THE ARROWTOWN CHARITABLE TRUST
PATTERSON, SUE

TRAFFIC ISSUES

COUNCIL ONE-STOP SHOP

RATES, FEES & CHARGES

UNDERGROUNDING POWERLINES

LAGAROSIPHON

FURTHER COMMENTS

The Arrowtown Charitable Trust seeks that the QLDC: Adopts the Arrowtown Lighting Plan in its 10 year plan as the Arrowtown Standard for lighting. Provides $84,000 towards upgrading of lighting on council properties, sculpture, four trees, Buckingham Green, and four street lights in Buckingham Street Note: The total lighting project budget for above and non-council properties is $149,700 with the ACT meeting the non-council property upgrade at $65,700 The lighting proposed will mean substantially lower running costs than at present and the lights proposed are durable and of good quality. Local electricians and electrical engineers have volunteered their time to investigate the viability of the proposed lighting plan and have confirmed that the ducting upgrade carried out by QLDC will fully support the lighting infrastructure. This means that limited additional infrastructure or engineering is required to proceed with the proposed lighting. The funding that the Trust is seeking through the annual plan is the cost of purchasing the light heads for four street lamps and components for the buildings and areas owned by the Council. (Miners Cottages/ Hall/Some landmark trees on Reserves and public sculptures). All other lighting is to be funded by the owners of the buildings being lit, with the cost of installation and infrastructure being met by the Arrowtown community in the form of local business sponsorship and charitable trust grants. Sue Patterson (ACT Administrator) (Please see attached documents)

Arrowtown Heritage Lighting

Business Plan

2016

Executive Summary

The Arrowtown Charitable Trust's purpose is:

"To protect and preserve the historical and natural environment of Arrowtown for the interest and enjoyment of current and future generations."

The Trust's major project for 2016 is to implement a lighting plan to:

- Improve night time safety;
- Improve street lighting by replacing the current lighting with cost-effective modern lighting which meets council luminaire requirements;
- Enhance the night time visitor experience with the aim of increasing visitor numbers and assisting with Arrowtown's economic goals.

The QLDC Southern Lights Report, 2006, states:

"Arrowtown Town Centre – due to the heritage nature of the street a master lighting plan is required… to deliver an effective and subtle lighting scheme that enhances the night time experience of visitors."

Key Objectives

The Lighting Masterplan for Arrowtown is a complete lighting solution. It is a cost effective way to create a unique and emotive nightscape that encourages visitors to explore the town in the evening and visit the restaurants, cinema, shops and bars in safety.

The aim is to create:

- Landscape lighting: highlight selected trees and natural features adding another layer of creative and ambient lighting to the nightscape - features subtly illuminated;
- Highlighting certain features and heritage buildings throughout the street, rather than lighting every building. A blanket approach to lighting every building, could feel like a film set and be too "gimmicky";
- Accenting selected historic buildings and architectural features creates a subtle backdrop viewed from both the street and inside cafes and restaurants;
- An overall ambient level of light provides a feeling of safety and a sense of a special environment;
- A memorable backdrop for visitors both on the street and from various viewpoints around the town will add value to the night time experience of Arrowtown and encourage return visits and positive feedback;
- The street lighting will meet the local QLDC lighting standards yet retain an "olde worlde" character with warm white light sources and low glare luminaires. Subtle warm white light sources will capture the beauty of the natural elements without causing glare and unwanted light pollution.

The bronze sculpture in Owen Marshall Park is a feature that would respond well to illumination

Infrastructure and proposed design

The proposed Lighting Plan with technical specifications is attached.

- **New traditional style street lantern:** A new lantern in a traditional style is a simple solution and allows for easy lighting calculations with no need for a prototype. Supplier warranties would ensure any faults or problems with the fittings are easily rectified however, compatibility with existing light poles would need to be established. We have chosen a robust fitting that has glare control and a downward light output. Finishes and components.

- **Landscape & features:** The landscape lighting includes the highlighting of selected trees, Buckingham Green, the bronze sculptures and the water wheel. We feel this will add another layer of creative lighting to the nightscape and pick up some interesting features as visitors explore the town.

- **Event lighting infrastructure:** With a new lighting design we believe there will be increased evening visitors which may open the door to more night time events taking place like music events, outdoor dinners, a night market or even a lantern festival. To ensure there are plenty of opportunities for event lighting infrastructure, we have made notes of suggested locations for power feeds on the plans. This will give plenty of options for temporary event lighting to be set up at various locations around Buckingham Street where night-time events may take place.

An example of event lighting from the New Plymouth Festival of Light

Recommendations for the existing lighting

- Initially replace the three existing lamps on poles in the Miners' Cottages block and add a new pole and lamp outside the library for safety lighting. In 2017 use the old lamps as a prototype to replace the other 14 lamps in the main block of Buckingham Street. Cost savings will be achieved by modifying old lamps to meet new light level and QLDC requirements.

- Provide a register of current lighting locations on the buildings in Buckingham Street;
- Suggest improvements to building owners so that the existing lighting in Buckingham Street ties in with the new lighting design.
- Develop a strategy for future lighting additions by building owners to ensure the character of Arrowtown is not lost with modern light fittings and a mishmash of colour temperatures.
- Event lighting - Suggestions for additions to electrical infrastructure for temporary event lighting to give greater flexibility for locations and types of events to be held at night.

.

Consultation with QLDC will determine the exact light level we will need to adhere to at street level for safe transition for cars and pedestrians.

SWOT Analysis

Marketing Strategy: 600,000+ visitors a year.

Strengths

- One of NZ's oldest European towns, formed in 1862, Arrowtown is 152 years old.
- Arrowtown is a shining example of an historic/heritage town in a natural environment which can be promoted for the benefit of current and future generations, educational groups, residents and visitors.
- The town boasts 50 – 70 listed buildings from gold rush to late gold rush period in the Arrowtown Historic Zone and Arrowtown Residential Historic Zone.
- Arrowtown promotes high standards in architecture, landscape, management, building and town planning.

Brick and schist features that are thoughtfully illuminated will increase Arrowtown's night time appeal

Weaknesses

- Safety issues with poor light levels in existing lighting will be alleviated with addition of new lights and better light levels.
- Existing lights are more expensive to run than proposed modern replacements
- Presently night lighting is becoming a "mish-mash" of styles and design and this project would provide an historic consistency

Opportunities

- Commercial bulkheads look out of place. Appropriate redevelopment to ensure heritage buildings in the historic town are maintained while allowing for modern use.
- Future Proofing. Reduce degradation of heritage buildings due to inappropriate lighting. A set of criteria should be established to ensure the integrity of the Lighting Masterplan is maintained.
- Replacing inefficient lights with LED will reduce energy usage.
- A set of criteria for specific light fitting styles in historic Arrowtown would be established and specified so that future lighting installed by building and business owners along Buckingham Street are in keeping with the overall vision for Arrowtown.
- Existing light fittings are broken and in disrepair. A scheduled and recorded maintenance programme replacing broken and patched existing lights with new lights will reduce ongoing maintenance, saving longer term costs. Bulbs will be cheaper and it will be cheaper to replace refurbished poles. Better long term impact.

- Controlling glare and light pollution to the night sky can be defined in terms of light fitting style and placement. The lighting plan will expand out into in the residential part of Arrowtown to meet the community needs for appropriate lighting directing light down to avoid night sky pollution. *We need to communicate to AVA with our plans.*
- QLDC document 'Southern Light - A lighting strategy for Queenstown Lakes District' lists a set of criteria to be applied to the lighting in Arrowtown, in particular:
    - Direct light downwards where possible and control upward light with glare shields and baffles
    - Over lighting must be avoided - use the correct amount of light for the task and accepted standards
    - Unnecessary night-time lighting such as decorative floodlighting, merchandising lighting & signage should be switched off at 11pm
    - Keep glare to a minimum energy efficient LED and fluorescent light
- Sources within the 2700K - 3050K range should be retro-fitted into existing fittings to create a warm light effect and also reduce energy and maintenance costs, controlling glare and light pollution, not over-lighting, consistent colour temperature and avoiding a 'Disneyland lighting effect' in Arrowtown.
- The new heritage sympathetic lighting will generate and increase in evening visitors – income opportunities for businesses.
- Opportunity to extend heritage lighting throughout Arrowtown Historic CBD including pedestrian linkages which are presently poorly lit.

Threats

- Safety - several main street black points are dangerous with inadequate lighting causing a danger to pedestrians on uneven surfaces when crossing the road.
- Danger of the town looking like a "film set" or "Disneyland" with garish and unsuitable lighting.

Artist's impression of lighting for the Miners' Cottages

Action Plan

(see also attached schedule)

Stage 1

A QLDC Annual Plan April 2016

i. Ask council to adopt the Arrowtown Heritage Lighting Plan in its 10 year plan by June 2016.
ii. Preliminary luminaire specs and budget, plan presented to QLDC and Arrowtown Charitable Trust. Source funding from council to replace the lamps (fit existing poles) on the three existing Miners' Cottages Street lights and establish a new light outside the Library including new pole. June 2016
iii. Source council funds to provide all the heritage lights for council-owned properties, three historic trees and Owen Marshall Park sculpture. June 2016

B Business Owner Lighting Upgrades and Sourcing Funding

i. Identify property owners and business owners and get permission for initial scoping by electrician – Done 20 April 2016
ii. Register current lighting locations on the buildings in Buckingham Street. May 2016
iii. Suggest improvements to building owners so that existing lighting in Buckingham Street ties in with the new lighting design. May 2016
iv. Property owners to provide half cost of improvements, source the other 50% from community funders (lotteries, CLT, CTOS and Sky Casino Trust). Business owners to pay for ongoing power (minimal cost).

Stage 2: Detailed Design: Final detailed proposals by August 2016.

Stage 3: Site Observation: Project management, procurement, supply, overview, commissioning and fine tuning. By September 2016

Stage 4: Unveiling: Lighting celebration promoted through council contacts, members of public and school children. By April 2017 (Arrowtown Autumn Festival)

April 2016 Submission to QLDC:

The Arrowtown Charitable Trust seeks that the QLDC:

- Adopts the Arrowtown Lighting Plan in its 10 year plan as the Arrowtown Standard for lighting.
- Provides $84,000 towards upgrading of lighting on council properties, sculpture, four trees, Buckingham Green, and four street lights in Buckingham Street
  Note: The total lighting project budget for above and non-council properties is $149,700 with the ACT meeting the non-council property upgrade at $65,700

Arrowtown Heritage Lighting Project Timeline

- **3.3.11** Arrowtown Promotion and Business Association Inc. (APBA) sets up a lighting subcommittee to explore the potential of developing a heritage lighting project for the town.

- **20.4.11** Mayor Vanessa van Uden speaks at APBA Board Meeting. Discussion included support from Paul Wilson (QLDC), reference to QLDC Southern Lights plan, safe lighting down for alleyways. Health and safety issue. Needs to be resubmitted in annual plan. Prioritise requests as advised as we won't get everything in first year. Contacted Paul Wilson, to get cost and details of Southern Lights plan.

- **April 2011** Peter Crum repairs some faulty main street lights and uplights some features for the autumn festival.

- **29.4.11** Annual Plan request for council to adopt a heritage lighting plan programme based on QLDC Southern Lights Plan. Focus on health and safety, and heritage/aesthetic lighting. Mick Karlovsky is the Urban Design manager at QLDC who can help with any heritage lighting, and there is a heritage lighting fund that he can advise on using.

- **7.6.11** APBA and Lex Perkins (Ward Councillor) meets council staff Paul Wilson, Ian Boud, and Lane Vermaas.
  Paul Wilson will arrange a designer to produce a Heritage Plan for Arrowtown. QLDC has committed to pay half the $5,000 - 10,000 estimated cost with NZTA being approached by Lane to subsidise the other half. Council will fund up to the concept stage. Paul will provide a fee proposal to Lane. From this plan we will have a budget for lighting for Arrowtown estimated at $100,000 which can then be timetabled to spread the cost. Includes replica lamps on 2 blocks of Buckingham St. More poles would be needed. Council can't pay for these in their present budget but can manage this over a planned period of time - a matter of retro-fitting these. Paul Wilson (QLDC) offers get a quote for this.
  Total Power and QLDC will work together to ensure that a cabling system is set up in the November Buckingham Street upgrade with provision for future lighting.

- **Feb 2012** Commissioned Toulouse Group to write the Arrowtown Lighting Profile ready for submission in Annual Plan.

- **May 2012** Submitted in Annual Plan for $10,000 from QLDC. "Aim to implement the plan over 5 years with council support" while sourcing funding from community funders largely for aesthetic and heritage aspects of the plan.

- **August 2012** Council has given APBA $10,000 for lighting plan. Includes safety, heritage and general lighting. Paul Wilson writes a letter explaining that the proposed designer meets the skills and depth required for such a project.

- **September 2011 – June 2012** APBA attempts to source funds to progress project from CTOS and CLT but is advised it needs Charitable Status to receive funds.

- **13.6.13** APBA applies for Charitable Status is turned down in spite of 8 core objectives being of a charitable nature.

- **August 2013 – April 2014** Decision to set up a separate charitable trust to progress funding for lighting project. Arrowtown Charitable Trust develops strategy, goals and protocols to establish registered Charity. Four Trustees, 2 from APBA and 2 from Arrowtown community

- **9.7.14** Arrowtown Lighting Plan received from Toulouse

- **10.7.14** Arrowtown Charitable Trust's first meeting as registered charity held.

- **16.9.14** The contract for Toulouse to undertake the lighting plan is signed off.

- **16.9.14** APBA commits to support some ACT administration costs.

- **November 2014** Meet Toulouse Designer, Sarah Peachey. Focus on historic buildings, trees and features; Replacing the "gas" lights in the main street with the old style lanterns which Paul Wilson had researched a source for; ensuring the right amount of light and not too much facing up; Provision for event lighting.

- **Dec 2014** Long Lunch Fundraiser Dec 2014 raises funds for ACT.

- **23.4.2015** Annual Plan Submission Request for Heritage Lighting Funding turned down. Asked by Mayor Vanessa van Uden to apply again in 2016.

- **Sept 2015 –** ACT Annual General Meeting – appointed Arrowtown Village Association representative to board and additional community member.

- **Dec 15 – April 2016 –** Frequent meetings to establish 2016-2017 Annual Plan Submission. Preparation includes discussions with Scott Stevens and council staff. Contracted electrician**.**

Landscape & features

The landscape lighting includes the highlighting of selected trees, Buckingham Green, the bronze sculptures and the water wheel. We feel this will add another layer of creative lighting to the nightscape and pick up some interesting features as visitors explore the town.

Subtle glare-free light sources will capture the beauty of the feature trees by simply highlighting the textures of the bark and foliage. There is the option to add colour to these for events like Christmas, Easter or dates of significance with the use of coloured light sources or filters. The control technology for this can be applied as a site wide solution if budget allows or it could be achievable by manually changing filters or light sources.

The lighting for Buckingham Green is intended to work cohesively with the surrounding building facades of the Pharmacy and the Stables, together with the ambient light generated from the garden courtyard of Gibbston Valley. Subtle highlighting of the Pharmacy and rear Stables walls, will create an interesting cohesive light effect that accentuates the surface of the bricks. An additional light pole at the rear of Buckingham Green will provide a higher level of light and give a feeling of safety in an otherwise darkened corner. The light pole will also provide an opportunity for event lighting or other decorative features like flags and banners to be fixed to it.

The bronze sculptures at the end of Buckingham Street are an interesting new sculpture and will respond well to being illuminated. The solid shapes and bronze finish will reflect a warm light and create interesting shadows therefore creating a focal point at the end of the street. It seems a waste to leave them in darkness when a simple solution will provide added value at night to this art piece that is uniquely Arrowtown.

The water wheel outside the museum is a historic feature that we intend to be a 'moment of discovery' at night. Again a simple lighting solution will pick up the surface, shapes and texture of the water wheel giving a dramatic effect.

Highlight feature trees

Graze light over Water Wheel

Highlight the Stables wall

Add light pole and highlight Pharmacy stone wall

Uplight bronze sculptures

Illuminating Performance

The Towne Commons fixtures are available with high performance optical systems allowing you to precisely aim the light, resulting in a smooth even illumination of the environment. A superior lighting system for illuminating your streets and pedestrian areas compared to any lensed type of fixture.

Towne Commons

Refractor globe

How well can you recognize objects at night?

Not very well if the luminaires are extremely bright compared to the objects around them. The pictures on the left demonstrate this phenomenon. Notice the difference in the "visibility" or clarity of nearby objects illuminated by a Towne Commons fixture. Disability glare or "veiling luminance" (the contrast ratio between the brightness of the luminaire and surrounding objects) is greatly reduced. Visual perception is greatly improved. Objects in the environment are easier to identify.

REV	DESCRIPTION	BY	DATE
A	PRELIMINARY DESIGN.	OS	26.04.16

switch
LIGHTING DESIGN & CONSULTANCY

Switch Lighting Design & Consultancy Ltd.
Level 1, 852a Mount Eden Road, Auckland 1024

Tel: 021 242 7550
Email: info@switchlighting.co.nz
Web: www.switchlighting.co.nz

PROJECT

Arrowtown, South Island, Buckingham Street section LED upgrade

CLIENT

-

LAYOUT

Street Lighting Layout Clear Glass

DRAWN: O.SHAHAB	REVISION: A
SCALE: 1:200@A1 1:400@A3	DATE: 26.04.2016
DRAWING NO.: AT-02	
JOB NO.: ECC-024	SHEET: A1

Sales Quotation __

Invoice to:-

Arrowtown Promotion & Business Association
49 Buckingham St
Arrowtown 9302

Date	26/04/2016
A/C No.	1APBA01
Invoice No.	SQU209695
Order No.	ARROWTOWN
Ref.	
Salesperson	OT
Page	1

Code	Description	Qty	Unit Price	Discount	Unit Net	Total
NEW CODE	ECC - ALN440 LED street light 3000K LED	4	4,125.00		4,125.00	16,500.00
NEW CODE	New 3.1m pole Cost TBC.	1				

Net Total	16,500.00
GST	2,475.00
Total	**18,975.00**

Terms & Conditions
Quote Valid for 30 Days
For Order: A 50% deposit of the value of the goods must be made at time of order. Delivery Date to be confirmed on placement of Order. Balance of the order must be paid in full before final delivery can be made.
Deposit will be forfeited if the order is cancelled, or goods are not paid for within 14 days of advise to you of the goods being available for delivery. All prices unless stated exclude delivery and installation.
Colours, materials, grains may vary from the swatches, samples or images.
For a full version of our Terms and Conditions please refer to www.ecc.co.nz

architectural arealighting Excellence in Outdoor Lighting Quality, Design and Performance

(http://www.aal.net/)

HUBBELL Lighting, Inc. (http://www.hubbelllighting.com)

Towne Commons® - ALN440

The Towne Commons® family of fixtures are available in a wide range of sizes and configurations.

The ALN440 can be post top and wall mounted. Features include a hinged top for easy relamping, unitized one-piece lens for longer life, and tool-less access to the ballast module for easy servicing. Coordinates with other Towne Commons fixtures.

Features

- Energy Saving LED technology
- Reliable efficient operation
- Types II, III, IV and V distributions
- 0-10V dimming ready
- LifeShieldTM thermal protection
- Surge protection included
- Wide variety of custom mounting options including post-top, wall mount or pole mount arm
- IP66 construction of optical system
- Cast aluminum struts
- 3000K, 4000K, 5000K CCT
- 3000K, 4000K, 5000K CCT

Related Products

Towne Commons® - ALN438 (http://www.aal.net/products/towne_commons_aln438/)

Towne Commons® - ALN445 (http://www.aal.net/products/towne_commons_aln445/)

Towne Commons® - ALN540 (http://www.aal.net/products/towne_commons_aln540/)

Cast Aluminum Bollard (http://www.aal.net/products/cast

Downloads

Literature

Towne Commons® LED (http://www.aal.net/content/products/literature/literature_files/aal_aln_led_lit.pdf)

Towne Commons® (http://www.aal.net/content/products/literature/literature_files/aal_aln_lit.pdf)

Product Selection Guide

aal_aln_psg.pdf (http://www.aal.net/content/products/psg/psg_files/aal_aln_psg.pdf)

Specification Sheets

aal_aln440_led_spec.pdf (http://www.aal.net/content/products/specs/specs_files/aal_aln440_led_spec.pdf)

aal_aln440upgrade_spec.pdf (http://www.aal.net/content/products/specs/specs_files/aal_aln440upgrade_spec.pdf)

ALN440 (http://www.aal.net/content/products/specs/specs_files/aal_aln440_spec.pdf)

Photometry

Instruction Sheets

ALN 440 (http://www.aal.net/content/products/instructions/instructions_files/is_town_commons_aln

Color Charts

color_chart.pdf (http://www.aal.net/content/products/color_charts/color_charts_files/color_chart.pdf)

CAD Files

ALN440 (http://www.aal.net/content/products/cad/cad_files/aal_aln_dxf.zip)

Images

ALN440 (http://www.aal.net/content/products/images/aal_aln_img.zip)

ALN440 (http://www.aal.net/content/products/ies/ies_files/ALN%20440.ies)

ALN 440-GR5 150HPS.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-GR5%20150HPS.IES)

ALN 440-H2 100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H2%20100MH.IES)

ALN 440-H2-100PSMH-HSS-R.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H2-100PSMH-HSS-R.IES)

ALN 440-H3 100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H3%20100MH.IES)

ALN 440-H3-70MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H3-70MH.IES)

ALN 440-H4 100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H4%20100MH.IES)

ALN 440-H4-HSS-R-100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H4-HSS-R-100MH.IES)

ALN 440-H5 100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H5%20100MH.IES)

ALN 440-H5-70MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H5-70MH.IES)

ALN440-Y2-32LED-3K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-3K-700.IES)

ALN440-Y2-32LED-3K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-3K-LDL-700.IES)

ALN440-Y2-32LED-3K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-3K-SBL-700.IES)

ALN440-Y2-32LED-4K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-4K-700.IES)

ALN440-Y2-32LED-4K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-4K-LDL-700.IES)

ALN440-Y2-32LED-4K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-4K-SBL-700.IES)

ALN440-Y2-32LED-5K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-5K-700.IES)

ALN440-Y2-32LED-5K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-5K-LDL-700.IES)

ALN440-Y2-32LED-5K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-5K-SBL-700.IES)

ALN440-Y3-32LED-3K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-3K-700.IES)

ALN440-Y3-32LED-3K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-3K-LDL-700.IES)

ALN440-Y3-32LED-3K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-3K-SBL-700.IES)

ALN440-Y3-32LED-4K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-4K-700.IES)

ALN440-Y3-32LED-4K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-4K-LDL-700.IES)

ALN440-Y3-32LED-4K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-4K-SBL-700.IES)

ALN440-Y3-32LED-5K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-5K-700.IES)

ALN440-Y3-32LED-5K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-5K-LDL-700.IES)

ALN440-Y3-32LED-5K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-5K-SBL-700.IES)

ALN440-Y4-32LED-3K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-3K-700.IES)

ALN440-Y4-32LED-3K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-3K-LDL-700.IES)

ALN440-Y4-32LED-3K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-3K-SBL-700.IES)

ALN440-Y4-32LED-4K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-4K-700.IES)

ALN440-Y4-32LED-4K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-4K-LDL-700.IES)

ALN440-Y4-32LED-4K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-4K-SBL-700.IES)

ALN440-Y4-32LED-5K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-5K-700.IES)

ALN440-Y4-32LED-5K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-5K-LDL-700.IES)

ALN440-Y4-32LED-5K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-5K-SBL-700.IES)

ALN440-Y5-32LED-3K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-3K-700.IES)

ALN440-Y5-32LED-3K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-3K-LDL-700.IES)

ALN440-Y5-32LED-3K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-3K-SBL-700.IES)

ALN440-Y5-32LED-4K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-4K-700.IES)

ALN440-Y5-32LED-4K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-4K-LDL-700.IES)

ALN440-Y5-32LED-4K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-4K-SBL-700.IES)

ALN440-Y5-32LED-5K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-5K-700.IES)

ALN440-Y5-32LED-5K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-5K-LDL-700.IES)

ALN440-Y5-32LED-5K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-5K-SBL-700.IES)

Color Choices

Colors are for reference only, as monitor configuration may distort and/or change color appearance. Contact a local representative for a color chip.

MTB (http://www.aal.net/content/products/color-picker/aln440/color_mtb.jpg)

VBL (http://www.aal.net/content/products/color-picker/aln440/color_vbl.jpg)

WRZ (http://www.aal.net/content/products/color-picker/aln440/color_wrz.jpg)

LGY (http://www.aal.net/content/products/color-picker/aln440/color_lgy.jpg)

ATG (http://www.aal.net/content/products/color-picker/aln440/color_atg.jpg)

MAL (http://www.aal.net/content/products/color-picker/aln440/color_mal.jpg)

MDG (http://www.aal.net/content/products/color-picker/aln440/color_mdg.jpg)

DGN (http://www.aal.net/content/products/color-picker/aln440/color_dgn.jpg)

CRT (http://www.aal.net/content/products/color-picker/aln440/color_crt.jpg)

AWT (http://www.aal.net/content/products/color-picker/aln440/color_awt.jpg)

DBZ (http://www.aal.net/content/products/color-picker/aln440/color_dbz.jpg)

BRM (http://www.aal.net/content/products/color-picker/aln440/color_brm.jpg)

BLK (http://www.aal.net/content/products/color-picker/aln440/color_blk.jpg)

3D View

99

Drag up and down or side to side to view the model

Image Gallery


(http://www.aal.net/content/products/product-zoom/townecommon/6.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/8.1.jpg)

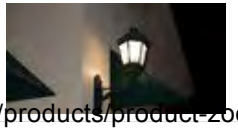

(http://www.aal.net/content/products/product-zoom/townecommon/19.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/23.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/24.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/15.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/12.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/3.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/14.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/21.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/9.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/10.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/20.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/1.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/7.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/2.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/11.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/25.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/16.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/22.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/17.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/5.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/4.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/18.1.jpg)

Hubbell Lighting Brands

Alera Lighting (http://www.aleralighting.com)
Architectural Area Lighting (http://www.aal.net)
Beacon Products (http://www.beaconproducts.com)
Columbia Lighting (http://www.columbialighting.com)
Compass Life Safety (http://www.compasslightingproducts.com)
Devine Lighting (http://www.devine-ltg.com)
Dual-Lite (http://www.dual-lite.com)
Hubbell Building Automation, Inc. (http://www.hubbell-automation.com)
Hubbell Industrial (http://www.hubbellindustrial.com)
Hubbell Outdoor (http://www.hubbelloutdoor.com)
Kim Lighting (http://www.kimlighting.com)
Kurt Versen (http://www.kurtversen.com)
Litecontrol (http://www.litecontrol.com)
Precision-Paragon [P2] (http://www.p-2.com)
Prescolite (http://www.prescolite.com)
Progress Lighting (http://www.progresslighting.com)
Security Lighting (http://www.securitylighting.com)
Spaulding Lighting (http://www.spauldinglighting.com)
Sportsliter Solutions (http://www.sportslighting.com)
Sterner Lighting (http://www.sternerlighting.com)
Whiteway (http://www.whiteway-ltg.com)

JOIN THE CONVERSATION!

(HTTP://WWW.FACEBOOK.COM/ARCHITECTURALAREALIGHTING) (HTTPS://TWITTER.COM/AAL1966) (HTTP://PINTEREST.COM/AAL1966)

… OR START YOUR OWN!

ALN440 – Towne Commons®

TYPE

- Hinged top for easy relamping
- Unitized one-piece lens with a one-piece memory retentive silicone gasket provides a sealed fixture as well as easy lens replacement
- Tool-less access to the ballast module and quick disconnects for easy servicing
- Four distribution patterns
- Powder coat finish in 13 standard colors with a polymer primer sealer

ALN440-H3-CHM

1. LUMINAIRE	2. LAMP/BALLAST	3. COLOR	4. OPTIONS	5. CONTROL	6. MOUNTING

1. LUMINAIRE

ARM OR POST TOP MOUNT

Clear acrylic lens, coated lamp

ALN 440-C

Clear lens, glass refractor

ALN 440-GR3 *(Type 3)* ALN 440-GR5 *(Type 5)*

Clear lens, horizontal cutoff reflector

ALN 440-H2 *(Type 2)* ALN 440-H3 *(Type 3)*

ALN 440-H4 *(Type 4)* ALN 440-H5 *(Type 5)*

TOP MOUNTED ARM OR PENDANT MOUNT

Clear acrylic lens, coated lamp

ALN 440D-C

Clear lens, glass refractor

ALN 440D-GR3 *(Type 3)* ALN 440D-GR5 *(Type 5)*

Clear lens, horizontal cutoff reflector

ALN 440D-H2 *(Type 2)* ALN 440D-H3 *(Type 3)*

ALN 440D-H4 *(Type 4)* ALN 440D-H5 *(Type 5)*

2. LAMP/BALLAST

COMPACT FLUORESCENT *(120 thru 277 volt)*

*GE F57QBX lamp. **Reflector models only***

PL57

*GE F70QBX lamp. **Reflector models only***

PL70

METAL HALIDE *(120/208/240/277)*

Medium base, ED-17 lamp

50MH 70MH 100MH

G12 base, T-6 ceramic lamp

70MHT6

PULSE START METAL HALIDE *(120/208/240/277 volt ballast)*

Medium base, ED-17 lamp

150PSMH

G12 base, T-6 ceramic lamp

150PSMHT6

HIGH PRESSURE SODIUM *(120/208/240/277 volt ballast)*

Medium base, ED-17 lamp

50HPS 70HPS 100HPS 150HPS

All ballasts are factory wired for 277 volts, unless specified. Lamps not included.

3. COLOR

WH	*Arctic White*	VBU	*Verde Blue*
BL	*Black*	CRT	*Corten*
BLT	*Matte Black*	MAL	*Matte Aluminum*
DB	*Dark Bronze*	MG	*Medium Grey*
DGN	*Dark Green*	AGN	*Antique Green*
TT	*Titanium*	LG	*Light Grey*
WDB	*Weathered Bronze*	RAL	*Premium Color*
MDB	*Bronze Metallic*	CUSTOM	** * Contact Factory*

4. OPTIONS

CHM *(Glass chimney with polished brass holder. **Reflector models only**)*

CND *(3-lamp candelabra with polished brass holder, lamps included. **For decorative use only. Reflector models only**)*

LDL *(Lightly diffused lens for fixtures with a refractor or reflector)*

HSS-L *(House side shield for use with glass refractors or clear lens only, consists of three field installed panels attached to the inside of the lens. Installing three panels blocks 180° of the lens. **Not available with PL ballast options**)*

HSS-R *(House side shield for use with horizontal reflectors. Factory installed. Not for Type 5)*

QL *(Socket for T-4 mini-cand lamp, field wired to a separate circuit. QL lamp wattage not to exceed primary lamp wattage. **Reflector models only**)*

QRS *(Restrike controller and T-4 socket for quartz lamp. Configured to light following resumption of power until HID reaches full brightness. Lamp wattage not to exceed ballast wattage.)*

MAT *(Mast arm adapter slips over a 2 3/8"/60mm O.D. pipe and is secured with 4 stainless steel set screws. **For ALN440D only**)*

PMS *(Pendant mount with 48"/1220mm stem and canopy with swivel. **For ALN440D only**)*

PMC *(Pendant kit includes canopy and 48"/1220mm of brass chain painted the fixture color. **For ALN440D only**)*

PT5 *(Post top adaptor for a 5"/127mm O.D. pole)*

347 *(120/277/347 volt for HID ballasts)*

5. CONTROL

SCP (*Programmable motion control, factory default is 50%, requires pole*)

PCA-C *(Rotatable photocell-Contemporary)*

6. MOUNTING

WALL MOUNT

WMA1M	WMA1L	WMA2M	WMA2L
WMA3	WMA35U	WMA36U	WMA7
WMA38	WMA39	WMA4	WMA55
WMA56	WMA57	WMA6	WMA7
WMA8	WMA9D	WMA9U	WMA10
WMA11	WMA12	WMA16	WMA17
WMA18	WMA22D	WMA22U	

POLE MOUNT

TRA1M	TRA1L	TRA2M	TRA2L
TRA3	TRA4	TRA5U	TRA6U
TRA55	TRA56	TRA57	TRA7
TRA7-2	TRA8	TRA8-2	TRA9
TRA9-2			
SLA1	SLA1-2	SLA3	SLA4
SLA4-2	SLA7	SLA7-2	
SLA7(5)	SLA7(5)-2	SLA8U	SLA8D
SLA9	SLA9-2	SLA10	SLA16
SLA16-2	SLA17	SLA17-2	SLA18
SLA18-2	SLA22D	SLA22U	

PENDANT

PM1 PM2 PM3

SPECIFICATIONS

HOUSING

The fixture shall be cast A356 alloy aluminum, free of any porosity or cosmetic fillers. Castings shall be of uniform wall thickness, minimum .188" with no warping or mold shifting.

The top shall hinge open by loosening two captive fasteners. The top shall seal the lamp compartment with a full surround silicone gasket. The lens shall be one-piece clear optical grade acrylic with a one-piece memory retentive silicone gasket on top and bottom. The ballast assembly shall be accessible by turning two spring loading latches, to lift out the ballast module. Quick disconnects shall be used for all electrical connections. All internal and external hardware shall be stainless steel.

OPTICAL MODULE

REFLECTORS: The optical assembly shall be completely sealed with a one-piece memory retentive silicone gasket to prevent dust, insect, or moisture contamination. The reflector module shall consist of segmented, specular and semi specular Alzak® panels precisely formed and positioned within the housing on a carrier plate. Reflector models shall be IES rated as a cutoff luminaire.

REFRACTORS: The GR3 and GR5 shall be precision molded borosilicate glass refractors with a Type 3 or Type 5 distribution. The refractors shall be mounted to a gasketed aluminum holder with an internal pressure plate

See next page

JOB _____

TYPE _____

NOTES _____

ARCHITECTURAL AREA LIGHTING
16555 East Gale Ave. | City of Industry | CA 91745
P 626.968.5666 | F 626.369.2695 | www.aal.net

ALN440 – Towne Commons®

TYPE

ELECTRICAL

Ballasts shall be high power factor rated for -30°C starting. The ballast shall be mounted to a cast holder for maximum heat dissipation. Medium base, porcelain sockets shall be pulse rated. The compact fluorescent shall have an electronic transformer, 120 thru 277 volt. High output fluorescent lamps shall be powered by an electronic ballast and shall be rated for a minimum starting temperature of -10°C. The electrical assembly shall be installed and prewired in the fixture.

RELAMPING

The top of the fixture shall hinge open for relamping by loosening two stainless steel fasteners.

MOUNTING

Post top mounting: The fixture shall slip over a 4"/100mm O.D. pole or tenon and be secured to the pole with three (or six) stainless steel set screws.

Arm or wall mounting: The fixture shall be attached to the cast arm with three stainless steel bolts and a silicone gasket.

FINISH

Fixture finish shall consist of a five stage pretreatment regimen with a polymer primer sealer, oven dry off and top coated with a thermoset super TGIC polyester powder coat finish. The finish shall meet the AAMA 2604-02 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance.

CERTIFICATION

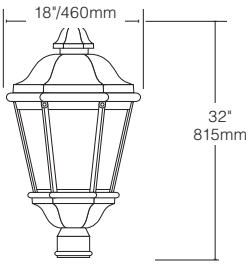
Fixtures shall be listed with ETL for outdoor, wet location use, conforming to the UL 1598 and Canadian CSA 22.2 no. 250 standard.

WARRANTY / TERMS AND CONDITIONS OF SALE

Download:
http://www.hubbelllighting.com/resources/warranty/

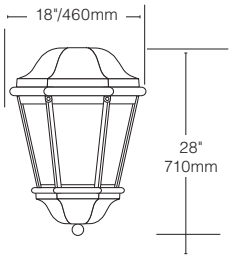
DIMENSIONS

POST TOP
The standard cast fitter slips over a 4"/100mm O.D. pole.
WT: 42 lbs EPA: 2.16



ALN 440

ARM MOUNT
18"/460mm DIA x 28"/710mm
WT: 40 lbs EPA: 2.16

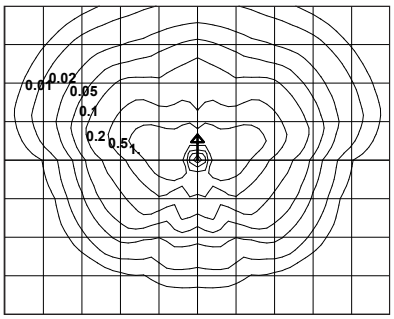


ALN 440D

ALN440 H3 100MH WATTAGE: 129 LUMEN OUTPUT: 5705 EFFICACY: 44.2 Lm/W

B2 U3 G2

FORWARD LIGHT			LUMEN
FL	30°	3.5%	198
FM	60°	30.3%	1727
FH	80°	30.8%	1755
FVH	90°	0.9%	49
BACK LIGHT			
BL	30°	3.0%	174
BM	60°	17.2%	984
BH	80°	9.6%	549
BVH	90°	1.5%	88
UPLIGHT			
UL	100°	1.1%	61
UH	180°	2.1%	121



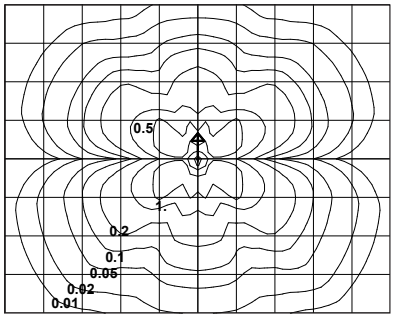
14' MOUNTING HEIGHT

UPLIGHT 2.0%
DOWNLIGHT 59.4%

ALN440 H5 100MH WATTAGE: 129 LUMEN OUTPUT: 5751 EFFICACY: 44.6 Lm/W

B3 U3 G3

FORWARD LIGHT			LUMEN
FL	30°	3.8%	219
FM	60°	23.4%	1349
FH	80°	18.1%	1043
FVH	90°	1.3%	73
BACK LIGHT			
BL	30°	3.7%	211
BM	60°	24.4%	1404
BH	80°	19.7%	1130
BVH	90°	1.5%	85
UPLIGHT			
UL	100°	1.2%	70
UH	180°	2.9%	169



14' MOUNTING HEIGHT

UPLIGHT 2.6%
DOWNLIGHT 59.3%

AAL reserves the right to change product specifications without notice.

IES files can be found at www.aal.net

ARCHITECTURAL AREA LIGHTING
16555 East Gale Ave. | City of Industry | CA 91745
P 626.968.5666 | F 626.369.2695 | www.aal.net

Extract from 'Southern Light - A lighting strategy for the Queenstown Lakes District'

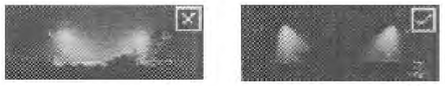
Appendix 2: Good Practice Lighting Guide

Preventing Light Pollution - Three Point Plan

Since urban sky glow (light pollution) arises from a combination of artificial light emitted directly into the sky from light fittings and light reflected up into the sky from buildings and the ground, the BAA Campaign for Dark Skies currently recommends that:

1. Wherever possible lights should be installed in full cut-off or ultra low-profile housings to prevent the emission of light above the horizontal.
2. 'Over-lighting' must be avoided. Using only the correct amount of light for the task, according to accepted standards, will reduce the amount of reflected light contributing to sky glow.
3. Unnecessary night-time lighting, particularly decorative floodlighting, merchandising and advertising lighting and sports floodlighting, should be switched off at 11pm or midnight to reduce the total sky glow in the early morning, pre-dawn hours.

Minimising Light Pollution



All Living things adjust their behaviour according to natural light. Artificial light has done much to safeguard and enhance our night-time environment but, if not properly controlled, obtrusive light can present serious physiological and ecological problems.

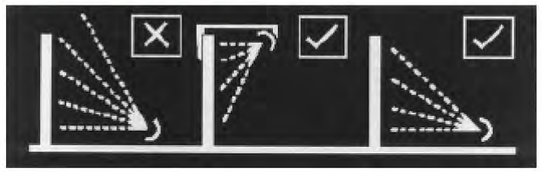
Light pollution, whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution and without too much trouble can be substantially reduced without detriment to the lighting task in both urban and rural areas.

Sky glow is one form of light pollution. Glare is the uncomfortable brightness of a light source when viewed against a dark background, and light trespass; the spilling of light beyond the boundary of the property on which the source is located; are other forms of light pollution. In residential areas street lighting columns should be of a height that is sympathetic to the scale of adjacent buildings but should not, under any circumstance, be higher than the height of such buildings.

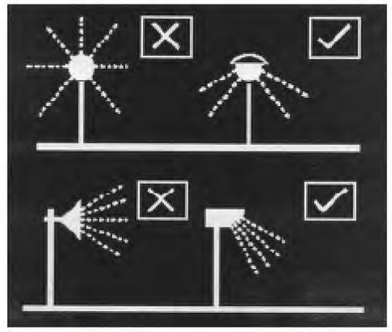
Listed below are some key ways to reduce the problems of unnecessary, obtrusive light:

Switch off lights when not required for safety, security or enhancement of the night-time scene. In this respect one can introduce the concept of a curfew with further limitations on lighting levels between agreed hours e.g. advertising and decorative floodlighting – off between 23.00hrs and dawn.

Direct light downwards wherever possible to illuminate a target, not upwards. If there is no alternative to up-lighting, then the use of shields and baffles will help to reduce spill light to a minimum.

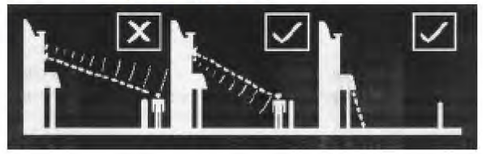


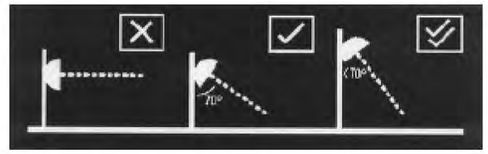
Use specifically designed lighting equipment that once installed minimizes the spread of light near to, or above the horizontal plane.



Do not 'over' light. It is a cause of light pollution and a waste of money.

Keep glare to a minimum, by ensuring that the main beam angle of all lights directed towards any potential observer is kept below 70 deg. It should be noted that the higher the mounting height, the lower the main beam angle. In places with low ambient light, glare can be very obtrusive and extra care should be taken in positioning and aiming.





Only use floodlights with asymmetrical beams that permit the front glazing to be kept at or near parallel to the surface being lit.

For domestic and small-scale lighting, there are two solutions:

1. Passive infrared detectors can be used to good effect, if correctly aligned and installed. A 150W (2000 lumen) tungsten halogen lamp is more than adequate. 300/500W lamps create too much light, more glare and darker shadows.
2. All-night lighting at low brightness is equally acceptable. For a porch light a 9W (600 lumen) compact fluorescent lamp is more than adequate in most locations.

Produced by Queenstown Lakes District Council

Historic buildings




Lighting for the Miner's Cottages should be cohesive yet retain the individual character of each cottage.
Uplights will give a subtle highlight to the stone facade & graze the timber; soft glow under the door canopy & spots behind fences within gardens give a lived in feel.

Artist's impression of lighting for the Miner's Cottages

	Power source?	Proposed Hertige Lighting	No.Units	Unit Cost	Proposed Hertige Lighting	No.Units	Unit Cost	Total lighting unit costs per site	Estimated hours to install	Labour cost/hour	Total labour cost	Estimated material cost	Total cost Estmate	Lighting placement Details
Atheneum Hall	Hall	iGuzzini Miniwoody BU81, IP68, 9W, 300K warm white LED with glare control snoot	2	$ 654.00	Interior window sill light iGuzzini BU16	2	$ 330.00	$ 1,968.00			$ -		$ 1,968.00	Highlight façade shape & name - Athenaeum Hall - from high level. Create the illusion of window lighting with interior window sill edge lights.
Arrowtown Bike Hire	Probably direct from their switchboard	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	2	$ 508.00				$ 1,016.00			$ -		$ 1,016.00	Uplights mounted either side of the door will give subtle highlight to the windows & graze the timber. Each cottage will be lit in the same manner to create a cohesive feel and a point of difference.
Blakley & Wallace	Probably direct from their switchboard	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	2	$ 508.00				$ 1,016.00			$ -		$ 1,016.00	Uplights mounted either side of the door will give subtle highlight to the windows & graze the timber. Each cottage will be lit in the same manner to create a cohesive feel and a point of difference.
Provissions	Probably direct from their switchboard	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	2	$ 508.00				$ 1,016.00			$ -		$ 1,016.00	Uplights mounted either side of the door will give subtle highlight to the windows & graze the timber. Each cottage will be lit in the same manner to create a cohesive feel and a point of difference.
Water Wheel	There is 230v in the CCTV junction box under the ramp.	Lumascape Star LS 375 Black, 6W 2700K LED, 30' adjustable and submersible spot with anti-leach cable and IP68 rating	2	$ 395.00				$ 790.00			$ -		$ 790.00	Highlight water wheel with low level spotlights to create a moment of discovery and viewing positions. Optional colour filters for special events. Control with landscape lighting circuit.
Buckingham Green	From pharmacy?	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	9	508	Traditional street lantern with warm white 2700K LET light source - style TBC with street lighting.			$ 4,572.00			$ -		$ 4,572.00	Add lantern on light pole, to back right corner of Buckingham Green for ambience. Safety and provide a a mounting location for event lighting. Uplight the Stables wall and back schist wall to create interest and soft permimeter of light.
Landscape Buckingham Green	From pharmacy?	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight		$ 508.00				$ -			$ -		$ -	Create interesting backdrop to Buckingham Green and highlight original stone surface by uplighting the Oharmacy wall with white LED concealed in the garden.

Bronze Sculptures	A choice of either street lamp on Buckinham or street light on Ramshaw	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	3	$ 508.00				$ 1,524.00			$ -		$ 1,524.00	Up light broze sculptures with warm white LED to accenuate form and finish. Create focal point at end of street. Control with landscape lighting circuit.
The Pharmacy Lane	From pharmacy?	iGuzzini Miniwoody B5911, IP68, 3.7W, 2700K warm white LED with glare control snoot	5	$ 654.00				$ 3,270.00			$ -		$ 3,270.00	Create atmosphere and ambiance by highlighting the stone feature wall within the Coutyard and way finding to Doroth Browns. Keep glare to a minimum and revel the original stone detail by washing wall from a high level. Provide contrast to uplight effect on opposing wall in Buckingham Green.
Marry Cotter Heritage tree	From Library?	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	1	$ 510.00				$ 510.00			$ -		$ 510.00	Highlight feature trees with subtle uplight to underside of leaves and branches with optioal colour filters for special events. Control with the landscape lighting circuit.
Heritage tree by Hall	From Hall	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	1	$ 510.00				$ 510.00			$ -		$ 510.00	Highlight feature trees with subtle uplight to underside of leaves and branches with optioal colour filters for special events. Control with the landscape lighting circuit.
Heritage tree by Hall	From Hall	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	1	$ 510.00				$ 510.00			$ -		$ 510.00	Highlight feature trees with subtle uplight to underside of leaves and branches with optioal colour filters for special events. Control with the landscape lighting circuit.
Heritage tree PostMasters	From street light in plot	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	1	$ 510.00				$ 510.00			$ -		$ 510.00	Highlight feature trees with subtle uplight to underside of leaves and branches with optioal colour filters for special events. Control with the landscape lighting circuit.
4 Street lights by cottages								$20,000.00	5		$ 65.00		$ 20,065.00	
New street light by Library								$ 6,000.00	10		$ 65.00	$ 1,000.00	$ 7,065.00	

Harrington cost estimate													$ 40,000.00
Totals								$17,212.00	0				**$ 84,342.00**

Arrowtown Lighting Design & Masterplan

Stage One - Concept Design

Toulouse Group
Lighting & Technology Designers
www.toulouse.co.nz

ARROWTOWN
Where History Meets Nature

Contents

Artist's impression of new lighting design

The Nightscape of Arrowtown

The Lighting Masterplan for Arrowtown is intended to create a unique and emotive nightscape that encourages visitors to explore the town during the evening and to visit the restaurants, cinema, shops and bars. From a visitor's perspective we want to create special moments of discovery as they wander through Buckingham Street, with features subtly illuminated and an overall ambient level of light that allows visitors to feel safe yet recognise they are in a special environment.

The intention of the lighting design is to create a memorable backdrop for visitors both on the street and from various viewpoints around the town as they dine in the restaurants and bars. We want to add value to the night-time experience of Arrowtown to encourage return visits and positive feedback. There are many opportunities for outdoor evening events such as; concerts, festivals and night markets that are possible by providing electrical infrastructure for event lighting at specific locations.

The Lighting Masterplan is broken down into the following concepts that form a complete lighting solution that should be delivered cohesively.

Street lighting - Creating a historical ambience and a feeling of safety to wander freely at night throughout Buckingham Street and surrounds - the street lighting will meet the local QLDC lighting standards yet retain an olde world character with warm white light sources and low glare luminaires.

Key features - Accenting selected historic buildings and architectural features that will create a subtle backdrop that can be viewed from both the street and inside cafes and restaurants. Highlighting certain features and heritage buildings throughout the street will encourage people to explore further rather than a blanket approach to lighting every building, which may feel like a film set and too gimmicky.

Landscape lighting - Highlighting selected trees and natural features will add another layer of creative and ambient lighting to the nightscape. Subtle warm white light sources will capture the beauty of the natural elements without causing glare and unwanted light pollution.

Recommendations for the existing lighting - Provide a register of current lighting on the buildings in Buckingham Street and suggest improvements to become more cohesive with the new lighting design. Develop a strategy for future lighting additions by building owners to ensure the character of Arrowtown is not lost with modern light fittings and a mishmash of colour temperatures.

Event lighting - Suggestions on electrical infrastructure for temporary event lighting to give greater flexibility for locations and types of events to be held at night.

The following pages will explain these ideas in more detail and how we may achieve the overall desired lighting concept.

This is a document for discussion and presents our first response to the Arrowtown Lighting Masterplan.

Current view of Buckingham Street at dusk

Artist's impression of new lighting design

Lighting location plan Buckingham Street

Toulouse
Architectural Lighting
Tel: (04) 977 1078
Fx: (04) 977 1079
www.toulouse.co.nz
Sarah@toulouse.co.nz
P.O. Box 24012
Manners St. Wellington

PROJECT TITLE

ARROWTOWN CBD

KEY:

- HISTORIC BUILDING FACADES
- EVENT POWER LIGHTING FEED
- LANDSACPE FEATURES
- STREET LIGHTS

NOTE: Street lighting shown is existing only, actual quantities will be rationalised post lighting calculations.

Lighting location plan Miner's Cottages

Toulouse
Architectural Lighting

Tel: (04) 977 1078
Fx: (04) 977 1079
www.toulouse.co.nz
Sarah@toulouse.co.nz
P.O. Box 24012
Manners St. Wellington

PROJECT TITLE

ARROWTOWN CBD

KEY:

- HISTORIC BUILDING FACADES
- EVENT POWER LIGHTING FEED
- LANDSCAPE FEATURES
- STREET LIGHTS

NOTE: Street lighting shown is existing only, actual quantities will be rationalised post lighting calculations.

Street lighting

The concept for the street lighting poles for Buckingham Street is to ensure a feeling of safety to wander freely at night and to create a historical ambience with the appropriate colour temperatures and lantern styles. Consultation with QLDC will determine the exact light level we will need to adhere to at street level for safe transition for cars and pedestrians.

There are several ways to approach the street lighting - i) Refurbish the original lanterns (as seen outside the Bank) with modern light sources, new reflectors and lenses; ii) Replace with new lanterns in a heritage style or iii) Refit the current lanterns with a new light source, reflectors and gear assemblies. There are pros and cons to each scenario as outlined below and in the draft budget.

i. Refurbishment of the original street lantern

The refurbishment of the original street lanterns with a modern light source would serve to recreate the original historical ambience with LED technology ensuring low energy consumption. A new reflector housed in the top of the lantern designed to reflect the light downwards to the street would ensure there is no wasted uplight and therefore no light pollution to the night sky. A very warm white LED light source would be reminiscent of traditional light sources like candle light or another option would be an amber 'kerosene' colour temperature that could be created from a mixture of LED coloured chips.

In order to test the light output and to ensure council lighting standards are met, a prototype lantern would need to be built. This process would also allow us to assess the best colour temperature and determine the location of the control gear. Prototyping and testing could be done within the Toulouse workshop in Wellington.

ii. New traditional style street lantern

Procurement of a new lantern in a traditional style would be a simple solution and allow for easy lighting calculations to be carried without the need for a prototype. Supplier warranties would ensure any faults or problems with the fittings are easily rectified however, compatibility with exiting light poles would need to be established.

Many styles are available in traditional street lighting fixtures and we would suggest a robust fitting that has glare control and a downward light output. Finishes and components would be new and LED modules will have been tested by the manufacturer to international standards.

iii. Refurbishment of the current street lantern

This option would require the existing lanterns to be individually audited to assess their current condition and parts that would need to be replaced or refurbished. Current light levels will need to be recorded to establish whether further testing will be required and more light poles added. Light sources in the existing lanterns would need to be replaced with new sources that are consistent throughout the street.

Lighting calculations will need to be carried out to ascertain the number of lanterns and locations in Buckingham Street required to meet the QLDC lighting standards for street lighting regardless of the preferred option. This has been allowed for in the next phase of the Detailed Design.

Example of original lantern

Example of traditional street lanterns refurbished with LED light source.

Examples of new lantern styles

Historic buildings

We have chosen to accentuate the historic buildings with interesting facades and architectural features that we feel will respond well to being illuminated and create a subtle backdrop. These selected buildings are on both sides of the street and offer glimpses when approaching from either end of Buckingham Street. Highlighting certain heritage buildings sets them apart from the newer buildings on the street and offers a point of difference.

The lighting register provides detailed information however below is a list of the buildings we have selected. Note - some of these may just be a case of changing the current light fittings or sources whilst others will be additional facade lighting. Some heritage buildings like the Bank & Postmasters we feel don't require any changes.

Ray White
The Pharmacy - front facade and both sides including Buckingham Green (see landscape section)
Gibbston Valley
Jade & Opal Factory
Outlet Store
High Country Merino
Te Huia
The Wool Press
The Post Office
Arrow Lodge
Miners Cottages
Athenaeum Hall
Gold Nugget
Coachman's Hall
New Orleans Hotel

Initially the lighting for the historic buildings should be assessed. Existing light fittings that are suitable in terms of traditional style and that are found to be in good condition should be retrofitted with the appropriate light source and colour temperature as discussed further in the 'Recommendations' section.

New lighting to highlight the architecture - this is intended to be discreet and - where possible - concealed from view. Light fittings that are inappropriate for the heritage style of the building or are in disrepair should be replaced with fittings that are defined by a predetermined set of criteria. It is our intention that these heritage buildings become the jewels in the crown and are distinguished by retaining their original character.

Historic buildings

Highlight top tier of schist, assess current wall lights and signage

Highlight above canopy to original facade, create glow under canopy

Assess current wall lights & highlight brick & stone features within Courtyard

Uplights to stone wall on Pharmacy to create subtle backdrop for Buckingham Green

Highlight Gibbston Valley sign above canopy, change under canopy lights on both Jade & Opal & Gibbston Valley.

Traditional lantern on green Gibbston Valley building over door.

Retain lanterns on Te Huia, assess lantern & under canopy lighting on High Country

Highlight The Wool Press sign, new lighting under canopy

Historic buildings

Lighting to 'The Gold Nugget' sign, lighting under canopy

Change light to traditional lantern, Interior - change fluorescent battens

Highlight facade shape & name Athenaeum Hall

Highlight facade shape & sign assess lighting under canopy

Highlight Post Office sign, add traditional wall lights & glow under canopy

Uplights to facade, assess current lighting on entry steps

Historic buildings

Artist's impression of lighting for the Miner's Cottages

Lighting for the Miner's Cottages should be cohesive yet retain the individual character of each cottage.
Uplights will give a subtle highlight to the stone facade & graze the timber; soft glow under the door canopy & spots behind fences within gardens give a lived in feel.

Landscape & features

The landscape lighting includes the highlighting of selected trees, Buckingham Green, the bronze sculptures and the water wheel. We feel this will add another layer of creative lighting to the nightscape and pick up some interesting features as visitors explore the town.

Subtle glare-free light sources will capture the beauty of the feature trees by simply highlighting the textures of the bark and foliage. There is the option to add colour to these for events like Christmas, Easter or dates of significance with the use of coloured light sources or filters. The control technology for this can be applied as a site wide solution if budget allows or it could be achievable by manually changing filters or light sources.

The lighting for Buckingham Green is intended to work cohesively with the surrounding building facades of the Pharmacy and the Stables, together with the ambient light generated from the garden courtyard of Gibbston Valley. Subtle highlighting of the Pharmacy and rear Stables walls, will create an interesting cohesive light effect that accentuates the surface of the bricks. An additional light pole at the rear of Buckingham Green will provide a higher level of light and give a feeling of safety in an otherwise darkened corner. The light pole will also provide an opportunity for event lighting or other decorative features like flags and banners to be fixed to it.

The bronze sculptures at the end of Buckingham Street are an interesting new sculpture and will respond well to being illuminated. The solid shapes and bronze finish will reflect a warm light and create interesting shadows therefore creating a focal point at the end of the street. It seems a waste to leave them in darkness when a simple solution will provide added value at night to this art piece that is uniquely Arrowtown.

The water wheel outside the museum is a historic feature that we intend to be a 'moment of discovery' at night. Again a simple lighting solution will pick up the surface, shapes and texture of the water wheel giving a dramatic effect.

Highlight feature trees

Graze light over Water Wheel

Highlight the Stables wall

Add light pole and highlight Pharmacy stone wall

Uplight bronze sculptures

Event lighting infrastructure

To ensure there are plenty of opportunities for event lighting infrastructure, we have made notes of suggested locations for power feeds on the plans. This will give plenty of options for temporary event lighting to be set up at various locations around Buckingham Street where night-time events may take place.

With a new lighting design we hope there will be increased evening visitors which may open the door to more night time events taking place like music events, outdoor dinners, a night market or even a lantern festival. It is therefore important that we future proof the electrical infrastructure now so these types of events can be seamlessly integrated into the APBA event planning.

As Lighting Designers we work on a number of outdoor events including the annual Festival of Light in Pukekura Park in New Plymouth. The park is transformed over the December January months with creative lighting installations and special features throughout the park for visitors to enjoy. The festival attracts over 100,000 local and international visitors and has been a huge success for the council winning several awards including the New Zealand Recreation Association award for *Outstanding Event* and the New Zealand Association of Event Professionals award for *Best Established Community Event*.

This type of event could be run annually in Arrowtown on a smaller scale to increase tourist visitor numbers and for locals to revisit. To provide for this option in the future we would recommend increasing the amount of electrical power feeds around the town for event lighting to draw from.

Examples of the New Plymouth Festival of Light in Pukekura Park.

Recommendations for existing lighting

There are many different types of light fittings installed around Buckingham Street - some are traditional in style, some are broken or in disrepair. There are also commercial style bulkheads and fluorescent battens that look out of place. There are a number of contemporary light fittings that appear to be recently installed for example the bollards in Post Office Lane. The first step in creating some consistency is to assess what is currently installed and how it may be improved then develop a strategy for the installation of new and replacement lighting in the future. A set of criteria should be established to ensure the integrity of the Lighting Masterplan is maintained and a way forward for future lighting to be installed.

The QLDC document 'Southern Light - A lighting strategy for Queenstown Lakes District' lists a set of criteria to be applied to the lighting in Arrowtown - much of which we concur with - for example: controlling glare and light pollution, not over-lighting, consistent colour temperature and avoiding a 'Disneyland lighting effect' in Arrowtown. Controlling glare and light pollution to the night sky can be defined in terms of light fitting style and placement.

The following is a summary of the points outlined in the QLDC lighting strategy:

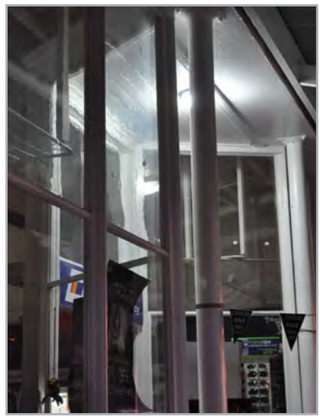
- Direct light downwards where possible and control upward light with glare shields and baffles
- Over lighting must be avoided - use the correct amount of light for the task and accepted standards
- Unnecessary night-time lighting such as decorative floodlighting, merchandising lighting & signage should be switched off at 11pm
- Keep glare to a minimum

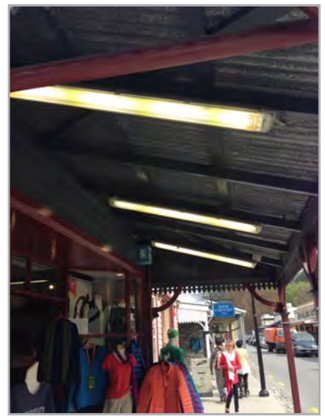
* Refer to the diagrams shown in the appendix

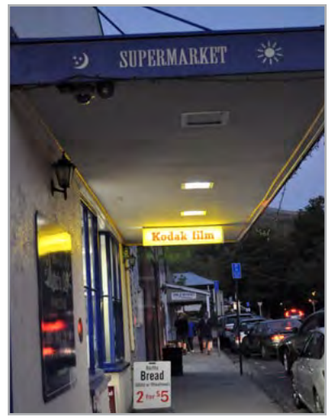
In the 'Arrowtown Design Guidelines - June 2006' document - it is suggested, "Exterior lights should be simple and include lamp styles appropriate to an early rural mining town." This would require the removal of a substantial amount of light fittings - some of which are new - and investment by building owners to replace them. As is the case with many District Councils in New Zealand, a 'suite' of light fittings - that meet a set of predetermined criteria - are assessed and approved for use within exterior installations. This would be a way of controlling light fittings that are installed in the future. A set of criteria and specific light fitting styles would be established and specified so that future lighting installed by building and business owners is in keeping with the overall vision for Arrowtown.

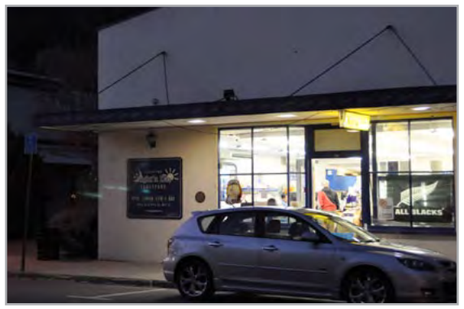
It is important to achieve consistency with the overall look and feel with particular attention to light sources and colour temperature with the latter preferably being a warm white 2700 -3050K - the colour of incandescent light. Warm white light creates an ambient effect that enhances the surfaces it illuminates and is in keeping with the original historic light sources. Cool white 4000K to 6500K is not appropriate for the overall look and feel we are aiming to achieve and is more suited to contemporary commercial architecture. Energy efficient LED and fluorescent light sources within the 2700K - 3050K range should be reto-fitted into existing fittings to create a warm light effect and also reduce energy and maintenance costs.

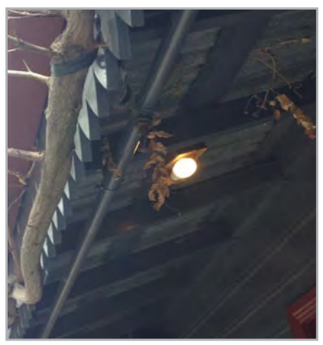
Lighting on other existing buildings should be individually assessed for existing colour temperature, style of light fitting and its light dispersion as well as the overall condition of the light fitting. Relamping of acceptable light fittings could be rolled out as a 'blanket approach ' replacing them all at once or it could be done as failures occur. We would recommend the 'blanket approach' to achieve instant impact and begin a scheduled and recorded maintenance program.











Examples of existing lighting that can be improved with consistent colour temperature or replacement with new luminaires.

Lighting regsiter

Building	Current lighting	Suggested initial lighting improvement. *Note - all light fittings to be assessed for status of current condition
Arrowtown Bakery & Cafe	Fluorescent bulkheads	Ensure colour temperature of light source is 2500- 3000K
Mondo	Fluorescent bulkheads and PAR38 spotlights x 2	Ensure colour temperature of fluorescents is 2700K. Remove halogen flood uplights from roof - appear to be pointing straight up. Replace PAR38 halogen with 2700K LED.
Cavit & Co	PAR38 spotlights x 4	Replace PAR38 halogen with 2700K LED.
Steps to Dorothy Browns	Wall light x 2, downlight x 2, bulkhead x 1	Ensure colour temperature of light source is 2700K. Replace halogen with 2700K LED.
Rear of Ray White to Arrow Lane	Ceiling buttons	Ensure colour temperature of light source is 2500- 3000K
Ray White	Spots to signage x 4, spots in window x 4, high level spot on left hand side x 1	Part of concept design
Saffron	Inground uplight x 2, canopy spotlights PAR38 x 2, sculpture spotlights PAR38 x 2	Part of concept design
The Pharmacy	Side wall x 3 halo spots, 2 halo spots blue door, bulkhead x 1 at front.	Part of concept design
Pesto Bar	Free standing lanterns, 2 x PAR38 spotlights	Part of concept design
Stairs to Cinema	1 x bulkhead	Ensure colour temperature of light source is 2500- 3000K
Buckingham Green	Street lantern x 1, small lantern x 1	Part of concept design
The Shed	Fluorescent bulkheads x3	Ensure colour temperature of light source is 2500- 3000K
Stables	Flood to rear wall, lantern x 2, entrance ball x 1, copper lights x 2, signage lights x 2	To be addressed in concept plan
Gibbston Valley	Floodlight x 3, mini lantern x 4	Part of concept design
Jade & Opal Factory	Fluorescent battens x2	Part of concept design
Outlet Store	Lantern x 1, downlight x 6	Part of concept design
High Country Merino	Lantern x 1, bulkhead x 1	Part of concept design
Te Huia	Exterior wall mount lantern x 3, halogen downlight x 2	Part of concept design
The Wool Press	Fluorescent battens x 3, signage light x 1, side wall light x 1, street lantern x 1, fluorescent x 1	Part of concept design
The Courtyard	Par 38 x 3, bulkhead x1	Ensure colour temperature of fluorescents is 2700K. Replace PAR38 halogen with 2700K LED.
Chop Shop	Bulkhead x 2, bulkhead x 1	Ensure colour temperature of light source is 2500- 3000K
The Old Smithy	Wall light lantern x 1, bulkhead x 1	Ensure colour temperature of light source is 2500- 3000K
Cruikshank	Downlight x 2	Replace halogen with 2700K LED.
Ogle	Downlight x 2	Replace halogen with 2700K LED.
Oak Lane	Mini LED x 4, catenary fairy lights, bollards	Retain catenary fairy lights, check colour temperature of bollards and LED is 2500 - 3000K
Sotheby's, Lots for Tots	Bulkhead x 3, downlights x 3	Ensure colour temperature of light source is 2700K. Replace halogen with 2700K LED.
Stairs to Arrow Lane	Wall lights x 6, bulkhead x 2	Ensure colour temperature of light source is 2500- 3000K
Gypsies	Bulkhead x 3	Ensure colour temperature of light source is 2500- 3000K
Bettys Liquor	Downlight x 2	Replace halogen with 2700K LED.
Wallace & Gibbs	Downlight x 3	Replace halogen with 2700K LED.
Ikon	Downlight x 2	Replace halogen with 2700K LED.
Post Office Lane	Bollard x 4, copper wall lights x 2	Ensure colour temperature of light source is 2700K. Replace halogen with 2700K LED.

Building	Current lighting	Suggested initial lighting improvement. *Note - all light fittings to be assessed for status of current condition
Post Office	Bulkheads x 3	Part of concept design
Post Masters	Bollards and fairy lights	Ensure colour temperature of light source is 2500- 3000K
Back Country	Par 38 x 2	Replace PAR38 halogen with 2700K LED.
Stitching Post	Wall light above door	Assess fittings
New Orleans Hotel	4 x halogen floods, 2 x downlight	Part of concept design
The Remarkable Sweet Shop	no ltg	Discuss with owner
The Gold Shop	2 x wall light	Assess fittings
Athenaeum Hall	1 x lantern 2 x bulkhead at entrance	Part of concept design
Athenaeum Hall Lane	Street lantern x 1, small lantern x 1	Part of concept design
Supermarket	Wall light x 2, downlight x 4	Replace fittings and colour temperature
Coachman's Hall	no ltg	Part of concept design
Ray White	no ltg	Discuss with owner
Gold Nugget	no ltg	Part of concept design
Museum	Double flood to façade, entrance light, 3 x bulkhead	Assess fittings
Bank	Lantern x 2, inground x 2	Check colour temperatures and lanterns TBC
Miners Cottages	no ltg	To be addressed in concept plan
Library	Fluorescent bulkheads x 4	Ensure colour temperature of light source is 2500- 3000K
Arrow Lodge	Wall light over the door, 4 x tread lights	Part of concept design
Bronze sculptures	no ltg	Part of concept design
Heritage trees	no ltg	Part of concept design
Water wheel	no ltg	Part of concept design

The Lighting Register was completed in October 2014 and details may have changed since. All light fittings should be assessed to ascertain their current condition and suitability. Read in conjunction with the Lighting Recommendations for existing fittings.

The Lighting Register can be provided in Excel format for updating and used to form the Maintenance Schedule.

Extract from 'Southern Light - A lighting strategy for the Queenstown Lakes District'

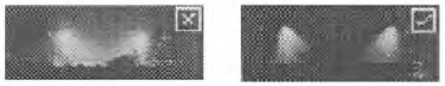
Appendix 2: Good Practice Lighting Guide

Preventing Light Pollution - Three Point Plan

Since urban sky glow (light pollution) arises from a combination of artificial light emitted directly into the sky from light fittings and light reflected up into the sky from buildings and the ground, the BAA Campaign for Dark Skies currently recommends that:

1. Wherever possible lights should be installed in full cut-off or ultra low-profile housings to prevent the emission of light above the horizontal.
2. 'Over-lighting' must be avoided. Using only the correct amount of light for the task, according to accepted standards, will reduce the amount of reflected light contributing to sky glow.
3. Unneoessary night-time lighting, particularly decorative floodlighting, merchandising and advertising lighting and sports floodlighting, should be switched off at 11pm or midnight to reduce the total sky glow in the early morning, pre-dawn hours.

Minimising Light Pollution



All Living things adjust their behaviour according to natural light. Artificial light has done much to safeguard and enhance our night-time environment but, if not properly controlled, obtrusive light can present serious physiological and ecological problems.

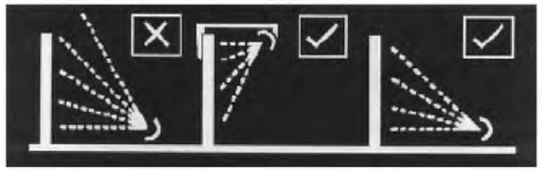
Light pollution, whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution and without too much trouble can be substantially reduced without detriment to the lighting task in both urban and rural areas.

Sky glow is one form of light pollution. Glare is the uncomfortable brightness of a light source when viewed against a dark background, and light trespass; the spilling of light beyond the boundary of the property on which the source is located; are other forms of light pollution. In residential areas street lighting columns should be of a height that is sympathetic to the scale of adjacent buildings but should not, under any circumstance, be higher than the height of such buildings.

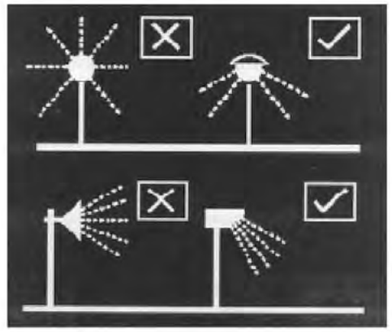
Listed below are some key ways to reduce the problems of unnecessary, obtrusive light:

Switch off lights when not required for safety, security or enhancement of the night-time scene. In this respect one can introduce the concept of a curfew with further limitations on lighting levels between agreed hours e.g. advertising and decorative floodlighting – off between 23.00hrs and dawn.

Direct light downwards wherever possible to illuminate a target, not upwards. If there is no alternative to up-lighting, then the use of shields and baffles will help to reduce spill light to a minimum.

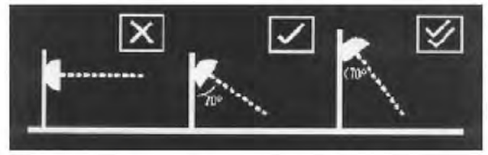


Use specifically designed lighting equipment that once installed minimizes the spread of light near to, or above the horizontal plane.



Do not 'over' light. It is a cause of light pollution and a waste of money.

Keep glare to a minimum, by ensuring that the main beam angle of all lights directed towards any potential observer is kept below 70 deg. It should be noted that the higher the mounting height, the lower the main beam angle. In places with low ambient light, glare can be very obtrusive and extra care should be taken in positioning and aiming.



Only use floodlights with asymmetrical beams that permit the front glazing to be kept at or near parallel to the surface being lit.

For domestic and small-scale lighting, there are two solutions:

1. Passive infrared detectors can be used to good effect, if correctly aligned and installed. A 150W (2000 lumen) tungsten halogen lamp is more than adequate. 300/500W lamps create too much light, more glare and darker shadows.
2. All-night lighting at low brightness is equally acceptable. For a porch light a 9W (600 lumen) compact fluorescent lamp is more than adequate in most locations.

Produced by Queenstown Lakes District Council

Lighting control options

Control of the various components of the Lighting Design will need to be defined to establish when the lights are turned on and how long they will be left running. The street lighting should come on with the rest of the street lighting for the district which would be either by time clock or light sensor and remain on until dawn.

Landscape feature lighting could be activated by a light sensor around dusk and then switched off at a certain time each night - for example between 11pm - 12pm. There will be few people around on the street after this to appreciate it - therefore switching them off will save energy and extend the life of the lamps and fittings.

Lighting to the historic buildings would be a little more complicated as each building owner would need to install a time clock to operate the lights in order for them all to cohesively turn and off at the same time. Discussion with building owners will be required as they may have lights they want to leave on all night for security or window displays.

Lighting control can be fully rationalised during the next phase of the Detailed Design for the project. Light sources and ballasts will need to be compatible with any control system in place. There is also the option of fully automated lighting control systems however this would require a healthy financial budget to achieve.

Maintaining the integrity of the design

The Lighting Design and subsequent light fittings will be an investment and an asset to Arrowtown and will need to be maintained and monitored to ensure the integrity of the design is not compromised. Once the Lighting Masterplan as been realised, it will be critical to plan and allow a budget for maintenance and to ensure lamp sources are replaced in the correct colour temperature and fittings are assessed for signs of wear and tear.

Scheduled relamping of light sources in the correct colour temperature should be done in accordance with a Relamping Schedule showing the specific light source type, colour temperature, base and style. Assessment of the light fitting for signs of wear and tear on the cabling or fitting itself should happen during the relamping process and noted on the schedule for quick reference.

Relamping and maintenance schedules will be provided by Toulouse once light fittings have been specified and installed. Service Level Agreements may be found with local or remote contractors or alternatively a qualified electrician could handle this in house. Stocks of lamps (as noted on the relamping schedule) should be held with either a local electrical wholesaler or a specific service electrical company. Random lamp changing is the death of the design in years to come as a mishmash of light sources and colours will change the whole effect.

Preliminary luminaire budget

Location	Light fitting	PC Sum allowed
Street Lighting - exact quantity of street lights required to confirm with lighting calculations and approval from QLDC		
Scenario I - refurbish original lanterns	Approximate cost to purchase parts, build and test prototype $3500	
Scenario ii - new traditional style lanterns	Approximate cost of complete new lantern @ 20 units	$60,000
Scenario iii - refurbish current lanterns	Approximate cost dependent on assessment of current lanterns	
	Sub total PC sum	**$60,000**
	**Note this is based on Scenario ii **	
Historic buildings - PC Sum allowed for each building, to be confirmed in Detailed Design phase		
Ray White	Highlight top tier of schist, assess current wall lights and signage	$2,000
The Pharmacy & entrance to Dorothy Browns	Highlight above canopy to original front facade, create glow under canopy. Lane to Dorothy Browns - assess current wall lights & highlight brick & stone features within Courtyard. Wall on Buckingham Green - uplights to stone wall on Pharmacy to create subtle backdrop for Buckingham Green	$5,000
Gibbston Valley	Highlight Gibbston Valley sign above canopy, change under canopy lights, new lantern	$2,000
Jade & Opal Factory	Change under canopy lights	$1,500
Outlet Store	Assess existing lights for replacement	$1,500
High Country Merino	Assess existing lantern and replace bulkhead	$1,500
Te Huia	Change light source in lanterns	$200
The Wool Press	Replace existing lighting	$1,500
Post Office	Replace existing lighting	$3,000
Arrow Lodge	Assess wall light over the door, 4 x tread light - repair or replace	$2,500
New Orleans Hotel	Change lighting to signage and assess under canopy lights	$2,000
Athenium Hall	Highlight facade shape & name Athenium Hall	$2,500
Coachman's Hall	Change light to traditional lantern, change interior fluorescent battens	$2,000
Gold Nugget	Highlight sign and light under canopy	$2,000
Miners Cottages	Highlight facades of each	$5,000
	Sub total PC sum	**$34,200**
Landscape and features		
Buckingham Green	Pole light to corner	$2,500
	Inground recessed to pharmacy wall	$1,000
	Inground recessed to stables wall	$500
Bronze sculptures	Inground recessed to sculptures	$1,500
Heritage trees	Inground recessed to trees	$1,500
Water wheel	Exterior spotlights to water wheel	$1,000
	Sub total PC sum	**$8,000**

This preliminary luminaire budget is based on PC sums only. Actual luminaire and electrical installation costings will be rationalised in the Detailed Design phase once the lighting concepts have been confirmed.

Street Lighting costs shown are based on the supply of new lanterns. Refurbishment costs for the original lanterns will be dependent on the outcome of the prototype. Light levels and the quantity of the street lanterns will need to be calculated to ensure the QLDC lighting standards are met. This applies to all lantern options.

Once the concept details are finalised then electrical installation costs can be submitted from various electricians either by tender or invitation.

All luminiare costs are estimated in NZ dollars, and are excluding freight and GST.

ARROWTOWN
Where History Meets Nature

Scott Julian,
Arrowtown Promotion and Business Assn
c/- 49 Buckingham Street
Arrowtown

21 April 2016

Gary Mullings
Arrowtown Charitable Trust Chairman
PO Box 2002
Wakatipu 9349
Queenstown

Dear Gary

The Arrowtown Promotion and Business Assn wishes to endorse your Annual Plan presentation to council for funding assistance for upgrading street lighting in both the main historic blocks of Buckingham Street.

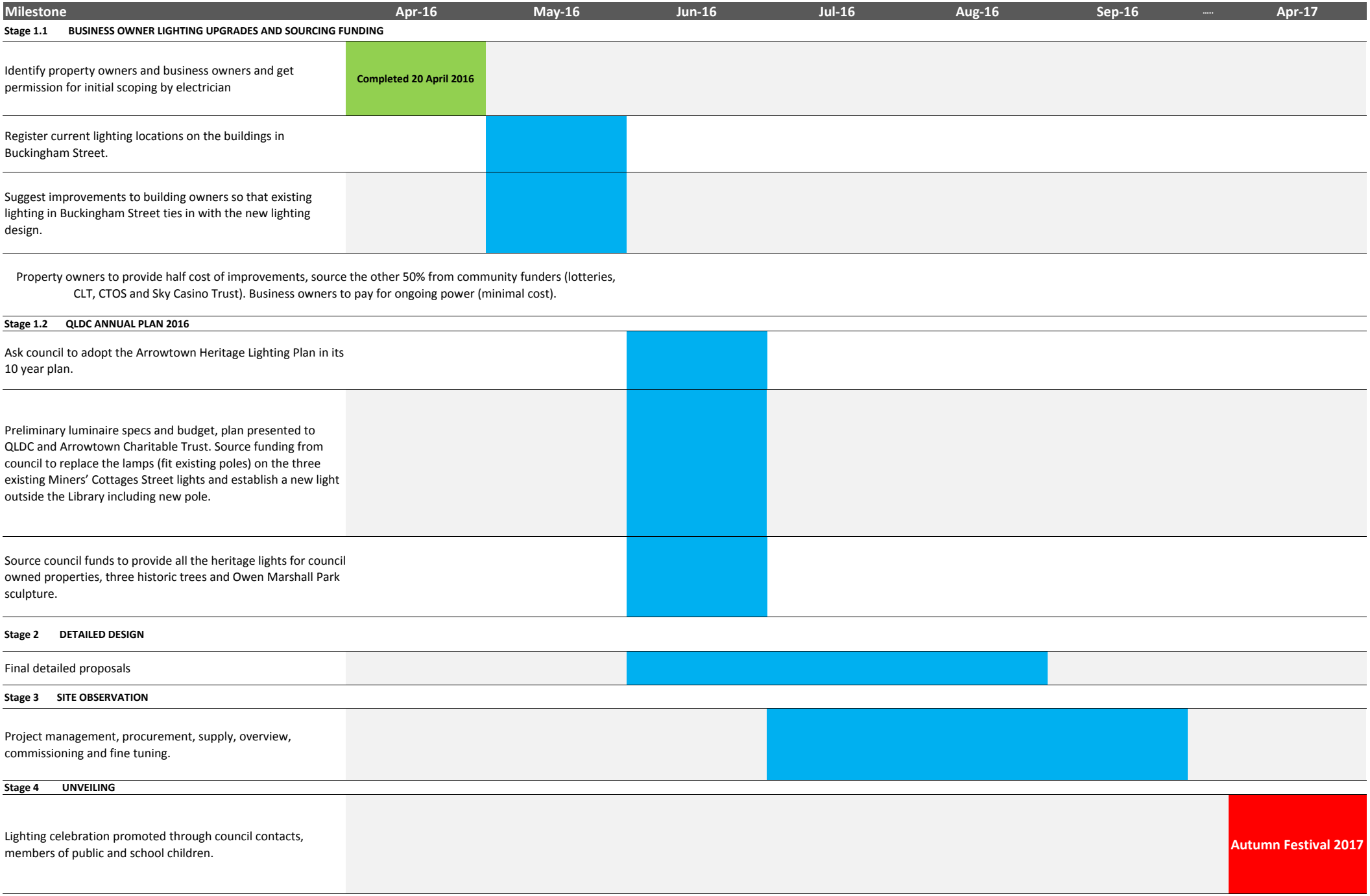
We have serious concerns for the safety of pedestrians due to a lack of lighting in patches in the first block (main business area), and for a significant part of the second block (Miners' Cottages and Library).

With the increase of visitors to Arrowtown in the evening to enjoy the restaurants and cinema, it is essential that we provide adequate lighting, particularly along much of the street where the footpath is uneven leading on to the road.

We endorse the use of energy efficient light sources to save on QLDC power use.

Yours sincerely
Scott Julian (unsigned, sent electronically)
Chairman
www.arrowtown.com

Arrowtown Heritage Lighting Action Plan 2016/2017



Arrowtown Heritage Lighting

Business Plan

2016

Executive Summary

The Arrowtown Charitable Trust's purpose is:

"To protect and preserve the historical and natural environment of Arrowtown for the interest and enjoyment of current and future generations."

The Trust's major project for 2016 is to implement a lighting plan to:

- Improve night time safety;
- Improve street lighting by replacing the current lighting with cost-effective modern lighting which meets council luminaire requirements;
- Enhance the night time visitor experience with the aim of increasing visitor numbers and assisting with Arrowtown's economic goals.

The QLDC Southern Lights Report, 2006, states:

"Arrowtown Town Centre – due to the heritage nature of the street a master lighting plan is required… to deliver an effective and subtle lighting scheme that enhances the night time experience of visitors."

Key Objectives

The Lighting Masterplan for Arrowtown is a complete lighting solution. It is a cost effective way to create a unique and emotive nightscape that encourages visitors to explore the town in the evening and visit the restaurants, cinema, shops and bars in safety.

The aim is to create:

- Landscape lighting: highlight selected trees and natural features adding another layer of creative and ambient lighting to the nightscape - features subtly illuminated;
- Highlighting certain features and heritage buildings throughout the street, rather than lighting every building. A blanket approach to lighting every building, could feel like a film set and be too "gimmicky";
- Accenting selected historic buildings and architectural features creates a subtle backdrop viewed from both the street and inside cafes and restaurants;
- An overall ambient level of light provides a feeling of safety and a sense of a special environment;
- A memorable backdrop for visitors both on the street and from various viewpoints around the town will add value to the night time experience of Arrowtown and encourage return visits and positive feedback;
- The street lighting will meet the local QLDC lighting standards yet retain an "olde worlde" character with warm white light sources and low glare luminaires. Subtle warm white light sources will capture the beauty of the natural elements without causing glare and unwanted light pollution.

The bronze sculpture in Owen Marshall Park is a feature that would respond well to illumination

Infrastructure and proposed design

The proposed Lighting Plan with technical specifications is attached.

- **New traditional style street lantern:** A new lantern in a traditional style is a simple solution and allows for easy lighting calculations with no need for a prototype. Supplier warranties would ensure any faults or problems with the fittings are easily rectified however, compatibility with existing light poles would need to be established. We have chosen a robust fitting that has glare control and a downward light output. Finishes and components.

- **Landscape & features:** The landscape lighting includes the highlighting of selected trees, Buckingham Green, the bronze sculptures and the water wheel. We feel this will add another layer of creative lighting to the nightscape and pick up some interesting features as visitors explore the town.

- **Event lighting infrastructure:** With a new lighting design we believe there will be increased evening visitors which may open the door to more night time events taking place like music events, outdoor dinners, a night market or even a lantern festival. To ensure there are plenty of opportunities for event lighting infrastructure, we have made notes of suggested locations for power feeds on the plans. This will give plenty of options for temporary event lighting to be set up at various locations around Buckingham Street where night-time events may take place.

An example of event lighting from the New Plymouth Festival of Light

Recommendations for the existing lighting

- Initially replace the three existing lamps on poles in the Miners' Cottages block and add a new pole and lamp outside the library for safety lighting. In 2017 use the old lamps as a prototype to replace the other 14 lamps in the main block of Buckingham Street. Cost savings will be achieved by modifying old lamps to meet new light level and QLDC requirements.

- Provide a register of current lighting locations on the buildings in Buckingham Street;
- Suggest improvements to building owners so that the existing lighting in Buckingham Street ties in with the new lighting design.
- Develop a strategy for future lighting additions by building owners to ensure the character of Arrowtown is not lost with modern light fittings and a mishmash of colour temperatures.
- Event lighting - Suggestions for additions to electrical infrastructure for temporary event lighting to give greater flexibility for locations and types of events to be held at night.

.

Consultation with QLDC will determine the exact light level we will need to adhere to at street level for safe transition for cars and pedestrians.

SWOT Analysis

Marketing Strategy: 600,000+ visitors a year.

Strengths

- One of NZ's oldest European towns, formed in 1862, Arrowtown is 152 years old.
- Arrowtown is a shining example of an historic/heritage town in a natural environment which can be promoted for the benefit of current and future generations, educational groups, residents and visitors.
- The town boasts 50 – 70 listed buildings from gold rush to late gold rush period in the Arrowtown Historic Zone and Arrowtown Residential Historic Zone.
- Arrowtown promotes high standards in architecture, landscape, management, building and town planning.

Brick and schist features that are thoughtfully illuminated will increase Arrowtown's night time appeal

Weaknesses

- Safety issues with poor light levels in existing lighting will be alleviated with addition of new lights and better light levels.
- Existing lights are more expensive to run than proposed modern replacements
- Presently night lighting is becoming a "mish-mash" of styles and design and this project would provide an historic consistency

Opportunities

- Commercial bulkheads look out of place. Appropriate redevelopment to ensure heritage buildings in the historic town are maintained while allowing for modern use.
- Future Proofing. Reduce degradation of heritage buildings due to inappropriate lighting. A set of criteria should be established to ensure the integrity of the Lighting Masterplan is maintained.
- Replacing inefficient lights with LED will reduce energy usage.
- A set of criteria for specific light fitting styles in historic Arrowtown would be established and specified so that future lighting installed by building and business owners along Buckingham Street are in keeping with the overall vision for Arrowtown.
- Existing light fittings are broken and in disrepair. A scheduled and recorded maintenance programme replacing broken and patched existing lights with new lights will reduce ongoing maintenance, saving longer term costs. Bulbs will be cheaper and it will be cheaper to replace refurbished poles. Better long term impact.

- Controlling glare and light pollution to the night sky can be defined in terms of light fitting style and placement. The lighting plan will expand out into in the residential part of Arrowtown to meet the community needs for appropriate lighting directing light down to avoid night sky pollution. *We need to communicate to AVA with our plans.*
- QLDC document 'Southern Light - A lighting strategy for Queenstown Lakes District' lists a set of criteria to be applied to the lighting in Arrowtown, in particular:
    - Direct light downwards where possible and control upward light with glare shields and baffles
    - Over lighting must be avoided - use the correct amount of light for the task and accepted standards
    - Unnecessary night-time lighting such as decorative floodlighting, merchandising lighting & signage should be switched off at 11pm
    - Keep glare to a minimum energy efficient LED and fluorescent light
- Sources within the 2700K - 3050K range should be retro-fitted into existing fittings to create a warm light effect and also reduce energy and maintenance costs, controlling glare and light pollution, not over-lighting, consistent colour temperature and avoiding a 'Disneyland lighting effect' in Arrowtown.
- The new heritage sympathetic lighting will generate and increase in evening visitors – income opportunities for businesses.
- Opportunity to extend heritage lighting throughout Arrowtown Historic CBD including pedestrian linkages which are presently poorly lit.

Threats

- Safety - several main street black points are dangerous with inadequate lighting causing a danger to pedestrians on uneven surfaces when crossing the road.
- Danger of the town looking like a "film set" or "Disneyland" with garish and unsuitable lighting.

Artist's impression of lighting for the Miners' Cottages

Action Plan

(see also attached schedule)

Stage 1

A QLDC Annual Plan April 2016

i. Ask council to adopt the Arrowtown Heritage Lighting Plan in its 10 year plan by June 2016.
ii. Preliminary luminaire specs and budget, plan presented to QLDC and Arrowtown Charitable Trust. Source funding from council to replace the lamps (fit existing poles) on the three existing Miners' Cottages Street lights and establish a new light outside the Library including new pole. June 2016
iii. Source council funds to provide all the heritage lights for council-owned properties, three historic trees and Owen Marshall Park sculpture. June 2016

B Business Owner Lighting Upgrades and Sourcing Funding

i. Identify property owners and business owners and get permission for initial scoping by electrician – Done 20 April 2016
ii. Register current lighting locations on the buildings in Buckingham Street. May 2016
iii. Suggest improvements to building owners so that existing lighting in Buckingham Street ties in with the new lighting design. May 2016
iv. Property owners to provide half cost of improvements, source the other 50% from community funders (lotteries, CLT, CTOS and Sky Casino Trust). Business owners to pay for ongoing power (minimal cost).

Stage 2: Detailed Design: Final detailed proposals by August 2016.

Stage 3: Site Observation: Project management, procurement, supply, overview, commissioning and fine tuning. By September 2016

Stage 4: Unveiling: Lighting celebration promoted through council contacts, members of public and school children. By April 2017 (Arrowtown Autumn Festival)

April 2016 Submission to QLDC:

The Arrowtown Charitable Trust seeks that the QLDC:

- Adopts the Arrowtown Lighting Plan in its 10 year plan as the Arrowtown Standard for lighting.
- Provides $84,000 towards upgrading of lighting on council properties, sculpture, four trees, Buckingham Green, and four street lights in Buckingham Street
  Note: The total lighting project budget for above and non-council properties is $149,700 with the ACT meeting the non-council property upgrade at $65,700

Arrowtown Heritage Lighting Project Timeline

- **3.3.11** Arrowtown Promotion and Business Association Inc. (APBA) sets up a lighting subcommittee to explore the potential of developing a heritage lighting project for the town.

- **20.4.11** Mayor Vanessa van Uden speaks at APBA Board Meeting. Discussion included support from Paul Wilson (QLDC), reference to QLDC Southern Lights plan, safe lighting down for alleyways. Health and safety issue. Needs to be resubmitted in annual plan. Prioritise requests as advised as we won't get everything in first year. Contacted Paul Wilson, to get cost and details of Southern Lights plan.

- **April 2011** Peter Crum repairs some faulty main street lights and uplights some features for the autumn festival.

- **29.4.11** Annual Plan request for council to adopt a heritage lighting plan programme based on QLDC Southern Lights Plan. Focus on health and safety, and heritage/aesthetic lighting. Mick Karlovsky is the Urban Design manager at QLDC who can help with any heritage lighting, and there is a heritage lighting fund that he can advise on using.

- **7.6.11** APBA and Lex Perkins (Ward Councillor) meets council staff Paul Wilson, Ian Boud, and Lane Vermaas.
  Paul Wilson will arrange a designer to produce a Heritage Plan for Arrowtown. QLDC has committed to pay half the $5,000 - 10,000 estimated cost with NZTA being approached by Lane to subsidise the other half. Council will fund up to the concept stage. Paul will provide a fee proposal to Lane. From this plan we will have a budget for lighting for Arrowtown estimated at $100,000 which can then be timetabled to spread the cost. Includes replica lamps on 2 blocks of Buckingham St. More poles would be needed. Council can't pay for these in their present budget but can manage this over a planned period of time - a matter of retro-fitting these. Paul Wilson (QLDC) offers get a quote for this.
  Total Power and QLDC will work together to ensure that a cabling system is set up in the November Buckingham Street upgrade with provision for future lighting.

- **Feb 2012** Commissioned Toulouse Group to write the Arrowtown Lighting Profile ready for submission in Annual Plan.

- **May 2012** Submitted in Annual Plan for $10,000 from QLDC. "Aim to implement the plan over 5 years with council support" while sourcing funding from community funders largely for aesthetic and heritage aspects of the plan.

- **August 2012** Council has given APBA $10,000 for lighting plan. Includes safety, heritage and general lighting. Paul Wilson writes a letter explaining that the proposed designer meets the skills and depth required for such a project.

- **September 2011 – June 2012** APBA attempts to source funds to progress project from CTOS and CLT but is advised it needs Charitable Status to receive funds.

- **13.6.13** APBA applies for Charitable Status is turned down in spite of 8 core objectives being of a charitable nature.

- **August 2013 – April 2014** Decision to set up a separate charitable trust to progress funding for lighting project. Arrowtown Charitable Trust develops strategy, goals and protocols to establish registered Charity. Four Trustees, 2 from APBA and 2 from Arrowtown community

- **9.7.14** Arrowtown Lighting Plan received from Toulouse

- **10.7.14** Arrowtown Charitable Trust's first meeting as registered charity held.

- **16.9.14** The contract for Toulouse to undertake the lighting plan is signed off.

- **16.9.14** APBA commits to support some ACT administration costs.

- **November 2014** Meet Toulouse Designer, Sarah Peachey. Focus on historic buildings, trees and features; Replacing the "gas" lights in the main street with the old style lanterns which Paul Wilson had researched a source for; ensuring the right amount of light and not too much facing up; Provision for event lighting.

- **Dec 2014** Long Lunch Fundraiser Dec 2014 raises funds for ACT.

- **23.4.2015** Annual Plan Submission Request for Heritage Lighting Funding turned down. Asked by Mayor Vanessa van Uden to apply again in 2016.

- **Sept 2015 –** ACT Annual General Meeting – appointed Arrowtown Village Association representative to board and additional community member.

- **Dec 15 – April 2016 –** Frequent meetings to establish 2016-2017 Annual Plan Submission. Preparation includes discussions with Scott Stevens and council staff. Contracted electrician**.**

Landscape & features

The landscape lighting includes the highlighting of selected trees, Buckingham Green, the bronze sculptures and the water wheel. We feel this will add another layer of creative lighting to the nightscape and pick up some interesting features as visitors explore the town.

Subtle glare-free light sources will capture the beauty of the feature trees by simply highlighting the textures of the bark and foliage. There is the option to add colour to these for events like Christmas, Easter or dates of significance with the use of coloured light sources or filters. The control technology for this can be applied as a site wide solution if budget allows or it could be achievable by manually changing filters or light sources.

The lighting for Buckingham Green is intended to work cohesively with the surrounding building facades of the Pharmacy and the Stables, together with the ambient light generated from the garden courtyard of Gibbston Valley. Subtle highlighting of the Pharmacy and rear Stables walls, will create an interesting cohesive light effect that accentuates the surface of the bricks. An additional light pole at the rear of Buckingham Green will provide a higher level of light and give a feeling of safety in an otherwise darkened corner. The light pole will also provide an opportunity for event lighting or other decorative features like flags and banners to be fixed to it.

The bronze sculptures at the end of Buckingham Street are an interesting new sculpture and will respond well to being illuminated. The solid shapes and bronze finish will reflect a warm light and create interesting shadows therefore creating a focal point at the end of the street. It seems a waste to leave them in darkness when a simple solution will provide added value at night to this art piece that is uniquely Arrowtown.

The water wheel outside the museum is a historic feature that we intend to be a 'moment of discovery' at night. Again a simple lighting solution will pick up the surface, shapes and texture of the water wheel giving a dramatic effect.

Highlight feature trees

Graze light over Water Wheel

Highlight the Stables wall

Add light pole and highlight Pharmacy stone wall

Uplight bronze sculptures

Illuminating Performance

The Towne Commons fixtures are available with high performance optical systems allowing you to precisely aim the light, resulting in a smooth even illumination of the environment. A superior lighting system for illuminating your streets and pedestrian areas compared to any lensed type of fixture.

Towne Commons

Refractor globe

How well can you recognize objects at night?

Not very well if the luminaires are extremely bright compared to the objects around them. The pictures on the left demonstrate this phenomenon. Notice the difference in the "visibility" or clarity of nearby objects illuminated by a Towne Commons fixture. Disability glare or "veiling luminance" (the contrast ratio between the brightness of the luminaire and surrounding objects) is greatly reduced. Visual perception is greatly improved. Objects in the environment are easier to identify.

REV	DESCRIPTION	BY	DATE
A	PRELIMINARY DESIGN.	OS	26.04.16

switch
LIGHTING DESIGN & CONSULTANCY

Switch Lighting Design & Consultancy Ltd.
Level 1, 852a Mount Eden Road, Auckland 1024

Tel: 021 242 7550
Email: info@switchlighting.co.nz
Web: www.switchlighting.co.nz

PROJECT

Arrowtown, South Island, Buckingham Street section LED upgrade

CLIENT

-

LAYOUT

Street Lighting Layout Clear Glass

DRAWN: O.SHAHAB	REVISION: A
SCALE: 1:200@A1 1:400@A3	DATE: 26.04.2016
DRAWING NO.: AT-02	
JOB NO.: ECC-024	SHEET: A1

Sales Quotation __

Invoice to:-

Arrowtown Promotion & Business Association
49 Buckingham St
Arrowtown 9302

Date	26/04/2016
A/C No.	1APBA01
Invoice No.	SQU209695
Order No.	ARROWTOWN
Ref.	
Salesperson	OT
Page	1

Code	Description	Qty	Unit Price	Discount	Unit Net	Total
NEW CODE	ECC - ALN440 LED street light 3000K LED	4	4,125.00		4,125.00	16,500.00
NEW CODE	New 3.1m pole Cost TBC.	1				

Net Total	16,500.00
GST	2,475.00
Total	**18,975.00**

Terms & Conditions
Quote Valid for 30 Days
For Order: A 50% deposit of the value of the goods must be made at time of order. Delivery Date to be confirmed on placement of Order. Balance of the order must be paid in full before final delivery can be made.
Deposit will be forfeited if the order is cancelled, or goods are not paid for within 14 days of advise to you of the goods being available for delivery. All prices unless stated exclude delivery and installation.
Colours, materials, grains may vary from the swatches, samples or images.
For a full version of our Terms and Conditions please refer to www.ecc.co.nz

architectural arealighting Excellence in Outdoor Lighting Quality, Design and Performance

(http://www.aal.net/)

HUBBELL Lighting, Inc. (http://www.hubbelllighting.com)

Towne Commons® - ALN440

The Towne Commons® family of fixtures are available in a wide range of sizes and configurations.

The ALN440 can be post top and wall mounted. Features include a hinged top for easy relamping, unitized one-piece lens for longer life, and tool-less access to the ballast module for easy servicing. Coordinates with other Towne Commons fixtures.

Features

- Energy Saving LED technology
- Reliable efficient operation
- Types II, III, IV and V distributions
- 0-10V dimming ready
- LifeShieldTM thermal protection
- Surge protection included
- Wide variety of custom mounting options including post-top, wall mount or pole mount arm
- IP66 construction of optical system
- Cast aluminum struts
- 3000K, 4000K, 5000K CCT
- 3000K, 4000K, 5000K CCT

Related Products

Towne Commons® - ALN438 (http://www.aal.net/products/towne_commons_aln438/)

Towne Commons® - ALN445 (http://www.aal.net/products/towne_commons_aln445/)

Towne Commons® - ALN540 (http://www.aal.net/products/towne_commons_aln540/)

Cast Aluminum Bollard (http://www.aal.net/products/cast

Downloads

Literature

Towne Commons® LED (http://www.aal.net/content/products/literature/literature_files/aal_aln_led_lit.pdf)

Towne Commons® (http://www.aal.net/content/products/literature/literature_files/aal_aln_lit.pdf)

Product Selection Guide

aal_aln_psg.pdf (http://www.aal.net/content/products/psg/psg_files/aal_aln_psg.pdf)

Specification Sheets

aal_aln440_led_spec.pdf (http://www.aal.net/content/products/specs/specs_files/aal_aln440_led_spec.pdf)

aal_aln440upgrade_spec.pdf (http://www.aal.net/content/products/specs/specs_files/aal_aln440upgrade_spec.pdf)

ALN440 (http://www.aal.net/content/products/specs/specs_files/aal_aln440_spec.pdf)

Photometry

Instruction Sheets

ALN 440 (http://www.aal.net/content/products/instructions/instructions_files/is_town_commons_aln

Color Charts

color_chart.pdf (http://www.aal.net/content/products/color_charts/color_charts_files/color_chart.pdf)

CAD Files

ALN440 (http://www.aal.net/content/products/cad/cad_files/aal_aln_dxf.zip)

Images

ALN440 (http://www.aal.net/content/products/images/aal_aln_img.zip)

ALN440 (http://www.aal.net/content/products/ies/ies_files/ALN%20440.ies)

ALN 440-GR5 150HPS.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-GR5%20150HPS.IES)

ALN 440-H2 100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H2%20100MH.IES)

ALN 440-H2-100PSMH-HSS-R.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H2-100PSMH-HSS-R.IES)

ALN 440-H3 100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H3%20100MH.IES)

ALN 440-H3-70MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H3-70MH.IES)

ALN 440-H4 100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H4%20100MH.IES)

ALN 440-H4-HSS-R-100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H4-HSS-R-100MH.IES)

ALN 440-H5 100MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H5%20100MH.IES)

ALN 440-H5-70MH.IES (http://www.aal.net/content/products/ies/ies_files/ALN%20440-H5-70MH.IES)

ALN440-Y2-32LED-3K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-3K-700.IES)

ALN440-Y2-32LED-3K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-3K-LDL-700.IES)

ALN440-Y2-32LED-3K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-3K-SBL-700.IES)

ALN440-Y2-32LED-4K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-4K-700.IES)

ALN440-Y2-32LED-4K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-4K-LDL-700.IES)

ALN440-Y2-32LED-4K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-4K-SBL-700.IES)

ALN440-Y2-32LED-5K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-5K-700.IES)

ALN440-Y2-32LED-5K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-5K-LDL-700.IES)

ALN440-Y2-32LED-5K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y2-32LED-5K-SBL-700.IES)

ALN440-Y3-32LED-3K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-3K-700.IES)

ALN440-Y3-32LED-3K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-3K-LDL-700.IES)

ALN440-Y3-32LED-3K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-3K-SBL-700.IES)

ALN440-Y3-32LED-4K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-4K-700.IES)

ALN440-Y3-32LED-4K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-4K-LDL-700.IES)

ALN440-Y3-32LED-4K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-4K-SBL-700.IES)

ALN440-Y3-32LED-5K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-5K-700.IES)

ALN440-Y3-32LED-5K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-5K-LDL-700.IES)

ALN440-Y3-32LED-5K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y3-32LED-5K-SBL-700.IES)

ALN440-Y4-32LED-3K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-3K-700.IES)

ALN440-Y4-32LED-3K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-3K-LDL-700.IES)

ALN440-Y4-32LED-3K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-3K-SBL-700.IES)

ALN440-Y4-32LED-4K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-4K-700.IES)

ALN440-Y4-32LED-4K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-4K-LDL-700.IES)

ALN440-Y4-32LED-4K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-4K-SBL-700.IES)

ALN440-Y4-32LED-5K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-5K-700.IES)

ALN440-Y4-32LED-5K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-5K-LDL-700.IES)

ALN440-Y4-32LED-5K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y4-32LED-5K-SBL-700.IES)

ALN440-Y5-32LED-3K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-3K-700.IES)

ALN440-Y5-32LED-3K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-3K-LDL-700.IES)

ALN440-Y5-32LED-3K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-3K-SBL-700.IES)

ALN440-Y5-32LED-4K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-4K-700.IES)

ALN440-Y5-32LED-4K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-4K-LDL-700.IES)

ALN440-Y5-32LED-4K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-4K-SBL-700.IES)

ALN440-Y5-32LED-5K-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-5K-700.IES)

ALN440-Y5-32LED-5K-LDL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-5K-LDL-700.IES)

ALN440-Y5-32LED-5K-SBL-700.IES (http://www.aal.net/content/products/ies/ies_files/ALN440-Y5-32LED-5K-SBL-700.IES)

Color Choices

Colors are for reference only, as monitor configuration may distort and/or change color appearance. Contact a local representative for a color chip.

MTB (http://www.aal.net/content/products/color-picker/aln440/color_mtb.jpg)

VBL (http://www.aal.net/content/products/color-picker/aln440/color_vbl.jpg)

WRZ (http://www.aal.net/content/products/color-picker/aln440/color_wrz.jpg)

LGY (http://www.aal.net/content/products/color-picker/aln440/color_lgy.jpg)

ATG (http://www.aal.net/content/products/color-picker/aln440/color_atg.jpg)

MAL (http://www.aal.net/content/products/color-picker/aln440/color_mal.jpg)

MDG (http://www.aal.net/content/products/color-picker/aln440/color_mdg.jpg)

DGN (http://www.aal.net/content/products/color-picker/aln440/color_dgn.jpg)

CRT (http://www.aal.net/content/products/color-picker/aln440/color_crt.jpg)

AWT (http://www.aal.net/content/products/color-picker/aln440/color_awt.jpg)

DBZ (http://www.aal.net/content/products/color-picker/aln440/color_dbz.jpg)

BRM (http://www.aal.net/content/products/color-picker/aln440/color_brm.jpg)

BLK (http://www.aal.net/content/products/color-picker/aln440/color_blk.jpg)

3D View

99

Drag up and down or side to side to view the model

Image Gallery


(http://www.aal.net/content/products/product-zoom/townecommon/6.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/8.1.jpg)

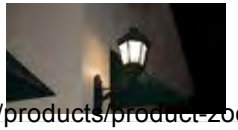

(http://www.aal.net/content/products/product-zoom/townecommon/19.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/23.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/24.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/15.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/12.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/3.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/14.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/21.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/9.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/10.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/20.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/1.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/7.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/2.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/11.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/25.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/16.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/22.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/17.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/5.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/4.1.jpg)


(http://www.aal.net/content/products/product-zoom/townecommon/18.1.jpg)

Hubbell Lighting Brands

Alera Lighting (http://www.aleralighting.com)
Architectural Area Lighting (http://www.aal.net)
Beacon Products (http://www.beaconproducts.com)
Columbia Lighting (http://www.columbialighting.com)
Compass Life Safety (http://www.compasslightingproducts.com)
Devine Lighting (http://www.devine-ltg.com)
Dual-Lite (http://www.dual-lite.com)
Hubbell Building Automation, Inc. (http://www.hubbell-automation.com)
Hubbell Industrial (http://www.hubbellindustrial.com)
Hubbell Outdoor (http://www.hubbelloutdoor.com)
Kim Lighting (http://www.kimlighting.com)
Kurt Versen (http://www.kurtversen.com)
Litecontrol (http://www.litecontrol.com)
Precision-Paragon [P2] (http://www.p-2.com)
Prescolite (http://www.prescolite.com)
Progress Lighting (http://www.progresslighting.com)
Security Lighting (http://www.securitylighting.com)
Spaulding Lighting (http://www.spauldinglighting.com)
Sportsliter Solutions (http://www.sportslighting.com)
Sterner Lighting (http://www.sternerlighting.com)
Whiteway (http://www.whiteway-ltg.com)

JOIN THE CONVERSATION!

(HTTP://WWW.FACEBOOK.COM/ARCHITECTURALAREALIGHTING) (HTTPS://TWITTER.COM/AAL1966) (HTTP://PINTEREST.COM/AAL1966)

… OR START YOUR OWN!

ALN440 – Towne Commons®

TYPE

- Hinged top for easy relamping
- Unitized one-piece lens with a one-piece memory retentive silicone gasket provides a sealed fixture as well as easy lens replacement
- Tool-less access to the ballast module and quick disconnects for easy servicing
- Four distribution patterns
- Powder coat finish in 13 standard colors with a polymer primer sealer

ALN440-H3-CHM

1. LUMINAIRE	2. LAMP/BALLAST	3. COLOR	4. OPTIONS	5. CONTROL	6. MOUNTING

1. LUMINAIRE

ARM OR POST TOP MOUNT

Clear acrylic lens, coated lamp

ALN 440-C

Clear lens, glass refractor

ALN 440-GR3 *(Type 3)* ALN 440-GR5 *(Type 5)*

Clear lens, horizontal cutoff reflector

ALN 440-H2 *(Type 2)* ALN 440-H3 *(Type 3)*

ALN 440-H4 *(Type 4)* ALN 440-H5 *(Type 5)*

TOP MOUNTED ARM OR PENDANT MOUNT

Clear acrylic lens, coated lamp

ALN 440D-C

Clear lens, glass refractor

ALN 440D-GR3 *(Type 3)* ALN 440D-GR5 *(Type 5)*

Clear lens, horizontal cutoff reflector

ALN 440D-H2 *(Type 2)* ALN 440D-H3 *(Type 3)*

ALN 440D-H4 *(Type 4)* ALN 440D-H5 *(Type 5)*

2. LAMP/BALLAST

COMPACT FLUORESCENT *(120 thru 277 volt)*

*GE F57QBX lamp. **Reflector models only***

PL57

*GE F70QBX lamp. **Reflector models only***

PL70

METAL HALIDE *(120/208/240/277)*

Medium base, ED-17 lamp

50MH 70MH 100MH

G12 base, T-6 ceramic lamp

70MHT6

PULSE START METAL HALIDE *(120/208/240/277 volt ballast)*

Medium base, ED-17 lamp

150PSMH

G12 base, T-6 ceramic lamp

150PSMHT6

HIGH PRESSURE SODIUM *(120/208/240/277 volt ballast)*

Medium base, ED-17 lamp

50HPS 70HPS 100HPS 150HPS

All ballasts are factory wired for 277 volts, unless specified. Lamps not included.

3. COLOR

WH	*Arctic White*	VBU	*Verde Blue*
BL	*Black*	CRT	*Corten*
BLT	*Matte Black*	MAL	*Matte Aluminum*
DB	*Dark Bronze*	MG	*Medium Grey*
DGN	*Dark Green*	AGN	*Antique Green*
TT	*Titanium*	LG	*Light Grey*
WDB	*Weathered Bronze*	RAL	*Premium Color*
MDB	*Bronze Metallic*	CUSTOM	** * Contact Factory*

4. OPTIONS

CHM *(Glass chimney with polished brass holder. **Reflector models only**)*

CND *(3-lamp candelabra with polished brass holder, lamps included. **For decorative use only. Reflector models only**)*

LDL *(Lightly diffused lens for fixtures with a refractor or reflector)*

HSS-L *(House side shield for use with glass refractors or clear lens only, consists of three field installed panels attached to the inside of the lens. Installing three panels blocks 180° of the lens. **Not available with PL ballast options**)*

HSS-R *(House side shield for use with horizontal reflectors. Factory installed. Not for Type 5)*

QL *(Socket for T-4 mini-cand lamp, field wired to a separate circuit. QL lamp wattage not to exceed primary lamp wattage. **Reflector models only**)*

QRS *(Restrike controller and T-4 socket for quartz lamp. Configured to light following resumption of power until HID reaches full brightness. Lamp wattage not to exceed ballast wattage.)*

MAT *(Mast arm adapter slips over a 2 3/8"/60mm O.D. pipe and is secured with 4 stainless steel set screws. **For ALN440D only**)*

PMS *(Pendant mount with 48"/1220mm stem and canopy with swivel. **For ALN440D only**)*

PMC *(Pendant kit includes canopy and 48"/1220mm of brass chain painted the fixture color. **For ALN440D only**)*

PT5 *(Post top adaptor for a 5"/127mm O.D. pole)*

347 *(120/277/347 volt for HID ballasts)*

5. CONTROL

SCP (*Programmable motion control, factory default is 50%, requires pole*)

PCA-C *(Rotatable photocell-Contemporary)*

6. MOUNTING

WALL MOUNT

WMA1M	WMA1L	WMA2M	WMA2L
WMA3	WMA35U	WMA36U	WMA7
WMA38	WMA39	WMA4	WMA55
WMA56	WMA57	WMA6	WMA7
WMA8	WMA9D	WMA9U	WMA10
WMA11	WMA12	WMA16	WMA17
WMA18	WMA22D	WMA22U	

POLE MOUNT

TRA1M	TRA1L	TRA2M	TRA2L
TRA3	TRA4	TRA5U	TRA6U
TRA55	TRA56	TRA57	TRA7
TRA7-2	TRA8	TRA8-2	TRA9
TRA9-2			
SLA1	SLA1-2	SLA3	SLA4
SLA4-2	SLA7	SLA7-2	
SLA7(5)	SLA7(5)-2	SLA8U	SLA8D
SLA9	SLA9-2	SLA10	SLA16
SLA16-2	SLA17	SLA17-2	SLA18
SLA18-2	SLA22D	SLA22U	

PENDANT

PM1 PM2 PM3

SPECIFICATIONS

HOUSING

The fixture shall be cast A356 alloy aluminum, free of any porosity or cosmetic fillers. Castings shall be of uniform wall thickness, minimum .188" with no warping or mold shifting.

The top shall hinge open by loosening two captive fasteners. The top shall seal the lamp compartment with a full surround silicone gasket. The lens shall be one-piece clear optical grade acrylic with a one-piece memory retentive silicone gasket on top and bottom. The ballast assembly shall be accessible by turning two spring loading latches, to lift out the ballast module. Quick disconnects shall be used for all electrical connections. All internal and external hardware shall be stainless steel.

OPTICAL MODULE

REFLECTORS: The optical assembly shall be completely sealed with a one-piece memory retentive silicone gasket to prevent dust, insect, or moisture contamination. The reflector module shall consist of segmented, specular and semi specular Alzak® panels precisely formed and positioned within the housing on a carrier plate. Reflector models shall be IES rated as a cutoff luminaire.

REFRACTORS: The GR3 and GR5 shall be precision molded borosilicate glass refractors with a Type 3 or Type 5 distribution. The refractors shall be mounted to a gasketed aluminum holder with an internal pressure plate

See next page

JOB _____

TYPE _____

NOTES _____

ARCHITECTURAL AREA LIGHTING
16555 East Gale Ave. | City of Industry | CA 91745
P 626.968.5666 | F 626.369.2695 | www.aal.net

ALN440 – Towne Commons®

TYPE

ELECTRICAL

Ballasts shall be high power factor rated for -30°C starting. The ballast shall be mounted to a cast holder for maximum heat dissipation. Medium base, porcelain sockets shall be pulse rated. The compact fluorescent shall have an electronic transformer, 120 thru 277 volt. High output fluorescent lamps shall be powered by an electronic ballast and shall be rated for a minimum starting temperature of -10°C. The electrical assembly shall be installed and prewired in the fixture.

RELAMPING

The top of the fixture shall hinge open for relamping by loosening two stainless steel fasteners.

MOUNTING

Post top mounting: The fixture shall slip over a 4"/100mm O.D. pole or tenon and be secured to the pole with three (or six) stainless steel set screws.

Arm or wall mounting: The fixture shall be attached to the cast arm with three stainless steel bolts and a silicone gasket.

FINISH

Fixture finish shall consist of a five stage pretreatment regimen with a polymer primer sealer, oven dry off and top coated with a thermoset super TGIC polyester powder coat finish. The finish shall meet the AAMA 2604-02 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance.

CERTIFICATION

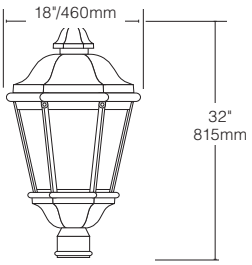
Fixtures shall be listed with ETL for outdoor, wet location use, conforming to the UL 1598 and Canadian CSA 22.2 no. 250 standard.

WARRANTY / TERMS AND CONDITIONS OF SALE

Download:
http://www.hubbelllighting.com/resources/warranty/

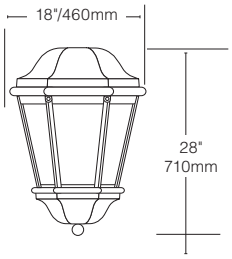
DIMENSIONS

POST TOP
The standard cast fitter slips over a 4"/100mm O.D. pole.
WT: 42 lbs EPA: 2.16



ALN 440

ARM MOUNT
18"/460mm DIA x 28"/710mm
WT: 40 lbs EPA: 2.16

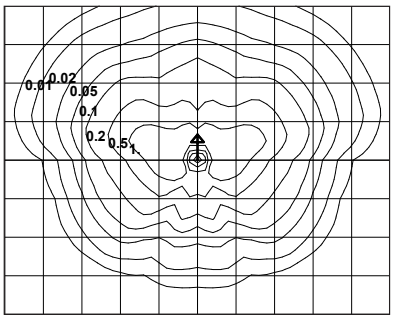


ALN 440D

ALN440 H3 100MH WATTAGE: 129 LUMEN OUTPUT: 5705 EFFICACY: 44.2 Lm/W

B2 U3 G2

FORWARD LIGHT			LUMEN
FL	30°	3.5%	198
FM	60°	30.3%	1727
FH	80°	30.8%	1755
FVH	90°	0.9%	49
BACK LIGHT			
BL	30°	3.0%	174
BM	60°	17.2%	984
BH	80°	9.6%	549
BVH	90°	1.5%	88
UPLIGHT			
UL	100°	1.1%	61
UH	180°	2.1%	121



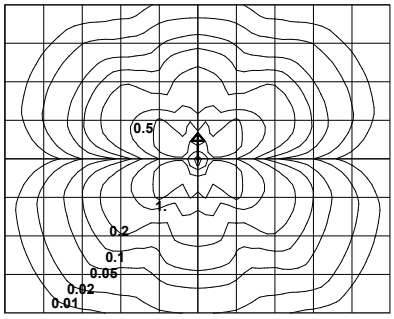
14' MOUNTING HEIGHT

UPLIGHT 2.0%
DOWNLIGHT 59.4%

ALN440 H5 100MH WATTAGE: 129 LUMEN OUTPUT: 5751 EFFICACY: 44.6 Lm/W

B3 U3 G3

FORWARD LIGHT			LUMEN
FL	30°	3.8%	219
FM	60°	23.4%	1349
FH	80°	18.1%	1043
FVH	90°	1.3%	73
BACK LIGHT			
BL	30°	3.7%	211
BM	60°	24.4%	1404
BH	80°	19.7%	1130
BVH	90°	1.5%	85
UPLIGHT			
UL	100°	1.2%	70
UH	180°	2.9%	169



14' MOUNTING HEIGHT

UPLIGHT 2.6%
DOWNLIGHT 59.3%

AAL reserves the right to change product specifications without notice.

IES files can be found at www.aal.net

ARCHITECTURAL AREA LIGHTING
16555 East Gale Ave. | City of Industry | CA 91745
P 626.968.5666 | F 626.369.2695 | www.aal.net

Extract from 'Southern Light - A lighting strategy for the Queenstown Lakes District'

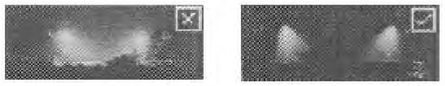
Appendix 2: Good Practice Lighting Guide

Preventing Light Pollution - Three Point Plan

Since urban sky glow (light pollution) arises from a combination of artificial light emitted directly into the sky from light fittings and light reflected up into the sky from buildings and the ground, the BAA Campaign for Dark Skies currently recommends that:

1. Wherever possible lights should be installed in full cut-off or ultra low-profile housings to prevent the emission of light above the horizontal.
2. 'Over-lighting' must be avoided. Using only the correct amount of light for the task, according to accepted standards, will reduce the amount of reflected light contributing to sky glow.
3. Unnecessary night-time lighting, particularly decorative floodlighting, merchandising and advertising lighting and sports floodlighting, should be switched off at 11pm or midnight to reduce the total sky glow in the early morning, pre-dawn hours.

Minimising Light Pollution



All Living things adjust their behaviour according to natural light. Artificial light has done much to safeguard and enhance our night-time environment but, if not properly controlled, obtrusive light can present serious physiological and ecological problems.

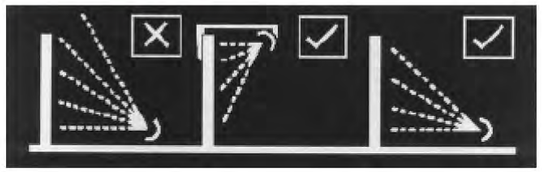
Light pollution, whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution and without too much trouble can be substantially reduced without detriment to the lighting task in both urban and rural areas.

Sky glow is one form of light pollution. Glare is the uncomfortable brightness of a light source when viewed against a dark background, and light trespass; the spilling of light beyond the boundary of the property on which the source is located; are other forms of light pollution. In residential areas street lighting columns should be of a height that is sympathetic to the scale of adjacent buildings but should not, under any circumstance, be higher than the height of such buildings.

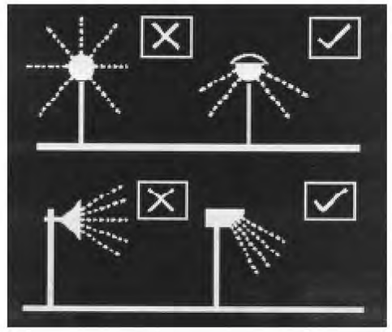
Listed below are some key ways to reduce the problems of unnecessary, obtrusive light:

Switch off lights when not required for safety, security or enhancement of the night-time scene. In this respect one can introduce the concept of a curfew with further limitations on lighting levels between agreed hours e.g. advertising and decorative floodlighting – off between 23.00hrs and dawn.

Direct light downwards wherever possible to illuminate a target, not upwards. If there is no alternative to up-lighting, then the use of shields and baffles will help to reduce spill light to a minimum.

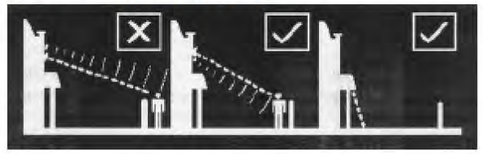


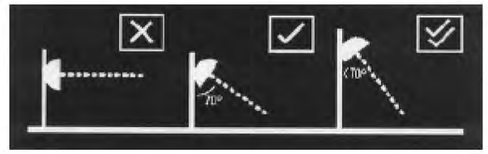
Use specifically designed lighting equipment that once installed minimizes the spread of light near to, or above the horizontal plane.



Do not 'over' light. It is a cause of light pollution and a waste of money.

Keep glare to a minimum, by ensuring that the main beam angle of all lights directed towards any potential observer is kept below 70 deg. It should be noted that the higher the mounting height, the lower the main beam angle. In places with low ambient light, glare can be very obtrusive and extra care should be taken in positioning and aiming.





Only use floodlights with asymmetrical beams that permit the front glazing to be kept at or near parallel to the surface being lit.

For domestic and small-scale lighting, there are two solutions:

1. Passive infrared detectors can be used to good effect, if correctly aligned and installed. A 150W (2000 lumen) tungsten halogen lamp is more than adequate. 300/500W lamps create too much light, more glare and darker shadows.
2. All-night lighting at low brightness is equally acceptable. For a porch light a 9W (600 lumen) compact fluorescent lamp is more than adequate in most locations.

Produced by Queenstown Lakes District Council

Historic buildings




Lighting for the Miner's Cottages should be cohesive yet retain the individual character of each cottage.
Uplights will give a subtle highlight to the stone facade & graze the timber; soft glow under the door canopy & spots behind fences within gardens give a lived in feel.

Artist's impression of lighting for the Miner's Cottages

	Power source?	Proposed Hertige Lighting	No.Units	Unit Cost	Proposed Hertige Lighting	No.Units	Unit Cost	Total lighting unit costs per site	Estimated hours to install	Labour cost/hour	Total labour cost	Estimated material cost	Total cost Estmate	Lighting placement Details
Atheneum Hall	Hall	iGuzzini Miniwoody BU81, IP68, 9W, 300K warm white LED with glare control snoot	2	$ 654.00	Interior window sill light iGuzzini BU16	2	$ 330.00	$ 1,968.00			$ -		$ 1,968.00	Highlight façade shape & name - Athenaeum Hall - from high level. Create the illusion of window lighting with interior window sill edge lights.
Arrowtown Bike Hire	Probably direct from their switchboard	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	2	$ 508.00				$ 1,016.00			$ -		$ 1,016.00	Uplights mounted either side of the door will give subtle highlight to the windows & graze the timber. Each cottage will be lit in the same manner to create a cohesive feel and a point of difference.
Blakley & Wallace	Probably direct from their switchboard	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	2	$ 508.00				$ 1,016.00			$ -		$ 1,016.00	Uplights mounted either side of the door will give subtle highlight to the windows & graze the timber. Each cottage will be lit in the same manner to create a cohesive feel and a point of difference.
Provissions	Probably direct from their switchboard	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	2	$ 508.00				$ 1,016.00			$ -		$ 1,016.00	Uplights mounted either side of the door will give subtle highlight to the windows & graze the timber. Each cottage will be lit in the same manner to create a cohesive feel and a point of difference.
Water Wheel	There is 230v in the CCTV junction box under the ramp.	Lumascape Star LS 375 Black, 6W 2700K LED, 30' adjustable and submersible spot with anti-leach cable and IP68 rating	2	$ 395.00				$ 790.00			$ -		$ 790.00	Highlight water wheel with low level spotlights to create a moment of discovery and viewing positions. Optional colour filters for special events. Control with landscape lighting circuit.
Buckingham Green	From pharmacy?	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	9	508	Traditional street lantern with warm white 2700K LET light source - style TBC with street lighting.			$ 4,572.00			$ -		$ 4,572.00	Add lantern on light pole, to back right corner of Buckingham Green for ambience. Safety and provide a a mounting location for event lighting. Uplight the Stables wall and back schist wall to create interest and soft permimeter of light.
Landscape Buckingham Green	From pharmacy?	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight		$ 508.00				$ -			$ -		$ -	Create interesting backdrop to Buckingham Green and highlight original stone surface by uplighting the Oharmacy wall with white LED concealed in the garden.

Bronze Sculptures	A choice of either street lamp on Buckinham or street light on Ramshaw	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	3	$ 508.00				$ 1,524.00			$ -		$ 1,524.00	Up light broze sculptures with warm white LED to accenuate form and finish. Create focal point at end of street. Control with landscape lighting circuit.
The Pharmacy Lane	From pharmacy?	iGuzzini Miniwoody B5911, IP68, 3.7W, 2700K warm white LED with glare control snoot	5	$ 654.00				$ 3,270.00			$ -		$ 3,270.00	Create atmosphere and ambiance by highlighting the stone feature wall within the Coutyard and way finding to Doroth Browns. Keep glare to a minimum and revel the original stone detail by washing wall from a high level. Provide contrast to uplight effect on opposing wall in Buckingham Green.
Marry Cotter Heritage tree	From Library?	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	1	$ 510.00				$ 510.00			$ -		$ 510.00	Highlight feature trees with subtle uplight to underside of leaves and branches with optioal colour filters for special events. Control with the landscape lighting circuit.
Heritage tree by Hall	From Hall	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	1	$ 510.00				$ 510.00			$ -		$ 510.00	Highlight feature trees with subtle uplight to underside of leaves and branches with optioal colour filters for special events. Control with the landscape lighting circuit.
Heritage tree by Hall	From Hall	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	1	$ 510.00				$ 510.00			$ -		$ 510.00	Highlight feature trees with subtle uplight to underside of leaves and branches with optioal colour filters for special events. Control with the landscape lighting circuit.
Heritage tree PostMasters	From street light in plot	Lumascape LS793 stainless steel, 6W 2700K LED, 40' uplight	1	$ 510.00				$ 510.00			$ -		$ 510.00	Highlight feature trees with subtle uplight to underside of leaves and branches with optioal colour filters for special events. Control with the landscape lighting circuit.
4 Street lights by cottages								$20,000.00	5		$ 65.00		$ 20,065.00	
New street light by Library								$ 6,000.00	10		$ 65.00	$ 1,000.00	$ 7,065.00	

Harrington cost estimate													$ 40,000.00
Totals								$17,212.00	0				**$ 84,342.00**

Arrowtown Lighting Design & Masterplan

Stage One - Concept Design

Toulouse Group
Lighting & Technology Designers
www.toulouse.co.nz

ARROWTOWN
Where History Meets Nature

Contents

Artist's impression of new lighting design

The Nightscape of Arrowtown

The Lighting Masterplan for Arrowtown is intended to create a unique and emotive nightscape that encourages visitors to explore the town during the evening and to visit the restaurants, cinema, shops and bars. From a visitor's perspective we want to create special moments of discovery as they wander through Buckingham Street, with features subtly illuminated and an overall ambient level of light that allows visitors to feel safe yet recognise they are in a special environment.

The intention of the lighting design is to create a memorable backdrop for visitors both on the street and from various viewpoints around the town as they dine in the restaurants and bars. We want to add value to the night-time experience of Arrowtown to encourage return visits and positive feedback. There are many opportunities for outdoor evening events such as; concerts, festivals and night markets that are possible by providing electrical infrastructure for event lighting at specific locations.

The Lighting Masterplan is broken down into the following concepts that form a complete lighting solution that should be delivered cohesively.

Street lighting - Creating a historical ambience and a feeling of safety to wander freely at night throughout Buckingham Street and surrounds - the street lighting will meet the local QLDC lighting standards yet retain an olde world character with warm white light sources and low glare luminaires.

Key features - Accenting selected historic buildings and architectural features that will create a subtle backdrop that can be viewed from both the street and inside cafes and restaurants. Highlighting certain features and heritage buildings throughout the street will encourage people to explore further rather than a blanket approach to lighting every building, which may feel like a film set and too gimmicky.

Landscape lighting - Highlighting selected trees and natural features will add another layer of creative and ambient lighting to the nightscape. Subtle warm white light sources will capture the beauty of the natural elements without causing glare and unwanted light pollution.

Recommendations for the existing lighting - Provide a register of current lighting on the buildings in Buckingham Street and suggest improvements to become more cohesive with the new lighting design. Develop a strategy for future lighting additions by building owners to ensure the character of Arrowtown is not lost with modern light fittings and a mishmash of colour temperatures.

Event lighting - Suggestions on electrical infrastructure for temporary event lighting to give greater flexibility for locations and types of events to be held at night.

The following pages will explain these ideas in more detail and how we may achieve the overall desired lighting concept.

This is a document for discussion and presents our first response to the Arrowtown Lighting Masterplan.

Current view of Buckingham Street at dusk

Artist's impression of new lighting design

Lighting location plan Buckingham Street

Toulouse
Architectural Lighting
Tel: (04) 977 1078
Fx: (04) 977 1079
www.toulouse.co.nz
Sarah@toulouse.co.nz
P.O. Box 24012
Manners St. Wellington

PROJECT TITLE

ARROWTOWN CBD

KEY:

- HISTORIC BUILDING FACADES
- EVENT POWER LIGHTING FEED
- LANDSACPE FEATURES
- STREET LIGHTS

NOTE: Street lighting shown is existing only, actual quantities will be rationalised post lighting calculations.

Lighting location plan Miner's Cottages

Toulouse
Architectural Lighting

Tel: (04) 977 1078
Fx: (04) 977 1079
www.toulouse.co.nz
Sarah@toulouse.co.nz
P.O. Box 24012
Manners St. Wellington

PROJECT TITLE

ARROWTOWN CBD

KEY:

- HISTORIC BUILDING FACADES
- EVENT POWER LIGHTING FEED
- LANDSCAPE FEATURES
- STREET LIGHTS

NOTE: Street lighting shown is existing only, actual quantities will be rationalised post lighting calculations.

Street lighting

The concept for the street lighting poles for Buckingham Street is to ensure a feeling of safety to wander freely at night and to create a historical ambience with the appropriate colour temperatures and lantern styles. Consultation with QLDC will determine the exact light level we will need to adhere to at street level for safe transition for cars and pedestrians.

There are several ways to approach the street lighting - i) Refurbish the original lanterns (as seen outside the Bank) with modern light sources, new reflectors and lenses; ii) Replace with new lanterns in a heritage style or iii) Refit the current lanterns with a new light source, reflectors and gear assemblies. There are pros and cons to each scenario as outlined below and in the draft budget.

i. Refurbishment of the original street lantern

The refurbishment of the original street lanterns with a modern light source would serve to recreate the original historical ambience with LED technology ensuring low energy consumption. A new reflector housed in the top of the lantern designed to reflect the light downwards to the street would ensure there is no wasted uplight and therefore no light pollution to the night sky. A very warm white LED light source would be reminiscent of traditional light sources like candle light or another option would be an amber 'kerosene' colour temperature that could be created from a mixture of LED coloured chips.

In order to test the light output and to ensure council lighting standards are met, a prototype lantern would need to be built. This process would also allow us to assess the best colour temperature and determine the location of the control gear. Prototyping and testing could be done within the Toulouse workshop in Wellington.

ii. New traditional style street lantern

Procurement of a new lantern in a traditional style would be a simple solution and allow for easy lighting calculations to be carried without the need for a prototype. Supplier warranties would ensure any faults or problems with the fittings are easily rectified however, compatibility with exiting light poles would need to be established.

Many styles are available in traditional street lighting fixtures and we would suggest a robust fitting that has glare control and a downward light output. Finishes and components would be new and LED modules will have been tested by the manufacturer to international standards.

iii. Refurbishment of the current street lantern

This option would require the existing lanterns to be individually audited to assess their current condition and parts that would need to be replaced or refurbished. Current light levels will need to be recorded to establish whether further testing will be required and more light poles added. Light sources in the existing lanterns would need to be replaced with new sources that are consistent throughout the street.

Lighting calculations will need to be carried out to ascertain the number of lanterns and locations in Buckingham Street required to meet the QLDC lighting standards for street lighting regardless of the preferred option. This has been allowed for in the next phase of the Detailed Design.

Example of original lantern

Example of traditional street lanterns refurbished with LED light source.

Examples of new lantern styles

Historic buildings

We have chosen to accentuate the historic buildings with interesting facades and architectural features that we feel will respond well to being illuminated and create a subtle backdrop. These selected buildings are on both sides of the street and offer glimpses when approaching from either end of Buckingham Street. Highlighting certain heritage buildings sets them apart from the newer buildings on the street and offers a point of difference.

The lighting register provides detailed information however below is a list of the buildings we have selected. Note - some of these may just be a case of changing the current light fittings or sources whilst others will be additional facade lighting. Some heritage buildings like the Bank & Postmasters we feel don't require any changes.

Ray White
The Pharmacy - front facade and both sides including Buckingham Green (see landscape section)
Gibbston Valley
Jade & Opal Factory
Outlet Store
High Country Merino
Te Huia
The Wool Press
The Post Office
Arrow Lodge
Miners Cottages
Athenaeum Hall
Gold Nugget
Coachman's Hall
New Orleans Hotel

Initially the lighting for the historic buildings should be assessed. Existing light fittings that are suitable in terms of traditional style and that are found to be in good condition should be retrofitted with the appropriate light source and colour temperature as discussed further in the 'Recommendations' section.

New lighting to highlight the architecture - this is intended to be discreet and - where possible - concealed from view. Light fittings that are inappropriate for the heritage style of the building or are in disrepair should be replaced with fittings that are defined by a predetermined set of criteria. It is our intention that these heritage buildings become the jewels in the crown and are distinguished by retaining their original character.

Historic buildings

Highlight top tier of schist, assess current wall lights and signage

Highlight above canopy to original facade, create glow under canopy

Assess current wall lights & highlight brick & stone features within Courtyard

Uplights to stone wall on Pharmacy to create subtle backdrop for Buckingham Green

Highlight Gibbston Valley sign above canopy, change under canopy lights on both Jade & Opal & Gibbston Valley.

Traditional lantern on green Gibbston Valley building over door.

Retain lanterns on Te Huia, assess lantern & under canopy lighting on High Country

Highlight The Wool Press sign, new lighting under canopy

Historic buildings

Lighting to 'The Gold Nugget' sign, lighting under canopy

Change light to traditional lantern, Interior - change fluorescent battens

Highlight facade shape & name Athenaeum Hall

Highlight facade shape & sign assess lighting under canopy

Highlight Post Office sign, add traditional wall lights & glow under canopy

Uplights to facade, assess current lighting on entry steps

Historic buildings

Artist's impression of lighting for the Miner's Cottages

Lighting for the Miner's Cottages should be cohesive yet retain the individual character of each cottage.
Uplights will give a subtle highlight to the stone facade & graze the timber; soft glow under the door canopy & spots behind fences within gardens give a lived in feel.

Landscape & features

The landscape lighting includes the highlighting of selected trees, Buckingham Green, the bronze sculptures and the water wheel. We feel this will add another layer of creative lighting to the nightscape and pick up some interesting features as visitors explore the town.

Subtle glare-free light sources will capture the beauty of the feature trees by simply highlighting the textures of the bark and foliage. There is the option to add colour to these for events like Christmas, Easter or dates of significance with the use of coloured light sources or filters. The control technology for this can be applied as a site wide solution if budget allows or it could be achievable by manually changing filters or light sources.

The lighting for Buckingham Green is intended to work cohesively with the surrounding building facades of the Pharmacy and the Stables, together with the ambient light generated from the garden courtyard of Gibbston Valley. Subtle highlighting of the Pharmacy and rear Stables walls, will create an interesting cohesive light effect that accentuates the surface of the bricks. An additional light pole at the rear of Buckingham Green will provide a higher level of light and give a feeling of safety in an otherwise darkened corner. The light pole will also provide an opportunity for event lighting or other decorative features like flags and banners to be fixed to it.

The bronze sculptures at the end of Buckingham Street are an interesting new sculpture and will respond well to being illuminated. The solid shapes and bronze finish will reflect a warm light and create interesting shadows therefore creating a focal point at the end of the street. It seems a waste to leave them in darkness when a simple solution will provide added value at night to this art piece that is uniquely Arrowtown.

The water wheel outside the museum is a historic feature that we intend to be a 'moment of discovery' at night. Again a simple lighting solution will pick up the surface, shapes and texture of the water wheel giving a dramatic effect.

Highlight feature trees

Graze light over Water Wheel

Highlight the Stables wall

Add light pole and highlight Pharmacy stone wall

Uplight bronze sculptures

Event lighting infrastructure

To ensure there are plenty of opportunities for event lighting infrastructure, we have made notes of suggested locations for power feeds on the plans. This will give plenty of options for temporary event lighting to be set up at various locations around Buckingham Street where night-time events may take place.

With a new lighting design we hope there will be increased evening visitors which may open the door to more night time events taking place like music events, outdoor dinners, a night market or even a lantern festival. It is therefore important that we future proof the electrical infrastructure now so these types of events can be seamlessly integrated into the APBA event planning.

As Lighting Designers we work on a number of outdoor events including the annual Festival of Light in Pukekura Park in New Plymouth. The park is transformed over the December January months with creative lighting installations and special features throughout the park for visitors to enjoy. The festival attracts over 100,000 local and international visitors and has been a huge success for the council winning several awards including the New Zealand Recreation Association award for *Outstanding Event* and the New Zealand Association of Event Professionals award for *Best Established Community Event*.

This type of event could be run annually in Arrowtown on a smaller scale to increase tourist visitor numbers and for locals to revisit. To provide for this option in the future we would recommend increasing the amount of electrical power feeds around the town for event lighting to draw from.

Examples of the New Plymouth Festival of Light in Pukekura Park.

Recommendations for existing lighting

There are many different types of light fittings installed around Buckingham Street - some are traditional in style, some are broken or in disrepair. There are also commercial style bulkheads and fluorescent battens that look out of place. There are a number of contemporary light fittings that appear to be recently installed for example the bollards in Post Office Lane. The first step in creating some consistency is to assess what is currently installed and how it may be improved then develop a strategy for the installation of new and replacement lighting in the future. A set of criteria should be established to ensure the integrity of the Lighting Masterplan is maintained and a way forward for future lighting to be installed.

The QLDC document 'Southern Light - A lighting strategy for Queenstown Lakes District' lists a set of criteria to be applied to the lighting in Arrowtown - much of which we concur with - for example: controlling glare and light pollution, not over-lighting, consistent colour temperature and avoiding a 'Disneyland lighting effect' in Arrowtown. Controlling glare and light pollution to the night sky can be defined in terms of light fitting style and placement.

The following is a summary of the points outlined in the QLDC lighting strategy:

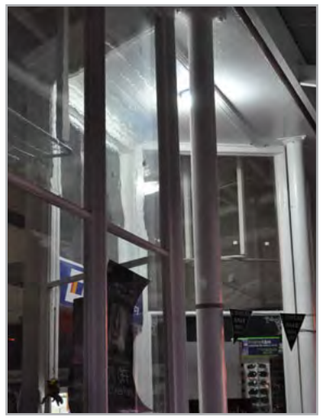
- Direct light downwards where possible and control upward light with glare shields and baffles
- Over lighting must be avoided - use the correct amount of light for the task and accepted standards
- Unnecessary night-time lighting such as decorative floodlighting, merchandising lighting & signage should be switched off at 11pm
- Keep glare to a minimum

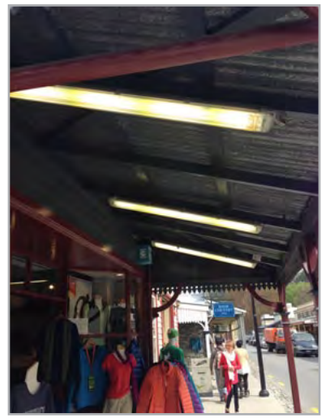
* Refer to the diagrams shown in the appendix

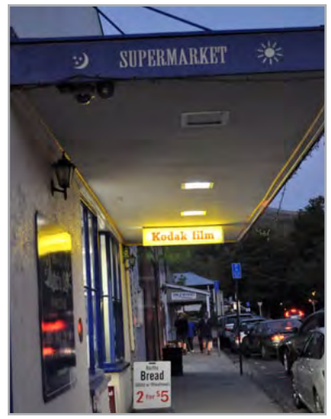
In the 'Arrowtown Design Guidelines - June 2006' document - it is suggested, "Exterior lights should be simple and include lamp styles appropriate to an early rural mining town." This would require the removal of a substantial amount of light fittings - some of which are new - and investment by building owners to replace them. As is the case with many District Councils in New Zealand, a 'suite' of light fittings - that meet a set of predetermined criteria - are assessed and approved for use within exterior installations. This would be a way of controlling light fittings that are installed in the future. A set of criteria and specific light fitting styles would be established and specified so that future lighting installed by building and business owners is in keeping with the overall vision for Arrowtown.

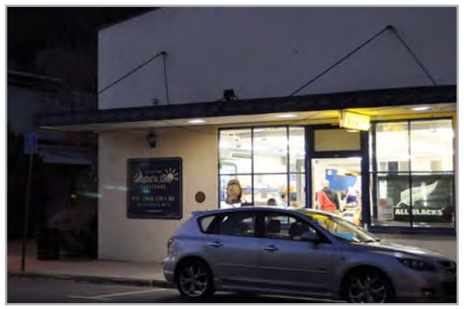
It is important to achieve consistency with the overall look and feel with particular attention to light sources and colour temperature with the latter preferably being a warm white 2700 -3050K - the colour of incandescent light. Warm white light creates an ambient effect that enhances the surfaces it illuminates and is in keeping with the original historic light sources. Cool white 4000K to 6500K is not appropriate for the overall look and feel we are aiming to achieve and is more suited to contemporary commercial architecture. Energy efficient LED and fluorescent light sources within the 2700K - 3050K range should be reto-fitted into existing fittings to create a warm light effect and also reduce energy and maintenance costs.

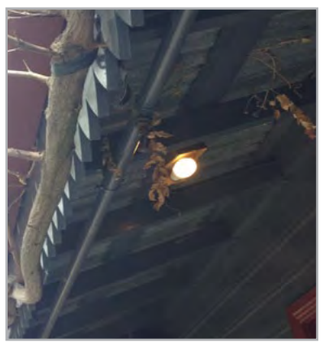
Lighting on other existing buildings should be individually assessed for existing colour temperature, style of light fitting and its light dispersion as well as the overall condition of the light fitting. Relamping of acceptable light fittings could be rolled out as a 'blanket approach ' replacing them all at once or it could be done as failures occur. We would recommend the 'blanket approach' to achieve instant impact and begin a scheduled and recorded maintenance program.











Examples of existing lighting that can be improved with consistent colour temperature or replacement with new luminaires.

Lighting regsiter

Building	Current lighting	Suggested initial lighting improvement. *Note - all light fittings to be assessed for status of current condition
Arrowtown Bakery & Cafe	Fluorescent bulkheads	Ensure colour temperature of light source is 2500- 3000K
Mondo	Fluorescent bulkheads and PAR38 spotlights x 2	Ensure colour temperature of fluorescents is 2700K. Remove halogen flood uplights from roof - appear to be pointing straight up. Replace PAR38 halogen with 2700K LED.
Cavit & Co	PAR38 spotlights x 4	Replace PAR38 halogen with 2700K LED.
Steps to Dorothy Browns	Wall light x 2, downlight x 2, bulkhead x 1	Ensure colour temperature of light source is 2700K. Replace halogen with 2700K LED.
Rear of Ray White to Arrow Lane	Ceiling buttons	Ensure colour temperature of light source is 2500- 3000K
Ray White	Spots to signage x 4, spots in window x 4, high level spot on left hand side x 1	Part of concept design
Saffron	Inground uplight x 2, canopy spotlights PAR38 x 2, sculpture spotlights PAR38 x 2	Part of concept design
The Pharmacy	Side wall x 3 halo spots, 2 halo spots blue door, bulkhead x 1 at front.	Part of concept design
Pesto Bar	Free standing lanterns, 2 x PAR38 spotlights	Part of concept design
Stairs to Cinema	1 x bulkhead	Ensure colour temperature of light source is 2500- 3000K
Buckingham Green	Street lantern x 1, small lantern x 1	Part of concept design
The Shed	Fluorescent bulkheads x3	Ensure colour temperature of light source is 2500- 3000K
Stables	Flood to rear wall, lantern x 2, entrance ball x 1, copper lights x 2, signage lights x 2	To be addressed in concept plan
Gibbston Valley	Floodlight x 3, mini lantern x 4	Part of concept design
Jade & Opal Factory	Fluorescent battens x2	Part of concept design
Outlet Store	Lantern x 1, downlight x 6	Part of concept design
High Country Merino	Lantern x 1, bulkhead x 1	Part of concept design
Te Huia	Exterior wall mount lantern x 3, halogen downlight x 2	Part of concept design
The Wool Press	Fluorescent battens x 3, signage light x 1, side wall light x 1, street lantern x 1, fluorescent x 1	Part of concept design
The Courtyard	Par 38 x 3, bulkhead x1	Ensure colour temperature of fluorescents is 2700K. Replace PAR38 halogen with 2700K LED.
Chop Shop	Bulkhead x 2, bulkhead x 1	Ensure colour temperature of light source is 2500- 3000K
The Old Smithy	Wall light lantern x 1, bulkhead x 1	Ensure colour temperature of light source is 2500- 3000K
Cruikshank	Downlight x 2	Replace halogen with 2700K LED.
Ogle	Downlight x 2	Replace halogen with 2700K LED.
Oak Lane	Mini LED x 4, catenary fairy lights, bollards	Retain catenary fairy lights, check colour temperature of bollards and LED is 2500 - 3000K
Sotheby's, Lots for Tots	Bulkhead x 3, downlights x 3	Ensure colour temperature of light source is 2700K. Replace halogen with 2700K LED.
Stairs to Arrow Lane	Wall lights x 6, bulkhead x 2	Ensure colour temperature of light source is 2500- 3000K
Gypsies	Bulkhead x 3	Ensure colour temperature of light source is 2500- 3000K
Bettys Liquor	Downlight x 2	Replace halogen with 2700K LED.
Wallace & Gibbs	Downlight x 3	Replace halogen with 2700K LED.
Ikon	Downlight x 2	Replace halogen with 2700K LED.
Post Office Lane	Bollard x 4, copper wall lights x 2	Ensure colour temperature of light source is 2700K. Replace halogen with 2700K LED.

Building	Current lighting	Suggested initial lighting improvement. *Note - all light fittings to be assessed for status of current condition
Post Office	Bulkheads x 3	Part of concept design
Post Masters	Bollards and fairy lights	Ensure colour temperature of light source is 2500- 3000K
Back Country	Par 38 x 2	Replace PAR38 halogen with 2700K LED.
Stitching Post	Wall light above door	Assess fittings
New Orleans Hotel	4 x halogen floods, 2 x downlight	Part of concept design
The Remarkable Sweet Shop	no ltg	Discuss with owner
The Gold Shop	2 x wall light	Assess fittings
Athenaeum Hall	1 x lantern 2 x bulkhead at entrance	Part of concept design
Athenaeum Hall Lane	Street lantern x 1, small lantern x 1	Part of concept design
Supermarket	Wall light x 2, downlight x 4	Replace fittings and colour temperature
Coachman's Hall	no ltg	Part of concept design
Ray White	no ltg	Discuss with owner
Gold Nugget	no ltg	Part of concept design
Museum	Double flood to façade, entrance light, 3 x bulkhead	Assess fittings
Bank	Lantern x 2, inground x 2	Check colour temperatures and lanterns TBC
Miners Cottages	no ltg	To be addressed in concept plan
Library	Fluorescent bulkheads x 4	Ensure colour temperature of light source is 2500- 3000K
Arrow Lodge	Wall light over the door, 4 x tread lights	Part of concept design
Bronze sculptures	no ltg	Part of concept design
Heritage trees	no ltg	Part of concept design
Water wheel	no ltg	Part of concept design

The Lighting Register was completed in October 2014 and details may have changed since. All light fittings should be assessed to ascertain their current condition and suitability. Read in conjunction with the Lighting Recommendations for existing fittings.

The Lighting Register can be provided in Excel format for updating and used to form the Maintenance Schedule.

Extract from 'Southern Light - A lighting strategy for the Queenstown Lakes District'

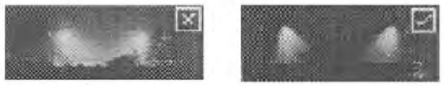
Appendix 2: Good Practice Lighting Guide

Preventing Light Pollution - Three Point Plan

Since urban sky glow (light pollution) arises from a combination of artificial light emitted directly into the sky from light fittings and light reflected up into the sky from buildings and the ground, the BAA Campaign for Dark Skies currently recommends that:

1. Wherever possible lights should be installed in full cut-off or ultra low-profile housings to prevent the emission of light above the horizontal.
2. 'Over-lighting' must be avoided. Using only the correct amount of light for the task, according to accepted standards, will reduce the amount of reflected light contributing to sky glow.
3. Unneoessary night-time lighting, particularly decorative floodlighting, merchandising and advertising lighting and sports floodlighting, should be switched off at 11pm or midnight to reduce the total sky glow in the early morning, pre-dawn hours.

Minimising Light Pollution



All Living things adjust their behaviour according to natural light. Artificial light has done much to safeguard and enhance our night-time environment but, if not properly controlled, obtrusive light can present serious physiological and ecological problems.

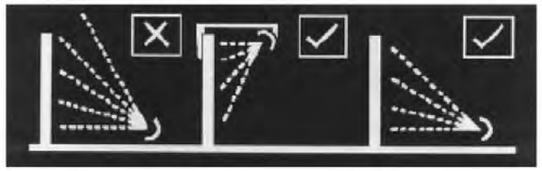
Light pollution, whether it keeps you awake through a bedroom window or impedes your view of the night sky, is a form of pollution and without too much trouble can be substantially reduced without detriment to the lighting task in both urban and rural areas.

Sky glow is one form of light pollution. Glare is the uncomfortable brightness of a light source when viewed against a dark background, and light trespass; the spilling of light beyond the boundary of the property on which the source is located; are other forms of light pollution. In residential areas street lighting columns should be of a height that is sympathetic to the scale of adjacent buildings but should not, under any circumstance, be higher than the height of such buildings.

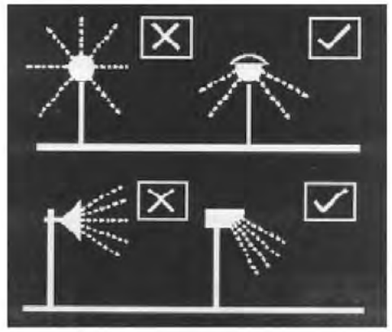
Listed below are some key ways to reduce the problems of unnecessary, obtrusive light:

Switch off lights when not required for safety, security or enhancement of the night-time scene. In this respect one can introduce the concept of a curfew with further limitations on lighting levels between agreed hours e.g. advertising and decorative floodlighting – off between 23.00hrs and dawn.

Direct light downwards wherever possible to illuminate a target, not upwards. If there is no alternative to up-lighting, then the use of shields and baffles will help to reduce spill light to a minimum.

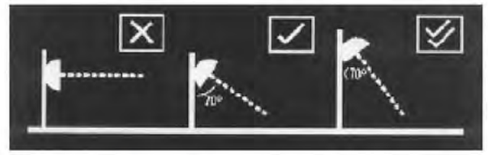


Use specifically designed lighting equipment that once installed minimizes the spread of light near to, or above the horizontal plane.



Do not 'over' light. It is a cause of light pollution and a waste of money.

Keep glare to a minimum, by ensuring that the main beam angle of all lights directed towards any potential observer is kept below 70 deg. It should be noted that the higher the mounting height, the lower the main beam angle. In places with low ambient light, glare can be very obtrusive and extra care should be taken in positioning and aiming.



Only use floodlights with asymmetrical beams that permit the front glazing to be kept at or near parallel to the surface being lit.

For domestic and small-scale lighting, there are two solutions:

1. Passive infrared detectors can be used to good effect, if correctly aligned and installed. A 150W (2000 lumen) tungsten halogen lamp is more than adequate. 300/500W lamps create too much light, more glare and darker shadows.
2. All-night lighting at low brightness is equally acceptable. For a porch light a 9W (600 lumen) compact fluorescent lamp is more than adequate in most locations.

Produced by Queenstown Lakes District Council

Lighting control options

Control of the various components of the Lighting Design will need to be defined to establish when the lights are turned on and how long they will be left running. The street lighting should come on with the rest of the street lighting for the district which would be either by time clock or light sensor and remain on until dawn.

Landscape feature lighting could be activated by a light sensor around dusk and then switched off at a certain time each night - for example between 11pm - 12pm. There will be few people around on the street after this to appreciate it - therefore switching them off will save energy and extend the life of the lamps and fittings.

Lighting to the historic buildings would be a little more complicated as each building owner would need to install a time clock to operate the lights in order for them all to cohesively turn and off at the same time. Discussion with building owners will be required as they may have lights they want to leave on all night for security or window displays.

Lighting control can be fully rationalised during the next phase of the Detailed Design for the project. Light sources and ballasts will need to be compatible with any control system in place. There is also the option of fully automated lighting control systems however this would require a healthy financial budget to achieve.

Maintaining the integrity of the design

The Lighting Design and subsequent light fittings will be an investment and an asset to Arrowtown and will need to be maintained and monitored to ensure the integrity of the design is not compromised. Once the Lighting Masterplan as been realised, it will be critical to plan and allow a budget for maintenance and to ensure lamp sources are replaced in the correct colour temperature and fittings are assessed for signs of wear and tear.

Scheduled relamping of light sources in the correct colour temperature should be done in accordance with a Relamping Schedule showing the specific light source type, colour temperature, base and style. Assessment of the light fitting for signs of wear and tear on the cabling or fitting itself should happen during the relamping process and noted on the schedule for quick reference.

Relamping and maintenance schedules will be provided by Toulouse once light fittings have been specified and installed. Service Level Agreements may be found with local or remote contractors or alternatively a qualified electrician could handle this in house. Stocks of lamps (as noted on the relamping schedule) should be held with either a local electrical wholesaler or a specific service electrical company. Random lamp changing is the death of the design in years to come as a mishmash of light sources and colours will change the whole effect.

Preliminary luminaire budget

Location	Light fitting	PC Sum allowed
Street Lighting - exact quantity of street lights required to confirm with lighting calculations and approval from QLDC		
Scenario I - refurbish original lanterns	Approximate cost to purchase parts, build and test prototype $3500	
Scenario ii - new traditional style lanterns	Approximate cost of complete new lantern @ 20 units	$60,000
Scenario iii - refurbish current lanterns	Approximate cost dependent on assessment of current lanterns	
	Sub total PC sum	**$60,000**
	**Note this is based on Scenario ii **	
Historic buildings - PC Sum allowed for each building, to be confirmed in Detailed Design phase		
Ray White	Highlight top tier of schist, assess current wall lights and signage	$2,000
The Pharmacy & entrance to Dorothy Browns	Highlight above canopy to original front facade, create glow under canopy. Lane to Dorothy Browns - assess current wall lights & highlight brick & stone features within Courtyard. Wall on Buckingham Green - uplights to stone wall on Pharmacy to create subtle backdrop for Buckingham Green	$5,000
Gibbston Valley	Highlight Gibbston Valley sign above canopy, change under canopy lights, new lantern	$2,000
Jade & Opal Factory	Change under canopy lights	$1,500
Outlet Store	Assess existing lights for replacement	$1,500
High Country Merino	Assess existing lantern and replace bulkhead	$1,500
Te Huia	Change light source in lanterns	$200
The Wool Press	Replace existing lighting	$1,500
Post Office	Replace existing lighting	$3,000
Arrow Lodge	Assess wall light over the door, 4 x tread light - repair or replace	$2,500
New Orleans Hotel	Change lighting to signage and assess under canopy lights	$2,000
Athenium Hall	Highlight facade shape & name Athenium Hall	$2,500
Coachman's Hall	Change light to traditional lantern, change interior fluorescent battens	$2,000
Gold Nugget	Highlight sign and light under canopy	$2,000
Miners Cottages	Highlight facades of each	$5,000
	Sub total PC sum	**$34,200**
Landscape and features		
Buckingham Green	Pole light to corner	$2,500
	Inground recessed to pharmacy wall	$1,000
	Inground recessed to stables wall	$500
Bronze sculptures	Inground recessed to sculptures	$1,500
Heritage trees	Inground recessed to trees	$1,500
Water wheel	Exterior spotlights to water wheel	$1,000
	Sub total PC sum	**$8,000**

This preliminary luminaire budget is based on PC sums only. Actual luminaire and electrical installation costings will be rationalised in the Detailed Design phase once the lighting concepts have been confirmed.

Street Lighting costs shown are based on the supply of new lanterns. Refurbishment costs for the original lanterns will be dependent on the outcome of the prototype. Light levels and the quantity of the street lanterns will need to be calculated to ensure the QLDC lighting standards are met. This applies to all lantern options.

Once the concept details are finalised then electrical installation costs can be submitted from various electricians either by tender or invitation.

All luminiare costs are estimated in NZ dollars, and are excluding freight and GST.

ARROWTOWN
Where History Meets Nature

Scott Julian,
Arrowtown Promotion and Business Assn
c/- 49 Buckingham Street
Arrowtown

21 April 2016

Gary Mullings
Arrowtown Charitable Trust Chairman
PO Box 2002
Wakatipu 9349
Queenstown

Dear Gary

The Arrowtown Promotion and Business Assn wishes to endorse your Annual Plan presentation to council for funding assistance for upgrading street lighting in both the main historic blocks of Buckingham Street.

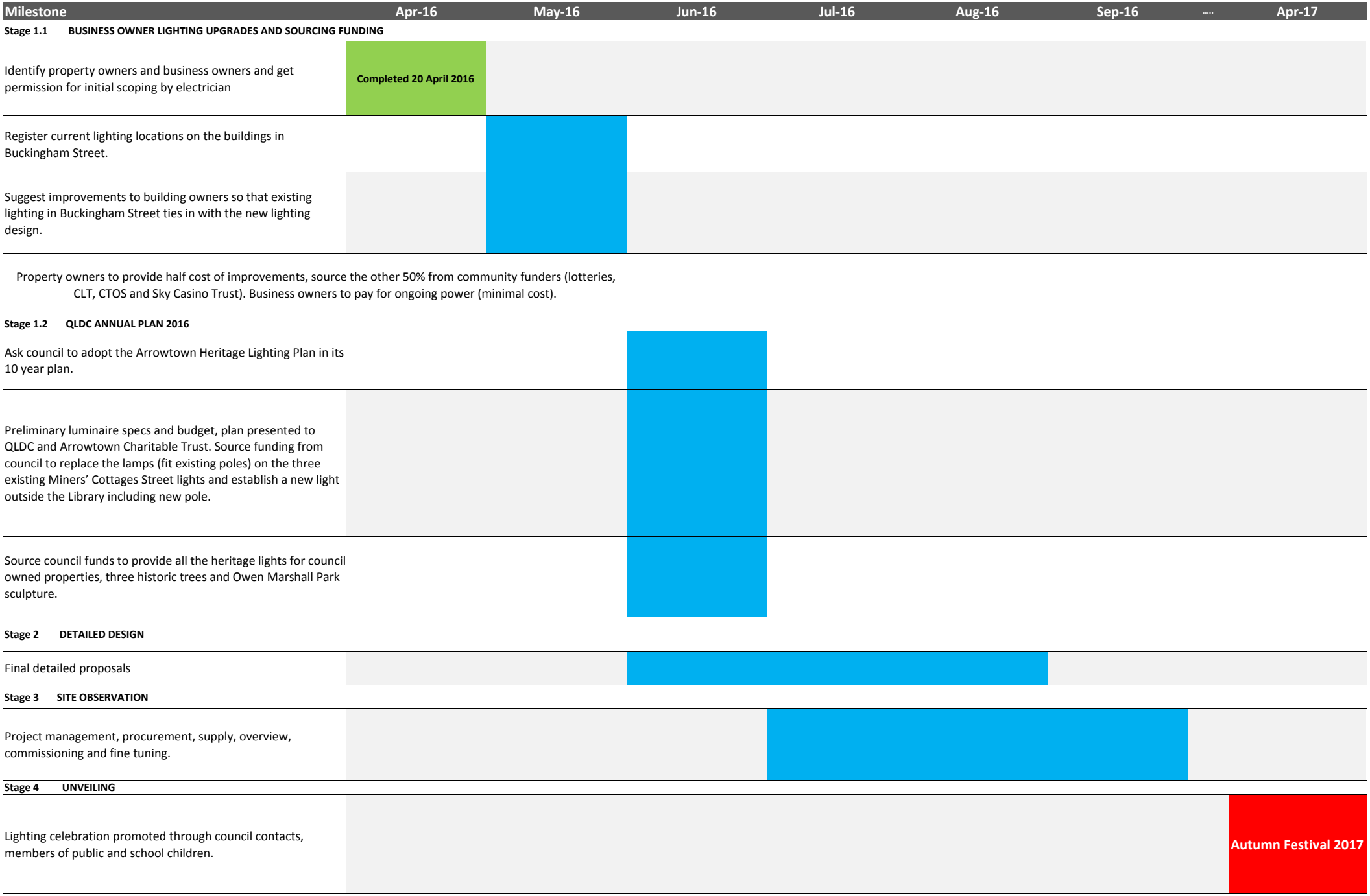
We have serious concerns for the safety of pedestrians due to a lack of lighting in patches in the first block (main business area), and for a significant part of the second block (Miners' Cottages and Library).

With the increase of visitors to Arrowtown in the evening to enjoy the restaurants and cinema, it is essential that we provide adequate lighting, particularly along much of the street where the footpath is uneven leading on to the road.

We endorse the use of energy efficient light sources to save on QLDC power use.

Yours sincerely
Scott Julian (unsigned, sent electronically)
Chairman
www.arrowtown.com

Arrowtown Heritage Lighting Action Plan 2016/2017



TOIMATA FOUNDATION
PRICE, KRISTEN

TRAFFIC ISSUES

COUNCIL ONE-STOP SHOP

RATES, FEES & CHARGES

UNDERGROUNDING POWERLINES

LAGAROSIPHON

FURTHER COMMENTS

Please see attached document for details

Submission to Draft Annual Term Plan Queenstown Lakes District Council 2016/17

Name: Toimata Foundation **Contact person:** Kristen Price, Operations Manager

Postal Address: PO Box 4445, Hamilton, 3247 **Physical Address:** Lockwood House, 293 Grey Street, Hamilton

Phone: 07 959 7321 **Email:** kristen.price@toimata.org.nz We do NOT wish to speak to this submission

Recognising your support for the Enviroschools Programme

We would like to acknowledge Queenstown Lakes District Council (QLDC) for supporting young people in your district to be part of the Enviroschools network since 2007.

The Enviroschools Programme is a nationwide action-based education programme where young people plan, design and implement sustainability projects and become catalysts for change in their communities. Enviroschools was originally developed in the late 1990's by councils in Waikato as a non-regulatory tool and has now been adopted by 58 councils, including most of the larger councils and 74% of the total sector.

The programme is managed nationally by Toimata Foundation (a charitable trust). Toimata Foundation has funding from Central Government through the Ministry for the Environment and also works closely with the Department of Conservation. Regional implementation of Enviroschools is through partnerships with Local Government and other community agencies. This multi-sector collaboration supports over 1,000 schools and early childhood education (ECE) centres to be involved in Enviroschools – representing 31% of the school sector and 5% of the large early childhood sector.

There are 13 Enviroschools in your district, part of a wider network of 64 in the Otago region. Regionally 41% of all schools and 2% of all early childhood centres are part of Enviroschools.

This submission encourages QLDC to maintain its involvement in Enviroschools along with the other regional partner agencies – the Otago Regional Council, Dunedin City Council, Clutha and Central Otago District Councils, as well as Wanaka Wasterbusters and Central Otago REAP.

Findings from multi-year evaluation project

A period of stable Central Government funding has enabled Toimata Foundation to undertake some significant research and evaluation over the past 3 years. Toimata has worked with external evaluators Kinnect Group and the key reports produced are:

- *"Enviroschools: Key Findings from the Nationwide Census"*
- *"The Enviroschools Programme Return on Investment Scenario Analysis"*
- *"The Enviroschools Programme: Evaluation report"*

Highlights from the research:

- "Enviroschools is a very high-performing programme and achieves this performance through high levels of systemic support from Toimata Foundation. " *Kinnect Group*
- The successes of the Enviroschools Programme are realised through a 'collective impact' model. i.e. investment is leveraged to create a larger pool of resources and through engaging additional stakeholders the outcomes achieved are enhanced.
- For every $1 invested by regional partners in Enviroschools, other investors contribute $2.60 in funding and in-kind support.
- The Enviroschools Census (73% response rate) found participating schools and centres were highly engaged in a range of environmental actions and practices.

- Enviroschools participants report a broad range of outcomes in addition to environmental changes.

- While only a small number of these outcomes can be monetised, the total annual investment in the Enviroschools Programme in 2014 (estimated to be $10.9M) is projected to realise a return of $28 million over ten years (at a 5% discount rate). This creates a benefit cost ratio of approximately $2.50 over ten years for every dollar (or in-kind support) invested in the programme, or a ROI of 11% per annum.
- Depth of practice in Enviroschools increases with time.
- Collaborations with the community are linked deeper levels of practice.
- Enviroschools works for all deciles.

"The Enviroschools Programme is a worthwhile investment, positively impacting students and schools, and providing value at a societal level. The programme is creating an effective intergenerational legacy, empowering young New Zealanders and their communities to create and realise the aspirational vision of a more sustainable world." *Kinnect Group.*

Conclusion

The Enviroschools Programme is a proven and effective approach for engaging schools and communities in environmental and social action.

With the backbone support of Toimata Foundation, and a network of councils around the country, the programme catalyses learning and action among thousands of young people, their families and communities from early childhood to secondary school. By connecting and coordinating resources and people, openly building and sharing knowledge across communities, widespread action is enabled on a broad scale.

As a funder, the partnership with Enviroschools provides QLDC with multiple points of leverage across the Queenstown Lakes community, extending the possible impact of its funding beyond what might be expected with a more traditional approach.