

Aberdeenshire Council

Integrated Impact Assessment

STREET LIGHTING LED UPGRADE PROGRAMME

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1. Overview

This document has been generated from information entered into the Integrated Impact Assessment system.

Assess the impact of the introduction of LED street lights.

During screening 6 of 10 questions indicated that detailed assessments were required, the screening questions and their answers are listed in the next section. This led to 4 out of 5 detailed impact assessments being completed. The assessments required are:

- Equalities and Fairer Scotland Duty
- Health Inequalities
- Sustainability and Climate Change
- Town Centres First

In total there are 15 positive impacts as part of this activity. There is 1 negative impact, the impact has been mitigated.

A detailed action plan with 1 points has been provided.

This assessment has been approved by philip.mckay@aberdeenshire.gov.uk.

The remainder of this document sets out the details of all completed impact assessments.

2. Screening

Could your activity / proposal / policy cause an impact in one (or more) of the identified town centres?	Yes
Would this activity / proposal / policy have consequences for the health and wellbeing of the population in the affected communities?	Yes
Does the activity / proposal / policy have the potential to affect greenhouse gas emissions (CO2e) in the Council or community and / or the procurement, use or disposal of physical resources?	Yes
Does the activity / proposal / policy have the potential to affect the resilience to extreme weather events and/or a changing climate of Aberdeenshire Council or community?	No
Does the activity / proposal / policy have the potential to affect the environment, wildlife or biodiversity?	Yes
Does the activity / proposal / policy have an impact on people and / or groups with protected characteristics?	Yes
Is this activity / proposal / policy of strategic importance for the council?	Yes
Does this activity / proposal / policy reduce inequality of outcome?	No
Does this activity / proposal / policy have an impact on children / young people's rights?	No
Does this activity / proposal / policy have an impact on children / young people's wellbeing?	No

3. Impact Assessments

Children's Rights and Wellbeing	Not Required
Climate Change and Sustainability	All Negative Impacts Can Be Mitigated
Equalities and Fairer Scotland Duty	No Negative Impacts Identified
Health Inequalities	No Negative Impacts Identified
Town Centre's First	No Negative Impacts Identified

4. Equalities and Fairer Scotland Duty Impact Assessment

4.1. Protected Groups

Indicator	Positive	Neutral	Negative	Unknown
Age (Younger)	Yes			
Age (Older)	Yes			
Disability	Yes			
Race		Yes		
Religion or Belief		Yes		
Sex		Yes		
Pregnancy and Maternity		Yes		
Sexual Orientation		Yes		
Gender Reassignment		Yes		
Marriage or Civil Partnership		Yes		

4.2. Socio-economic Groups

Indicator	Positive	Neutral	Negative	Unknown
Low income		Yes		
Low wealth		Yes		
Material deprivation		Yes		
Area deprivation		Yes		
Socioeconomic background		Yes		

4.3. Positive Impacts

Impact Area	Impact
Age (Older)	LED lighting produce white light which has a greater average colour rendering index(RA) than traditional high intensity discharge lights (HID) lamps. Traditional lamps produces orange glows which could produce monochrome lighting with poor definition. LED lighting produces full colour thus giving the perception of a brighter light. This whiter light highlights obstacles and provides better facial recognition. As people age their sight deteriorates, good LED lighting can help with navigating the footways and carriageways.
Age (Younger)	LED lighting produce white light which has a greater average colour rendering index(RA) than traditional high intensity discharge lights (HID) lamps.. Traditional lamps produces orange glows which could produce monochrome lighting with poor definition. LED lighting produces full colour thus giving the perception of a brighter light. This whiter light highlights obstacles and provides better facial recognition.

Impact Area	Impact
Disability	LED lighting produce white light which has a greater average colour rendering index(RA) than traditional high intensity discharge lights (HID) lamps.. Traditional lamps produces orange glows which could produce monochrome lighting with poor definition. LED lighting produces full colour thus giving the perception of a brighter light. This whiter light highlights obstacles and provides better facial recognition. Good LED lighting can help with navigating the footways and carriageways.

4.4. Evidence

Type	Source	It says?	It Means?
External Data	Institute of Lighting Professionals- Various Publication	There has been many research studies undertaken re the benefits of good LED lighting. LED lighting if designed well can give the perception of brighter lighting, which can help people with visual impairment, can illuminate obstacles and hazards on the footway and carriageway. Provides better contrast. Also been proven to reduce the fear of crime as LED lighting produces a white light which provides better facial recognition.	It can make footways and carriageways safer.

4.5. Overall Outcome

No Negative Impacts Identified.

The introduction of LED lighting does not have a negative impact on equalities. Well designed LED will provide better lighting for all users.

4.6. Improving Relations

The LED street lighting project has been well advertised and the benefits to the whole community are clear to see. The proposed works are highlighted in the local areas RMP plans which are approved by the local committees, the overall project was signed off by ISC and is also reported to the Sustainability Committee.

LED lighting has the ability to control the light emitted from the lantern, and thus reduces unwanted light which would otherwise fall into private gardens and onto the walls of some houses. Some homeowners welcome this light as it lights up their paths and front doors but others are against the unwanted light. Less light intrusion is also good for Flora and Fauna. We have had complaints that lighting levels are too high and also complaints the new LED lighting is too dim, and poorer than the previous street lighting. In these cases we have undertook desktop exercises and also undertook night time surveys. The majority of the complaints have been found to be none justified and the lighting levels were indeed compliant. Those we found to be justified have been actioned and remedial works undertaken to remove the problem.

5. Health Inequalities Impact Assessment

5.1. Health Behaviours

Indicator	Positive	Neutral	Negative	Unknown
Healthy eating		Yes		
Exercise and physical activity	Yes			
Substance use – tobacco		Yes		
Substance use – alcohol		Yes		
Substance use – drugs		Yes		
Mental health		Yes		

5.2. Positive Impacts

Impact Area	Impact
Exercise and physical activity	Improved street lighting can allow users to undertake walks and exercise during the hours of darkness

5.3. Evidence

Type	Source	It says?	It Means?
External Data	Institute of Lighting Professionals: External Publications	Well designed LED street lighting can allow users to undertake walks and exercise during the hours of darkness. This can also help reduce the use of motor vehicles for short journeys if the route is well maintained and well lit. A well lit footpath can give the perception of a safer route, can reduce the fear of crime, making it more inviting to use, Healthy body and healthy mind.	It can help with fitness and overall wellbeing.

5.4. Overall Outcome

No Negative Impacts Identified.

By installing LED with high RA values can give the the road user the perception of better lighting, provides increased facial recognition and the reduction in fear when out and about during the hours of darkness. Helps promote night time activities including taking exercise.

6. Sustainability and Climate Change Impact Assessment

6.1. Emissions and Resources

Indicator	Positive	Neutral	Negative	Unknown
Consumption of energy	Yes			
Energy efficiency	Yes			
Energy source		Yes		
Low carbon transition	Yes			
Consumption of physical resources	Yes			
Waste and circularity	Yes			
Circular economy transition		Yes		
Economic and social transition	Yes			

6.2. Biodiversity and Resilience

Indicator	Positive	Neutral	Negative	Unknown
Quality of environment		Yes		
Quantity of environment		Yes		
Wildlife and biodiversity			Yes	
Infrastructure resilience		Yes		
Council resilience		Yes		
Community resilience		Yes		
Adaptation		Yes		

6.3. Positive Impacts

Impact Area	Impact
Consumption of energy	LED lighting consumes less energy than traditional HID lamps.
Energy efficiency	LED lighting is more energy efficient than traditional HID lamps.
Economic and social transition	LED lights consume less energy so therefore less carbon, contributing to the councils carbon reduction targets. Street lighting contributes 6% of the councils energy consumption.
Low carbon transition	LED lanterns consume less energy than traditional HID lamps and thus help reduce carbon consumption.
Consumption of physical resources	LED lanterns have a whole life in excess of 50,000 hours. Traditional HID lamps had a life around 12,000 to 16,000 hours meaning they only last around 4 years. Less frequency to attend to repair also reduces fuel and carbon expenditure. Although all lamps are recycled through the WEEE scheme still they still use resources, by not changing lamps we also use less use of rare earth materials. No harmful mercury in LED lamps.
Waste and circularity	LED lanterns can be recycled, less waste going to landfill.

6.4. Negative Impacts and Mitigations

Impact Area	Details and Mitigation
Wildlife and biodiversity	<p>Research has shown that LED lights produce more blue light which can affect Flora and Fauna.</p> <p>Can be mitigated Yes</p> <p>Mitigation By using LED lights that are 3000K, will reduce blue light emitted by the LED. We also dim all our lights between 00.00-06.00 which also helps reduce the impact. We have two remote communities where the street lights are switched off at 01.00 and 5.30am, removing blue light emission altogether. We limit the installation of lighting in our parks.</p> <p>Timescale Ongoing till project ends in March 2024</p>

6.5. Evidence

Type	Source	It says?	It Means?
External Data	Various	LED lighting consumes less energy than traditional HID lamps. LED lighting is more controllable and all the produced light falls on the adopted surfaces. LED lights produce little unwanted light so reduces light pollution. LED lights also produce little or no upward light so reduces Sky glow.	Less energy is required to run LED lights, light pollution can be limited or almost removed altogether.
External Data	ILP PUBLICATIONS: A Review of the Impact of Artificial Light on Invertebrates	Advises on the affect of LED lighting on Invertebrates	Considerations needed when changing from old type HID lamps to LED due to the LED having a higher blue content than HID lamps.
External Data	ILP: Guidance Note 8: Bats and artificial lighting	Legal requirements for lighting and impact of artificial lighting and mitigation of artificial lighting on bats	Raises awareness of the impacts of artificial lighting on bats, and mitigation.

6.6. Overall Outcome

All Negative Impacts Can Be Mitigated.

LED has been around for many years and technology is advancing at a rapid pace. LED lighting consumes less power than traditional HID to do the same task. i.e. illuminate the adopted footways and carriageways. All produced light is directed to the adoptable surfaces with little unwanted light/ light pollution being produced. This project contributes to the councils overall goal of becoming Net Zero by 2045.

7. Town Centre's First Impact Assessment

7.1. Local Factors

Indicator	Positive	Neutral	Negative	Unknown
Town centre assets	Yes			
Footfall	Yes			
Changes to road layouts		Yes		
Parking		Yes		
Infrastructure changes		Yes		
Aesthetics of the town centre	Yes			
Tourism		Yes		
Public safety	Yes			
Town centre business	Yes			
Cultural heritage and identity		Yes		
Social and cultural aspects		Yes		

7.2. Positive Impacts

Impact Area	Impact
Aesthetics of the town centre	Good LED lighting can enhance the appearance of town centres.
Footfall	Better street lighting can help increase footfall during the hours of darkness which in turn can benefit the night time economy of our towns.
Public safety	Good LED lighting can give the perception of increased illumination, which in turn can lead to users being more confident in their surroundings. LED lighting has a high RA which helps increase facial recognition which again helps reduce the fear of crime.
Town centre assets	LED lighting produces more controlled lighting which when designed properly can enhance the features of buildings while at the same time illuminating the footways to a very high standard. As LED lights last 10x longer than HID lamps, less maintenance is required which results in less maintenance in the town centres which can lead to temporary closures, barriers being erected making the town centre less appealing which can affect footfall.
Town centre business	Better street lighting can help increase footfall during the hours of darkness which in turn can benefit the night time economy of our town

7.3. Evidence

Type	Source	It says?	It Means?
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Type	Source	It says?	It Means?
External Data	ILP	Better designed street lighting can enhance town centres	Can increase footfall and business patronage, helping business turnover and attracting more of both.

7.4. Overall Outcome

No Negative Impacts Identified.

Good LED lighting can enhance our town centres, which can attract night time activities which in turn helps businesses such as pubs and restaurants, increased patronage can lead to greater employment, new business opening all which help attract more of both.

Good LED Lighting can have a positive impact on social and cultural aspects of town centres, encouraging people of all ages to meet socially any time of the day.

8. Action Plan

Planned Action	Details
To continue with the implementation of LED energy reduction program	<p>Lead Officer Keith Melvin</p> <p>Repeating Activity No</p> <p>Planned Start Friday April 01, 2022</p> <p>Planned Finish Sunday March 31, 2024</p> <p>Expected Outcome To convert all street lights to LED</p> <p>Resource Implications Internal resource to be used to undertake the design work and deliver the project. Both internal and external resource to be used to undertake the installation of the LED lanterns.</p>