our activities from April 2012 up until the Park opening on 5 April 2014.

A summary of our activities between 1 April 2012 and 31 March 2013 has been provided in line with our first full financial year of operation.

The remainder of this report focuses on our activities from 1 April 2013 to 31 March 2014 in line with the 2013/14 financial year. We also mention the official full Park re-opening on 5 April 2014; however the data from this event will be included in next year's report.

A full summary of progress against all our targets can be found at the [back of this document](#).



HOME



ENERGY



WATER



WASTE



MATERIALS



BIODIVERSITY



TRANSPORT



LIFESTYLES



DATA

WHO WE ARE AND WHAT WE DO

The London Legacy Development Corporation

We are a Mayoral Development Corporation (MDC) set up to deliver the promise of the Olympic Games – a new heart for east London and a sustainable legacy for the communities around Queen Elizabeth Olympic Park.

We have many different roles at the LLDC, and our responsibility stretches beyond the boundaries of the Park itself. The map below provides a simple overview of our areas of influence covered in this report.

Land owner and developer 1

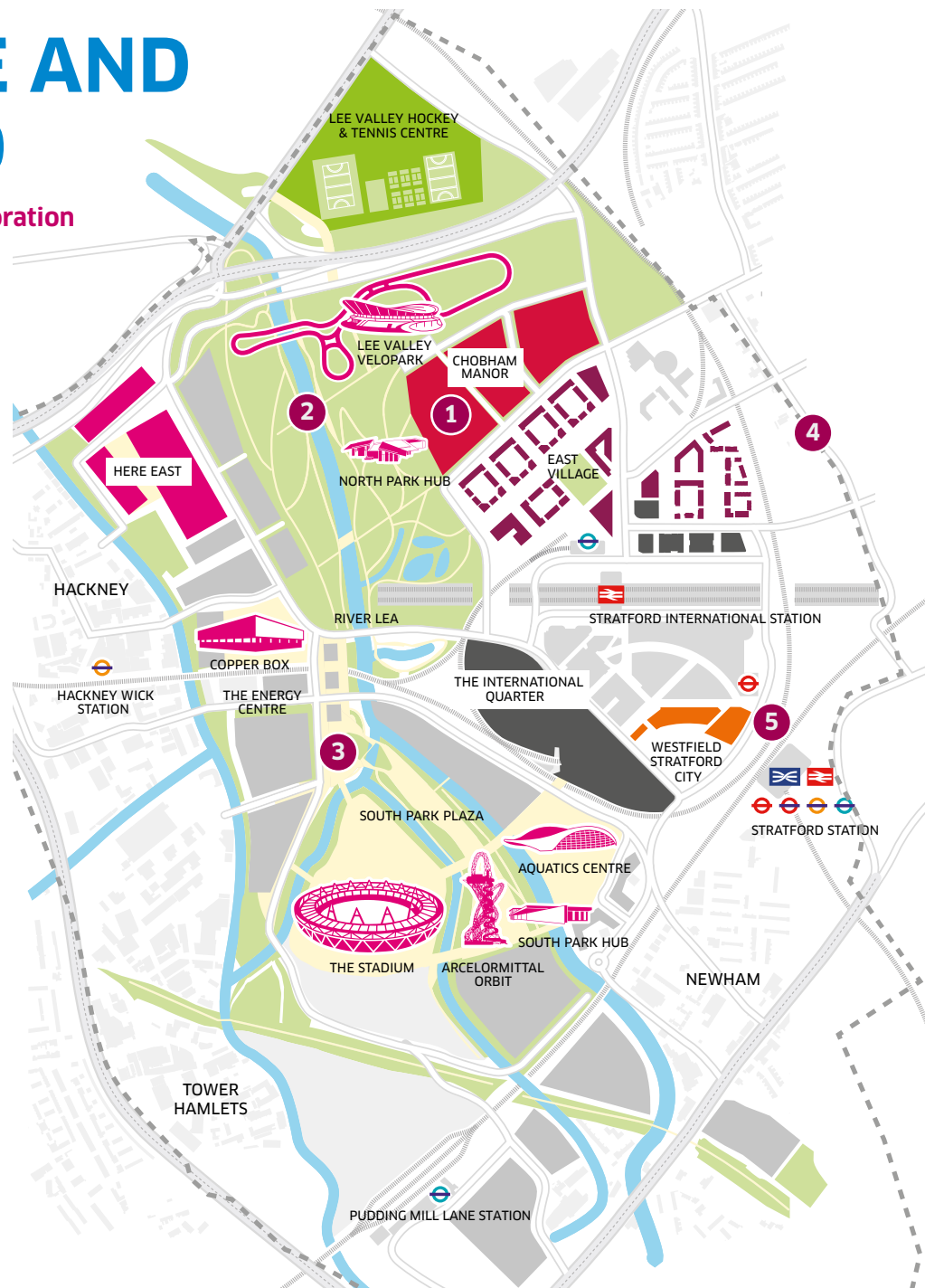
The LLDC will be using some of its land to build new neighbourhoods around Queen Elizabeth Olympic Park. Our first phase of development, [Chobham Manor](#), will welcome residents from 2015.

Relevant area(s) of work: New construction

Estate manager of the parklands 2

We oversee the maintenance of the parklands and own some of the venues, including the [London Aquatics Centre](#), the [Copper Box Arena](#), the [ArcelorMittal Orbit](#), the [Stadium](#) (with London Borough of Newham), The Podium and the [Timber Lodge Café and Community Centre](#). We have venue operators in place for all of these venues, with the exception of the Stadium (appointment should take place in 2014/15), and work with them to achieve our sustainability targets for venue and events management.

Relevant area(s) of work: Venues & parklands



Key to map	
East Village	Parkland
The International Quarter	Urban Parkland
Westfield Stratford City	Waterways
Park Future Development	Roads
Non Park Development	Rail
Venues	LPA boundary

Events host 3

We host events on the Park – from large-scale international sporting events to intimate local community events.

Relevant area(s) of work: Events; Venues & parklands

Local Planning Authority 4

We are the [Local Planning Authority](#) for an area larger than the Park. The LLDC is responsible for the publication of a local plan that sets out the policies and principles developers must follow if they are building within this area.

Relevant area(s) of work: New construction

Employer 5

We have 126 members of staff split between our head office at Stratford Place and Park headquarters.

Relevant area(s) of work: Corporate

Click on the relevant [links](#) for more information.



CLEAR – CONNECT – COMPLETE

In October 2012 we inherited the Park from the Olympic Delivery Authority (ODA), following one of the most sustainable Olympic and Paralympic Games ever. We began our work to clear, connect and complete Queen Elizabeth Olympic Park in time for the full Park reopening in April 2014.

Below is a summary of our activities to complete the [ODA](#) vision, detailing how the project performed against some of its key targets:

BREEAM EXCELLENT POST CONSTRUCTION FOR ALL OLYMPIC VENUES

We are committed to ensuring that all the Olympic Venues which achieved a [BREEAM Excellent](#) rating during the Games are able to maintain these ratings once transformation to their final operational use is complete. The London Aquatics Centre, Lee Valley VeloPark, Stadium and Copper Box Arena are on track to maintain these standards.



CEEQUAL EXCELLENT FOR INFRASTRUCTURE WORKS

A CEEQUAL assessment was undertaken for the infrastructure works overseen by the LLDC across the Park. The assessment is on track to achieve [CEEQUAL Excellent](#) standard, pending final verification.



50% REDUCTION IN CARBON EMISSIONS FROM DEVELOPMENT

An ambitious 50% carbon reduction target was set for the Olympic development. We have achieved a 59% reduction, exceeding the target through a combination of very efficient building design, use of the Park's energy network, renewable energy, and [carbon offset measures](#).



50% OF MATERIALS TO BE MOVED BY SUSTAINABLE TRANSPORT MODES (RAIL AND WATER)

Transporting materials by road can be both disruptive and generate significant carbon emissions. Following completion of the Olympic Venues, the LLDC has assessed that the 50% target has been exceeded, with 59% of materials moved by sustainable transport modes.



40% REDUCTION IN POTABLE WATER USE AGAINST 2006 BUILDING REGULATIONS

A 24% water efficiency saving has been achieved across the Olympic Venues, through fixtures and fittings alone. This has the potential to rise to a 57% reduction, with an additional 33% potable water (ie drinking standard water) saving through existing, and planned, potable water substitution measures.



100% OF MATERIALS TO ACHIEVE GREEN GUIDE RATING A-C

All materials used during the transformation of the Olympic Venues have achieved a Green Guide rating of A-C. Additionally, only products with a [Global Warming Potential](#) <5 were used on site.



PROVIDE 45 HECTARES OF BIODIVERSITY ACTION PLAN HABITAT

We have provided 45 hectares of [Biodiversity Action Plan](#) habitat, across ten varying types of habitat, including parks and squares, allotments, grassland, rivers, and woodland.



WHAT WE'VE BEEN DOING

1 April 2012 – 31 March 2013



1 April 2012

The LLDC was established as a [Mayoral Development Corporation](#); responsible for the transformation of Queen Elizabeth Olympic Park and the regeneration of the surrounding areas.



April 2012

We published '[Your Sustainability Guide to Queen Elizabeth Olympic Park](#)', our 2030 vision and commitments for environmental sustainability in and around the Park.



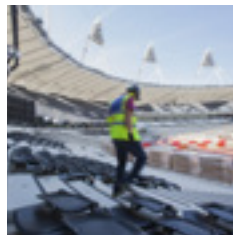
July–September 2012

The Park came to life with the most sustainable Olympic and Paralympic Games ever. Behind the scenes, we continued plans for taking over and transforming the Park.



September 2012

[Outline planning permission](#) was granted to create up to 6,700 homes, along with some office and shop space, across five new neighbourhoods in Queen Elizabeth Olympic Park. The first of these, [Chobham Manor](#), will open in 2015.



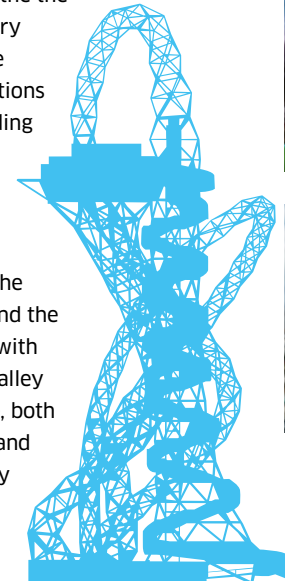
October 2012

The [ODA](#) handed over the Park to the LLDC and we began our work to clear, connect and complete Queen Elizabeth Olympic Park in time for a phased re-opening.



December 2012

Work began to transform the the Olympic venues. Temporary venues and overlays were cleared away, and connections from the Park to surrounding communities via highways and bridges were completed. Work began to complete the legacy venues, including the London Aquatics Centre and the Copper Box Arena; along with the Velodrome, and Lee Valley Tennis and Hockey Centre, both of which are now owned and operated by the Lee Valley Regional Park Authority.



January 2013

We launched 'Take 12' – our first health and wellbeing project, challenging 12,000 people from across the six host boroughs to complete 12 hours of physical activity or travel 12km in distance in 12 weeks.

March 2013

The future of the iconic Olympic stadium was secured with the confirmation of West Ham United Football Club as the long-term anchor tenant from 2016.

Park in Progress tours began, welcoming people to take a first look at the Park and our progress since the 2012 Games.



WHAT WE'VE BEEN DOING

1 April 2013 – 5 April 2014

April | May 2013 | June | July | August | September | October | November | December | January 2014 | February | March | April



May 2013

We announced that all permanent caterers on the Park are required to sign up to the [Mayor's Food Legacy Pledge](#) and [Healthier Catering Commitment](#).

June 2013

[Here East](#) signed a contract to occupy 92,000 square metres within the former Press & Broadcast Centres - meaning all eight permanent venues from London 2012 have their future secured.

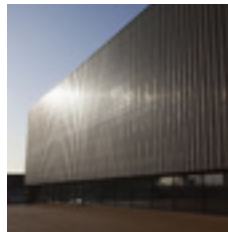


June-Aug 2013

Over 700,000 people attended the Park's debut Summer Series of events, including Wireless Festival, Prudential Ride London, and the Sainsbury's Anniversary Games.

July 2013

The Copper Box Arena officially reopened - the arena cladding is made from 3,000 square metres of sustainably sourced copper.



September 2013

The North of the Park opened, including the Timber Lodge Café and Community Centread Tumbling Bay Playground, which later won prestigious Civic Trust architectural awards for accessibility and universal design.

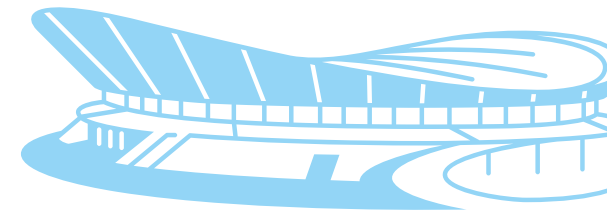


January 2014

The LLDC oversaw the extension of bus routes around the Park, delivering on the promise of an accessible and well-connected Park.

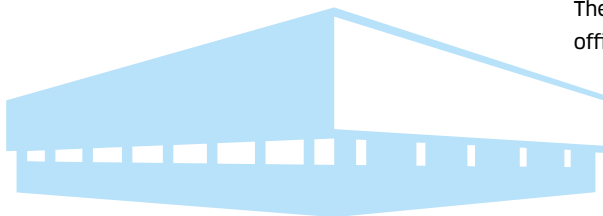
March 2014

The iconic London Aquatics Centre and the Lee Valley VeloPark opened to the public.



5 April 2014

Over 50,000 visitors took part in a weekend of festivities as the South of the Park opened to the public for the first time since the London 2012 Games.



OUR SUSTAINABILITY FRAMEWORK

Our environmental sustainability commitments are divided across seven key themes



ENERGY

Zero carbon buildings and a reduction in carbon emissions across all our areas of work.

See page 11



WATER

Reduce water demand, tackle local flooding, and reduce water course pollution.

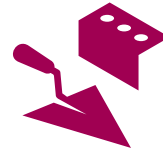
See page 13



WASTE

Zero waste direct to landfill through minimising waste production and increasing reuse and recycling.

See page 15



MATERIALS

Use locally sourced, low environmental impact, and socially responsible materials.

See page 17



BIODIVERSITY

Provide a variety of usable open spaces that promote and protect bio-diverse habitat and wildlife.

See page 19



TRANSPORT

Create well-connected places that facilitate the use of sustainable modes of transport to and across Queen Elizabeth Olympic Park.

See page 21



LIFESTYLES

Inspire healthy, inclusive, and sustainable lifestyles.

See page 23

Our targets are divided across four key areas of work

A summary of the specific targets, and how we are doing against them can be found in the [Your Park, Our Performance](#) at the back of this document.

New construction

These targets apply to new buildings we have designed or developed since the Olympic and Paralympic Games - including the Timber Lodge Café and Community Centre and The Podium, and the developments we will build over the coming years as part of the [Legacy Communities Scheme](#).



Venues & parklands

These targets apply to the maintenance and operation of the Park, along with the venues for which we are responsible.



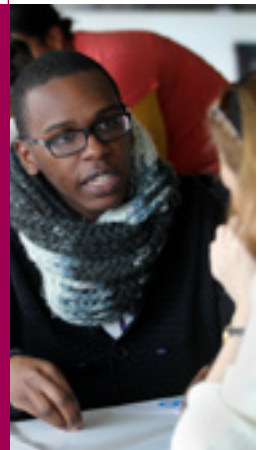
Events

These targets apply to events that take place across the parklands and in the venues of which the LLDC maintains ownership.



Corporate

This covers the performance of our office and activities of our staff.



HOME



ENERGY



WATER



WASTE



MATERIALS



BIODIVERSITY



TRANSPORT



LIFESTYLES



DATA

ENERGY

Zero carbon buildings and a reduction in carbon emissions across all our areas of work.

KEY ACHIEVEMENTS INCLUDE:

TIMBER LODGE CAFÉ AND COMMUNITY CENTRE EMITS 62% FEWER CARBON EMISSIONS THAN AN EQUIVALENT COMPLIANT BUILDING NOT CONNECTED TO THE ENERGY NETWORK.

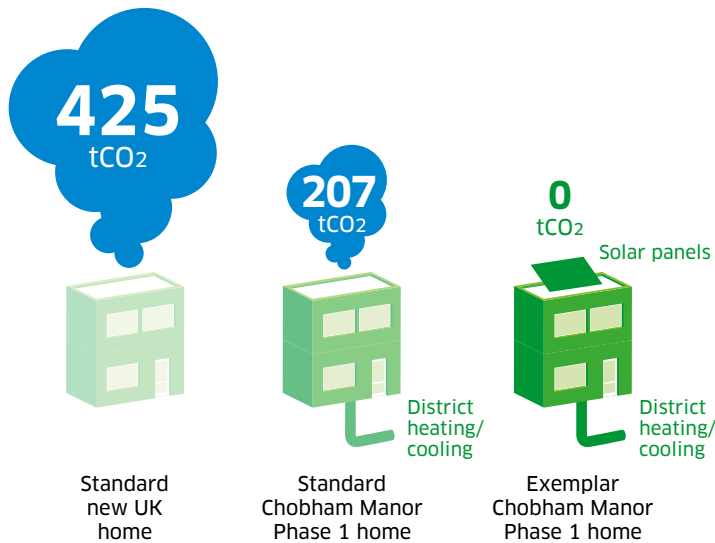
PLANNING GRANTED FOR THE FIRST RESIDENTIAL PHASE OF CHOBHAM MANOR, DESIGNED TO EMIT 63% FEWER CARBON EMISSIONS* ACROSS 259 HOMES; INCLUDING TEN ZERO CARBON HOMES.

VOLUNTARY COMMITMENT TO OFFSET REMAINING EMISSIONS ASSOCIATED WITH PHASE 1 OF CHOBHAM MANOR.

*As required by Building Regulations 2010.

Carbon reductions for Chobham Manor homes

Tonnes of CO₂ emissions per year



Energy innovation

The Park is powered by two cutting-edge energy centres which together form the largest district energy network in the UK – one in King’s Yard to the west of the Park (pictured), and one near Westfield Stratford City.

Efficient combined heat and power (CHP) engines provide heating and cooling to venues, commercial buildings, and residential properties in and around the Park. In addition, there are two large biomass boilers, used to provide heat to the district network. The biomass woodchip fuel is sourced predominantly from arboricultural waste (vegetation pruning) and within 100km radius of the Park.

The network is operated by Cofely UK and helps contribute to our target of zero carbon, and will provide heating to all the new homes on the Park.

New construction

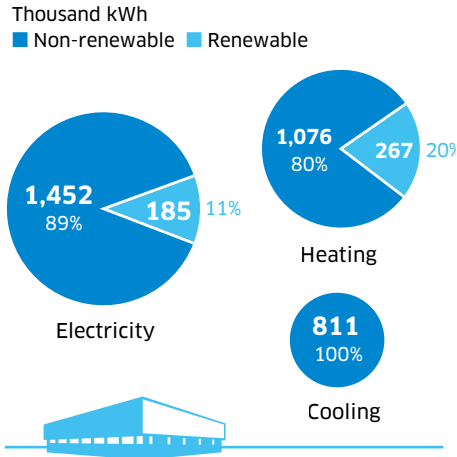
Both the process of constructing and living in buildings creates carbon emissions which contribute to climate change. Over the past year we have constructed buildings, and put in place plans for future developments, with significantly reduced carbon emissions compared to minimum national standards. As homes use energy differently, we have slightly varied targets for homes compared to other buildings; Our approach to the phase 1 homes at Chobham Manor is illustrated on the previous page.

We are very proud of the progress we have made with our development partners Chobham Manor LLP to provide [zero carbon homes](#). The first phase of the development will achieve a 63% reduction in carbon emissions; almost meeting our stretching target of a 65% reduction in carbon emission through conservation, efficiency, and renewable energy alone.

Venues & parklands

We are already beginning to reduce the carbon impact of our park maintenance and venue operations. Park security guards carry out some of their rounds on bicycles; we have incorporated some solar-powered lighting across the parklands; and our park maintenance staff use electric buggies and boats to carry out their work and be transported around the parklands. The Copper Box Arena has also installed 13 pieces of self-powered cardiovascular equipment in the public gym; along with aero-bikes and resistance equipment which does not require an electricity supply.

Energy use in the Copper Box



We have been tracking energy use on the Park and in the venues since they were handed over to us in October 2012. With a number of carbon reduction measures already in place, we will continue to refine our monitoring systems and measure our 'baseline' energy use in the coming year, to help track the savings being achieved.

Events

This year we published our ['Simple Guide to Sustainability for Events'](#) as a first step towards hosting low and zero carbon events. This outlines our top tips on how to minimise the potential impacts before, during, and after an event; such as paperless ticketing, promoting sustainable transport options, reusable merchandise, and locally sourced food.

We will work over the coming year to establish an energy baseline for our events in the parklands and LLDC-owned venues and use this information to identify how

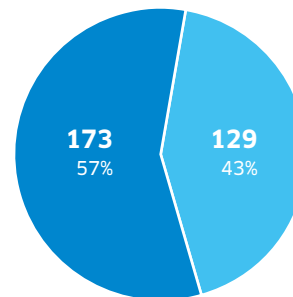
best to reduce the carbon footprint of our events. We are also working to achieve [ISO 20121](#) – the international standard for Sustainable Event Management, developed as part of the London 2012 programme. In 2014/15 we will begin to collaborate with our venue partner Greenwich Leisure Limited to support us in achieving this standard.

Corporate

In 2013/14 we established the baseline for our corporate greenhouse gas (GHG) emissions. This includes emissions due to operating our office at 1 Stratford Place, business travel by air, employee commuting and disposal of waste. Our largest impact arises from emissions associated with electricity consumption in the office (50%). We will be expanding our data monitoring to include business travel emissions from hire cars, taxis and public transport. Based on our calculations, our emissions intensity per employee is 2.4 tonnes CO_{2e}. Based on our floorspace, our energy usage is 330 kWh per square metre.

Corporate GHG emissions

Tonnes CO₂ ■ Scope 2 ■ Scope 3



Timber Lodge Café and Community Centre

The Timber Lodge Café and Community Centre, which opened to the public in July 2013, is one of the first new buildings constructed on the Park since the 2012 Olympic and Paralympic Games. The Timber Lodge Café and Community Centre achieved [BREEAM Excellent](#) at design stage and is expected to achieve the same post construction. The building has achieved a 62% reduction in carbon emissions compared to average community buildings. This has been achieved by using energy efficient [Cross Laminated Timber](#), connection to the Park energy network, and the use of [photovoltaic panels](#) to generate renewable energy.

WATER

Reduce water demand through efficiency, reuse, and innovative technology. We are also committed to tackling local flooding and reducing water course pollution through sensitive urban design and landscaping.

KEY ACHIEVEMENTS:

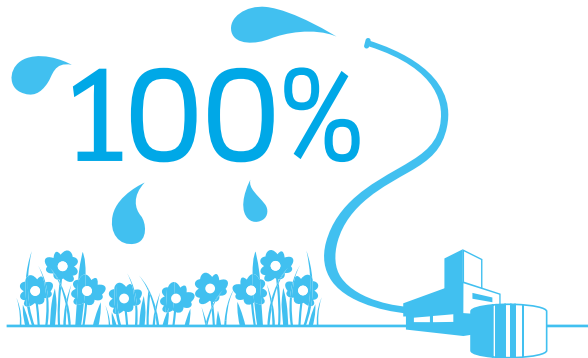
EXTENDED THE USE OF THE NON-POTABLE WATER NETWORK IN THE FINAL DESIGNS FOR THE STADIUM.

PHASE 1 OF CHOBHAM MANOR DESIGNED TO ACHIEVE 90 LITRES PER PERSON PER DAY (LPPD), WITH 10 ZERO CARBON HOMES ACHIEVING 80 LPPD.

MONITORED THE USE AND QUALITY OF THE WATER FROM THE NON-POTABLE WATER NETWORK.

Water from the Old Ford Water Recycling Plant used for parklands irrigation

40.7 million litres



Equivalent to **1,240** Chobham Manor residents for a year

*During the period April-September 2013, the non-potable network was served with potable water due to a leak in the septic tank at Old Ford.

Sustainable watering of the parklands

The parklands cover 102 hectares of open space including riverside lawns, flower-filled meadows, wildlife rich wetlands, and an inspiring new pleasure garden the South of the Park. The parklands are carefully tended to, and need watering to keep them in a healthy and pristine condition, for all to enjoy. The amount of water these plants require will reduce as they settle into the landscape.

To reduce potable (drinking) water demand we have established sustainable irrigation systems throughout the parklands, including rainwater harvesting and the Old Ford non-potable watering system. 100% of our parklands watering demand can be met from the Old Ford Water Recycling Plant- which provided up to 850,000 litres of greywater a day in 2013 for parklands irrigation.

New construction

We have designed the new homes at Chobham Manor to incorporate water efficient taps, toilets and shower heads, and have chosen plant species requiring less water than average. These homes should meet a standard of 90lppd, well below the national [average of 142lppd](#). Additional savings can be made through the Old Ford Water Recycling Plant, which uses advanced treatment processes to turn [blackwater](#) (or sewage waste water) into non-potable water for irrigation and toilet flushing.

In 2013/14 we undertook a feasibility study to examine the potential of connecting new neighbourhoods and future developments to the non-potable water network and found there is sufficient capacity within the system. However, there are a range of challenges associated with using non-potable water from Old Ford in peoples' homes.

Venues & parklands

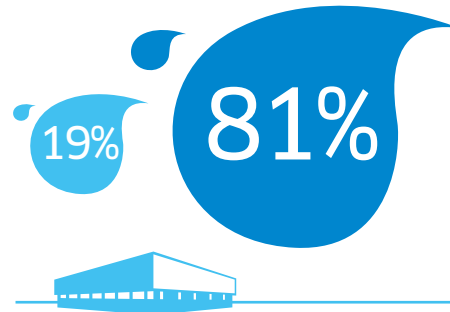
We maintained a 40% reduction in potable water use compared to design standards across Park venues. The Copper Box Arena has exceeded this target, achieving an almost 60% reduction compared to similar venues, through water efficiency measures and a rainwater harvesting system for toilet flushing. When rainfall is low, this can be topped up with [recycled water](#) from the Old Ford Water Recycling Plant.

We are also improving water use in all our venues where opportunities for further reduction are available through upgrading fittings. In 2013/14 we identified that changes to the London Aquatics Centre sampling unit could reduce water demand

Recycled water from the Old Ford Plant used in the Copper Box

4.2 million litres

■ Recycled ■ Potable



Saving water equivalent to the needs of **24** Chobham Manor residents for a year

beyond the 32% design target (see case study for more details). This has resulted in an estimated saving of 2.2 million litres of heated and chemically treated pool water every year.

WE MAINTAINED A 40% REDUCTION IN POTABLE WATER USE COMPARED TO DESIGN STANDARDS ACROSS PARK VENUES.

We are collaborating with British Waterways to enhance and protect the Park's 'blue ribbon' network of waterways. We have developed a programme to use the 6km of canals and rivers for leisure, transport, tourism, and education, which we will launch in 2014.

Events

We worked with our venue operators and external event companies to limit the amount of bottled water available at events through the provision of water fountains. We also placed restrictions on bottled water allowed into the Park during our Summer Series of events, encouraging visitors to bring a reusable water bottle instead. We will continue to improve our monitoring systems for event-specific water use, and work with external operators to reduce water usage throughout 2014.

Corporate

We are currently unable to measure our head office water consumption as we share the building with a number of other tenants; however we are working with Westfield Stratford (our landlords) to investigate if it may be possible in the future.



Saving water at the London Aquatics Centre

The London Aquatics Centre uses 32% less potable (drinking) water compared to other swimming pool entres. This is achieved by using low flow fittings, rainwater harvesting, and recycling water.

While low flow showers, taps, and low flush toilets contribute most of the savings (29%); overflow water from the pools is used for toilet and urinal flushing, providing an additional 3% reduction in potable water use.

These measures will reduce total potable water use by around 450 million litres over the building's 25-year lifespan.

WASTE

Zero waste direct to landfill through minimising waste production and increasing reuse and recycling.

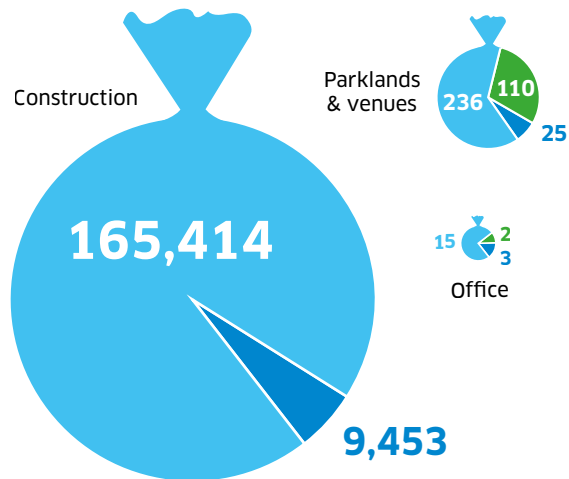
KEY ACHIEVEMENTS:

DIVERTED 99% OF DECONSTRUCTION WASTE FROM LANDFILL.

DIVERTED 93% OF VENUES AND PARKLANDS WASTE FROM LANDFILL.

Total waste 2013/2014

Tonnes ■ Recycled ■ Composted ■ Landfill/recovered



Encouraging reuse

We set a challenging reuse target of 50% for our contractors; and managed to achieve a reuse rate of 62% overall, helping to reduce the need for higher impact, virgin materials. Wherever possible we prioritised reuse of materials on the Park - this helped keep over 28,697 20-tonne lorries off local roads.

51 tonnes of timber from the temporary bridges removed after the Games has been reused around the Park as decking, benches, and planters. This is equivalent to preserving more than 300 semi-mature trees.

We also crushed more than 98,000 tonnes of aggregate, fill and base onsite for reuse.

New construction

During 2013/14 we diverted 99% of construction and deconstruction waste from landfill, exceeding our target of 95%. This includes the work taken to deconstruct the venues, clear, connect and complete the park. We are still awaiting data from the construction of the South of the Park or The Podium Cafe so these are currently not included.

Of this material 81% was reused on the Park or offsite without being reprocessed (which we class as recycled). We set our contractors a challenging reuse target of 50%, excluding [general fill](#). This target was difficult for contractors working on smaller projects to meet, as items were not always easy to reuse without reprocessing. Our contractors went to great lengths to find a reuse for materials, looking for projects beyond the Park, and gifting items to community projects wherever possible.

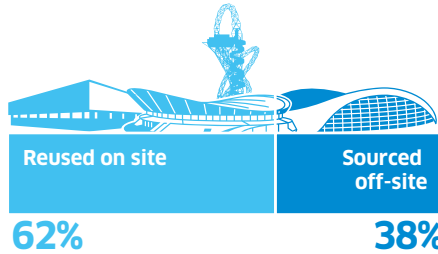
Venues & parklands

During 2013/14 we diverted 93% of waste from our venues and parklands from landfill. In March 2014, we installed new segregated bins across the parklands in time for the full Park reopening, achieving 100% provision of recycling facilities in public areas.

Zero parklands waste to landfill is a key objective for us this coming year and we will be looking for new initiatives to improve our performance. This will include continued work to improve signposting that supports recycling and introducing public food composting bins at venues and across the parklands.

Materials reused on the Park

- Materials reused on site: 573,945 tonnes
- Materials sourced off-site: 351,465 tonnes



28,697

Trips for delivery of new material avoided.

Events

During our Summer Series in 2013, we worked with events organisers to understand the best method of minimising and managing waste. In some cases we gathered information from organisers with their own waste contractors. These events achieved a recycling rate of around

IN 2013/14 99% OF DECONSTRUCTION MATERIALS WERE DIVERTED FROM LANDFILL, EXCEEDING OUR TARGET OF 95%.

70%, with the remainder sent for energy recovery. We will continue to improve our data coverage for events with anticipated attendances of more than 5,000 visitors a day.

We have upgraded our collection vehicles which will improve our ability to report waste by weight for each venue over the coming year. This means we will now be able to see what the difference in waste generation in the Copper Box Arena is on a day with a regular event (like London Lions game for example) versus a less regular event (such as boxing).

Corporate

We have been engaging with all those who work on or visit the Park about the reduction and management of waste. All venue operators receive handover training on waste management, while it is included in the induction of every contractor working on site; with major contractors required to provide project-specific awareness training.

We are also committed to reducing our own waste at 1 Stratford Place. When our printers came to the end of their life in 2013, they were upgraded to PIN code activated machines which can reduce paper wastage. In October 2013, we worked with Westfield and our waste contractor to introduce a new waste reporting system and completed a full waste audit of our head office. As a result we will be issuing updated guidance on the use of segregated waste bins to prevent contamination, and investigating the most efficient arrangement of waste stream bins around the office.



Reducing waste at the Timber Lodge Café and Community Centre

The Timber Lodge café is operated by Unity Kitchen, a London-based social enterprise which trains and employs people with disabilities, and promotes affordable, healthy food and sustainability.

At the heart of their business is a commitment to reduce waste. They offer different portion sizes for different appetites and make food composting a priority where waste cannot be avoided.

All disposables at the café are 100% compostable and made from plant-based materials – this includes cups, sandwich packages, food boxes and cutlery.

MATERIALS

Use locally sourced, low environmental impact, and socially responsible materials.

KEY ACHIEVEMENTS:

PROCURED OVER **510 TONNES OF TIMBER**, 100% OF WHICH MET OUR REQUIREMENTS FOR SUSTAINABLE SOURCING.

INTRODUCED **RECYCLABLE AND BIODEGRADABLE** PACKAGING AT A NUMBER OF OUR VENUES.

3,000 SEATS FROM THE BASKETBALL ARENA REUSED IN THE NEW LEE VALLEY HOCKEY AND TENNIS CENTRE AND **6,710 SEATS** FROM THE LONDON AQUATICS CENTRE GIFTED TO 25 SPORTS CLUBS AND ORGANISATIONS ACROSS THE UK.

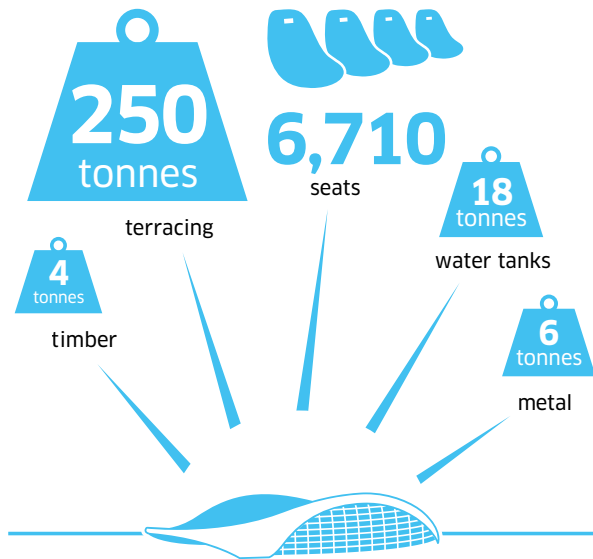
Reused materials from Queen Elizabeth Olympic Park

We have donated materials we are unable to reuse on the Park to community groups and schools around the UK. With support from Sport England we distributed 6,710 seats from the London Aquatics Centre to grassroots clubs. Local Hackney projects have also received equipment including Frontside Gardens skatepark (electricity boxes) and the Cre8 Centre (structural materials and seating).

This process has been supported by our key contractors. For example, Lagan Construction Group worked with Sport Northern Ireland to create a London 2012 inspired school playground. Holy Family Primary School in Omagh inspired the winning idea and received colourful matting from the Central Park Bridge, close to the Olympic Stadium. Lagan installed the matting and the new playground was opened by local Paralympic hero and double Gold medallist Michael McKillop.

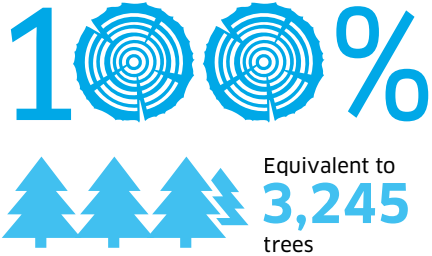
We will be launching our dedicated reuse website 'Freeusable' in 2014 - directed at charities, community groups, schools and projects.

London Aquatic Centre gifted materials



Sustainable timber use on the Park

510 tonnes



ALL 510 TONNES OF TIMBER USED ON THE PARK DURING TRANSFORMATION WERE OBTAINED FROM LEGAL AND SUSTAINABLE SOURCES.

New construction

The Timber Lodge Café and Community Centre opened in July 2013 and achieved 'Excellent' under the materials section of [BREEAM](#), with all materials 'A-rated' or above for their environmental credentials.

All the [Cross-Laminated Timber](#) used was [certified with full chain of custody](#) either by the Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forest Certification (PEFC). We learned from this process that in maximising the opportunities to use low impact materials, which significantly reduce the [embodied carbon](#) of a building (in this case timber); we reduced the amount of material that would traditionally contribute to our target of 20% recycled content ([see targets table](#) for more details).

Our first phase of Chobham Manor will also approach materials in an exemplary way, seeking to reduce the use of paints, varnishes and finishes that contain [Volatile Organic Compounds](#) and to use materials that achieve at least A-rating in the [BRE Green Guide](#).

Venues & parklands

Our venue and parkland managers are required to responsibly source timber as set out in the guidelines for the [Central Point of Expertise in Timber \(CPET\)](#) and to provide us with a copy of their timber procurement policy.

Similarly, we work with our venue operators to increase the use recyclable and biodegradable packaging, particularly for food. The Timber Lodge Café and Community Centre uses compostable packaging and cutlery; the cafe in the Copper Box Arena also provides recyclable packaging; while recyclable and biodegradable packaging is used for ping-pong balls and shuttle cocks

Events

All of the outdoor events we hosted in 2013/14 used hired structures such as stages, fences and lighting, which were packed up and taken back for reuse. Games-time venues such as the Basketball Arena were also dismantled and retained by the contractor for reuse in 2013.

We also give artists and designers who install work on the Park informal guidance on the use of reclaimed or reusable materials. East London Mobile Workshop (ELMO), the mobile arts & crafts studio based around the Park, has also encouraged members of the public to make creative reuse of everyday materials. Workshops have included making musical instruments from everyday objects such as saucepans, and furniture making and repair classes using recycled materials and locally sourced wood.

Corporate

Our office supplies are purchased from local, sustainable and responsible sources, including 100% recycled and FSC certified paper, and fairly-traded coffee, tea and sugar. We also require our contractors to provide evidence that they can operate [ISO 14001](#) compliant environmental management systems, meet our sustainability targets, and ensure processes are in place for the responsible and sustainable procurement of materials. We have placed the same requirement on our venue operators.



Building for the future

We employed 60 apprentices to work on Park transformation – the largest group on a single site in London. Of these 95% are young people from the neighbouring boroughs and 25% are female.

The apprentices represent the future of sustainability in construction, working on one of London's most sustainable construction projects with recycled materials, sustainable timber and structures with reduced embodied carbon.

Apprentice of the Year 2013 was awarded to 21 year old Leanne Doig (above) from London Borough of Newham who worked as a Trainee Construction Operative Apprentice with BAM Nuttall Ltd since December 2012 on projects including the Lee Valley VeloPark and Timber Lodge Café and Community Centre.

Leanne said: "Winning this award means so much to me. I've wanted to work in construction ever since I was little, just like my Dad, and he's really proud that I've had the chance to work on Queen Elizabeth Olympic Park."



HOME



ENERGY



WATER



WASTE



MATERIALS



BIODIVERSITY



TRANSPORT



LIFESTYLES



DATA

BIODIVERSITY

Provide a variety of usable open spaces that promote and protect bio-diverse habitat and wildlife.

KEY ACHIEVEMENTS:

PROVIDED OVER **45 HECTARES** OF HABITAT DESIGNED TO ENCOURAGE BIODIVERSITY.

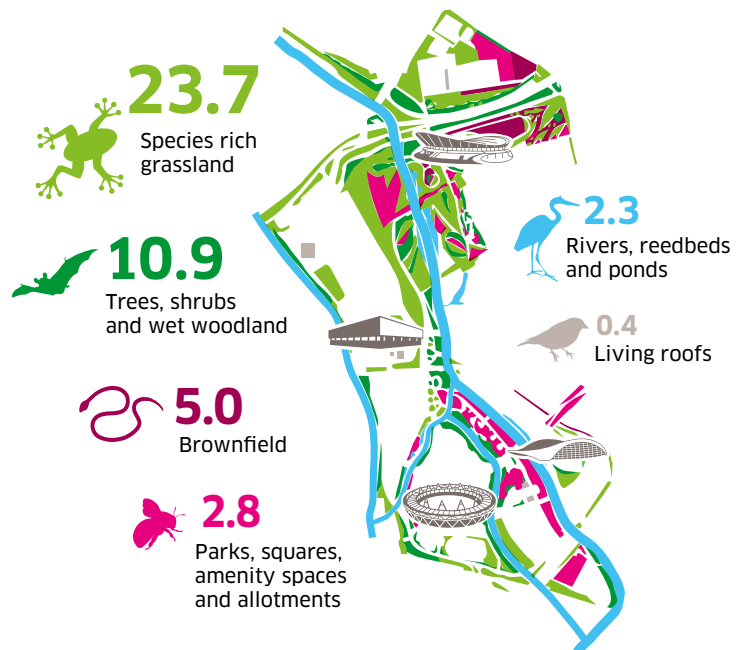
PLANTED OVER **100,000 PERENNIALS** IN THE SOUTH OF THE PARK.

PROVIDED A HOME FOR **6% OF THE COUNTRY'S POPULATION OF BLACK REDSTART**.

PUBLISHED OUR BIODIVERSITY ACTION PLAN FOR THE PERIOD **2014 TO 2019**.

Biodiversity habitats in the Park

Habitat types included in our Biodiversity Action Plan
Hectares



Meet the Crow(e)s

While dismantling the Basketball Arena, contractors made a surprising discovery. Nesting on the frame was a crow couple with two eggs. Contractors immediately downed tools and informed the LLDC. We consulted wildlife experts and put building work on hold for eight weeks until the chicks had flown the nest and it could be safely removed without affecting the birds.

The birds became so well known around the LLDC, we named them after another couple of famous Crow(e)s – Russell and Shery!! The chicks hatched safely and some weeks later (coincidentally!) took their maiden voyage on World Environment Day on 5 June 2013.



New construction

As of March 2014, we have planted over 100,000 perennials (ie plants that live more than two years) in the south parklands; installed 471 bird boxes and 164 bat boxes; and provided over 45 hectares of [Biodiversity Action Plan \(BAP\)](#) habitat.

All future developments on the Park are required to contribute to our BAP and protect local wildlife during and after construction. For example 8300m² of built environment habitat will be established by the end of 2014 - this includes living roofs and living walls, which are intentionally planted with vegetation to establish habitats for wildlife.

During 2013, the University of East London undertook monitoring of the Multi-Storey Car Park green roof and found that the habitat variation on the roof, including the [photovoltaic \(PV\) panels](#), was supporting a wide range of biodiversity. There was also evidence to suggest that the PV panels provided beneficial shading during hot sunny days.

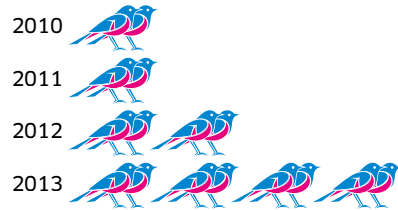
Venues & parklands

A number of wildlife species targeted under our BAP have successfully been attracted to the Park. In 2013/14 we spotted brown-banded carder bees, toadflax brocade moths, grass snakes, and swifts, for the first time on the Park. In fact, we have now recorded all species targeted, apart from water voles and otters, which we will continue to provide habitat for in the hope of attracting to the Park.

We are proud of the work we have done to establish diverse habitats and will continue to nurture and develop our species-rich

Black redstarts around the Park

Number of breeding pairs



45 Nest boxes for this species located across the Park.

<65 Total redstart breeding pairs in the UK.

parklands - that's why we have introduced a new target to achieve designation as a [Site of Metropolitan Importance for Nature Conservation](#) by 2024.

We are also on course to achieve [green flag status](#) for the Park by 2015. Our Park Management Plan outlines our action plan for achieving this; covering a number of areas including conservation, volunteering, and sustainability.

Events

During our Summer Series in 2013 we protected key species by hosting the majority of events on hard surfaced platforms away from sensitive habitat. We have included guidance on protecting wildlife within our updated 'Simple Guide to Sustainability for Events' for events operators, which is publically available on our [website](#).

Now that the Park is fully open, we are keen to work with our event organisers to help visitors appreciate the biodiversity across the parklands. For example, our

'[Discover the Park](#)' trail gives visitors an introduction to the biodiversity features of the Park. We are also exploring the introduction of an interactive application for visitors which will direct them to important areas of habitat and allow them to engage with species surveys.

Corporate

As a new heart for east London, we want the Park to be explored and enjoyed by all those in the surrounding communities. During 2013/14 we provided opportunities for local people and our staff to get involved in nature conservation work and biodiversity-related activities, including the Park Champion conservation programme (see case study). We also held wildlife seminars for staff, and began looking at opportunities to involve local people and staff in our annual habitat and wildlife surveys.

ENHANCING BIODIVERSITY IS CENTRAL TO THE TRANSFORMATION OF THE PARK AS OUR NATURAL ENVIRONMENT UNDERPINS OUR HEALTH, WELLBEING AND ECONOMIC SUCCESS

ALISTAIR BAYFORD
PARK MANAGER

Volunteers bring the Park to life

The Park will forever be associated with the success of volunteering during the 2012 Games. Building on this, the Park Champion conservation programme invites people to explore, learn, and enhance the ecological value of the Park.

Our enthusiastic and energetic champions are supporting the care and development of the parklands. With the option of group conservation tasks or more tailored programmes, volunteers can take part in various activities including woodland maintenance and tree and wildlife surveys. They also have the opportunity to learn from our expert gardeners and practice their new skills on our designed gardens.



TRANSPORT

Create well-connected places that facilitate the use of sustainable modes of transport to and across Queen Elizabeth Olympic Park.

KEY ACHIEVEMENTS:

96% OF LLDC STAFF TRAVEL TO WORK BY SUSTAINABLE MODES SUCH AS PUBLIC TRANSPORT, CYCLING, WALKING, OR CAR SHARE.

95% OF VISITORS TO THE SUMMER EVENTS SERIES ARRIVED VIA SUSTAINABLE TRANSPORT MODES.

OVER 300 HOURS USAGE OF OUR OFFICE POOLBIKES.

Transport to the Summer Series 2013

% of people ■ Sustainable ■ Non-sustainable



Sustainable travel at the Summer Series 2013

During our Summer Series of events in 2013 we encouraged sustainable transport through various methods including limiting on-site parking to only disabled blue badge holders, and adding extra cycle parking around the Park.

We measured how people arrived to the Park, working with London Underground and Southeastern trains to estimate numbers arriving at local stations, and using video counts to monitor road traffic. We also used manual monitoring, thermal imaging counters, and Bluetooth, to count those arriving by foot.

Up to 75% of spectators arrived at Stratford Regional station, with up to 20% arriving by other sustainable means including DLR, coach, bus, and bike.



New construction

Throughout 2013/14 we have been working behind the scenes to ensure that the first residents on the Park will have easy access to sustainable modes of transport. We have made agreements with Transport for London (TfL) that no home will be further than 300m from a bus stop - this exceeds our original target of 350m.

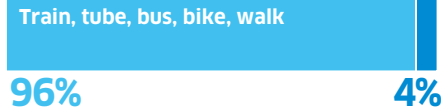
In December 2013, the Mayor of London announced that the Park would become a test bed for innovative [smart transport systems](#) and technologies. We already have electrical charging stations at our Multi-Storey Car Park, and will be providing charging points to all household parking spaces at Chobham Manor.

WE HAVE MADE AGREEMENTS WITH TFL THAT WILL ENSURE NO HOME ON THE PARK WILL BE FURTHER THAN 300M FROM A BUS STOP

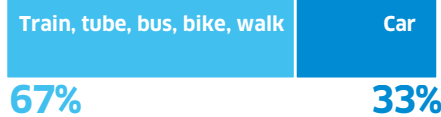
Over seven km of easily navigated walkways, cycle-friendly paths, and segregated roadway cycle routes, have been integrated into the parklands. These will help improve health and wellbeing by encouraging people to get out and get active; while also improving air quality through reduced transport emissions.

LLDC staff transport to work

% of people ■ Sustainable ■ Non-sustainable



Resident and visitor travelling in Greater London



Venues & parklands

We are committed to ensuring that there is a cycle hire scheme onsite and are in discussions with TfL to extend the cycle hire scheme east, across the A12, and into the Park and its surrounding communities. To facilitate this, we have safeguarded land in our ownership for hire stations.

All venues have a Travel Plan setting clear targets for sustainable transport mode share, to achieve our target of 95% of visitors to arrive by foot, bike, or public transport. Now that venues are fully operational, they will begin to monitor and report on visitor travel. We are also incorporating transport questions into our regular surveys of visitors to the Park.

Events

We encourage event organisers to provide information on using public transport with tickets, and encourage visitors to our website to use public transport as the best

and easiest way to get to the Park.

There is no parking allowed on the Park during events (with the exception of limited blue badge parking), and off-site parking options are not promoted. During large events, such as the Summer Series in 2013, which attracted up to 60,000 attendees on certain days, we worked with key transport partners, including TfL, to support event crowds by enhancing capacity and frequency of local public transport services.

Corporate

In 2013/14 we launched our Travel Plan Framework which aims to increase public transport use and improve road safety, while reducing private car usage. This includes additional pedestrian and cycle links around the Park and the surrounding communities, the introduction of the Cross Rail to Stratford Regional station, new bus routes, and a minimum of 20 new bus stops on the Park.

We also encourage our staff to travel by sustainable modes through a season ticket loan scheme, a ride to work loan (CycleScheme), and pool bicycles (see case study for details). Where it is necessary for staff to travel by car we will offer guidance on fuel efficient driving techniques.



Biking business

At the LLDC head office we try to walk (or cycle!) the talk, with 96% of our staff travelling to work by sustainable means ie public transport, cycling, or walking. We encourage bike usage through ride to work loan scheme, cycle training, and providing showers and locker facilities on site.

We also have three pool bikes available at head office for staff to use when travelling during the day for work purposes eg to meetings or events. The pool bikes were introduced in April 2013 and have been a great success, with almost 300 hours of usage in the first year of the scheme.

LIFESTYLES

Our vision is to inspire and support healthy, inclusive and sustainable lifestyles.

KEY ACHIEVEMENTS:

ENSURED ALL PERMANENT CATERERS SIGN UP TO THE **MAYOR'S FOOD LEGACY PLEDGE AND HEALTHIER CATERING COMMITMENT** FOR LONDON.

WORKED WITH PARTNERS AND THE 'BUILT ENVIRONMENT AND ACCESS PANEL' TO ENSURE THAT VENUES AND PARKLANDS ARE **INCLUSIVELY DESIGNED AND EASILY ACCESSIBLE TO ALL**.

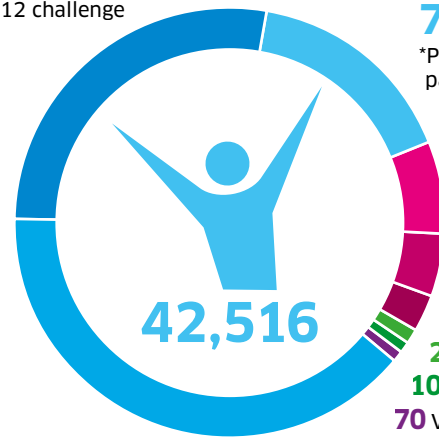
ACHIEVED A PROGRAMME WIDE AVERAGE SCORE OF **40 OUT OF A POSSIBLE 50** IN THE CONSIDERATE CONSTRUCTORS SCHEME.

Community projects

Number of participants (*2013 project)

12,000

Take 12 challenge



17,000

*Barry McGuigan Boxing Academy

7,000

*Park tour participants

3,000

Active People, Active Park

2,000

Schools projects

1,146 Good Gym

200 Growing Links

100 Legacy Youth Panel

70 Voice of East London radio project

Copper Box Lions

Over the summer months of 2013, London Lions - London's premier professional basketball team and residents of the Copper Box Arena - took to the courts twice a week to teach local 8-16 year olds a range of skills. Basketball was used as a tool to communicate positive lifestyle messages and address social and crime issues.

A number of the participants have progressed to join the Copper Box Lions, a community youth team, which trains and plays at the Copper Box Arena. They are mentored by the Lions and are provided with the skills and resources needed to progress into senior leagues.



New construction

In December 2013 the Mayor of London announced his vision for Queen Elizabeth Olympic Park to become a [Smart District](#). IT infrastructure has been laid to allow all new neighbourhoods and venues on the Park to access superfast broadband and Wi-Fi. This will support people to work from home and can potentially reduce commuting.

We have also engaged with a wide range of stakeholders, including contractors, utility companies, universities, and our development partner Chobham Manor LLP, to help new residents monitor their own water, heating, electricity, and gas consumption through a single smart meter.

Venues & parklands

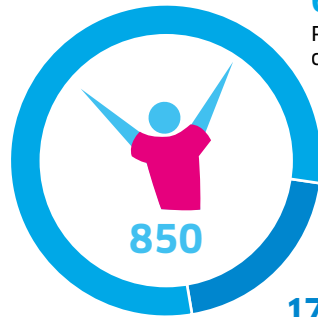
We are encouraging the public to get out and get active, using the open space around the Park for sport, wellbeing, and leisure activities.

One success story to date is the Barry McGuigan Boxing Academy, where over 17,000 people have participated in 'pop-up' gyms to learn non-contact boxing across the London Boroughs of Hackney, Newham, Tower Hamlets, and Waltham Forest.

We also recognise the importance of healthy eating. Building on the London 2012 Food Vision, we ensured that all permanent caterers have adopted the [Mayor's Food Legacy Pledge](#) and the [Healthier Catering Commitment](#) to provide healthy and sustainable food options across the Park.

Volunteers

Number of participants



680
Park
champions

170
Active People,
Active Park
coaches

GETTING YOUNGSTERS INVOLVED IN BASKETBALL HAS BEEN A GREAT WAY OF REACHING OUT TO THE COMMUNITY AND OPENING UP ACCESS TO THE PARK

VINCE MACAULEY, HEAD COACH AND CHIEF EXECUTIVE OF LONDON LIONS

Events

We want to ensure that our events continue to inspire the high standards and innovative approaches that were achieved during the Games.

As part of our [ISO 20121](#) plan we are committed to driving sustainability leadership in the events sector, for example by sharing our experience and learning

at public events and through publishing helpful guides, such as our ['Simple Guide to Sustainability for Events'](#). This is supplied to all external operators as part of our events application process and provides key tips on managing the most significant areas of impact.

Corporate

Throughout 2013/14 we provided environmental awareness training to new contractors and venue operators working on the Park. We will continue to roll out this training to all staff throughout 2014/15.

We are also collaborating with teachers, students, and the Field Studies Council to develop a series of curriculum-based learning trails for the Park. These will cover a wide range of subjects including biodiversity, sustainability, energy, and water, to help showcase the Park as east London's largest outdoor classroom.

In 2013, Cofely UK opened a new visitor centre at the King's Yard Energy Centre. The centre provides information on the [district heat network](#) which serves the Park and surrounding areas. It also features an interactive sustainable living exhibition designed by sustainability charity BioRegional.

All staff at the LLDC also have the opportunity to promote healthy and sustainable lifestyles in their community through the [Echo timebank](#). Three volunteer days per year are available for every staff member to share valuable skills such as cycle training, gardening, bike repair, and exercise instruction.



Good Gym: A running club with a difference

GoodGym began in Tower Hamlets in 2008 and with the help of the LLDC has spread to Hackney, Camden, and beyond. GoodGym is about getting fit by doing good; pairing runners with isolated older people who act as their motivational 'coaches'.

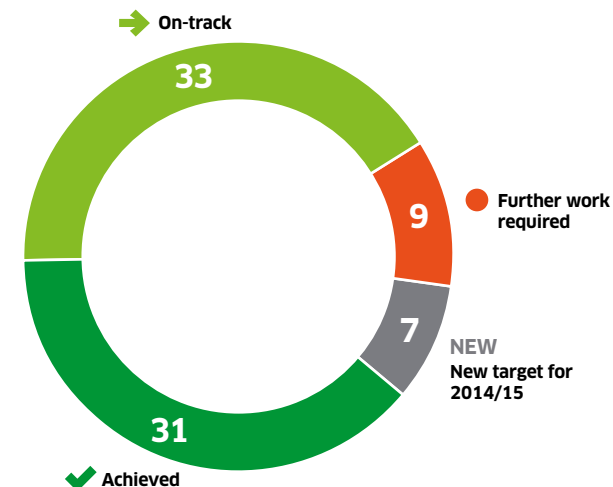
Runners stay fit by making regular visits to their 'coaches', who in turn provide motivation to exercise, and look forward to the weekly visits. Group runs are also held which are combined with physical community tasks such as clearing out a community hall or building raised flowerbeds.

There are currently over 1,000 runner members and 146 coaches - with 2,500 visits to isolated older people to date.

YOUR PARK, OUR PERFORMANCE

Progress against 80 targets

- NEW** New target for 2014/15
- ✘ Not yet achieved
 - Further work required
 - ➔ On-track
 - ✔ Achieved



Progress against targets Summary of 2013/14 activities



ENERGY

Energy: new construction

Require a minimum achievement of Code for Sustainable Homes [Level 4](#) for all new homes under current standards.



We achieved zonal masterplan consent for up to 850 homes at Chobham Manor, which will all achieve Code for Sustainable Homes Level 4.

Achieve [Zero Carbon Homes](#) on LLDC-led development before 2016.



The first residential phase of Chobham Manor (250 homes), to welcome its first residents in 2015, will include ten zero carbon homes; with 25 exemplar homes overall (out of 850 homes).

Require 65% reduction in emissions over [Building Regulations 2010](#) through fabric improvements and on-site features.



We continue to work towards this very stretching target and are on track to deliver a 63% on-site reduction at Chobham Manor. We will continue to innovate with our future development partners to meet this target.

Permit up to 35% of emissions mitigation through [offset](#) or allowable solutions in surrounding communities.



In 2013 we published our Offset Solutions Strategy that sets out how we will achieve this.

40% reduction in emissions over [Building Regulations 2010](#) for non-residential buildings on LLDC led developments; [Zero Carbon](#) standard for non-residential buildings when required by government.



We have been working hard to achieve this target. The Timber Lodge Café and Community Centre achieved a 25% reduction against [Building Regulations 2010](#); while The Podium achieved a 37% reduction - showing that we are getting closer to this target. We will continue to work with partners to achieve this target.

15% reduction in emissions by 2020 from in-use energy through engagement with occupants of LLDC led developments and the promotion of energy efficient home appliances.



We will be developing our occupancy engagement strategy in 2014; ready for our first occupants, who will move into Chobham Manor in 2015.

Support the extension of the [district heating network](#) beyond the Park following connection to the Stratford Halo/Genesis development.



Support for this objective has been included in the policies of the draft LLDC Local Plan.

Explore provisions to mitigate fuel poverty.



The new homes we have designed for Chobham Manor are very energy efficient and should reduce heating bills for the occupants to help address fuel poverty.

Energy: venues & parklands

25% reduction in operational emissions intensity in LLDC owned venues and parklands by 2020.



Now that the Park and our venues are fully operational, we will be able to establish our baseline.

Provide low carbon site lighting and use energy efficient park maintenance equipment.



We have installed solar- and wind-powered lighting across the Park, electric park maintenance buggies and boats, and self-powered cardiovascular machines in the Copper Box Arena public gym.

Progress against targets Summary of 2013/14 activities

Energy: events

Work towards delivering low or zero carbon events in the Park.



This year we published our 'Simple Sustainability Guide to reducing the impact of events' as a first step towards hosting low and zero carbon events. We will work this coming year to establish an energy baseline and identify how best to reduce the carbon footprint of our events.

Energy: corporate

25% reduction in corporate emissions intensity by 2020.



In 2013/14 we established the baseline for our corporate greenhouse gas (GHG) emissions. Based on our calculations, our emissions intensity per employee is 2.4tonnes CO₂e. Based on our floorspace, our energy usage is 330 kWh per square metre.



Water: new construction

Potable water use of no more than 105 litres per day per person in homes on LLDC led developments through reducing demand and use of low flow fittings and appliances.



Chobham Manor has been designed to achieve water use of 90 litres per person per day (lppd), with ten [zero carbon homes](#) achieving a design standard of 80lppd.

Rainwater harvesting and [greywater](#) treatment to be incorporated in new LLDC led developments.



Work in progress. The exemplar homes on Chobham Manor will incorporate greywater features.

Initiate studies to optimise the use of the Old Ford Water Recycling Plant and non-potable water network for irrigation and toilet flushing.



In 2013/14 we undertook a feasibility study to examine the potential of connecting future developments to the non-potable water network.

Water: venues and parklands

Protect and improve on the 40% reduction in potable water use designed into the venues.



We maintained and protected the potable water saving features in the venues. In some instances we installed additional water saving measures, for instance in the London Aquatics Centre.

Irrigate parklands through rainwater harvesting and [greywater](#).



100% of our parklands irrigation was met from the Old Ford Treatment plant in 2013/14. However, during the period April - September 2013, the non-potable network was served with potable water due to a leak in the septic tank at Old Ford.

Develop a strategy with British Waterways to enhance and protect the Park's blue ribbon network.



The strategy will be launched in 2014.

Water: events

All LLDC events to limit use of bottled water by encouraging the provision of alternative water supplies.



We worked with external events companies during the summer events series to provide drinking water fountains at outdoor events and have incorporated drinking fountains into the updated designs for the Stadium.

Work with external event companies to reduce potable water usage in the operation of their events.



We worked with our venue operators and external events companies to limit the amount of potable water used at events by encouraging the use of reclaimed water for activities such as equipment washing.

Water: corporate

We worked with our venue operators and external events companies to limit the amount of potable water used at events by encouraging the use of reclaimed water for activities such as equipment washing.



We are currently unable to measure our office water consumption but are investigating a mechanism to do so.

Progress against targets Summary of 2013/14 activities



WASTE

Waste: new construction

Maximum 5% of construction, demolition and excavation waste directly sent to landfill (excluding hazardous material).	✔	We diverted 99% of deconstruction waste during Park transformation from landfill; the remaining 1% sent to landfill was hazardous.
Monitor and report on construction waste using the Waste and Resources Action Programme's (WRAP) Online Reporting Tool.	✔	All contractors working on the Park are required to work towards our waste targets and monitor/report using the WRAP tool.
Zero municipal waste directly sent to landfill by 2025. Interim target of 30% maximum municipal waste directly to landfill by 2020.	→	We cannot achieve this alone, but have a number of design targets to enable new developments to segregate their waste in support of this target.
Ensure all new buildings have adequate internal and external storage space for recyclable household waste.	→	All developer partners are required to ensure buildings have adequate internal and external provision of recycling facilities.
Promote on-site compost facilities to reduce the amount of household waste sent to landfill.	→	Developers will have to meet our requirements to provide adequate internal and external provision of composting facilities.

Waste: venues and parklands

Recycle or compost 70% of venues and parklands waste by 2015.	✔	In 2013/14 we recycled and composted 93% of venues and parklands waste.
Zero parklands waste direct to landfill by 2030.	→	We diverted 93% of parklands and venues waste direct to landfill in 2013/14. This is a key objective for the coming year - we will be looking for new initiatives to improve our performance.
100% provision of recycling facilities in public areas.	✔	All our bin points include recycling points.
Signs and information across the Park will support recycling and composting.	●	We are developing recycling signs that will go up across the parklands later this year.

Waste: events

Develop best practices to reduce waste production and require event operators to comply with guidelines.	✔	We require all events with more than 5,000 attendees to operate an events waste management plan and share our 'Simple Guide to Sustainability for Events' with them.
Zero events waste direct to landfill by 2020. For events held in venues, work towards the target immediately.	●	We are in the process of implementing systems to enable us to measure event specific waste.

Waste: corporate

Deliver education programmes for visitors, workers, and residents about reduction and management of waste.	→	We require all workers on our construction sites to be appropriately trained on sustainable waste management and will develop our resident engagement programme in 2014.
Explore ways to improve our office recycling and reuse rates.	NEW	In October 2013, we worked with Westfield and our waste contractor to introduce a new waste reporting system and completed a full waste audit of our head office.



MATERIALS

Materials: new construction

15% reduction in embodied carbon in new construction, as compared to industry baseline (to be monitored and published).	→	We are working with our developer partners to meet this target.
At least 25% recycled content of aggregate within new buildings and infrastructure (by weight).	→	We are working with our developer partners to meet this target.
At least 20% of construction materials to be from a reused or recycled source (by value).	●	We were unable to meet this target in the construction of the Timber Lodge Café and Community Centre due to the use of Cross Laminated Timber . In maximising the use of low impact materials, we significantly reduced the embodied carbon of the building but also reduced the amount of material that would traditionally contribute to our target for recycled content.

Progress against targets	Summary of 2013/14 activities
100% of timber and timber products from legal and sustainable sources .	✔ All 510 tonnes of timber used on the Park during transformation were obtained from legal and sustainable sources.
No use of HFCs where acceptable alternatives exist.	→ Developers will have to meet our requirements. We are also seeking to reduce the use of paints, varnishes and finishes that contain Volatile Organic Compounds .
Materials: venues and parklands	
100% of timber and timber products from legal and sustainable sources .	✔ Our venue and parkland managers are required to responsibly source timber as set out in the guidelines for the Central Point of Expertise in Timber and to provide us with a copy of their timber procurement policy.
Use of recyclable and biodegradable materials for packaging, particularly for food.	→ We are using compostable packaging and cutlery at the Timber Lodge Café and Community Centre and recyclable and biodegradable packaging for ping-pong balls and shuttle cocks at the Copper Box Arena.
Materials: events	
Temporary structures for events must be designed and built for reuse.	✔ All of the outdoor events we hosted in 2013/14 used hired structures such as stages, fences and lighting, which were packed up and taken back for reuse.
Materials: corporate	
Collaborate with universities, NGOs and other research bodies to identify low impact building materials and products.	● We have collaborated with universities and other partners over a range of issues including smart meters and biodiversity monitoring. We will continue to develop these partnerships over the coming year.
Require all suppliers of goods and services to adhere to our Sustainable Procurement Policy.	✔ We require our contractors and venue operators to provide evidence that they can ensure processes are in place for the responsible and sustainable procurement of materials.
Biodiversity: new construction	
Public areas to contribute to Biodiversity Action Plan and link to existing natural corridors.	✔ We have integrated natural elements into the design of the Tumbling Bay Playground and brown roves into The Podium.
Incorporate Sustainable Urban Drainage Systems (SUDS) in streets and the public realm where feasible enabling species-rich planting and local irrigation potential.	✔ SUDS have been incorporated into new elements of the parklands landscape, including around the BMX track.
Design buildings and public space to reduce the urban heat island effect.	→ Developers will have to meet our requirements.
Biodiversity: venues and parklands	
Provide 102 hectares of publically accessible open space, capable of being designated as Metropolitan Open Land.	✔ As of April 2014, we have provided 102 hectares of Metropolitan Open Land.
Provide 45 hectares of Biodiversity Action Plan habitat and links with existing corridors.	✔ As of April 2014 we have Provided over 45 hectares of habitat designed to encourage biodiversity; including over 471 bird boxes and 164 bat boxes.
Achieve designation as a Site for Metropolitan Importance for Nature Conservation by 2024.	NEW Our Park Management Plan outlines our action plan for achieving designation by 2024.
Achieve green flag status by 2015.	NEW Our Park Management Plan outlines our action plan for achieving green flag status.
Aim to enhance the ecological value of the site and ensure the land and its natural resources are protected forever.	✔ This is included in our Legacy Communities Scheme commitments.
Landscaping designs that avoid chemical control of weeds, pests and diseases.	✔ Our planting is designed to reduce the requirement for chemical control of pests by using species and maintenance programmes that deter weeds, pests, and diseases.



BIODIVERSITY

Progress against targets	Summary of 2013/14 activities
No peat or peat-based products to be used on site.	NEW During 2013/14 we only used peat-free products across the parklands.
Maintain parkland access while ensuring the protection and improvement of habitats.	✔ We are protecting key habitats by hosting events away from sensitive habitat areas and requiring appropriate protection is put in place.
Biodiversity: events	
Assist the attendees in an appreciation of the Park's biodiversity.	● We have installed biodiversity information points around the Park to describe key habitat types. We are also exploring the introduction of a phone application for visitors to the Park.
Respect and protect open space through attention to event location, pedestrian circulation and sight lines.	✔ We have included guidance on protecting wildlife within our updated 'Simple Guide to Sustainability for Events' for events operators, which is publically available on our website.
Biodiversity: corporate	
Encourage staff to take part in biodiversity awareness activities.	NEW We will encourage staff to get involved throughout 2014/15.
Provide opportunities for local people to get involved in nature conservation work and biodiversity-related activities	→ The Park Champion conservation programme provides opportunities for local people and our staff to get involved in nature conservation work and biodiversity-related activities.
Transport: new construction	
Design walkable and cycle-friendly neighbourhoods with safe streets and paths, and secure cycle parking in homes, offices, and venues.	→ Over seven km of easily navigated walkways, cycle-friendly paths, and segregated roadway cycle routes have been integrated into the parklands.
No home to be more than 350m away from a bus stop.	✔ We are on track to exceed this having agreed arrangements with Transport for London (TfL) that will ensure that no home will be more than 300m away from a bus stop.
20% of car parking spaces to have access to electric charging facilities.	✔ On track to exceed this. We will provide electrical charging points to all household on-plot parking spots at Chobham Manor.
Support demand management techniques to discourage private transport and encourage public transport, car-sharing, car-clubs, cycling, and walking.	→ This will be part of our occupant engagement programme which we will be developing in 2014.
Ensure provision of shower and changing facilities in offices to support commutes by cycle.	→ Developers will have to meet our requirements.
Parking ratios to be London Plan Standard or less.	→ Developers will have to meet our requirements.
Transport: venues and parklands	
Ensure that 95% of visitors to venues and attractions arrive by public transport, cycle or foot.	→ All venues have a Travel Plan to achieve this. Now that venues are fully operational, they will begin to monitor and report on visitor travel. We are also incorporating transport questions into our regular surveys of visitors to the Park.
Facilitate a cycle hire scheme within the Park.	→ We are in discussions with TfL to extend the cycle hire scheme east, across the A12, and into the Park and its surrounding communities. To facilitate this, we have safeguarded land in our ownership for hire stations.
Transport: events	
Ensure that 95% of visitors to events arrive by public transport, cycle or foot.	→ Using the best information available to us we know there is a good chance that this target was achieved during our Summer Series of events with up to 75% of spectators arriving at Stratford Regional station, and up to 20% arriving by other sustainable means including DLR, coach, bus, and bike. We will continue to refine our monitoring of events patron travel.



TRANSPORT

Progress against targets Summary of 2013/14 activities

Information provided with tickets on sustainable transport options to the Park.



We encourage event organisers to provide information on using public transport with tickets, and we encourage visitors to use public transport through our website as the best and easiest way to get to the Park.

Transport: corporate

Maintain our Travel Plan Framework for all new developments and initiatives within the Park.



This includes additional pedestrian and cycle links around the Park and the surrounding communities, the introduction of the Cross Rail to Stratford Regional station, new bus routes, and a minimum of 20 new bus stops on the Park.

Encourage sustainable transport modes for staff commuting and work-based travel.



In 2013/14 96% of staff travelled by sustainable means.

Lifestyles: new construction

Develop an occupant engagement programme to achieve a 15% reduction in emissions over five years, with savings to be maintained each year.



We will be developing our occupant engagement programme in 2014.

Through the Estate Management Strategy, develop incentives and programmes for residents to optimise sustainable lifestyles.



We will be developing our Estate Management Strategy in 2014.

100% of homes to have smart meters to collect energy consumption data to make more efficient use of resources.



We are engaging with a wide range of stakeholders to ensure new residents can monitor their own water, heating, electricity and gas consumption through a single smart meter.

Facilitate IT infrastructure including superfast broadband and Wi-Fi to support working from home and venues in and around the Park.



IT infrastructure has been laid to allow all new neighbourhoods and venues on the Park to access superfast broadband and Wi-Fi.

Lifestyles: venues and parklands

Encourage the public to use open space for sport, physical wellbeing, leisure activities, social gathering and cultural events.



Over 40,000 people took part in sport, activity, and community projects.

Adopt and implement the [Mayor's Food Legacy Pledge](#) and the [Healthier Catering Commitment](#).



We have ensured that all permanent caterers have adopted the Mayor's Food Legacy Pledge and the Healthier Catering Commitment.

Lifestyles: events

Collaborate with the event industry and non-governmental organisations to share knowledge and integrate sustainability into the sector.



We will be working with our venue operators to achieve [ISO 20121](#) sustainable events management standard.

Lifestyles: corporate

Promote educational initiatives and research programs to enable sustainable behaviour to become the norm in and around the Park.



We have launched a number of programmes over the past few months, including learning trails, the Go! schools project, and worked with the Fields Studies Council to engage school children.

Provide environmental awareness training for all staff and contractors.



We will continue to train staff and contractors throughout 2014. This target will be amended to "Provide appropriate environmental awareness training for LLDC directly employed staff and contractors" for future reporting years.

Deliver a visitor centre within the energy centre by 2014.



The visitor centre at King's Yard opened in 2013. This target is achieved and will no longer be reported against.



LIFESTYLES



HOME



ENERGY



WATER



WASTE



MATERIALS



BIODIVERSITY



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LIFESTYLES



DATA

GLOSSARY OF TECHNICAL TERMS

Biodiversity Action Plan (BAP)



BIODIVERSITY

A BAP is a plan to protect and restore biological systems, threatened species, and habitats, within a given region. The principal elements of a BAP typically include a list of key species or habitats; the conservation status of these species; and targets for conservation and restoration.

Priority species and habitats within a BAP are those that are identified as being the most threatened and requiring conservation action. Within the UK these [priority lists](#) have been used to draw up protective legislation.

BREEAM (BRE Environmental Assessment Method)



ENERGY



MATERIALS

[BREEAM](#) is an environmental, health and wellbeing rating for any type of building other than a home. There are five levels of rating (ie pass, good, very good, excellent, and outstanding) - the LLDC has targeted BREEAM Excellent for all the building that fall under this code, which requires a score of 70-85%.

Building Regulations



ENERGY

Building regulations contain the rules for building work in new and altered buildings to make them safe and accessible, and to limit waste and environmental damage.

Many of our targets are set against Part L of the Building Regulations. Part L covers the requirements related to the conservation of fuel and power, including insulation, window and door area, boiler efficiency, hot water storage, and lighting efficiency.

While the Building Regulations were updated in 2013, many of our targets are set against previous versions of the regulations, 2006 and 2010. This is due to the long-term nature of the Queen Elizabeth Olympic Park project, with 2010 building regulations being in force when we developed our sustainability plan and 2006 regulations being in force when the Olympic Delivery Authority developed its targets, which we inherited for the completion of the Park.

Carbon offset measures



ENERGY

Our Offset Solutions Strategy outlines how the LLDC will offset any remaining carbon emissions associated with heating and lighting the new homes on our development.

Carbon offsets are credits for reductions in greenhouse gas emissions made at another location, such as off-site renewable energy schemes. For example, buying one tonne of carbon offsets means there will be one less tonne of carbon dioxide in the atmosphere than there would have otherwise.

Carbon offsetting is often the fastest way to achieve the deepest reductions and can deliver added benefits such as employment opportunities, community development programmes, and training and education.

CEEQUAL



MATERIALS

CEEQUAL (Civil Engineering Environmental Quality Assessment & Award) is a sustainability assessment, rating, and awards scheme for civil engineering, infrastructure, landscaping and the public realm, which rewards project and contract teams that go beyond minimum legal, environmental, and social standards.

A CEEQUAL score indicates how far a project is between minimum legal compliance and best practice; CEEQUAL Excellent is awarded to projects which score more than 75%.

Central Point of Expertise in Timber (CPET)



MATERIALS

CPET was established by the UK Department for Environment, Food and Rural Affairs (Defra) in 2005 to provide advice, support and communications on the UK Government's Timber Procurement Policy and EU Regulations on timber and forestry.

Certified timber products



MATERIALS

Organisations such as the [Forest Stewardship Council \(FSC\)](#) or the [Programme for the Endorsement of Forest Certification \(PEFC\)](#) aim to protect forests from conversion to other land uses, introducing management practices that maintain the integrity of the forest, as well as restoring degraded forests. These schemes also provide sustainable livelihoods for people, and habitats for animals and plants.

Both FSC and PEFC assurance schemes offer 'Chain of Custody' certification which tracks certified material from the forest to the final product to ensure that the wood contained in the product or product line originates from certified forests and has been kept segregated from non-certified material.

Combined heat and power (CHP)



ENERGY

CHP generates electricity whilst also capturing usable heat. This contrasts with conventional ways of generating electricity where a vast amount of heat is wasted. For example, up to two thirds of the overall energy consumed is lost in conventional coal and gas plants, often seen as a cloud of steam rising from cooling towers.

Additionally, CHP avoids around 7% of energy being lost through transportation from the generation source, through the National Grid, to the user.

Considerate Constructors Scheme



LIFESTYLES

The [Considerate Constructors Scheme \(CCS\)](#) aims to improve the image of construction. It is designed to encourage best practice beyond minimum legal requirements across three main areas - the general public, the workforce, and the environment.

We received a project-wide score of 40 out of a possible 50 (above the national average of 35), through engaging with communities and minimising the negative impact of our construction work on our neighbours.



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GLOSSARY OF TECHNICAL TERMS

Cross Laminated Timber (CLT)



MATERIALS

CLT is an engineered timber product with low environmental impact (where sustainably sourced timber is used). It is extremely airtight and is usually used in walls or flooring. Its chief environmental benefits include:

- Light weight, reducing load on foundations, with less need for materials with high embodied energy (eg concrete)
- Stores carbon throughout its usable lifespan as a renewable material.

District heat network



ENERGY

A district heat network transports heat to consumers through insulated pipes. The heat source is not contained inside the individual building (eg through gas boilers or electric heaters); but rather distributes heat to many consumers on a larger community scale.

District heating systems are more efficient, emit fewer carbon dioxide emissions than conventional domestic heating systems, and can provide additional health and safety benefits as there is no gas supply or gas boiler in the home.

Embodied carbon / embodied energy



ENERGY



MATERIALS

Embodied energy is the total energy associated with the materials and products used in construction projects. This includes all the energy associated with the extraction of raw materials; materials processing and manufacturing; transportation to the site; and construction as the finished building.

Embodied carbon is the expression of this embodied energy in terms of carbon dioxide emissions.

Energy from Waste (EfW)



WASTE

Energy from waste involves taking everyday waste and turning it into a usable form of energy such as electricity, heat and transport fuels; and can be done in a variety of ways, of which incineration is the best known.

According to the waste hierarchy, waste should be prevented, reused, composted, or recycled before EfW is considered as an option. Therefore it is most commonly 'residual waste' that is used to produce energy - ie that waste which is leftover after all other avenues such as reuse and recycling have been exhausted.

General fill



WASTE

We have included the following items in our definition of general fill: bulk tarmac and planings; fill used for gabion walls; granular fill; capping stone/ structural fill; material taken from below the marker layer and used as fill; material taken from above the marker layer and used as fill. Our definition of 'fill' does not include aggregate or soils.

Green Flag Status



BIODIVERSITY

The Green Flag Awards are the benchmark for high environmental standards within public parks and green spaces. Parks must re-apply to the scheme annually, and winning sites are eligible to fly a Green Flag in the park for a year.

Green Guide



MATERIALS

The [Green Guide](#) is part of the BREEAM environmental rating scheme for buildings. It contains information on the environmental performance of materials and components.

This data is set out as an A+ to E ranking system, where A+ represents the best environmental performance / least environmental impact; and E the worst environmental performance / most environmental impact.

Greywater



WATER

Greywater is wastewater from wash hand basins, showers and baths, which can be recycled for uses such as WC flushing and landscape irrigation. Greywater often includes waste water from laundry, dishwashers and kitchen sinks. It differs from the waste water of WCs which is designated sewage or blackwater to indicate it contains human waste.

Global Warming Potential



MATERIALS

Global Warming Potential (GWP) is a measure of the total warming impact of a gas, relative to carbon dioxide, over a set period of time - usually 100 years. For example, according to the standard data, over 100 years methane scores 21 (meaning that one tonne of methane will cause the same amount of warming as 21 tonnes of CO₂), nitrous oxide scores 310 and some of the super-potent F-gases score more than 10,000.

Healthier Catering Commitment



LIFESTYLES

The Healthier Catering Commitment for London is a scheme run by the London Boroughs with support from the Mayor of London that recognises businesses which demonstrate a commitment to reducing the level of saturated fat and salt in food sold, offer some healthy options (eg lower sugar drinks and snacks), and make smaller portions available on request.

ISO 20121

ISO 20121 is a management system standard developed as part of the London 2012 programme. It is designed to help organisations in the events industry, such as caterers, security companies, stage builders, venues, and independent event organisers, to improve the sustainability of their event-related activities, products, and services.

ISO 14001

ISO 14001 is the world's most popular environmental management systems standard. It helps organisations minimise the negative environmental impacts of their operations and comply with applicable laws and regulations. It applies specifically to those environmental aspects which an organisation has direct influence over, for example waste and energy use.

Legacy Communities Scheme

The Legacy Communities Scheme (LCS) sets out our plans for the development of five new neighbourhoods across the Park- Chobham Manor, East Wick, Sweetwater, Marshgate Wharf and Pudding Mill. It has guided all our work since it was approved in September 2012.

The LCS sets out a masterplan for development across the Park, covering building heights, land uses, open space, access plans, street layout, development of infrastructure, and more, for all five neighbourhoods. The full set of documents can be downloaded from the Planning Register.



HOME



ENERGY



WATER



WASTE



MATERIALS



BIODIVERSITY



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LIFESTYLES



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GLOSSARY OF TECHNICAL TERMS

Local Planning Authority	We carry out all of the planning functions that a local planning authority would normally have responsibility for, such as approving or rejecting new developments, giving guidance to local developers, and defining planning policy for development in the area , in and around Queen Elizabeth Park, through the Local Plan.
Mayor's Food Legacy Pledge	The London Mayor's Food Legacy programme places emphasis on sustainable food procurement, and aims to inspire, inform, and provide practical assistance, to help more caterers and food suppliers achieve the ambitions of the London 2012 Food Vision.
Mayoral Development Corporation	We were the first Mayoral Development Corporation (MDC) established under the Localism Act MDCs are set up by the Mayor of London to drive regeneration in designated Mayoral development areas requiring large-scale co-ordination of investment and planning. We work closely with a number of organisations including the Mayor of London, the Greater London Authority, central government, the east London Host Boroughs, local communities and organisations, and businesses.
Olympic Delivery Authority (ODA)	The ODA is a non-departmental public body of the Department for Culture, Media and Sport, responsible for the construction of venues and infrastructure for London 2012, including the Olympic Park, planning and funding transport for the Games, and regulating advertising and trading. The ODA handed over operational control of the Park to the LLDC in October 2012.
Outline planning permission	Outline Planning Permission is applied for to find out, at an early stage, whether or not a proposal (generally for the erection of a building) is likely to be approved by the planning authority. This type of planning application allows fewer details about the proposal to be submitted. These details are agreed at a later stage following a 'reserved matters' application.
Photovoltaic panels	Photovoltaic (PV) panels or solar panel electricity systems, capture the sun's energy using photovoltaic cells, made from layers of semi-conducting material, usually silicon. When light shines on the cell it creates an electric field, which can be used to run household appliances and lighting. The power of a PV cell is measured in kilowatts peak (kWp) - the rate at which it generates energy at peak performance, in full direct sunlight, during the summer.
Priority themes	Four priority themes underpin every aspect of our work. This review addresses our commitment to report on one such priority theme - our annual Environmental Sustainability performance. Further information on the three additional priority themes can be found on our website: <ul style="list-style-type: none"> ■ Promoting convergence and community participation: Socio-economic Policy, Sport and Healthy Living Policy, Community Engagement Policy; ■ Championing equalities and inclusion: Equality and Inclusion Policy, Inclusive Design Strategy, Inclusive Design Standards; ■ Ensuring high quality design: Design Quality Policy.

Site of Metropolitan Importance for Nature Conservation (SINCs)	Under this standard, the Greater London Authority and London borough councils recognise London's most important wildlife sites where the natural environment can be discovered within an urban setting. In total, over 1,400 SINCs have been identified, covering nearly 20% of the capital.
Smart transport systems	Smart or intelligent transport systems are networks of connected infrastructure such as roads, rails, airports, and ports – all linked through cloud-based computer systems. This provides new, simplified, and real-time ways of communicating and collaborating while managing costs. Benefits include increased mobility, reduced congestion, improved safety, and improved environmental performance. Commonplace examples of these systems include smart parking and traffic signals that adapt to real-time conditions.
Smart district/ Smart London Plan	The Mayor of London has announced that Queen Elizabeth Olympic Park will be a testing ground for new digital technology with transport systems and energy services under the Smart London Plan. With the population of London predicted to grow one million by 2021, the Smart London Plan outlines the Mayor's vision to ensure that innovative technology helps London to function better as a whole, and better meet the needs of Londoners' and businesses.
Volatile Organic Compounds (VOCs)	VOCs are emitted as gases from certain solids or liquids, including many common products such as paint, cleaners, pesticides, building materials, adhesives, and office equipment. All of these products can release organic compounds when you use them, and, to some degree, when they are stored. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects, such as irritation of the throat and eyes, or respiratory difficulties, with concentrations generally higher indoors (up to ten times higher) than outdoors.
Water use	Water use is typically measured in 'litres per person per day' (lppd) – this is the total volume of drinking grade or tap water used by a person in a 24 hour period. This includes water use for personal hygiene, cooking, and household tasks, along with drinking water consumed. The current average water use in the UK is 142 lppd.
Zero carbon buildings / zero carbon homes	In 2007, the UK government introduced a policy for all new homes to be constructed to meet a zero carbon standard from 2016. This means all new homes must mitigate the carbon emissions produced on-site as a result of the regulated energy use. Regulated energy use includes space heating and cooling, hot water and fixed lighting, as outlined in Part L of the Building Regulations. Emissions resulting from cooking and 'plug-in' appliances such as computers and televisions are not addressed as part of this policy. Where carbon emissions can not be cost-effectively off-set on-site, the mechanism of Allowable Solutions allows emissions to be off-set through nearby or remote measures; such as improving the energy efficiency of existing homes in the surrounding boroughs.



“Queen Elizabeth Olympic Park will become a place unlike any other in the capital, a place that combines all the elements that make London the world’s greatest city: the beautiful open spaces, the architecture, the innovation, the quality, the creativity, the sense of fun and excitement.”

Boris Johnson, Mayor of London and Chair of LLDC Board

