

# Sustainability Statement

## Multi Storey Car Park to the South of University House, University of Warwick

January 17



# Contents

1.	Introduction	3
2.	Policy Context	5
3.	Sustainability at the proposed MSCP	9
4.	Conclusion	15

This report has been prepared by **Turley Sustainability** on behalf of the **University of Warwick** to support the **Outline Planning Application** for the proposed development of a new **Multi Storey Car Park** to the South of University House.

#### Client

University of Warwick

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The University of Warwick is committed to sustainable development and the delivery of local carbon buildings which adapt to and mitigate the impacts of climate change.

# 1. Introduction

The University of Warwick is proposing the consolidation of its car parking arrangements with the creation of a new Multi-storey Car Park as part of the Main Campus Masterplan.

This Sustainability Statement has been prepared to support the outline planning application for the development of a new Multi-storey Car Park with up to 1,300 new spaces as part of the University of Warwick.

The University's Main Campus Masterplan sets out a framework for development to 2019. The masterplan and associated S106 Agreement allows a maximum of 5,422 car park spaces within the masterplan area. In order to remain within this ceiling the University will close other parking spaces when the new 1,300 spaces are delivered.

The application site is the site of the existing Car Park 16 and is located on the North West edge of the University campus close to one of the main routes onto the campus which is key to the University's strategy to reduce car travel across the campus.



## Proposed Development

Figure 1 below shows the site of the proposed new MSCP development and area of land released for development as a result of building the new car park.



Figure 1: Outline Site Masterplan

The applicant is seeking outline planning permission for a new MSCP comprising:

*“Outline application for the erection of a multi-storey car park with associated accesses (all other matters reserved)”*

Additional details are provided within the Design and Access Statement and Planning Statement that accompany the application.

## 2. Policy Context

This section of the report provides an overview of the relevant planning policy and guidance regarding the development of sustainable low carbon new development from a national and local perspective.

### UK Sustainable Development Strategy

In 2005, the Government published an updated strategy for implementing sustainable development across the UK.

This strategy acts as an overarching document from which a range of specific policies and legislation was derived. Although published in 2005, the strategy has taken a recently renewed focus in light of the government's definition of Sustainable Development in the NPPF.

One of the key aims of this strategy is to recognise the threats of climate change and ensure that the UK develops a strategy to mitigate and adapt to this phenomenon.

The document established five key principles that will underpin the national sustainable development strategy:

- Living within Environmental Limits;
- Ensuring a Strong, Healthy and Just Society;



- Achieving a Sustainable Economy;
- Promoting Good Governance; and
- Using sound science responsibly.

The strategy will be implemented at a national level through the development of more specific strategies at a government department or sector level.

With regards to planning and the built environment, this document sets the basis for the development of plans and Policies that promotes development that mitigates and adapts to climate change.

### Climate Change Act

The Climate Change Act (2008) sets a legally binding target for reducing UK CO<sub>2</sub> emissions by least 80% on 1990 levels by 2050.

It established the Committee on Climate Change, which is responsible for setting binding interim carbon budgets for the Government over successive five year periods.

The first three carbon budgets were announced in the Budget 2009, resulting in an interim target of a 34% reduction in CO<sub>2</sub> equivalent emissions on 1990 levels by 2020.

## UK Carbon Plan

In 2011, the Government published an updated Carbon Plan setting out how the UK will achieve decarbonisation and make the transition to a low carbon economy. It sets this objective within a framework of mitigating and adapting to climate change and maintaining energy security in a way that minimises costs and maximises benefits to the economy.

With regards to development, the Carbon Plan presents the Government's approach to promoting the delivery of low carbon, resilient and adaptive buildings and enabling sustainable transportation as positive contributions to aid national carbon reduction targets.

## Building Regulations

In April 2014 the Part L regulations changed and it is now a requirement for new non-domestic buildings to deliver an aggregate 9% reduction in carbon emissions compared to equivalent 2010 Part L standards. This change aims to strike a balance between the commitments to reducing carbon emissions and improving energy efficiency and ensuring that the overall effect of regulation upon consumers and businesses does not stifle growth.

The Government has stated that there should be flexibility in how carbon reduction targets are met and that in accordance with the energy hierarchy the emphasis should be on a Fabric First approach towards the design and construction of new development.

## Fixing the Foundations

Following the general election in May 2015 the government produced a number of policy documents including their Productivity Plan - "Fixing the Foundations" published in July 2015. The document sets out the Government's plan for future carbon reduction requirements in new development and outlines the Government's intention to no longer continue with the Allowable Solutions scheme and postpone any increases in on-site energy efficiency standards in 2016 which were planned as part of the national zero carbon buildings policy.

It is understood that the Government aims to keep energy efficiency standards under review, recognising that existing measures to increase energy efficiency of new buildings should be allowed time to become established.

## National Planning Policy Framework

Following its publication in March 2012, national planning policy is now provided by the National Planning Policy Framework (NPPF) which sets out the government's planning policies for England and how these are expected to be applied. It also sets out the requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so.

The Government has made clear its expectation that the planning system should positively embrace well-conceived development to deliver the economic growth necessary and the housing we need to create inclusive and mixed communities.

The NPPF states that: *'the purpose of the planning system is to contribute to the achievement of sustainable development'*.

It states clearly that in order to deliver sustainable development, the planning system must perform three distinct roles, aligned to the three pillars of sustainability, which must not be taken in isolation and should be pursued jointly:

**An economic role** contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;

**A social role** supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and

**An environmental role** contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and

pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

### Demonstrating Sustainable Development –

Paragraph 6 of the Framework states that:

*“The purpose of the planning system is to contribute to the achievement of sustainable development. The policies in paragraphs 18 to 219, taken as a whole, constitute the Government’s view of what sustainable development in England means in practice for the planning system”.*

### Planning Policy Guidance (The Guidance)

The revised Planning Practice Guidance (PPG / The Guidance) provides further advice on various planning issues associated with development, including those linked to sustainability and renewable energy and underpins the policies within the NPPF.

The Guidance is an important material consideration in planning decisions and should generally be followed unless there are clear reasons not to. It sets out how local authorities should include policies that protect the local environment and strategies to mitigate and adapt to climate change and supports developments that are functional and adaptable for the future.

### The Local Development Plan

The Local Development Plan for the proposed development site comprises of the adopted Coventry Development Plan (2001) and associated supporting documents including:

- Delivering a more Sustainable City Supplementary Planning Document (SPD) - 2009; and
- Technical Advice Note (TAN) – Renewable/low carbon energy requirement for development – 2012.

The Council’s Development Plan is undergoing a period of change and the Coventry Local Plan 2016 is expected to be adopted in early 2017.

### The Coventry Development Plan 2001

Adopted in 2001 the Development Plan is now significantly behind latest national guidance and will be replaced once the new Local Plan is adopted in early 2017. In this context relevant sustainability policies are limited but do include:

**Policy OS4 – Creating a more Sustainable City** – States the Council aims to encourage efficient use and reuse of land, encouraging sustainable travel and stewardship of the natural and built environment. The policy also states large scale or high impact development should be accompanied by a Sustainability Appraisal.

**Policy BE2 – The Principles of Urban Design** – States the Council will promote high quality urban design which takes into account a number of key principles including ensuring sustainable design.

The adopted Core Strategy is accompanied by a number of SPDs and TANs which provide additional guidance and policies for new development.

### Delivering a more Sustainable City SPD (2009)

States applicants will need to undertake a Sustainability Assessment setting out how the development will contribute to greater levels of sustainability.

The SPD sets out 7 key themes which should be addressed as part of development proposals including:

- **Energy** – Which states 10% of the sites energy requirements should be provided through on-site renewable energy generation; and
- **Materials** – States development should maximise the use of reclaimed or recycled materials for construction.

The remaining sections include; Contaminated Land, Travel, Waste and Recycling, Water and Air Quality.

### Renewable/Low Carbon Energy Requirement for new Development TAN (2012)

Provides guidance on the requirements of the Delivering a more Sustainable City SPD, giving information on potential local carbon renewable energy technologies and clarifying that the Council’s 10% renewable energy requirement relates to total energy, i.e. both regulated and unregulated energy.

Recent announcements in relation to national policy confirm that local plan policies for carbon emissions should address regulated energy use only and not include unregulated energy use.

## Coventry Local Plan 2016

The emerging Local Plan was sent to the Inspector in 2016 and it is anticipated the new Local plan will be adopted in early 2017.

The emerging Local Plan is a significant step forward for the Council and includes a range of sustainability policies relevant to the development of the new car park.

**Policy DE1 – Ensuring High Quality Design** – States development should be of a high quality and meet a range of key principles including responding to climate change and adopt sustainable and low carbon construction principles in design.

**Policy AC1 – Accessible Transport Network** – States developments which are anticipated to generate additional trips should support the provision and integration of emerging and future intelligent mobility infrastructure including Electric Vehicle (EV) charging points.

**Policy AC3 – Demand Management** – Sets out the Council's parking standards which states that where practicable 5% of all new parking spaces should include provision for electric car charging points. Where this is impracticable 5% of spaces should have capacity for the retrofit of charging points at a later date.

**Policy EM1 – Planning for Climate Change Adaptation** – States all development is required to be designed to be resilient to and adapt to future impacts of Climate Change, including the use of sustainable construction techniques.

**Policy EM2 – Building Standards** – States developments should be designed and constructed to meet the Building Regulations and sustainability standards which maximise energy efficiency and use of low carbon energy, use of suitable materials and minimising waste and maximising recycling during construction and operation.

In meeting the Building Regulations requirements development should be design in accordance with the energy hierarchy.

New development proposals should be accompanied by a Sustainable Buildings Statement to demonstrate how the development will be designed to meet the challenge of climate change.

## Policy Summary

Both national and local planning policy sets out support for sustainable development and the Local Development Plan for Coventry is currently going through a period of change.

The Council's emerging Local Plan confirms that new development should be of a high quality, maximising energy efficiency and low carbon energy in line with the requirements of the Energy Hierarchy.

While the existing Plan and the Council's Sustainable City SPD confirms new development should deliver 10% of its regulated and unregulated energy through low carbon renewable energy, latest national planning policy and guidance confirms the Government's approach to sustainable development is being driven through future iterations of the Building Regulations and new development should focus on reducing predicted regulated energy use in line with the energy hierarchy.

The following section of this report demonstrates how the proposed MSCP will incorporate a number of sustainable design measures to respond to local and national policy, delivering a sustainable new car park.

# 3. Sustainability at the proposed MSCP

This chapter summarises the sustainable design measures incorporated into the outline design and to be considered during the detailed design to deliver sustainable, low carbon new car park.

## Achieving Sustainable Development

This section of the report outlines the Sustainability Strategy for the proposed development of a new MSCP setting out the key design measures incorporated into the development and to be considered during the detailed design which reflect local and national sustainability objectives.

The Local Development Plan is going through a period of significant change and the emerging Local Plan confirms the Council's objectives for new development which responds to the challenge of climate change and sustainable construction, as well as setting out specific policies relating to car parks such as the provision of EV charging points.

In addition the Council's existing development plan requires new development to include the provision of low carbon renewable energy, providing guidance on suitable technologies and other sustainability measures.



In this context the following headings set out sustainable design measures incorporated into the development masterplan at the outline application stage, responding to the Council's sustainable development objectives and policies.

### 3.1 Sustainable Design and Construction

### 3.2 Energy and Carbon Strategy

### 3.3 Sustainable Transport

### 3.4 Environmental Sustainability

#### 3.4.1 Flood Risk and Sustainable Drainage

#### 3.4.2 Conserving and Enhancing the Natural Environment

### 3.1 Sustainable Design and Construction

The best opportunities for improving materials resource efficiency in construction projects occur during the design stage and can provide significant cost savings, reductions in waste produced and disposed to landfill, and carbon reductions.

**Sustainable Design** – The University of Warwick is committed to sustainable development which minimises resource use and designs out waste, recognising that the planning and design stage of development plays an important role in reducing waste in accordance with the waste hierarchy.

In this context the development will be designed to minimise resource use, where possible using measures such as offsite pre-fabrication to minimise material use and waste.

**Sustainable Materials** – Where possible the design of the proposed MSCP will specify the use of sustainable materials to reduce primary resource use.

**Sustainable Construction** – During construction a range of best practice construction measures will be targeted to minimise resource use, waste and encourage the recycling and reuse of materials, including:

- The monitoring of energy and water use to inform reduction targets and measures;
- Use of recycled aggregates for building foundations and hardstanding;
- Avoidance of over-ordering;
- Supervision of deliveries;
- Use of secure materials storage facilities;
- Prioritisation of on-site re-use and recycling of materials; and
- Use of recycled products.

In addition the development will be registered with the Considerate Constructors Scheme to minimise resource use and waste during construction in accordance with best practice guidance.

**Site Decommissioning** – The University of Warwick aims to deliver buildings which have a long life span and are

designed to facilitate decommissioning at their end of life through measures such as;

- Design to minimise material use; and
- Where possible specification of materials which can be easily re-used or recycled.

### 3.2 Energy and Carbon Strategy

One of the main challenges facing the UK and new development is the need to mitigate and adapt to a changing climate. The Government is committed to tackling climate change and has an ambitious long-term goal to reduce carbon emissions by 80% by 2050.

Climate change will cause the UK to become warmer, winters will become wetter, and summers will become drier. Adapting to this changing climate will impact on the design, construction, location, cost and operation of all new buildings in the next few decades. One of the NPPF's core planning principles is to encourage development to consider climate change adaptation and mitigation during the planning process.

The current Development Plan states new development should deliver 10% of the sites energy through low carbon renewable sources. It is considered that given the Government's latest guidance that this should be restricted to the developments regulated energy use.

In addition the emerging Local Plan confirms the importance of creating more sustainable places that are naturally resilient to future climate change.

**Efficient Design and Services** – MSCP are unique, functional buildings which are not heated or cooled where the predominant energy requirement is for lighting. In this context the design of the MSCP is focussed on reducing the energy required to light the building and a range of passive and active design measures will be incorporated and considered in the design of the car park to minimise energy use in line with the principles of the energy hierarchy, including:

- Where possible design which prioritises natural daylight to minimise lighting requirements;
- Installation of efficient LED lighting;
- Consideration of lighting sensors including presence detectors and daylight sensors;

- Provision of energy efficient parking management equipment;
- Installation of energy efficient lifts which may include variable drive motors and regeneration technology to reduce energy use; and
- Provision of a Building Management Systems and metering to monitor energy use.

Through the provision energy efficiency measures it is anticipated that the buildings predicted energy load will be 55kW. Table 1 below demonstrates the estimated energy load which is split between lighting and small power requirements such as the building lifts.

**Table 1: Predicted Energy Load**

Energy Requirement	Energy Load (kW)
Lighting	48
Small Power (Lifts)	7
Total Predicted Energy	55

The anticipated energy demand of the new car park is based on the energy demand calculations completed for the new Lynchgate MSCP and the final energy demand for this building will be determined during the detailed design stage.

**Low Carbon Renewable Energy** – The Council's Delivering a More Sustainable City SPD requires new development to provide 10% of the site energy requirements through on-site renewable energy.

Given the car parks unique energy demand the potential low carbon renewable technologies are limited to electricity generating technologies such as small scale wind and Solar PV.

- **Small scale wind** – Small scale wind turbines are suitable in locations with limited obstacles. Building mounted turbines in urban areas surrounded by buildings and trees have limited performance due to wind turbulence and would therefore not be suitable on this building.
- **Solar PV** – Solar PV systems can generate electricity for use in buildings and is suitable on south facing, unobstructed roof spaces. They can

be fitted either on the roof space of a structure or in the context of a car park in an overhead structure constructed over the proposed car park spaces.

In this context it is considered that Solar PV is technically feasible for the the new MSCP and at this stage it is proposed that the development includes an area of Solar PV mounted on the roof/over the car park to generate 10% of the developments energy demand.

Based on the buildings predicted energy load it is anticipated the building will include 5.5kWp of Solar PV. The final quantum of Solar PV will be determined during the detailed design of the development.

### Energy Strategy Summary

In summary, the proposed new car park will aim to reduce energy use and therefore carbon emissions through a range of active and passive design measures including maximising natural daylight and use of efficient LED lighting, as well as installing 5.5kWp of Solar PV to meet 10% of the sites energy requirements.

The final energy demand and feasibility and viability of the deployment Solar PV will be assessed during the detailed design of the car park.

### 3.3 Sustainable Transport

A detailed Transport Assessment has been prepared by Arup to assess the impact of the development on the local infrastructure network and set out measures to be incorporated into the development to encourage the use of sustainable transportation.

The redevelopment of Car Park 16 is proposed as part of the University's development plan and is being developed to replace the parking that will be lost with the demolition of MSCP 7 which is at the end of its structural life and is being released for development.

In addition the redevelopment of Car Park 16 is located on the edge of campus on one of the main routes to the University and relocating parking to this site will help reduce traffic travelling across the campus.

The University is committed to encouraging sustainable travel and the Campus Travel Plan includes a wide range of measures to encourage sustainable travel including:

- Increasing parking fees above inflation to reduce parking demand;
- Provision of bus services with 770 bus movements per day;
- Provision of a campus car share scheme which has 1,790 staff and students signed up;
- Provision of 2,300 cycle parking spaces;
- Creation of the campus Unicycle scheme which provides bicycles for rent; and
- Circa 36 electric vehicle charging spaces.

During the detailed design of the development additional measures for supporting sustainable transport such as the installation of EV charging points will be considered. At this stage it is proposed that 13 spaces will be provided, the final number and location of any proposed EV charging points will be determined during the detailed design of the car park.

### 3.4 Environmental Sustainability

In addition to supporting the principles of sustainable design and construction the proposed MSCP will also aim to reduce its impact of the environment, where possible including measures to improve the local environment.

#### 3.4.1 Flood Risk and Sustainable Drainage

A Flood Risk Assessment (FRA) has been carried out by which confirms that the proposed development site is located within Flood Zone 1 and therefore considered to be at a low risk of fluvial flooding.

As a previously developed site the areas of hardstanding contribute to the creation of surface water runoff. As the development will reduce the net land area of the car park it is anticipated the level of surface water generated will decrease.

However, as a commitment to sustainable development the car park will be designed to include a surface water management system utilising Sustainable Drainage Systems (SuDS) to reduce surface water run-off to below the sites green field rate.

At the outline stage this is anticipated to include the installation of underground storage crates to attenuate the flow of surface water from the site before discharging to the existing Westwood Brook.

The proposed surface water management system has been designed to attenuate flows up to an including the 1 in 100 year plus 40% rainfall event to take into account the impacts of climate change.

The final surface water drainage strategy and SuDS will be determined during the detailed design stage of the car park.

#### 3.4.2 Conserving and Enhancing the Natural Environment

The proposed car park will be constructed on the site of the existing Car Park 16 and as a result the existing local habitat value is limited and the potential habitat for protected species is also low with some potential for nesting birds.

While the development will result in the loss of a number of existing trees and where possible the car park will be designed to minimise the cutting back and removal of

trees along the perimeter of the site to maintain this environment and the screening to the development they offer.

In addition the development will include and consider a number of measures to mitigate the developments impact of the existing habitats and provide an improvement in the sites ecological value, including:

- New native planting to enhance the site habitat value, mitigating the loss of any existing trees and hedgerows;
- Removal of trees and hedgerow outside of the bird nesting season; and
- Provision of dark areas and corridors to minimise lighting to protect foraging and commuting opportunities for bats;

Through the provision of suitable mitigation measures the development is targeting an enhancement of the sites biodiversity and ecology.

The proposed new MSCP will include a range of sustainable design measures to reduce energy use as well as a Solar PV system to generate on-site energy thereby reducing the carbon emissions of the new development.

# 4. Conclusion

This Sustainability Statement demonstrates the measures incorporated into the proposed development to deliver a sustainable new car park which adapts to and mitigates the impacts of climate change.

The proposed development supports both local and national sustainability objectives and this Sustainability Statement sets out the design measures incorporated into the development and a range of measures to be considered during the detailed design to ensure the delivery of a sustainable, resource efficient car park. The sustainable design measures considered at this stage include:

- Design and construction which will where possible use specific sustainable materials, design out waste and prioritise recycling during design, construction and decommissioning;
- Design in accordance with the energy hierarchy, reducing energy use through a range of energy efficiency measures and further reducing emissions by 10% through the installation of 5.5kWp of Solar PV;
- Consideration of measures to support sustainable travel such as the installation of EV charging points;
- Development in Flood Zone 1 and inclusion of a surface water management to mitigate surface



water run-off, taking into account a 1 in 100 year storm event and a 40% allowance for climate change; and

- Development which incorporates a range of measures to limit the development local ecological impact, including measures such as new native planting to provide ecological enhancement to the site.

The proposed development will deliver a sustainable new car park which reflects local and national sustainability priorities including measures to reduce energy use and carbon emissions, inclusion of EV charging points and positive environmental sustainability design measures such as surface water management and ecological enhancements. . .

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