

*Front cover photo is taken at Berrigan Drive, Jandakot.*

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Acknowledgement of Country

The Mayor, Councillors and staff of the City of Cockburn acknowledge the Whadjuk Nyungar people of Beeliar boodja as the traditional custodians of this land. We pay our respect to the Elders, past, present and emerging.

**Table of Contents**

[Glossary ii](#_Toc54964803)

1. [Executive summary 1](#_Toc54964804)

[2. Introduction 5](#_Toc54964805)

[2.1 Background 5](#_Toc54964806)

[2.2 Goals and Objectives of Asset Management 6](#_Toc54964807)

[2.3 Plan Framework 8](#_Toc54964808)

[2.4 Asset Management Maturity 8](#_Toc54964809)

[2.5 Asset Management Plan – Data confidence assessment 10](#_Toc54964810)

[3. Levels Of Service 12](#_Toc54964811)

[3.1 Customer Research and Expectations 12](#_Toc54964812)

[3.2 Current Levels of Service 13](#_Toc54964813)

[3.2 Enterprise Risk Management 16](#_Toc54964814)

[3.3 Legislative Requirements 20](#_Toc54964815)

[3.4 Asset Capacity and Performance 20](#_Toc54964816)

[4. Future Growth And Demand 21](#_Toc54964817)

[4.1 Growth Forecast 21](#_Toc54964818)

[4.2 Changes in Technology 22](#_Toc54964819)

[4.3 Demand Management Plan 22](#_Toc54964820)

[4.4 New Assets from growth 23](#_Toc54964821)

[5. Lifecycle Management 25](#_Toc54964822)

[5.1 Asset Data 25](#_Toc54964823)

[5.1.1 Asset Age 26](#_Toc54964824)

[5.1.2 Asset Condition 28](#_Toc54964825)

[5.1.3 Useful Life 31](#_Toc54964826)

[5.1.4 Asset valuations 34](#_Toc54964827)

[5.2 Maintenance and Operating expenditure 35](#_Toc54964828)

[5.2.1 Standards and specifications 36](#_Toc54964829)

[5.3 Renewal and Replacement Plan 36](#_Toc54964830)

[5.3.1 Road surface 36](#_Toc54964831)

[5.3.2 Road item 37](#_Toc54964832)

[5.3.3 Car Park 37](#_Toc54964833)

[5.4 New and Upgrade Plan 38](#_Toc54964834)

[5.4.1 Selection criteria 38](#_Toc54964835)

[5.4.2 Summary of future upgrade and new assets expenditure 38](#_Toc54964836)

[5.5 Disposal Plan 38](#_Toc54964837)

[6. Financial Analysis 39](#_Toc54964838)

[6.1 Financial Statements and Projections 39](#_Toc54964839)

[6.2 Funding Strategy 43](#_Toc54964840)

[6.3 Sustainability of Service Delivery 44](#_Toc54964841)

[6.3.1 Asset Consumption Ratio (ACR) 44](#_Toc54964842)

[6.3.2 Asset Sustainability Ratio (ASR) 45](#_Toc54964843)

[6.3.3 Asset Renewal Funding Ratio (ARFR) 46](#_Toc54964844)

[6.4 Valuation Forecasts 46](#_Toc54964845)

[6.5 Key Assumptions made in Financial Forecasts 48](#_Toc54964846)

[7. Asset Management Practices 49](#_Toc54964847)

[7.1 Accounting/Financial Systems 49](#_Toc54964848)

[7.2 Asset Management Systems (EAM) 49](#_Toc54964849)

[7.3 Information Flow Requirements and Processes 50](#_Toc54964850)

[7.4 Standards and Guidelines 50](#_Toc54964851)

[8. Plan Improvement And Monitoring 51](#_Toc54964852)

[8.1 Performance Measures 51](#_Toc54964853)

[8.2 Improvement Strategy 51](#_Toc54964854)

[8.3 Monitoring and Review Procedures 53](#_Toc54964855)

[References 55](#_Toc54964856)

[Appendices 56](#_Toc54964857)

[Appendix A Legislative Requirements 56](#_Toc54964858)

[Appendix B Road hierarchy map - City of Cockburn 58](#_Toc54964859)

[Appendix C Capital Expenditure Renewals 2020/21 – Roads 59](#_Toc54964860)

[Appendix D Preliminary Renewals for 2021/22 - Roads 60](#_Toc54964861)

[Appendix E Preliminary 10 year Major Road Infrastructure Projects 89](#_Toc54964862)

[Appendix F Standards and Specifications 91](#_Toc54964863)

# Glossary

**ASPEC (M, O, R, D) Specification**

ASPEC data Specification and the City’s operational register classification i.e. Marina and Coastal Infrastructure, Open Space, Road and Drainage Specification.

**Asset**

A physical component of a facility which has value enables a service to be provided and has an economic life of greater than 12 months.

**Asset Class**

Groupings of assets of similar nature and use in a local government’s operations (AASB 166.37)

**Asset Classification**

A division of the asset class regarded as having particular shared characteristics

**Asset Type**

Defines the range of assets held in the asset classification ie ASpec

**Asset Condition**

Is a measure of the asset’s physical integrity to enable prediction of maintenance, rehabilitation and renewal requirements.

**Asset Management**

The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.

**Capital Renewal Expenditure**

Expenditure/ works on an existing asset which returns the service potential or the life of the asset to that which it had originally.

**Capital New Expenditure**

Expenditure used to create new assets or to increase the capacity of existing assets beyond their original design capacity or service potential.

**Capital Upgrade Expenditure**

Expenditure which enhances an existing asset to provide a higher level of service or expenditure that will increase the life of the asset beyond that which it had originally.

**Current Replacement Cost (CRC)**

The cost of replacing the service potential of an existing asset, by reference to some measure of capacity, with an appropriate equivalent asset.

**Depreciation**

The wearing out, consumption or other loss of value of an asset whether arising from use, passing of time or obsolescence through technological and market changes.

\*The systematic allocation of the depreciable amount (service potential) of an asset over its useful life.

**Depreciated Replacement Cost**

The replacement cost of an existing asset less an allowance for wear and consumption, having regard for the remaining economic life of the existing asset.

**Expenditure**

The spending of money on goods and services.

**Fair Value**

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

**Funding Gap \***

Difference between estimated budgets and projected expenditures from the Long Term Financial Plan for maintenance and renewal of assets, totalled over a defined time.

**Gap Analysis**

A method of assessing the gap between a business’s current asset management practices and the future desirable asset management practices.

**Integrated Planning and Reporting**A framework for establishing community priorities and linking this information into different parts of a local government’s functions.

**Level of Service \***

The defined service quality for a particular activity or service area against which service performance can be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental, acceptability and cost.

**Life Cycle Management**

The total cost of an asset throughout its life including costs for planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal.

**Long Term Financial Plan (LTFP)**  
Supported by the Asset Management Planning Process the LTFP is a ten year rolling plan that informs the Corporate Business Plan to activate Strategic Community Plan priorities. From these planning processes, Annual Budgets that are aligned with strategic objectives can be developed.

**Maintenance**

All actions necessary for retaining as asset as near as practicable to its original condition but excluding rehabilitation or renewal.

**M, O, R Specification**

ASPEC data Specification and the City’s operational register classification i.e. Marina and Coastal Infrastructure, Open Space and Road Specification.

**Non-Asset Solution**

The process used to identify the alternative methods of addressing, reducing and/ or increasing demand for services other than by adjusting asset capacity.

**Operating expenditure \***

Recurrent expenditure, which is continuously required excluding maintenance and depreciation, eg power, fuel, staff, plant equipment, on-costs and overheads.

**Planned Maintenance \***

Repair work that is identified and managed through a maintenance management system, activities include inspection, assessing the condition against failure/breakdown criteria/experience, prioritising scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

**Reactive Maintenance \***

Unplanned repair work that is carried out in response to service requests and management/supervisory directions.

**Remaining Life \***The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining life is economic life.

**Replacement Cost**

The cost of replacing an existing asset with a substantially identical new asset.

**Risk Management \***

The application of a formal process to determine the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probable occurrence.

**Strategic Community Plan**  
The strategy and planning document that reflects the longer term (10+ year) community and local government aspirations and priorities.

**Useful life \***

Either:

(a) the period over which an asset is expected to be available for used; or

(b) the number of production or similar units (i.e. intervals, cycles) that is expected to be obtained from the asset.

Source: **Government** of WA Asset management framework and guidelines, Glossary

**\***Source: DVC 2006, Glossary ‘Asset Investment Guidelines’

# Executive Summary

With the implementation of the City’s Integrated Corporate Planning Framework, the Road Asset Management Plan (RAMP) has been developed to establish sustainable financial management, robust governance, continuous improvement and best practice management of the City’s infrastructure assets.

The RAMP covers the 2020-2021 to 2023-2024 financial years and outlines the services provided by the Engineering Service Unit in delivering strategic and operational asset management activities for communities that utilise the City’s Roads, Car parks and Traffic Management Devices (Road Items).

The RAMP is one of eight AMPs developed by the City and forms part of the City’s Strategic Asset Management Planning Framework (SAMPF). The RAMP will be developed every four years in alignment with the Corporate Planning Framework ensuring that the City’s long term financial planning (LTFP) is supported by timely and accurate asset information and financial projections derived from a structured and strategic asset management planning process.

The 2020 - 2024 version of the RAMP is developed by the City and in accordance with the International Infrastructure Management Manual (IIMM) has achieved intermediate level status.

The RAMP improvement strategy will guide the Engineering Service Unit to continuously improve services provided, establishing best practice strategic and operational asset management methodologies across people, processes and systems.

The road infrastructure asset category is currently the City’s highest value asset grouping.

**Table 1.1 Road Infrastructure Assets Summary Table as at September 2020**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Asset Type** | **2013-14** | **2013-14** | **2016-17** | **2016-17** | **2019-20** | **2019-20** |
| **Dimension** | **CRC $m** | **Dimension** | **CRC $m** | **Dimension** | **CRC $m** |
| **Road** | 6,503,248 m2 | 444.4 | 6,887,079 m2 | 466 | 6,990,828 m2 | 549 .7 |
| **Road Item** | 378,670 m2 | 18.62 | 352,455 m2 | 14 | 377,630 m2 | 35.1 |
| **Car Parks** | 121,047 m2 | 8.93 | 182,109 m2 | 16 | 191,958 m2 | 18 |
| **Kerbing** | 1,448 km | 54.04 | 1,484 km | 56 | 1,625 km | 58 |
| **TOTAL** |  | **$525.98m** |  | **$552.62m** |  | **$660.60m** |

The key messages from the RAMP are summarised below:

**Asset Data & Condition Analysis**

* The data utilised to develop the RAMP is considered to be approximately 95% accurate and of medium confidence. The recent condition ratings were established via a partial network audit conducted by Talis in August 2019.
* The RAMP Infrastructure assets are in excellent condition with 37% of the road assets in condition 1 and 2, 60% in condition 3 and 3% in condition 4 and 5.

**Level of Service and Risk Management**

Level of Service is a measurable target which determines the type and extent of services delivered to the Community. Road Infrastructure levels are measured internally and, by the community to determine adequate provision. The following findings have been drawn from the CATALYSE Pty Ltd Survey 2019.

* Community satisfaction for the City’s road maintenance service is high, with 87% of those surveyed either delighted or satisfied.
* Management and control of traffic is the number one concern for both residents and businesses.
* Existing controls and expenditure to mitigate risk are considered adequate, thus reducing the impact on service delivery.

See **(Section 3)** for further information

**Future Growth and Demand Management**

Projected future growth is supported by the City’s Strategic Planning Business Unit’s population and demographic research study’s, whilst demand management is catered for by the upgrade and construction of existing and new assets through the delivery of the City’s adopted Major Capital Work strategies, programs and plans.

* A cumulative growth of 58 km to the Road surface network over the next 5 years. This represents a 1% growth per annum.
* Estimated project costs of $90 million invested through the delivery of the ten year capital works program outlined in the Long Term Financial Plan.

See **(Section 4)** for further information

**Lifecycle Management**

The lifecycle management section details how the City plans to manage and operate both current and future assets to sustainably agreed levels of service.

* Current Maintenance & Operational expenditure is adequate however future budgeting requirements to meet appropriate service levels need to be assessed.
* Planned maintenance work represents 56% of the total roads maintenance expenditure for 2019-20.
* By 2029-30 required expenditure for Operations and Maintenance is expected to be around $3.2m per year.

See **(Section 5)** for further information

**Financial Analysis**

**Road Surface Renewal Forecasts**

The City has developed a 10 year resurfacing renewal plan which will drive the budget planning process and form the basis to the City’s long term financial planning.

* The City’s road network is in excellent condition with 37% of the road surface currently rating as either a 1 or a 2. (Excellent or Good).
* Currently only 3% of road surface has reached the renewal intervention level of condition 4 (Poor).
* The higher risk rated assets (condition 4 & 5) were internally reconditioned late 2019 and form the basis of the 5 year Resurfacing Renewal Program.
* See **(Section 6)** for further information

**Sustainability of Service Delivery**

The City will compile and report its Road assets performance in relation to the Dept. of Local Government’s Asset Management Guidelines and Framework.

Based on actual expenditure in 2019/20, the following table indicates the City’s performance in managing Road infrastructure assets as at September 2020.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Asset Class** | **2019-20 Consumption Ratio %** | **Sustainability Ratio % (10 Years)** | **Renewal Funding Ratio %** | |
| **10 Year** | **5 Year** |
| **Road**  **(Surface Only)** | 57.76 | 72 | 99 | 97 |
| **Dept. of LG Standard** | Met | Met | Met | Met |

Sustainability ratios for Road infrastructure have been forecast for the next 10 years to reflect the improvements and the anticipated funding strategy from the latest LTFP. The sustainability ratio for 2029/30 period is predicted to be 72% with the renewal funding ratio for the same period predicted to be 99%.

See **(Section 6)** for further information

**AMP Improvement Strategy and Monitoring**

Most of the strategic improvements identified in the previous RAMP are now complete. Further improvements have been identified that will enhance future revisions of the plan and provide greater financial alignment with the Long Term Financial Plan.

* Monitoring performance levels against service standards.
* Annual review and update of Risk Register.
* Review asset custodianship across service units to better target ongoing operational asset maintenance and renewal expenditure.

See **(Section 8)** for further information

# 2. Introduction

## 2.1 Background

This RAMP has been developed to assist the Engineering Services Business Unit to outline the management of assets, compliance with regulatory requirements, and to highlight the funding required to provide the appropriate Levels of Service.

The assets covered by this plan are summarised in Table 2.1.1. Figures as at September 2020 have been extracted from Council’s Technology One Enterprise Asset Management System (EAM)

**Table 2.1.1 Road Infrastructure Assets covered by this Plan as at June 2020**

|  |  |  |  |
| --- | --- | --- | --- |
| Asset category | Asset type | Dimension | Replacement Value $ |
| Road | Surface | 6,990,828 | 208,951,444 |
| Base | 6,990,828 | 150,760,515 |
| Sub Base | 6,990,828 | 189,761,786 |
| Kerbing | 1,542,012 | 57,940,754 |
| Car Parks | Surface | 191,958 | 6,035,029 |
| Base | 191,958 | 3,985,055 |
| Sub-Base | 191,958 | 5,021,630 |
| Kerbing | 83,430 | 2,970,691 |
| Road Item | Anti-skid surface | 9,278 | 1,024,048 |
| Bus Embayment | 5,963 | 508,702 |
| Median Island | 299,430 | 8,940,321 |
| Parking (road) | inc in car parks |  |
| Roundabout | 38,046 | 2,117,383 |
| Splitter Island | 26,266 | 2,026,548 |
| Speed Plateau | 4,940 | 1,236,922 |
| Surface | 292,671 | 19,327,237 |
| **TOTAL** |  |  | **660,608,064** |

The AMP is to be read in conjunction with the following associated planning documents:

City of Cockburn Strategic Community Plan 2020 – 2030

City of Cockburn Corporate Business Plan 2016/17 – 2019/20

City of Cockburn Annual Business Plan 2019 – 2020

City of Cockburn Long Term Financial Management Plan 2020/21 – 2029/30

Key stakeholders in the preparation and implementation of this asset management plan are shown in Table 2.1.2.

**Table 2.1.2 Key Stakeholders in the AM Plan**

|  |  |
| --- | --- |
| **ENTITY**: | **NATURE OF INVOLEMENT** |
| **Internal Stakeholders include:** |  |
| **The Elected Council** | Community representation |
| **Chief Executive Officer (CEO)** | Asset management direction and leadership |
| **Executive Committee (ExCo)** | Executive management endorsement, sign off and executive ownership |
| **Chief of Operations** | Review and strategic management sign off |
| **Manager Engineering Services** | Review and line management sign off |
| **Property and Assets Services** | Asset Management Plan development, review, continuous improvement and implementation of the AMP maintenance actions |
| **External Stakeholders include:** |  |
| **City of Cockburn community Business Perceptions Survey Community** | Road and service users |
| **City of Cockburn business Police, Fire and Emergency Services** | Road and service users |
| **Insurers** | Assist to manage financial risk of the City |
| **State Emergency Services** | Attendance to call-outs and security |

## 2.2 Goals and Objectives of Asset Management

The City of Cockburn exists to deliver services to its community supported by the City’s infrastructure assets. The City acquires infrastructure assets by ‘purchase’, ‘contract’, construction by council and by handover of ‘donated’ assets constructed by developers in order to meet the increased demand for services.

The City of Cockburn’s goal in managing infrastructure assets is to meet the required level of service in the most cost effective manner for present and future consumers.

The key elements of infrastructure asset management are:

* Taking a life cycle approach,
* Developing cost-effective management strategies for the long term,
* Providing a defined level of service and monitoring performance,
* Understanding and meeting the demands of growth through demand management and infrastructure investment,
* Managing risks associated with asset failures,
* Sustainable use of physical and financial resources, and
* Continuous improvement in asset management practices.

This AMP is prepared under the direction of Council’s vision, mission, goals and objectives.

The City of Cockburn’s vision is:

Cockburn, the best place to be

The City of Cockburn’s purpose is:

Support our communities to thrive by providing inclusive and sustainable services which reflect their aspirations

The 5 key outcomes as detailed in the Strategic Community Plan (SCP) 2020-2030 are:

* Local Economy,
* Environmental Responsibility
* Community, Lifestyle & Security
* City Growth and Moving Around
* Listening and Leading

The relevant goals and objectives as outlined in the Strategic Community Plan and how these are addressed in this asset management plan are detailed in Table 2.2.1.

**Table 2.2.1 Council Goals and how these are addressed in this Plan**

|  |  |  |
| --- | --- | --- |
| **Strategic Outcome** | **Strategic Objective** | **How Outcomes and Objectives are addressed** |
| **Local Economy:**  A sustainable and diverse local economy that attracts increased investment and provides local employment | 1. A City that is ‘easy to do business with’. | **Levels Of Service:**  Section 3 |
| **City Growth and Moving Around**: A growing City that is easy to move around and provides great places to live | 1. An attractive, socially connected and diverse built environment.  2. An integrated, accessible and improved transport network. | **Levels Of Service:**  Section 3  **Demand Management**: Section 4 |
| **Listening and Leading**:  A community focused, sustainable, accountable and progressive organisation | 1. Best practice Governance, partnerships and value for money. | **Financial analysis:** Section 6 |

## 2.3 Plan Framework

Key elements of the AMP are:

* Levels of Service and Enterprise Risk Management – outlines the levels of service provided by Council and identifies risks to the City.
* Future Growth and Demand – how this will impact on future service delivery and how this is to be met.
* Lifecycle Management – how the City will manage its existing and future assets to provide the required services.
* Financial Analysis – what funds are required to provide the required services.
* Asset management practices.
* Asset management monitoring and improvement plan – how the plan will be monitored and improved to ensure it is meeting Council’s objectives.

## 2.4 Asset Management Maturity

The 2020-2024 RAMP has been developed in accordance with the International Infrastructure Management Manual (IIMM) and complies with the Department of Local Government & Communities Asset Management Framework.

As part of the City’s Strategic Asset Management Planning Framework (SAMPF), the RAMP will more accurately forecast future funding for the City’s Road Infrastructure, enabling the organisation to determine future budgeting requirements, sustain the current and future asset base, whilst ensuring that optimisation of activities and programs facilitate for the capture and reporting of adopted service levels.

The RAMP has reached an ‘intermediate’ level of maturity and provides Executive level monitoring and reporting of key improvement areas from the Improvement Strategy.

With the continued implementation of the Strategic Asset Management Framework, the City will commence measuring service levels for planned and reactive maintenance to determine operational performance and asset utilisation.

The City strives to improve its strategic and operational asset management practices and to continue its journey towards advanced asset management. The Department of Local Government, Sport and Cultural Industries (DLGSC) has developed the Western Australia Local Government Integrated Planning and Reporting Framework The future direction and need for advanced level practices are continually assessed in accordance with this and the City’s Asset Management Policy. The Integrated Planning and Reporting Framework is shown Figure 2.4.1.

Figure 2.4.1 The City’s Integrated Corporate Planning Framework



The RAMP forms part of the City’s Assets Informing Strategies, which consists of the following strategy and asset management plans:

Asset Management Strategy - 2017 - 2024

Buildings AMP - 2020 - 2024

Cockburn Aquatics and Recreation Centre (ARC) AMP - 2020 - 2024

Drainage AMP - 2020 - 2024

Footpath AMP - 2020 - 2024

Fleet and Plant AMP - 2020 - 2024

Marina and Coastal Infrastructure AMP - 2020 -2024

Parks & Environment AMP - 2020 -2024

## 2.5 Asset Management Plan – Data Confidence Assessment

Each of the five sections within the RAMP were reviewed to determine stakeholder confidence as to the accuracy and maturity of the City’s asset data and services.

**Table 2.5.1 Data Accuracy**

|  |  |  |
| --- | --- | --- |
| AMP | Contents | Data Confidence |
| Section 2 | Strategic goals & objectives | **A** |
| Section 3 | Levels of Service | **A** |
| Risk Management |
| Section 4 | Growth, Demand, New Assets | **A** |
| Section 5 | Asset data; Age, Condition | **B** |
| Operating & Maintenance Expenditure, Renewal Expenditure |
| Section 6 | Financial statements; Renewals Gap, Ratios | **A** |

Ratings are based on the following criteria / inputs.

**Table 2.5.2 Data Confidence Criteria**

| **Confidence Grade** | **Description** |
| --- | --- |
| A Highly reliable | Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate ± 2% |
| B Reliable | Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 10% |
| C Uncertain | Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated ± 25% |
| D Very Uncertain | Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy ± 40% |
| E Unknown | None or very little data held. |

# 

# 3. Levels of Service

To support the management of road assets the City has developed industry best practice asset management and customer focussed levels of service (LOS) for infrastructure assets and associated services. These LOS’s provide the City with a mechanism to deliver operational activities that endeavour to meet community expectations in the most cost effective manner possible.

The City administers Community and Technical Services levels to ensure that quality service provision is provided in accordance with the City’s customer Service Charter and Community Engagement Framework, whilst Technical Services are sustainable, and adhere to all relevant compliance, safety and industry standards.

The RAMP community and technical levels of service are defined to an asset group level and enable the City to monitor and report operational performance against adopted community and technical targets.

Similar to the City’s existing Asset Management Plans, future RAMP Service level reporting will be derived from the City’s Enterprise Asset Management System (EAM). The Implementation of the EAM will establish improved reporting of operational and maintenance budget expenditure providing increased confidence in projecting future budget needs and service level management.

## 3.1 Customer Research and Expectations

The City of Cockburn administered the CATALYSE Business and Community Perceptions Survey’s to evaluate and monitor performance across a range of services.

552 Residents and 138 local businesses participated in the studies. The surveys were conducted by CATALYSE Pty Ltd and provide Council with valid performance measures that can be benchmarked and consistently monitored over time.

The most recent customer satisfaction surveys were undertaken in October 2019 and the performance comparison of satisfaction levels over the past five years are compared using a traffic light system to measure increasing or decreasing satisfaction.

Key to status

Drop in customer satisfaction of 3% or more

Change in customer satisfaction of 2% or less

Increase in customer satisfaction of 3% or more

## 3.2 Current Levels of Service

The City of Cockburn has defined service levels in two terms:

* Community Levels of Service relate to how the community receives the service in terms of safety, quality, quantity, reliability, responsiveness, cost efficiency and legislative compliance.
* Supporting the community service levels are operational or technical measures of performance developed to ensure that at least the minimum community levels of service are met. Technical Levels of Service relate to how the City provides the service using technical terms

**Historical tracking of customer satisfaction surveys**

**Table 3.1.1 Community**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Performance Measure | Satisfaction Level (delighted & satisfied) | | | | | |
| **2014-15** | **2015-16** | **2016-17** | **2017-18** | **2019-20** | **Status from last year** |
| Overall satisfaction with City of Cockburn (as a place to live) | 95 | 93 | 99 | 97 | 98 |  |
| Maintenance of local roads | 84 | 85 | 82 | 87 | 87 |  |
| The management and control of traffic on local roads | 67 | 53 | 66 | 70 | 75 |  |

**Table 3.1.2 Business**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Performance Measure | Satisfaction Level (delighted & satisfied) | | | | | |
| **2014-15** | **2015-16** | **2016-17** | **2017-18** | **2019-20** | **Status from last year** |
| How local roads are maintained | 76 | 72 | 78 | 80 | 81 |  |
| Parking in commercial areas | 49 | 49 | 73 | 76 | 73 |  |
| The management and control of traffic on local roads | 57 | 56 | 59 | 66 | 70 |  |

The satisfaction levels for the management and control of traffic has improved for residents and businesses alike, the maintenance of local roads is still the number one priority for both, key user groups.

Management and control of traffic on local roads saw an increase in satisfaction from both user groups continuing to demonstrate improvements in this service level from the previous AMP.

The City of Cockburn uses this information to continue developing the Strategic Community Plan and determine the allocation of resources to meet the community’s needs.

Tables from 3.2.1 to 3.2.4 outline the City’s current Community and Technical Service Levels objectives, measures and performance demonstrating the diversity and quality of services provided by the City’s Road Services Team.

* + 1. **Provide a smooth ride to road users**

Community – Total number of Customer enquiries and/or requests (C/R) relating to potholes which resulted in maintenance being required via reactive work orders (WO).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COMMUNITY** | **2014 -15** | | **2015 -16** | | **2016-17** | | **2017-18** | | **2018-19** | | **2019-20** | | **Status** |
| C/R | WO | C/R | WO | C/R | WO | C/R | WO | C/R | WO | C/R | WO |
| **Total** | 149 | 2 | 182 | 1 | 264 | 168 | 210 | 155 | 221 | 111 | 140 | 97 |  |
|

Technical – Road surfaces to be maintained to a good condition with an intervention level being set at condition 4. Condition rating of road surface as a % of total area.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| TECHNICAL | % of total area per hierarchy | % of total area in Condition 4 or 5 | | | | | Status |
| **20**11-12 | **20**12-13 | **20**13-14 | **20**16-17 | **20**19-20 |
| TOTAL |  | 5.79 | 4.66 | 4.49 | 3.38 | 2.72 |  |
| DA | 11.97 | 1.97 | 1.69 | 1.24 | 0.35 | 0.38 |  |
| DB | 7.15 | 0.35 | 0.23 | 0.17 | 0.10 | 0.07 |  |
| RD | 2.71 | na | na | 0.37 | 0.09 | 0.08 |  |
| LD | 10.25 | 0.52 | 0.46 | 0.53 | 0.23 | 0.22 |  |
| AR | 67.91 | 2.94 | 2.29 | 2.18 | 2.61 | 1.95 |  |

**3.2.2. Ensure that the road meets user requirements**

Community – Total number of Customer enquiries and/or requests relating to roads

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **COMMUNITY** | **2014-15** | **2015-16** | **2016-17** | **2018-19** | **2019-20** | **Status** |
| **Total** | 300 | 345 | 216 | 275 | 248 |  |

Technical – Capacity / Utilisation data (ability of the infrastructure to meet service delivery needs)

As reported for the National State of the Assets (NSoA) report 2019 - 20 survey by Projects & Asset Services.

|  |  |
| --- | --- |
| LGA Grading | 2019-20 (%) |
| Very good / good | 90 |
| Fair | 5 |
| Poor / very poor | 5 |

**3.2.3. Provide safe suitable roads free from hazards**

Community – Total number of Customer enquiries and/or requests (C/R) related to sweeping versus number of reactive work orders (WO) generated

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COMMUNITY** | **2014-15** | | **2015-16** | | **2016-17** | | **2018-19** | | **2019-20** | | **Status** |
| **C/R** | **WO** | **C/R** | **WO** | **C/R** | **WO** | **C/R** | **WO** | **C/R** | **WO** |
| Total | 207 | 104 | 293 | 108 | 288 | 213 | 269 | 203 | 281 | 136 |  |

Technical – Roads are swept 3 times a year.   
Planned maintenance work orders percentage across hierarchies by suburb.

| **SUBURB** | **Total roads per suburb %** | **Sweeping per suburb %** | **Total Cost of sweeping $/YR** | **% of Cost per suburb** |
| --- | --- | --- | --- | --- |
| **Atwell** | 5.44 | 7.68 | 44,487 | 7.76 |
| **Aubin Grove** | 3.38 | 5.79 | 32,293 | 5.63 |
| **Banjup** | 3.17 | 0.86 | 5,591 | 0.98 |
| **Beeliar** | 6.33 | 6.12 | 35,614 | 6.21 |
| **Bibra Lake** | 10.57 | 5.80 | 33,466 | 5.84 |
| **Cockburn Central** | 3.46 | 1.08 | 5,973 | 1.04 |
| **Coobellup** | 3.04 | 5.85 | 32,923 | 5.74 |
| **Coogee** | 3.73 | 7.32 | 42,140 | 7.35 |
| **Hamilton Hill** | 7.12 | 9.61 | 54,850 | 9.57 |
| **Hammond Park** | 4.15 | 5.34 | 30,221 | 5.27 |
| **Henderson** | 3.03 | 0.00 | 0 | 0.00 |
| **Jandakot** | 4.97 | 1.43 | 8,276 | 1.44 |
| **Lake Coogee** | 3.27 | 2.52 | 14,415 | 2.51 |
| **Leeming** | 1.26 | 2.38 | 13,504 | 2.36 |
| **Munster** | 0.28 | 0.00 | 0 | 0.00 |
| **North Coogee** | 2.58 | 4.57 | 26,730 | 4.66 |
| **North Lake** | 1.51 | 2.87 | 16,103 | 2.81 |
| **South Lake** | 4.38 | 4.06 | 23,322 | 4.07 |
| **Spearwood** | 7.33 | 7.62 | 44,427 | 7.75 |
| **Success** | 8.26 | 3.41 | 17,759 | 3.10 |
| **Treeby** | 3.52 | 1.34 | 8,133 | 1.42 |
| **Wattleup** | 3.40 | 4.85 | 27,590 | 4.81 |
| **Yangebup** | 5.82 | 9.50 | 55,379 | 9.66 |
| **TOTAL** | **100.00** | **100.00** | **573,195** | **100.00** |

**3.2.4 Maintain roads by proactive repairs**

Technical – Lower percentage of maintenance done by reactive repairs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Technical** | **2014-15** | **2015-16** | **2016-17** | **2019-20** | **Status** |
| **Road maintenance %** | | | | | |
| **Reactive maintenance** | 61.12 | 66.77 | 60.78 | 43.89% |  |
| **Planned maintenance** | 38.88 | 33.23 | 39.22 | 56.11% |  |
| **Verge maintenance %** | | | | | |
| **Reactive maintenance** | 9.42 | 4.79 | 2.82 | NA |  |
| **Planned maintenance** | 90.58 | 95.21 | 97.18 | NA |  |

## 3.3 Enterprise Risk Management

In 2015 the City implemented a Risk Management & Safety System (RMSS) in which all operational and strategic risks are captured, rated and receives ongoing monitoring based on their level of risk.

Additionally, in 2017 the Risk Management Framework was adopted with the aim of supporting an integrated and effective organisation wide approach to risk management.

The implementation of the Framework sought to:

* Ensure a consistent approach to the risk management process across Council;
* Establish a structured process for undertaking the risk management process to identify, assess and control/treat risks;
* Encourage the integration of risk management into the strategic and operational process across all Business Units of the Council

There are currently no Extreme or High Risks associated with Road Infrastructure only substantial risks as determined by the City’s risk register.

**Table 3.3.1 Substantial Risk and Existing Controls**

| **Risk Description** | **Risk Rating** | **Proposed Treatment** | **Due Date** |
| --- | --- | --- | --- |
| Delays in road projects and financial loss due to road design projects not adhering to current City's Project Management (PM) process, change in PM process, lack of resources, human error | Substantial | 1. Standards are continually reviewed for all projects undertaken. | Ongoing |
| Traffic congestion, Reputational damage, Road safety due to Inadequate traffic modelling, Incorrect analysis of the land uses, Inaccuracy in priorities of the City's road network upgrade | Substantial | 1. District Traffic Study (DTS) updated every 5 years. | Ongoing |
| 2. Strategic Planning provide expert land use input into DTS. |
| 3. By the use of regularly updated traffic data & traffic forecasts from the DTS work priority and peer review. |
| Failure to comply with current road design standards resulting liability exposure and reputational damage | Substantial | 1. Sign Off process | Ongoing |
| 2. Membership of peak bodies |
| 3. Relationship with Main Roads and other stakeholders |
| 4. Road Safety Audit |
| Failure to plan for the future maintenance and the road assets resulting in asset failure and service delivery delay | Substantial | 1. Supporting the City’s Asset Management Team.  2. Reviewing process, engage an external consultant  3. Strategic Planning provide expert land use input into District Traffic Study | Ongoing |

The City uses a matrix based approach when addressing risk level, treatment and responsibility as detailed in Table 3.3.2

**Table 3.3.2 Risk Treatment Matrix**

| **Risk Level** | **Code** | **Criteria** | **Treatment** | **Responsibility** |
| --- | --- | --- | --- | --- |
| **LOW** | L | Risk acceptable with adequate controls, managed by routine procedures. Subject to annual monitoring or continuous review throughout project lifecycle. | Management through routine operations/project, Risk Registers to be updated. | Service Unit Manager/Project Manager |
| **MODERATE** | M | Risk acceptable with adequate controls, managed by specific procedures. Subject to semi- annual monitoring or continuous review throughout project lifecycle. | Communication and awareness of increasing risk provided to SM, Risk Registers to be updated. | Senior Manager/Project Manager |
| **SUBSTANTIAL** | S | Accepted with detailed review and assessment. Action Plan prepared and continuous review. | Assess impact of competing Service Unit/Business Unit Projects. Potential redirect of Service Unit/Business Unit resources. Risk registers to be updated. | Director/Steering Committee |
| **HIGH** | H | Risk acceptable with effective controls, managed by senior management/executive. Subject to quarterly monitoring or continuous review throughout project lifecycle. | Escalate to CEO, report prepared for Audit & Strategic Finance Committee. Quarterly monitoring and review required. Risk Registers to be updated. | Executive/ Steering Committee/Project Sponsor |
| **EXTREME** | E | Risk only acceptable with effective controls and all treatment plans to be explored and implemented where possible, managed by highest level of authority and subject to continuous monitoring. | Escalate to CEO, report prepared for Audit & Strategic Finance Committee. Monthly monitoring and review required. Risk Registers to be updated. | CEO/Council/Project Sponsor |

Each of the risks are reviewed with current and proposed control measures being assessed yearly to ensure industry standards and potential advancements are considered and are incorporated as required.

## 3.4 Legislative Requirements

The City of Cockburn has to meet many legislative requirements including Australian and State legislation and State regulations.

**See (Appendix A)** for the Legislative Requirements

## 3.5 Asset Capacity and Performance

The City of Cockburn services are generally provided to meet design and performance standards where these are available.

Locations where deficiencies in service performance are known have been identified by Road Services and are detailed in the following tables.

**Table 3.5.1 Known service performance deficiencies - Roads**

| Location | Service Deficiency |
| --- | --- |
| Woodman Point | Current road condition is either 4 or 5 Not City of Cockburn jurisdiction managed by The DBCA. Upgrading of footpaths to be completed by CoC, roads yet to be resolved |
| Cockburn Central/Gateways Rockingham/Beeliar/Stock Rd School Zones | Traffic queuing / congestion; especially during peak / school hours to be addressed by North Lake Road and Armadale Road flyover |
| Utilities Contractors | Not reinstated within 5 days; however, have improved recently but ongoing with the growing expectation from residents on utilities plus continued growth |

**Table 3.5.2 Known service performance deficiencies - Car Parks**

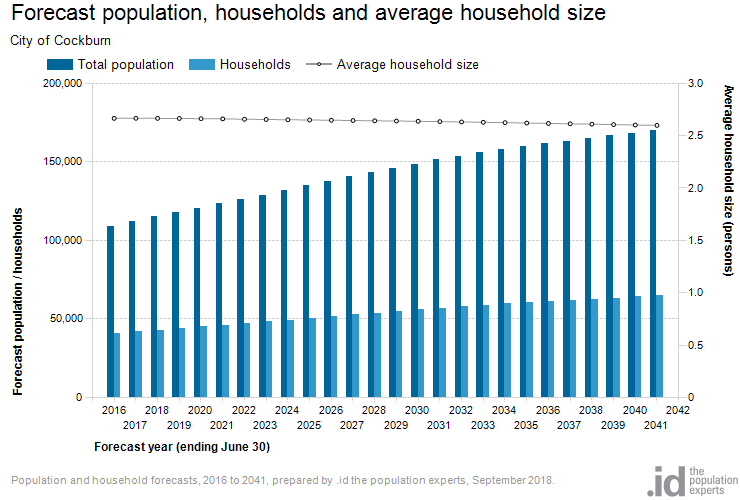
|  |  |
| --- | --- |
| Location | Service Deficiency |
| Schools / Education Dept | Not built to standards; don’t have to comply with council policy |
| Port Coogee Marina | Chieftan Esplanade; temporary carpark to be made permanent, better service provision for residents and visitors |

# 4. Future Growth and Demand

## 4.1 Growth Forecast

Cockburn is one of the major Coastal Cities found in the state of Western Australia, totalling 170 square kilometres. This coastal City is renowned for its historical and tourism features along with agriculture and ship building industries.

The City of Cockburn’s 2020 forecasted population and dwelling is 120,417 and 46,800 dwellings respectively. The population is forecast to reach 169,700 by 2041, an increase of 40.92%.



Growth factor trends and the impacts these have on service delivery across the City are summarised in Table 4.1.

**Table 4.1 Growth - Projections and Impact on Services**

| Demand factor | Present position | Projection | Impact on services |
| --- | --- | --- | --- |
| Population | 120,417 as at year 2020 | Change between 2019 and 2041 is projected to be 52,176 a 44.4% increase at an average 2% per annum. | Increased traffic volume on roads results in additional maintenance & renewal costs & requirements for traffic calming devices. |
| Demographics | Aging population | Between 2016 and 2031 the age structure forecasts indicate 43% increase in the population of retirement age. | Increased bus services resulting in damage to road pavement & requirement to upgrade local roads for turning movements. |
| Industry | Existing industrial areas are expanding and reaching full potential | Extensive new industrial and commercial areas focused around Jandakot Airport and Latitude 32 Industrial area | Requirement for freight routes and upgrading of existing roads |

An overall increase in population across the City will increase the number of vehicles on the road resulting in higher maintenance and renewal costs. As the industrial areas are developed the flow of heavier industrial traffic will also increase, this may result in road pavement surfaces wearing faster than anticipated.

## 4.2 Changes in Technology

Technology changes within the road construction industry are forecast to have little effect on the delivery of services covered within this plan.

## 4.3 Demand Management Plan

Demand management strategies provide alternatives to the creation of new assets in order to meet demand and look at ways to modify customer demands in order that the utilisation of existing assets is maximised and the need for new assets deferred or reduced. The objective of demand management is to actively seek to modify customer demands for services in order to;

* Optimise the utilisation/performance of existing assets,
* Reduce or defer the need for new assets,
* Meet organisation’s strategic objectives,
* Deliver a more sustainable service, and
* Respond to changing customer needs.

The opportunities identified to date for demand management, the impact these drivers may have on future service delivery and the utilisation of these assets are shown in the Table 4.3.1.

**Table 4.3.1 Demand Management Plan Summary**

| Service Activity | Demand Management Plan |
| --- | --- |
| Traffic flow | The City’s network strategy aims to identify when road capacity needs to be increased, as well as measures that can be taken to maintain the efficient movement over it in the interim.  As a broad design standard, the following capacities are used to guide road construction and upgrades:   * Single carriageway <15,000 vehicles per day * Dual carriageway >15,000 vehicles per day   Reassessment of road hierarchies  Plan for the District  Plan for duplication of Jandakot Road and Hammond Road |

## 4.4 New Assets from growth

The new assets required to meet growth will be constructed by the City of Cockburn and acquired from land developments. The major road construction projects to be funded by the City are taken from The Long term Financial Plan and the budgeted capital expenditure for new and upgrade for the year 20/21. The project list is in Appendix E and shown on Graph 4.4 as Council Constructed (Roads).

The forecast for donated assets likely to be received from developers over the next 5 years has been calculated by averaging out the previous 5 years total donated assets received through subdivisions. This equates to approx. 8km of new road worth $7.8m per year.

New asset growth from council has been taken from the City’s Regional & Major Roadworks 2018 - 2031 plan, projects are listed in Appendix E. It is known that there is significant construction of projects between 2021 - 2023 and no construction planned for 28/29 with donated assets remaining consistent across the ten year period. The Major Roadworks plan requires regular updates to maintain accuracy and best inform this AMP.

**Graph 4.4 New Assets from Growth**

These figures have been used throughout this asset management plan where growth and CPI increase has been considered.

There is no projected growth included for car parks or road items. It can however be assumed that the total figure estimated for new projects will include an amount for new road items and kerbing. There are no figures currently available to predict a growth for car parks.

# 5. Lifecycle Management

The lifecycle management area details how the City of Cockburn plans to manage and operate the road infrastructure assets while optimising lifecycle costs. The data is based on the City’s Financial and Operational asset registers.

## 5.1 Asset Data

Roads will vary considerably in their role dependent upon what they are there to provide for be it efficient mobility on high volume fast moving roads or access to properties on lower volume residential roads. In order to promote effective, efficient and uniform traffic management across the state all roads are designated a road hierarchy category, these are briefly described below.

* Primary Distributor (PD)  
  Provide for major regional and inter-regional traffic movement and carry large volumes of generally fast moving traffic. All are state roads and are managed by Main Roads Western Australia. These are not included or considered within this AMP.
* Regional Distributor (RD)  
  Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and good within and beyond regional areas.
* District Distributor A (DA)  
  Carry traffic between industrial, commercial and residential areas and generally connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining property.
* District Distributor B (DB)  
  Perform a similar function to type A District Distributors but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with a traffic demand in excess of that originally intended.
* Local Distributor (LD)  
  Roads that carry traffic within a cell and link District Distributors to access roads. These roads should accommodate buses but discourage trucks.
* Access Roads (AR)  
  Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly.

A map showing the road hierarchies within the City of Cockburn is shown in Appendix B. A breakdown of the road hierarchies and surface type as managed by the City is shown on Table 5.1 below.

**Table 5.1 Breakdown of surface type by road hierarchy**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Road Hierarchy | Surface material | Length (km) | Area (m²) | % based on area |
| **RD** | Asphalt | 23.84 | 189,431 | 2.71% |
| Red Asphalt | 0.00 | 0 |
| Brick | 0.00 | 0 |
| **DA** | Asphalt | 74.89 | 822,189 | 11.97% |
| Red Asphalt | 0.95 | 14,003 |
| Brick | 0.06 | 926 |
| **DB** | Asphalt | 52.95 | 489,211 | 7.15% |
| Red Asphalt | 1.02 | 4,431 |
| Brick | 0.88 | 6,508 |
| **LD** | Asphalt | 78.03 | 667,062 | 10.25% |
| Red Asphalt | 1.85 | 17,219 |
| Brick | 2.98 | 32,320 |
| **AR** | Asphalt | 612.30 | 4,379,496 | 67.91% |
| Red Asphalt | 31.92 | 215,908 |
| Brick | 19.66 | 152,126 |
| **TOTAL** |  | **901.33839** | **6990827.85** | **100%** |
| **Kerbing** |  | **1,542** |  |  |

### 5.1.1 Asset Age

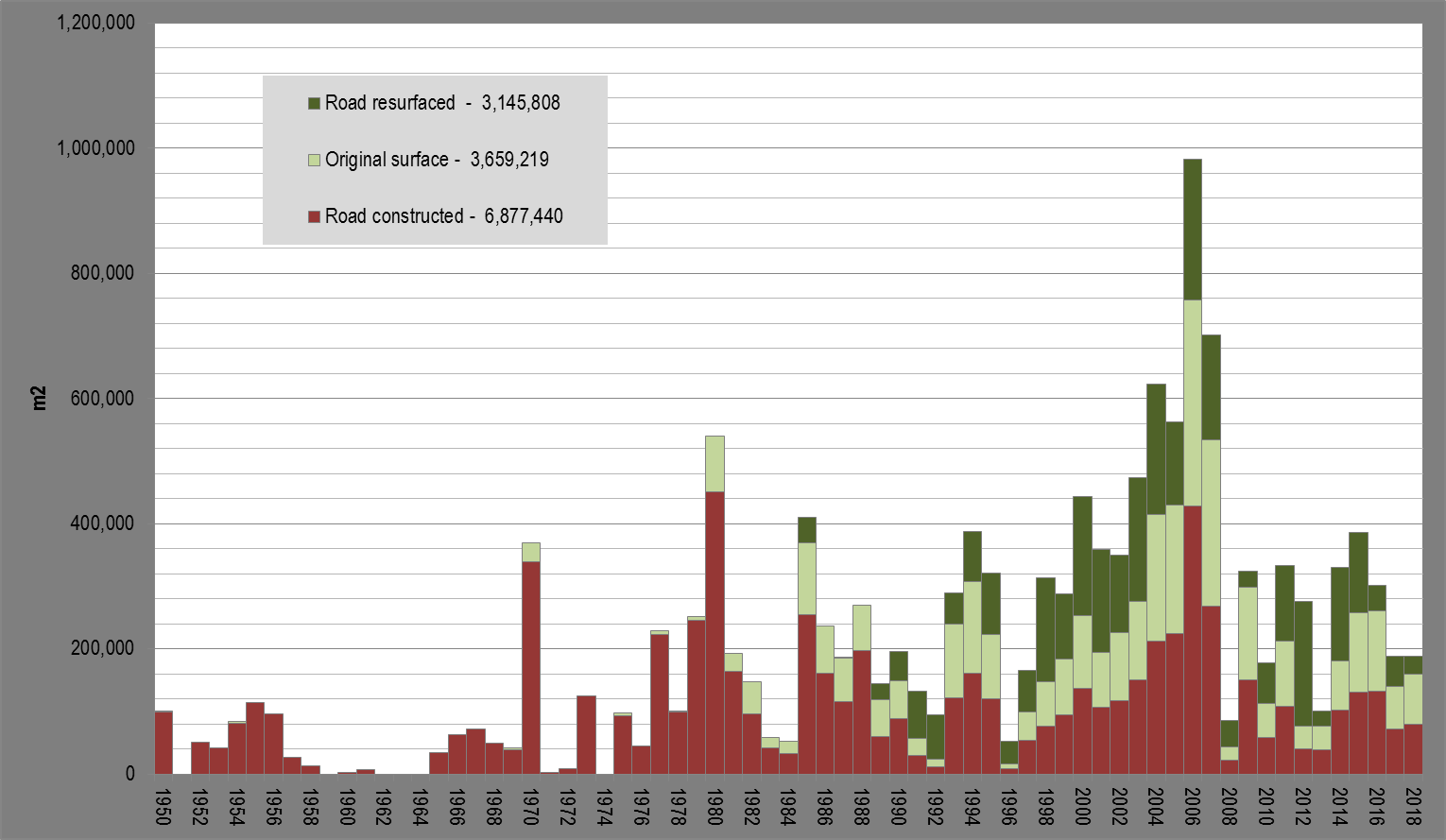
The following graph shows the age profile for roads constructed, roads where the original surface is still in-situ and roads that have been resurfaced.

It can be seen that for the year 1980, 450,374 m2 of road were constructed and that 88,833 m2 of these roads still have the original surface.

Conclusions that can be drawn from this graph include:

* All roads built prior to 1975 have been resurfaced.
* The oldest recorded road surface is 45 years.
* Approximately half of all roads within the City of Cockburn have been resurfaced.

**Graph 5.1Age Profile - Road Surface**

******

### 5.1.2 Asset Condition

The Condition profile of the City of Cockburn’s road infrastructure assets is measured using a 1 to 5 rating system as outlined below.

| Rating | Description | | |
| --- | --- | --- | --- |
| 1 | Excellent |  | A new asset or an asset in overall excellent condition with only a slight condition decline. |
| 2 | Good | G:\Asset Services\Documents\Roads\2011\Pictures 2011\Hamilton Hill\Pictures 11Apr11 010 (Small).jpg | An asset in an overall good condition but with minor signs of deterioration evident, serviceability may be slightly impaired. Minor maintenance is required |
| 3 | Moderate | G:\Asset Services\Documents\Roads\2011\Pictures 2011\Roads\Block cracking.jpg | An asset with obvious signs of deterioration. Significant maintenance is required |
| 4 | Poor | G:\Asset Services\Documents\Roads\2011\Pictures 2011\Roads\Road Condition pics\R8-1.jpg | An asset in a poor condition. Condition deterioration is severe and serviceability is becoming limited. Significant renewal or upgrade is required. |
| 5 | Very poor | G:\Asset Services\Documents\Roads\2011\Pictures 2011\Roads\originals\Pictures 29June11 016.jpg | An asset that has failed and is no longer serviceable. There would be a risk in leaving the asset in service. Replacement is required. |

All assets in the road asset database have been visually assessed on site and given an appropriate condition rating based on the above criteria. The most recent surface condition survey was completed by Talis in 2019 for all hierarchies except access roads (AR)s. All projections, graphs and tables in this RAMP have been calculated using this data.

The condition profiles for road surface by hierarchy categories and by suburb are shown on Graph 5.1.2A and 5.1.2B below. Table 5.1.2 summarises the condition of all road infrastructure assets.

**Graph 5.1.2A Condition Profile for Road Surface by Road hierarchy**

**Graph 5.1.2B Condition Profile for Road Surface by Suburb**

**Table 5.1.2 Summary of road infrastructure assets - Condition**

|  |  |  |  |
| --- | --- | --- | --- |
| Condition | % of Asset Category | | |
| **Road** | **Road Item** | **Car Park** |
| 1 | 10.08 | 32.74 | 37.02 |
| 2 | 27.20 | 50.43 | 45.88 |
| 3 | 60.00 | 14.59 | 12.95 |
| 4 | 2.62 | 2.10 | 4.16 |
| 5 | 0.10 | 0.14 | 0.00 |

From the above it can be seen that the majority of the assets have not yet reached the intervention level of condition 4. Since the last revision of the AMP, overall condition ratings across roads, road items and car parks have deteriorated.

### 5.1.3 Useful Life

Table 5.1.3 shows the breakdown in age and condition of the road surface by road hierarchy.

**Table 5.1.3A Age and condition of road surface in m2**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Condition / Hierarchy | | Age of road surface (yrs) | | | | | Average age |
| 0 to 5 | 6 to 10 | 11 to 15 | 16 to 20 | >20 |
| **1** | RD | 29,483 | 0 | 0 | 0 | 0 | 2.2 |
| DA | 73,832 | 7,109 | 6,310 | 0 | 1,913 | 4.7 |
| DB | 32,614 | 2,914 | 4,273 | 1,127 | 0 | 5.3 |
| LD | 32,257 | 3,006 | 5,999 | 0 | 1,309 | 4.0 |
| AR | 429,366 | 5,764 | 21,628 | 5,043 | 40,831 | 2.9 |
| **2** | RD | 0 | 28,158 | 8,037 | 33,389 | 1,197 | 13.5 |
| DA | 42,543 | 104,634 | 111,467 | 61,856 | 22,285 | 11.4 |
| DB | 40,417 | 65,325 | 79,144 | 15,988 | 26,341 | 12.7 |
| LD | 6,917 | 36,740 | 64,797 | 28,858 | 35,509 | 14.9 |
| AR | 116,392 | 298,284 | 354,161 | 205,032 | 114,218 | 13.1 |
| **3** | RD | 0 | 4,266 | 1,099 | 31,621 | 46,253 | 23.5 |
| DA | 13,281 | 36,381 | 100,262 | 184,346 | 43,316 | 16.4 |
| DB | 5,056 | 55,176 | 44,698 | 57,944 | 61,437 | 17.6 |
| LD | 979 | 34,964 | 80,722 | 148,022 | 220,980 | 21.1 |
| AR | 7,144 | 188,051 | 652,844 | 707,428 | 1,467,451 | 21.4 |
| **4** | RD | 0 | 0 | 0 | 0 | 4,911 | 33.7 |
| DA | 0 | 932 | 7,328 | 15,964 | 2,023 | 15.8 |
| DB | 366 | 0 | 0 | 3,553 | 1,280 | 19.4 |
| LD | 0 | 306 | 2,511 | 5,936 | 6,528 | 20.1 |
| AR | 1,037 | 281 | 16,979 | 19,042 | 94,240 | 27.0 |
| **5** | RD | 0 | 0 | 0 | 0 | 1,017 | 21.0 |
| DA | 0 | 0 | 0 | 399 | 0 | 20.0 |
| DB | 0 | 0 | 0 | 0 | 0 | 0.0 |
| LD | 0 | 0 | 0 | 0 | 261 | 24.0 |
| AR | 1,474 | 0 | 382 | 683 | 2,542 | 21.56 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Total m2** | 833,158 | 872,289 | 1,562,641 | 1,526,231 | 2,195,842 | 6,990,161 |
| **% of roads** | 11.92% | 12.48% | 22.35% | 21.83% | 31.41% | 100% |

**KEY**

|  |
| --- |
| Greater than 200,000 m2 |
| Between 100,000 to 200,000 m2 |
| Between 50,000 to 100,000 m2 |
| Between 10,000 to 50,000 m2 |
| Less than 10,000 m2 |

The graph below is based on the data shown in the above table and shows the average age for road surface against the condition rating.

The asset life can vary significantly as a result of different road hierarchies, traffic volumes, the roads function and locality. Continued analysis and reviewing of the depreciation rate and useful life has been identified as a key improvement.

**Table 5.1.3B Changes to Useful Life for each road hierarchy**

|  |  |  |  |
| --- | --- | --- | --- |
| **Road Hierarchy** | **RAMP 2013 -2017 (Yrs)** | **RAMP 2017- 20 (Yrs)** | **RAMP 2020 – 24 (Yrs)** |
| DA | 20 | 14 | 20 |
| DB | 20 | 17 | 22 |
| LD | 20 | 18 | 25 |
| RD | 20 | 19 | 30 |
| AR | 20 | 23 | 35 |

**Road Item**

A breakdown of the road item types is shown below. The useful life of 20 years used for bus embayment and parking areas is the same as for road surface. The useful life of 50 years as used for the other road item types has been taken from the current depreciation rate.

**Table 5.1.3C Area and Useful Life of Road Item**

| Road Item type | Area (m²) | Useful Life |
| --- | --- | --- |
| Anti-skid surface | 9,278 | 20 |
| Bus Embayment | 5,963 | 20 |
| Median Island | 299,430 | 50 |
| Parking areas | 69,826 | 30 |
| Roundabout | 38,046 | 50 |
| Speed Plateau | 4,940 | 35 |
| Splitter Island | 26,266 | 50 |

**Car Park**

The car parks are at present managed by three different service units. This is to be assessed as part of the improvement strategy regarding asset clarification and ownership. A useful life of 30 years has been used to be consistent with roads. This will also be assessed and reviewed as part of the improvement strategy.

**Table 5.1.3D Area and Useful Life of Car Park**

|  |  |  |  |
| --- | --- | --- | --- |
| Surface material | Jurisdiction | Area (m²) | Useful Life |
| **Asphalt** | Facilities | 21,783 | 30 |
| Parks | 70,193 |
| Roads | 49,321 |
| **Brick** | Facilities | 1,212 | 30 |
| Parks | 3,000 |
| Roads | 27,362 |

### 5.1.4 Asset valuations

The value of assets as at 30 June 2020 covered by this asset management plan are summarised below. Assets were last revalued in August 2020 in line with current Schedule of Rates as used by Road Construction Services.

**Table 5.1.4 Asset Valuations**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Suburb** | **Road Surface $** | **Road Base $** | **Road Sub Base $** | **Kerb $** | **Road Items $** | **Car Parks $** | **TOTAL $** |
| **Atwell** | 10,395,715 | 8,097,876 | 10,195,178 | 3,698,455 | 4,341,620 | 1,393,513 | **38,122,358** |
| **Aubin Grove** | 6,502,972 | 5,065,924 | 6,378,283 | 2,281,401 | 2,432,336 | 754,282 | **23,415,199** |
| **Banjup** | 6,048,461 | 4,731,496 | 5,955,834 | 253,576 | 25,101 | 86,440 | **17,100,909** |
| **Beeliar** | 12,645,287 | 9,534,926 | 12,003,013 | 4,094,406 | 3,013,460 | 622,065 | **41,913,157** |
| **Bibra lake** | 23,460,823 | 16,278,693 | 20,482,076 | 5,817,967 | 2,967,534 | 653,887 | **69,660,980** |
| **Cockburn Central** | 8,046,322 | 5,389,891 | 6,780,330 | 1,752,955 | 1,496,658 | 676,723 | **24,142,878** |
| **Coogee** | 8,618,379 | 4,507,004 | 5,675,576 | 1,780,255 | 835,420 | 1,155,032 | **22,571,665** |
| **Coolbellup** | 7,195,741 | 5,529,753 | 6,963,363 | 2,619,317 | 848,106 | 478,681 | **23,634,961** |
| **Hamilton Hill** | 15,507,928 | 10,790,564 | 13,580,202 | 4,723,539 | 1,695,362 | 1,154,635 | **47,452,230** |
| **Hammond Park** | 7,844,495 | 6,113,743 | 7,700,610 | 2,615,550 | 2,193,677 | 1,137,509 | **27,605,585** |
| **Henderson** | 5,988,866 | 4,592,252 | 5,780,871 | 1,655,078 | 338,068 | 574,001 | **18,929,137** |
| **Jandakot** | 10,911,867 | 7,661,323 | 9,637,704 | 2,528,256 | 2,701,767 | 291,063 | **33,731,980** |
| **Lake Coogee** | 6,310,731 | 4,573,156 | 5,757,256 | 1,931,819 | 974,037 | 307,332 | **19,854,331** |
| **Leeming** | 2,619,157 | 1,865,815 | 2,349,302 | 749,123 | 205,579 | 0 | **7,788,977** |
| **Munster** | 610,467 | 431,002 | 542,308 | 110,845 | 21,882 | 0 | **1,716,505** |
| **North Coogee** | 4,550,369 | 3,780,849 | 4,762,117 | 1,589,012 | 1,526,231 | 2,881,656 | **19,090,235** |
| **North Lake** | 3,451,214 | 2,343,137 | 2,947,448 | 1,014,876 | 605,342 | 11,999 | **10,374,015** |
| **South Lake** | 9,155,222 | 6,612,042 | 8,322,380 | 2,552,185 | 1,086,344 | 655,847 | **28,384,020** |
| **Spearwood** | 15,674,656 | 11,091,011 | 13,960,261 | 4,768,242 | 1,344,998 | 2,055,928 | **48,895,097** |
| **Success** | 17,424,406 | 12,533,820 | 15,773,275 | 5,113,497 | 4,106,448 | 2,107,464 | **57,058,909** |
| **Treeby** | 7,213,655 | 5,315,050 | 6,691,280 | 1,775,073 | 944,873 | 487,373 | **22,427,305** |
| **Wattleup** | 7,312,595 | 5,243,218 | 6,597,488 | 1,123,519 | 81,801 | 208,193 | **20,566,814** |
| **Yangebup** | 11,462,116 | 8,677,969 | 10,925,630 | 3,391,807 | 1,394,515 | 318,781 | **36,170,817** |
| **TOTAL** | **208,951,444** | **150,760,515** | **189,761,786** | **57,940,754** | **35,181,160** | **18,012,405** | **660,608,064** |

## 5.2 Maintenance and Operating expenditure

Maintenance includes reactive and planned maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions.

Planned maintenance is work that is identified and managed through a maintenance schedule, these activities include cycleway sweeping, inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Maintenance expenditure trends have been taken from the Finance One database and are shown in Table 5.2. Following improvements made to the reporting structure since the last RAMP a more accurate breakdown of the maintenance figures have been obtained. These figures are for road maintenance only and do not take into account street lighting or minor infrastructure.

Operating expenditure is continuously required expenditure e.g. power, fuel, staff, security patrols, plant equipment, on-costs and overheads.

Maintenance and operating expenditure trends are shown in Table 5.2.

**Table 5.2 Maintenance & Operating Expenditure Trends (OP8512)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Planned $** | **Reactive $** | **Reactive %** | **Operating $** | **Budget $** | **Total expenditure $** |
| **2010-11** | 163,828 | 146,988 | 47.30 | 1,160,452 | 1,246,906 | **1,471,269** |
| **2011-12** | 167,390 | 154,567 | 48.00 | 975,521 | 1,320,456 | **1,297,477** |
| **2012-13** | 155,140 | 140,384 | 47.50 | 1,040,760 | 1,386,895 | **1,336,284** |
| **2013-14** | 164,726 | 169,067 | 50.70 | 1,048,778 | 1,380,322 | **1,382,571** |
| **2014-15** | 118,320 | 185,975 | 61.10 | 1,090,618 | 1,411,883 | **1,394,913** |
| **2015-16** | 104,013 | 208,972 | 66.80 | 1,192,618 | 1,339,121 | **1,505,603** |
| **2016-17** | 201,005 | 311,533 | 60.80 | 1,381,640 | 1,568,065 | **1,894,178** |
| **2017-18** | 319,696 | 376,257 | 54.10 | 1,457,047 | 2,293,513 | **2,153,001** |
| **2018-19** | 346,648 | 376,991 | 52.10 | 1,365,856 | 2,135,869 | **2,089,497** |
| **2019-20** | 362,562 | 283,633 | 43.89 | 1,587,203 | 2,378,094 | **2,233,398** |

Planned maintenance work for the financial year 2019-20 was 56**%** of the total maintenance expenditure. Maintenance expenditure levels are considered to be adequate to meet desired service levels.

The future maintenance and operating expenditure is forecast to grow in line with the value of the asset stock and this increase needs to be budgeted to ensure new road infrastructure assets are maintained to the service levels identified in section 3. This is further discussed in Section 6.1 of the Financial Analysis.

### 5.2.1 Standards and specifications

Maintenance, renewals and upgrade work are carried out in accordance with the Standards and Specifications listed in Appendix F.

### 5.2.2 Summary of future maintenance expenditures

Future maintenance expenditure is forecast to trend in line with the value of the asset

stock which will increase due to new asset growth as shown previously in Graph 4.4. The forecast expenditure has been calculated as follows:

* Current Operations and Maintenance expenditure for 2019-20 per m2 of road =$0.28
* Taking into consideration total growth per year as in Graph 4.4 the average increase in maintenance per year for the next 10 years is forecast to be $119,749 per year.
* Therefore by 2029-30 Operations and Maintenance expenditure for road maintenance is expected to be around $3,528,699 including a 2% CPI increase per year.

Maintenance is funded from Council’s operating budget and grants where available.

This is further discussed in Section 6 Financial Analysis.

## 5.3 Renewal and Replacement Plan

Renewal 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.

The projected 10 Year Renewals first 2 year program is detailed in Appendix C & D. Renewals are incorporated into the City’s capital works program. This is further explored in Section 6.2.

### 5.3.1 Road surface

Two key parameters were established to enable the creation of the road resurfacing renewal plan:

* An asset assessed as Condition 4 and 5 is the first trigger in the evaluation to determine suitability for renewal. A number of other factors are considered in the scoping and formalisation of a renewal plan. These include evaluation of age, maintenance expenditure, customer requests information, future development in the surrounding area and finally a thorough visual assessment.
* Each road hierarchy surface has a different useful life and is defined as follows: DA 20 years, DB 22 years, LD 25 years, RD 30 years, AR 35 years.

Using the data from Table 5.1.3 and the above criteria the following renewal projections have been made. For a more detailed breakdown of the graph for 2021-22 renewal program see Appendix D

**Graph 5.3.1 Projected Renewals - Road Surface**

Individual surface unit rates were used to generate the $ value of the renewal program for each asset hierarchy. Renewals are to be funded from the City of Cockburn’s capital works program and grants where available. This is further discussed in Section 6 Financial Analysis.

### 5.3.2 Road item

There are only 2.24% currently at the intervention level of condition 4. No renewal plan has therefore been considered for these road items.

### 5.3.3 Car Park

The car park resurfacing renewals have been based on the same criteria as the road renewal plan. There is no funding allocation currently in place for the car parks.

| **Car Park Number** | **Name** | **Custodian** | **Condition** | **Area/m2** | **Estimated Resurface Cost/$** |
| --- | --- | --- | --- | --- | --- |
| CP\_041 | SOUTH COOGEE | Parks | 4 | 2,192 | 57,078 |
| CP\_071 | MARBAN WAY | Roads | 4 | 1,955 | 50,917 |
| CP\_082 | ROBB ROAD | Roads | 4 | 765 | 19,915 |
| CP\_090 | HOPBUSH PARK | Roads | 4 | 302 | 7,863 |
| CP\_110 | CLARENCE BEACH ROAD | Roads | 4 | 2,214 | 57,641 |
| CP\_128 | HITCHCOCK PLACE | Roads | 4 | 315 | 8,192 |
| CP\_129 | HITCHCOCK PLACE | Roads | 4 | 144 | 3,752 |
| CP\_130 | HITCHCOCK PLACE | Roads | 4 | 90 | 2,355 |
| **TOTAL** | | | | | **207,714** |

## 5.4 New and Upgrade Plan

New works are those works that create a new asset that did not previously exist or works which 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 to the Council from land development. These assets are detailed in Section 4.4 and shown on Graph 4.4.

## 5.4.1 Selection criteria

As a broad design standard, the following capacities are used to guide road construction and upgrades:

* Single carriageway <15,000 vehicles per day
* Dual carriageway >15,000 vehicles per day

The City’s network strategy aims to identify when road capacity needs to be increased, as well as measures that can be taken to maintain the efficient movement over it in the interim.

### 5.4.2 Summary of future upgrade and new assets expenditure

The planned major road infrastructure upgrade and new capital works projects as included in the Long Term Financial Plan and shown previously in Graph 4.4 are detailed in Appendix E.

## 5.5 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. There are no disposals planned for any road infrastructure assets at this time.

# 6. Financial Analysis

The Financial Analysis section of this report provides the recommended financial forecasts for the next 10 years. This section brings together the various types of expenditure described throughout the previous sections of the AMP and provides recommended budgets for Council to achieve the appropriate level of service through Municipal funding.

## 6.1 Financial Statements and Projections

From the financial asset register, the value of assets as covered by this asset management plan are summarised in Table 6.1.1 Current Replacement Cost and Depreciation. The current replacement cost, fair value (also known as written down value or depreciated replacement cost), depreciation and the annual depreciation values are shown. Infrastructure valuation figures in this AMP are from the 2019-20.

**Table 6.1.1 Current replacement cost and depreciation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Asset | Current Replacement Cost $ | Fair Value $ | Annual Depreciation Expense $ | Annual Asset Consumption % |
| (CRC) | (WDV) |
| Road surface | 208,951,444 | 120,689,556 | 7,424,146 | 58 |
| Road base | 150,760,515 | 88,122,613 | 1,637,966 | 58 |
| Road sub base | 189,761,786 | 110,993,664 | 1,897,618 | 58 |
| Kerb | 57,940,754 | 50,877,546 | 1,158,815 | 88 |
| Road Items | 35,181,160 | 26,140,533 | 1,326,861 | 74 |
| Car Parks | 18,012,405 | 13,436,590 | 407,026 | 75 |
| **Total $** | **660,608,064** | **410,260,502** | **13,852,432** |  |

The financial projections are shown in Graph 6.1.1, for the forecasted operating (operations and maintenance) and capital expenditure (renewal and upgrade/ new assets).

**Graph 6.1.1 Forecast Operating and Capital Expenditure**

The costs shown are in 2019-20 dollar replacement values and also include the 2% CPI increase.

**Graph 6.1.2 Projected renewal expenditure – Road surface**

In Graph 6.1.2, data for the projected renewals are obtained as described in section 5.3.1. The detail renewal program for 2020-21 and 2021-22 are provided in Appendix C and D, the projected depreciation expense takes into account all new asset values and the budget allocation has been based on the funding for the renewals per year.

These costs are shown in 2019 dollar values and also include the 2% CPI increase per year forward.

For a more detailed breakdown of the next five years see Graph 6.1.3.

**Graph 6.1.3 Projected renewal expenditure 2020-21 – 2024-25 – Road Surface**

Following the review of the City’s Useful Life’s during the City’s 2019-20 Asset Revaluation the renewals for the AR hierarchy have been prepared by resurfacing the oldest condition 5’s through to 1’s by age of road surface as per the table below e.g. $61,952 + CPI in Year 1. The renewals for all other road hierarchies have been calculated as per previous years.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Condition / Hierarchy | | Age of road surface (yrs) | | | | |
| 0 to 5 | 6 to 10 | 11 to 15 | 16 to 20 | >20 |
| 1 | AR | 11,084,964 | 140,617 | 504,010 | 108,861 | 951,914 |
| 2 | AR | 2,929,959 | 7,189,853 | 8,353,068 | 5,049,841 | 3,146,381 |
| 3 | AR | 192,434 | 4,546,739 | 15,524,953 | 17,047,661 | 38,064,300 |
| 4 | AR | 27,201 | 7,495 | 408,965 | 461,382 | 2,352,748 |
| 5 | AR | 38,380 | 0 | 10,205 | 17,853 | 61,952 |

Increasing the Useful life has reduced the projected renewals for ARs in comparison to figures projected in previous versions of the RAMP. Project and Asset Services will conduct a network-wide condition audit (including ARs) in 2022-23 to better inform the next revision of the Roads Asset Management Plan. This approach also supports the City’s implementation of a Strategic Asset Management System (SAM) which tailor renewal strategies based on various criteria such a road hierarchy.

**Table 6.1.2 Projected Renewals and Budget Allocation Gap – Road Resurfacing**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Year | Projected Renewals    (inc 2.00% CPI) | | Total Renewals | Proposed Budget Allocation from LTFP | Funding gap | Cumulative gap |
| **AR** | **DA, DB, LD, RD** |
| 2020-21 | $63,191 | $94,174 | $157,365 | $133,760 | $23,605 | $23,605 |
| 2021-22 | $18,574 | $111,854 | $130,429 | $117,386 | $13,043 | $36,648 |
| 2022-23 | $10,830 | $774,177 | $785,006 | $745,756 | $39,250 | $75,898 |
| 2023-24 | $0 | $532,344 | $532,344 | $532,344 | $0 | $75,898 |
| 2024-25 | $42,375 | $52,820 | $95,195 | $95,195 | $0 | $75,898 |
| 2025-26 | $2,649,576 | $499,379 | $3,148,955 | $3,148,955 | $0 | $75,898 |
| 2026-27 | $529,983 | $2,471,891 | $3,001,874 | $3,001,874 | $0 | $75,898 |
| 2027-28 | $479,168 | $12,477,214 | $12,956,382 | $12,956,382 | $0 | $75,898 |
| 2028-29 | $8,957 | $8,135,329 | $8,144,286 | $8,144,286 | $0 | $75,898 |
| 2029-30 | $33,158 | $4,438,989 | $4,472,147 | $4,472,147 | $0 | $75,898 |
| **Total** | **$3,835,812** | **$29,588,171** | **$33,423,982** | **$33,348,084** | **$75,898** | **h** |

Figures detailed in the LTFP Budget column were derived from the funding strategies within the LTFP and were manually distributed over the 10 year program.  
Please Note: All Figures within table 6.1.2 are subject to change as the City’s AMP’s are revised and each annual budget process is completed.

The 10 year cumulative funding gap for road resurfacing renewal works is a deficit of $75,898.

## 6.2 Funding Strategy

Projected expenditure identified in Section 6.1 is to be funded from the City’s capital budgets. The funding strategy is detailed in the City’s Long term Financial Plan 2020-2021 to 2029-2030.

In order to provide effective management of the road infrastructure asset base it is imperative that LTFP funding strategies are adequate and timely to support asset renewal projections and new projects outlined within the RAMP.

The City relies heavily on the provision of road funding from other sources including the Federal and State Governments. Additionally, under the Local Government Act (1995) the City can levy developers to provide a contribution to road funding, where this is directly linked to their development activities. The City has been receiving funds from this source for many years.

## 6.3 Sustainability of Service Delivery

There are three key performance indicators for financial sustainability as recommended in the Department of Local Government (LG) Asset Management National Framework and Guidelines that have been considered in the analysis of the road infrastructure financial data.

The aim of the Framework is to enhance the sustainable management of Local Government assets by encouraging ‘whole of life’ and ‘whole of organisation’ approaches and the effective identification and management of risks associated with the use of the assets.

### 6.3.1 Asset Consumption Ratio (ACR)

This ratio shows the written down current value of the City’s depreciable road assets relative to their ‘as new’ value in up to date prices.

These values are calculated by dividing the fair value by the current replacement cost. These figures are shown below.

The target ratio should be between 50% and 75%. A ratio of less than 50% indicates a rapid deterioration of the asset base, whilst a ratio greater than 75% may indicate an over investment in the asset base.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Asset | Consumption Ratio % | | | | Standard Achieved |
| 2012-13 | 2013-14 | 2017-18 | 2019-20 |
| Road (surface only) | 69.02 | 68.84 | 54.97 | 57.76 | Met |
| Kerbing | 69.00 | 69.36 | 87.76 | 87.81 | Improving |
| Road Item | 76.53 | 76.82 | 75.21 | 74.30 | Improving |
| Car Park | 74.00 | 65.95 | 73.57 | 74.60 | Improving |
| ALL ASSETS % | **69.87** | **69.56** | **60.91** | **68.57** | **Improving** |

The All Assets category includes Road Surface, Kerb, Road Items and Car Parks.

Integrated Planning and Reporting Advisory Standard KPI targets are outlined below.

**Standard is not met** if ratio data cannot be identified or ratio is less than 50%.

**Standard is met** if ratio data can be identified and ratio is 50% or greater.

**Standard is improving** if this ratio is between 60% and 75%.

### 6.3.2 Asset Sustainability Ratio (ASR)

This ratio indicates whether assets are being replaced or renewed at the same rate that the overall asset stock is wearing out.

It is calculated by dividing the annual capital expenditure spent on replacements (reserve funding required) by the annual depreciation expense. If capital expenditure on renewing or replacing assets is at least equal to depreciation on average over time, then the value of the existing stock will be maintained. If capital expenditure on existing assets is less than depreciation then underspending on replacement of assets will occur and this is likely to result in additional maintenance costs for assets that have exceeded their useful life that may exceed the cost of renewal or replacement.

This ratio can only be measured accurately if an assessment is made of the total amount spent on capital renewal and replacement.

The target ratio should be between 90% - 110%. The forecast asset sustainability ratios shown below have been calculated on an accumulative basis.

There is no separate ratio shown for kerb, road item or car park as there is no consideration given to these assets in the capital renewal program.

|  |  |  |  |
| --- | --- | --- | --- |
| Asset | Actual Sustainability Ratio % | | |
| 2013-14 | 2017-18 | 2019-20 |
| Road (surface only) | 35 | 38 | 94 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Asset | Forecast Asset Sustainability Ratio % (accumulative) | | | | | | | | | |
| 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2025-26 | 2026-27 | 2027-28 | 2028-29 | 2029-30 |
| Road (Surface only) | 54 | 51 | 64 | 68 | 73 | 77 | 79 | 77 | 75 | 72 |

Integrated Planning and Reporting Advisory Standard KPI targets are outlined below.

**Standard is not met** if ratio data cannot be identified or ratio is less than 90%.

**Standard is met** if ratio data can be calculated and ratio is 90% or greater.

**Standard is improving** if this ratio is between 90% and 110%.

### 6.3.3 Asset Renewal Funding Ratio (ARFR)

This is an indicator as to the ability of the City to fund the projected asset renewals and replacements in the future and therefore continue to provide existing levels of service, without additional operating income or reductions in operating expenses, or an increase in net financial liabilities above that currently projected.

The ratio is calculated by dividing the planned capital expenditure (from the long term financial plan) on renewals over the next 10 years by the required (projected) capital expenditure on renewals over the same period.

The forecast asset renewal funding ratios shown below have been calculated on an accumulative basis.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Asset | Forecast Asset Renewal Funding Ratio % (accumulative) | | | | | | | | | |
| 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2025-26 | 2026-27 | 2027-28 | 2028-29 | 2029-30 |
| Road (Surface only) | 97 | 95 | 95 | 96 | 97 | 98 | 98 | 98 | 98 | 99 |

The target ratio should be between 95% and 105% which indicates that adequate provision / expenditure is being made for the *future* renewal and replacement of assets. Overall the standard is met.

Integrated Planning and Reporting Advisory Standard KPI targets are outlined below.

**Standard is not met** if ratio data cannot be identified or ratio is less than 75%.

**Standard is met** if the ratio is between 75% and 95%.

**Standard is improving** if this ratio is between 95% and 105% and the ASR falls within the range 90% to 110% and ACR falls within the range of 50% to 75%.

## 6.4 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council.

Graph 6.4.1 below shows the projected current replacement cost/ asset values over the next 10 years and the fair value also known as the depreciated replacement cost (WDV) is the current replacement cost less accumulated depreciation. These figures include the projected growth and capital upgrade / new as mentioned in section 6.1.

**Graph 6.4.1 Projected Asset Value (CRC) and Fair Value (WDV)**

The fair value will vary over the forecast period depending on the rates of addition of new assets, disposal of old assets and consumption and renewal of existing assets.

Depreciation expense values are forecast to trend in line with asset values as shown in the Graph 6.4.2. The yellow highlighted line provides the current depreciation expense. Note that all costs are shown in current 2020 dollar values and a 2% CPI increase per year forward.

**Graph 6.4.2 Projected Depreciation Expense**

## 6.5 Key Assumptions made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:

* The data supplied was as accurate as possible at the time of compilation of this asset management plan.
* The breakdown of the actual reactive, planned and operational expenditure is considered accurate.

# 7. ASSET MANAGEMENT PRACTICES

## 7.1 Accounting/Financial Systems

**7.1.1 Summary of Accounting & Financial Systems**

Technology One Financials version 11.09.19.011

**7.1.2 Accountabilities and Responsibilities for Financial System**

Financial Services - for the accounts and costing methodologies

**7.1.3 Accounting Standards / Regulations / Guidelines**

* Australian Accounting Standards including:
* AASB116 - Property, Plant and Equipment
* AASB13 Fair Value Measurement
* AASB136 - Impairment of Assets
* AASB 140 Investment Property
* AASB 5 Non-current Assets Held for Sale and Discontinued Operations
* Local Government Act 1995
* Local Government (Financial Management) Regulations 1996
* Local Government (Functions & General) Regulations 1996

## 7.2 Asset Management Systems (EAM)

**7.2.1 Summary of Asset Management System**

Technology One Enterprise Asset Management version 11.09.19.011

Technology One Intramaps 8.1

**7.2.2 Summary of how the Enterprise Asset Management System aligns to the Accounting / Financial system**

The operational asset register within the Enterprise Asset Management system acts as the master asset dataset for determining renewal projections, future refurbishment.

The financial registers values are updated yearly from the operational asset register as part of Assets Services revaluation procedures.

**7.2.3 Accountabilities and Responsibilities for AM System (s)**

Property & Asset Services is accountable and responsible for the EAM system, with other service areas assisting with the currency and maintenance of the data sets within the system databases.

**7.2.4 Changes to the Asset Management Systems resulting from the AMP**

All proposed/agreed system changes will be documented in Section 8 Plan Improvement and Monitoring.

## 7.3 Information Flow Requirements and Processes

The key information flows *into* this asset management plan are:

* The asset register data on size, age, condition, value and remaining life of the network;
* The unit rates for categories of work/material;
* The adopted service levels;
* Projections of various factors affecting future demand for services;
* Correlations between maintenance and renewal, including decay models; and
* Data on new assets acquired by council.

The key information flows *from* this asset management plan are:

* The assumed Works Program and trends;
* The resulting budget, valuation and depreciation projections; and
* The useful life analysis.

These will impact the Long Term Financial Plan, Strategic Community Plan, annual budget and departmental business plans and budgets.

## 7.4 Standards and Guidelines

Asset Management Policy Statement (SC 39) 2017.

# 8. Plan Improvement and Monitoring

## 8.1 Performance Measures

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

* The degree to which the required cash flows identified in this asset management plan are incorporated into council’s Long Term Financial Plan and Strategic Management Plan,
* The degree to which 1-5 year detailed works programs, budgets, business plans and organisational structures take into account the ‘global’ works program trends provided by the asset management plan, and
* The degree to which existing and projected service levels and consequences, risks and residual risks are incorporated into Council’s plans.

## 8.2 Improvement Strategy

The improvements completed since previous RAMP are detailed in table 8.2.1

**Table 8.2.1 Improvements completed**

| Section | Project | Responsibility | Task | Status |
| --- | --- | --- | --- | --- |
| 3.3 | Monitoring performance measures against levels of service targets | Project & Asset Services | Include more detailed questions, specific to levels of service, in the customer satisfaction survey  Investigate customer request configuration | Completed |
| 4.4 | Investigate improvements of recording donated assets and Council funded assets | Project & Asset Services | To be reviewed as part of the ‘as constructed’ drawing process (external and internal) | Completed |
| 5.1.3 | Deterioration modelling | Project & Asset Services | Develop Deterioration Strategy | Completed |
| 5.2  5.4 | Investigate recording of Operational and Capital Works expenditure. | Financial Services, Project & Asset Services | Improve reporting from Technology One to reflect reactive versus planned expenditure  Alter CW program templates to identify upgrade, renewals and new | Completed |
| 5.1.2 | Condition assessment of road assets | Project &Asset Services**,** Road Services | Review data audit requirements  Develop the preventative maintenance system to schedule inspections (condition based)  Determine maintenance intervention level | Completed |
| 6.2 | Review Funding Strategy | Financial Services, Project & Asset Services | Report increase from 20% to 80% depreciation for renewal of assets | Addressed in LTFP 12/13 to 21/22 |
| 6.3 | Dept. of LG Sustainability Ratios | Finance Services, Project & Asset Services | Improve financial reporting on renewal and upgrade expenditure | Completed |
| 6.3 | Sustainability Ratios Performance | Project & Asset Services, Road Services | Recommend improvements to achieve advanced status | Completed |
| 6.4 | Improve asset revaluation process | Project & Asset Services, Road Services, Financial Services | Continue to develop plan to better reflect acquisitions, renewals, upgrades and disposals  Ensure the financial and operational asset registers replicate the same data | Completed |

The asset management improvement plan generated from this asset management plan is shown in table 8.2.2.

**Table 8.2.2 Improvement Strategy 2020 to 2024**

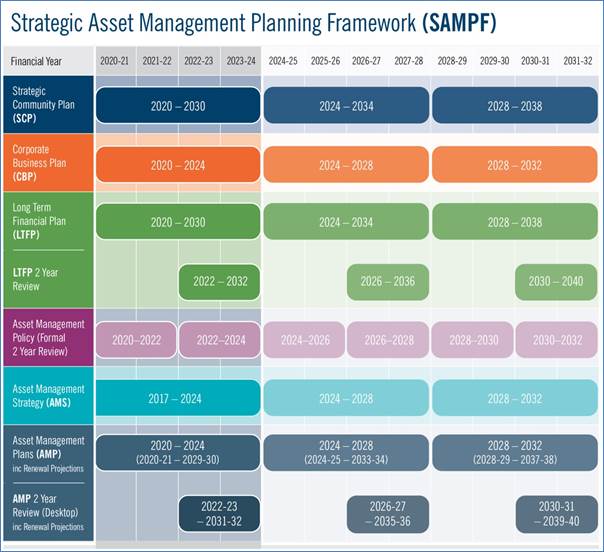
| Section | Project | Responsibility | Task | Timeline |
| --- | --- | --- | --- | --- |
| 3.3 | Monitoring performance measures against levels of service targets | Property & Asset Services | Link budget allocation to levels of service  Service Level Analysis workshops to review service delivery | 2023-24 |
| 5.1 | Clarification of asset ownership (eg. car parks, footpaths, lighting) | Property & Asset Services | As part of the integration between Tech one and Intramaps clearly define a single point of responsibility for each asset classification | 2021-22 |
| 5.4 | Update Regional and Major Roadworks Planning Document | Road Services, Property & Asset Services | Under review, more detail design as costings are required to effectively execute projects and planning | 2022-23 |
| 6.1 | Continuous improvement of roads data for next revision of the RAMP | Property & Asset Services | Network wide road surface condition audits, including ARs | 2022-23 |

## 8.3 Monitoring and Review Procedures

The RAMP forms part of the City’s Strategic Asset Management Planning Framework (SAMPF), covers four financial years 2020-21 to 2023-24 and acts as an informing strategy to the City’s Corporate Planning Framework.

Future iterations of the RAMP will be developed every 4 years and be subject to a 2 year desktop review. The RAMP review will focus on core elements required by the LTFP, for example asset valuations, growth projections, financial analysis including operating, sustainability ratios and 10 year renewals. This will ensure that future revisions of the LTFP will be derived from a structured AMP development cycle which has received Executive and or Council approval, increasing confidence and integration of asset management data and methodologies into the City’s long term financial planning.

The diagram below provides a visual representation and timelines of the Corporate Planning Frameworks Plans and Strategies.



The formalisation and alignment of the City’s SAMPF (Asset Management Policy, Strategy and AMP’s) within the Corporate Planning Framework reflects the City’s increasing maturity and recognises the importance of Asset Management in supporting the City in delivering long term financial sustainability of services and capital asset renewal.

Supported by the relevant business area and the Asset Management Sections of the Project & Asset Service Unit, the Project & Asset Manager has overall responsibility and management for each of the Improvement Strategies identified within section 8 of the RAMP.

# References

City of Cockburn – Asset Management Strategy 2017 – 2024

City of Cockburn – Strategic Community Plan 2020 – 2030

City of Cockburn – Long Term Financial Plan 2020-2021 to 2029-2030

City of Cockburn – Management Budget 2020 - 2021

City of Cockburn – Enterprise Risk Management

City of Cockburn - A Plan for the District 2010 – 2020

City of Cockburn – Regional & Major Roadworks 2018 – 2031

City of Cockburn - MARKYT – Community Scorecard 2017, 2018, 2019

City of Cockburn - MARKYT – Business Scorecard 2017, 2019

City of Cockburn – Enterprise Risk Management

City of Cockburn - Population forecast - <https://forecast.id.com.au/cockburn/population-age-structure>

IPWEA, 2011, ‘International Infrastructure Management Manual’, Institute of Public Works Engineering Australia, Sydney, [www.ipwea.org.au](http://www.ipwea.org.au)

Government of Western Australia, Department of The Premier and Cabinet - [Western Australian Legislation - Acts in force](https://www.legislation.wa.gov.au/legislation/statutes.nsf/law_a465.html)

The Local Government and Municipal Knowledge Base - [LGAM Knowledge Base](http://www.lgam.info/start)

Main Roads Western Australia - [Welcome - Main Roads Western Australia](http://www.mainroads.wa.gov.au/Pages/Welcome.aspx)

DVC, 2006, ‘Asset Investment Guidelines’, ‘Glossary’, Department for Victorian Communities, Local Government Victoria, Melbourne, <http://www.dvc.vic.gov.au/web20/dvclgv.nsf/allDocs/RWP1C79EC4A7225CD2FCA257170003259F6?OpenDocument>

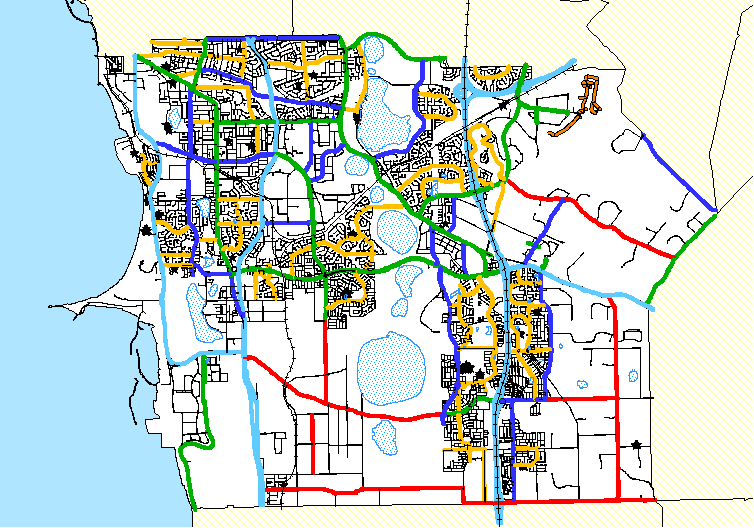
Local Government of Western Australia – Asset Management Framework and Guidelines

# Appendices

## Appendix A Legislative Requirements

| Legislation | Requirement |
| --- | --- |
| Local Government Act 1995 | Provides for a system of Local Government by describing the functions of and providing a framework for the administration and financial management of Local Governments. |
| Main Roads Act 1930 | Consolidates and amends the law relating to and making provision for the construction, maintenance and supervision of highways, main and secondary roads, and other roads and the control of access to roads.. |
| Main Roads WA – Code of Practice for traffic management for works on roads (April 2011) | To promote safe and consistent traffic management practice at work sites on roads in accordance with state legislation and national standards. Requires general compliance with the Australian Standard 1742.3-2009 and associated field guides, provides details of additional requirements necessary to meet WA requirements. Also outlines the competency requirements for personnel responsible for managing traffic on work sites. |
| Transport Co-ordination Act 1966 | Provides for the co-ordination, planning and advancement of all forms of transport in WA, to provide for the review, control and licensing of transport services and for incidental and other purposes. |
| Planning and Development Act 2005 | Provides for a system land use planning and development in the State and for related purposes. |
| Environmental Protection Act 1986 | Provides for an Environmental Protection Authority, for the protection, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected to the foregoing. |
| Contaminated Sites Act 2003 | Provides for the identification, recording, management and remediation of contaminated sites, to consequentially amend certain other Acts and for related purposes. |
| Conservation and Land Management Act 1984 | Makes better provision for the use, protection and management of certain public lands and waters and the flora and fauna thereof, establishes authorities to be responsible therefore, and for incidental or connected purposes. |
| Soil and Land Conservation Act 1945 | Relates to the conservation of soil and land resources, and to the mitigation of the effects of erosion, salinity and flooding. |
| Rail Safety Act 2010 | Requires Local Governments to develop an Interface Agreement with the rail manager/operator for every rail/road crossing in their area of responsibility by 1 February 2014 |
| Fire and Emergency Services Authority of WA Act 1998 | Establishes an Authority with functions relating to the provision and management of emergency services, and for related purposes. |
| Aboriginal Heritage Act 1972 | Provision for the preservation on behalf of the community of places and objects customarily used by or traditional to the original inhabitants of Australia or their descendants |
| Native Title (state provisions) Act 1999 | Provides for the recognition and protection of native title and to establish ways in which future dealings affecting native title may proceed. |
| Occupational Safety and Health Act 1984 (WA) | Provides for the promotion, coordination, administration and enforcement of Safety and Health in WA. Places emphasis on the prevention of accidents and injury |
| Disability Services Act 1993 | An Act for the establishment of the Disability Services Commission and the Ministerial Advisory Council on Disability, for the furtherance of principles applicable to people with disabilities, for the funding and provision of services to such people that meet certain objectives, for the resolution of complaints by such people, and for related purposes. |
| Code of Practice Working Hours 2006 | Provides guidance for employers and workers on the management of Safety and Health hazards and risks commonly associated with working hour arrangements. |
| Australian Standards | Standards are published documents setting out specifications and procedures designed to ensure products, services and systems are safe, reliable and consistently perform the way they were intended to. They establish a common language which defines quality and safety criteria. |

## Appendix B Road hierarchy map - City of Cockburn



PD

RD

DA

DB

LD

AR

## Appendix C Capital Expenditure Renewals 2020-21 – Roads

|  |  |
| --- | --- |
| **Resurfacing Project Description** | **Adopted Budget $** |
| ADRINA COURT LESSING TO CULDESAC | 15,663 |
| BERRY STREET SAWLE TO FORREST | 21,090 |
| BLACKTHORNE MASON TO HACKETTIANA | 48,813 |
| BLOODWOOD DRIVE BOULDERWOOD TO BOULDERWOOD | 89,342 |
| BOLDERWOOD DRIVE BAUREA TO BLOODWOOD EAST | 87,285 |
| DOTTEREL WAY SWAN TO OSPREY EAST | 42,115 |
| ELDERBERRY DRIVE NORTH LAKE TO HACKETTANIA | 47,403 |
| GLENISTER ROAD OFLEY TO WINFIELD | 70,623 |
| HAZLETT CLOSE | 17,093 |
| LESSING PLACE HACETTIANA TO CULDESAC | 17,059 |
| MOLLERIN PLACE SOUTH LAKE | 36,714 |
| NEWTON STREET | 157,215 |
| PECAN COURT | 30,340 |
| PLUMRIDGE WAY GLENBAWN TO SOUTH LAKE | 39,919 |
| ROCKINGHAM ROAD GOLDSMITH TO SPEARWOOD | 94,269 |
| SAWLE ROAD | 67,740 |
| SOUTHEND ROAD QUARY TO CLAYGATE | 72,030 |
| SOUTHWELL CRESCENT INTERSECTION BLACKWOOD AVENUE | 17,171 |
| TARNDALE WAY ELDERBERRY TO SOUTH LAKE | 39,919 |
| WENTWORTH PARADE REEVS TO RICHMOND | 33,597 |
| WENTWORTH PARADE RICHMOND TO BARTRAM | 26,925 |
| YANGEBUP ROAD OSREY TO PIONEER | 46,260 |
|  | **$1,118,585** |
| **MRRG Reconstruction** |  |
| NORTH LAKE RD INTERSCTION WITH FORREST ROAD | 216,000 |
| PHOENIX RD INTERSECTION WITH SUDLOW RD | 139,900 |
| SPEARWOOD AVE WESTBOUND WELLARD TO PORT KEMBLA | 272,900 |
|  | 628,800 |
| **Total Renewals 2020/21** | **$1,747,385** |

## Appendix D Preliminary 10 Year Resurfacing - Roads

This program will be subject to change based on combining road segments within a street as a single project and proposed budget for 2021/22 after taking the renewal demand for other asset classes and funding strategy.

| **ASSET ID** | **Road Name** | **Start Point** | **End Point** | **Hierarchy** | **Condition** | **Age Group** | | **Area (m2)** | **CRC ($)** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RD\_001103** | BERRIGAN DRIVE | LAKES | NA | DA | 5 | 16 to 20 | 398.83 | | 23,718 |
| **RD\_003840** | REDMOND ROAD | BRADBURY | NA | LD | 5 | >20 | 261.11 | | 13,194 |
| **RD\_003754** | WATTLEUP ROAD | MIRO | NA | RD | 5 | >20 | 332 | | 19,744 |
| **RD\_008346** | WATTLEUP ROAD | WENLOCK | TOMISLAV | RD | 5 | >20 | 166.94 | | 9,102 |
| **RD\_008345** | WATTLEUP ROAD | TOMISLAV | NA | RD | 5 | >20 | 517.84 | | 26,570 |
| **RD\_000037** | GAEBLER ROAD | GAEBLER ROAD | CUL-DE-SAC | AR | 5 | >20 | 270.05 | | 7,209 |
| **RD\_002206** | TUART PLACE | TUART PLACE | CUL-DE-SAC | AR | 5 | >20 | 309.07 | | 8,251 |
| **RD\_007044** | EMILE COURT | EMILE COURT | CUL-DE-SAC | AR | 5 | >20 | 367.69 | | 9,816 |
| **RD\_008841** | ALBION AVENUE | SPLASH | FAWCETT | AR | 5 | >20 | 1594.79 | | 36,675 |
|  |  |  |  |  |  | **TOTAL 20/21** | 4218.32 | | 154,279 |
|  |  |  |  |  |  | **TOTAL 21/22 inc CPI** |  | | 157,365 |
| **RD\_002343** | BOYD CRESCENT | BOYD CRESCENT | CUL-DE-SAC | AR | 5 | 16 to 20 | 576.7 | | 15,016 |
| **RD\_006085** | VERDE DRIVE | VERDE DRIVE | CUL-DE-SAC | AR | 5 | 16 to 20 | 106.29 | | 2,838 |
| **RD\_006959** | CARRINGTON STREET | WINTERFOLD | NA | DA | 4 | >20 | 847.25 | | 43,472 |
| **RD\_007420** | ROCKINGHAM ROAD | GOLDSMITH | NA | DA | 4 | >20 | 723.89 | | 37,142 |
| **RD\_003226** | ROCKINGHAM ROAD | RESERVE | NA | DA | 4 | >20 | 452.28 | | 26,897 |
|  |  |  |  |  |  | **TOTAL 21/22** | 2706.41 | | 125,364 |
|  |  |  |  |  |  | **TOTAL 21/22 inc CPI** |  | | 130,429 |
| **RD\_002264** | DALISON AVENUE | MARBAN | END | AR | 5 | 11 to 15 | 382.27 | | 10,205 |
| **RD\_007271** | BERRIGAN DRIVE | PRINSEP | NA | DA | 4 | 16 to 20 | 847.18 | | 43,468 |
| **RD\_005177** | COCKBURN ROAD | ENTRANCE | COUNCIL BOUNDARY | DA | 4 | 16 to 20 | 15116.47 | | 615,993 |
| **RD\_004147** | WINTERFOLD ROAD | FREDERICK | NA | DB | 4 | >20 | 168.84 | | 10,041 |
| **RD\_006966** | HAMILTON ROAD | KING | NA | DB | 4 | >20 | 744.37 | | 38,193 |
| **RD\_003749** | ACOURT ROAD | OWSTEN | NA | DB | 4 | >20 | 367.05 | | 21,828 |
|  |  |  |  |  |  | **TOTAL 22/23** | 17626.18 | | 739,729 |
|  |  |  |  |  |  | **TOTAL 22/23 inc CPI** |  | | 785,006 |
| **RD\_002135** | ROCKINGHAM ROAD | COCKBURN | HEALY | DA | 4 | 11 to 15 | 565.05 | | 30,809 |
| **RD\_006950** | ROCKINGHAM ROAD | HEALY | NA | DA | 4 | 11 to 15 | 884.14 | | 45,365 |
| **RD\_003819** | ROCKINGHAM ROAD | HAMILTON | NA | DA | 4 | 11 to 15 | 583.32 | | 29,930 |
| **RD\_007414** | ROCKINGHAM ROAD | SPEARWOOD | SPEARWOOD | DA | 4 | 11 to 15 | 1792 | | 80,226 |
| **RD\_007261** | BERRIGAN DRIVE | DEAN | JANDAKOT | DA | 4 | 11 to 15 | 3503.06 | | 156,185 |
| **RD\_003350** | HAMILTON ROAD | RECREATION | NA | DB | 4 | 16 to 20 | 239.91 | | 14,267 |
| **RD\_000078** | POLETTI ROAD | COOPER | BEELIAR | DB | 4 | 16 to 20 | 1648.08 | | 67,159 |
| **RD\_008861** | ROCKINGHAM ROAD | WEST CHURCHILL | KAPULA | DB | 4 | 16 to 20 | 1665.35 | | 67,863 |
|  |  |  |  |  |  | **TOTAL 23/24** | 10880.91 | | 491,804 |
|  |  |  |  |  |  | **TOTAL 23/24 inc CPI** |  | | 532,344 |
| **RD\_009710** | SCIANO AVENUE | HAMPSTEAD | CUL-DE-SAC | AR | 5 | 0 to 5 | 638.66 | | 16,629 |
| **RD\_009889** | TINDAL AVENUE | AMEER | FANCOTE | AR | 5 | 0 to 5 | 835.4 | | 21,751 |
| **RD\_003991** | PHOENIX ROAD | LEO | NA | DA | 4 | 6 to 10 | 932.41 | | 47,841 |
|  |  |  |  |  |  | **TOTAL 24/25** | 2406.47 | | 86,222 |
|  |  |  |  |  |  | **TOTAL 24/25 inc CPI** |  | | 95,195 |
| **RD\_009130** | FRANKLAND AVENUE | GAEBLER | WATTLEUP | AR | 4 | >20 | 4052.12 | | 93,186 |
| **RD\_003448** | BULLFINCH STREET | HEREFORD | NA | AR | 4 | >20 | 301.7 | | 8,054 |
| **RD\_003297** | BULLFINCH STREET | AUMERLE | NA | AR | 4 | >20 | 269 | | 7,181 |
| **RD\_000031** | GIBBS ROAD | BORONIA | OTHER JURISDICTION | AR | 4 | >20 | 1900.72 | | 43,711 |
| **RD\_000910** | MURIEL COURT | SEMPLE | CUL-DE-SAC | AR | 4 | >20 | 614.24 | | 15,993 |
| **RD\_002267** | ROTHWELL COURT | CUL-DE-SAC | LUCCA | AR | 4 | >20 | 300.75 | | 8,029 |
| **RD\_003797** | MARBAN WAY | DEEPDENE | NA | AR | 4 | >20 | 362.11 | | 9,667 |
| **RD\_002705** | MIRO STREET | WATTLEUP | VODICE | AR | 4 | >20 | 487.02 | | 12,681 |
| **RD\_003753** | MIRO STREET | VODICE | NA | AR | 4 | >20 | 220.05 | | 5,875 |
| **RD\_002990** | MIRO STREET | VODICE | HITCHCOCK | AR | 4 | >20 | 708.35 | | 18,443 |
| **RD\_003751** | MIRO STREET | HITCHCOCK | USHER | AR | 4 | >20 | 344.04 | | 9,185 |
| **RD\_002271** | HITCHCOCK PLACE | HITCHCOCK PLACE | CUL-DE-SAC | AR | 4 | >20 | 211.79 | | 5,654 |
| **RD\_003153** | STAMFORD WAY | MIRO | CUL-DE-SAC | AR | 4 | >20 | 2365.27 | | 54,394 |
| **RD\_002272** | STAMFORD WAY | STAMFORD WAY | CUL-DE-SAC | AR | 4 | >20 | 243.77 | | 6,508 |
| **RD\_004235** | USHER PLACE | ROCKINGHAM | MIRO | AR | 4 | >20 | 696.34 | | 18,131 |
| **RD\_007063** | FANSTONE AVENUE | ROCKINGHAM | WELLS | AR | 4 | >20 | 670.08 | | 17,447 |
| **RD\_002709** | FANSTONE AVENUE | WELLS | JERVOIS | AR | 4 | >20 | 2008.45 | | 46,188 |
| **RD\_002276** | FANSTONE AVENUE | JERVOIS | END | AR | 4 | >20 | 3191 | | 73,383 |
| **RD\_003258** | ANGUS AVENUE | DENHAM | NA | AR | 4 | >20 | 269.43 | | 7,193 |
| **RD\_003296** | AUMERLE WAY | BULLFINCH | NA | AR | 4 | >20 | 265.24 | | 7,081 |
| **RD\_005019** | LANCASTER STREET | MACMORRIS | NA | AR | 4 | >20 | 298.16 | | 7,960 |
| **RD\_003320** | SHALLOW STREET | LANCASTER | NA | AR | 4 | >20 | 299.56 | | 7,997 |
| **RD\_002324** | SOUTHEND ROAD | QUARRY | CHESHAM | AR | 4 | >20 | 2246.63 | | 51,665 |
| **RD\_006976** | WEAVELL STREET | OMMANNEY | NA | AR | 4 | >20 | 341.42 | | 9,115 |
| **RD\_003472** | FREDERICK ROAD | DODD | NA | AR | 4 | >20 | 302.24 | | 8,069 |
| **RD\_003359** | GRANDPRE CRESCENT | SNARE | NA | AR | 4 | >20 | 324.6 | | 8,666 |
| **RD\_003334** | GRANDPRE CRESCENT | RAMBURES | NA | AR | 4 | >20 | 216.12 | | 5,770 |
| **RD\_007508** | O'CONNELL STREET | CARMODY | NA | AR | 4 | >20 | 525.38 | | 13,679 |
| **RD\_001057** | SIMONS STREET | TREEBY | NA | AR | 4 | >20 | 222.64 | | 5,944 |
| **RD\_001243** | ARCHIDAMUS ROAD | ANTIGONUS | NA | AR | 4 | >20 | 277.37 | | 7,405 |
| **RD\_003795** | TOMISLAV PLACE | VODICE | NA | AR | 4 | >20 | 314.42 | | 8,394 |
| **RD\_002270** | TOMISLAV PLACE | TOMISLAV PLACE | CUL-DE-SAC | AR | 4 | >20 | 195.98 | | 5,232 |
| **RD\_007050** | WAUGH COURT | WAUGH COURT | CUL-DE-SAC | AR | 4 | >20 | 327.61 | | 8,746 |
| **RD\_003305** | JAMY PLACE | MATZ | NA | AR | 4 | >20 | 263.93 | | 7,046 |
| **RD\_000453** | BROADMEADOWS STREET | BROADMEADOWS STREET | CUL-DE-SAC | AR | 4 | >20 | 652.59 | | 16,992 |
| **RD\_000344** | ADRINA COURT | ADRINA COURT | CUL-DE-SAC | AR | 4 | >20 | 343.04 | | 9,158 |
| **RD\_000260** | PLACID COURT | PLACID COURT | CUL-DE-SAC | AR | 4 | >20 | 248.8 | | 6,642 |
| **RD\_000700** | LOCHSIDE GROVE | LOCHSIDE GROVE | CUL-DE-SAC | AR | 4 | >20 | 236.45 | | 6,312 |
| **RD\_001606** | BOLDERWOOD DRIVE | MEDLAR | NA | AR | 4 | >20 | 251.97 | | 6,727 |
| **RD\_001608** | BOLDERWOOD DRIVE | NETTLE | NA | AR | 4 | >20 | 223.51 | | 5,967 |
| **RD\_001278** | BOLDERWOOD DRIVE | PLOUGHSHARE | NA | AR | 4 | >20 | 348.17 | | 9,295 |
| **RD\_001276** | BOLDERWOOD DRIVE | BLOODWOOD | NA | AR | 4 | >20 | 322.76 | | 8,617 |
| **RD\_000282** | SILKPOD GARDENS | SILKPOD GARDENS | CUL-DE-SAC | AR | 4 | >20 | 331.91 | | 8,861 |
| **RD\_004198** | BAUERA GLADE | BAUERA GLD | CUL-DE-SAC | AR | 4 | >20 | 386.84 | | 10,327 |
| **RD\_001597** | MOONDARRA CIRCLE | TABLO | NA | AR | 4 | >20 | 227.04 | | 6,061 |
| **RD\_003622** | PELICAN RAMBLE | GULL | NA | AR | 4 | >20 | 322.9 | | 8,620 |
| **RD\_003621** | PELICAN RAMBLE | PIONEER | NA | AR | 4 | >20 | 282.99 | | 7,555 |
| **RD\_002211** | IBIS COURT | IBIS COURT | CUL-DE-SAC | AR | 4 | >20 | 305.28 | | 8,150 |
| **RD\_003967** | GULL COURT | GULL COURT | CUL-DE-SAC | AR | 4 | >20 | 318.07 | | 8,491 |
| RD\_003678 | GRASSBIRD LOOP | CRAKE | NA | AR | 4 | >20 | 312.14 | | 8,333 |
| RD\_002212 | EMU PLACE | EMU PLACE | CUL-DE-SAC | AR | 4 | >20 | 286.73 | | 7,655 |
| RD\_002207 | EAGLE RISE | EAGLE RISE | CUL-DE-SAC | AR | 4 | >20 | 326.25 | | 8,710 |
| RD\_002210 | CURLEW WAY | CURLEW WAY | CUL-DE-SAC | AR | 4 | >20 | 179.15 | | 4,783 |
| RD\_002285 | TATTLER PLACE | TATTLER PLACE | CUL-DE-SAC | AR | 4 | >20 | 362.63 | | 9,681 |
| RD\_002105 | SALPIETRO STREET | SALPIETRO STREET | CUL-DE-SAC | AR | 4 | >20 | 307.3 | | 8,204 |
| RD\_002389 | PEPYS COURT | NEWTON | CUL-DE-SAC | AR | 4 | >20 | 309.02 | | 8,250 |
| RD\_001823 | PEPYS COURT | PEPYS COURT | CUL-DE-SAC | AR | 4 | >20 | 289.96 | | 7,741 |
| RD\_001822 | CAMPION CLOSE | NEWTON | CUL-DE-SAC | AR | 4 | >20 | 292.47 | | 7,808 |
| **RD\_002388** | CAMPION CLOSE | CAMPION CLOSE | CUL-DE-SAC | AR | 4 | >20 | 276.66 | | 7,386 |
| **RD\_002387** | BUCHAN CLOSE | BUCHAN CLOSE | CUL-DE-SAC | AR | 4 | >20 | 312.42 | | 8,341 |
| **RD\_003200** | LEAVIS PLACE | IBSEN | NA | AR | 4 | >20 | 258.9 | | 6,912 |
| **RD\_003185** | DRYDEN STREET | TURFAN | NA | AR | 4 | >20 | 394.68 | | 10,537 |
| **RD\_002759** | POTTER COURT | GOLDSMITH | CUL-DE-SAC | AR | 4 | >20 | 786.27 | | 20,472 |
| **RD\_006932** | POTTER COURT | POTTER COURT | CUL-DE-SAC | AR | 4 | >20 | 327.45 | | 8,742 |
| **RD\_004079** | BUTTON STREET | FROBISHER | END | AR | 4 | >20 | 711.93 | | 18,537 |
| **RD\_002676** | TUART PLACE | PLOVER | CUL-DE-SAC | AR | 4 | >20 | 841.9 | | 21,921 |
| **RD\_003937** | WELLS ROAD | BRITANNIA | BRITANNIA | AR | 4 | >20 | 300.76 | | 8,029 |
| **RD\_003604** | DOTTEREL WAY | TATTLER | NA | AR | 4 | >20 | 346.47 | | 9,250 |
| **RD\_003965** | DOTTEREL WAY | GRASSBIRD | NA | AR | 4 | >20 | 344.88 | | 9,207 |
| **RD\_000441** | YATES COURT | YATES COURT | CUL-DE-SAC | AR | 4 | >20 | 349 | | 9,317 |
| **RD\_001040** | MONACO AVENUE | YATES | NA | AR | 4 | >20 | 275.12 | | 7,345 |
| **RD\_000990** | MONACO AVENUE | DU MAURIER | NA | AR | 4 | >20 | 328.31 | | 8,765 |
| **RD\_000989** | MONACO AVENUE | EMILE | NA | AR | 4 | >20 | 309.37 | | 8,259 |
| **RD\_000988** | MONACO AVENUE | SASSOON | NA | AR | 4 | >20 | 281.97 | | 7,528 |
| **RD\_001002** | MONACO AVENUE | ASCHAM | NA | AR | 4 | >20 | 300.99 | | 8,035 |
| **RD\_000996** | MASEFIELD AVENUE | GIDDENS | NA | AR | 4 | >20 | 248.05 | | 6,622 |
| **RD\_000992** | MASEFIELD AVENUE | WYSS | NA | AR | 4 | >20 | 280.03 | | 7,476 |
| **RD\_000995** | MASEFIELD AVENUE | COLERIDGE | NA | AR | 4 | >20 | 395.85 | | 10,568 |
| **RD\_000999** | MASEFIELD AVENUE | POPE | MADELEINE | AR | 4 | >20 | 440.54 | | 11,761 |
| **RD\_000691** | POPE MEWS | MASEFIELD | CUL-DE-SAC | AR | 4 | >20 | 285.63 | | 7,625 |
| **RD\_007527** | POPE MEWS | POPE MEWS | CUL-DE-SAC | AR | 4 | >20 | 232.65 | | 6,211 |
| **RD\_000877** | GIDDENS COURT | MASEFIELD | CUL-DE-SAC | AR | 4 | >20 | 890.84 | | 23,195 |
| **RD\_007052** | GIDDENS COURT | GIDDENS COURT | CUL-DE-SAC | AR | 4 | >20 | 287.82 | | 7,684 |
| **RD\_000445** | COLERIDGE PLACE | MASEFIELD | ASCHAM | AR | 4 | >20 | 1095.81 | | 25,200 |
| **RD\_000993** | COLERIDGE PLACE | WYSS | NA | AR | 4 | >20 | 266.37 | | 7,111 |
| **RD\_007051** | COLERIDGE PLACE | COLERIDGE PLACE | CUL-DE-SAC | AR | 4 | >20 | 305.15 | | 8,146 |
| **RD\_000446** | WYSS LANE | COLERIDGE | MASEFIELD | AR | 4 | >20 | 589.65 | | 15,353 |
| **RD\_001571** | BLACKTHORNE CRESCENT | PECAN | NA | AR | 4 | >20 | 264.34 | | 7,057 |
| **RD\_001908** | MATZ COURT | MATZ COURT | CUL-DE-SAC | AR | 4 | >20 | 243.41 | | 6,498 |
| **RD\_003166** | MARLOWE PLACE | MARLOWE | NA | AR | 4 | >20 | 199.8 | | 5,334 |
| **RD\_001798** | BECKETT CLOSE | BECKETT | BECKETT | AR | 4 | >20 | 2391.62 | | 55,000 |
| **RD\_004243** | BORONIA ROAD | BARTRAM | GIBBS | AR | 4 | >20 | 7882.19 | | 181,265 |
| **RD\_000292** | EACHAM COURT | EACHAM COURT | CUL-DE-SAC | AR | 4 | >20 | 298.98 | | 7,982 |
| **RD\_000264** | BINNEY RISE | BINNEY RISE | CUL-DE-SAC | AR | 4 | >20 | 308.35 | | 8,232 |
| **RD\_000257** | BARRINE GARDENS | BARRINE GARDENS | CUL-DE-SAC | AR | 4 | >20 | 319.58 | | 8,532 |
| **RD\_000263** | PRENTICE PLACE | PRENTICE PLACE | CUL-DE-SAC | AR | 4 | >20 | 306.61 | | 8,185 |
| **RD\_000258** | EPPALOCK GROVE | EPPALOCK GROVE | CUL-DE-SAC | AR | 4 | >20 | 335.59 | | 8,959 |
| **RD\_002650** | MARROW CLOSE | MARROW CLOSE | CUL-DE-SAC | AR | 4 | >20 | 311.39 | | 8,313 |
| **RD\_003589** | MANBERRY WAY | COOGAN | NA | AR | 4 | >20 | 152.84 | | 4,080 |
| **RD\_003190** | BROWNING WAY | LAMB | NA | AR | 4 | >20 | 393.91 | | 10,516 |
| **RD\_001138** | NETTLE WAY | MUDGEE | NA | AR | 4 | >20 | 266.89 | | 7,125 |
| **RD\_001143** | BLOODWOOD CIRCLE | PAVONIA | NA | AR | 4 | >20 | 317.84 | | 8,485 |
| **RD\_000242** | BOLWARRA HEIGHTS | BOLWARRA HEIGHTS | CUL-DE-SAC | AR | 4 | >20 | 307.06 | | 8,197 |
| **RD\_001154** | BROADBENT LOOP | URLICH | NA | AR | 4 | >20 | 256.03 | | 6,835 |
| **RD\_001168** | SAN MIGUEL DRIVE | PARTLON | NA | AR | 4 | >20 | 254.48 | | 6,794 |
| **RD\_003924** | TURFAN WAY | ADEN | NA | AR | 4 | >20 | 340.07 | | 9,079 |
| **RD\_003183** | BLONDELL DRIVE | CAESAR | NA | AR | 4 | >20 | 313.71 | | 8,375 |
| **RD\_002223** | GAZANIA GROVE | GAZANIA GROVE | CUL-DE-SAC | AR | 4 | >20 | 317.21 | | 8,468 |
| **RD\_002249** | IRIS PLACE | IRIS PLACE | CUL-DE-SAC | AR | 4 | >20 | 340.83 | | 9,099 |
| **RD\_003931** | MAGNOLIA GARDENS | MAGNOLIA | NA | AR | 4 | >20 | 483.99 | | 12,602 |
| **RD\_007705** | MAGNOLIA GARDENS | TORENIA | YANGEBUP | AR | 4 | >20 | 379.6 | | 10,134 |
| **RD\_002222** | BEGONIA CLOSE | BEGONIA CLOSE | CUL-DE-SAC | AR | 4 | >20 | 335.83 | | 8,966 |
| **RD\_008060** | SALVIA COURT | SALVIA COURT | CUL-DE-SAC | AR | 4 | >20 | 348.71 | | 9,309 |
| **RD\_003045** | COOGAN CLOSE | COOGAN CLOSE | CUL-DE-SAC | AR | 4 | >20 | 306.05 | | 8,171 |
| **RD\_004126** | AMY COURT | AMY COURT | CUL-DE-SAC | AR | 4 | >20 | 382.39 | | 10,209 |
| **RD\_003591** | MILGUN DRIVE | WILLIAMBURY | NA | AR | 4 | >20 | 293.35 | | 7,831 |
| **RD\_003594** | MILGUN DRIVE | BEEBIN | NA | AR | 4 | >20 | 214.5 | | 5,726 |
| **RD\_003593** | MILGUN DRIVE | NYANG | NA | AR | 4 | >20 | 216.48 | | 5,779 |
| **RD\_002177** | NYANG COURT | NYANG COURT | CUL-DE-SAC | AR | 4 | >20 | 302.78 | | 8,083 |
| **RD\_000201** | WOODLEA CREST | WOODLEA CREST | CUL-DE-SAC | AR | 4 | >20 | 374.76 | | 10,005 |
| **RD\_003579** | WILLIAMBURY DRIVE | RAPANIA | NA | AR | 4 | >20 | 240.73 | | 6,427 |
| **RD\_003585** | WILLIAMBURY DRIVE | DECIDUOUS | NA | AR | 4 | >20 | 266.8 | | 7,123 |
| **RD\_003590** | WILLIAMBURY DRIVE | MANBERRY | NA | AR | 4 | >20 | 280.76 | | 7,495 |
| **RD\_000578** | WYALONG PLACE | WINEBERRY | CUL-DE-SAC | AR | 4 | >20 | 458.82 | | 12,249 |
| **RD\_000249** | WYALONG PLACE | WYALONG PLACE | CUL-DE-SAC | AR | 4 | >20 | 337.01 | | 8,997 |
| **RD\_000222** | GREEN CROFT GARDENS | GREEN CROFT GARDENS | CUL-DE-SAC | AR | 4 | >20 | 388.44 | | 10,370 |
| **RD\_000577** | TALLOW PLACE | WINEBERRY | CUL-DE-SAC | AR | 4 | >20 | 367.05 | | 9,799 |
| **RD\_000247** | TALLOW PLACE | TALLOW PLACE | CUL-DE-SAC | AR | 4 | >20 | 314.52 | | 8,397 |
| **RD\_003913** | DIAMANTIA WAY | ALACRITY | STUART | AR | 4 | >20 | 1047.87 | | 24,098 |
| **RD\_003710** | ALACRITY PLACE | DIAMANTINA | NA | AR | 4 | >20 | 441.46 | | 11,786 |
| **RD\_002711** | ALACRITY PLACE | DIAMANTIA | CUL-DE-SAC | AR | 4 | >20 | 637.01 | | 16,586 |
| **RD\_002280** | ALACRITY PLACE | ALACRITY PLACE | CUL-DE-SAC | AR | 4 | >20 | 658.47 | | 17,145 |
| **RD\_001279** | MUDGEE COURT | MUDGEE COURT | CUL-DE-SAC | AR | 4 | >20 | 439.71 | | 11,739 |
| **RD\_000164** | FREMONT PLACE | FREMONT PLACE | CUL-DE-SAC | AR | 4 | >20 | 351.84 | | 9,393 |
| **RD\_007569** | DIMOND COURT | FERN LEAF | NA | AR | 4 | >20 | 681.41 | | 17,742 |
| **RD\_003582** | DECIDUOUS RISE | SHADY | NA | AR | 4 | >20 | 241.88 | | 6,457 |
| **RD\_003576** | SOGAN RISE | ACALYPHA | NA | AR | 4 | >20 | 213.81 | | 5,708 |
| **RD\_002169** | ACALYPHA VIEW | ACALYPHA VIEW | CUL-DE-SAC | AR | 4 | >20 | 308.54 | | 8,237 |
| **RD\_002168** | ALLIS HEIGHTS | ALLIS HEIGHTS | CUL-DE-SAC | AR | 4 | >20 | 302.16 | | 8,067 |
| **RD\_002281** | KALMIA ROAD | COCOS | COLLIBAH | AR | 4 | >20 | 751.44 | | 19,565 |
| **RD\_002172** | RONSARD PLACE | RONSARD PLACE | CUL-DE-SAC | AR | 4 | >20 | 308.79 | | 8,244 |
| **RD\_003938** | BRITANNIA AVENUE | BRITANNIA AVENUE | CUL-DE-SAC | AR | 4 | >20 | 250.67 | | 6,692 |
| **RD\_003969** | NAPIER MEWS | NAPIER MEWS | CUL-DE-SAC | AR | 4 | >20 | 342.41 | | 7,982 |
| **RD\_001287** | ZILLNER CLOSE | ZILLNER CLOSE | CUL-DE-SAC | AR | 4 | >20 | 448.67 | | 11,978 |
| **RD\_008785** | KNOCK PLACE | SOLOMON | ARMADALE | AR | 4 | >20 | 3072.51 | | 70,658 |
| **RD\_000511** | KENTUCKY COURT | NORTH LAKE ROAD | END | AR | 4 | >20 | 3706.54 | | 85,239 |
| **RD\_000185** | TANA COURT | TANA COURT | CUL-DE-SAC | AR | 4 | >20 | 360.34 | | 9,620 |
| **RD\_002282** | COROKIA WAY | BARBERRY | KALMIA | AR | 4 | >20 | 1819.01 | | 41,831 |
| **RD\_003680** | BARBERRY WAY | KALMIA | NA | AR | 4 | >20 | 519.14 | | 13,517 |
| **RD\_003558** | BARBERRY WAY | COROKIA | NA | AR | 4 | >20 | 449.23 | | 11,993 |
| **RD\_004224** | LITTLE RUSH CLOSE | LITTLE RUSH CLOSE | CUL-DE-SAC | AR | 4 | >20 | 347.59 | | 9,280 |
| **RD\_004157** | ROSA PLACE | ROSA PLACE | CUL-DE-SAC | AR | 4 | >20 | 288.18 | | 8,847 |
| **RD\_004227** | KOTISINA GARDENS | KOTISINA GARDENS | CUL-DE-SAC | AR | 4 | >20 | 525.84 | | 9,598 |
| **RD\_004120** | YAGAN MEWS | YAGAN MEWS | CUL-DE-SAC | AR | 4 | >20 | 248.43 | | 6,632 |
| **RD\_004412** | NOGGA RETREAT | NOGGA RETREAT | CUL-DE-SAC | AR | 4 | >20 | 161.33 | | 4,953 |
| **RD\_004414** | QUENDA CLOSE | QUENDA CLOSE | CUL-DE-SAC | AR | 4 | >20 | 252.26 | | 6,735 |
| **RD\_003654** | SENECIO LANE | DARTER | NA | AR | 4 | >20 | 141.54 | | 3,779 |
| **RD\_004410** | NARCISSUS VIEW | NARCISSUS VIEW | CUL-DE-SAC | AR | 4 | >20 | 208.93 | | 6,414 |
| **RD\_008381** | NASTURTIUM GARDENS | RANUNCULUS | GERANIUM | AR | 4 | >20 | 852.57 | | 22,199 |
| **RD\_003978** | HYBANTHUS LOOP | MOITCH | NA | AR | 4 | >20 | 146.85 | | 3,920 |
| **RD\_003662** | WAITCH LOOP | ULAK | HAVEL | AR | 4 | >20 | 248.07 | | 2,342 |
| **RD\_004151** | CINCOTTA LOOP | HAGUE | NA | AR | 4 | >20 | 98.83 | | 2,638 |
| **RD\_004109** | MARMAND COURT | MARMAND COURT | CUL-DE-SAC | AR | 4 | >20 | 374.7 | | 9,974 |
| **RD\_004154** | HAGUE PASS | CINCOTTA | PERALDINI | AR | 4 | >20 | 419.27 | | 12,872 |
| **RD\_004231** | PAR COURT | PAR COURT | CUL-DE-SAC | AR | 4 | >20 | 297.97 | | 7,955 |
| **RD\_004536** | QUILL WAY | CHANNEL | NA | AR | 4 | >20 | 952.31 | | 21,900 |
| **RD\_008613** | GAEBLER ROAD | LYON | CUL-DE-SAC | AR | 4 | >20 | 324.14 | | 8,653 |
| **RD\_008948** | FRANKLAND AVENUE | WOODROW | WATTLEUP | AR | 4 | >20 | 540.48 | | 14,073 |
| **RD\_010374** | FRANKLAND AVENUE | WOODROW | WATTLEUP | AR | 4 | >20 | 246.32 | | 6,576 |
| **RD\_010375** | FRANKLAND AVENUE | WOODROW | WATTLEUP | AR | 4 | >20 | 142.33 | | 3,800 |
| **RD\_010535** | MURIEL COURT | SEMPLE | CUL-DE-SAC | AR | 4 | >20 | 2483.22 | | 57,106 |
| **RD\_002088** | MAYOR ROAD | COCKBURN | MARITIME | LD | 4 | >20 | 882.52 | | 33,175 |
| **RD\_003482** | HEALY ROAD | CLARA | NA | LD | 4 | >20 | 319.67 | | 16,153 |
| **RD\_003500** | HEALY ROAD | HELEN | YOUNG | LD | 4 | >20 | 229.01 | | 11,572 |
| **RD\_001236** | COOLBELLUP AVENUE | CAMILLO | NA | LD | 4 | >20 | 251.82 | | 12,725 |
| **RD\_000974** | COOLBELLUP AVENUE | FLORIZEL | NA | LD | 4 | >20 | 247.16 | | 12,489 |
| **RD\_001019** | COOLBELLUP AVENUE | EMILIA | NA | LD | 4 | >20 | 279.36 | | 14,116 |
| **RD\_007622** | OSPREY DRIVE | HERON | NA | LD | 4 | >20 | 603.55 | | 25,573 |
| **RD\_001594** | ELDERBERRY DRIVE | BOLDERWOOD | NA | LD | 4 | >20 | 309.97 | | 15,663 |
| **RD\_007135** | BANINGAN AVENUE | STEINER | STEINER | LD | 4 | >20 | 977.83 | | 20,273 |
| **RD\_007575** | ALABASTER DRIVE | SCIANO | NA | LD | 4 | >20 | 654.61 | | 13,419 |
| **RD\_007815** | CONGDON AVENUE | IVANKOVICH | IVANKOVICH | LD | 4 | >20 | 1214.09 | | 43,502 |
| **RD\_007272** | DEAN ROAD | PAR COURT | NA | LD | 4 | >20 | 558.31 | | 8,732 |
| **RD\_008347** | WATTLEUP ROAD | TOMISLAV | DEEPDENE | RD | 4 | >20 | 407.3 | | 24,222 |
| **RD\_007925** | WATTLEUP ROAD | DEEPDENE | MOYLAN | RD | 4 | >20 | 3718.37 | | 151,523 |
| **RD\_007340** | WATTLEUP ROAD | PEARSE | NA | RD | 4 | >20 | 785.39 | | 40,298 |
|  |  |  |  |  |  | **TOTAL 25/26** | 105679.3 | | 2,796,183 |
|  |  |  |  |  |  | **TOTAL 25/26 inc CPI** |  | | 3,148,955 |
| **RD\_003834** | DOOLETTE STREET | BARDOLPH | NA | AR | 4 | 16 to 20 | 288.59 | | 7,704 |
| **RD\_003256** | DOOLETTE STREET | FOX | NA | AR | 4 | 16 to 20 | 291.62 | | 7,785 |
| **RD\_003255** | DOOLETTE STREET | PISTOL | NA | AR | 4 | 16 to 20 | 278.34 | | 7,431 |
| **RD\_003904** | NEWTON STREET | NEWTON STREET | CUL-DE-SAC | AR | 4 | 16 to 20 | 364.33 | | 9,726 |
| **RD\_001204** | GIBBS ROAD | BORONIA | NA | AR | 4 | 16 to 20 | 339.19 | | 9,055 |
| **RD\_001537** | ANNOIS ROAD | WINDMILL | NA | AR | 4 | 16 to 20 | 303.25 | | 8,096 |
| **RD\_002773** | BOYD CRESCENT | COCKBURN | CUL-DE-SAC | AR | 4 | 16 to 20 | 1232.64 | | 28,347 |
| **RD\_001963** | LEDA STREET | ROCKINGHAM | STARLING | AR | 4 | 16 to 20 | 420.52 | | 11,226 |
| **RD\_003431** | CARMODY STREET | ENGLAND | NA | AR | 4 | 16 to 20 | 272.78 | | 7,282 |
| **RD\_003341** | PAULIK WAY | HALKIN | NA | AR | 4 | 16 to 20 | 149.48 | | 3,991 |
| **RD\_003345** | GLENISTER ROAD | PILGRIM | NA | AR | 4 | 16 to 20 | 293.55 | | 7,837 |
| **RD\_000028** | MALABAR WAY | PORT KEMBLA | END | AR | 4 | 16 to 20 | 843.53 | | 21,963 |
| **RD\_001073** | GEELONG COURT | BROADMEADOWS | NA | AR | 4 | 16 to 20 | 611.97 | | 15,934 |
| **RD\_002094** | HOWE STREET | HOWE STREET | CUL-DE-SAC | AR | 4 | 16 to 20 | 126.11 | | 3,367 |
| **RD\_002577** | HOWE STREET | CUL-DE-SAC | ROCKINGHAM | AR | 4 | 16 to 20 | 311.95 | | 8,328 |
| **RD\_003667** | PIONEER DRIVE | IBIS | NA | AR | 4 | 16 to 20 | 317.95 | | 8,488 |
| **RD\_001860** | BUKTENICA COURT | BUKTENICA COURT | CUL-DE-SAC | AR | 4 | 16 to 20 | 302.6 | | 8,078 |
| **RD\_002340** | MARRYAT COURT | MARRYAT COURT | CUL-DE-SAC | AR | 4 | 16 to 20 | 460.54 | | 12,295 |
| **RD\_004473** | REGINA COURT | REGINA COURT | CUL-DE-SAC | AR | 4 | 16 to 20 | 276.01 | | 7,369 |
| **RD\_003683** | QUARIMOR ROAD | PARK | NA | AR | 4 | 16 to 20 | 421.28 | | 11,247 |
| **RD\_001901** | BELLIER PLACE | BELLIER PLACE | CUL-DE-SAC | AR | 4 | 16 to 20 | 284.99 | | 7,608 |
| **RD\_001545** | BLUEBELL WAY | HAMLET | NA | AR | 4 | 16 to 20 | 227.01 | | 6,060 |
| **RD\_000568** | HAMLET COURT | HAMLET COURT | CUL-DE-SAC | AR | 4 | 16 to 20 | 337.32 | | 9,005 |
| **RD\_001546** | STYLE COURT | BLUEBELL | NA | AR | 4 | 16 to 20 | 310.12 | | 8,279 |
| **RD\_001269** | STYLE COURT | STYLE COURT | CUL-DE-SAC | AR | 4 | 16 to 20 | 346.48 | | 9,250 |
| **RD\_000241** | STYLE COURT | STYLE COURT | CUL-DE-SAC | AR | 4 | 16 to 20 | 338.87 | | 9,047 |
| **RD\_002127** | PARK PLACE | PARK PLACE | CUL-DE-SAC | AR | 4 | 16 to 20 | 565.52 | | 14,725 |
| **RD\_004247** | SPRINGFIELDS CLOSE | OXLEY | CUL-DE-SAC | AR | 4 | 16 to 20 | 2982.24 | | 68,582 |
| **RD\_000478** | OXLEY ROAD | SPRINGFIELDS | CUL-DE-SAC | AR | 4 | 16 to 20 | 1564.84 | | 35,986 |
| **RD\_004168** | IMLAH COURT | PRINSEP | THE LAKES | AR | 4 | 16 to 20 | 1917.98 | | 44,107 |
| **RD\_005785** | GERANIUM RETREAT | NASTURTIUM | RANUNCULUS | AR | 4 | 16 to 20 | 489.6 | | 7,872 |
| **RD\_004229** | HILLBERG RISE | HILLBERG RISE | CUL-DE-SAC | AR | 4 | 16 to 20 | 520.79 | | 8,582 |
| **RD\_007163** | MINERVA LOOP | REEVES | NA | AR | 4 | 16 to 20 | 662.55 | | 11,043 |
| **RD\_004760** | MINERVA LOOP | MINERVA | MINERVA | AR | 4 | 16 to 20 | 126.37 | | 3,374 |
| **RD\_007198** | JACKADDER AVENUE | ASHENDON | NA | AR | 4 | 16 to 20 | 461.19 | | 12,312 |
| **RD\_007892** | CARRINGTON STREET | WINTERFOLD | CLONTARF | DA | 3 | >20 | 1151.52 | | 39,089 |
| **RD\_007893** | CARRINGTON STREET | CLONTARF | DODD | DA | 3 | >20 | 592.99 | | 30,426 |
| **RD\_006962** | CARRINGTON STREET | CLONTARF | DODD | DA | 3 | >20 | 646.56 | | 33,175 |
| **RD\_006979** | CARRINGTON STREET | DODD | HEALY | DA | 3 | >20 | 2508.13 | | 102,206 |
| **RD\_003993** | PHOENIX ROAD | ROCKINGHAM | GRANDPRE | DA | 3 | >20 | 547.5 | | 29,852 |
| **RD\_003996** | PHOENIX ROAD | BOURBON | NA | DA | 3 | >20 | 372.44 | | 22,149 |
| **RD\_003995** | PHOENIX ROAD | GRANDPRE | BOURBON | DA | 3 | >20 | 2039.11 | | 83,093 |
| **RD\_003999** | PHOENIX ROAD | BOURBON | GERALD | DA | 3 | >20 | 681.27 | | 31,700 |
| **RD\_007660** | PHOENIX ROAD | DELLER | NA | DA | 3 | >20 | 1038.62 | | 37,489 |
| **RD\_007661** | PHOENIX ROAD | DELLER | PORT KEMBLA | DA | 3 | >20 | 1157.91 | | 39,678 |
| **RD\_001686** | PHOENIX ROAD | STOCK | DELLER | DA | 3 | >20 | 1539.63 | | 62,740 |
| **RD\_007669** | PHOENIX ROAD | SUDLOW | SUDLOW | DA | 3 | >20 | 1980.21 | | 88,652 |
| **RD\_008167** | PHOENIX ROAD | HORUS | NORTH LAKE | DA | 3 | >20 | 1591.89 | | 64,869 |
| **RD\_008169** | PHOENIX ROAD | HORUS | NORTH LAKE | DA | 3 | >20 | 1615.09 | | 65,815 |
| **RD\_007701** | SPEARWOOD AVENUE | YANGEBUP | TINDAL | DA | 3 | >20 | 1608.45 | | 65,544 |
| **RD\_007946** | ROCKINGHAM ROAD | LANCASTER | KENT | DA | 3 | >20 | 4564.48 | | 204,260 |
| **RD\_007400** | ROCKINGHAM ROAD | KENT | NA | DA | 3 | >20 | 627.69 | | 32,206 |
| **RD\_007401** | ROCKINGHAM ROAD | KENT | COLEVILLE | DA | 3 | >20 | 391.8 | | 22,928 |
| **RD\_007402** | ROCKINGHAM ROAD | COLEVILLE | NA | DA | 3 | >20 | 507.91 | | 26,061 |
| **RD\_007403** | ROCKINGHAM ROAD | COLEVILLE | SPEARWOOD | DA | 3 | >20 | 4449.37 | | 199,109 |
| **RD\_002599** | ROCKINGHAM ROAD | SPEARWOOD | EDELINE | DA | 3 | >20 | 1246.75 | | 58,011 |
| **RD\_003265** | ROCKINGHAM ROAD | EDELINE | NA | DA | 3 | >20 | 442.37 | | 26,307 |
| **RD\_007419** | ROCKINGHAM ROAD | EDELINE | GOLDSMITH | DA | 3 | >20 | 424.27 | | 23,133 |
| **RD\_001836** | ROCKINGHAM ROAD | GOLDSMITH | RESERVE | DA | 3 | >20 | 2390.93 | | 97,430 |
| **RD\_007482** | BEELIAR DRIVE | POLETTI | NA | DA | 3 | >20 | 2509.23 | | 112,336 |
| **RD\_008161** | PHOENIX ROAD | SUDLOW | SELKIS | DA | 3 | >20 | 1142.25 | | 53,149 |
| **RD\_008166** | PHOENIX ROAD | SELKIS | HORUS | DA | 3 | >20 | 2046.65 | | 83,401 |
| **RD\_008163** | PHOENIX ROAD | SELKIS | NA | DA | 3 | >20 | 1649.82 | | 73,861 |
| **RD\_007737** | BEELIAR DRIVE | ROCKINGHAM | STOCK | DA | 3 | >20 | 1851.05 | | 75,430 |
| **RD\_001547** | BIBRA DRIVE | STYLE | NA | DB | 4 | 0 to 5 | 365.6 | | 21,742 |
| **RD\_007703** | YANGEBUP ROAD | MIGUEL | NA | LD | 4 | 16 to 20 | 1159.74 | | 41,554 |
| **RD\_007520** | COUNSEL ROAD | HARGREAVES | LEAR | LD | 4 | 16 to 20 | 422.68 | | 19,268 |
| **RD\_003209** | NEWTON STREET | PEPYS | NA | LD | 4 | 16 to 20 | 283.62 | | 14,331 |
| **RD\_003207** | NEWTON STREET | CAMPION | NA | LD | 4 | 16 to 20 | 367.21 | | 18,555 |
| **RD\_003235** | NEWTON STREET | GALSWORTHY | NA | LD | 4 | 16 to 20 | 239.61 | | 12,108 |
| **RD\_003234** | NEWTON STREET | GOLDSMITH | NA | LD | 4 | 16 to 20 | 306.24 | | 15,474 |
| **RD\_002393** | NEWTON STREET | GOLDSMITH | IONESCO | LD | 4 | 16 to 20 | 692.83 | | 26,045 |
| **RD\_006933** | NEWTON STREET | IONESCO | NA | LD | 4 | 16 to 20 | 472.78 | | 23,890 |
| **RD\_007000** | OSPREY DRIVE | DOTTEREL | NA | LD | 4 | 16 to 20 | 513.47 | | 21,756 |
| **RD\_007532** | PROGRESS DRIVE | HOPE | NA | LD | 4 | 16 to 20 | 987.06 | | 32,332 |
| **RD\_007053** | PROGRESS DRIVE | MASEFIELD | NA | LD | 4 | 16 to 20 | 490.32 | | 20,775 |
|  |  |  |  |  |  | **TOTAL 26/27** | 68659.15 | | 2,613,312 |
|  |  |  |  |  |  | **TOTAL 26/27 inc CPI** |  | | 3,001,874 |
| **RD\_003780** | PEARSE ROAD | DALISON | NA | AR | 4 | 11 to 15 | 509.29 | | 13,260 |
| **RD\_003779** | PEARSE ROAD | MORTIMER | NA | AR | 4 | 11 to 15 | 350.49 | | 9,357 |
| **RD\_003764** | MOYLAN ROAD | McLEOD | NA | AR | 4 | 11 to 15 | 264.94 | | 7,073 |
| **RD\_001297** | THOMAS STREET | NORTH LAKE | SYCAMORE | AR | 4 | 11 to 15 | 1595.73 | | 36,697 |
| **RD\_001628** | THOMAS STREET | SYCAMORE | NA | AR | 4 | 11 to 15 | 324.33 | | 5,938 |
| **RD\_003701** | EAST CHURCHILL AVENUE | WATSON | NA | AR | 4 | 11 to 15 | 300.34 | | 8,018 |
| **RD\_003700** | EAST CHURCHILL AVENUE | JERVOIS | NA | AR | 4 | 11 to 15 | 240.53 | | 6,421 |
| **RD\_008081** | EAST CHURCHILL AVENUE | CONGDON | EAST CHURCHILL | AR | 4 | 11 to 15 | 1045.26 | | 24,038 |
| **RD\_004136** | EAST CHURCHILL AVENUE | EAST CHURCHILL AVENUE | CUL-DE-SAC | AR | 4 | 11 to 15 | 190.29 | | 5,080 |
| **RD\_001853** | EDELINE STREET | ROCKINGHAM | ANGUS | AR | 4 | 11 to 15 | 309.89 | | 8,273 |
| **RD\_007417** | EDELINE STREET | ANGUS | NA | AR | 4 | 11 to 15 | 520.97 | | 13,565 |
| **RD\_001843** | EDELINE STREET | ANGUS | DENHAM | AR | 4 | 11 to 15 | 1823.39 | | 41,932 |
| **RD\_003830** | EDELINE STREET | DENHAM | NA | AR | 4 | 11 to 15 | 317.21 | | 8,468 |
| **RD\_001842** | EDELINE STREET | DENHAM | GERALD | AR | 4 | 11 to 15 | 335.58 | | 8,959 |
| **RD\_007416** | EDELINE STREET | GERALD | NA | AR | 4 | 11 to 15 | 823.09 | | 21,431 |
| **RD\_003251** | EDELINE STREET | COBINE | NA | AR | 4 | 11 to 15 | 280.89 | | 7,499 |
| **RD\_003252** | EDELINE STREET | FOX | NA | AR | 4 | 11 to 15 | 335.34 | | 8,952 |
| **RD\_003253** | EDELINE STREET | FOX | ROSS | AR | 4 | 11 to 15 | 217.62 | | 5,810 |
| **RD\_003325** | BOLINGBROKE STREET | SCROOP | NA | AR | 4 | 11 to 15 | 315 | | 8,409 |
| **RD\_002277** | POSSNER WAY | SPARKS | SPARKS | AR | 4 | 11 to 15 | 4607.61 | | 105,960 |
| **RD\_003709** | STUART DRIVE | DIAMANTINA | NA | AR | 4 | 11 to 15 | 612.64 | | 15,951 |
| **RD\_003798** | DALISON AVENUE | MARBAN | NA | AR | 4 | 11 to 15 | 243.78 | | 6,508 |
| **RD\_005325** | HYBANTHUS LOOP | HYBANTHUS | NA | AR | 4 | 11 to 15 | 148.23 | | 3,957 |
| **RD\_005917** | SUNFLOWER ROAD | GRENADA | NA | AR | 4 | 11 to 15 | 175.64 | | 4,689 |
| **RD\_005857** | WISELY COURT | WISELY COURT | CUL-DE-SAC | AR | 4 | 11 to 15 | 591.06 | | 9,376 |
| **RD\_006322** | STOWE GARDENS | MAJORELLE | CUL-DE-SAC | AR | 4 | 11 to 15 | 341.74 | | 9,123 |
| **RD\_006781** | ZEST LANE | VALOUR | NA | AR | 4 | 11 to 15 | 158.02 | | 4,219 |
| **RD\_003135** | CARRINGTON STREET | HEALY | MORTLOCK | DA | 3 | 16 to 20 | 2068.19 | | 84,278 |
| **RD\_003418** | CARRINGTON STREET | MORTLOCK | NA | DA | 3 | 16 to 20 | 382.35 | | 22,738 |
| **RD\_002491** | CARRINGTON STREET | MORTLOCK | STRATTON | DA | 3 | 16 to 20 | 905.14 | | 42,116 |
| **RD\_007466** | CARRINGTON STREET | STRATTON | NA | DA | 3 | 16 to 20 | 439.53 | | 26,138 |
| **RD\_004001** | PHOENIX ROAD | GERALD | LEO | DA | 3 | 16 to 20 | 1767.96 | | 72,044 |
| **RD\_004004** | PHOENIX ROAD | SOUTHWELL | DOOLETTE | DA | 3 | 16 to 20 | 510.01 | | 27,808 |
| **RD\_004008** | PHOENIX ROAD | DOOLETTE | BULLFINCH | DA | 3 | 16 to 20 | 1467.66 | | 59,807 |
| **RD\_004010** | PHOENIX ROAD | QUICKLY | NA | DA | 3 | 16 to 20 | 217.97 | | 12,962 |
| **RD\_004009** | PHOENIX ROAD | BULLFINCH | QUICKLY | DA | 3 | 16 to 20 | 448.04 | | 24,429 |
| **RD\_007369** | SPEARWOOD AVENUE | PORT KEMBLA | WELLARD | DA | 3 | 16 to 20 | 5831.6 | | 226,637 |
| **RD\_007355** | SPEARWOOD AVENUE | SUDLOW | MIGUEL | DA | 3 | 16 to 20 | 5610.58 | | 228,630 |
| **RD\_007915** | SPEARWOOD AVENUE | YANGEBUP | NA | DA | 3 | 16 to 20 | 2255.48 | | 100,976 |
| **RD\_008606** | NORTH LAKE ROAD | PHOENIX | DISCOVERY | DA | 3 | 16 to 20 | 2173.03 | | 88,551 |
| **RD\_008605** | NORTH LAKE ROAD | PHOENIX | DISCOVERY | DA | 3 | 16 to 20 | 2428.31 | | 98,953 |
| **RD\_007007** | NORTH LAKE ROAD | RIMMINGTON | NA | DA | 3 | 16 to 20 | 1317.77 | | 58,995 |
| **RD\_003782** | WARTON ROAD | JANDAKOT | MASON | DA | 3 | 16 to 20 | 626.84 | | 32,163 |
| **RD\_000155** | WARTON ROAD | JANDAKOT | ACKWORTH | DA | 3 | 16 to 20 | 3536.8 | | 144,124 |
| **RD\_003784** | WARTON ROAD | ACKWORTH | NA | DA | 3 | 16 to 20 | 544.61 | | 27,944 |
| **RD\_002935** | WARTON ROAD | ACKWORTH | HYBRID | DA | 3 | 16 to 20 | 2571.62 | | 104,793 |
| **RD\_004431** | WARTON ROAD | HYBRID | NA | DA | 3 | 16 to 20 | 483.09 | | 24,787 |
| **RD\_003087** | WARTON ROAD | HYBRID | HEBE | DA | 3 | 16 to 20 | 1827.65 | | 74,476 |
| **RD\_004430** | WARTON ROAD | HEBE | NA | DA | 3 | 16 to 20 | 470.2 | | 27,962 |
| **RD\_002618** | WARTON ROAD | HEBE | NICHOLSON (GOSNELLS) | DA | 3 | 16 to 20 | 3442.18 | | 140,268 |
| **RD\_007926** | ROCKINGHAM ROAD | PHOENIX | PHOENIX | DA | 3 | 16 to 20 | 1607.71 | | 71,976 |
| **RD\_007927** | ROCKINGHAM ROAD | PHOENIX | LANCASTER | DA | 3 | 16 to 20 | 2611.43 | | 116,861 |
| **RD\_001835** | ROCKINGHAM ROAD | RESERVE | RIGBY | DA | 3 | 16 to 20 | 775.14 | | 36,067 |
| **RD\_003225** | ROCKINGHAM ROAD | RIGBY | NA | DA | 3 | 16 to 20 | 619.54 | | 31,788 |
| **RD\_002401** | ROCKINGHAM ROAD | RIGBY | TODD | DA | 3 | 16 to 20 | 348.29 | | 18,990 |
| **RD\_003224** | ROCKINGHAM ROAD | TODD | NA | DA | 3 | 16 to 20 | 358.35 | | 21,311 |
| **RD\_006941** | ROCKINGHAM ROAD | TODD | NEWTON | DA | 3 | 16 to 20 | 3894.06 | | 158,682 |
| **RD\_006939** | ROCKINGHAM ROAD | NEWTON | NA | DA | 3 | 16 to 20 | 678.04 | | 34,790 |
| **RD\_002799** | ROCKINGHAM ROAD | NEWTON | BARRETT | DA | 3 | 16 to 20 | 3434.02 | | 139,936 |
| **RD\_003204** | ROCKINGHAM ROAD | BARRETT | NA | DA | 3 | 16 to 20 | 478.63 | | 24,558 |
| **RD\_003902** | ROCKINGHAM ROAD | BARRETT | GEROVICH | DA | 3 | 16 to 20 | 538.68 | | 29,371 |
| **RD\_007765** | ROCKINGHAM ROAD | GEROVICH | NA | DA | 3 | 16 to 20 | 729.93 | | 29,942 |
| **RD\_007767** | ROCKINGHAM ROAD | GEROVICH | BARRINGTON | DA | 3 | 16 to 20 | 1265.38 | | 51,564 |
| **RD\_007766** | ROCKINGHAM ROAD | BARRINGTON | NA | DA | 3 | 16 to 20 | 920.23 | | 33,325 |
| **RD\_007768** | ROCKINGHAM ROAD | BARRINGTON | TROODE | DA | 3 | 16 to 20 | 3505.8 | | 142,861 |
| **RD\_007769** | ROCKINGHAM ROAD | TROODE | NA | DA | 3 | 16 to 20 | 735.09 | | 37,717 |
| **RD\_007770** | ROCKINGHAM ROAD | TROODE | MARVELL | DA | 3 | 16 to 20 | 2042.82 | | 83,245 |
| **RD\_003169** | ROCKINGHAM ROAD | OKRA | NA | DA | 3 | 16 to 20 | 539.59 | | 27,686 |
| **RD\_002361** | ROCKINGHAM ROAD | OKRA | ASQUITH | DA | 3 | 16 to 20 | 495.64 | | 27,025 |
| **RD\_003172** | ROCKINGHAM ROAD | BACICH | NA | DA | 3 | 16 to 20 | 554.44 | | 28,448 |
| **RD\_007736** | ROCKINGHAM ROAD | BACICH | MAYOR | DA | 3 | 16 to 20 | 1168.66 | | 54,378 |
| **RD\_008711** | ROCKINGHAM ROAD | BEELIAR | MAYOR | DA | 3 | 16 to 20 | 1005.67 | | 45,023 |
| **RD\_007060** | FARRINGTON ROAD | BIBRA | NA | DA | 3 | 16 to 20 | 2260.16 | | 101,185 |
| **RD\_007016** | BERRIGAN DRIVE | KWINANA | THE LAKES | DA | 3 | 16 to 20 | 2495.43 | | 101,688 |
| **RD\_007020** | BERRIGAN DRIVE | TURNBURY PARK | NA | DA | 3 | 16 to 20 | 1077.7 | | 48,248 |
| **RD\_007017** | BERRIGAN DRIVE | THE LAKES | NA | DA | 3 | 16 to 20 | 1536.29 | | 68,778 |
| **RD\_007022** | BERRIGAN DRIVE | TURNBURY | PRINSEP | DA | 3 | 16 to 20 | 3831.59 | | 156,137 |
| **RD\_007270** | BERRIGAN DRIVE | PRINSEP | JANDAKOT | DA | 3 | 16 to 20 | 1424.41 | | 58,044 |
| **RD\_000527** | BERRIGAN DRIVE | JANDAKOT | GLENDALE | DA | 3 | 16 to 20 | 4470.06 | | 200,121 |
| **RD\_001104** | BERRIGAN DRIVE | GLENDALE | NA | DA | 3 | 16 to 20 | 438.17 | | 26,058 |
| **RD\_000752** | BERRIGAN DRIVE | GLENDALE | LAKES | DA | 3 | 16 to 20 | 2217.1 | | 90,346 |
| **RD\_000892** | BERRIGAN DRIVE | LAKES | GLENDALE | DA | 3 | 16 to 20 | 2588.95 | | 105,499 |
| **RD\_001105** | BERRIGAN DRIVE | GLENDALE | NA | DA | 3 | 16 to 20 | 339.37 | | 20,182 |
| **RD\_001108** | BERRIGAN DRIVE | LAKES | NA | DA | 3 | 16 to 20 | 2043.51 | | 91,486 |
| **RD\_007742** | BERRIGAN DRIVE | LAKES | HOPE | DA | 3 | 16 to 20 | 4422.28 | | 180,207 |
| **RD\_007451** | BEELIAR DRIVE | LAKERIDGE | NA | DA | 3 | 16 to 20 | 1369.61 | | 43,715 |
| **RD\_007611** | BEELIAR DRIVE | KEMP | BEELIAR | DA | 3 | 16 to 20 | 12649.16 | | 515,451 |
| **RD\_007784** | BEELIAR DRIVE | SPEARWOOD | TINDAL | DA | 3 | 16 to 20 | 2150.21 | | 87,621 |
| **RD\_007783** | BEELIAR DRIVE | TINDAL | NA | DA | 3 | 16 to 20 | 1449.47 | | 64,891 |
| **RD\_004647** | BEELIAR DRIVE | TINDAL | BIRCHLEY | DA | 3 | 16 to 20 | 826.54 | | 42,409 |
| **RD\_007810** | BEELIAR DRIVE | DURNIN | DURNIN | DA | 3 | 16 to 20 | 2757.97 | | 123,472 |
| **RD\_005285** | COCKBURN ROAD | SUCCESS | NA | DA | 3 | 16 to 20 | 621.49 | | 20,314 |
| **RD\_008365** | COCKBURN ROAD | SUCCESS | JESSIE LEE | DA | 3 | 16 to 20 | 2039.01 | | 83,089 |
| **RD\_008366** | COCKBURN ROAD | JESSIE LEE | NA | DA | 3 | 16 to 20 | 829.52 | | 42,562 |
| **RD\_008364** | COCKBURN ROAD | JESSIE LEE | ZEDORA | DA | 3 | 16 to 20 | 6064.31 | | 247,119 |
| **RD\_008363** | COCKBURN ROAD | ZEDORA | NA | DA | 3 | 16 to 20 | 822.58 | | 42,206 |
| **RD\_007236** | COCKBURN ROAD | ZEDORA | QUIL | DA | 3 | 16 to 20 | 8195.77 | | 333,976 |
| **RD\_007238** | COCKBURN ROAD | QUILL | NA | DA | 3 | 16 to 20 | 2068.24 | | 92,593 |
| **RD\_007243** | COCKBURN ROAD | QUILL | STUART | DA | 3 | 16 to 20 | 5546.49 | | 226,018 |
| **RD\_007244** | COCKBURN ROAD | STUART | NA | DA | 3 | 16 to 20 | 1846.81 | | 82,680 |
| **RD\_007242** | COCKBURN ROAD | STUART | ENTRANCE | DA | 3 | 16 to 20 | 13340.85 | | 537,898 |
| **RD\_008603** | NORTH LAKE ROAD | PHOENIX | PHOENIX | DA | 3 | 16 to 20 | 1295.96 | | 58,019 |
| **RD\_008604** | NORTH LAKE ROAD | PHOENIX | PHOENIX | DA | 3 | 16 to 20 | 1162 | | 52,022 |
| **RD\_008607** | NORTH LAKE ROAD | SOBEK | NA | DA | 3 | 16 to 20 | 2675.74 | | 119,790 |
| **RD\_009193** | BEELIAR DRIVE | TINDAL | BIRCHLEY | DA | 3 | 16 to 20 | 1802.34 | | 73,445 |
| **RD\_009192** | BEELIAR DRIVE | TINDAL | BIRCHLEY | DA | 3 | 16 to 20 | 2311.13 | | 94,178 |
| **RD\_010507** | BERRIGAN DRIVE | JANDAKOT | GLENDALE | DA | 3 | 16 to 20 | 2529.53 | | 103,078 |
| **RD\_010521** | BERRIGAN DRIVE | PRINSEP | JANDAKOT | DA | 3 | 16 to 20 | 1153.02 | | 53,650 |
| **RD\_010523** | SPEARWOOD AVENUE | BARRINGTON STREET | YANGEBUP ROAD | DA | 3 | 16 to 20 | 4508.82 | | 183,734 |
| **RD\_010524** | SPEARWOOD AVENUE | BARRINGTON STREET | YANGEBUP ROAD | DA | 3 | 16 to 20 | 5550.81 | | 226,194 |
| **RD\_006960** | WINTERFOLD ROAD | CARRINGTON | SIMMS | DB | 3 | >20 | 717.29 | | 22,825 |
| **RD\_006961** | WINTERFOLD ROAD | SIMMS | NA | DB | 3 | >20 | 298.28 | | 17,738 |
| **RD\_006983** | WINTERFOLD ROAD | SIMMS | FREDERICK | DB | 3 | >20 | 1195.46 | | 55,625 |
| **RD\_004143** | WINTERFOLD ROAD | FREDERICK | JOYCE | DB | 3 | >20 | 453.82 | | 24,744 |
| **RD\_004145** | WINTERFOLD ROAD | JOYCE | NA | DB | 3 | >20 | 224 | | 13,321 |
| **RD\_004141** | WINTERFOLD ROAD | JOYCE | DAVON | DB | 3 | >20 | 423 | | 23,064 |
| **RD\_004148** | WINTERFOLD ROAD | DAVON | NA | DB | 3 | >20 | 157.92 | | 9,391 |
| **RD\_007901** | WINTERFOLD ROAD | DAVON | GREENSLADE | DB | 3 | >20 | 458.47 | | 24,998 |
| **RD\_007902** | WINTERFOLD ROAD | GREENSLADE | NA | DB | 3 | >20 | 200.28 | | 11,910 |
| **RD\_004142** | WINTERFOLD ROAD | GREENSLADE | ABERLE | DB | 3 | >20 | 414.75 | | 22,614 |
| **RD\_004146** | WINTERFOLD ROAD | ABERLE | NA | DB | 3 | >20 | 210.34 | | 12,509 |
| **RD\_004144** | WINTERFOLD ROAD | ABERLE | REDMOND | DB | 3 | >20 | 406.85 | | 22,183 |
| **RD\_006985** | WINTERFOLD ROAD | REDMOND | NA | DB | 3 | >20 | 340.75 | | 20,264 |
| **RD\_006986** | WINTERFOLD ROAD | REDMOND | STOCK | DB | 3 | >20 | 377.24 | | 20,569 |
| **RD\_004026** | SPEARWOOD AVENUE | GOWER | NA | DB | 3 | >20 | 289.15 | | 17,195 |
| **RD\_002104** | SPEARWOOD AVENUE | SPEARWOOD | SPEARWOOD | DB | 3 | >20 | 898.29 | | 41,797 |
| **RD\_004032** | SPEARWOOD AVENUE | BULLFINCH | SPEARWOOD | DB | 3 | >20 | 1082.13 | | 50,352 |
| **RD\_007729** | MAYOR ROAD | HAMILTON | HAMILTON | DB | 3 | >20 | 875.2 | | 44,906 |
| **RD\_002583** | HAMILTON ROAD | OCEAN | MELL | DB | 3 | >20 | 2199.94 | | 89,647 |
| **RD\_007908** | HAMILTON ROAD | MELL | NA | DB | 3 | >20 | 454.94 | | 26,512 |
| **RD\_002914** | HAMILTON ROAD | MELL | KING | DB | 3 | >20 | 1150.37 | | 53,527 |
| **RD\_006952** | HAMILTON ROAD | CRANBERRY | NA | DB | 3 | >20 | 353.45 | | 12,940 |
| **RD\_002600** | HAMILTON ROAD | AMITY | BRAMSTON | DB | 3 | >20 | 790.89 | | 36,800 |
| **RD\_007739** | HAMILTON ROAD | BRAMSTON | NA | DB | 3 | >20 | 700.77 | | 35,956 |
| **RD\_002921** | HAMILTON ROAD | BRAMSTON | FAVAZZO | DB | 3 | >20 | 478.58 | | 26,094 |
| **RD\_003732** | HAMILTON ROAD | FAVAZZO | NA | DB | 3 | >20 | 344.58 | | 20,492 |
| **RD\_002545** | HAMILTON ROAD | FAVAZZO | TUNIS | DB | 3 | >20 | 1486.85 | | 60,589 |
| **RD\_003760** | HAMILTON ROAD | TUNIS | NA | DB | 3 | >20 | 412.06 | | 15,615 |
| **RD\_007752** | HAMILTON ROAD | TUNIS | TROODE | DB | 3 | >20 | 139.13 | | 7,586 |
| **RD\_007753** | HAMILTON ROAD | TROODE | NA | DB | 3 | >20 | 579.72 | | 29,745 |
| **RD\_002601** | HAMILTON ROAD | TROODE | GUMINA | DB | 3 | >20 | 1132.88 | | 52,713 |
| **RD\_003757** | HAMILTON ROAD | GUMINA | NA | DB | 3 | >20 | 424.34 | | 25,235 |
| **RD\_007744** | HAMILTON ROAD | GUMINA | FAIRBAIRN | DB | 3 | >20 | 1545.1 | | 62,963 |
| **RD\_007745** | HAMILTON ROAD | FAIRBAIRN | NA | DB | 3 | >20 | 872.74 | | 44,780 |
| **RD\_007743** | HAMILTON ROAD | FAIRBAIRN | CARRELLO | DB | 3 | >20 | 850.39 | | 39,569 |
| **RD\_003510** | HAMILTON ROAD | CARRELLO | NA | DB | 3 | >20 | 444.69 | | 26,445 |
| **RD\_007749** | HAMILTON ROAD | CARRELLO | KOTISINA | DB | 3 | >20 | 486.98 | | 17,572 |
| **RD\_003883** | HAMILTON ROAD | KOTISINA | MAYOR | DB | 3 | >20 | 486.08 | | 26,503 |
| **RD\_000130** | TAPPER ROAD | NANCARROW | HARPER | DB | 3 | >20 | 1619.46 | | 65,993 |
| **RD\_000419** | TAPPER ROAD | HARPER | BARTRAM | DB | 3 | >20 | 3467.89 | | 141,316 |
| **RD\_007424** | SOLOMON ROAD | ARMADALE | KNOCK | DB | 3 | >20 | 409.45 | | 21,569 |
| **RD\_007425** | SOLOMON ROAD | KNOCK | KNOCK | DB | 3 | >20 | 794.92 | | 40,787 |
| **RD\_005690** | SOLOMON ROAD | MONASH | CHULLORA | DB | 3 | >20 | 1281.67 | | 52,228 |
| **RD\_005692** | SOLOMON ROAD | CHULLORA | NA | DB | 3 | >20 | 599.9 | | 30,781 |
| **RD\_005691** | SOLOMON ROAD | CHULLORA | VERDE | DB | 3 | >20 | 432.94 | | 23,606 |
| **RD\_005002** | SOLOMON ROAD | VERDE | CUTLER | DB | 3 | >20 | 1224.06 | | 56,956 |
| **RD\_007252** | SOLOMON ROAD | CUTLER | CUTLER | DB | 3 | >20 | 873.95 | | 44,842 |
| **RD\_001222** | SOLOMON ROAD | PEPPWORTH | NA | DB | 3 | >20 | 635.46 | | 32,605 |
| **RD\_007956** | ROCKINGHAM ROAD | HOWE | MAGNET | DB | 3 | >20 | 555.14 | | 33,741 |
| **RD\_002619** | ACOURT ROAD | NICHOLSON (GOSNELLS) | OWSTEN | DB | 3 | >20 | 6278.99 | | 255,868 |
| **RD\_004228** | ACOURT ROAD | OWSTEN | MERRITT | DB | 3 | >20 | 187.49 | | 11,150 |
| **RD\_008590** | SUDLOW ROAD | HORUS | NA | DB | 3 | >20 | 1004.48 | | 44,970 |
| **RD\_008592** | SUDLOW ROAD | AMBITIOUS | PHOENIX | DB | 3 | >20 | 2404.91 | | 98,000 |
| **RD\_009826** | HAMILTON ROAD | OCEAN | MELL | DB | 3 | >20 | 1225.66 | | 57,030 |
| **RD\_009903** | ACOURT ROAD | OWSTEN | MERRITT | DB | 3 | >20 | 8744.78 | | 356,348 |
| **RD\_009904** | ACOURT ROAD | OWSTEN | MERRITT | DB | 3 | >20 | 5337.68 | | 217,509 |
| **RD\_003391** | HEALY ROAD | GORDON | NA | LD | 4 | 11 to 15 | 522.5 | | 22,139 |
| **RD\_003433** | REDMOND ROAD | CARMODY | NA | LD | 4 | 11 to 15 | 250.92 | | 12,679 |
| **RD\_007055** | PROGRESS DRIVE | PROGRESS | NA | LD | 4 | 11 to 15 | 655.7 | | 27,783 |
| **RD\_007399** | BARTRAM ROAD | BRENCHLEY | BEENYUP | LD | 4 | 11 to 15 | 1081.92 | | 38,766 |
|  |  |  |  |  |  | **TOTAL 27/28** | 265272.6 | | 11,058,147 |
|  |  |  |  |  |  | **TOTAL 27/28 inc CPI** |  | | 12,956,382 |
| **RD\_003611** | PLOVER DRIVE | TUART | NA | AR | 4 | 6 to 10 | 280.73 | | 7,495 |
| **RD\_007789** | SPEARWOOD AVENUE | BLUEBUSH | BLUEBUSH | DA | 3 | 11 to 15 | 1267.94 | | 56,765 |
| **RD\_005528** | SPEARWOOD AVENUE | BEELIAR | BLUEBUSH | DA | 3 | 11 to 15 | 1141.46 | | 53,112 |
| **RD\_007066** | SPEARWOOD AVENUE | THE GRANGE | NA | DA | 3 | 11 to 15 | 1251.6 | | 56,033 |
| **RD\_007047** | NORTH LAKE ROAD | FARRINGTON | NA | DA | 3 | 11 to 15 | 2152.44 | | 79,299 |
| **RD\_007868** | NORTH LAKE ROAD | GWILLIAM | FORREST | DA | 3 | 11 to 15 | 4618.05 | | 206,746 |
| **RD\_007674** | NORTH LAKE ROAD | PHOENIX | NA | DA | 3 | 11 to 15 | 3570.35 | | 83,925 |
| **RD\_007952** | NORTH LAKE ROAD | DISCOVERY | NA | DA | 3 | 11 to 15 | 2160.67 | | 96,731 |
| **RD\_007899** | NORTH LAKE ROAD | BIBRA | OMEO | DA | 3 | 11 to 15 | 6147.72 | | 250,518 |
| **RD\_005527** | NORTH LAKE ROAD | RIMMINGTON | THOMAS | DA | 3 | 11 to 15 | 919.73 | | 42,795 |
| **RD\_009000** | RUSSELL ROAD | HAMMOND | BRUSHFOOT | DA | 3 | 11 to 15 | 5793.84 | | 236,098 |
| **RD\_007207** | RUSSELL ROAD | BRUSHFOOT | MACQUARIE | DA | 3 | 11 to 15 | 2953.74 | | 132,236 |
| **RD\_008595** | FORREST ROAD | CARRINGTON | CARRINGTON | DA | 3 | 11 to 15 | 1680.81 | | 64,331 |
| **RD\_008093** | ROCKINGHAM ROAD | HEALY | CARDIGAN | DA | 3 | 11 to 15 | 2217.24 | | 90,352 |
| **RD\_003402** | ROCKINGHAM ROAD | CARDIGAN | NA | DA | 3 | 11 to 15 | 628.68 | | 32,257 |
| **RD\_008094** | ROCKINGHAM ROAD | CARDIGAN | BELLION | DA | 3 | 11 to 15 | 2544.24 | | 103,677 |
| **RD\_003401** | ROCKINGHAM ROAD | BELLION | NA | DA | 3 | 11 to 15 | 521.85 | | 26,776 |
| **RD\_002107** | ROCKINGHAM ROAD | BELLION | DAVILAK | DA | 3 | 11 to 15 | 1194.02 | | 55,558 |
| **RD\_003400** | ROCKINGHAM ROAD | DAVILAK | NA | DA | 3 | 11 to 15 | 351.69 | | 20,915 |
| **RD\_003080** | ROCKINGHAM ROAD | DAVILAK | STARLING | DA | 3 | 11 to 15 | 2159.11 | | 87,983 |
| **RD\_008571** | ROCKINGHAM ROAD | STARLING | NA | DA | 3 | 11 to 15 | 794.8 | | 40,781 |
| **RD\_007458** | ROCKINGHAM ROAD | STARLING | LEDA | DA | 3 | 11 to 15 | 1317.09 | | 53,671 |
| **RD\_007459** | ROCKINGHAM ROAD | LEDA | NA | DA | 3 | 11 to 15 | 932.47 | | 47,844 |
| **RD\_008088** | ROCKINGHAM ROAD | LEDA | ANNEAN | DA | 3 | 11 to 15 | 616.65 | | 33,623 |
| **RD\_008087** | ROCKINGHAM ROAD | ANNEAN | LUCIUS | DA | 3 | 11 to 15 | 1006.95 | | 46,853 |
| **RD\_008998** | ROCKINGHAM ROAD | LUCIUS | FORREST | DA | 3 | 11 to 15 | 108.33 | | 5,907 |
| **RD\_007468** | ROCKINGHAM ROAD | FORREST | NA | DA | 3 | 11 to 15 | 966.45 | | 43,267 |
| **RD\_002487** | ROCKINGHAM ROAD | FORREST | STRODE | DA | 3 | 11 to 15 | 1097.13 | | 51,050 |
| **RD\_003379** | ROCKINGHAM ROAD | STRODE | NA | DA | 3 | 11 to 15 | 381.17 | | 22,668 |
| **RD\_002849** | ROCKINGHAM ROAD | STRODE | BAILEY | DA | 3 | 11 to 15 | 1522.36 | | 62,036 |
| **RD\_003378** | ROCKINGHAM ROAD | BAILEY | NA | DA | 3 | 11 to 15 | 405.86 | | 24,136 |
| **RD\_007473** | ROCKINGHAM ROAD | BAILEY | HAMILTON | DA | 3 | 11 to 15 | 1907.94 | | 77,748 |
| **RD\_007475** | ROCKINGHAM ROAD | CARRINGTON | MARRYAT | DA | 3 | 11 to 15 | 2008.89 | | 81,862 |
| **RD\_003370** | ROCKINGHAM ROAD | MARRYAT | NA | DA | 3 | 11 to 15 | 478.73 | | 24,563 |
| **RD\_001939** | ROCKINGHAM ROAD | MARRYAT | PAULIK | DA | 3 | 11 to 15 | 2883.63 | | 117,507 |
| **RD\_003363** | ROCKINGHAM ROAD | PAULIK | NA | DA | 3 | 11 to 15 | 369.76 | | 21,989 |
| **RD\_002838** | ROCKINGHAM ROAD | PAULIK | PACKHAM | DA | 3 | 11 to 15 | 695.46 | | 32,360 |
| **RD\_003362** | ROCKINGHAM ROAD | PACKHAM | NA | DA | 3 | 11 to 15 | 361.75 | | 21,513 |
| **RD\_003360** | ROCKINGHAM ROAD | SNARE | NA | DA | 3 | 11 to 15 | 374.35 | | 22,262 |
| **RD\_007642** | ROCKINGHAM ROAD | SNARE | PHOENIX | DA | 3 | 11 to 15 | 4566.34 | | 186,077 |
| **RD\_007048** | FARRINGTON ROAD | NORTH LAKE | PROGRESS | DA | 3 | 11 to 15 | 3689.94 | | 146,533 |
| **RD\_007049** | FARRINGTON ROAD | PROGRESS | NA | DA | 3 | 11 to 15 | 771.27 | | 31,430 |
| **RD\_007019** | BERRIGAN DRIVE | THE LAKES | TURNBURY | DA | 3 | 11 to 15 | 1397.97 | | 56,967 |
| **RD\_007288** | KAREL AVENUE | BERRIGAN | NA | DA | 3 | 11 to 15 | 1302.47 | | 58,310 |
| **RD\_009016** | KAREL AVENUE | BERRIGAN | TRAINING | DA | 3 | 11 to 15 | 882.34 | | 41,055 |
| **RD\_007567** | KAREL AVENUE | TRAINING | NA | DA | 3 | 11 to 15 | 1224.47 | | 54,818 |
| **RD\_009013** | KAREL AVENUE | TRAINING | ROE HIGHWAY | DA | 3 | 11 to 15 | 585.82 | | 31,942 |
| **RD\_007565** | KAREL AVENUE | ROE HIGHWAY WEST | ROE HIGHWAY WEST | DA | 3 | 11 to 15 | 1236.48 | | 53,314 |
| **RD\_009011** | KAREL AVENUE | ROE HIGHWAY | ROE HIGHWAY | DA | 3 | 11 to 15 | 569.77 | | 31,067 |
| **RD\_007564** | KAREL AVENUE | ROE HIGHWAY EAST | ROE HIGHWAY EAST | DA | 3 | 11 to 15 | 1351.23 | | 59,375 |
| **RD\_000048** | BEELIAR DRIVE | POLETTI | LAKERIDGE | DA | 3 | 11 to 15 | 3941.08 | | 160,598 |
| **RD\_000047** | BEELIAR DRIVE | POLETTI | LAKERIDGE | DA | 3 | 11 to 15 | 3320 | | 135,289 |
| **RD\_007690** | BEELIAR DRIVE | DUNRAVEN | NA | DA | 3 | 11 to 15 | 1182.99 | | 52,353 |
| **RD\_005679** | VERDE DRIVE | SOLOMON | CHIFLEY | DA | 3 | 11 to 15 | 136.12 | | 7,422 |
| **RD\_006084** | VERDE DRIVE | CHIFLEY | CUL-DE-SAC | DA | 3 | 11 to 15 | 512.88 | | 27,965 |
| **RD\_008086** | ROCKINGHAM ROAD | ANNEAN | NA | DA | 3 | 11 to 15 | 419.49 | | 24,947 |
| **RD\_007850** | KAREL AVENUE | BERRIGAN | ORION | DA | 3 | 11 to 15 | 7345.5 | | 299,328 |
| **RD\_008374** | SPEARWOOD AVENUE | FANCOTE | NA | DA | 3 | 11 to 15 | 847.54 | | 43,487 |
| **RD\_007754** | KAREL AVENUE | MARRIOT | NA | DA | 3 | 11 to 15 | 2959.87 | | 132,511 |
| **RD\_009014** | KAREL AVENUE | TRAINING | ROE HIGHWAY | DA | 3 | 11 to 15 | 398.9 | | 21,750 |
| **RD\_010144** | VERDE DRIVE | CHIFLEY | CUL-DE-SAC | DA | 3 | 11 to 15 | 114.22 | | 6,228 |
| **RD\_001684** | WINTERFOLD ROAD | THORSAGER | NA | DB | 3 | 16 to 20 | 341.85 | | 20,329 |
| **RD\_004149** | WINTERFOLD ROAD | HARGREAVES | NA | DB | 3 | 16 to 20 | 374.67 | | 22,281 |
| **RD\_008369** | WINTERFOLD ROAD | ROCKE | HARGREAVES | DB | 3 | 16 to 20 | 1860.64 | | 75,821 |
| **RD\_008022** | WINTERFOLD ROAD | HARGREAVES | COOLBELLUP | DB | 3 | 16 to 20 | 2054.81 | | 83,733 |
| **RD\_007877** | WINTERFOLD ROAD | COOLBELLUP | NA | DB | 3 | 16 to 20 | 545.16 | | 13,060 |
| **RD\_007878** | WINTERFOLD ROAD | COOLBELLUP | HERMIONE | DB | 3 | 16 to 20 | 497.96 | | 27,151 |
| **RD\_007038** | WINTERFOLD ROAD | HERMIONE | ANTIGONUS | DB | 3 | 16 to 20 | 1376.27 | | 56,083 |
| **RD\_007897** | WINTERFOLD ROAD | ANTIGONUS | NA | DB | 3 | 16 to 20 | 221.08 | | 13,147 |
| **RD\_007905** | WINTERFOLD ROAD | ANTIGONUS | DOHERTY | DB | 3 | 16 to 20 | 2525.3 | | 102,905 |
| **RD\_007904** | WINTERFOLD ROAD | DOHERTY | NA | DB | 3 | 16 to 20 | 331.25 | | 19,699 |
| **RD\_007727** | MAYOR ROAD | FAWCETT | MAYOR ROAD | DB | 3 | 16 to 20 | 3973.36 | | 161,914 |
| **RD\_006320** | LYON ROAD | DEAKIN | CAPE LE GRAND | DB | 3 | 16 to 20 | 1079.17 | | 50,214 |
| **RD\_006748** | LYON ROAD | CAPE LE GRAND | VIENNA | DB | 3 | 16 to 20 | 1124.92 | | 42,302 |
| **RD\_003342** | HAMILTON ROAD | OWEN | NA | DB | 3 | 16 to 20 | 354.94 | | 21,108 |
| **RD\_007587** | HAMILTON ROAD | OWEN | DERINTON | DB | 3 | 16 to 20 | 1796.35 | | 73,201 |
| **RD\_003337** | HAMILTON ROAD | DERINTON | NA | DB | 3 | 16 to 20 | 366.17 | | 21,776 |
| **RD\_007589** | HAMILTON ROAD | OFFLEY | NA | DB | 3 | 16 to 20 | 459.55 | | 27,329 |
| **RD\_007590** | HAMILTON ROAD | PHOENIX | NA | DB | 3 | 16 to 20 | 768.91 | | 39,452 |
| **RD\_003284** | HAMILTON ROAD | AZELIA | NA | DB | 3 | 16 to 20 | 402.31 | | 23,925 |
| **RD\_007591** | HAMILTON ROAD | AZELIA | DANE | DB | 3 | 16 to 20 | 691.64 | | 32,182 |
| **RD\_003282** | HAMILTON ROAD | DANE | NA | DB | 3 | 16 to 20 | 325.38 | | 19,350 |
| **RD\_007592** | HAMILTON ROAD | DANE | GORHAM | DB | 3 | 16 to 20 | 1598.43 | | 65,136 |
| **RD\_003263** | HAMILTON ROAD | GORHAM | NA | DB | 3 | 16 to 20 | 490.38 | | 25,161 |
| **RD\_003837** | HAMILTON ROAD | GORHAM | KENT | DB | 3 | 16 to 20 | 537.32 | | 27,570 |
| **RD\_007764** | HAMILTON ROAD | KENT | SPEARWOOD | DB | 3 | 16 to 20 | 2073.16 | | 84,481 |
| **RD\_007953** | HAMILTON ROAD | SPEARWOOD | SPEARWOOD | DB | 3 | 16 to 20 | 1207.03 | | 54,038 |
| **RD\_001187** | TAPPER ROAD | HARPER | NA | DB | 3 | 16 to 20 | 430.39 | | 25,595 |
| **RD\_008578** | TAPPER ROAD | SEDGE | NA | DB | 3 | 16 to 20 | 1003.52 | | 10,563 |
| **RD\_005724** | TAPPER ROAD | SEDGE | BEENYUP | DB | 3 | 16 to 20 | 2518.83 | | 102,642 |
| **RD\_007411** | TAPPER ROAD | BEENYUP | BEENYUP | DB | 3 | 16 to 20 | 862.45 | | 44,252 |
| **RD\_005722** | TAPPER ROAD | BEENYUP | HARMONY | DB | 3 | 16 to 20 | 1712.81 | | 69,797 |
| **RD\_005723** | TAPPER ROAD | TAPPER | TAPPER | DB | 3 | 16 to 20 | 1107.72 | | 55,973 |
| **RD\_004906** | TAPPER ROAD | HARMONY | NA | DB | 3 | 16 to 20 | 427.57 | | 25,427 |
| **RD\_005721** | TAPPER ROAD | TAPPER | TAPPER | DB | 3 | 16 to 20 | 449.17 | | 26,285 |
| **RD\_006213** | GIBBS ROAD | ALLIANCE | NA | DB | 3 | 16 to 20 | 598.41 | | 30,704 |
| **RD\_006930** | GIBBS ROAD | SALUTE | NA | DB | 3 | 16 to 20 | 234.09 | | 10,516 |
| **RD\_006926** | GIBBS ROAD | ALLIANCE | SALUTE | DB | 3 | 16 to 20 | 99.15 | | 5,406 |
| **RD\_006866** | GIBBS ROAD | VALOUR | NA | DB | 3 | 16 to 20 | 204.03 | | 9,640 |
| **RD\_006867** | GIBBS ROAD | ESSENCE | VALOUR | DB | 3 | 16 to 20 | 116.57 | | 6,356 |
| **RD\_006869** | GIBBS ROAD | VALOUR | ELEMI | DB | 3 | 16 to 20 | 54.17 | | 2,954 |
| **RD\_007461** | FORREST ROAD | IVERMEY | CLARA | DB | 3 | 16 to 20 | 1280.29 | | 36,727 |
| **RD\_007469** | FORREST ROAD | CLARA | NA | DB | 3 | 16 to 20 | 534.28 | | 27,414 |
| **RD\_007462** | FORREST ROAD | CLARA | FORTINI | DB | 3 | 16 to 20 | 658.69 | | 24,879 |
| **RD\_007501** | FORREST ROAD | FORTINI | NA | DB | 3 | 16 to 20 | 397.5 | | 23,639 |
| **RD\_007504** | FORREST ROAD | FORTINI | LORRAINE | DB | 3 | 16 to 20 | 477.12 | | 24,481 |
| **RD\_007499** | FORREST ROAD | LORRAINE | WHEELER | DB | 3 | 16 to 20 | 892.05 | | 40,668 |
| **RD\_007502** | FORREST ROAD | WHEELER | NA | DB | 3 | 16 to 20 | 606.87 | | 31,138 |
| **RD\_007500** | FORREST ROAD | WHEELER | FREDERICK | DB | 3 | 16 to 20 | 325.18 | | 12,134 |
| **RD\_007503** | FORREST ROAD | FREDERICK | NA | DB | 3 | 16 to 20 | 547.83 | | 28,109 |
| **RD\_007498** | FORREST ROAD | FREDERICK | HYAM | DB | 3 | 16 to 20 | 400.1 | | 11,405 |
| **RD\_007957** | ROCKINGHAM ROAD | MAGNET | YERILLA | DB | 3 | 16 to 20 | 881.33 | | 41,008 |
| **RD\_008736** | ROCKINGHAM ROAD | HOWE | YINDI | DB | 3 | 16 to 20 | 673.11 | | 22,957 |
| **RD\_007958** | ROCKINGHAM ROAD | MAGNET | NA | DB | 3 | 16 to 20 | 513.03 | | 18,612 |
| **RD\_001065** | BIBRA DRIVE | WATTLE | NA | DB | 3 | 16 to 20 | 314.46 | | 18,701 |
| **RD\_001639** | POLETTI ROAD | BUCKLEY | NA | DB | 3 | 16 to 20 | 403.83 | | 24,015 |
| **RD\_000152** | POLETTI ROAD | BUCKLEY | SPENCER | DB | 3 | 16 to 20 | 895.08 | | 41,648 |
| **RD\_001640** | POLETTI ROAD | SPENCER | NA | DB | 3 | 16 to 20 | 313.81 | | 18,662 |
| **RD\_000089** | POLETTI ROAD | DAVISON | COOPER | DB | 3 | 16 to 20 | 1841.12 | | 75,025 |
| **RD\_000092** | POLETTI ROAD | COOPER | NA | DB | 3 | 16 to 20 | 656.54 | | 33,687 |
| **RD\_007406** | TAPPER ROAD | BARTRAM | NA | DB | 3 | 16 to 20 | 803.47 | | 44 |
| **RD\_006865** | GIBBS ROAD | ESSENCE | NA | DB | 3 | 16 to 20 | 452.5 | | 18,762 |
| **RD\_005363** | ROCKINGHAM ROAD | YERILLA | WEST CHURCHILL | DB | 3 | 16 to 20 | 534.73 | | 29,156 |
| **RD\_003505** | ROCKINGHAM ROAD | WEST CHURCHILL | WEST CHURCHILL | DB | 3 | 16 to 20 | 554.17 | | 28,434 |
| **RD\_008863** | ROCKINGHAM ROAD | KAPULA | BUTTON | DB | 3 | 16 to 20 | 1207.49 | | 56,185 |
| **RD\_007062** | ROCKINGHAM ROAD | BUTTON | NA | DB | 3 | 16 to 20 | 1596.25 | | 71,463 |
| **RD\_010678** | ROCKINGHAM ROAD | MAYOR | HOWE | DB | 3 | 16 to 20 | 2039.91 | | 83,126 |
| **RD\_010680** | ROCKINGHAM ROAD | MAYOR | HOWE | DB | 3 | 16 to 20 | 581.71 | | 29,847 |
| **RD\_010679** | ROCKINGHAM ROAD | MAYOR | HOWE | DB | 3 | 16 to 20 | 365.08 | | 19,906 |
| **RD\_001615** | SOUTH LAKE DRIVE | PLUMRIDGE | NA | LD | 4 | 6 to 10 | 306.29 | | 15,477 |
|  |  |  |  |  |  | **TOTAL 28/29** | 158793.1 | | 6,814,774 |
|  |  |  |  |  |  | **TOTAL 28/29 inc CPI** |  | | 8,114,286 |
| **RD\_003274** | MARCH STREET | ORLEANS | NA | AR | 4 | 0 to 5 | 297.93 | | 7,954 |
| **RD\_007013** | LABYRINTH WAY | BRIGGS | LABYRINTH | AR | 4 | 0 to 5 | 739.23 | | 19,247 |
| **RD\_007650** | PHOENIX ROAD | SOUTHWELL | NA | DA | 3 | 6 to 10 | 978.18 | | 43,792 |
| **RD\_004007** | PHOENIX ROAD | BULLFINCH | NA | DA | 3 | 6 to 10 | 325.59 | | 19,362 |
| **RD\_007715** | SPEARWOOD AVENUE | MAINSAIL | NA | DA | 3 | 6 to 10 | 1914.32 | | 85,702 |
| **RD\_007354** | SPEARWOOD AVENUE | DISCOVERY | NA | DA | 3 | 6 to 10 | 2467.11 | | 108,182 |
| **RD\_008585** | BARRINGTON STREET | SPEARWOOD | SPEARWOOD | DA | 3 | 6 to 10 | 3338.74 | | 147,696 |
| **RD\_007014** | BERRIGAN DRIVE | SEMPLE | NA | DA | 3 | 6 to 10 | 1472.87 | | 65,939 |
| **RD\_006219** | BEELIAR DRIVE | KWINANA | LINKAGE | DA | 3 | 6 to 10 | 1820.61 | | 74,190 |
| **RD\_007676** | BEELIAR DRIVE | THE GRANGE | NA | DA | 3 | 6 to 10 | 1609.02 | | 59,871 |
| **RD\_008772** | SPEARWOOD AVENUE | BARRINGTON | HOWSON | DA | 3 | 6 to 10 | 10462.07 | | 426,327 |
| **RD\_008775** | SPEARWOOD AVENUE | COCOS | NA | DA | 3 | 6 to 10 | 2719.8 | | 120,420 |
| **RD\_008778** | SPEARWOOD AVENUE | COCOS | HOWSON | DA | 3 | 6 to 10 | 2349.28 | | 95,733 |
| **RD\_008773** | SPEARWOOD AVENUE | HOWSON | NA | DA | 3 | 6 to 10 | 2214.78 | | 99,154 |
| **RD\_008776** | SPEARWOOD AVENUE | SUDLOW | COCOS | DA | 3 | 6 to 10 | 4708.79 | | 191,882 |
| **RD\_008593** | WINTERFOLD ROAD | MCCOMBE | ROCKE | DB | 3 | 11 to 15 | 881 | | 42,837 |
| **RD\_008728** | RUSSELL ROAD | HAMMOND | ROPER | DB | 3 | 11 to 15 | 2964.5 | | 132,718 |
| **RD\_006068** | HAMMOND ROAD | BUCKLEY | SPENCER | DB | 3 | 11 to 15 | 389.96 | | 21,262 |
| **RD\_006065** | HAMMOND ROAD | HAMMOND | SPENCER | DB | 3 | 11 to 15 | 179.54 | | 9,789 |
| **RD\_006060** | HAMMOND ROAD | SPENCER | NA | DB | 3 | 11 to 15 | 314.97 | | 18,731 |
| **RD\_006058** | HAMMOND ROAD | SPENCER | TICHBORNE | DB | 3 | 11 to 15 | 935.98 | | 43,551 |
| **RD\_001087** | HAMMOND ROAD | TICHBORNE | NA | DB | 3 | 11 to 15 | 306.84 | | 18,247 |
| **RD\_006061** | HAMMOND ROAD | TICHBORNE | HAMMOND | DB | 3 | 11 to 15 | 211.95 | | 11,557 |
| **RD\_006057** | HAMMOND ROAD | HAMMOND | NA | DB | 3 | 11 to 15 | 314.37 | | 18,695 |
| **RD\_006064** | HAMMOND ROAD | HAMMOND | BLACKLY | DB | 3 | 11 to 15 | 414.48 | | 22,599 |
| **RD\_007585** | HAMMOND ROAD | COOPER | YANGEBUP | DB | 3 | 11 to 15 | 1068.03 | | 47,815 |
| **RD\_001307** | HAMMOND ROAD | COOPER | HAMMOND | DB | 3 | 11 to 15 | 1747.94 | | 71,228 |
| **RD\_008915** | LYON ROAD | GIBBS | GIBBS | DB | 3 | 11 to 15 | 1752.6 | | 78,462 |
| **RD\_006736** | LYON ROAD | GIBBS | DEACON ENTRANCE | DB | 3 | 11 to 15 | 683.24 | | 31,791 |
| **RD\_007079** | LYON ROAD | TWILIGHT | NA | DB | 3 | 11 to 15 | 550.13 | | 21,967 |
| **RD\_005881** | LYON ROAD | TALISKER | GAEBLER | DB | 3 | 11 to 15 | 421.32 | | 22,972 |
| **RD\_007295** | LYON ROAD | GAEBLER | GAEBLER | DB | 3 | 11 to 15 | 1151.09 | | 51,533 |
| **RD\_005853** | HAMILTON ROAD | MAYOR | SENNA | DB | 3 | 11 to 15 | 379.76 | | 20,706 |
| **RD\_005850** | HAMILTON ROAD | SENNA | KATSURA | DB | 3 | 11 to 15 | 67.92 | | 3,703 |
| **RD\_005847** | HAMILTON ROAD | KATSURA | NA | DB | 3 | 11 to 15 | 335.93 | | 12,087 |
| **RD\_005849** | HAMILTON ROAD | KATSURA | NAWA | DB | 3 | 11 to 15 | 97.97 | | 5,342 |
| **RD\_005842** | HAMILTON ROAD | NAWA RISE | NA | DB | 3 | 11 to 15 | 296.23 | | 10,327 |
| **RD\_005843** | HAMILTON ROAD | NAWA RISE | END | DB | 3 | 11 to 15 | 555.44 | | 30,285 |
| **RD\_007025** | SEMPLE COURT | MURIEL | BOOGALLA | DB | 3 | 11 to 15 | 941.69 | | 48,318 |
| **RD\_000954** | SEMPLE COURT | MURIEL | THOMAS | DB | 3 | 11 to 15 | 598.48 | | 32,632 |
| **RD\_007026** | SEMPLE COURT | THOMAS | NA | DB | 3 | 11 to 15 | 689.9 | | 35,398 |
| **RD\_000506** | SEMPLE COURT | THOMAS | NORTH LAKE | DB | 3 | 11 to 15 | 2223.42 | | 90,604 |
| **RD\_007111** | TAPPER ROAD | GIBBS | NA | DB | 3 | 11 to 15 | 339.48 | | 11,631 |
| **RD\_007110** | GIBBS ROAD | AURORA | NA | DB | 3 | 11 to 15 | 546.16 | | 19,069 |
| **RD\_008594** | FORREST ROAD | CARRINGTON | WHEELER | DB | 3 | 11 to 15 | 663.55 | | 28,072 |
| **RD\_007472** | FORREST ROAD | WHEELER | NA | DB | 3 | 11 to 15 | 518.66 | | 26,612 |
| **RD\_007470** | FORREST ROAD | WHEELER | IVERMEY | DB | 3 | 11 to 15 | 488.01 | | 25,040 |
| **RD\_007913** | FORREST ROAD | ARTHUR | NA | DB | 3 | 11 to 15 | 505.48 | | 25,936 |
| **RD\_007912** | FORREST ROAD | BERRY | NA | DB | 3 | 11 to 15 | 471.77 | | 28,056 |
| **RD\_007493** | FORREST ROAD | REDMOND | NA | DB | 3 | 11 to 15 | 524.66 | | 26,920 |
| **RD\_007491** | FORREST ROAD | REDMOND | SAWLE | DB | 3 | 11 to 15 | 478.86 | | 24,570 |
| **RD\_007490** | FORREST ROAD | ENGLAND | NA | DB | 3 | 11 to 15 | 443.28 | | 26,361 |
| **RD\_007492** | FORREST ROAD | BLACKWOOD | NA | DB | 3 | 11 to 15 | 908.07 | | 46,593 |
| **RD\_007509** | FORREST ROAD | BLACKWOOD | BLACKWOOD | DB | 3 | 11 to 15 | 797.94 | | 40,942 |
| **RD\_005364** | ROCKINGHAM ROAD | YERILLA | NA | DB | 3 | 11 to 15 | 413.82 | | 17,312 |
| **RD\_007345** | DISCOVERY DRIVE | ASPIRATION | ASPIRATION | DB | 3 | 11 to 15 | 1249.23 | | 55,927 |
| **RD\_005960** | DISCOVERY DRIVE | ASPIRATION | AMBITIOUS | DB | 3 | 11 to 15 | 2443.1 | | 99,556 |
| **RD\_005947** | DISCOVERY DRIVE | AMBITIOUS | NA | DB | 3 | 11 to 15 | 485.15 | | 24,893 |
| **RD\_005950** | DISCOVERY DRIVE | AMBITIOUS | HYDRO | DB | 3 | 11 to 15 | 600.37 | | 32,735 |
| **RD\_005949** | DISCOVERY DRIVE | HYDRO | NA | DB | 3 | 11 to 15 | 505.4 | | 25,932 |
| **RD\_005952** | DISCOVERY DRIVE | HYDRO | TIDAL | DB | 3 | 11 to 15 | 950.81 | | 44,241 |
| **RD\_005951** | DISCOVERY DRIVE | TIDAL WAY | NA | DB | 3 | 11 to 15 | 521.53 | | 26,759 |
| **RD\_005957** | DISCOVERY DRIVE | TIDAL WAY | THERMAL | DB | 3 | 11 to 15 | 349.44 | | 19,053 |
| **RD\_005954** | DISCOVERY DRIVE | THERMAL | NA | DB | 3 | 11 to 15 | 555.76 | | 28,516 |
| **RD\_005955** | DISCOVERY DRIVE | THERMAL | SOLAR | DB | 3 | 11 to 15 | 338.36 | | 18,449 |
| **RD\_006252** | DISCOVERY DRIVE | SOLAR | NA | DB | 3 | 11 to 15 | 640.46 | | 32,862 |
| **RD\_006258** | DISCOVERY DRIVE | SOLAR | EFFICIENCY | DB | 3 | 11 to 15 | 485.27 | | 26,459 |
| **RD\_006257** | DISCOVERY DRIVE | EFFICIENCY | NA | DB | 3 | 11 to 15 | 745.83 | | 38,268 |
| **RD\_006261** | DISCOVERY DRIVE | EFFICIENCY | RENEWABLE | DB | 3 | 11 to 15 | 1938.74 | | 79,003 |
| **RD\_008193** | LYON ROAD | GENEVA | NA | DB | 3 | 11 to 15 | 257.67 | | 11,206 |
| **RD\_008197** | LYON ROAD | COLORADO | GENEVA | DB | 3 | 11 to 15 | 479.72 | | 24,614 |
| **RD\_008284** | LYON ROAD | AUBIN GROVE | DEAKIN | DB | 3 | 11 to 15 | 673.22 | | 31,325 |
| **RD\_007441** | LYON ROAD | DEAKIN | NA | DB | 3 | 11 to 15 | 603.08 | | 30,944 |
| **RD\_008394** | LYON ROAD | AUBIN GROVE | NA | DB | 3 | 11 to 15 | 398.16 | | 14,210 |
| **RD\_008194** | LYON ROAD | GENEVA | PEPPERMINT GARDENS | DB | 3 | 11 to 15 | 191.67 | | 10,451 |
| **RD\_008337** | LYON ROAD | PEPPERMINT | NA | DB | 3 | 11 to 15 | 592.69 | | 21,170 |
| **RD\_008195** | LYON ROAD | PEPPERMINT | ROWLEY | DB | 3 | 11 to 15 | 83.75 | | 4,566 |
| **RD\_008188** | SUDLOW ROAD | HATHOR | NA | DB | 3 | 11 to 15 | 903.62 | | 46,364 |
| **RD\_008764** | GIBBS ROAD | SANCTITY | NA | DB | 3 | 11 to 15 | 629.42 | | 24,858 |
| **RD\_010117** | SEMPLE COURT | MURIEL | THOMAS | DB | 3 | 11 to 15 | 263.55 | | 15,673 |
| **RD\_010118** | SEMPLE COURT | MURIEL | THOMAS | DB | 3 | 11 to 15 | 237.69 | | 12,960 |
|  |  |  |  |  |  | **TOTAL 29/30** | **82116.43** | | **3,668,718** |
|  |  |  |  |  |  | **TOTAL 29/30 Inc CPI** |  | | **4,472,147** |

## Appendix E Preliminary 10 year Major Road Infrastructure Projects

| **Project** | **2020-21** | **2021-22** | **2022-23** | **2023-24** | **2024-25** | **2025-26** | **2026-27** | **2027-28** | **2028-29** | **2029-30** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Rockingham Road and Phoenix Roundabout** | 1,175 |  |  |  |  |  |  |  |  |  |
| **Karel Avenue - Berrigan to Farrington** | 2,000 |  |  |  |  |  |  |  |  |  |
| **Rockingham Road Phoenix Rd to Spearwood Av** | 500 | 3,500 |  |  |  |  |  |  |  |  |
| **Farrington and North Lake Road intersection (SBS)** | 900 |  |  |  |  |  |  |  |  |  |
| **Traffic management (8 Projects)** | 700 |  |  |  |  |  |  |  |  |  |
| **Rockingham Road - Beeliar Dr to Fancote Ave (Construct 2nd c/w)** |  |  |  |  | 2,500 |  |  |  |  |  |
| **North Lake Road - Kentucky Court to Kwinana Freeway (construct 2 c/w)** |  | 1,000 |  |  |  |  |  |  |  |  |
| **North Lake Road - Discovery Drive Intersection** |  | 1,000 | 1,000 |  |  |  |  |  |  |  |
| **North Lake Road - Farrington Road Intersection** |  |  |  | 1,200 |  |  |  |  |  |  |
| **Jandakot Road Widening - Solomon Rd to Berrigan Dr** |  | 5,850 |  |  |  |  |  |  |  |  |
| **Jandakot Road Widening - Fraser Rd to Warton Dr** |  |  |  |  |  | 3,275 |  |  |  |  |
| **Rowley road/ Lyon Road Intersection** |  |  |  |  |  |  |  | 1,400 |  |  |
| **Hammond Road Widening - Branch Circus to Bertram Rd** |  | 4,000 | 4,000 |  |  |  |  |  |  |  |
| **Henderson Road - Fancote Ave to Russell Rd (widen & upgrade 1 c/w)** |  |  |  |  |  | 2,500 |  |  |  |  |
| **Midgegooroo Avenue - Beeliar Drive to North Lake Rd (reduce to 2 lanes)** |  |  |  |  |  |  | 1,000 |  |  |  |
| **Poletti Road - Beeliar Dr to North Lake Rd (Construct 2 c/w & Traffic Signals)** |  |  |  |  |  | 5,000 |  |  |  |  |
| **Semple Court - North Lake Road to Jindabyne Heights (land/construct & realign c/w)** |  | 3,360 |  |  |  |  |  |  |  |  |
| **Muriel Court - Semple Court to North Lake Road (land/re-align construct & traffic signals)** |  | 700 | 700 | 700 | 700 | 700 | 950 |  |  |  |
| **Hammond Road - Gaebier Rd to Frankland Ave (construct 1 c/w)** |  |  | 3,800 |  |  |  |  |  |  |  |
| **Hammond Road - Frankland Av to Rowley Rd (construct 1 c/w)** |  |  |  |  |  |  |  | 5,800 |  |  |
| **Hammond Road - Beeliar Drive to North Lake Road (construct 2nd c/w)** |  |  | 3,000 |  |  |  |  |  |  |  |
| **Pilatus Street - Berrigan Drive to airport boundary (construct 2nd c/w)** |  |  |  |  |  |  |  |  |  | 3,000 |
| **Russell Road - Hamond Rd to Henderson Rd (land & construct 2 c/w)** |  |  |  |  | 2,100 | 2,100 |  |  |  |  |
| **Russell Road - Henderson Rd to Rockingham Rd (land & construct 2 c/w)** |  |  |  |  |  |  |  | 8,200 |  |  |
| **Rowley Road - Hammond Rd to Kwinana Freeway (land & construct 1 c/w)** |  |  |  |  |  |  | 5,300 |  |  |  |
| **Rowley Road - Hammond Rd to 1.2 Km west of Hammond Rd** |  |  |  |  |  |  |  | 3,100 |  |  |
| **Rollinson Road - Rockingham Rd to Cockburn Rd (construct 1 c/w)** |  |  | 4,000 |  |  |  |  |  |  |  |
| **TOTAL FOR YEAR (000)** | **5,275** | **19,410** | **16,500** | **1,900** | **5,300** | **13,575** | **7,250** | **18,500** | **0** | **3,000** |

The above table is based on Annual budget 2020/21 figures and LTFP pages 32-33, and subject to change with the next update to the Major Regional Roads Plan (Version 13 - March 2020) document.

## Appendix F Standards and Specifications

* City of Cockburn road construction and maintenance service specification
* City of Cockburn road construction and maintenance service standards
* City of Cockburn road construction and maintenance service unit action plan
* Road Services: Standards, procedures and checklists manual
* Road Services: Best practice manual for road asset management
* Road Services Unit: Code of Practice - Local road asset and risk management system
* Code of Practice: Footpath risk management policy
* Pavement condition definitions manual
* Public Utilities Code of Practice 2000
* Restoration and Reinstatement Specification for Local Government 2002
* City of Cockburn - Excavation Reinstatement Standards 2003
* AS 1742 – Australian Standard Manual of uniform traffic control devices
* AS 1428 – Parts 1 & 2 Access and Mobility and Part 4 – Tactile ground surface indicators
* AS/NZS 1158 – Lighting for roads and public spaces
* Austroads Guide to Traffic Engineering Practice Parts 1 & 15
* Austroads design vehicles and turning path templates
* Austroads guide to Road Design
* Main Roads WA – Standard Drawings and Documentation

