

<b>For Information</b>	
<b>Public/Non Public</b>	<b>Public</b>
<b>Report to:</b>	<b>Strategic Resources and Performance Meeting</b>
<b>Date of Meeting:</b>	<b>14<sup>th</sup> September, 2021</b>
<b>Report of:</b>	<b>Chief Constable</b>
<b>Report Author:</b>	<b>David Heason, Estates Manager</b>
<b>E-mail:</b>	<b>david.heason@nottinghamshire.pnn.police.uk</b>
<b>Other Contacts:</b>	<b>Tim Wendels, Head of Estates and Facilities Management. Andrew Fowler, Transport &amp; Julie Mansfield, Information Services.</b>
<b>Agenda Item:</b>	<b>4</b>

## **Environmental Management**

### **1. Purpose of the Report**

- 1.1 The purpose of this report is to update the Police and Crime Commissioner (PCC) on the Force's environmental management, waste recycling figures and current environmental initiatives.

### **2. Recommendations**

- 2.1 It is recommended that the force's activity in relation to Environmental Management is noted.

### **3. Reasons for Recommendations**

- 3.1 To ensure that the Office of the Police & Crime Commissioner is aware of the Force's current environmental management initiatives.

### **4. Summary of Key Points (this should include background information and options appraisal if applicable)**

#### **4.1 CARBON MANAGEMENT PLAN**

- 4.1.1 In 2011, the Force developed a Carbon Management Plan which set out a target for a net reduction in its carbon emissions of 30% within 10 years. The plan set out projects and proposals to meet that target.
- 4.1.2 The target has been achieved with currently the reduction being 31% compared to the original 2011 baseline. These energy reductions have been the result of projects and new initiatives being developed, along with reducing the number of buildings in the estate.
- 4.1.3 The estate rationalisation project is nearly at its conclusion with the sale of Bridewell, West Bridgford and Hucknall in the next 6-12 months, which will continue to reduce our emissions. This will be offset by an increase in emissions when the new Nottingham custody building and the new building for the joint HQ with Nottinghamshire Fire and Rescue Service are occupied. We

will continue to monitor carbon emissions over the coming year and report next year how this has impacted on the figures; it should be noted that this will only show figures for part of a year.

- 4.1.4 Our general waste contractor currently recycles, or diverts to alternative uses, 100% of the waste the Force produces. Part of our waste is separated on police sites and is sent straight for recycling, whilst the rest of our waste is taken and separated by the waste contractor, who recycles it in several ways, including some energy recovery. None of our waste goes to landfill.

## **4.2 CITY COUNCIL – CARBON NEUTRAL BY 2028**

The Estates Team represent the Force at the City Council Carbon Neutral by 2028 (CN28) meeting, which includes members from many public and private sector bodies and universities, who are all considering how carbon can be reduced in the City of Nottingham. The Force covers a wider area than just the City of Nottingham and any changes made by the Force for the city area will also be considered for the rest of the county as this will bring the same benefits to the whole county.

## **4.3 PROJECTS COMPLETED**

- 4.3.1 The following gives a description of the projects that have been carried out by the Estates and Facilities department to reduce energy consumption since the Carbon Management Plan was developed: -
- i 9 buildings have Photovoltaic (PV) panels installed to generate electricity, where the building orientation is considered to be appropriate for the installation of the panels.
  - ii Sherwood Lodge has been fitted with double glazing, roof insulation, LED internal lighting to many parts of the buildings and LED to all external lighting.
  - iii Ollerton Police station has been fitted with a biomass boiler, double glazing, loft insulation and LED lighting with automatic controls.
  - iv Broxtowe Police station has been fitted with double glazing, loft insulation and LED lighting with automatic controls.
  - v Sherwood Lodge has had two biomass boiler houses built to provide heating and hot water to most of the buildings and remove heating oil consumption.
  - vi LED lighting has been used around the estate whenever we have carried out major improvements to the estate.
  - vii The Force has installed new gas boilers and Building Management Systems (BMS) to regulate the heating and be more efficient to several our large sites. The following list of buildings were included in this

project, because they were typically 20-25 years old, and had gas or oil heating systems that were considered inefficient by today's standards and in most cases were near or at the end of their expected life. This project was completed in the autumn of 2018 and will continue to provide us with efficient heating and minimise our energy consumption over many years.

Arrow Centre  
Mansfield  
Oxclose Lane  
Phoenix House  
Radford Rd  
Sherwood Lodge

- viii An Air Source Heat Pump has been installed in the new Locker Room at Sherwood Lodge to provide heating and hot water.
- ix Smart LED lighting systems have been fitted at Oxclose Lane and in the new Locker room at Sherwood Lodge.

#### **4.4 COMPLETED PROJECTS IN THE PAST 12 MONTHS**

The following works have been completed over the past 12 months: -

- i A smart LED lighting system has been installed to 20% of Mansfield Police Station.
- ii External LED lighting has been fitted in the whole of Mansfield car park.
- iii The first electric cars have been introduced into the Force.

#### **4.5 LED SMART LIGHT FITTING REPLACEMENT**

We are currently undertaking a programme of replacing light fittings with LED smart light fittings. The change to LED fittings typically gives 40% reduction in energy consumed compared to the previous fitting. The smart device on the new fittings increases this reduction by automatically dimming fittings and turning them off when they are not required because there is either sufficient natural light from the windows or nobody is in the room.

Table 1 gives information on what reductions have occurred by using the smart system at three of our buildings.

Table 1

Location	Average hours turned on	Average power when on	Average energy usage % of 24/7 operation
<b>Oxclose Lane Top Floor</b>	39%	47%	18%
<b>Sherwood Lodge Locker Room</b>	27%	87%	23%
<b>Mansfield Various Office Areas</b>	50%	59%	30%

As an explanation, the Oxclose Lane figures show that the lights were switched on 39% of the time, so the system will have switched the lights off for the remaining time, saving energy, some of this is because the office isn't normally occupied overnight.

When the lights are on, they are working at an average 47% of their maximum light level, because at some points in the day, the natural light coming from the windows is sufficient for the lights to dim or turn off.

The average energy usage shows that the lights only need to use 18% of the energy they would use if the lights were left on for 24 hours a day. The figure is partly lower than other buildings because the office isn't normally occupied overnight.

#### **4.6 PROJECTS PLANNED FOR 2021/22**

The following works have either started or are at their design stage: -

- i The Smart LED lighting system is to be expanded in 2022 throughout the rest of Mansfield Police Station, except custody, which already has standard LED, and a Smart system wouldn't be appropriate.
- ii The windows and roof coverings at Oxclose Lane will be replaced in 2021, as part of a replacement programme and will also provide an increased level of insulation.

#### **4.7 PROJECTS PLANNED IN FUTURE YEARS**

The following works are currently being considered in future years by several departments: -

##### ESTATES

- i The replacement of windows and roof coverings at Radford Road will be carried out in 2022 as part of a replacement programme and will also provide an increased level of insulation.

- ii We will continue to replace existing lighting around the Force where fittings have reached the end of their life expectancy with Smart LED lighting systems to reduce our energy consumption and our CO2 emissions.

## INFORMATION SERVICES

- i Data Centres - As a 24/7 365 organisation, our strategy to virtualise data centres has been delivering efficiencies over many years. Data centres operate in an environmentally managed space, with systems in place to provide cooling, fire suppression and power. A reduction in physical servers changes our requirement for physical floor space and the consumption of the power we need to sustain the equipment along with the associated environmental controls.
- ii We have started our journey into the Cloud, and we can see the future where the profile of our dependencies on locally managed and resourced data centres for day to day business and for business continuity will change. Shifting our workload into the Cloud will have a direct impact on our consumption of energy and our requirements for environmentally managed space.
- iii UK Data Centres offering Cloud services are committed to running their infrastructure services on renewable and sustainable energy. AWS have committed to running their infrastructure using 100% renewable energy and have so far invested in 59 wind and solar projects, 68 on-site solar systems and 127 global renewable energy projects.
- iv Microsoft have developed their own Sustainability Calculator, to help businesses analyse the carbon emissions of the Azure Cloud services they use, and they have also committed to powering their data centres by 100% renewable energy by 2025.

## TRANSPORT

- i The Force continues to reduce its carbon emissions from its vehicles, with better engine efficiency and lower car use, which has contributed to the overall reduction in carbon emissions. The Force currently has 6no self-charging petrol/hybrid and 6no diesel/hybrid vehicles that are used for operational purposes. Funding has just been used to purchase two electric Nissan Leaf vehicles for use as pool cars and charging points have been installed at Sherwood Lodge, Byron House, Broxtowe police station and Nottingham Custody that will allow further purchases of electric vehicles. Further charging points are to be installed as part of the new joint HQ build at Sherwood Lodge.

### **4.8 ESTATE RATIONALISATION AND MAJOR CHANGES**

- 4.8.1 The estate rationalisation programme has had a significant effect on reducing our energy usage and carbon emissions over several years. We have moved

out of several buildings and either not replaced them, which has saved the full amount of energy/carbon, or teams have relocated to smaller buildings with lower energy consumption. Further details of the estates strategy and rationalisation programme are contained in a separate report elsewhere on the agenda for this meeting.

4.8.2 The Force is close to completing two major new build projects, which are due to be completed in 2021. These are a new custody suite, which will be completed at the end of August 2021 and operational from 29<sup>th</sup> September, and a new joint HQ building with Nottinghamshire Fire and Rescue Service (NFRS) on the Sherwood Lodge site, which will be completed by December 2021 with occupation starting in January 2022. The new joint HQ building will increase the floor space of the HQ site, which will have an influence on our future consumption, but will enable NFRS to join the Force on the Sherwood Lodge site and will be offset by NFRS's floor space reduction through the disposal of their HQ – Bestwood Lodge.

4.8.3 In order to minimise carbon emissions and energy consumption from these two new builds, they have both been designed with a strong focus on environmental credentials as set out below: -

- i. Sherwood Lodge New Building – The roof area has been maximised with Photovoltaic (PV) panel arrays to provide electrical power direct to the building or return to the grid when there is a surplus. The building fabric has been designed with low heat loss and air infiltration to keep heating requirements down. In addition, orientation, glazing and solar shading have been considered to limit solar gains and cooling requirements. Heating and cooling are provided by high efficiency air source heat pump units and ventilation systems utilise heat recovery to minimise heat input. Lighting utilises intelligent occupancy and daylight monitoring to minimise artificial lighting where not required, and also a self-test system to monitor faults and operation to reduce maintenance requirements. Finally, a whole Building Energy Management System (BEMS) monitors and controls all systems which can modulate to meet load requirements based on occupancy, temperature, air quality etc.
- ii. Nottingham Custody Suite - The scheme has been designed to incorporate 420m<sup>2</sup> of PV panels which maximises the main roof footprint. The aim has been to provide an energy efficient building. The primary focus has been to minimise energy usage through a fabric, by utilises high performing components and materials to maximise the energy efficiency of the building. Efficient use of systems, and application of controls to suit zoning for heating, ventilating and air conditioning (HVAC) plant and lighting all contribute to the low energy consumption. A number of different services concepts have been assessed along with their suitability for incorporating low carbon energy systems into the scheme.

## 4.9 FUTURE INITIATIVES

The Estates Team, Information Services and Transport Team will continue to consider where we can reduce carbon emissions on behalf of the Force. As part of the Estates Team's routine work we will continue to collate data on energy consumption of the Force buildings as well as the CO2 reductions that have been made over a sustained period. These will be recorded in this annual report.

## **5. Financial Implications and Budget Provision**

- 5.1 The capital programme contains budgets to implement the changes as required by the estate rationalisation programme and the other schemes in 2021/22 and will continue to deliver lower energy consumption. It will be beneficial for the OPCC to continue to provide funds to support carbon reduction initiatives in future financial years.

## **6. Human Resources Implications**

- 6.1 None

## **7. Equality Implications**

- 7.1 None

## **8. Risk Management**

- 8.1 N/A

## **9. Policy Implications and links to the Police and Crime Plan Priorities**

- 9.1 There is a link to the PCC's Corporate Social Responsibility agenda.

## **10. Changes in Legislation or other Legal Considerations**

- 10.1 None

## **11. Details of outcome of consultation**

- 11.1 None

## **12. Appendices**

- 12.1 None