NORTH SYDNEY COUNCIL

ASSET MANAGEMENT PLAN

PUBLIC LIGHTING 2022-2032

Document Control	Asset Management Plan				
Document ID : NSC AMP Other Infrastructure 2023 Public Lighting					
Rev No	**Date**	**Revision Details**	**Author**	**Reviewer**	**Approver**
1	12/01/2022	First Draft	IM	JVH/DM	DM

Table of Contents

Public Lighting

Executive Summary

Located across the North Sydney LGA are 1,913 Lighting assets which are the direct responsibility of Council to maintain. In addition to this there are over 4,000 lights owned by Ausgrid. Council has engaged Steensen Varming (Australia) Pty Ltd to prepare a Public Lighting Strategy for North Sydney Council in 2021. The Public Lighting Strategy is currently in draft form.

Based on this data a report was prepared in 2018 by Gary Roberts & Associates Pty Ltd which prioritised the renewal of Public Lighting taking into other factors including obsolescence.

The types of lighting fixtures installed in the North Sydney area include poles, bollards, downlights, wall mounted, inground, and surface mounted. Each type of lighting fixture can have differing lamp sources installed. The ages of the lighting fixtures vary significantly across the various types from say 20-30 years to 1-2 years.

The efficiency of each type of lighting fixture varies significantly due to lamp technology and fixture physicalities such as diffuser and/or reflector material and shape etc. Aging effects such as lamp depreciation, reflector corrosion and diffuser UV damage can also affect the long-term efficiency.

There have been significant technological advances in recent years with lighting assets which has significantly improved efficiency and significantly reduced energy costs as well as reduced greenhouse gases. In addition, council has adopted a Public Domain Style Manual which aims to streamline the various lighting assets that currently exist in North Sydney. Therefore, apart from condition, lighting assets are increasingly replaced as result of obsolescence or streetscape improvements.

It is also important to note that Ausgrid owns and manages just over 4,000 lights within the North Sydney Council Local Government Area. Of these there are 124 “Decorative” light poles. This is an historic arrangement where Ausgrid used to supply “Decorative” light poles to councils upon request. In accordance with Ausgrid’s “Policy for non-standard lighting” Ausgrid ceased to provide “Decorative” light poles to customers from 1/7/2014. Ausgrid no longer supplies parts for these Decorative” light poles so if a pole requires replacement Ausgrid will replace the pole with a non-decorative pole unless council chooses to install a decorative pole itself. Ausgrid will not permit councils to use Ausgrid’s conduits or wiring (which would need replacing anyway). For these existing 124 “Decorative” light poles council pays a high ongoing annual capital and maintenance charge. If council were to replace Ausgrid’s 124 “Decorative” light poles the estimated cost would be $900,000. This is currently unfunded.

Each Public Lighting asset was assigned a condition score. Overall some 82.3% by replacement cost of the portfolio is in very good to fair condition (1-3) and 17.7% is in poor to very poor condition (4-5).

A Risk rating was assigned to each component. Overall, 82.3% of the portfolio has a low to medium risk rating and 17.7% has a high to very high risk rating.

The total Replacement Value of the portfolio is $19,010,576 as at 30 June 2021. The values are shown in the Table below.

Table 1: Public Lighting – Summary Table

Asset Category	Replacement Value (2021)	Accumulated Depreciation (2021)	Fair Value (2021)	Depreciation Expense
Lighting	**$19,010,576**	**$4,844,870**	**$14,165,705**	**$596,857**

The following table provides a summary of the quantities and replacement values for each Public Lighting type. The portfolio is dominated by Under Awning lights, Multi Function Poles, Taperline Pole Gooseneck Double and Single, Metal Ball Lights, and Hexagonal Vic Pole Space ship.

Table 2: Public Lighting – Typology

Public Lighting Type	Count of Structure Type	Sum of Replacement Costs
4 unit battery pole green coated	5	$19,395
Awning Light - Elizabeth Plaza	7	$25,168
Banner Pole	33	$215,793
Bega Graphite finish 4.5 meters 100mm O/D straight pole with access door	2	$14,458
Bollard	64	$212,794
Brick Light	34	$46,012
Burton St Tunnel	1	$173,932
Bus Stop	61	$47,306
Cammeraygal Pl Artwork	5	$34,185
Catenary Light - Elizabeth Plaza	1	$132,500
Decorative Fin Light - Brett Whiteley Place	2	$17,861
Decorative Seating Light - Brett Whiteley Place	11	$55,630
Down Light - Elizabeth Plaza	6	$4,470
Eclipse Light Pole	5	$36,144
FLEXIBLE LINEAR LED STRIP MOUNTED WITH U CLIPS ON CORTEN WALLS	3	$14,823
Fountain Light - Brett Whiteley Place	3	$144,108
GM Poles 4.5M 90MM Pipe Pole Galvanised Steel	17	$107,192
GM Poles 5.0M 90MM Pipe Pole Galvanised Steel	9	$66,113
GM Poles PP-90-4.0 4M 90MM Pipe Pole c/w Marine Grade Powder Coat	15	$108,433
Handrail Light - Bob Gordon Reserve	35	$27,591
Handrail Light - Brett Whiteley Place/ Elizabeth Plaza	15	$25,431
Hexagonal Vic Pole Space ship	92	$665,053
Inground Strip Light - Elizabeth Plaza	26	$128,462
Inground Strip Light - Grosvenor Lane	17	$83,994
Inground Uplight - Bradfield Plaza	37	$93,295
Inground Uplight - Brett Whiteley Place	22	$45,985
Inground Uplight Small	118	$297,536
Interpol Metal pole	50	$361,442
Lantern only special	2	$7,758

Public Lighting Type	Count of Structure Type	Sum of Replacement Costs
LED RECESSED LINEAR LED WALL GRAZER MOUNTED	5	$24,704
LED SPOTLIGHT WITH GLARE SHIELD MOUNTED ON TAPERED ROUND POLE	1	$7,229
Memorial	4	$46,542
Metal Pole Ball	75	$542,163
Metal Pole Other	19	$137,348
Multi Function Pole	290	$10,770,132
Pedestrian Ceiling Light	4	$4,173
Projector	7	$81,449
Shelter Light	4	$3,876
Shop Light - Elizabeth Plaza	4	$14,445
Sign Light	4	$15,516
Small Pedestrian Light	20	$38,790
Sportsfield	5	$96,960
Stair Light - Brett Whiteley Place	5	$2,383
Stair Light - Mitchell Street Plaza	10	$19,558
Stair Light only	8	$7,752
Straight Round 140mm Diameter Pole	10	$72,288
Tapered Octagonal Column	24	$209,162
Tapered Round Pole	19	$137,348
Taperline Pole Gooseneck Double	138	$997,579
Taperline Pole Gooseneck Single	41	$296,382
Totem Light Pole (Cluster)	7	$50,602
Under Awning Light - Recessed	52	$225,728
Under Awning Light - Recessed inherited	15	$65,114
Under Awning Light - Surface Mount	368	$1,597,457
Under seat lighting - Miller Street Forecourt	6	$29,645
Vent Light only	9	$17,455
Vic Poles - 4.0m Tapered Base Octagonal	8	$57,831
Vic Poles - 4.6m Tapered Base Octagonal	16	$115,661
Vic Poles - 8.0m Road Light Pole	2	$14,458
VICPOLE Galvanised Steel	2	$14,458
Wall Mounted Light	4	$33,313
Wall mounted light - Cabramatta Rd & Spofforth St	15	$25,972
Wall mounted light - lane Parraween carpark	14	$24,240
Grand Total	**1,913**	**$19,010,576**

Public Lighting – Future Demand

Drivers affecting demand for Public Lighting include things such as population growth, regulation changes – new development, community expectations (Public Safety), technological changes, economic factors and environmental factors.

The number of Public Lighting assets is expected to increase into the future. This is due to the following factors:

- When a number of lights in an area require replacing additional lights are often required to meet current standards.
- Replacing Ausgrid lights as part of CBD upgrades (note that whilst Ausgrid lights are owned by Ausgrid however they are funded by council).
- There are 124 Ausgrid "decorative" light poles. Ausgrid have a Policy of not replacing these assets and no longer store any parts. These will need to be replaced and owned by council.
- Assets constructed by Property developers

Public Lighting – Levels of Customer Service

Service levels are defined service levels in two terms, customer levels of service and technical levels of service. These are supplemented by organisational measures.

Customer Levels of Service measure how the customer receives the service and whether value to the customer is provided.

Customer levels of service measures used in the asset management plan are:

Quality How good is the service … *what is the condition or quality of the service?*

Function Is it suitable for its intended purpose …. *Is it the right service?*

Capacity/Use Is the service over or under used … *do we need more or less of these assets?*

The current and expected customer service levels are detailed in the Table below.

Table 3: Public Lighting – Levels of Customer Service

Service Attribute	Expectation	Performance Measure Used	Current Performance	Desired Position in 10 Years.
Quality	Public Lighting are well maintained.	Percentage of retaining walls in 'very good', 'good' or 'Fair' (1, 2, 3) condition and Percentage 'poor' or 'very poor' (4, 5) Condition.	82.3% of Public Lighting in 'very good', 'good' or 'Fair' (1, 2,3) condition. 17.7% of Public Lighting components in poor/very poor (4, 5) Condition.	Maintain – Condition 1-2-3 Improve and replace Condition 4-5
Function	Public Lighting meet the standard of the Public Domain Style Manual/ modern equivalent.	Number of Public Lighting Poles meet the standard of the Public Domain Style Manual/ modern equivalent.	298 Public Lighting Poles do not meet the standard of the Public Domain Style Manual/ modern equivalent.	Improve

Service Attribute	Expectation	Performance Measure Used	Current Performance	Desired Position in 10 Years.
Capacity and Use	Number of Public Lighting required is appropriate.	Number of additional Public Lighting required	Additional Public Lighting to be identified as part of a detailed re-design when existing lighting is replaced.	Improve

Public Lighting – Levels of Technical Service

Technical Levels of Service - Supporting the customer service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

Technical service measures are linked to the activities and annual budgets covering:

- Operations – the regular activities to provide services (e.g. cleaning, inspections, etc).
- Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. painting of light pole, globe replacement),
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. light pole replacement),
- Upgrade/New – the activities to provide a higher level of service (e.g. increasing the number of poles to improve lighting levels).

Table 4 shows the technical levels of service expected to be provided for Public Lighting. The 'Desired' position in the table documents the position being recommended in this AM Plan.

Table 4: Public Lighting – Technical Levels of Service

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance	Desired for Optimum Lifecycle Cost
Operations	Undertake network inspections to monitor condition	Network inspections to monitor condition	Network inspected in 2015	Network inspected every 5 years
Maintenance	Reactive service Requests completed in a timely manner or made safe.	Respond to complaints.	Minor repairs undertaken in accordance with Maintenance Management System	Minor repairs undertaken in accordance with Maintenance Management Delivery System.
Renewal	Maintain existing assets to a satisfactory condition	Percentage of Public Lighting in poor/very poor (4, 5) Condition.	17.7% of Public Lighting in poor/very poor (4, 5) Condition.	Improve or replace
Upgrade	Public Lighting	Number of Public	298 Public Lighting	Improve

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance	Desired for Optimum Lifecycle Cost
	meet the standard of the Public Domain Style Manual/ modern equivalent.	Lighting Poles meet the standard of the Public Domain Style Manual/ modern equivalent.	Poles do not meet the standard of the Public Domain Style Manual/ modern equivalent.	
New	Number of Public Lighting required is appropriate.	Number of additional Public Lighting required	Additional Public Lighting to be identified as part of a detailed re-design when existing lighting is replaced.	Improve

Public Lighting Condition

A condition data report was prepared in 2018 by Gary Roberts & Associates Pty Ltd which prioritised the renewal of Public Lighting based on obsolete lighting technologies. The condition criteria used is described in Table 5.

Table 5: Public Lighting Condition Survey Criteria

Grade	Condition	General Meaning
1	**Very Good**	**Condition** Well maintained with no defects. Pole is sound, straight and true. No evidence of corrosion or decay. Pole surface finish in good condition. Lantern is intact and securely fixed to pole. No evidence of water or insect ingress. Lens is clear and intact. No corrosion visible on luminaire. No work required. **Pole Obsolescence** The pole is suitable for use in contemporary lighting projects. This includes aesthetic and physical qualities including height, finish and utility access facilities etc. **Luminaire attributes** The performance and efficiency of the lighting fixture is generally in line with current technology trends and provides compliance with current or recent public lighting design standards.
2	**Good**	**Condition** The luminaires and supporting structures may show minor deterioration with some wear and tear typical of the age such as discolouration (fading) of the luminaire and hair line cracks in concrete around the support structure, but no concrete staining. Slight impact damage, but no loss of protective coating. Deterioration has no significant impact on strength, operation and appearance of the light. The luminaire internal reflective surfaces may show slight discolouration but are not excessive corrosion. Only minor work required. Luminaire has minor insect ingress that can be rectified with routine cleaning to manufacturers recommendations.

Grade	Condition	General Meaning
		Pole Obsolescence The pole is older than grade 1 but remains suitable for use in contemporary lighting projects pending onsite inspection and general agreement that the aesthetic is suitable for new projects. **Luminaire attributes** As grade 1 but the lighting fixture is older and may use obsolete or technology of lower efficiency. There may not be evidence of compliance with current or recent public lighting design standards.
3	**Fair**	**Condition** The luminaire is functionally sound, but the appearance is affected by minor defects i.e. slight impact damage; concrete cracks <2mm, loss of protective coating on fittings, minor chipping/ spalling of concrete. Poles have signs of light corrosion/decay especially at or just below ground level (May require further qualified inspection or testing). External deterioration is beginning to affect the strength, operation and appearance of the luminaire. The internal reflective surfaces of the luminaire may show signs of corrosion. Likely to require renewal within 6-10 years approx. **Pole Obsolescence** The pole is older than grade 2 and may not be suitable for use in contemporary lighting projects pending onsite inspection and general agreement that the aesthetic is suitable for new projects. **Luminaire attributes** As grade 2 but the lighting fixture uses obsolete or technology of lower efficiency. There is no evidence of compliance with current or past public lighting design standards.
4	**Poor**	**Condition** The luminaire functions but has significant defects e.g. structural cracks >2mm, concrete staining, impact damage, corrosion, instability of foundation; causing a marked deterioration in strength, stability, operation and appearance of the light within. Poles show signs of moderate corrosion/decay especially at or just below ground level (Will require further qualified inspection or testing). The luminaire has either insect or water ingress that can be rectified with replacement parts. The lens and/or reflector has deteriorated. Intermittent lamp failure may indicate lamp replacement is necessary. Likely to require renewal within 3-5 years. **Pole Obsolescence** The pole is not suitable for use in contemporary lighting projects. **Luminaire attributes** The lighting fixture uses obsolete technology of low efficiency. There is no evidence of compliance with current or past public lighting design standards.

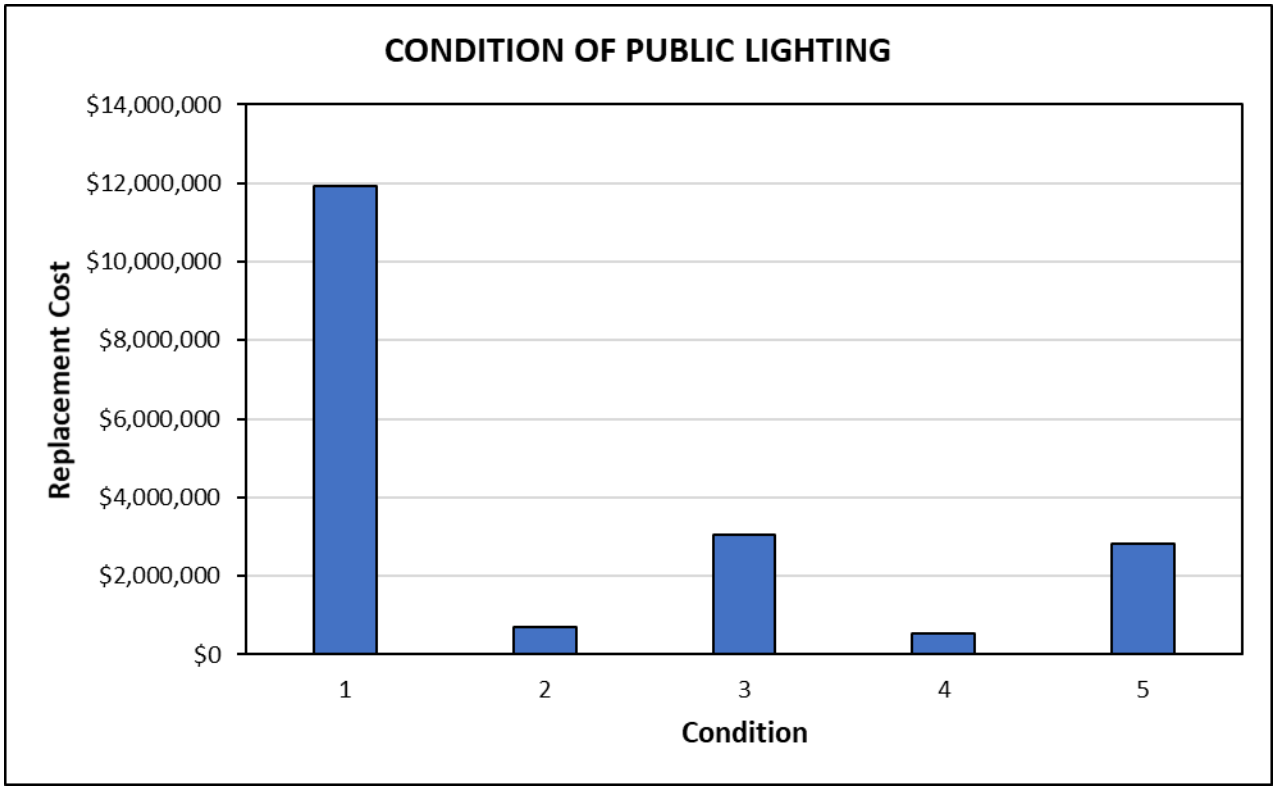
Grade	Condition	General Meaning
5	**Very Poor**	**Condition** The luminaire has failed or is about to fail in the near future due to irreparable deterioration in strength, stability, operation and appearance. Poles have sustained impact damage or clear signs of corrosion/decay – especially at or just below ground level. The luminaire shows signs of damage due to water and insect ingress. The lens is yellowed or broken. The luminaire body and reflector are corroded. Priority renewal is required. **Pole Obsolescence** The pole is at the end of its life and should be replaced as a priority. **Luminaire attributes** The lighting fixture uses obsolete technology of low efficiency. There is no evidence of compliance with current or past public lighting design standards. The lumen output is diminished due to both internal and external aging.

The Table below shows the condition of Public Lighting assets in terms of replacement cost where condition 1 is very good and 5 is very poor condition. In practice and where funds permit Public Lighting assets in condition 3 are generally replaced at the same time as Public Lighting assets in condition 4 or 5 if they are adjacent, there are potential risks, and it is cost effective.

Table 6: Public Lighting Condition Survey Results - Overall

CONDITION OF PUBLIC LIGHTING – ENTIRE NETWORK		
Condition	**Replacement Cost**	**% Condition (based on known data and cost)**
1 (Very Good)	$11,916,993	62.7%
2 (Good)	$688,489	3.6%
3 (Fair)	$3,035,765	16.0%
4 (poor)	$549,470	2.9%
5 (Very Poor)	$2,819,858	14.8%
Total	**$19,010,576**	**100.00%**

The Graph below shows the condition of Public Lighting assets over the entire network in terms of replacement cost.



Public Lighting – Review of Useful Lives

There are a wide variety of Lighting types in North Sydney. Lights are replaced as a result of poor condition as well as obsolescence. The useful lives of lighting assets have been reviewed and is detailed in the following Table.

Pole Type Group	Units	NSC Reviewed Useful Life (years)
4-unit battery pole green coated	Each	35
Awning Light - Elizabeth Plaza	Each	20
Banner Pole	Each	35
Bega Graphite finish 4.5 meters 100mm O/D straight pole with access door	Each	35
Bollard	Each	20
Brick Light	Each	20
Burton St Tunnel	Each	35
Bus Stop	Each	20
Cammeraygal Pl Artwork	Each	20
Catenary Light - Elizabeth Plaza	Each	20
Decorative Fin Light - Brett Whiteley Place	Each	20
Decorative Seating Light - Brett Whiteley Place	Each	20
Down Light - Elizabeth Plaza	Each	20

Pole Type Group	Units	NSC Reviewed Useful Life (years)
Eclipse Light Pole	Each	35
Fountain Light - Brett Whiteley Place	Each	20
GM Poles 4.5M 90MM Pipe Pole Galvanised Steel	Each	20
GM Poles 5.0M 90MM Pipe Pole Galvanised Steel	Each	20
GM Poles PP-90-4.0 4M 90MM Pipe Pole c/w Marine Grade Powder Coat	Each	35
Handrail Light - Bob Gordon Reserve	Each	20
Handrail Light - Brett Whiteley Place/ Elizabeth Plaza	Each	20
Hexagonal Vic Pole Space ship	Each	35
Inground Strip Light - Elizabeth Plaza	Each	20
Inground Uplight - Bradfield Plaza	Each	20
Inground Uplight - Brett Whiteley Place	Each	20
Inground Uplight Small	Each	20
Interpol Metal pole	Each	35
Lantern only special	Each	35
Memorial	Each	35
Metal Pole Ball	Each	35
Metal Pole Other	Each	35
Multi Function Pole	Each	35
Pedestrian Ceiling Light	Each	20
Projector	Each	20
Rockstyle	Each	35
Shelter Light	Each	20
Shop Light - Elizabeth Plaza	Each	20
Sign Light	Each	20
Small Pedestrian Light	Each	20
Sportsfield	Each	35
Stair Light - Brett Whiteley Place	Each	20
Stair Light only	Each	20
Straight Round 140mm Diameter Pole	Each	35
Sylvania CUBAN Stainless Steel Bollard	Each	20
Tapered Octagonal Column	Each	35
Taperline Pole Gooseneck Double	Each	35
Taperline Pole Gooseneck Single	Each	35
Under Awning Light - Recessed	Each	20
Under Awning Light - Recessed inherited	Each	20
Under Awning Light - Surface Mount	Each	20
Vent Light only	Each	20
VICPOLE Galvanised Steel	Each	35
Wall Mounted Light	Each	20
Wall mounted light - Cabramatta Rd & Spofforth St	Each	20

Pole Type Group	Units	NSC Reviewed Useful Life (years)
Wall mounted light - lane Parraween carpark	Each	20

Based on these Useful Lives the Depreciation is as follows:

Capital funding to maintain a renewal ratio of 1	
	Annual Depreciation
Public Lighting	**$596,857**

A budget of $596,857 is required on average over the long term to maintain the condition of Council's Public Lighting network, noting that fluctuations in renewal requirements in the medium term.

Public Lighting – Funding Strategy

The Asset Renewal Funding Ratio is the most important indicator. It compares funding with depreciation. An Asset Renewal Funding Ratio of 1 or greater sustained over the long term indicates the optimal renewal and replacement of assets.

The cost to fully replace assets in condition 4 and 5 as well as the cost to replace the condition 3 assets which will become condition 4 over the next 10 is $596,857. Therefore, an annual average capital renewal funding of $596,857 (2021 dollars) will achieve an Asset Renewal Funding Ratio of 1.

The cost to fully replace assets in condition 3, 4, and 5, over the next 10 years, is $6,405,093. This is an average annual cost of $640,509 which is greater than the $557,151 Depreciation Expense and is less than the average annual forecast budget of $875,760. With further investigation and detailed design it is hoped that alternate and lesser cost solutions may be possible to maintain Public Lighting assets at an optimal level.

Council has entered into an agreement with Ausgrid to commence the replacement of all street light assets owned by Ausgrid to LED technology. This agreement will see considerable operating cost savings for Council. The agreement will see all Ausgrid street light assets replaced with LED luminaires by 2023.

Public Lighting – Capital works

Replacement of Public Lighting components is assumed to be a Capital works project.

The ranking criteria used to determine priority of identified renewal and replacement proposals is detailed in table 7. A priority for action of 1 to 5 has been assigned to each Public Lighting asset requiring capital works as described in the following table.

Public Lighting – Managing the Risks

There are risks associated with providing and maintaining Public Lighting are primarily as follows:

- Sudden failure of lighting poles – falling and causing property damage, injury or death.
- Luminaires failing – area poorly lit making the area unsafe for the public.

The following risk response table was used to identify those Public Lighting components requiring action within the next 10 years.

Table 7: Public Lighting – Risk Response Table

Level of Risk		Condition	Action Required	Time frame for repairs, upgrade or replacement
VH	Very High Risk	5	Immediate corrective action	1-10 years
H	High Risk	4	Prioritised action required	4-10 Years
M	Medium Risk	3	Planned action required	4-10 Years
L	Low Risk	2	Manage by routine procedures	Inspections 1-2 years
New	No Risk	1	None	None

Consideration has been given to each Public Lighting asset, whether to replace the asset or perform maintenance on it.

Components that have a **Very High** or **High** risk rating were considered to need replacement within the 1-10 year forecast period.

Components with a **Medium** risk rating were also considered needing replacement within the 4-10 year forecast period.

Examples of Lighting Assets in Poor Condition

Council will endeavour to manage these risks within available funding by prioritising Public Lighting renewal works based on the condition of Public Lighting assets assessed in 2015 by R J Mifsud Electrical as well as the report prepared in 2018 by Gary Roberts & Associates Pty Ltd which prioritised the renewal of Public Lighting.

Table 8: Public Lighting - Overall – Capital renewal Priorities based on Condition and Risk Rating

Risk Matrix – Public Lighting (Condition and Risk Rating)					
Likelihood of Public Lighting failing (L) Refer to Table 5. Condition Criteria	Public Lighting (No. of Lights)				
	Road Hierarchy	Lane	Local Road	Collector	State/ Regional Road
	Park Hierarchy	Local	District	Regional	
	Footpath Hierarchy	Category 3	Category 2	Category 1	
	Priority	d	c	b	a
Condition 1 – Very Good (62%)	5	93	204	215	123
Condition 2 - Good (4%)	4	NA	7	4	10
Condition 3 – Fair (16%)	3	49	99	307	222
Condition 4 – Poor (3%)	2	39	16	86	15
Condition 5 – Very Poor (15%)	1	106	83	227	8

(Note: Also Refer to Table 6)

Note: This table is based on data in the current register.

Note: Capital works is proposed for those public lighting assets identified in *"Very Poor"*, "Poor" and *"Fair"* condition.

Note: Factors which are used to determine the priority include 'Footpath Hierarchy', 'Road Hierarchy' and 'Park Hierarchy'. The most critical factor is used to determine the priority.

It should be noted that Public Lighting may also be replaced based on other criteria including:

- Accidental damage
- A "group" of lights are typically replaced at the same time as pole spacing may change to meet lighting level requirements.
- Replaced as part of Streetscape projects or Reserve upgrades

Public Lighting – Maintenance

Routine maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again, e.g. painting, globe replacement.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating.

Current maintenance expenditure levels are considered to be adequate to meet projected service levels.

Over the longer term future operations and maintenance expenditure is forecast to increase as the asset stock increases. The following table summarises the prioritised capital and maintenance works.

Public Lighting – Prioritised Expenditure Forecast

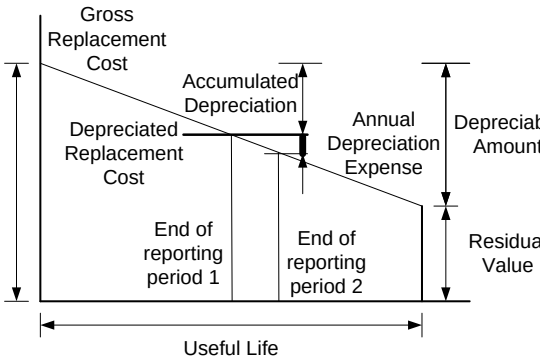
Table 9: Public Lighting – Prioritised Expenditure Forecast – 10 years FY2023-FY2032

Year		Priority	Capital Costs	Maintenance Costs	Total Costs
1	2022/23	1b	$1,030,000	$92,310	$1,122,310
2	2023/24	1b	$927,600	$92,310	$1,019,910
3	2024/25	1b	$850,000	$92,310	$942,310
4-10	2025/32	1a – 2d	$5,950,000	$646,170	$6,596,170
Works Identified	2025/32	1a – 1d	$1,506,756		$1,506,756
		Grand Total	**$10,264,356**	**$923,100**	**$11,187,456**

In summary the current value of Public Lighting assets is detailed in the Table below.

Table 10: Public Lighting - Valuation

Asset Category	Replacement Value (2021)	Accumulated Depreciation (2021)	Fair Value (2021)	Depreciation Expense
Lighting	**$19,010,576**	**$4,844,870**	**$14,165,705**	**$596,857**



Public Lighting – Valuation Forecast

Asset values (Public Lighting) are forecast to increase. The number of Public Lighting assets is expected to increase into the future. This is due to the following factors:

- When a number of lights in an area require replacing additional lights are often required to meet current standards.
- Replacing Ausgrid lights as part of CBD upgrades (note that whilst Ausgrid lights are owned by Ausgrid however they are funded by council).

- There are 124 Ausgrid “decorative” light poles. Ausgrid have a Policy of not replacing these assets and no longer store any parts. These will need to be replaced and owned by council.
- Assets constructed by land developers

Public Lighting – Key Assumptions – Financial Forecasts

Key assumptions made in this asset management plan for Public Lighting are:

Table: 11. Key Assumptions made in AM Plan and Risks of Change

Key Assumptions	Risks of Change to Assumptions
Useful Lives of Public Lighting	Low risk
Rate of deterioration	Low risk

Public Lighting – Creation / Acquisition / Upgrade Program

New works are those that create a new asset that did not previously exist, or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost. New assets are identified as part of the detailed lighting design process, for example, as part of a Streetscape upgrade.

Public Lighting – Disposal Plan

No Public Lighting assets have been identified for disposal.

Public Lighting – Forecast reliability and confidence

The estimated confidence level and reliability of data used in this AMP is considered to be reliable as the data is based on a detailed condition report on Public Lighting.

Public Lighting – Improvement Plan

The improvement plan is shown in the table below.

Task No	Task	Responsibility	Resources Required	Timeline
1	Research the Useful Life of Public Lighting	EPS	Staff Time	2024

Public Lighting – Monitoring and Review Procedures

This Asset Management Plan will be reviewed during annual budget planning processes and amended to show any material changes in service levels and/or resources available to provide those services as a result of budget decisions.

The Asset Management Plan has a life of 4 years and is due for complete revision and updating within 1 year of each Council election.

Public Lighting – Renewal and Replacement Program

Renewal and replacement expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an upgrade/expansion or new work expenditure resulting in additional future operations and maintenance costs.

Public Lighting assets requiring renewal/replacement is based on the condition of Public Lighting assets assessed in 2015 by R J Mifsud Electrical as well as the report prepared in 2018 by Gary Roberts & Associates Pty Ltd which prioritised the renewal of Public Lighting.

Public Lighting – Funding Scenarios

The Long Term Financial Plan includes three scenarios, all of which maintain current services levels but propose differing levels of capital expenditure on the renewal of Council's ageing infrastructure assets.

In summary:

- Pessimistic Scenario - This Scenario results in a decline in operating results and deficits in the later years.
- Optimistic Scenario - This Scenario results in improvements in operating results for the life of the plan.
- Planned Scenario - This Scenario results modest surplus operating results for the life of the plan.

Table 12: Funding Scenarios – Public Lighting – North Sydney Councils 10 Year Plan

Scenario	Capital Funding Level Required Per Annum	10 Year Plan $ Total
Scenario 1.	$875,760/year	**$8,757,600**
Scenario 2.	$875,760/year	**$8,757,600**
Scenario 3.	$875,760/year	**$8,757,600**

Note: *These Scenarios are based on the 10-year Long Term Financial Plan.*

Public Lighting – Service and Risk Tradeoffs

The decisions made in adopting this AM Plan are based on the objective to achieve the optimum benefits from the available resources.

Service trade-off

If this funding Scenario is adopted, then the Level of Service will be maintained.

Risk trade-off

If this funding Scenario is adopted, then it there is less risk of a sudden collapse of a Public Lighting asset.

Public Lighting – Renewal and Replacement Program – FY2023-FY2032 (10 Year Plan)

Council's projected 10 year Capital Renewal Program is shown in the Tables below. It is based on the funding required to replace Public Lighting assets identified by the condition of Public Lighting assets Audit completed in 2015 by R J Mifsud Electrical as well as the report prepared in 2018 by Gary Roberts & Associates Pty Ltd which prioritised the renewal of Public Lighting.

It should be noted that Public Lighting assets may also be replaced based on other criteria including:

- Accidental Damage
- A "group" of lights are typically replaced at the same time as pole spacing may change to meet lighting level requirements.
- Replaced as part of Streetscape projects or Reserve upgrades

Project priorities may also be subject to change due to accelerated deterioration, sudden failure or finalization of detailed designs and project costings. The project costs below include lights in poor or very poor condition. The actual project may vary subject to a detailed lighting design which may change pole spacing and therefore require the replacement of light poles in condition 3.

Capital Renewal – Public Lighting within Road Reserves

Table 13: Public Lighting – Renewal and Replacement Program (Within Road Reserves)

Priority Projects 2022/23 (Year 1)

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2022/23	1b	Lighting upgrade in association with Kirribilli Streetscape	Very High (5)	Very Poor	$340,000
2022/23	1b	Lighting upgrade in association with McMahons Point Streetscape	Very High (5)	Very Poor	$340,000
2022/23		Meadow Lane – new lights			$100,000
2022/23		North Sydney CBD, Lighting Upgrade			$50,000
2022/23		DESIGNS			$150,000
2022/23	New	Banner Flag Poles			$50,000
				TOTAL	**$1,030,000**

Note: *These Cost estimates do not include inflation / building escalations costs which can vary between 3-8% each year.*

Table 14: Public Lighting – Renewal and Replacement Program (Within Road Reserves)

Priority Projects 2023/24 (Year 2)

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2023/24	1b	Lighting upgrade in association with Kirribilli Streetscape	Very High (5)	Very Poor	$300,000
2023/24	1b	Lighting upgrade in association with McMahons Point Streetscape	Very High (5)	Very Poor	$377,600
2023/24		North Sydney CBD, Lighting Upgrade			$50,000
2023/24		DESIGNS			$150,000
2023/24	New	Banner Flag Poles			$50,000
				TOTAL	**$927,600**

Note: *These Cost estimates do not include inflation / building escalations costs which can vary between 3-8% each year.*

Table 15: Public Lighting – Renewal and Replacement Program (Within Road Reserves)

Priority Projects 2024/25 (Year 3)

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2024/25	1b	Lighting upgrade in association with Kirribilli Streetscape	Very High (5)	Very Poor	$300,000
2024/25	1b	Lighting upgrade in association with McMahons Point Streetscape	Very High (5)	Very Poor	$300,000
2024/25		North Sydney CBD, Lighting Upgrade			$50,000
2024/25		DESIGNS			$150,000
2024/25	New	Banner Flag Poles			$50,000
				TOTAL	**$850,000**

Note: *These Cost estimates do not include inflation / building escalations costs which can vary between 3-8% each year.*

Table 16: Public Lighting – Renewal and Replacement Program (Within Road Reserves)

Priority Projects 2025/32 (Year 4-10)

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2025/32	1a	MILLER ST - Controlled from board side of Ros Crichton Pavilion	Very High (5)	Very Poor	$109,600
2025/32	1a	FALCON ST - Supplied from SSS off Ausgrid pole MO 94355	Very High (5)	Very Poor	$104,023

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2025/32	1a	FALCON ST - Supplied from SSS off Ausgrid pole MO 94357	Very High (5)	Very Poor	$41,609
2025/32	1b	BAY RD - Board in grass area adj to lights	Very High (5)	Very Poor	$36,284
2025/32	1b	ALBANY ST - DB cnr Albany St and Alexander St	Very High (5)	Very Poor	$395,286
2025/32	1b	ALEXANDER ST - DB cnr Ernest St and Alexander St	Very High (5)	Very Poor	$561,723
2025/32	1b	MILLER ST - Green turret driveway North Sydney Community Centre	Very High (5)	Very Poor	$83,218
2025/32	1b	MILLER ST - Light supply from Stanton library	Very High (5)	Very Poor	$51,178
2025/32	1b	MILLER ST - Stanton Library	Very High (5)	Very Poor	$177,600
2025/32	1b	MILLER ST - Supplied from distribution board Wylie Wing	Very High (5)	Very Poor	$62,414
2025/32	1b	CAMMERAY RD - Supplied from SSS off Ausgrid pole MO 59083	Very High (5)	Very Poor	$104,023
2025/32	1b	BLUES POINT RD - Supplied from SSS off Ausgrid pole MO 75395	Very High (5)	Very Poor	$166,436
2025/32	1b	WILLOUGHBY RD - Supplied from SSS off Ausgrid pole MO 94311	Very High (5)	Very Poor	$124,827
2025/32	1b	BURLINGTON ST - Supplied from SSS off pole in zig zag lane	Very High (5)	Very Poor	$2,231
2025/32	1c	CAMMERAY RD - Distribution board in garden	Very High (5)	Very Poor	$208,045
2025/32	1c	MILLER ST - Lights controlled from board on pole NSCL029	Very High (5)	Very Poor	$20,805
2025/32	1c	ABBOTT ST - Supplied from SSS off Ausgrid pole MO 89453	Very High (5)	Very Poor	$41,609
2025/32	1c	ABBOTT ST - Supplied from SSS off Ausgrid pole MO 89455	Very High (5)	Very Poor	$41,609
2025/32	1d	HUME LA - Board located cnr Pole La and Hume La	Very High (5)	Very Poor	$540,918
2025/32	1d	BALFOUR LA - Supplied from SSS	Very High (5)	Very Poor	$28,707
2025/32	1d	RALEIGH ST - Supplied from SSS off Ausgrid pole MO 89448	Very High (5)	Very Poor	$124,827
2025/32	1d	WILLOUGHBY LA - Supplied from SSS off Ausgrid pole MO 94347	Very High (5)	Very Poor	$104,023
2025/32	1d	ZIG ZAG LA - Supplied from SSS off Ausgrid pole MO 94377	Very High (5)	Very Poor	$228,850
2025/32	2a	MILITARY RD - Board in garden on pole Parraween St	High (4)	Poor	$399,780
2025/32	2a	CABRAMATTA RD - Board in Located in Cabramatta Rd Adj to 285 Military Rd	High (4)	Poor	$237,157
2025/32	2d	LAMONT ST - Board located in Parraween St car park	High (4)	Poor	$69,763
2025/32	2d	LANGLEY AVE - Supplied from SSS off Ausgrid pole MO 73879	High (4)	Poor	$88,800

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2025/32	2d	LANGLEY LA - Supplied from SSS off Ausgrid pole MO 73880	High (4)	Poor	$5,582
2025/32	2d	LANGLEY LA - Supplied from SSS off Ausgrid pole MO 73881	High (4)	Poor	$5,582
2025/32	2d	LANGLEY LA - Supplied from SSS off Ausgrid pole MO 73882	High (4)	Poor	$5,582
2025/32	2d	LANGLEY LA - Supplied from SSS off Ausgrid pole MO 73883	High (4)	Poor	$5,582
2025/32	2d	LANGLEY LA - Supplied from SSS off Ausgrid pole MO 73884	High (4)	Poor	$5,582
2025/32	2d	LANGLEY LA - Supplied from SSS off Ausgrid pole MO 73885	High (4)	Poor	$5,582
2025/32	2d	LANGLEY LA - Supplied from SSS off Ausgrid pole MO 73886	High (4)	Poor	$5,582
2025/32	2d	LANGLEY LA - Supplied from SSS off Ausgrid pole MO 73887	High (4)	Poor	$5,581
2025/32		North Sydney CBD, Lighting Upgrade		N/A	$350,000
2025/32		DESIGNS		N/A	$1,050,000
2025/32	New	Banner Flag Poles			$350,000
				TOTAL	**$5,950,000**

Note: *These Cost estimates do not include inflation / building escalations costs which can vary between 3-8% each year.*

Capital Renewal – Public Lighting Within Parks

Table 17: Public Lighting – Renewal and Replacement Program (Within Parks)

Priority Projects 2022/23 (Year 1)

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2022/23		Projects to be established		N/A	$0
				TOTAL	**$0**

Note: *These Cost estimates do not include inflation / building escalations costs which can vary between 3-8% each year.*

Table 18: Public Lighting – Renewal and Replacement Program (Within Parks)

Priority Projects 2023/24 (Year 2)

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2023/24		Projects to be established		N/A	$0
				TOTAL	**$0**

Note: *These Cost estimates do not include inflation / building escalations costs which can vary between 3-8% each year.*

Table 19: Public Lighting – Renewal and Replacement Program (Within Parks)

Priority Projects 2024/25 (Year 3)

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2024/25		Projects to be established		N/A	$0
				TOTAL	**$0**

Note: *These Cost estimates do not include inflation / building escalations costs which can vary between 3-8% each year.*

Table 20: Public Lighting – Renewal and Replacement Program (Within Parks)

Priority Projects 2025/32 (Year 4-10)

Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2025/32					
				TOTAL	**$0**

Note: *These Cost estimates do not include inflation / building escalations costs which can vary between 3-8% each year.*

Table 21: Public Lighting – Renewal and Replacement Program (Within Parks)

Works Identified – Years 2025 - 32 (Year 4-10)

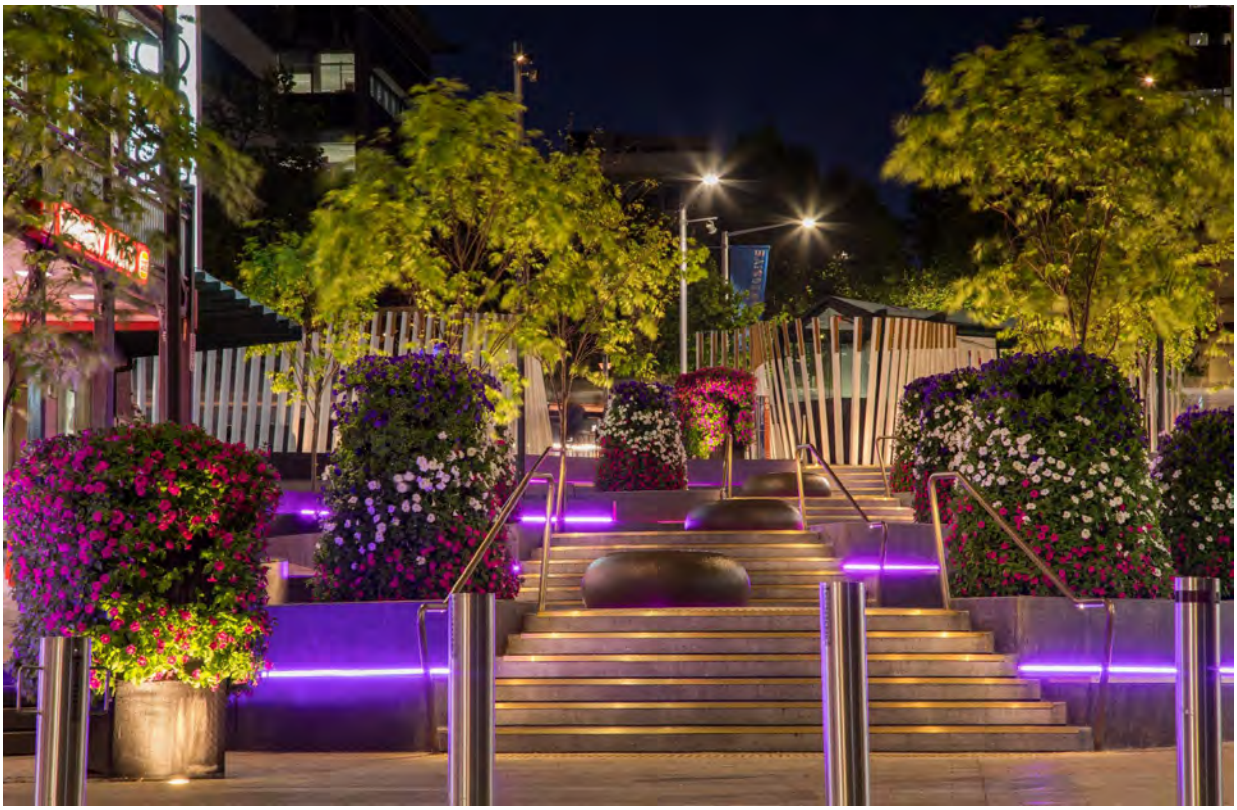
Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
2025/32	1b	Cremorne Garden Plaza - Board in garden on pole Parraween St	Very High (5)	Very Poor	$185,467
2025/32	1b	Civic Park - Light supply from Stanton library	Very High (5)	Very Poor	$216,225
2025/32	1b	St Leonards Park - Nso main switch board	Very High (5)	Very Poor	$69,607
2025/32	1b	Civic Park - Supplied from Stanton Library, pe cell on pole NSCL014	Very High (5)	Very Poor	$14,415
2025/32	1b	St Leonards Park - Switch board Bon Andrews shed	Very High (5)	Very Poor	$154,679
2025/32	1b	St Leonards Park - Switch board db1 near score board	Very High (5)	Very Poor	$43,245
2025/32	1b	St Leonards Park - Switch board Planet X	Very High (5)	Very Poor	$57,660
2025/32	1c	Smoothey Park - Battery on board	Very High (5)	Very Poor	$38,675
2025/32	1c	Tunks Park - Board located end of park on footpath	Very High (5)	Very Poor	$100,905
2025/32	1c	Barry Street Plaza/Car Park - Board located store room off car park	Very High (5)	Very Poor	$100,905
2025/32	1c	Tunks Park - Board mounted end of park on footpath	Very High (5)	Very Poor	$43,245
2025/32	1c	Civic Park - Stanton library	Very High (5)	Very Poor	$19,891
2025/32	1c	Waterleigh Park - Supplied from SSS off Ausgrid pole MO 56633	Very High (5)	Very Poor	$28,830
2025/32	1c	Hume Street Park - Supplied from switch board	Very High (5)	Very Poor	$115,320

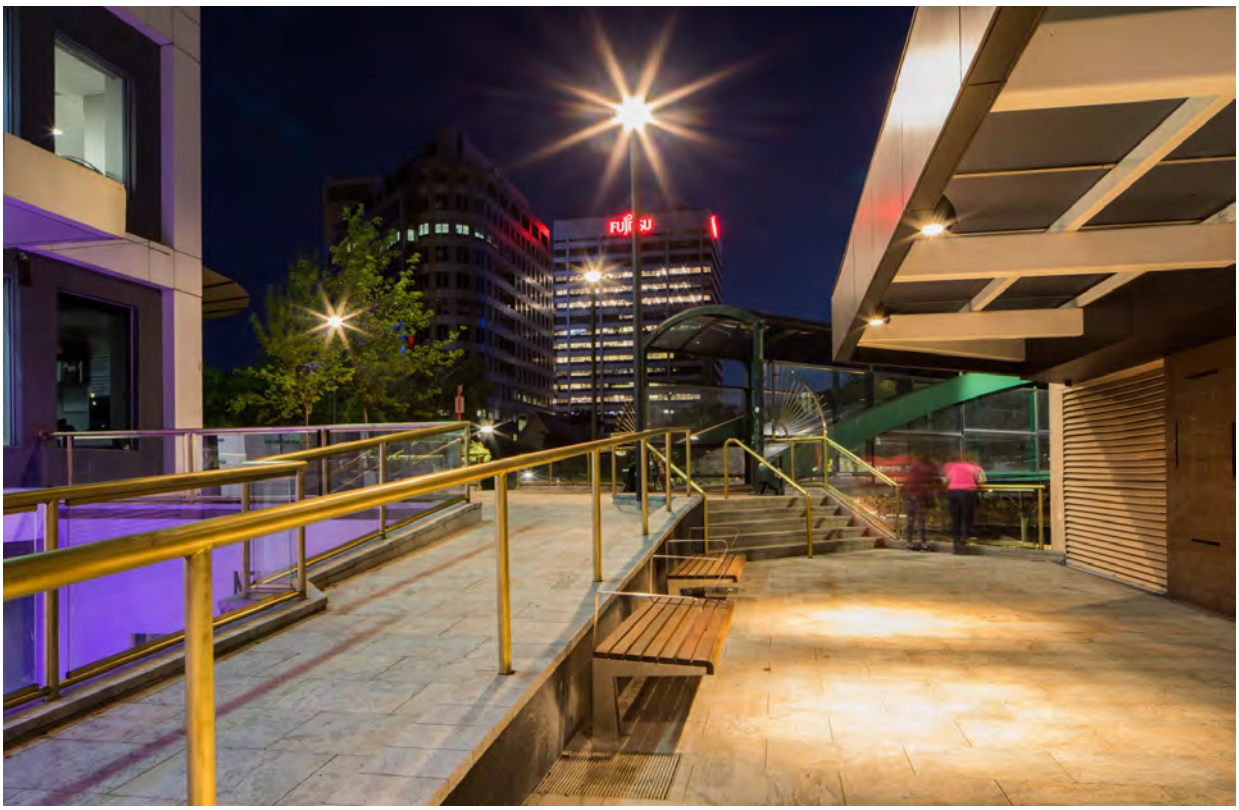
Replace Year	Priority	Location	Risk Rating / Category	Condition	Cost estimate
		Hume street car park			
2025/32	1d	Balls Head Reserve - Adjacent 3 Balls Head Rd	Very High (5)	Very Poor	$115,320
2025/32	1d	Sugar Works Reserve - Supplied from SSS off Ausgrid pole GL 54537	Very High (5)	Very Poor	$202,369
				TOTAL	**$1,506,756**

Note: *These Cost estimates do not include inflation / building escalations costs which can vary between 3-8% each year.*

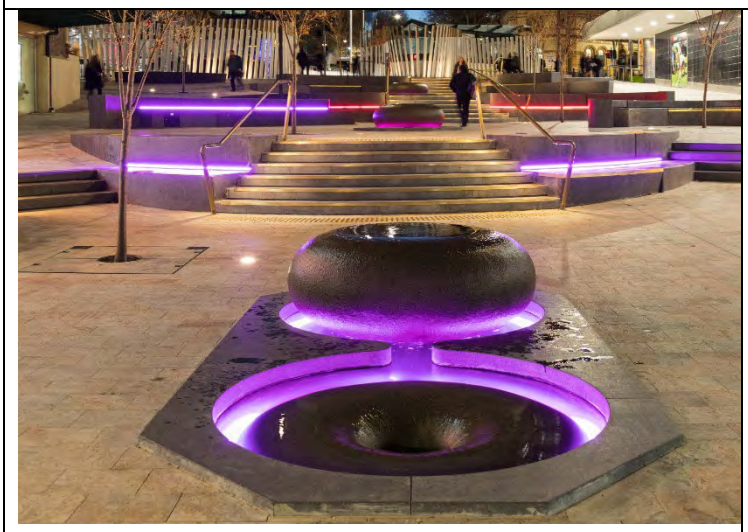
Public Lighting Renewal Program

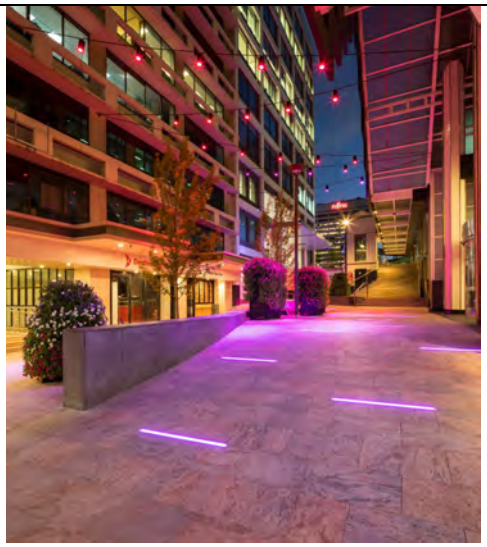
Public Lighting – North Sydney Centre Upgrade

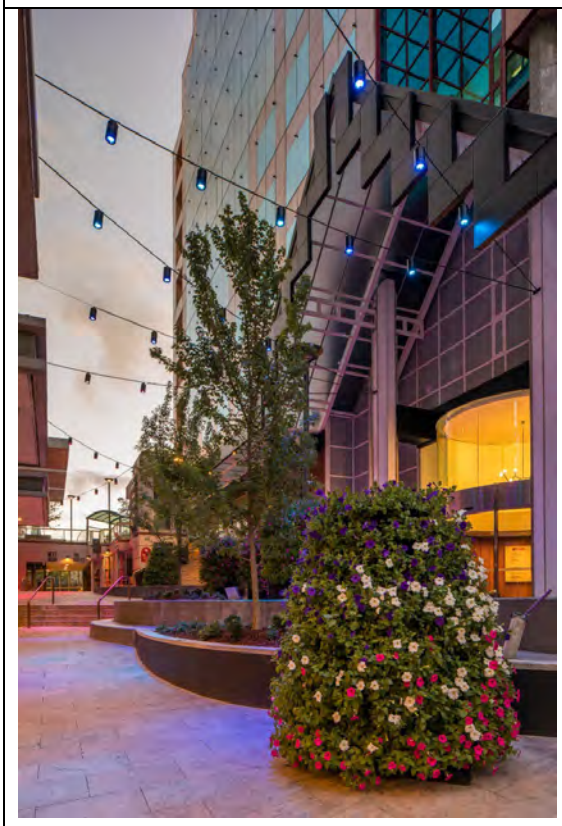


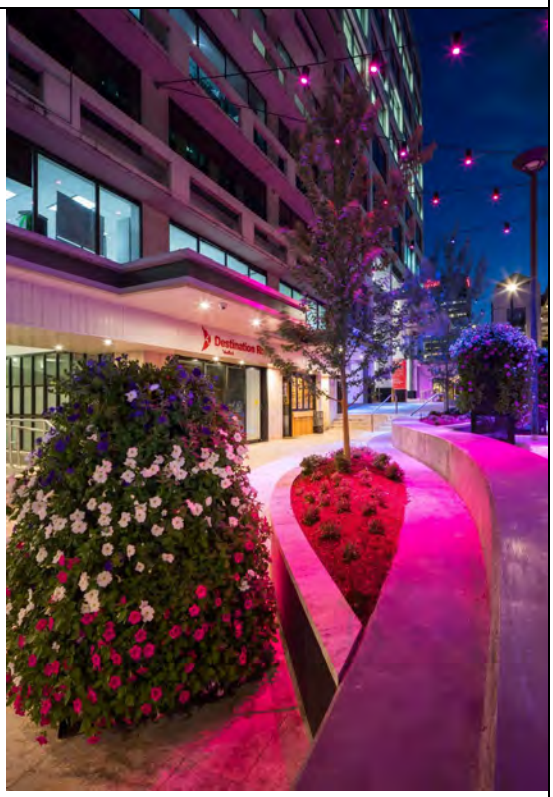


Public Lighting – North Sydney Centre Upgrade









Public Lighting – North Sydney Centre Upgrade	
	

Public Lighting – Performance Measures

The effectiveness of the asset management plan can be measured in the following ways:

- The degree to which the required projected expenditures identified in this asset management plan are incorporated into the long term financial plan,
- The degree to which 1-5 year detailed works programs, budgets, business plans and corporate structures take into account the 'global' works program trends provided by the asset management plan,
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Strategic Plan and associated plans,
- The Asset Renewal Funding Ratio achieving the target of 1.0.

Public Lighting – References

- Report from Gary Roberts & Associates Pty Ltd, "Prioritising the Upgrade of External Lighting Based on Technical Criteria".
- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.
- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney

APPENDICES

Appendix A: Maintenance Management System

Defect Management Inspection – Street Lighting

Inspection areas have been defined in accordance with the identified key factors of:

- Areas where failure is most disruptive and expensive to the community/users.
- Traffic (both vehicular and pedestrian) flows, eg. pedestrian use areas; retail/commercial areas; schools and hospitals

Inspection frequencies are based on these areas as defined by the reference maps and the resources currently available to undertake the inspections.

Red – 2 times per year; **Blue** – Annual; **Other** – Once every 2 years;

The results of inspections will be downloaded into the MMDS database.

There are 5 categories in which a defect may be placed. Not all categories may be applicable to every inspection area and/or type of asset:

Cat 5		Will be **made safe** no later than 2 working days after allocation of defect to work crew. Defect may then be re-categorised as Cat 4 or Cat 3.
Cat 4		Will be repaired no later than 10 working days after allocation of defect to work crew.
Cat 3		Will be placed on Zone Maintenance Program. This program operates on an 8 week cycle, however, depending on workload and reactive maintenance requests, Cat 3 defects may miss a cycle or more before repairs are able to be undertaken.
Cat 2		Deferred maintenance. Defect may be repaired if close-by to Cat 4 or Cat 3 defect that is being repaired. Otherwise will be re-inspected on next area inspection.
Cat 1		As new. Surface displaying no defects. May have aesthetic aspects such as gum, stains, services mark-up, etc.

Intervention Matrix

STREET LIGHTING	RED	BLUE	OTHER
NON-FUNCTIONING or STRUCTURALLY UNSOUND	**28**	**24**	**21**
DAMAGED BUT STILL FUNCTIONING	**23**	**19**	**16**
MINOR DAMAGE AND FUNCTIONING	**20**	**16**	**13**
FUNCTIONING – PAINT/DIRTY/BENT SHADE	**18**	**14**	**11**
AS NEW	**10**	**6**	**3**

Scoring example: 28 = High Use Area score 10 and Defect of Missing or Unstable score 18

Inspections of street lighting will include all the street lighting that the EPS Division is responsible for.

NORTH SYDNEY COUNCIL - GUIDE FOR STREET LIGHTING DEFECT RATING

AN EXPLANATION OF THE DEFECT INSPECTION SYSTEM

AREA OF INSPECTION		SCORE
RED	HIGH PEDESTRIAN TRAFFIC AREAS WITH SIGNIFICANT USAGE BY PEDESTRIANS OVER 50 YEARS OLD INSPECTIONS - 2 PER YEAR	10
BLUE	HIGH PEDESTRIAN TRAFFIC AREAS WITH MODERATE USAGE BY PEDESTRIANS OVER 50 YEARS OLD or MEDIUM PEDESTRIAN TRAFFIC AREAS WITH SIGNIFICANT USAGE BY PEDESTRIANS OVER 50 YEARS OLD INSPECTIONS - ANNUAL	6
WHITE	ALL OTHER AREAS IN LGA INCLUDING PARKS; RESERVES and PLAZAS INSPECTION - EVERY 2 YEARS	3

STREET LIGHTING TYPE

MULTI FUNCTION POLE	LANEWAY/SHARED ZONE LIGHT POLE
HERITAGE LIGHT POLE	LANEWAY/SHARED ZONE LIGHT WALL MOUNTED
CIVIC LIGHT POLE	ILLUMINATED BOLLARD
OCTAGAONAL LIGHT POLE	ILLUMINATED HAND RAIL
UNDER AWNING LIGHTING	OTHER

DEFECT

NON-FUNCTIONAL, STRUCTURALLY UNSOUND - CORROSION, DAMAGED or UNSTABLE	18
MAJOR SURFACE EXTERNAL CORROSION, DISCOLOURED LAMP SHADE	13
MINOR SURACE EXTERNAL CORROSION	10
FADED PAINT, BENT SHADE - STILL FULLY FUNCTIONAL OTHERWISE	8
AS NEW	0

HAZARD TYPE

LIGHT OUT - BLOWN LAMP OR DAMAGE TO FITTING/POLE	BROKEN/DISCOLOURED - SECTION or PART DAMAGED
MISSING - SECTION or PART NO LONGER IN ITS PLACE	BENT - NO LONGER AS INSTALLED VERTICAL POLE
CORRODED - SHOWS OBVIOUS SIGNS OF CORROSION	FINISH - FADED; PEELING; DIRTY; GRAFFITI

OTHER ASPECTS

AREA HAS OBSTRUCTIONS DUE TO OVERHANGING TREE or VEGETATION	PRESENCE OF PARTICULAR ASPECT/S NOTED PRIOR TO DEPARTURE FROM PSID. REFERRED TO RELEVANT NSC SECTION VIA EMAIL
AREA HAS GRASS and/or WEED GROWTH ENCROACHING ONTO ASSET	
AREA APPEARS TO HAVE BEEN AFFECTED BY NEARBY TREE ROOTS	