Business Plan – Major Land Transaction

Residential Subdivision (including headworks) at Lot 309 (22) Burrowes Street West, Darkan

AUGUST 2025

Contents

Introduction **3**

Background **4**

Site Summary 4

Proposal Details **5**

Design 5

Infrastructure and Servicing 6

Project Objectives **7**

Expected Effect on Local Governments Planning for the Future 7

Financial Considerations **7**

Expected Net Income 7

Expected Project Costs 8

Risk Assessment **9**

Expected Effect on the Provision of Facilities and Services by the Shire **9**

Expected Effect on Other Persons Providing Facilities and Services **10**

Impact on Existing Businesses 10

Expected Financial Effect on the Shire **11**

Long-term Financial Projections 11

Potential Liabilities 11

Effect on Matters Referred to in the Shire's Strategic Community Plan and Corporate Business Plan **11**

Corporate Business Plan 2021-2025 11

Strategic Community Plan – Towards 2031 12

Ability of the Shire to Manage the Undertaking **12**

Public Consultation Process **12**

Submissions 13

Promotions and Advertising 13

Recommendation **13**

Appendices **13**

Appendix 1 Cost Benefit Analysis 14

Appendix 2 Engineering Order of Costs 46

Appendix 3 Subdivision Concept Design 51

Introduction

This Business Plan has been prepared by Council regarding a proposal to enter a major land transaction. Council is proposing to undertake a 22-lot subdivision of 22 (Lot 309) Burrowes Street West, Darkan. The Lot is currently owned by the Shire of West Arthur. Upon completion of the subdivision, approximately 2-3 lots will remain in ownership of the Shire whilst the remaining lots created will be sold in freehold tenure.

The following Business Plan has been formulated in compliance with section 3.58 – Disposal of property and section 3.59 – Commercial enterprises by local governments as outlined in the *Local Government Act 1995*.

land transaction means an agreement, or several agreements for a common purpose, under which a local government is to —

(a) acquire or dispose of an interest in land; or

(b) develop land;

major land transaction means a land transaction other than an exempt land transaction if the total value of —

(a) the consideration under the transaction; and

(b) anything done by the local government for achieving the purpose of the transaction,

is more, or is worth more, than the amount prescribed for the purposes of this definition;

The document aims to offer community members the chance to review this proposal and provide feedback before Council makes any decisions. It is a legal obligation for Local Government to announce its intention to engage in a major land transaction or any significant trading activity through Statewide advertising, inviting public submissions. The submissions received during the public consultation period will be considered by Council before any decision is made.

Background

Site Summary

Item	Description
Lot Details	Lot 309 on Deposited Plan 191521, comprised in Certificate of Title Volume 2074 Folio 722
Address	22 Burrowes Street West, Darkan
Distance from town centre	0.60km
Site Area	3.7470ha

The land in question is designated as Residential according to the Shire of West Arthur Local Planning Scheme No. 2. This zoning was sanctioned by the Minister for Planning on April 27, 2006.

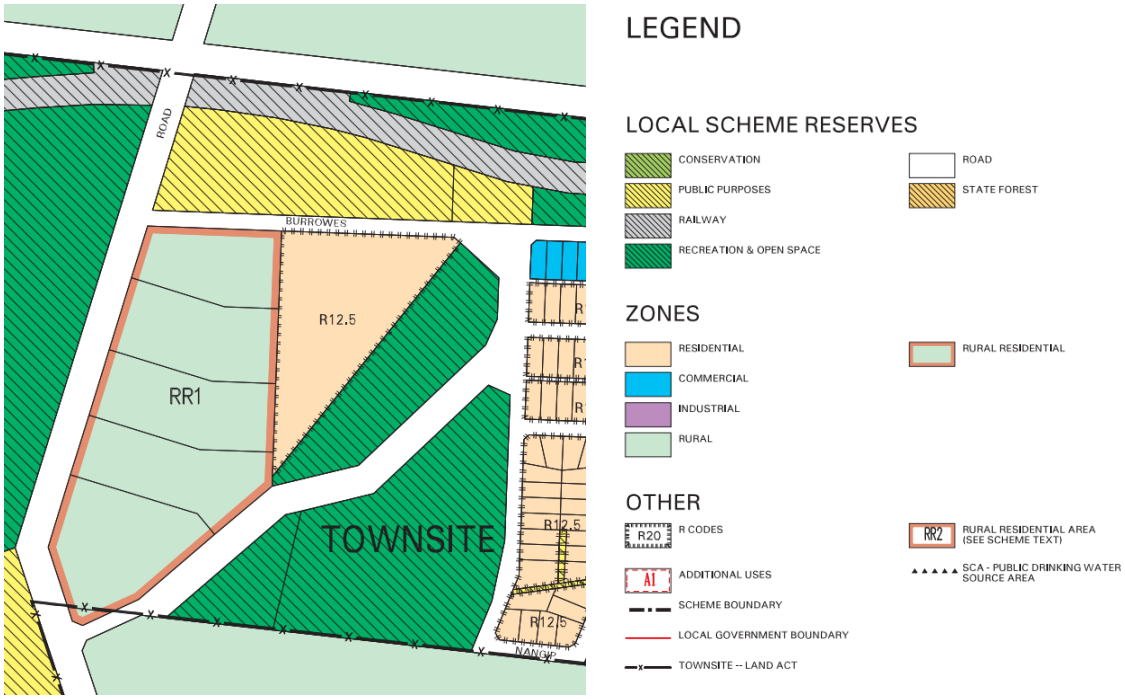


Figure 1: Local Planning Scheme No. 2 Zoning

Part 4, section 4.2 – Objectives of the Zones outlined the objectives of the Residential zone as follows.

- To provide for the predominant form of residential development to be single houses.
- To provide for diversity of lifestyle choice with a range of dwelling types.
- To achieve a high standard of residential development.

- To allow for the establishment of non-residential uses which are compatible with the predominant residential use and which will not adversely affect local amenities.

The proposed subdivision will align with strategic documents prepared by the Shire of West Arthur in consultation with key stakeholders, businesses, and residents of the West Arthur community.

- Outcome 2.2 of the *Shire of West Arthur Community Plan – Towards 2031* – A growing, diverse business community – promote the Shire to people outside the area as a fantastic place to live, work and visit.
- Outcome 1.2 of the *Shire of West Arthur Corporate Business Plan 2021-2025* – Support available for people of all ages and abilities – Investigate issues associated with housing and identify opportunities to provide additional housing or upgrade existing housing within the Darkan townsite where financially viable.
- Section 3 – Local Housing Plans and Housing Investment Concepts (Shire of West Arthur) of the *4WDL Key Worker Housing Strategy 2023/2024* – address key worker housing shortage by installing 8 dwellings to address the immediate demand, with an additional 5-13 dwellings being installed to address the short-term demand. Lot 309 Burrowes Street West has been deemed an appropriate site for these developments.
- Section 6 of the *Shire of West Arthur Economic Development Strategy 2023-2033* – Housing and Land Affordability

The upcoming subdivision is intended to support uses such as residential development for individual homes located near Darkan's town centre. The reasoning for this proposal is that, despite approximately 12.3% of residences being unoccupied in the Shire, a considerable portion of these 'unoccupied dwellings' consist of abandoned farm properties, with very few semi-vacant homes in the townsite. Numerous families have been compelled to leave the district due to the difficulty of securing housing. The economic development of the Shire is being hindered by the insufficient availability of housing, which results in challenges related to staff retention and attraction.

Proposal Details

Design

The site for consideration is Shire-owned land located opposite the Darkan Swimming Pool. Lot 309 (22) Burrowes Street West has a total land development area of 37,470m^2. The proposed subdivision will yield 22 residential and group housing lots ranging from 951m^2 to 4002m^2 in size. A road reserve will commence at Burrowes Street West and extend along the eastern side of the boundary, where it will intersect with another that

will run parallel to the southern boundary approximately 45 metres in, providing access back onto the main street.

The approved plan comprising of 22 lots, is detailed in the table below:

Lot No.	Area (m^2)
1	4002
2	1000
3	1000
4	1000
5	1029
6	1162
7	1118
8	1096
9	1364
10	1004
11	1006
12	1006
13	3303
14	1192
15	1317
16	1001
17	1001
18	1001
19	1001
20	1153
21	1008
22	951

Infrastructure and Servicing

The servicing work in the project includes earthworks, road construction, and water and power connections. Given that existing water and power services are located along the front of the block, an extension of these services is necessary to adequately service the site. Western Power is tasked with service connections, network management, maintenance, and operations of power within the Shire. Western Power will oversee the power connection to the site. Water Corporation will handle the connection of water to the town's water main. The Shire will be responsible for waste management and road construction. Furthermore, additional infrastructure, including fencing and landscaping, will be the owner's responsibility.

Project Objectives

Expected Effect on Local Governments Planning for the Future

In 2023, the Shire recorded a total of 334 dwellings, with 12.3% of these being unoccupied, the majority of which are deemed uninhabitable. Additionally, 29% of the houses in the Shire are occupied by a single individual. Due to the submission of no residential building approvals between 2017 and 2021, there is currently a significant demand for housing in Darkan, yet the availability remains low. These circumstances have consequential effects on local businesses, including loss of labour and economic opportunities.

The proposed development aims to enhance the availability of housing in Darkan while simultaneously supporting the Shire's economic development by facilitating better access to housing for key workers. This initiative is expected to alleviate worker shortages, promote population growth and retention, enhance community wellbeing and social cohesion, and contribute to the housing objectives set by the state.

Investing in the development of this subdivision offers the opportunity of passive income to the Shire. In contrast to other investments, the development of these lots offers the potential for a steady cash flow from rental income or proceeds from the sale of the lots. This consistent income stream will contribute to the Shire's financial stability over time.

Financial Considerations

To fulfill its National Housing Accord objective of building 1.2 million new homes over a five-year period commencing on July 1, 2024, the Australian government has announced the launch of its Housing Support Program. The Shire of West Arthur applied for stream 1 of the Housing Support Program and was successfully granted funding, along with five other local governments in the Wheatbelt region. For the planning and servicing of Lot 186 Burrowes Street (Bowling Green) and Lot 309 Burrowes Street West, the Shire received $176,765 in funding.

Furthermore, the Shire was informed that its application for stream 2 of the Housing Support Program had been approved. This approval includes $2,273,878 allocated for headworks and connections, site works, internal services, and contingencies for Lot 309 Burrowes Street West. There are no other identified upfront costs that the Shire will be required to contribute to advance this project.

Expected Net Income

Following a discussion with a real estate agent that services the West Arthur Shire, it is anticipated that a parcel of land measuring approximately 1000m^2 will be sold for

approximately $40,000-$50,000. The most recent block sold in the townsite of Darkan sold for $42,000. Should the Shire choose to omit the two grouped housing lots (Lot 1 and Lot 13) from consideration, where they intend to develop, this would suggest that the revenue generated for the Shire from the sale of the lots would total $900,000.

Throughout this development phase, the Shire does not intend to build and lease accommodation to the public; rather, it seeks to create housing exclusively for its personal use. Housing for Shire staff is significantly subsidized, meaning that the rent paid by staff merely covers the expenses related to housing maintenance. Consequently, the only revenue generated from this transaction would stem from the sale of the other lots.

Expected Project Costs

The estimated project costs are as follows:

Housing Support Program – Stream 1

Planning Action Item	Funding received
WAPC Planning Application	$5,400
Deposited Plan & Clearance Fees	$1,900
Civil Engineer & Fees	$79,765
Subdivision Electrical Engineering Design	$15,000
Planning Services	$5,000
Surveyor	$40,700
Feature Survey	$3,000
Geotechnical Engineering Report	$6,000
Bushfire Management Plan *(BAL Assessment)*	$3,000
Western Power Application Fee	$495.00

Housing Support Program – Stream 2

Planning Action Item	Funding received
Headworks and Connections *(Power extension & connection, water extension & connection)*	$430,000.00
Site Works and Internal Services *(Earthworks, road construction & internal site servicing)*	$1,229,765.00
Contingency *(20% regional weighting, 12% cost contingency & 5% design and professional fees)*	$614,113.00

Risk Assessment

Although the development of housing in the Shire offers a magnitude of benefits, it is also important to acknowledge the risks associated with the proposal. This plan identifies the associated risks.

Risk	Action to Mitigate
Market Risk	Ensure that the blocks are adequately advertised on a multitude of platforms.
Finance Risk	Follow the Shire's Procurement Policy. Obtain multiple quotes prior to the commencement of work.
Construction Risk *(cost overruns, delays)*	Efficient project planning and management. Regular meetings to review the current stage of the project. To avoid delays with external bodies such as Western Power, ensure prompt responses to their information requests.
Environmental/heritage constraints	If necessary, consult with the Department of Planning, Lands & Heritage/Department of Biodiversity, Conservation and Attractions.
Legislative/compliance risks	The Shire of West Arthur will manage legislative and compliance risks associated with the residential subdivision by ensuring that all planning, procurement, financial management and reporting obligations under the Local Government Act 1995, relevant State planning frameworks, and the conditions of the Federal Government's Housing Support Program are strictly followed. Independent legal and statutory advice will be sought where required, and transparent governance processes will be maintained to demonstrate accountability and compliance at each stage of the project.

Expected Effect on the Provision of Facilities and Services by the Shire

The subdivision will be overseen by skilled professional personnel at the Shire. The Shire Projects Officer, with the support of the CEO, will coordinate the project.

Other Shire of West Arthur services involved in the project:

- Works & Services Department – road design, earthworks, and maintenance
- Planning & Building Services – planning services, and building services
- Environmental Health Officers – septic appliances

The benefits of access to more housing include increased productivity in the job market, reduced health care expenses, decreased domestic violence rates, the development of human capital, lower costs associated with crime, and educational advantages. By introducing housing, the community's population will grow, which will consequently enhance school enrolment and provide support to local businesses.

Expected Effect on Other Persons Providing Facilities and Services

This project aligns closely with State Government agency service provision by ensuring lots are developed in a manner consistent with existing and planned capacity for essential services. The subdivision design will be progressed in consultation with key agencies such as Water Corporation (water and wastewater), Western Power (electricity supply), Main Roads WA (road access), and the Departments of Education and Health (schooling and community health services). Early engagement with these agencies will confirm service availability, identify any infrastructure upgrades required, and support coordinated planning so that new residents can access reliable utilities and community facilities. This approach helps integrate the subdivision into the wider State service delivery framework and ensures growth in Darkan occurs in a sustainable, supported way.

Impact on Existing Businesses

Several businesses within the Shire have previously indicated that the lack of sufficient housing in Darkan is hindering their business expansion. Upon the project's completion, contractors and local businesses will reap the benefits of the introduction of new housing. This development is expected to significantly mitigate worker shortages, thereby leading to an increase in economic activity. Such support will assist these businesses in achieving growth, resilience, and sustainability, The development will enhance access to affordable housing, create additional employment opportunities, and potentially lower travel costs. Overall, this will positively impact the community's quality of life.

A range of service providers, including Western Power and Water Corporation, will participate in the project during both the initial planning phases and the later headworks and connection phases.

Expected Financial Effect on the Shire

Long-term Financial Projections

As part of the Shire's due diligence responsibilities, a comprehensive cost-benefit analysis and economic impact assessment has been conducted. A consultant (see Appendix 1) has executed the cost-benefit analysis using a two-stage methodology. It is crucial to emphasise that this development will no longer be a two-stage approach as initially planned. The findings of this report indicate that the economic and social advantages surpass the projected costs of the project. For each dollar invested in the project, benefits amounting to $2.78 are generated. The present value of benefits, deducting the present value of costs, stands at $4.6 million, signifying a net positive impact on both the community and the economy as a result of this project.

Potential Liabilities

Indicative figures given from a prefab modular home builder have been in the vicinity of $400,000-$500,000 for a 3-bedroom, 2-bathroom transportable home. Whilst a 2-bedroom, 2-bathroom home has been in the vicinity of $300,000-$350,000. To enable the commencement of this project, it will be necessary to secure a loan for the construction of housing at this site. As a result, the Shire will bear the responsibility for repaying the loan in years ahead. For the initial stage of construction, the Shire plans to build 3 houses.

Effect on Matters Referred to in the Shire's Strategic Community Plan and Corporate Business Plan

The Shire of West Arthur's Strategic Community Plan – Towards 2031 and Corporate Business Plan 2021-2025 detail objectives and strategies set by Council, based on input from the community, for the coming years.

Corporate Business Plan 2021-2025

The Corporate Business Plan identified the following related outcomes and response:

Outcome 1.2 – Support available for people of all ages and abilities

- Housing – ensure teaching staff have access to quality accommodation through the provision of housing leased to Government Regional Officers Housing
- Investigate issues associated with housing and identify opportunities to provide additional housing or upgrade existing housing within the Darkan townsite where financially viable

Outcome 4.2 – Shire staff are well trained, motivated and customer focused

- Improve the quality of staff housing to assist to attract and retain staff

Strategic Community Plan – Towards 2031

Additionally, the Community Plan – Towards 2031 has identified the following related outcomes and response:

Outcome 2.2 – A growing, diverse business community

- Promote the Shire to people outside the area as a fantastic place to live, work and visit
- Investigate opportunities for growth within the local economy

The objectives for land use planning outlined in the Shire's Local Planning Scheme No. 2 regarding residential land use stipulate that new developments are required to offer a variety of lifestyle options, with single residences being the primary housing type. This proposal meets these criteria through the development of standard dwellings (20 lots) and group dwellings (2 lots). A high-quality residential development should be inclusive, affordable, and well-connected to the town's services. The lots will be available for sale upon the completion of headworks and connections, thus facilitating the construction of housing. The lots are situated approximately 600 metres from the Darkan town centre.

Ability of the Shire to Manage the Undertaking

Approval for the subdivision has been granted by the West Australian Planning Commission (WAPC) and is valid for a duration of 3 years, expiring on the 4th of July 2028. The WAPC is required to endorse the clearance of all conditions before it can issue its final approval. Shire staff are actively working to fulfill all subdivision conditions.

The Shire boasts a qualified and experienced team capable of overseeing the proposed subdivision. Essential individuals contributing to the project's success include the Shire's Chief Executive Officer, Projects Officer, and Manager Works & Services.

To address additional project components that exceed in-house expertise, the Shire will engage external consultants/contractors including Building Surveyors, Planning Consultant, Environmental Health Officers, all of whom possess high-level expertise.

Public Consultation Process

Section 3.59 of the Local Government Act 1995 mandates that the Local Government publicise its intention to engage in any Major Land Transaction or Major Trading

Undertaking. This is to be done through State-wide advertising, seeking public submissions upon this intent.

Submissions collected during the six-week public consultation period must be considered by the Council before any decisions are made on this issue. All public submissions will be compiled into a report that will be presented to the Council as part of an Ordinary Council Meeting, where they will be formally reviewed.

Submissions

Submissions can be made to the Shire by emailing shire@westarthur.wa.gov.au or by post to Shire of West Arthur, PO Box 112, Darkan WA 6392.

Promotions and Advertising

The anticipated purchasers attracted to the development will comprise both existing and prospective residents. The lots for sale will be advertised through the following communication channels.

- Posters
- Newsletter (The Bleat)
- Facebook
- Council's website
- Real Estate Agents
- State public notice

Recommendation

- Proposed resolution for Council to adopt the Business Plan (following public advertising period and consideration of submissions).

Appendices

Appendix 1 Cost Benefit Analysis

ECONISIS

BURROWES STREET RESIDENTIAL LAND SUB-DIVISION

COST BENEFIT ANALYSIS

Client: Shire of West Arthur

Title: BURROW STREET RESIDENTIAL LAND SUB-DIVISION COST BENEFIT ANALYSIS

Version: Draft B

Date: Monday, 5 February 2024

econisis.com.au

Prepared for:

Shire of West Arthur

Kerryn Chia
Project Officer

Address: 31 Burrowes Street, Darkan WA 6392

T: 31 Burrowes Street, Darkan WA 6392
E: projects@westarthur.wa.gov.au

DISCLAIMER

VERSION CONTROL

VERISON	PURPOSE	AUTHOR	REVIEWER	APPROVER	APPROVAL DATE
DraftA	Draft for internal review	CT	MW	MW	01/02/2024
DraftB	Draft for client review	CT	MW	MW	02/02/2024

APPROVAL FOR ISSUE

APPROVER	CONTACT	SIGNATURE	DATE
Mark Wallace PRINCIPAL	**T**: 0431 676 254 **E**: mark.wallace@econisis.com.au		Monday, 5 February 2024

CONTENTS

EXECUTIVE SUMMARY 1
1 INTRODUCTION 4
1.1 Background and Context 4
1.2 Report Purpose and Structure 4
1.3 Statistical Geography 4
1.4 Glossary and Abbreviations 5
2 PROJECT PROFILE 6
2.1 About West Arthur 6
2.2 Economic Indicators 6
2.2.1 Population Estimates and Projections 6
2.2.2 Census Profile 7
2.2.3 Unemployment 8
2.2.4 Employment 9
2.2.5 Business Registrations 10
2.2.6 Future Development 11
2.3 West Arthur Housing Market 12
2.3.1 Building Approvals 14
2.4 Role of Housing in Key Worker Attraction and Retention 14
2.4.1 What is Worker Productivity? 14
2.5 Summary of Plan 15
3 COST BENEFIT ANALYSIS 17
3.1 Methodology 17
3.1.1 Discount Rates 17
3.1.2 Cost of Capital Approach 17
3.1.3 Comparison with the Base Case 18
3.2 Assumptions 18
3.3 Benefits Statement 18
3.4 CBA Results 19
3.4.1 Capital and Maintenance Costs 19
3.4.2 Value of Benefits 20
3.4.3 Results 21
3.4.4 Sensitivity Tests 23
4 ECONOMIC IMPACT ASSESSMENT 24
4.1 Methodology and Approach 24
4.1.1 Criticisms of Impact Assessments 24
4.1.2 Adjustments to Improve EIA Reliability 25
4.2 Summary of Results 26
4.2.1 Construction Phase 26
5 CONCLUSIONS 27
5.1 Summary of Findings 27

FIGURES AND TABLES

Figure 1 Map of West Arthur LGA 5
Figure 1 Historical and Projected Population, West Arthur LGA, 2001 to 2031 6
Figure 2 Unemployment Rate, West Arthur and WA, March 2020 to June 2023 8
Figure 3 Industries by Employee Numbers, West Arthur and Darkan, 2021 9
Figure 4 Occupations in West Arthur, 2021 9
Figure 5 Business Registrations for West Arthur LGA, 2020 to 2022 10
Figure 6 Business Registrations by Industry, West Arthur, 2022 10
Figure 7 Types of Dwellings, West Arthur, 2016 and 2021 12
Figure 8 Types of Dwellings, Darkan, 2016 and 2021 13
Figure 9 Household Composition of Separate Houses, West Arthur, 2021 13
Figure 10 Building Approvals, West Arthur, 2022-23 14
Figure 12 Development Layout and Proposed Staging 16
Figure 13 Present Value of Costs by Discount Rate 20
Figure 14 Present Value of Benefits by Discount Rate 20
Figure 15 Present Value of Benefits ($m) at the 7% Discount Rate 21
Figure 16 Composition of Benefits at the 7% Discount Rate 21
Figure 17 Net Present Value by Discount Rate 22
Figure 18 Benefit Cost Ratio by Discount Rate 22
Figure 19 BCRs by Scenario/Sensitivity Test 23

Table 1 Summary of Cost Benefit Analysis Results 2
Table 2 Table of Key Terms and Abbreviations 5
Table 3 Census Socioeconomic Profile, 2021, West Arthur LGA, Darkan, Outer Regional Aus (WA) and WA 7
Table 4 Projects in West Arthur Receiving Funding from the LRCI 11
Table 5 Dwelling Type and Occupancy Rates, West Arthur LGA and Darkan, 2021 Census 12
Table 6 Worker Productivity, Western Australia, 2021 15
Table 7 Key Assumptions 18
Table 8 Benefits Statement 18
Table 9 Summary of Cost Benefit Analysis Results 23
Table 10 Summary of Economic Impact, Construction Phase, Total Impact 26

EXECUTIVE SUMMARY

Introduction

- This report evaluates a development plan to ease the housing shortage in the Shire of West Arthur. The plan subdivides an existing lot on Burrowes Street West in Darkan, creating 22 residential freehold lots. This report analyses the costs and benefits of this project to the West Arthur economy and community to assess the project's value for money.

Project Profile

- The Shire of West Arthur is a local government area in the Wheatbelt region of WA. It is approximately 200km south-east of Perth and covers an area of 2,834 square kilometres. The seat of government is in the township of Darkan, which is also the location of the proposed housing subdivision.
- The population of West Arthur LGA in 2022 was 797. The population has been slowly decreasing since peaking at 911 in 2002. WA Tomorrow forecasts predict that the population will continue to slowly decrease, with Band C predictions of a population of 745 at 2031.
- 2021 census data shows that West Arthur and Darkan have an older population than the rest of WA. Darkan has a median age of 52, compared to WA's median age of 38.
- The unemployment rate in West Arthur has stayed at approximately 2.5% since March 2020, which is the earliest available data. This is significantly lower than the WA unemployment rate which was 5.7% in March 2020 and fell to 3.5% in June 2023.
- The vast majority of employees in West Arthur work in the farming industry, followed by public administration and safety and education. Business registrations in West Arthur remained relatively constant, with 199 in 2022.
- In the 2022-23 financial year, West Arthur approved $420,000 of non-residential buildings and $19,500 of residential buildings. The entirety of the residential approvals were alterations or additions to existing buildings.
- Housing availability in regional and remote areas plays a critical role in supporting the attraction and retention of key workers. This supports the use of "worker productivity" values in monetising the opportunity cost associated with the non-delivery of the housing needed in subject communities. This reflects the fact that without the required housing, the economic and social activity associated with the accommodated workers will not be realised in the region. The average worker in the WA public sector has an annual productivity value of $126,781.
- The plan for Lot 309 Burrowes Street West in Darkan is to subdivide the Lot into 22 residential broadacre freehold lots. This development will take place in two stages; with 10 lots being developed in the first stage and 12 lots in the second stage. In this cost benefit assessment, it has been assumed that Stage 1 will take place in 2025 and Stage 2 in 2026.

Cost Benefit Analysis

- A CBA is the most commonly used, and most comprehensive, of the economic evaluation techniques. Essentially, a CBA compares the monetised benefits and costs of a Project to evaluate the desirability of a Project.
- Econisis has identified numerous key benefits for consideration in the Benefit Statement and wider cost benefit analysis:
  - Construction Supply Chain Benefits
  - Direct Economic Contribution of New Key Worker Households

- Household Expenditure Benefit
- Social Benefit of Housing Access
- Housing Market Normalisation

- Overall, the benefits of the project are approximately $7.2m at the 7% discount rate. This ranges from $5.5m at the 10% discount rate to $9.7m at 4%.
- The largest expected benefit is the economic contribution of new key workers, accounting for $5.54m at the 7% discount rate. Other benefits are the household expenditure-based economic impacts ($0.8m), the social benefits of housing access ($0.57m), housing market normalisation ($0.18m) and construction supply chain benefits ($0.14m).
- Comparing the present value of benefits to that of costs, Econisis estimates the project will yield a net present value of between $6.9m over 20 years at the 4% discount rate and $3.1m at the 10% discount rate.
- The benefit cost ratios ranged from 3.46 at the 4% discount rate to 2.25 at the 10% discount rate.

Table 1 Summary of Cost Benefit Analysis Results

Summary	4%	7%	10%
Costs	$2.8	$2.6	$2.5
Benefits	$9.7	$7.2	$5.5
NPV	***$6.9***	***$4.6***	***$3.1***
BCR	***3.46***	***2.78***	***2.25***

- Three sensitivity tests of the program were undertaken. They found that the project's BCR will increase significantly with more key workers than the conservative 1 per household assumption and moderately if maintenance costs are 2% rather than 3% per annum. The program's BCR also remains above 2.0 even if the subdivided lots take 5 years to be taken up by households rather than the assumed 2 years.

Economic Impact Assessment

- At the core of an Economic Impact Assessment is Input–Output (IO) tables. IO tables are part of the national accounts by the ABS and provide detailed information about the supply and use of products in the Australian economy, and the structure of and inter–relationships between Australian industries. Econisis has undertaken an Impact Assessment for the WA State economy, focused solely on Simple Multipliers.
- Econisis estimates that project will generate a total of $3.1m in direct and indirect economic outputs, along with $0.7m in incomes and contribute $1.3m to the local economy, during the construction phase. This will support a total of 3.3 direct and indirect FTE construction jobs.

Conclusion

- The project would provide a host of benefits to the region, with the project estimated to have a net present value between $6.9m and $3.1m. The main benefit is the significantly increased economic contributions of key workers. Current housing shortages are preventing key workers from moving into the area, and increasing housing supply would allow for these workers to enter the 4WDL workforce. These new workers would produce significant value added to the local economy, estimated to be between $4.19m and $7.52m.
- This evaluation finds that the sum of these economic and social benefits outweighs the estimated cost of the project. This is reflected in the high NPV and BCR values. At the standard 7% discount rate, the NPV of the project is $4.6m and the BCR is 2.78. This means that for every dollar spent on the project, there are $2.78 of benefits produced. The present value of

the benefits less the present value of the costs is $4.6m, representing a net positive value to the community and economy.

1 INTRODUCTION

This section provides an overview of the background, purpose and scope of the report.

1.1 Background and Context

The Wheatbelt Development Commission (WDC), in partnership with the 4WDL Shires, engaged JE Planning Services and Econisis to analyse key worker housing needs and challenges and highlight opportunities to stimulate housing development and investment in the 4WDL region.

Key worker housing supply and affordability challenges are increasingly common across regional areas in Australia, impacting the ability to attract and retain key workers. The combination of small labour markets, flat and declining populations, comparatively low median housing market prices, and development feasibility issues require coordinated government intervention.

The Key Worker Housing Analysis (KWHA) for the 4WDL region presented evidence to confirm the extent of the housing shortage in the Shires of Williams, Wagin, West Arthur, Woodanilling, Lake Grace and Dumbleyung. The KWHA included a Regional Housing Economic Analysis that identified and tested the key feasibility of local government-led housing delivery, ownership and management models across Australia.

Aggregating data across local government areas in stalled regional markets aimed to create sufficient scale for commercially feasible housing development, together with government investment intervention to fund the 'failed market' gap. The KWHA established the scale of demand for purpose- built and appropriate key worker housing, revealing a lack of accommodation to support lone, small and aged households. The expansive land area of the 4WDL region, combined with the comparatively small size of many communities, impacts the viability (and interest) of private housing construction and supply.

This report evaluates a project within the 4WDL region for the Shire of West Arthur. The project is a development plan to ease the housing shortage by creating 22 residential freehold lots by subdividing an existing lot on Burrowes Street West in Darkan. This report specifically analyses the costs and benefits of this project to the West Arthur economy and community to assess the project's value for money.

1.2 Report Purpose and Structure

Econisis was engaged to prepare a WA compliant Cost Benefit Analysis and Economic Impact Assessment.

This report is comprised of the following key sections:

- **Introduction** - This section provides an overview of the report, its purpose and structure.
- **Project Context and Profile** – This section gives an overview of the general profile of the Shire, key economic indicators, and overview of the Project.
- **Cost Benefit Analysis** - This section provides the methodology, assumptions, and summary of the results of the CBA.
- **Economic Impact Assessment** - This section provides a summary of the economic impact assessment methodology, assumptions and results, for the Project.
- **Conclusions and Findings** – This section summarises the findings and outcomes of the analysis.

1.3 Statistical Geography

The statistical geography used in this report is the LGA of West Arthur.

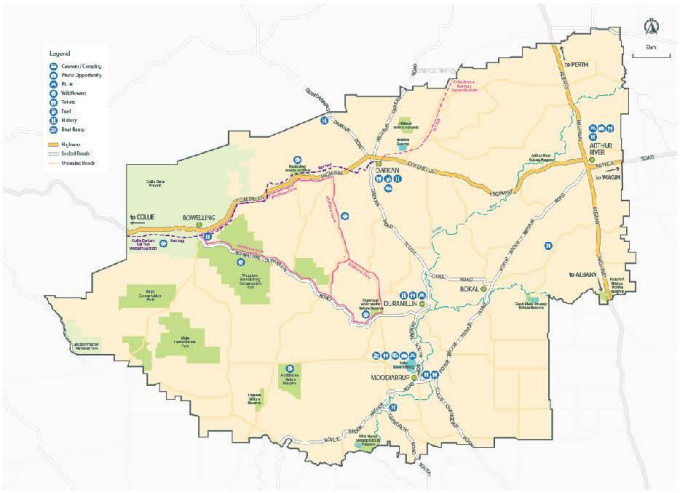


Figure 1 Map of West Arthur LGA

1.4 Glossary and Abbreviations

The following table outlines key terms and abbreviations used throughout this report.

Table 2 Table of Key Terms and Abbreviations

Term/Abbreviation	Definition
$m	Millions of dollars
ABS	Australian Bureau of Statistics
ATAP	Australian Transport Assessment and Planning
BCR	Benefit Cost Ratio
CBA	Cost Benefit Analysis
EIA	Economic Impact Assessment
EOI	Expression of Interest
FTE	Full Time Equivalent
GRP	Growing Regions Program
GVA	Gross Value Added
LGA	Local Government Area
NPV	Net Present Value
WA	Western Australia

2 PROJECT PROFILE

This section gives an overview of the context of the Project, including a profile of the Shire, key economic indicators and details of the elements of the Plan.

2.1 About West Arthur

The Shire of West Arthur is a local government area in the Wheatbelt region of WA. It is approximately 200km south-east of Perth and covers an area of 2,834 square kilometres. The seat of government is in the township of Darkan, which is also the location of the proposed housing subdivision. The Shire's economy is largely dominated by the wool and sheep industries, as well as timber, grain, forestry, beef, pigs, cattle hide tanning, engineering and earthmoving.

West Arthur was first settled by Europeans in the 1850s when the main Perth to Albany road was built by convict labour.[1] The first settlements were between the Arthur and Beaufort Rivers. Pastoralists settled in the area, being granted grazing licences as early as 1854. The township became a bustling centre with a police barracks and gaol built in 1866, the Mount Pleasant Inn in 1855, a post office, a blacksmith, a doctor, and a trading post.

The opening of the Great Southern Railway in 1899 diverted trade away from West Arthur, but the area was rejuvenated by connecting railways lines to Collie. The township of Darkan was established in 1907 and became a busy central town centre.

2.2 Economic Indicators

2.2.1 Population Estimates and Projections

The population of West Arthur LGA in 2022 was 797[2]. The population has been slowly decreasing since peaking at 911 in 2002. WA Tomorrow forecasts predict that the population will continue to slowly decrease, with Band C predictions of a population of 745 at 2031[3].

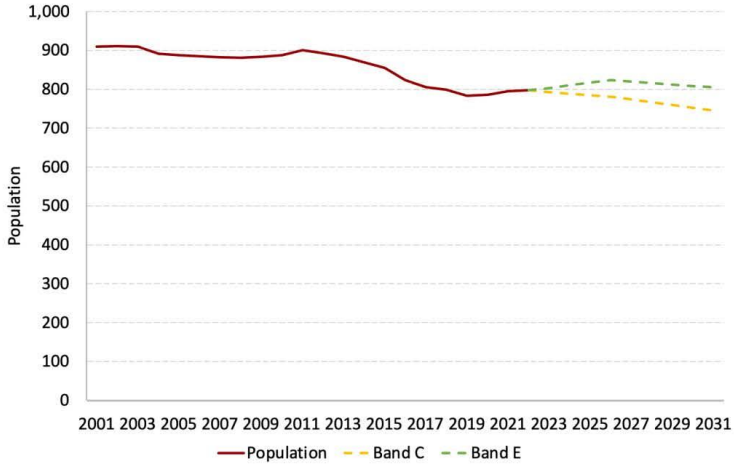


Figure 2 Historical and Projected Population, West Arthur LGA, 2001 to 2031

[1] Shire of West Arthur (2024) History. Accessed at https://www.westarthur.wa.gov.au/about/history.aspx
[2] https://www.abs.gov.au/statistics/people/population/regional-population/latest-release#data-downloads
[3] https://www.wa.gov.au/government/document-collections/western-australia-tomorrow-population-forecasts

2.2.2 Census Profile

2021 census data shows that West Arthur and Darkan have an older population than the rest of WA. Darkan has a median age of 52, compared to WA's median age of 38[4].

Table 3 Census Socioeconomic Profile, 2021, West Arthur LGA, Darkan, Outer Regional Aus (WA) and WA

Indicators	West Arthur LGA	Darkan	Outer Regional Aus (WA)	Western Australia
Headline				
Population	773	194	184,237	2,660,026
Median Age	50	52	43	38
Average Household Size	2.2	1.8	2.4	2.5
Share of Population 0-14 (%)	17.1%	22.2%	18.6%	19.0%
Share of Population 65+ (%)	23.4%	22.7%	20.2%	16.1%
Born in Australia	76.6%	58.8%	73.0%	62.0%
Share of People Attending Educational Institutions				
Pre-School	5	0	2,870	45,452
Primary	57	11	14,304	222,555
Primary - Government	23.3%	11.6%	18.5%	19.3%
Primary - Catholic	1.9%	0.0%	4.8%	4.5%
Primary - other non-Government	0.0%	0.0%	3.1%	3.6%
Secondary	30	3	11,528	175,841
Secondary - Government	12.9%	4.3%	14.0%	12.7%
Secondary - Catholic	1.9%	0.0%	4.2%	4.5%
Secondary - other non-Government	0.0%	0.0%	3.1%	4.6%
Tertiary	15	3	6,547	172,239
Tertiary - Vocational education (including TAFE and private training providers)	4.3%	5.8%	7.3%	7.4%
Tertiary - University of other higher education	4.8%	0.0%	4.8%	13.9%
Weekly Incomes				
Personal	$804	$638	$767	$848
Family	$1,708	$1,312	$1,939	$2,214
Household	$1,325	$966	$1,475	$1,815
Share of Household				
Couple family without children	37.1%	30.9%	31.4%	28.0%
Couple family with children	24.1%	8.6%	25.9%	32.0%
One parent family	5.9%	0.0%	10.0%	11.0%
Other family	1.6%	0.0%	0.9%	1.0%
Lone Person Households	29.1%	46.8%	29.2%	25.0%
Group Households	2.7%	3.9%	2.6%	3.0%

[4] https://abs.gov.au/census/find-census-data/quickstats/2021/LGA58890

Indicators	West Arthur LGA	Dark an	Outer Regional Aus (WA)	Western Australia
Dwelling Occupancy				
Occupied	88.0%	73.3 %	81.2%	89.1%
Unoccupied	12.3%	23.8 %	18.8%	10.9%
Dwelling Type				
Separate house	97.3%	91.9 %	89.5%	79.7%
Semi-detached, row or terrace house, townhouse etc	2.0%	8.1%	8.0%	13.0%
Flat or apartment	0.0%	0.0%	0.9%	6.5%
Other dwelling	0.0%	0.0%	1.2%	0.6%
Tenure				
Owned outright	51.9%	41.9 %	36.0%	29.2%
Owned with a mortgage	18.4%	21.6 %	32.1%	40.0%
Rented	16.0%	27.0 %	26.7%	27.3%
Other tenure type	11.3%	5.4%	3.2%	2.1%
Tenure type not stated	3.4%	0.0%	2.0%	1.4%

2.2.3 Unemployment

The unemployment rate in West Arthur has stayed at approximately 2.5% since March 2020, which is the earliest available data[5]. This is significantly lower than the WA unemployment rate which was 5.7% in March 2020 and fell to 3.5% in June 2023[6].

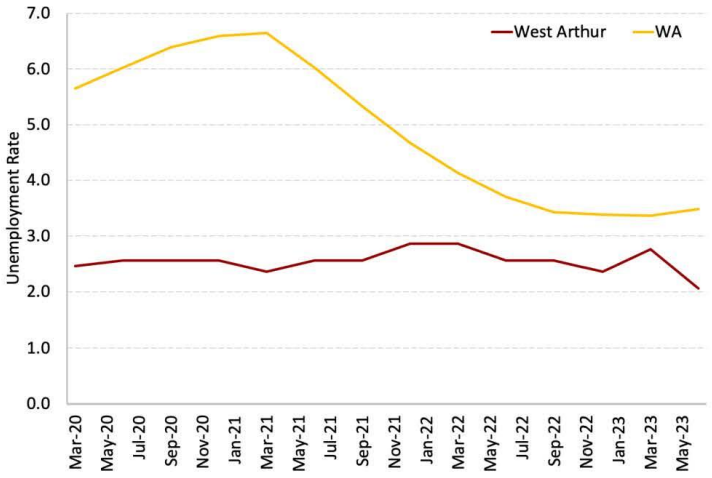


Figure 3 Unemployment Rate, West Arthur and WA, March 2020 to June 2023

[5] https://www.jobsandskills.gov.au/work/small-area-labour-markets
[6] https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia-detailed/latest-release

2.2.4 Employment

The vast majority of employees in West Arthur work in the farming industry, followed by public administration and safety and education.

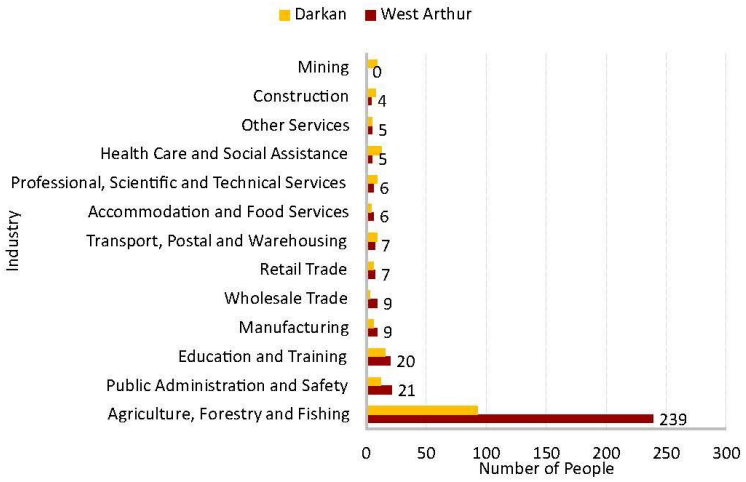


Figure 4 Industries by Employee Numbers, West Arthur and Darkan, 2021

The most common occupation in West Arthur is managers, followed by labourers, technicians and trade workers[7]. Almost all of these workers are in the Agriculture, Forestry and Fishing industry, indicating that the majority of West Arthur's economy is farming businesses.

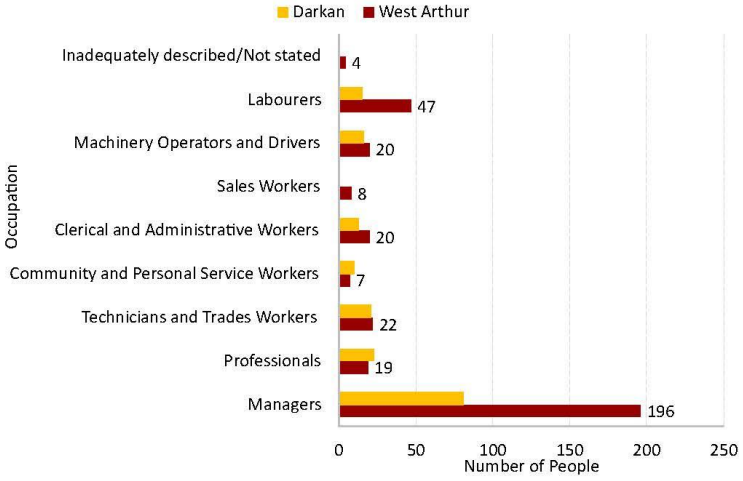


Figure 5 Occupations in West Arthur, 2021

[7] https://abs.gov.au/census/find-census-data/community-profiles/2021/LGA58890

2.2.5 Business Registrations

Business registrations in West Arthur remained relatively constant, with 199 in 2022[8].

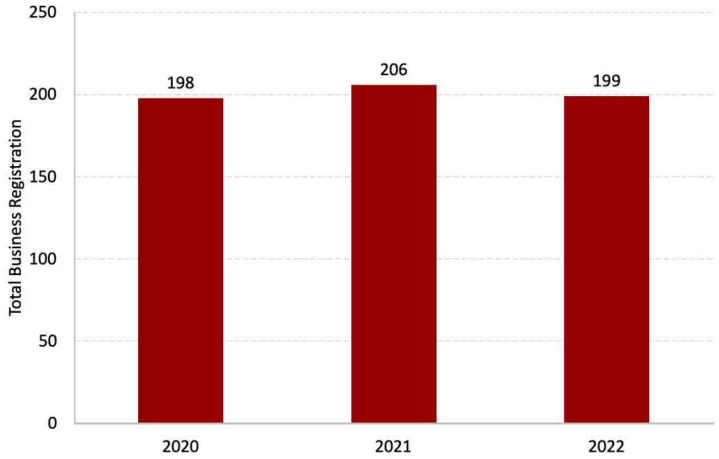


Figure 6 Business Registrations for West Arthur LGA, 2020 to 2022

West Arthur's economy is dominated by farming, with 138 businesses in the Agriculture, Forestry and Fishing industry. The other industries with the most businesses are the Rental, Hiring and Real Estate services, Retail Trade and Transport, Postal and Warehousing.

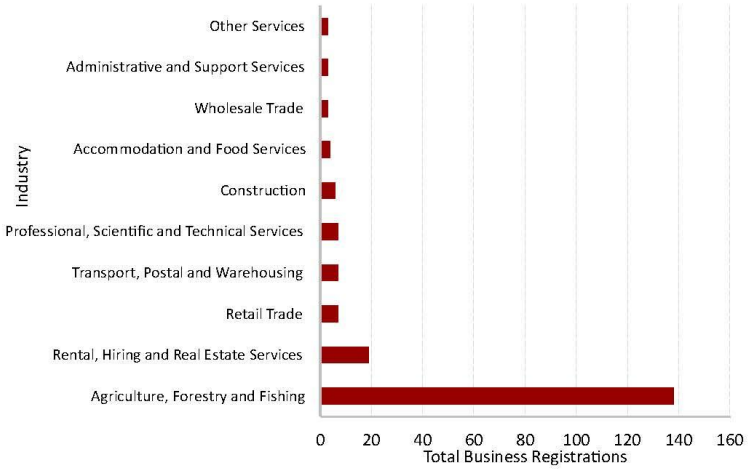


Figure 7 Business Registrations by Industry, West Arthur, 2022

[8] https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/latest-release

2.2.6 Future Development

As part of the Regional Development Assistance Program, there are two lots for light industrial land available in Darkan. The two lots are located close to the town centre on Growden Place and are on sale for being market price at $46,500 each[9].

West Arthur has acquired funding under the Local Roads and Community Infrastructure (LRCI) Program for a number of projects[10].

Table 4 Projects in West Arthur Receiving Funding from the LRCI

Project	Details	LRCI Round 1
Bowelling Duranillin, Darkan South, Moodiarrup-Changerrup roads - Centre line	Centre white line (Bowelling Dura - 36km; Moodiarrup Changerrup - 10km; Darkan South 10km).	**40,000**
Bunce King Road Bridge - Repairs	Project Modified due to weather constraints	**35,000**
Growden Place - Road Upgrades	Reseal and drainage. Material component only. Shire to cover labour and plant.	**30,150**
Lake Towerrinning Reseal entrance road and car parks	Reseal	**25,000**
Darkan Swimming Pool Shade structure	Replace shade covering on pool shade structure	**4,500**
Lake boat ramp	Install cement matting at the end of the boat ramp to prevent sand blow out.	**6,000**
Lake Towerrinning Jetties	Major refurbishment works to one jetty and minor repairs to the other. Cost could be more. Possibly recreation reserve to partially fund.	**110,000**
Arthur River Hall Kitchen	Install a new kitchen in the old section of Arthur River Hall	**14,000**
Health and Resource Centre - Kitchen modifications	Modifications to kitchen in Health and Resource Centre to enable registration for food premises for catering	**2,500**
Darkan Sports Ground Seating	6 bench seats, 4 picnic tables.	**8,800**
Darkan Town Hall - kitchen	Additional fixtures and fittings for senior meals (oven, replace sink with something higher)	**3,500**
Moodiarrup Hall - Ceiling	Replace ceiling in supper room and kitchen	**12,000**
Darkan Railway Reserve Pump track	Construct new pump track	**32,000**
Darkan Caravan Park - Refurbishment Nissen Hut	Preservation and basic upgrade to allow use by visiting groups and cultural purposes	**16,744**
Darkan Sports Ground - Fountain	Water fountain plumbed at footy oval	**4,000**
Moodiarrup Complex - Ceiling	50% of cost to replace ceiling. Balance to be covered by Moodiarrup Complex. Saves Shire funding from renewal reserve. Total estimated cost	**6,000**

[9] https://developmentwa.com.au/projects/industrial-and-commercial/darkan-lia/land-for-sale
[10] https://www.westarthur.wa.gov.au/your-community/local-road-community-infrastructure-program-updates.aspx

	$ 12000 plus air conditioner ducting of up to $1500.	
Lake playground	Play structure, Retaining and fencing	**16,500**

2.3 West Arthur Housing Market

88% of dwellings in West Arthur are occupied and 73.3% in Darkan. The vast majority of dwellings in both localities are separate houses, with a small number of semi-detached/townhouses (2% in West Arthur and 8.1% in Darkan).

Table 5 Dwelling Type and Occupancy Rates, West Arthur LGA and Darkan, 2021 Census

Census Indicators	West Arthur LGA	Darkan
Dwelling Occupancy		
Occupied	88.0%	73.3%
Unoccupied	12.3%	23.8%
Dwelling Type		
Separate house	97.3%	91.9%
Semi-detached, row or terrace house, townhouse etc	2.0%	8.1%
Flat or apartment	0.0%	0.0%
Other dwelling	0.0%	0.0%

In West Arthur, the composition of dwellings is mostly separate houses. In 2016, there were 326 occupied houses which fell to 285 in 2021. This could mean the houses were vacated or demolished.

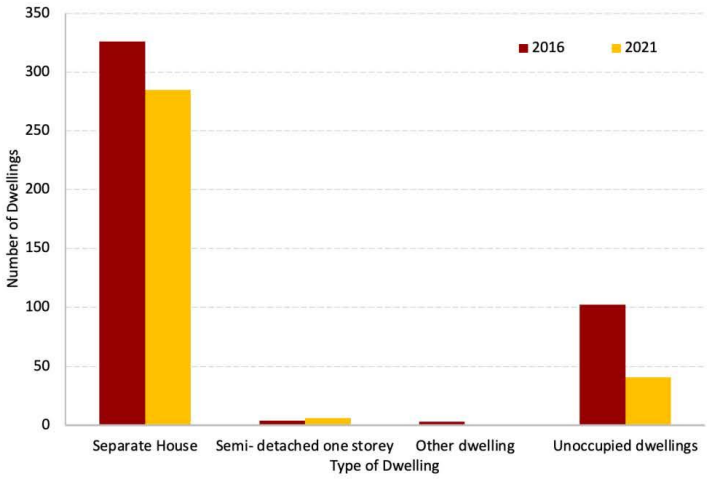


Figure 8 Types of Dwellings, West Arthur, 2016 and 2021

In Darkan, the figures are almost identical, with vast majority of dwellings being separate houses and a small number of semi-detached one-storey homes.

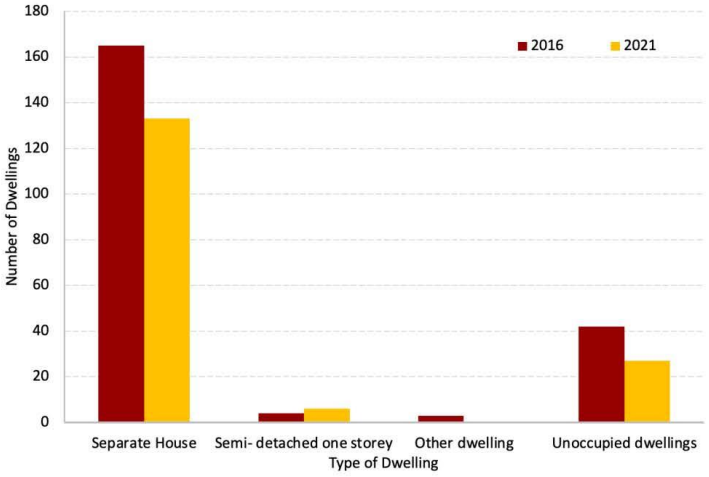


Figure 9 Types of Dwellings, Darkan, 2016 and 2021

Of West Arthur's separate houses, the types of households are mainly couples with and without children and lone person households.

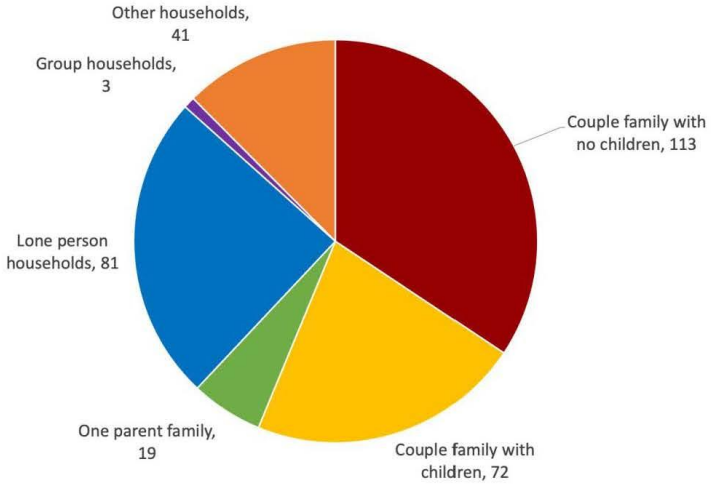


Figure 10 Household Composition of Separate Houses, West Arthur, 2021

There is limited information about housing sales in Darkan. The available data states that sales growth has reduced by 23.3%, the median sales price is $165,000 and the average time on market is 23 days[11].

[11] https://reiwa.com.au/suburb/darkan/

2.3.1 Building Approvals

In the 2022-23 financial year, West Arthur approved $420,000 of non-residential buildings and $19,500 of residential buildings[12]. The entirety of the residential approvals were alterations or additions to existing buildings.

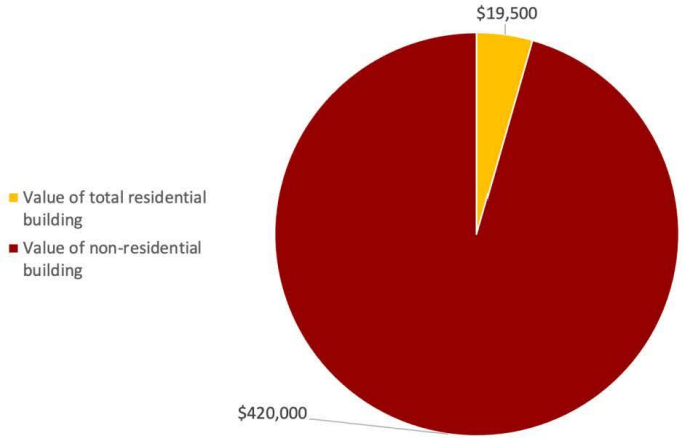


Figure 11 Building Approvals, West Arthur, 2022-23

In the June quarter 2023, there were only non-residential subdivision applications to WAPC for West Arthur. Of these, 3 had been lodged by a developer, 5 were being assessed by WAPC, 2 were conditionally approved and 2 had final approval.[13]

2.4 Role of Housing in Key Worker Attraction and Retention

Housing availability in regional and remote areas plays a critical role in supporting the attraction and retention of key workers. This supports the use of "worker productivity" values in monetising the opportunity cost associated with the non-delivery of the housing needed in subject communities. This reflects the fact that without the required housing, the economic and social activity associated with the accommodated workers will not be realised in the region.

2.4.1 What is Worker Productivity?

Worker productivity is the Gross Value Added per Worker in an economy. Gross Value Added is the value of all value adding activity in the economy and accounts for the vast majority of Gross Product (Regional, State or Domestic).

By dividing GVA by the number of workers in an economy, the relative productivity of an individual worker can be estimated. This same approach can be adopted for individual industries using Industry Value Added and the workers within that industry. This approach provides greater level of detail, recognising the different levels of economic productivity associated with different industries.

Using REMPLAN data for Western Australia, Econisis has provided the following worker productivity estimates by industry and for the economy as a whole.

[12] https://www.abs.gov.au/statistics/industry/building-and-construction/building-approvals-australia/latest-release#data-downloads
[13] https://www.wa.gov.au/government/document-collections/planning-and-development-statistics

Table 6 Worker Productivity, Western Australia, 2021[14]

Industry sector	GVA	Workers	Worker Productivity
Accommodation & Food Services	$4,799,749,445	89,363	$53,711
Administrative & Support Services	$5,350,859,121	42,251	$126,645
Agriculture, Forestry & Fishing	$4,904,099,902	31,176	$157,304
Arts & Recreation Services	$2,024,573,626	22,117	$91,539
Construction	$22,692,770,872	121,303	$187,075
Education & Training	$13,871,962,665	119,759	$115,832
Electricity, Gas, Water & Waste Services	$7,153,527,101	15,908	$449,681
Financial & Insurance Services	$12,681,254,944	29,233	$433,799
Health Care & Social Assistance	$19,958,837,715	186,114	$107,240
Information Media & Telecommunications	$3,131,017,914	10,442	$299,848
Manufacturing	$12,788,822,016	72,002	$177,618
Mining	$144,061,817,298	105,960	$1,359,587
Other Services	$4,349,487,922	52,983	$82,092
Professional, Scientific & Technical Services	$15,185,953,841	94,061	$161,448
Public Administration & Safety	$15,205,184,273	80,903	$187,943
Rental, Hiring & Real Estate Services	$30,614,580,989	19,497	$1,570,220
Retail Trade	$9,806,432,828	119,926	$81,771
Transport, Postal & Warehousing	$11,343,321,158	62,352	$181,924
Wholesale Trade	$7,237,711,213	33,449	$216,380
Average	**$347,161,964,844**	**1,308,799**	**$265,252**
Average Net Real Estate and Mining	**$193,293,714,718**	**1,082,913**	**$178,494**
Education, Health, Public Admin/Safety Only Average	**$49,035,984,652**	**386,776**	**$126,781**

Overall the average worker in WA produces $265,252 worth of value added each year.

However, this figure is inflated by a small number of high value adding sectors, namely Mining and Rental, Hiring and Real Estate Services. Removing these and the worker productivity value falls to $178,494 per worker.

Additionally, this estimate continues to include a combination of both public and private sector industries. To get a proxy of public sector, the average worker productivity values of Education and Training, Health Care and Social Assistance and Public Administration and Safety industries can be taken. This reduces the worker productivity value to $126,781.

These values are for Western Australia as a whole to reflect the data available from sources such as REMPLAN and the ABS.

2.5 Summary of Plan

The plan for Lot 309 Burrowes Street West in Darkan is to subdivide the Lot into 22 residential broadacre freehold lots. This development will take place in two stages; with 10 lots being developed in the first stage and 12 lots in the second stage. In this cost benefit assessment, it has been assumed that Stage 1 will take place in 2025 and Stage 2 in 2026.

[14] REMPLAN (2023) Economic and Employment, Western Australia accessed at https://app.remplan.com.au/eda-westernaustralia/economy/industries/employment?state=lGv2szlelxMC6yQNu3wVNqteKmG0SDHdfP7nlrl2ljs3pOpNfPf7yhRfBIGG2qINAZ

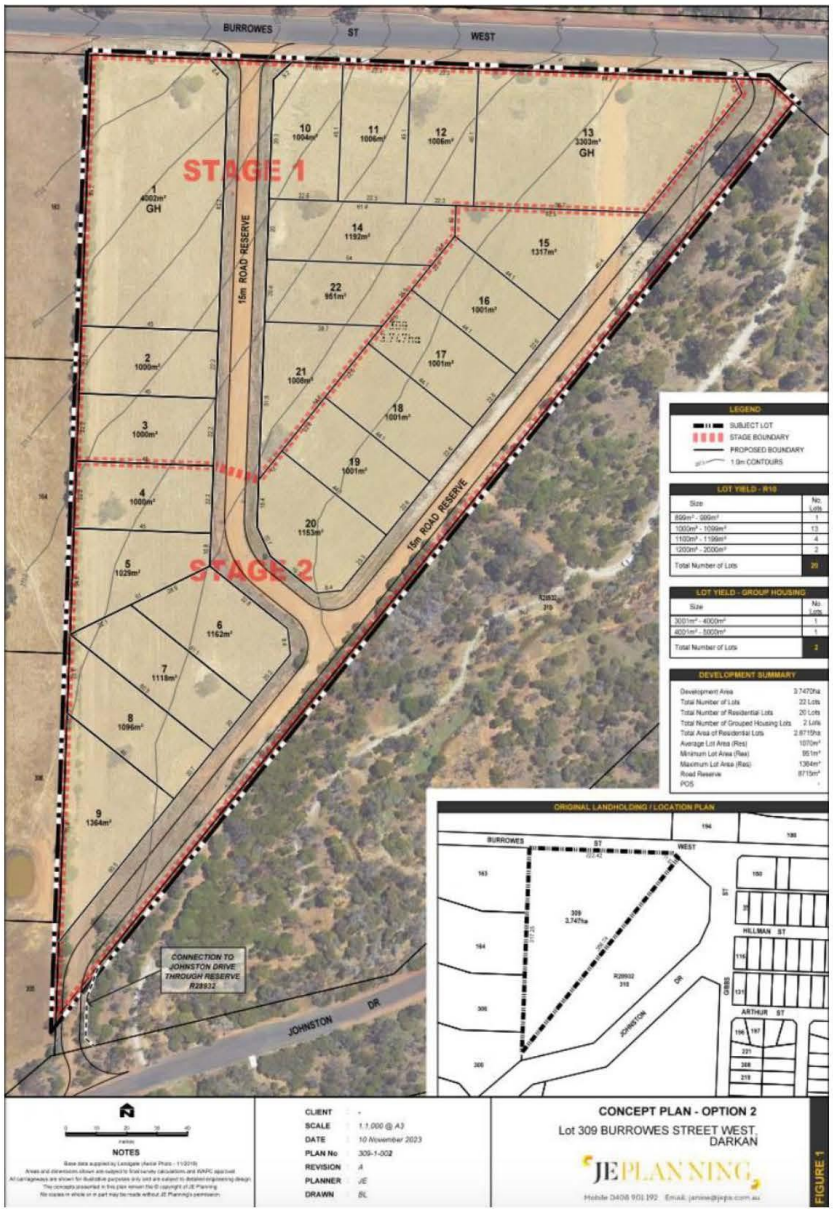


Figure 12 Development Layout and Proposed Staging

3 COST BENEFIT ANALYSIS

This section outlines the CBA methodology utilised, assumptions, benefits assessed and results of the CBA.

3.1 Methodology

A CBA is the most commonly used, and most comprehensive, of the economic evaluation techniques. Essentially, a CBA compares the monetised benefits and costs of a Project to evaluate the desirability of a Project. A CBA provides little value if it is conducted without a base case in which with to compare options. For this report, the Concept Scenarios are therefore analysed based on only the incremental, or additional, benefits and costs with respect to a base case. This approach is the most appropriate to assess the net economic benefits that accrue from the two development options.

The CBA steps include:

- Identify the quantifiable benefits that can be monetised;
  Calculate the value (in monetary terms) of the quantified incremental benefits and capital costs in net present value (NPV) terms using the discount rates;
- Calculate the benefit cost ratio (BCR) – the total present value of all net benefits compared to the present value of capital costs to determine the ratio to which incremental net benefits exceed (or undershoot) incremental costs related with the upgrade; and
- Undertake a sensitivity assessment.

3.1.1 Discount Rates

Discounting is the reverse of adding (or compounding) interest. It reduces the monetary value of future costs and benefits back to a common time dimension – the base date. Discounting satisfies the view that people prefer immediate benefits over future benefits (social time preference), and it also enables the opportunity cost to be reflected (opportunity cost of capital). Recognising the potential for multiple audiences for the business cases, real discount rates of 4, 7 and 10% have been applied. This complies with recommendations set by the Office of Impact Analysis (OIA) at the Federal Government level and WA Treasury Project Evaluation Guideline and Standard Business Case template.

Modelling of quantifiable benefits and costs are developed over a 20-year timeframe (post construction phase).

3.1.2 Cost of Capital Approach

The cost benefit assessment undertaken in this report represents a "cost of capital" assessment. This approach focuses primarily on the up-front capital costs of the Project with reduced consideration of ongoing operational costs (beyond whole of lifecycle maintenance cost impacts).

The reason for this approach is twofold:

- Firstly, it reflects the stage of the Project design and concept that the Cost Benefit Assessment is testing – early-stage concepts typically have a capital cost estimate but may not have detailed cash flow or maintenance cost estimates. As such, the "cost of capital" approach does not consider ongoing cashflow consideration which includes discounting any financial revenues that could be secured by the Project to offset unknown operational costs;
- Secondly, this economic business case specifically seeks to develop or address the validity of potential capital investment in the Project. As such, evidence is required, through the CBA, of the potential return on investment (in the form of economic and social benefits) to inform this capital decision.

3.1.3 Comparison with the Base Case

For these assessments, Econisis has undertaken a cost benefit assessment of the net additional benefits and costs above and beyond the base case for the Project. NPVs and BCRs generated as part of the Cost Benefit Analysis are reflective of the net increase in economic and social benefits beyond the status quo in each location and for the Project.

3.2 Assumptions

Econisis has made the following general assumptions applicable across the Project.

Table 7 Key Assumptions

Assumption	Details
Annual Maintenance Cost	3% of the capital costs
Supply Chain Multiplier	7.1%[15]
Average Worker Productivity WA, Education, Health, Public Admin/Safety Industries Only	$126,781[16]
Number of Key Workers per Household	1
Attribution Rate of Productivity to Land Development	25%
Average Household Yearly Expenditure	$33,000[17]
GVA to Expenditure Conversion Rate	50%
Enhanced Labour Market Productivity per Household	$3,770[18]
Health Cost Savings per Household	$2,832[19]
Reduced Domestic Violence per Household	$2,462[20]
Enhanced Human Capital per Household	$1,838[21]
Reduced Costs of Crime per Household	$844[22]
Education Benefits per Household	$168[23]
Annual Value of Normalisation of Housing Market	1% of capital cost
Attribution Rate of Normalisation to Land Development	50%

3.3 Benefits Statement

The following table provides a statement of the benefits assessed as part of this cost benefit analysis. It includes a list of the benefit, their description and method of calculation.

Table 8 Benefits Statement

Benefit	Theme/Description	Method of Calculation
Construction Supply Chain Benefits	Benefits to the WA and regional construction industry of the non-residential capital investment.	The first round GVA economic multiplier of the capital expenditure of the project of 7.1%. This is based on a WA specific regionalised input/output transaction table. This was applied to the capital expenditure of the program of $2,069,040.

[15] Based on WA specific regionalised input/output table of non-residential capital expenditure.
[16] REMPLAN (2021) Economic and Employment, Western Australia accessed at https://app.remplan.com.au/eda-westernaustralia/economy/industries/employment?state=lGv2sz!elxMC6yQNu3wVNqteKmG0SDHdfP7nIrl2ljs3pOpNfPf7yhRfBIGG2qINAZ
[17] Market Info 2022 (Market Data Systems)
[18] SGS Economics and Planning (2022) Give Me Shelter. Accessed at https://sgsep.com.au/assets/main/SGS-Economics-and-Planning_Give-Me-Shelter.pdf
[19] See above.
[20] See above.
[21] See above.
[22] See above.
[23] See above.

Benefit	Theme/Description	Method of Calculation
Direct Economic Contribution of New Key Worker Households	The key workers moving into the houses will be able to be work in the region. This benefit measures their productivity by working in the local economy.	The relative productivity of an individual worker was calculated by dividing the GVA of the Education, Health and Public Safety/Admin industries in WA by the number of workers in these industries. This was multiplied by the 22 dwellings, assuming that there would be occupants in 50% of the homes in the first year after construction and the other 50% in the second year. It was assumed that there will be 1 key worker per household. An attribution rate of 25% was applied to account for other factors contributing to a worker's productivity e.g. the company they work for.
Household Expenditure Benefit	The contribution to the local economy of the new households spending at local businesses.	An average household's retail related expenditure is $33,000 per year[24]. This was applied to the 22 new households from the year of assumed occupancy and a GVA to expenditure conversion rate of 50% was applied. An attribution rate of 25% was applied to account for the role of land development in contributing to this.
Social Benefit of Housing Access	The social benefits of housing access include enhanced labour market productivity, health cost savings, reduced domestic violence, enhanced human capital, reduced costs of crime, and education benefits.	These social benefits were quantified and collated by SGS Economics in their 2022 'Give Me Shelter' report. The combined total of these benefits per household is $11,914[25]. This was applied to the 22 new households from the year of assumed occupancy. An attribution rate of 25% was applied to account for the role of land development in contributing to this.
Housing Market Normalisation	Benefit relating to housing market normalisation due to no functioning housing market currently.	The construction cost of the homes was multiplied by 1% each year from the year of assumed occupancy.

The assumptions and calculation methods for the CBA are regarded as conservative and highly defensible.

3.4 CBA Results

This section provides an overview of the present value and composition of costs and benefits for the Project. It includes an outline of the Benefit Cost Ratios and Net Present Value results for each Project.

3.4.1 Capital and Maintenance Costs

The provided costs were split into categories. Econisis has assumed that the Local Government Statutory Fees and Charges, Water Corporation Fees and Charges, and the Professional Services Fees will all be incurred in 2025, the first year of the project. These costs amount to $263,160. Given the information that 10 lots will be developed in Stage 1 in 2025 and 12 in Stage 2 in 2026, the remaining Infrastructure Works costs are proportionately split between 2025 and 2026. This results in costs for 2025 being $1,091,160 and for 2026 being $977,880.

The evaluation estimates the present value of costs to range from $2.5m at the 10% discount rate to $2.8m at the 4% discount rate. The majority of this is the capital cost, with the remainder an annual maintenance cost of 3%.

[24] Market Info 2022 (Market Data Systems)
[25] SGS Economics and Planning (2022) Give Me Shelter. Accessed at https://sgsep.com.au/assets/main/SGS-Economics-and-Planning_Give-Me-Shelter.pdf

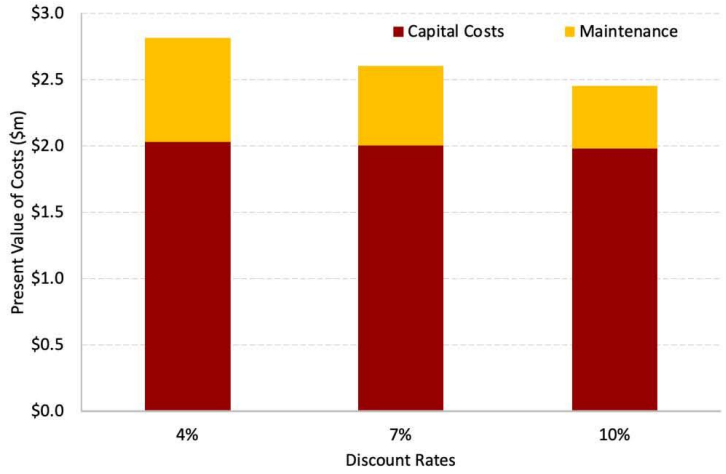


Figure 13 Present Value of Costs by Discount Rate

3.4.2 Value of Benefits

Overall, the benefits of the project are approximately $7.2m at the 7% discount rate. This ranges from $5.5m at the 10% discount rate to $9.7m at 4%.

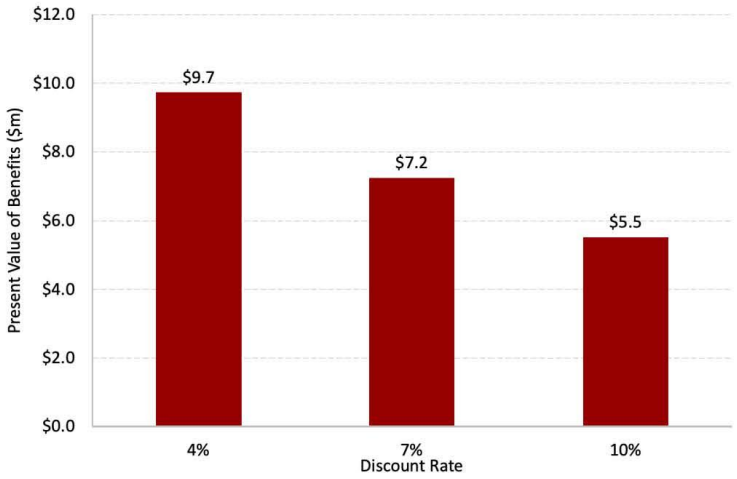


Figure 14 Present Value of Benefits by Discount Rate

The largest expected benefit is the economic contribution of new key workers, accounting for $5.54m at the 7% discount rate. This is to be expected, as the purpose of the housing is to introduce new key workers into the West Arthur economy. Other benefits are the household expenditure-based economic impacts ($0.8m), the social benefits of housing access ($0.57m), housing market normalisation ($0.18m) and construction supply chain benefits ($0.14m).

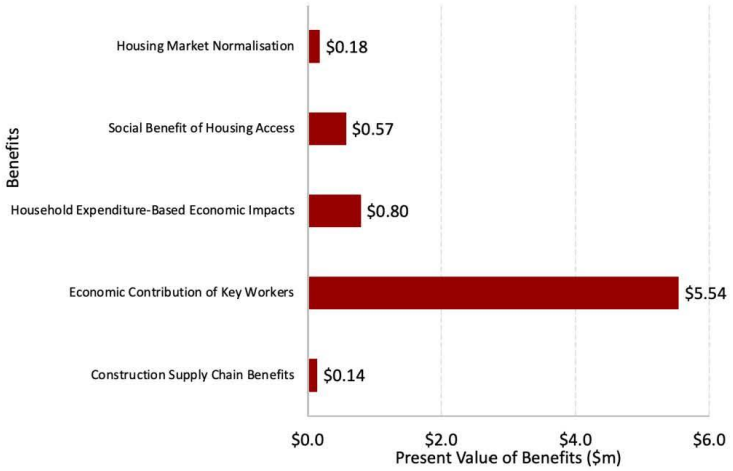


Figure 15 Present Value of Benefits ($m) at the 7% Discount Rate

Each benefit can be categorised as either social or economic. 90% of the benefits of this project are economic and 10% are social. This is due to the significant value of key worker contribution benefits to the local economy.

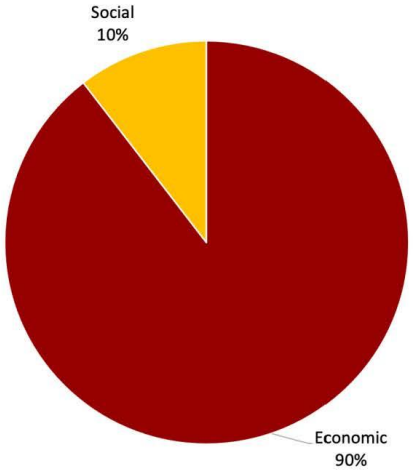


Figure 16 Composition of Benefits at the 7% Discount Rate

3.4.3 Results

Comparing the present value of benefits to that of costs, Econisis estimates the project will yield a net present value of between $6.9m over 20 years at the 4% discount rate and $3.1m at the 10% discount rate. All net present value estimates are above $0, meaning that the present value of the benefits is greater than that of the costs across all discount rates.

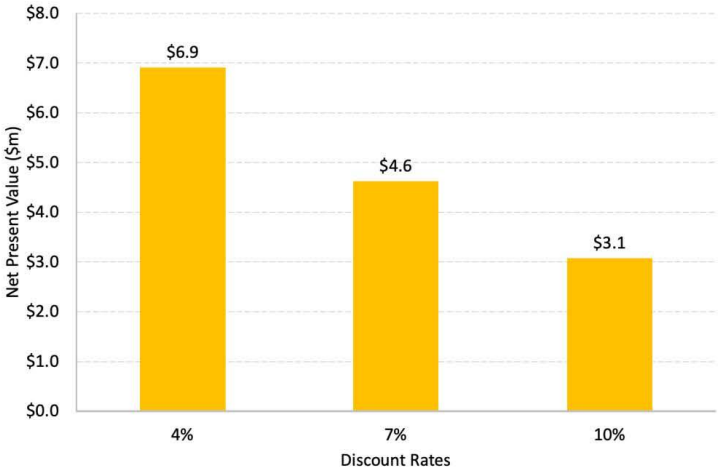


Figure 17 Net Present Value by Discount Rate

The benefit cost ratios ranged from 3.46 at the 4% discount rate to 2.25 at the 10% discount rate. Any BCR above 1.0 is regarded as positive, with BCRs at or approaching 3.0 particularly positive. This reflects the fact that benefits that accrue in the future have a higher degree of uncertainty, and while this is addressed to an extent by the discount rates, a higher BCR provides the project a greater "buffer" that it will indeed yield benefits greater than the costs. In this instance, the predominantly economic nature of the assets means that the 7% discount rate is most relevant. This yields a BCR of 2.78, meaning that for every $1 of costs the project yields $2.78 of benefits.

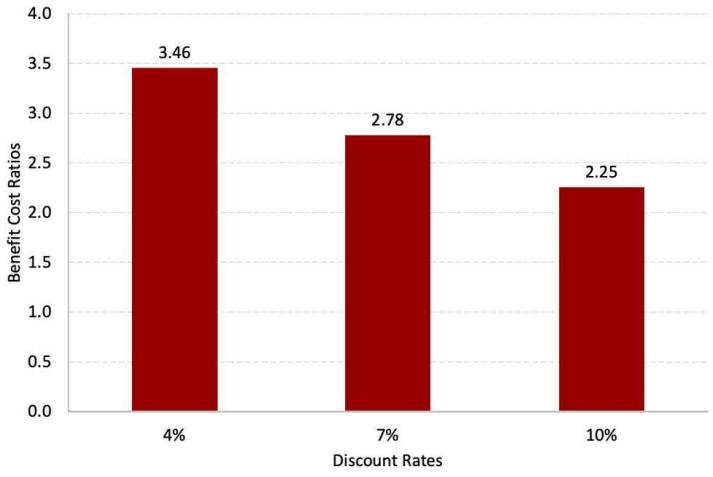


Figure 18 Benefit Cost Ratio by Discount Rate

The below table summarises the results of the cost benefit analysis.

Table 9 Summary of Cost Benefit Analysis Results

Summary	4%	7%	10%
Costs	$2.8	$2.6	$2.5
Benefits	$9.7	$7.2	$5.5
NPV	*$6.9*	*$4.6*	*$3.1*
BCR	*3.46*	*2.78*	*2.25*

3.4.4 Sensitivity Tests

Three sensitivity tests of the program were undertaken which examined:

- Test 1 – Increase key workers per household from 1 to 1.25
- Test 2 – Lower maintenance costs to 2% per annum
- Test 3 – Take up of lots takes 5 years instead of 2 years

The results of the BCRs for the main scenario and the three Sensitivity Tests are outlined below.

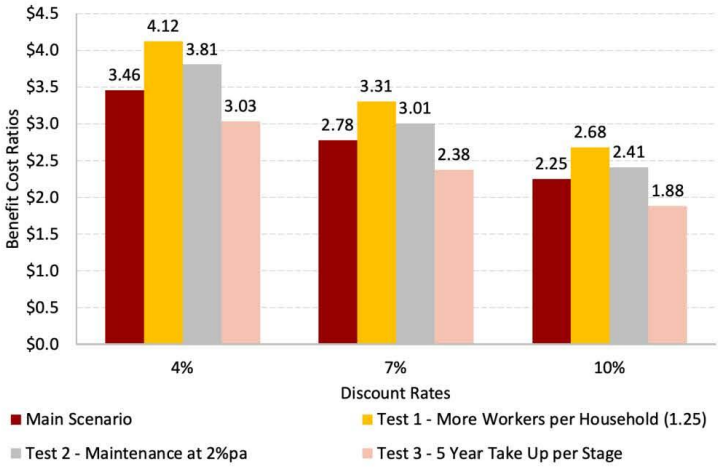


Figure 19 BCRs by Scenario/Sensitivity Test

Test 1 resulted in a higher BCR of 3.31 at the 7% discount rate. This shows that if more than 1 key worker lives in each of the new lots, the benefit of the project would be significantly increased. The assumption of 1 key worker per lot is conservative and it is likely that it would be higher.

Test 2 resulted in a moderately higher BCR of 3.01 at the 7% discount rate. This reflects that a lower maintenance cost of 2% of capital cost per year rather than 3% would have a moderate effect on increasing the BCR. The 3% estimate of maintenance costs was chosen to ensure cost estimates remain conservative.

Test 3 lowers the BCR to 2.38 at the 7% discount rate. This scenario is where instead of all of the lots becoming occupied over a two-year period, it instead takes five years. This is quite a large change however the effect on the BCR is only moderate, still remaining well above 2.0. Therefore, if the demand for the lots is smaller than expected and it takes several years to sell them all, the benefits of the project to the economy will still be large.

4 ECONOMIC IMPACT ASSESSMENT

This section provides a summary of the economic impact assessment methodology, assumptions and results, for the Project.

4.1 Methodology and Approach

At the core of an Economic Impact Assessment is Input–Output (IO) tables. IO tables are part of the national accounts by the ABS and provide detailed information about the supply and use of products in the Australian economy, and the structure of and inter–relationships between Australian industries.

IO tables are converted, through statistical analysis, into a series of Economic Multipliers. These Multipliers represent the relationship between the direct activity (expenditure or production) associated with a Project and the wider economy.

The results of an EIA are generally presented as both direct effects, that is effects from the direct activity of the Project or event, and indirect effects, which are additional effects from further rounds of spending in the supply chain. A third or consumption effect, resulting from rounds of consumer spending generated by the additional income in the region can also be calculated.

There are two broad levels of Multipliers that can be utilised for Impact Assessments:

1. **Simple Multipliers –** including the Direct or Initial Effect, First Round and Industry Supply Chain effects.
2. **Total Multipliers –** including the Simple Multipliers plus subsequent Induced Production and Household Consumptions effects.

Impact Assessments can assess:

- **Output** - the actual dollar amount spent on the Project in the Region.
- **Income** - the number of wages and salaries paid to labour.
- **Employment** - the full-time equivalent (FTE) per annum employment generated by the Project; and
- **Value Added** - the value added to materials and labour expended on the Project.

Econisis has undertaken an Impact Assessment for the WA state economy, focused solely on **Simple Multipliers**. For the WA economic impacts, this entailed the following tasks:

1. Transaction tables were developed from National IO tables for the WA State economy. For the WA economy, the Regional Transaction Table was calculated by applying employment-based location quotients for the Region, based on the results of the 2016/2021 Census of Population and Housing. This has the effect of excluding spending on imports to the Region since they generate no local economic activity.
2. Economic Multipliers were then generated for WA economy across 119 industry categories defined by the ABS.
3. Construction and operational expenditure and production associated with the development were allocated across 119 industry categories.
4. Economic impacts associated with the Project are calculated.

4.1.1 Criticisms of Impact Assessments

Economic Impact Assessments based on IO-tables and Economic Multipliers have been criticised by Government and academia. Econisis recognises Economic Multipliers are based on limited

assumptions that can result in multipliers being a biased estimator of the benefits or costs of a Project.

Shortcomings and limitations of multipliers for economic impact analysis include:

- **Lack of supply**–side constraints: The most significant limitation of economic impact analysis using multipliers is the implicit assumption that the economy has no supply–side constraints. That is, it is assumed that extra output can be produced in one area without taking resources away from other activities, thus overstating economic impacts. The actual impact is likely to be dependent on the extent to which the economy is operating at or if it is near capacity.
- **Fixed prices**: Constraints on the availability of inputs, such as skilled labour, require prices to act as a rationing device. In assessments using multipliers, where factors of production are assumed to be limitless, this rationing response is assumed not to occur. Prices are assumed to be unaffected by policy and any crowding out effects are not captured.
- **Fixed ratios for intermediate inputs and production**: Economic impact analysis using multipliers implicitly assumes that there is a fixed input structure in each industry and fixed ratios for production. As such, impact analysis using multipliers can be seen to describe average effects, not marginal effects. For example, increased demand for a product is assumed to imply an equal increase in production for that product. In reality, however, it may be more efficient to increase imports or divert some exports to local consumption rather than increasing local production by the full amount.
- **No allowance for purchasers' marginal responses to change**: Economic impact analysis using multipliers assumes that households consume goods and services in exact proportions to their initial budget shares. For example, the household budget share of some goods might increase as household income increases. This equally applies to industrial consumption of intermediate inputs and factors of production.
- **Absence of budget constraints**: Assessments of economic impacts using multipliers that consider consumption induced effects (type two multipliers) implicitly assume that household and government consumption is not subject to budget constraints.
- **Not applicable for small regions**: Multipliers that have been calculated from the national IO table are not appropriate for use in economic impact analysis of Projects in small regions. For small regions multipliers tend to be smaller than national multipliers since the inter–industry linkages are normally relatively shallow. Inter–industry linkages tend to be shallow in small regions as they usually do not have the capacity to produce the wide range of goods used for inputs and consumption, instead importing a large proportion of these goods from other regions.

4.1.2 Adjustments to Improve EIA Reliability

Despite this, IO tables and Economic Multipliers remain popular due to their ease of use and communication of results. Econisis has undertaken a number of steps and made appropriate adjustments to the EIA methodology to address and mitigate these concerns.

Econisis has only used ***Simple Multipliers*** in the Assessment. This has the effect of discounting Household Consumption impacts from the assessment. By doing so, only those industries with a first round or supply chain connection are considered. This has the effect of making the results of the EIA conservative and suitable to inform decision making.

Additionally, Econisis has developed economic multipliers for the ***WA economy only***. This has the effect of internalising and limiting the extent of the economic impact outside of the State.

Econisis regards the use of Economic Multipliers as part of this Assessment as appropriate and reliable. The results of the assessment are conservative, defensible and suitable for informing decision making.

4.2 Summary of Results

4.2.1 Construction Phase

Econisis has allocated the construction costs for the subdivision across the following sectors of the WA economy:

- Heavy and Civil Engineering Construction
- Professional, Scientific and Technical Services
- Public Administration and Regulatory Services.

Based on these industries, Econisis estimates that project will generate a total of $3.1m in direct and indirect economic outputs, along with $0.7m in incomes and contribute $1.3m to the local economy, during the construction phase.

Table 10 Summary of Economic Impact, Construction Phase, Total Impact

Summary	Initial Impact	First Round Impact	Industry Support Impact	Total Impact (Simple Multipliers)
Output ($m)	$2.0	$0.8	$0.4	$3.1
Income ($m)	$0.5	$0.2	$0.1	$0.7
Employment (FTEs)	2.4	0.6	0.3	3.3
Gross Value Added ($m)	$0.8	$0.3	$0.2	$1.3

This will support a total of 3.3 direct and indirect FTE construction jobs.

5 CONCLUSIONS

This section summarises the findings and conclusions of the report.

5.1 Summary of Findings

In response to the housing shortage in the 4WDL region, the Shire of West Arthur is subdividing Lot 309 Burrowes Street in Darkan into 22 residential freehold lots. This report assessed the costs and benefits of the project to evaluate its value for money.

The project would provide a host of benefits to the region, with the project estimated to have a net present value between $6.9m and $3.1m. The main benefit is the significantly increased economic contributions of key workers. Current housing shortages are preventing key workers from moving into the area, and increasing housing supply would allow for these workers to enter the 4WDL workforce. These new workers would produce significant value added to the local economy, estimated to be between $4.19m and $7.52m.

Another benefit is the household expenditure from these new workers and their households. Increased housing supply brings new families to the region who will spend at local businesses, stimulating the economy. This is estimated to generate between $0.61m and $1.06m. There are also social benefits to providing housing supply which include enhanced productivity, health savings, and reduced crime, among others. These benefits are estimated to be between $0.44m and $0.76m. Other benefits to the project include the initial construction supply chain benefits, and a normalisation of the local housing market.

This evaluation finds that the sum of these economic and social benefits outweighs the estimated cost of the project. This is reflected in the high NPV and BCR values. At the standard 7% discount rate, the NPV of the project is $4.6m and the BCR is 2.78. This means that for every dollar spent on the project, there are $2.78 of benefits produced. The present value of the benefits less the present value of the costs is $4.6m, representing a net positive value to the community and economy.

In addition, sensitivity tests find that an increase in the assumed number of key workers per household or a decrease in the assumed annual maintenance cost will increase the value of the project. Importantly, sensitivity testing on the time it would take for the developed lots to become occupied finds that even if the lots take 5 years to gain full occupancy, rather than the assumed 2 years, the project would retain a high BCR of 2.3.

Econisis estimates that project will generate a total of $3.1m in direct and indirect economic outputs, along with $0.7m in incomes and contribute $1.3m to the local economy, during the construction phase. This will support a total of 3.3 direct and indirect FTE construction jobs.

ECONISIS

Contact

Econisis Pty Ltd

A: L38, 71 Eagle Street,
Brisbane City, Qld, 4000

E: mark.wallace@econisis.com.au

T: 0431 676 254

Appendix 2 Engineering Order of Costs

David Wills and Associates
Consulting Engineers

Project #: 06041.09

Engineering Order of Costs
Lot 309 Burrowes St West, Darkan - Subdivision

22 lots

Item	Descrpition	Detail		Amount	GST applicable		GST
1.0	**Local Government Statutory Fees and Charges (GST exclusive)**						
1.1	WAPC planning application	$3346 plus $79 per lot (2-100 lots) - rounded	$	5,100.00	No	$	-
1.2	Deposited plan fees	$645 plus $8 per lot (2-100 lots) - rounded	$	900.00	No	$	-
1.3	Clearance fees	$73 per lot for the first 5 lots and then $35 per lot - rounded	$	1,000.00	No	$	-
1.4	Council Engineering supervision fees	1.5% of R&D construction estimate - rounded	$	9,765.00	No	$	-
1.5	Council Engineering maintenance bond (refundable)	5% of R&D construction estimate - rounded	$	32,585.00	No	$	-
1.6	Public Open Space contribution (cash in lieu)	Not included	$	-	No	$	-
1.7	Council Developer Contributions fees	Estimated $1500/lot	$	33,000.00	No	$	-
2.0	**Water Corporation Fees and charges**						
2.1	Water contributions	Standard infrastructure charge for water $2,489/lot (20 new) - rounded	$	49,800.00	No	$	-
2.2	Drainage contributions	Standard infrastructure charge for drainage $61/lot (6 new) - rounded	$	-	No	$	-
2.3	Water Corporation maintenance bond (refundable)	Not included	$	-	No	$	-
3.0	**Infrastructure Works**						
3.1	Construction (Earthworks, Roads, Drainage, Water only)	Developer funded construction - refer breakdown attached	$	1,008,200.00	Yes	$	100,820.00
3.2	Construction cost Contingency	20% surplus on construction works estimate	$	201,600.00	Yes	$	20,160.00
3.3	Electrical Services	Refer to: 06010.09 - 3E24003-R-01 Servicing Report (Rev A)	$	365,000.00	Yes	$	36,500.00
3.4	Communications Services	Refer to: 06010.09 - 3E24003-R-01 Servicing Report (Rev A)	$	55,000.00	Yes	$	5,500.00
4.0	**Professional Services Fees**						
4.1	Town Planning	WAPC/Council application - estimate	$	5,000.00	Yes	$	500.00
4.2	Surveyor	Subdivison fees including peg & repeg - estimate	$	25,000.00	Yes	$	2,500.00
4.3		Feature Survey	$	10,000.00	Yes	$	1,000.00
4.4	Acoustic Engineer	Not included	$	-	Yes	$	-
4.5	Traffic Engineer	Not included	$	-	Yes	$	-
4.6	Flora & Fauna	Not included	$	-	Yes	$	-
4.7	Arborist	Not included	$	-	Yes	$	-
4.8	Archaelogical & Heritage	Not included	$	-	Yes	$	-
4.9	Landscape Architecture	Not included	$	-	Yes	$	-
4.10	Geotechnical Engineer	Inspection, testing and reporting	$	6,000.00	Yes	$	600.00
4.11	Civil Engineer	Design, Tender and Contract Administration	$	70,000.00	Yes	$	7,000.00
4.12	Electrical Engineer	estimate	$	15,000.00	Yes	$	1,500.00
4.13	Structural Engineer	Not included	$	-	Yes	$	-
4.14	Project Manager	Not included	$	-	Yes	$	-
5.0	**Reimbursements**						
5.1	Council roadworks maintenance bonds		$	-	No	$	-
6.0	**Total**						
	Subtotal		**$**	**1,892,960.00**			
	GST		$	176,080.00			
	Total		**$**	**2,069,040.00**			

Assumptions, Exclusions and Clarifications

1. An "engineering order of cost" is an opinion only. No liability is accepted by DWA for any variance in actual costs. If a more accurate cost estimate is required, a qualified Quantity Surveyor should be commissioned.
2. The costing is based on the proposed subdivision of Lot 309 Burrowes St West, Darkan, to be subdivided into 22 lots. Refer to attached plan showing outline of proposed lots.
3. This construction costing is a preliminary estimate only, based on rates extracted from Rawlinsons Australian Construction Handbook 2023 and is only within an accuracy of plus or minus 20%, and therefore a 20% contingency is allowed.
4. The costing is based on the entire project undertaken as a single contract.
5. A 6m wide road has been assumed for the subdivision with a 15m wide road reserve
6. The following items are excluded:
   a) Gravity sewer reticulation
   b) Any earthworks other than within the road reserve
   c) Fencing, landscaping, site re-vegetation
   d) Excavation in rock
   e) Construction of retaining walls
   f) Upgrade of Burrowes St and Johnston Dr

Project #: 06041.09

David Wills and Associates
Consulting Engineers

Engineering Order of Costs
Lot 309 Burrowes St West, Darkan - Subdivision

Item	Description	Unit	Qty	Rate	Price
1.0	**General**				
1.1	Comply with Conditions of Contract	Item	1	$5,000.00	$5,000.00
1.2	Insurances and CTF Levy	Item	1	$10,000.00	$10,000.00
1.3	Site establishment, site stabilisation, dust control - mobilisation, fortnightly site meetings and de-mobilisation of equipment, project management	Item	1	$35,000.00	$35,000.00
1.4	Location and protection of all existing services within & adjacent to the site	Item	1	$5,000.00	$5,000.00
1.5	Survey control and setout	Item	1	$15,000.00	$15,000.00
1.6	Submit Traffic Management to Local Authority	Item	1	$5,000.00	$5,000.00
1.7	Traffic Management for the duration of the works.	Item	1	$10,000.00	$10,000.00
				Subtotal General:	**$85,000.00**

Construction		Unit	Qty	Rate	Price
2.0	**Siteworks and Earthworks**				
2.1	Remove and dispose of existing vegetation within road reserve	Item	1	$10,000.00	$10,000.00
2.2	Remove topsoil and stockpile 4265m² x 150mm average thickness (Road Reserve only)	m³	1422	$18.50	$26,307.00
2.3	Cut to subgrade for road pavement and verges	m^3	1762.2	$29.30	$51,693.00
				Subtotal Siteworks and Earthworks	**$88,000.00**
3.0	**Roadworks**				
3.1	Sub-grade preparation for roadworks., compact to 92% MMDD	m^2	4895	$6.93	$33,924.40
3.2	Insitu density testing of subgrade by registered NATA testing organisation	Item	1	$3,500.00	$3,500.00
3.3	Supply materials, place and compact road base course 250 thick, trim to line and level	m^2	4895	$22.62	$110,724.90
3.4	Insitu density testing of base course by registered NATA testing organisation	Item	1	$3,500.00	$3,500.00
3.5	Supply and install primer seal to full width of road formation.	m^2	4265	$12.83	$54,719.95
3.5	Supply, lay and compact 30mm Thick Black Asphalt, SMA 7, M.B.50. Tie into existing	m^2	4265	$35.05	$149,488.25
3.7	Install kerbing, tie into existing kerb	m	1260	$45.00	$56,700.00
3.8	Backfill kerb and grade verges	m^2	4585	$10.50	$48,142.50
				Subtotal Roadworks:	**$460,700.00**

4.0	Stormwater Drainage				
4.1	Supply, excavate, install and backfill manholes	Item	2	$4,550.00	$9,100.00
4.2	Supply, excavate, install and backfill Side Entry Pits	No.	5	$4,650.00	$23,250.00
4.3	Supply, excavate, lay and backfill with sand 300mm dia. RC stormwater drainage pipe	m	375	$200.00	$75,000.00
4.4	Supply and install drainage headwall	No.	1	$10,000.00	$10,000.00
4.5	Supply and install swale Drain inc stone pitching	No.	1	$25,000.00	$25,000.00
4.6	Supply and Install timber bollards along reserve boundary	m	384	$105.00	$40,350.00
4.7	Provide "As-Constructed" information of completed stormwater drainage	Item	1	$3,500.00	$3,500.00
4.8	Provide compaction test results	Item	1	$3,400.00	$3,400.00
				Subtotal Drainage:	**$189,600.00**

5.0	Water Reticulation				
5.1	Excavate, supply, install and backfill with sand DN100 PVC water main	m	584	$110.00	$64,240.00
5.2	Excavate, supply, install and backfill with sand DN150 PVC water main	m	245	$185.00	$45,360.00
5.3	Supply and install fittings to Water Corporation requirements, including hydrants, valves, bends, reducers and tees as shown on drawings.	No.	1	$40,000.00	$40,000.00
5.4	Install long dual service connections and connect with the new main.	No.	2	$2,000.00	$4,000.00
5.5	Install short single and dual service connections and connect with the new mains.	No.	18	$1,000.00	$18,000.00
5.6	Connect to existing water main	Item	1	$4,000.00	$4,000.00
5.7	Pressure testing	Item	1	$1,500.00	$1,500.00
5.8	Water disinfectant	Item	1	$1,800.00	$1,800.00
5.9	Provide compaction test results	Item	1	$3,500.00	$3,500.00
6	Provide "As-Constructed" information of completed water reticulation	Item	1	$2,500.00	$2,500.00
				Subtotal Water Reticulation:	**$184,900.00**

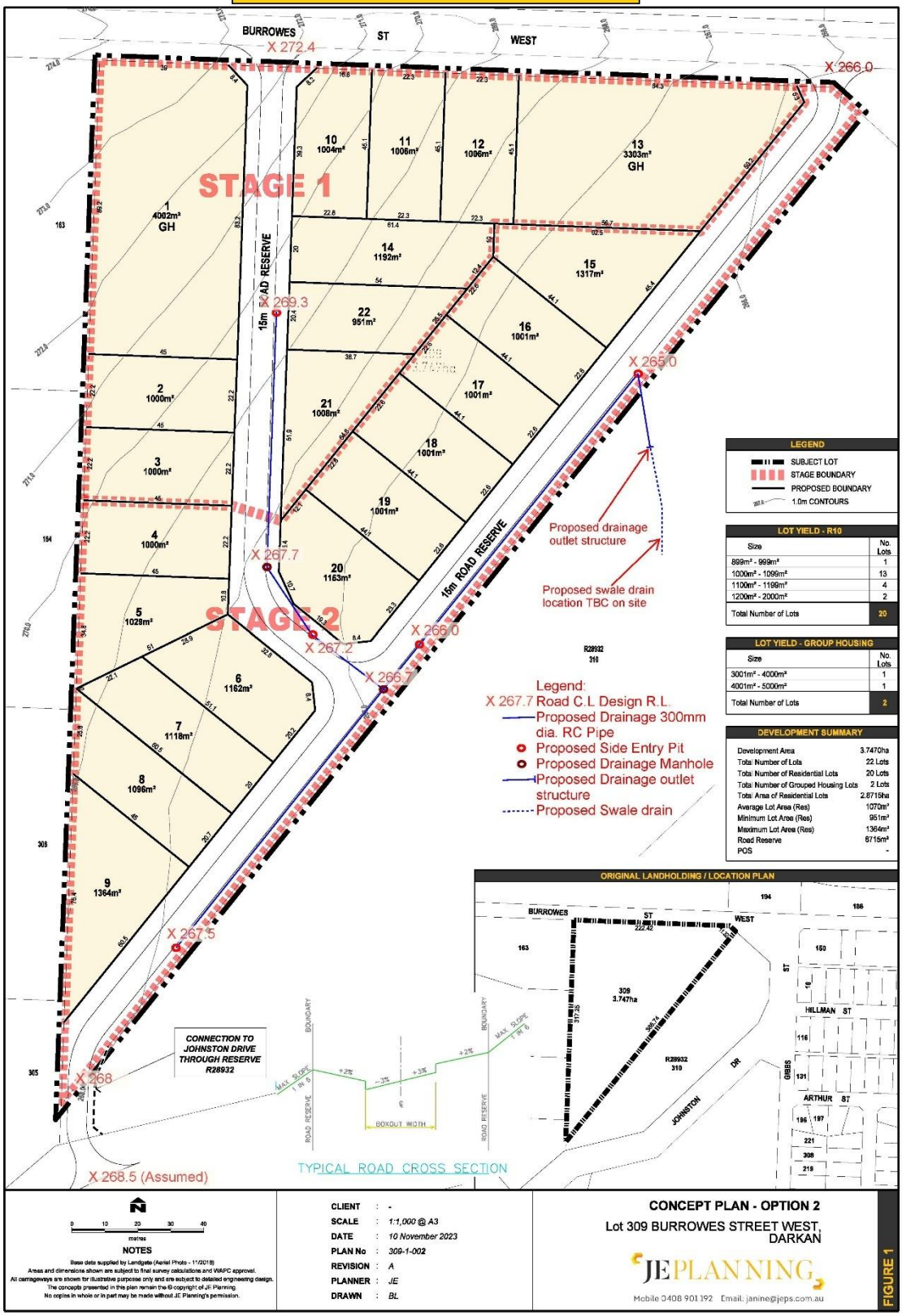
TOTAL excluding GST	$1,008,200.00
Contingency 20%	$201,600.00
GST	$120,980.00
TOTAL	**$1,330,780.00**

Assumptions, Exclusions and Clarifications

1. An "engineering order of cost" is an opinion only. No liability is accepted by DWA for any variance in actual costs. If a more accurate cost estimate is required, a qualified Quantity Surveyor should be commissioned.
2. The costing is based on the proposed subdivision of Lot 309 Burrowes St West, Darkan, to be subdivided into 22 lots. Refer to attached plan showing outline of proposed lots.
3. This construction costing is a preliminary estimate only, based on rates extracted from Rawlinsons Australian Construction Handbook 2023 and is only within an accuracy of plus or minus 20%, and therefore a 20% contingency is allowed.
4. The costing is based on the entire project undertaken as a single contract.
5. A 6m wide road has been assumed for the subdivision with a 15m wide road reserve
6. The following items are excluded:

a) Gravity sewer reticulation
b) Power costs
c) Any earthworks other than within the road reserve
c) Fencing, landscaping, site re-vegetation
d) Excavation in rock
e) Construction of retaining walls
f) Upgrade of Burrowes Street and Johnston Drive.

CONCEPT STORMWATER DRAINAGE PLAN



LEGEND
SUBJECT LOT
STAGE BOUNDARY
PROPOSED BOUNDARY
1.0m CONTOURS

LOT YIELD - R10

Size	No. Lots
899m² - 999m²	1
1000m² - 1099m²	13
1100m² - 1199m²	4
1200m² - 2000m²	2
Total Number of Lots	20

LOT YIELD - GROUP HOUSING

Size	No. Lots
3001m² - 4000m²	1
4001m² - 5000m²	1
Total Number of Lots	2

DEVELOPMENT SUMMARY

Development Area	3.7470ha
Total Number of Lots	22 Lots
Total Number of Residential Lots	20 Lots
Total Number of Grouped Housing Lots	2 Lots
Total Area of Residential Lots	2.8715ha
Average Lot Area (Res)	1070m²
Minimum Lot Area (Res)	951m²
Maximum Lot Area (Res)	1364m²
Road Reserve	8715m²
POS	-

0 10 20 30 40 metres

NOTES

Base data supplied by Landgate (Aerial Photo - 11/2018)
Areas and dimensions shown are subject to final survey calculations and WAPC approval.
All carriageways are shown for illustrative purposes only and are subject to detailed engineering design.
The concepts presented in this plan remain the © copyright of JE Planning.
No copies in whole or in part may be made without JE Planning's permission.

CLIENT	:	-
SCALE	:	1:1,000 @ A3
DATE	:	10 November 2023
PLAN No	:	309-1-002
REVISION	:	A
PLANNER	:	JE
DRAWN	:	BL

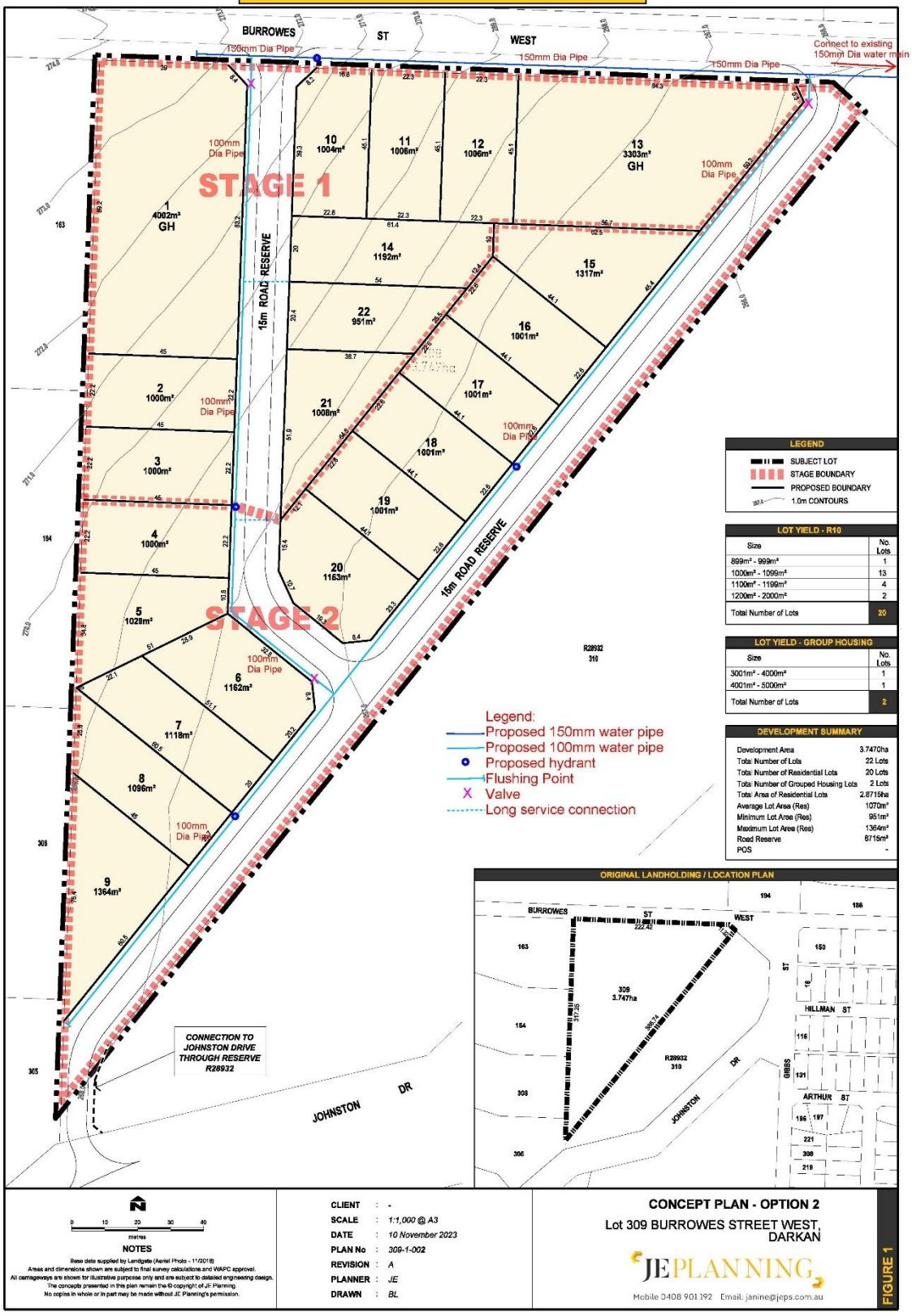
CONCEPT PLAN - OPTION 2

Lot 309 BURROWES STREET WEST, DARKAN

JE PLANNING
Mobile 0408 901 192 Email. janine@jeps.com.au

FIGURE 1

CONCEPT WATER RETICULATION PLAN



LEGEND	
SUBJECT LOT	
STAGE BOUNDARY	
PROPOSED BOUNDARY	
1.0m CONTOURS	

LOT YIELD - R10	
Size	No. Lots
899m² - 999m²	1
1000m² - 1099m²	13
1100m² - 1199m²	4
1200m² - 2000m²	2
Total Number of Lots	20

LOT YIELD - GROUP HOUSING	
Size	No. Lots
3001m² - 4000m²	1
4001m² - 5000m²	1
Total Number of Lots	2

DEVELOPMENT SUMMARY	
Development Area	3.7470ha
Total Number of Lots	22 Lots
Total Number of Residential Lots	20 Lots
Total Number of Grouped Housing Lots	2 Lots
Total Area of Residential Lots	2.8715ha
Average Lot Area (Res)	1070m²
Minimum Lot Area (Res)	951m²
Maximum Lot Area (Res)	1364m²
Road Reserve	8715m²
POS	-

ORIGINAL LANDHOLDING / LOCATION PLAN

0 10 20 30 40 metres

NOTES

Base data supplied by Landgate (Aerial Photo - 11/2018)
Areas and dimensions shown are subject to final survey calculations and WAPC approval.
All carriageways are shown for illustrative purposes only and are subject to detailed engineering design.
The concepts presented in this plan remain the © copyright of JE Planning.
No copies in whole or in part may be made without JE Planning's permission.

CLIENT	:	-
SCALE	:	1:1,000 @ A3
DATE	:	10 November 2023
PLAN No	:	309-1-002
REVISION	:	A
PLANNER	:	JE
DRAWN	:	BL

CONCEPT PLAN - OPTION 2

Lot 309 BURROWES STREET WEST, DARKAN

JE PLANNING
Mobile 0408 901 192 Email. janine@jeps.com.au

FIGURE 1

Appendix 3 Subdivision Concept Design