Arrowtown Lighting Design & Masterplan

Stage One - Concept Design

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

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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 2017 March Southern Light Strategy Part One (A lighting strategy) and Part Two (Technical specification) 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.

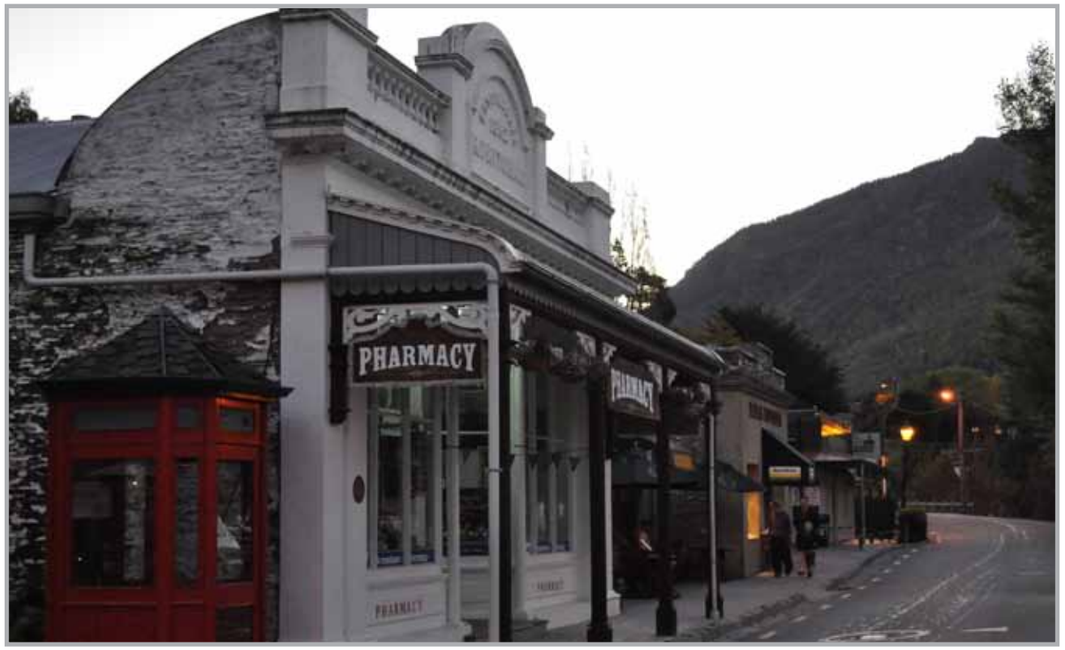
Landscape lighting - Highlighting selected trees and natural features will add another layer of creative and ambient lighting to the nightscape. Subtle warm white light sources will capture the beauty of the natural elements without causing glare and unwanted light pollution.

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

P: +64 4 977 1078 | F: +64 4 977 1079 | E: hello@toulouse.co.nz

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
- LANDSCAPE 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
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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.

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.

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.

Examples of new lantern styles
- ALN4440 Towne Common

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




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

P: +64 4 977 1078 | F: +64 4 977 1079 | E: hello@toulouse.co.nz

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

P: +64 4 977 1078 | F: +64 4 977 1079 | E: hello@toulouse.co.nz

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 Arrowtown Masterplan reflects The QLDC Southern Light, Part 1 A lighting strategy and Part 2 Technical Spacification (March 2017) while ensuring theses criteria to be applied to the lighting in Arrowtown: controlling glare and light pollution, not over-lighting, consistent colour temperature and avoiding a 'Disneyland lighting effect' in Arrowtown.

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.

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.