

TITLE OF REPORT: Street Lighting Update – Impact of changes to street lighting in line with light pollution considerations and impact on community safety

Purpose of the Report

1. This report provides the Housing, Environment and Healthy Communities Overview and Scrutiny Committee with a broad overview of impact of changes to street lighting in line with light pollution considerations and the potential impacts of reduced street lighting on community safety and perceptions of crime and disorder.

Background

2. The principal objectives of the provision and maintenance of Street lighting are:
 - a. Provision of a safe network for all users, considering particular needs of vulnerable groups.
 - b. Protection of the night time environment by ensuring lighting levels reflect the diversity of the borough.
 - c. To maintain lighting to a standard that allows safe use of the network during the hours of darkness.
 - d. To sustain the night time economy of the borough
3. Street Lighting can be used to promote safety and security, in both urban and rural areas, and it can also help increase quality of life by artificially extending the hours in which it is light so that activity can take place. We know that darkness, and locations with restricted visibility, can often create feelings of personal insecurity and fear of victimisation. Darkness can also create a potentially favourable environment for crime, vandalism, and theft, including thefts from vehicles, and properties.
4. To achieve this street lighting, engineers follow industry guidelines set out in British Standard (BS) 5489-1:2020 that considers pedestrian and traffic safety when designing Street lighting levels.
5. As part of the Council's 2030 vision, it is planned to make Gateshead carbon neutral by 2025. To assist in achieving this goal, a Carbon Management Plan (CMP) was established with the aim of reducing the Council's carbon emissions by 35% (with an aspiration of 40%) by December 2014.
6. The Invest to Save Programme (ITSP) is a key project for the CMP and has seen Gateshead Council install LED lanterns across the borough. The ITSP has enabled part night switch off and dimming to be utilized across the borough.
7. Main and feeder road lighting (lanterns on columns 8 Metres and above) switch on at 100%, dim to 75% power at 8pm, then to 50% power at Midnight until 5.30am

when they return to 100% power. Main road dimming/switch off was first implemented 1/7/2015.

8. A trial demonstrated what light from the 'then new' LED lanterns in residential areas (lanterns on 6 metre and smaller columns) looked like when dimmed to 50% power and 25% power. This new light source of LED could be used at lower power outputs because of the way the human eye visualizes with the LED light's whiter colour.
9. Following the demonstration, trials were carried out to gauge the reaction from residents in selected areas in Dunston, Teams, Whickham and Saltwell. This had a favourable response from residents who reported that there wasn't much visible difference from 100% to 50% power.
10. Residential areas (lanterns on 5 and 6 Metre high columns) are dimmed to 50% power from switch-on, then to 25% power at Midnight until 5.30am when they return to 50% power. This dimming regime was first implemented on 2/9/2015.
11. Following the roll out of the above, the option of a part night switch off was considered. The Main and feeder network were the only area's considered, residential areas were not. To select the areas for part night switch off, guidance from the Institute of Lighting Professionals was considered and all main roads were risk assessed prior to being part night switched off.
12. In recent years, most local authorities, including Gateshead Council, have opted to reduce street lighting levels at night to reduce carbon emissions and to save energy and maintenance costs. This report hypothesizes how changes to street lighting might influence community safety-related issues.

Theory

13. Light Pollution has become a more prevalent issue of late with reference dark sky areas attracting headlines. The Street Lighting code of practice changed the required levels of lighting & uniformity in all areas. This reflects the Directional white light sources we now use, reduces levels of light pollution, wasted energy and reduces carbon emissions.
14. Gateshead Council's remit is to provide lighting on the adopted highway. The previous generation of lanterns wasted energy spreading light in an indiscriminate manner, illuminating gardens and resident's front doors which, for some people was a bonus but for others, was intrusive.
15. This change to directional LED lanterns has had an impact on resident's perception of lighting levels, and coverage, while correctly only lighting the adopted highway.
16. The issue of reduced street lighting on tackling crime is often hotly debated with various academic studies carried out to assess associated benefits and limitations

of street lighting initiatives on crime prevention efforts. In broad terms, there are two main theories of why improved street lighting may cause a reduction in crime:

- a. The first theory suggests that improved lighting leads to increased surveillance of potential offenders (both improving visibility and increasing the number of people potentially on the street) and therefore leading to increased deterrence of potential offenders.
- b. The second suggests that improved lighting signals community investment in an area, leading to increased community pride, community cohesiveness, and informal social control.

Evidence

17. The national evidence base surrounding the impact of reduced street lighting on crime and disorder is not strong – and questions concerning potential crime preventive effects of lighting initiatives remain unanswered.
18. An academic study carried out in 2022 by LANTERNS (*a national collaboration between London School of Hygiene and Tropical Medicine and University College of London Security Crime Science Department) evidenced the absence of street lighting altogether may prevent crime but that spatial and temporal displacement remains. The study found that the absence of street lighting was strongly associated with a reduction in vehicle theft compared with daytime incidents but night time thefts from vehicles increased in the surrounding streets where street lights remained unchanged. It was also suggested that reducing the lighting in streets could hinder a criminal's ability to assess their target suitability and, therefore, they are less likely to pursue their target. Conversely, research published in 2008, by European Crime Prevention Network, would indicate improved street lighting in an area leads to significantly reduced crime and advocated street lighting initiatives within public spaces. The College of Policing Crime Reduction Toolkit also evidenced street lighting, as a form of situational crime prevention, is positive and an intervention that can reduce crime. Violent and property crime was reduced by an average of 21% in areas with improved street lighting compared to areas lower levels/without. A Department for Transport study in 2003 found that road safety was perceived as a key benefit for street lighting improvement in an area.
19. Research carried out in 2015 by London School of Hygiene and Tropical Medicine looked at the determinants of health and wellbeing in relation street lighting. The report found little evidence that the introduction of lower street lighting had made significant differences to wellbeing, except in residents' feelings of personal security and safety; albeit, even where there were strongly held views or anxieties few reported direct impacts on outcomes such as mobility.

Gateshead Context

20. Benefits of the ITSP include:-
 - a. The dimming and part night switch have enabled optimal reduction in the levels of power required and the carbon generated to do this.

- i. In the financial year 2009/10 7466 tonnes of carbon were burnt on street lighting, in 2022/23 it had reduced to 761 tonnes a reduction of 6705 (90%) tonnes of Carbon dioxide that will be emitted by Power Stations into the Atmosphere.
 - ii. In the financial year 2009/10 15,120,571 kw/h of energy was required to for street lighting, in 2022/23 it had reduced to 3,646,003 kw/h a reduction of 11,474,568 (76%) kw/h consumed
 - b. Any reductions in lighting levels automatically produce savings in energy costs and form Part of Gateshead Councils contribution to being Carbon Neutral by 2030.
 - c. A reduction in the number of lighting patrols
 - d. Increased lamp-life due to dimming.
 - e. The lamps produce white light which improve colour recognition.
 - f. New lanterns require less maintenance and cleaning.
21. However, concerns have been raised by members about the lighting levels throughout the borough. Reference has been made to the fact that cabinet reports associated with the dimming process deemed that there were no crime and disorder implications.
22. Officers are also aware that new lanterns have been installed on columns with height and spacings designed for previous generations of street lights. This will in some instances reduce the light levels. The column replacement programme will rectify this in many instances but has another 10 years to completion.
23. Between January and March 2023, we launched a Community Safety Survey which asked residents to pinpoint areas in Gateshead where they felt unsafe and the potential reasons why. We received more than 470 responses to the Survey – of which around 38% (180) of people cited poorly lit areas as a potential reason for feeling unsafe/avoiding an area – extending to 59% (279) if we included all respondents who cited poor lighting as a reason a person may feel unsafe but who have reported that they themselves feel safe in the area.
23. There were a total of 472 responses to the Survey, of which 340 said that they felt very or somewhat unsafe (72%) – of which:
- i. 54% say the area being poorly lit makes them feel unsafe
 - ii. 24% of respondents say the area having restricted visibility makes them feel unsafe.
24. If the Survey responses are filtered on “Poorly Lit” and “Restricted Visibility at otal of 279 responses are identified – of which:
- i. 194 say feel very or fairly unsafe (7 out of 10 people)
 - ii. 60% of respondents are women
 - iii. Almost 9 in 10 live in the area they are saying is poorly lit/restricted visibility
 - iv. Two thirds say the area has become worse in the last 12 months
 - v. Almost 60% have witnessed or been a victim of an incident here (we don't ask what the incident was)
 - vi. Three quarters say they would avoid the area after dark
 - vii. Almost half are aged 45yrs+ (a quarter 45 to 54yrs, a fifth between 55 and 64yrs)
 - viii. Responses mostly from Vulnerable or Just Coping neighbourhoods

25. A separate Safer Communities Survey was carried out by Northumbria Police. The latest results show that 91% of Gateshead respondents feel very or fairly safe living in their neighbourhood (force area = 94%) and 40% think that their neighbourhood has got worse in the last 12 months (force area = 30%). The survey covers the 12 months to September 2023.

Recommendations

The Housing, Environment and Healthy Communities OSC is asked to note the information provided on the Impact of changes to street lighting in line with light pollution considerations and impact on community safety.

Contact: Adam Lindridge, Community Safety Manager/Mike Batty Interim Head of Community Safety **Tel:** 0191 433 3243/07970 271528

Contact: Paul Fairless, Highways Service Manager **Tel:** 0191 433 7222