



City of Westminster

Committee Report

Meeting:	Communities, City Management and Air Quality Policy and Scrutiny Committee
Date:	13th September 2022
Classification:	General Release
Title:	Gas street lighting electrification
Wards Affected:	St James, West End, Knightsbridge & Belgravia, Vincent Square, Pimlico North
Policy Context:	<p>The electrification of gas street-lights reduces carbon emissions, reduces finance risk associated with the extensive costs of underground pipe repair, and improves night time safety for all including the vulnerable and women. The scheme provides improved lighting in areas with historic lighting level complaints from the MPS and businesses including theatres.</p>
Cabinet Member:	Councillor Paul Dimoldenberg
Financial Summary:	<p>The current cost for the LED conversion of Gas lighting works is £2,994,000 for which financial approval was granted in 2020.</p> <p>Conversion avoids estimated gas energy and maintenance costs of £6,595,365. LED energy and maintenance over the same 25 years estimated as £689,598. This results in an overall costs reduction of £2,911,000 and a return on investment of 15 years.</p>

It would reduce annual revenue
maintenance and energy costs from
£112,500 to £11,700 in current year

Report of:

Head of Operations – City Highways

1. Executive Summary

To provide an update on the current position of the gas street lighting electrification scheme following its pause pre-election pending a review with interested parties.

2. Recommendations

For information only

3. Background, including Policy Context

In 2019 the Council had 305 gas lights across Westminster, 139 of which are listed assets.

30 of these 305 gas lights have been switched to 'gas effect' LEDs, this approach was approved by the Cabinet Member in the Lighting Master Plan in July 2020 and subsequent planned preventative maintenance decisions. Links below.

<https://committees.westminster.gov.uk/ieDecisionDetails.aspx?Id=1211&LLL=0>

<https://committees.westminster.gov.uk/ieDecisionDetails.aspx?ID=1166>

Maintenance

The assets (gas lights) are of historical value but due to their age, mostly over 100 years old, the mains connection pipes (managed by Cadent) and repairs to the lantern components (managed by British Gas) require replacement parts. The annual maintenance budget of £25,500 only covers reactive repairs and inspections by our service provider (FM Conway) and British Gas and includes fortnightly clock resets. This is currently kept within budget due to the management of part replacements requested by British Gas throughout the year.

The Council experience ongoing delays when a gas main connection needs replacement and have in some cases waited over 8 months for a quote for repair. Quotes for Tavistock Street in 2018 for two mains replacement came to £9,000 and £26,000 each to replace Cadent's gas mains pipes. These costs put pressure on existing maintenance budgets. In most cases these repairs also require road closures as the gas mains are usually in the carriageway.

For the mains supply defects there is a large difference in performance between Cadent and our electrical power operator UKPN. Whilst both are subject to OfGEM regulations, Cadent have not set national service levels regarding timescales and do not work to an agreed set of costs. In comparison UKPN have a service level agreement to provide repairs within 28 working days at a set rate. It is also worth mentioning that for standard dead UKPN supply repairs there is no cost to the council for their cable replacement and associated works.

Regarding lantern components, whilst British Gas do a good and timely job to standard lantern repairs, they have been asking the council for any spare parts for the last 3 years, to help have parts to repair gas lights elsewhere the country, indicating the possible lack of stock and materials they have to maintain these assets.

Even when working, the gas lights provide inadequate lighting levels which don't meet British Standards, so the lighting team has worked with colleagues in planning as well as Historic England to come up with the gas effect LED lanterns. These lanterns replicate the previous gas lanterns in appearance so that the aesthetics of the column and lantern are not changed to ensure we continue to support the City's unique heritage while also ensuring the good management of the city which wouldn't be possible with gas powered lighting.

Where a system of street lighting exists, it is the duty of the asset owner, WCC, to maintain it, this includes maintaining appropriate lighting levels. All roads have been designed with the gas effect LED, greatly improving the lighting levels.

Historic England

Historic England have advised they do not need to be consulted on the switching of the non-listed gas lights. The lighting team has held discussions with the WCC planning department on the non-listed assets and they provided their approval for the gas effect LED lantern in 2019.

Changes to listed assets require liaison with Historic England and gaining listed building consent via the council's planning department. Historic England acknowledged in October 21 the council is seeking a sympathetic solution, mindful of its duty of care to keep the lights working and respond to the climate emergency by reducing carbon emissions. These discussions will ensure that the correct consents are sought and that a clear and convincing justification is provided as part of the planning process, which can be considered against any harm that may be identified to heritage assets.

Safety and Crime Reduction

Historically, complaints concerning low lighting levels and safe egress along the highway, crime and anti-social behaviour have been received from the MPS, residents and businesses on roads with gas lights. Complaints are received via the council's neighbourhood co-ordination team, requesting improved lighting levels. The Lyceum Theatre requested lighting level improvements in Burleigh, Exeter and Tavistock, Bedford Street, and Chandos Place.

Crown Passage off Pall Mall had reports from Il Vicolo Restaurant and MPS of crime and anti-social behaviour in early 2021 resulting in accelerating their gas replacements with electric gas effect LED lanterns.

It should be noted that the gas lights are unable to have more gas pressure coming into the lanterns to give adequate lighting levels to meeting current British standards, this was addressed in the early 2000's through increasing the gas pressure and the number of gas mantles to improve both the colour appearance of the light and the level of light output, but this provided limited improvements to the light output. More recently, the council looked to use additional wall lighting to improve lighting levels on those roads without changing the gas lighting. However, many of the buildings on these streets are listed and lighting attachments weren't permitted, so until now we've been unable to adequately resolve complaints regarding lighting levels.

The agreed solution is to make use of a gas effect LED lantern which produces improved lighting levels in line with current British lighting standards to improve the

night-time visibility for our residents, businesses and visitors. By changing to electrical power we can make use of LED technology to improve lighting levels drastically, reduce long delays to repair power supplies, greatly reduce energy and carbon usage and provide a more reliable lighting source that is able to be remotely monitored.

Crown Passage



Gas light before



Gas effect LED light

Lighting Level Designs

The service provider's design consultant, WSP, undertook lighting designs for all the roads making use of the existing gas light positions. The gas effect LED using existing positions bring the roads up to current British lighting standards. In some cases, additional in-fill light columns were found to be required to bring lighting levels up in high footfall and crime areas, all within Covent Garden area. These additional columns will look the same as the surrounding columns and LED gas effect lanterns. Chandos Place and Bedford Street are examples of locations that will require infills.

In other gas lit roads outside of Covent Garden that have much lower footfall, such as the Smith Square area it is calculated that no additional in-fills are required and the improved lighting levels on the existing gas column locations will be sufficient.

Specific areas with historic gas supply issues

Tavistock Street has had two gas lights at the Drury Lane end without gas supplies since 2018 due to the mains pipe needing replacement, the high cost of these repairs and need for road closures required mean conversion to electrical feed is a better use of limited public funds. The lights here are listed so listed building consent is required before conversion is permitted.

James Street in Covent Garden had a gas mains fault Cadent had not repaired for 3 years due to water egress they had not resolved with Thames Water. Following further complaints of lighting levels here in Winter 2020 from the surrounding businesses and council management, the lights were electrified and temporary gas effect LED lights installed pending the installation of Rochester lanterns.

James Street



Previous gas lighting



Temporary electric lighting Dec 20



Rochester LED

LED gas effect mimic lanterns

Trial LED gas effect lanterns were approved by the planning department in 2019. The first in Bull Inn Court was a Varioptic light from Pudsey Diamond. A Braun lamp from DW Windsor was also installed along Floral Street in partnership with the Seven Dials Trust under a Public Realm scheme. Planning advised that the appearance of the Varioptic was preferred to progress with.



Varioptic



Braun



Bull inn Court, gas in foreground, trial replica LED in background

Gas lanterns are replaced on a like for like basis with new replica electric heritage Grosvenor, Rochester, and Windsor lanterns, shown below, to provide sealed lanterns for the LED fitting against dust and water egress. Unfortunately existing gas lanterns are not suitable for re-use as they are not sealed to allow excess gas to escape.

FM Conway undertook site surveys in March 2020 of current gas lantern type, and potential locations for feeder pillars to provide power to lanterns, which was completed March 2020. Small feeder pillars in discreet locations to provide electrical power are required as some gas columns do not traditionally have door accesses in them for power supplies, and we are not wanting to replace the existing cherished columns.

Following various discussions with manufacturer, planning and consultant, we asked if the piping could be replicated to further mimic the gas lantern aesthetic and we now have second generation lanterns produced for each of the three types of lantern in the city;



Grosvenor (Kingsley)



Rochester (Chesterton)



Windsor (Dickens)



2nd generation gas mimic lantern installed in Queen Anne's Gate and Abbey Orchard Street

The manufacturer is responsive and happy to adapt lantern design at the Council's request.

The Pudsey Diamond's Varioptic gas effect LED lamps assist in providing appropriate lighting levels and match the number of mantles previously in the respective gas lantern for each site. The units also include the Urban Control Central Management System (CMS) to align with the Council's current LED/CMS rollout, to allow variable light levels when appropriate, and also to automatically identify potential faults remotely. This CMS system enables lights to be turned on and off or dimmed/brightened remotely.

4. Costs

Regarding the costs of the proposed works, below is a breakdown of the capital cost, it includes for the gas disconnections, LED lanterns and power replacement costs, along with designs to British Lighting Standards to improve safety. It also includes surveys of underground services, research & development costs of the gas effect LEDs following feedback from planning, Historic England and Councillors over the last 3 years, and the fees to undertake listed building consent with Historic England.

Comparing the 25 year expected lantern life of the electrification scheme against existing gas costs;

	Capital	Revenue 25 years	Total whole life cost
Gas costs	£0	£6,595,365	£6,595,365
LED gas effect scheme	£2,994,000	£689,598	£3,683,598

Also, when we compare the cost of these works to doing nothing, we need to account for the ongoing maintenance and energy costs of the gas lighting compared to the gas effect LED. Our current energy and maintenance yearly costs for gas are around £112,000, LED equivalent is £12,000, even if we don't allow for the huge rise in gas and electrical energy prices we have experienced this year and simply assume a 3-5% increase in energy and contractor maintenance costs per year, after 25years the total gas cost to maintain would be £6.60M, LED equivalent £0.69M, With the £3M gas electrification scheme that equates to a 15 year payback.

With current energy increases it has been highlighted by the council finance department that gas prices have increased 80% in 2022/23 and electrical energy costs 50% and as a consequence the payback of the electrification will be less than the 15 years stated above.

5. Carbon Impact

The gas lighting asset under the ownership of WCC consists of 1,567 mantles in over 300 lanterns. On average each lantern produces 322 watts, resulting in approximately 200 tonnes of carbon per year

The gas effect LED has the same number of mantles per lantern to maintain appearance but only uses around 45W, resulting in 30 tonnes of carbon in total, which is also significantly offset from the council's 100% renewable electricity generation we already procure.

Based on the proposed designs, the expected LED conversions should reduce the carbon emissions by 85%

6. Consultation

Significant engagement has been undertaken on look and feel of the gas effect LED.

Discussions have been had with the council's planning department since 2019 and continues, along with discussions with Historic England regarding the replacement of historic gas lighting with gas effect LED lighting. The council is seeking a sympathetic solution, mindful of its duty of care to keep the lights working and respond to the climate emergency by reducing carbon emissions. For listed assets, these discussions will ensure that the correct consents are sought and that a clear and convincing justification is provided as part of the planning process.

During 2020 and 2021, notification letters were sent to affected residents for the work.

During 2021 and early 2022, 5 on-site engagement sessions with Cabinet Member, Exec Directors and Ward Councillors, a consultant on behalf of St James's Trust, Royal Parks, the Ministry of Defence and the Royal Household were undertaken. The gas effect LED lantern gathered acceptance from all parties, and suggested minor amendments have been taken into account resulting in the current generation of lanterns installed on Queen Anne's Gate. As a result of the on-site visits, Royal Parks have advised they plan to engage with the same lantern manufacturer.

Prior to the May 22 election the electrification programme was put on hold pending a review.

Following the election, officers prepared the engagement review consultation letter, which will be provided to interested stakeholders along with supporting information. The review is due to be completed by 21st October 2022 and will include the offer of 3 evening site visits to show the gas effect LEDs we have developed and installed on Queen Anne's Gate, so stakeholders can see them and discuss any issues they may have in relation to the proposed works.

Next Steps

Assuming a positive outcome to the stakeholder engagement process, it is envisaged that the electrification would recommence and be completed in 2 phases. Non-listed assets complete by Autumn 2023 and listed assets, subject to approved consent process, by Autumn 2024

If you have any queries about this Report or wish to inspect any of the Background Papers, please contact:

Dean Wendelborn dwendelborn@westminster.gov.uk

Or

Dan Perks dperks@westminster.gov.uk

APPENDICES

N/A

BACKGROUND PAPERS

- WCC Gas Lighting Conversion Supporting Information
- Links to approved Cabinet papers
 - <https://committees.westminster.gov.uk/ieDecisionDetails.aspx?Id=1211&LLL=0>
 - <https://committees.westminster.gov.uk/ieDecisionDetails.aspx?ID=1166>
 - <https://committees.westminster.gov.uk/ieDecisionDetails.aspx?ID=1309>
 - <https://committees.westminster.gov.uk/ieDecisionDetails.aspx?ID=1594>