

## ROADS AND BRIDGES

### ASSET MANAGEMENT PLAN

#### EXECUTIVE SUMMARY



2013

# ROADS AND BRIDGES ASSET MANAGEMENT PLAN

Prepared For: Holroyd City Council

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## 1 EXECUTIVE SUMMARY

### 1.1 Overview of Roads and Bridges Assets

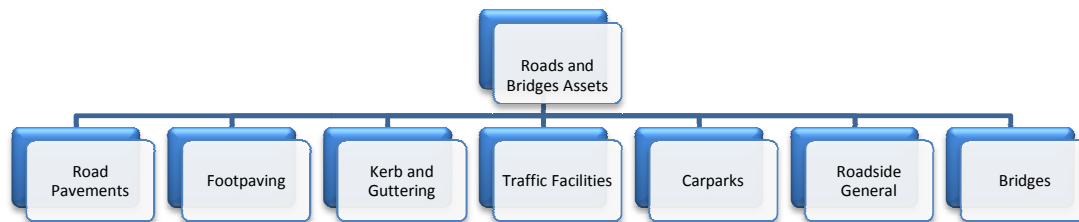
Council provides a Roads and Bridges network to support access and movement throughout the Holroyd Local Government Area and to meet the transport needs of our community. There are over 345 kilometres of Council managed roads in the Holroyd LGA.

Roads are classified as Local, Regional or State Roads. Council manages and maintains the Local and Regional Roads and the Roads and Maritime Services maintains the State Roads. (Note Council maintains footpaths on State Roads).

Reasonably comprehensive data collection and condition assessment has been conducted over the last three (3) years to understand the full extent and condition of Roads and Bridges assets (some further asset data collection required for some assets). As a result of the data collection exercise, Council now has a very good understanding of the extent and current (2012/13) condition of most (all major) Roads and Bridges assets (Data Confidence Grade B (ref IIMM 2011 Sec 2.4.5)).

Assets covered by this Asset Management Plan are defined in the asset hierarchy chart below.

Roads and Bridges Asset Hierarchy



Roads and Bridges assets include:

- 345km of urban roads including
  - 321km of local roads
  - 24km of regional roads
- 426km footpaths
- 23 road bridges, 14 pedestrian bridges (including those in Parks)
- 681km kerb and guttering
- 71 roundabouts
- approximately 107,000m<sup>2</sup> of carpark spaces

## 1.2 Roads and Bridges Assets Valuation as at 2012/13

ASSET GROUP	CURRENT REPLACEMENT COST (\$)	ANNUAL DEPRECIATION (\$/yr)	DEPRECIATED REPLACEMENT COST (\$)
Road Pavement	\$188,639,832	\$2,761,887	\$142,819,498
Footpaving	\$73,339,259	\$666,448	\$44,206,752
Kerb & Gutter	\$122,396,905	\$775,441	\$86,381,966
Traffic Facility	\$11,440,201	\$281,967	\$8,233,570
Carparks	\$5,990,781	\$133,344	\$3,773,824
Roadside General	\$8,406,719	\$237,180	\$5,985,619
Bridges	\$12,282,257	\$170,250	\$8,562,513
<b>TOTAL</b>	<b>\$422,495,954</b>	<b>\$5,026,517</b>	<b>\$299,963,742</b>

## 1.3 Roads and Bridges Assets Important Issues

### Road Pavements

Flexible pavements are of significant age, many constructed of locally quarried sandstone or ballast. Some have in-situ stabilised base. Generally road pavements are in good condition although a number of roads exhibit pavement deterioration. Partial reconstruction/rehabilitation is required for a number of roads.

Asphalt surface course is generally in good condition, although a number of roads require resurfacing in the short term. Surface cracking is evident in many streets generally due to underlying poor clay subgrades or poor sub-surface drainage. Mill and fill/resheet resurfacing is generally proposed along with some structural overlays on key roads. Asphalt rejuvenation surfacing will be considered on strategic low to medium trafficked roads with the aim of extending the life of the road seals.

### Footpaving

Extensive localised defects were noted in 2011/2012 condition surveys. A maintenance/defects register has been developed and implemented to prioritise and rectify defects.

Many footpaths are of significant age and in need of renewal in the short to medium term.

Tree root damage is a major issue which is being managed in a variety of ways eg; replacing problem footpaths sections in asphalt. Utility authority openings are an ongoing concern. Significant attention is given to the footpath restoration process to ensure footpaths dug up by utilities are restored within a reasonable time period.

### Kerb and Gutter

A small percentage of the road network's kerb and gutter requires continuous renewal. Renewal is often undertaken in association with the road pavements/resurfacing program. The amount of kerb and gutter works carried out over the last 5 years has increased and this reflects the current condition of this asset.

Tree root damage is also an issue for kerb and gutter, as well as heavy vehicle damage.

### Traffic Facilities

A range of existing traffic devices exist of varying age and condition.

A number of devices will require renewal over the next 10 years, and consideration will be given to replacement with alternative treatments and/or alternative materials.

## Carparks

This includes a range of at-grade carparks in commercial areas, on street carparks in residential areas and carparks associated with Council Buildings and Parks. Council does not have multi-deck carparks. These are of varying age and condition.

Renewal of short life assets such as linemarking, signage and furniture is required on an ongoing periodic basis. There is no dedicated funding for resealing of carpark assets and is generally carried out on an ad-hoc basis using funds from the Roads Reseal Program whenever necessary.

## Roadside General

Roadside General assets are many and varied. These are of varying age and condition.

Bus shelters and guardrail are key asset types that are considered to be important assets. They are generally in average to poor condition and in need of priority maintenance and/or renewal.

## Bridges

Lack of dedicated maintenance funds for ongoing maintenance of various components is a major concern. The Asset register shows that ongoing maintenance is required for railings, concrete repairs, joint repairs and clearance of debris along the waterway

Some concrete bridges and culverts are in need of concrete repairs. Majority are in good condition (both pedestrian and road bridge types).

A couple of timber pedestrian bridges will require replacement or major renewal in the next 5 to 10 years. Majority of timber bridges are in good to fair condition but will require renewal of timber decking.

## Historical Expenditure Levels

Over the past three year period (2012 to 2014):

- Operations expenditure which includes tree management and street sweeping has been at an average of \$2.8M pa.
- Maintenance expenditure has varied between \$1.2M to \$2.3M pa. (excluding restoration expenditure)
- Renewal expenditure has varied between \$1.9M and \$2.8M pa.
- Expenditure on New Works by Council has been at an average of \$300k pa.

## Condition of Roads and Bridges Assets

Condition surveys were conducted for road pavement and kerb and gutter in 2012, footpaths in 2010, bridges in 2008 and other assets in 2010 using a 1 to 5 condition rating scale where 1 is New and 5 is Very Poor. Assets in condition 1 and 2 are considered to be in "Excellent" to "Good" condition. Assets in condition 3 are considered to be in "Average" condition. Assets in condition 4 are considered to be in "Poor". Condition 5 assets are considered to be in "Very Poor" condition. The condition surveys have indicated the following asset condition:

ASSET GROUP	% condition 1 (Excellent)	% condition 2 (Good)	% condition 3 (Average)	% condition 4 (Poor)	% condition 5 (Very Poor)
Road Pavements	30%	24%	23%	15%	8%
Footpaving	13%	41%	34%	11.8%	0.2%
Kerb and Gutter	17%	59%	23.7%	0.2%	0.1%
Traffic Facilities	19%	21%	38%	21%	1%
Carparks	43%	34%	19%	4%	0%
Roadside General	8%	20%	64%	5%	3%
Bridges	17%	44%	37%	2%	0%

## **Strategic Context**

This Roads and Bridges Asset Management Plan integrates with Council's Community Strategic Plan and complies with the Department of Local Government Integrated Planning and Reporting requirements.

The Roads and Bridges Asset Management Plan provides important input into Council's Resourcing Strategy and Long term Financial Plan.

## **Levels of Service**

Levels of Service framework has been developed for all Roads and Bridges assets based on Community and Technical considerations.

The Levels of Service consider Quality, Safety, Function, Condition, Cost/ Affordability, Responsiveness and Appearance/Presentation.

The Levels of Service are a blend of existing and desired Levels of Service which take into account recent feedback and input from the community. Further work will be done in the next few years to develop and refine Levels of Service.

These Levels of Service will guide asset management and decision making in the future.

## **Maintenance Management**

In conjunction with development of this Asset Management Plan, a Roads and Bridges asset maintenance specification is to be developed which will outline maintenance strategies, intervention levels and response times for the various asset groups.

The asset maintenance specification will guide future maintenance subject to allocation of appropriate resourcing.

## **Asset Defect Inspections**

Currently there is a semi-formal asset defect inspection system in place. It is proposed to formalise the asset defect inspection system to cover all major and critical assets. An initial inspection framework has been developed. Asset criticality and risk guide the inspection frequency and maintenance response framework.

The asset defect inspection system will be implemented subject to allocation of appropriate resourcing.

## **Risk Management**

A comprehensive risk assessment has been completed in conjunction with the development of this Asset Management Plan.

A Risk Management Plan has been developed and identifies risks that require planned and priority action.

The Risk Management Plan informs and supports responsible asset risk management and will assist in guiding Roads and Bridges asset management in the future.

## **1.4 Lifecycle Costs/ Sustainability Index**

There are two key high-level indicators of cost to provide the Roads and Bridges service:

- The life cycle cost being the average cost over the life of the asset, and
- The total maintenance and capital renewal expenditure required to deliver existing/desired service levels in the next 10 years covered by Council's long term financial plan.



The life cycle cost (annual average asset maintenance and asset consumption over the life of the assets) to provide the Roads and Bridges service is estimated at \$9.7M pa. Council's current/planned life cycle expenditure is \$6.4M which gives a life cycle sustainability index of 0.66.

(A Sustainability Ratio of 1.0 indicates that the current funding provided is equal to the required lifecycle funding estimate. A sustainability ratio of less than 1.0 indicates a lifecycle funding gap).

The total **required** maintenance and capital renewal expenditure to provide the Roads and Bridges service in the next 10 years is estimated at \$74.7M. This is an average of \$7.47M per annum. Council's current maintenance and capital renewal expenditure is \$4.6M giving a 10 year sustainability index of 0.62.

The following table shows important ratios that reflect the funding requirements for Roads Infrastructure:

<b>Actual Maintenance /Required maintenance</b>	<b>Annual Depreciation/ Value</b>	<b>Bring To Satisfactory/ WDV</b>	<b>Building &amp; Infrastructure Backlog Ratio</b>
.86	0.0119	0.020	0.014

### 1.5 Backlog and 10 Year Maintenance, Renewal Plan

The level of asset maintenance and renewal expenditure required to effectively sustain assets into the future and to provide the asset related levels of service desired has been analysed (based on constant 2013 dollars) for existing and new assets.

<b>Projected Maintenance Requirement and Funding Gap (\$000s)</b>				
<b>Year</b>	<b>Projected Maintenance (\$000)</b>	<b>Current/ Planned Maintenance (\$000)</b>	<b>Maintenance Funding Gap (\$000)</b>	<b>Cumulative Maintenance Funding Gap (\$000)</b>
2014/15	\$2,593	\$2,318	\$275	\$275
2015/16	\$2,532	\$2,318	\$214	\$488
2016/17	\$2,550	\$2,318	\$232	\$720
2017/18	\$2,565	\$2,318	\$247	\$968
2018/19	\$2,724	\$2,318	\$406	\$1,374
2019/20	\$2,756	\$2,318	\$438	\$1,811
2020/21	\$2,772	\$2,318	\$454	\$2,266
2021/22	\$2,816	\$2,318	\$498	\$2,764
2022/23	\$2,904	\$2,318	\$586	\$3,350
2023/24	\$2,941	\$2,318	\$623	\$3,972

Assets falling under Condition 5 category are considered to be 'Backlog'. The estimated cost to bring these assets to a satisfactory standard is shown in table below:

#### **Backlog as at 2013/2014 (\$000)**

Road Pavements	\$5,500
Footpaving	\$147
Kerb and Gutter	\$0
Traffic Facilities	\$92
Carparks	\$0
Roadside General	\$250
Bridges	\$0
<b>Total</b>	<b>\$5,989</b>

The forecast 10 Year Annual Renewals expenditure required is based on:

- an Optimisation Methodology for Road Pavements to achieve average Condition 2 in year 2022/23;
- addressing of Backlog from 2014/15 over a 4 year period for Road Pavements
- for other assets addressing Backlog in year 2014/15

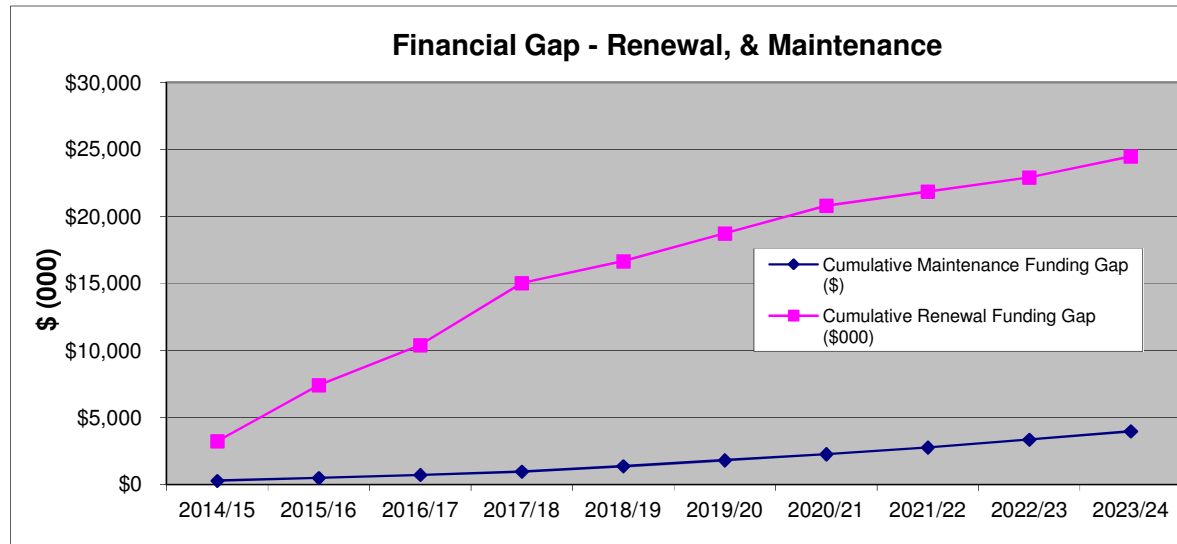
**Projected Renewals (Including Backlog)**

	2014/15 \$000s	2015/16 \$000s	2016/17 \$000s	2017/18 \$000s	2018/19 \$000s	2019/20 \$000s	2020/21 \$000s	2021/22 \$000s	2022/23 \$000s	2023/24 \$000s
Road Pavements	3,375	4,915	3,875	5,475	2,500	3,000	3,000	2,000	2,000	2,500
Footpaving	1,027	880	880	880	880	880	880	880	880	880
Kerb and Gutter	245	245	245	245	245	245	245	245	245	245
Traffic Facilities	301	202	202	202	202	202	202	202	202	202
Carparks	25	25	25	25	25	25	25	25	25	25
Roadside General	306	43	43	43	43	43	43	43	43	43
Bridges	27	27	27	80	80	35	35	35	35	35
<b>TOTAL</b>	<b>5,306</b>	<b>6,337</b>	<b>5,297</b>	<b>6,950</b>	<b>3,975</b>	<b>4,430</b>	<b>4,430</b>	<b>3,430</b>	<b>3,430</b>	<b>3,930</b>

The current planned renewal expenditure and funding gap are summarised as follows:-

<b>Projected Renewals Requirement and Renewal Funding Gap (2012 \$000s)</b>				
<b>Year</b>	<b>Projected Renewals (\$000)</b>	<b>Current/Planned Renewals (\$000)</b>	<b>Renewal Funding Gap (\$000)</b>	<b>Cumulative Renewal Funding Gap (\$000)</b>
2014/15	\$5,306	\$2,070	\$3,236	\$3,236
2015/16	\$6,337	\$2,155	\$4,182	\$7,418
2016/17	\$5,297	\$2,316	\$2,981	\$10,399
2017/18	\$6,950	\$2,327	\$4,623	\$15,022
2018/19	\$3,975	\$2,338	\$1,637	\$16,659
2019/20	\$4,430	\$2,350	\$2,080	\$18,739
2020/21	\$4,430	\$2,362	\$2,068	\$20,807
2021/22	\$3,430	\$2,373	\$1,057	\$21,864
2022/23	\$3,430	\$2,376	\$1,054	\$22,918
2023/24	\$3,930	\$2,376	\$1,554	\$24,472

A graphical representation of the above gaps is shown in the graph below:



Council has a list of Traffic works – funded through S94.

Tables below shows Projected Long Term Financial Plan for Road Assets:

Year	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
<b>Existing Assets</b>										
Renewal	\$5,306,000	\$6,337,000	\$5,297,000	\$6,950,000	\$3,975,000	\$4,430,000	\$4,430,000	\$3,430,000	\$3,430,000	\$3,930,000
Maintenance	\$2,592,588	\$2,531,858	\$2,540,781	\$2,555,474	\$2,704,329	\$2,724,555	\$2,740,454	\$2,774,976	\$2,842,515	\$2,842,515
Depreciation	\$5,026,517	\$5,026,517	\$5,026,517	\$5,026,517	\$5,026,517	\$5,026,517	\$5,026,517	\$5,026,517	\$5,026,517	\$5,026,517
Operations	\$2,181,554	\$2,181,554	\$2,181,554	\$2,181,554	\$2,181,554	\$2,181,554	\$2,181,554	\$2,181,554	\$2,181,554	\$2,181,554
<b>SUBTOTALS</b>	<b>\$15,106,659</b>	<b>\$16,076,929</b>	<b>\$15,045,852</b>	<b>\$16,713,545</b>	<b>\$13,887,400</b>	<b>\$14,362,626</b>	<b>\$14,378,525</b>	<b>\$13,413,047</b>	<b>\$13,480,586</b>	<b>\$13,980,586</b>
<b>S94 - New</b>										
New or Upgrade	\$0	\$2,140,134	\$4,280,269	\$4,280,269	\$5,350,336	\$5,350,336	\$0	\$0	\$0	\$0
Maintenance	\$0	\$0	\$9,210	\$9,210	\$18,419	\$27,629	\$27,629	\$36,838	\$55,258	\$92,096
Depreciation	\$0	\$0	\$9,686	\$29,059	\$48,431	\$72,647	\$96,862	\$96,862	\$96,862	\$96,862
Operations	\$0	\$3,093	\$9,280	\$15,467	\$23,201	\$30,934	\$30,934	\$30,934	\$30,934	\$30,934
<b>SUBTOTALS</b>	<b>\$0</b>	<b>\$2,143,228</b>	<b>\$4,308,445</b>	<b>\$4,334,004</b>	<b>\$5,440,387</b>	<b>\$5,481,546</b>	<b>\$155,425</b>	<b>\$164,635</b>	<b>\$183,054</b>	<b>\$219,893</b>
<b>SEPP 59</b>										
Renewals	\$0	\$0	\$38,737	\$79,798	\$123,288	\$423,290	\$174,396	\$0	\$277,524	\$0
Maintenance	\$0	\$0	\$194	\$598	\$1,233	\$3,386	\$4,360	\$4,491	\$6,013	\$6,013
Depreciation	\$0	\$0	\$0	\$297	\$908	\$1,852	\$5,093	\$6,428	\$6,428	\$8,553
Operations	\$0	\$0	\$2	\$8	\$21	\$55	\$100	\$148	\$213	\$213
<b>SUBTOTALS</b>	<b>\$0</b>	<b>\$0</b>	<b>\$38,933</b>	<b>\$80,701</b>	<b>\$125,450</b>	<b>\$428,583</b>	<b>\$183,949</b>	<b>\$11,067</b>	<b>\$290,178</b>	<b>\$14,779</b>
<b>TOTAL</b>	<b>\$15,106,659</b>	<b>\$18,220,157</b>	<b>\$19,393,230</b>	<b>\$21,128,251</b>	<b>\$19,453,237</b>	<b>\$20,272,756</b>	<b>\$14,717,899</b>	<b>\$13,588,749</b>	<b>\$13,953,819</b>	<b>\$14,215,258</b>

Council will continue to review maintenance and renewal expenditure forecasts with a view to improved understanding of the maintenance and renewal expenditure requirements. The need and options for increased funding will be considered.

## 1.6 Plans for the Future

Council plans to operate and maintain the Roads and Bridges network to achieve the following strategic objectives:

1. Ensure the Roads and Bridges network is maintained at a safe and functional standard
2. Provide for adequate vehicular access and movement within the LGA
3. Manage assets in a sustainable manner

## **1.7 Measuring our Performance**

### **Performance Measures**

We will measure our performance against Key Performance Indicators that have been developed to support defined Levels of Service.

#### **Quality**

Roads and Bridges assets will be maintained in a reasonably usable condition, fit for their intended purpose and in line with Levels of Service. Defects found or reported that are outside our service standard will be repaired. Our maintenance response service levels detail defect prioritisation and response times.

#### **Function**

Our intent is that an appropriate Roads and Bridges network is maintained in partnership with other levels of government and stakeholders to meet the access and movement and transport needs of our community.

We need to ensure key functional objectives are met. These relate to:

- safety
- access and movement
- sustainability

To achieve this we need to ensure that adequate funding is provided to sustain assets and appropriate management practices are in place to effectively and efficiently manage works and expend available funds.

#### **Safety**

Roads and Bridges assets will be maintained at a safe level and associated facilities will be provided as needed to ensure public safety.

We inspect all major and critical Roads and Bridges assets on a regular/cyclical basis and prioritise and repair defects in accordance with our inspection, intervention and response schedule to ensure they are safe.

## **1.8 The Next Steps**

Key actions resulting from this asset management plan are:

- consider provision of and potential funding sources for additional funding for asset renewal
- review asset management systems, processes and resourcing
- undertake further asset management development work to better understand assets and related financial requirements