

# CITY OF ARMADALE

## AGENDA

**OF TECHNICAL SERVICES COMMITTEE TO BE HELD IN THE COMMITTEE ROOM, ADMINISTRATION CENTRE, 7 ORCHARD AVENUE, ARMADALE ON MONDAY, 4 DECEMBER 2023 AT 7:00 PM.**

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*A meal will be served at 6:15 p.m.*

### **PRESENT:**

### **APOLOGIES**

Cr R Butterfield (Leave of Absence)

Cr S Peter (Leave of Absence):

### **OBSERVERS:**

### **IN ATTENDANCE:**

### **PUBLIC:**

*“For details of Councillor Membership on this Committee, please refer to the City’s website  
– [www.armadale.wa.gov.au/your\\_council/councillors](http://www.armadale.wa.gov.au/your_council/councillors).”*

## **DISCLAIMER**

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The Disclaimer for protecting Councillors and staff from liability of information and advice given at Committee meetings to be read.

## **DECLARATION OF MEMBERS' INTERESTS**

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## **QUESTION TIME**

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*Public Question Time is allocated for the asking of and responding to questions raised by members of the public.*

*Minimum time to be provided – 15 minutes (unless not required)*

*Policy and Management Practice EM 6 – Public Question Time has been adopted by Council to ensure the orderly conduct of Public Question time and a copy of this procedure can be found at <http://www.armadale.wa.gov.au/PolicyManual>*

*It is also available in the public gallery.*

*The public's cooperation in this regard will be appreciated.*

## **DEPUTATION**

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## **CONFIRMATION OF MINUTES**

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## **RECOMMEND**

**Minutes of the Technical Services Committee Meeting held on 6 November 2023 be confirmed.**

**Minutes of the Special Technical Services Committee Meeting held on 26 October 2023 be confirmed.**

## **ITEMS REFERRED FROM INFORMATION BULLETIN**

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### **Outstanding Matters and Information Items**

Various Items

### **Monthly Departmental Reports**

Technical Services Works Programme

*If any of the items listed above require clarification or a report for a decision of Council, this item to be raised for discussion at this juncture.*



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## TECHNICAL SERVICES COMMITTEE

4 DECEMBER 2023

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### **1.1 - INTEGRATED TRANSPORT STRATEGY**

WARD : ALL

FILE No. : M/568/23

DATE : 6 October 2023

REF : EC/SA

RESPONSIBLE : Executive Director  
MANAGER : Technical Services

#### **In Brief:**

- The Integrated Transport Strategy (ITS) has been developed as a key strategic document for the City and sets out the City's transport vision: a safe and inclusive integrated transport network that efficiently connects people to places, encourages sustainable travel, supports growth and vitality of Armadale's economy.
- Extensive stakeholder consultation has been undertaken throughout development of the ITS including two workshops with Councillors during the development of the ITS and a final workshop on the draft ITS.
- An Action Plan is included in the ITS with a series of interventions and initiatives, to demonstrate how the City is proposing to resolve the challenges and realise the opportunities, to ultimately achieve the City's transport vision.
- Recommend that Council endorse the City of Armadale Integrated Transport Strategy and note the Action Plan including the resources and future investment required to implement the actions.

#### **Tabled Items**

Nil

#### **Decision Type**

- ☐ **Legislative** The decision relates to general local government legislative functions such as adopting/changing local laws, town planning schemes, rates exemptions, City policies and delegations etc.
- ☒ **Executive** The decision relates to the direction setting and oversight role of Council.
- ☐ **Quasi-judicial** The decision directly affects a person's rights or interests and requires Councillors at the time of making the decision to adhere to the principles of natural justice.

#### **Officer Interest Declaration**

Nil

### **Strategic Implications**

2.5 Quality development that enhances the amenity and liveability of the City of Armadale

2.5.3 Protect the amenity of infill areas and the City Centre by strengthening the planning frameworks for middle density development and addressing catchment management as well as transport and traffic planning.

### **Legal Implications**

General assessment of relevant legislation (e.g. *Local Government Act 1995*) has not revealed any restrictions).

### **Council Policy/Local Law Implications**

General assessment has not revealed any applicable Policies/Local Laws.

### **Budget/Financial Implications**

Implementing some of the actions from the Action Plan will require the allocation of additional funds in future years' budgets, which are discussed in this report.

### **Consultation**

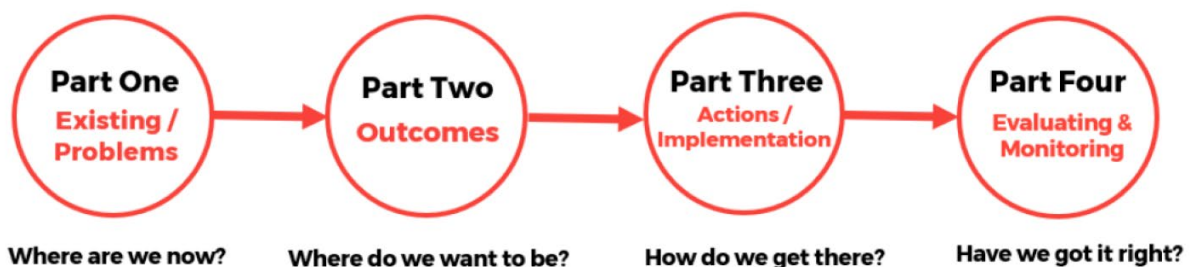
Extensive stakeholder consultation has been undertaken throughout development of this strategy. Refer to Stakeholder Consultation section for more details.

## **BACKGROUND**

The Integrated Transport Strategy (ITS) has been developed as a key strategic document to guide the City's decision making as well as transport planning, delivery and advocacy pursuits, so that the City's transport network seeks to meet the needs of the community now and into the future through to the year 2050.

## **DETAILS OF PROPOSAL**

Development of this ITS has been structured around four key parts:



**Part One** was focused on reviewing existing background information and available data to understand the transport-related challenges and opportunities associated with the City. A SWOT (Strength, Weakness, Opportunities & Threats) Analysis report was developed for this exercise.

**Part Two** involved seeking thoughts and ideas from the community. The outcomes from consultation were essential in developing the vision and identifying strategic focus areas to clearly set out what the ITS is seeking to achieve. The consultation process and outcomes are summarised in a Community Consultation Outcomes report – the output of Part 2 and the key input into Part 3.

**Part Three** involved identifying potential solutions based on a detailed understanding of the key transport challenges and opportunities faced by the City over the next 30 years. A draft ITS was developed at the completion of Part 3.

**Part Four** included consultation on the draft ITS, to understand if the solutions proposed in this strategy meet the needs of Armadale's existing and growing community. All comments received have been reviewed and reflected in the strategy if deemed beneficial. The ITS was finalised as the output of Part 4.

The ITS sets out the City's transport vision and six strategic focus areas as articulated in the City's Strategic Community Plan and through community consultation.



For each strategic focus area, the following has been identified:

- The Challenge, which articulates some key challenges and issues relating to transport.
- The Opportunity, which articulates some key strengths and opportunities relating to transport.
- Desired Outcomes/Benefits, which outlines what the City hope to achieve.
- Strategic Alignment, which outlines key relevant government policies, plans and documents.

An Action Plan has been developed as part of the strategy identifying a series of interventions and initiatives, to demonstrate how the City is proposing to resolve the challenges and realise the opportunities, to ultimately achieve the City's transport vision.

Each action is categorised with the following:

- Alignment with the corresponding focus area(s)
- The City's role – to investigate, plan, deliver, advocate and/or seek grant funding opportunities from sources such as Main Roads Western Australia (MRWA), Department of Transport (DoT) and Public Transport Authority (PTA).
- Key partners/stakeholders
- Timeframe – ongoing, short term (i.e. 5 years) or medium term (i.e. beyond 5 years, less than 10 years)

Cost (to the City) –below \$100k, between \$100k to \$500k or greater than \$500k.

### **Stakeholder Consultation**

Extensive consultation has been undertaken throughout development of the ITS. At the early stage of development, the project team organised various workshops with representatives from internal teams and Councillors.

It was essential for the ITS that direct community consultation was obtained throughout and in closing the ITS process and this was achieved through various media – the City's website and online survey, local newspaper and the use of an interactive mapping tool Social Pinpoint.

Upon the completion of the draft ITS, the project team organised a final additional workshop with Councillors followed by stakeholder consultation including state and local government agencies, local members of parliament, local sporting clubs and associations, local schools, and local business associations.

### **IMPLEMENTATION OF THE ACTION PLAN**

Technical Services – Design Team will manage the Action Plan and liaise with the relevant teams to implement the actions. The actions are summarised in the following pages. A column has also been added to identify the resources required including the responsible team(s) and budget consideration.

A review on the progress of implementing the Action Plan will be undertaken on an annual basis as part of the City's budgeting and investment process.

In order to ensure the ITS keeps pace with the current conditions, the actions will be reviewed and updated at approximately every four years in line with Long Term Financial Planning cycles.

**Focus Area: Inclusive**

*An integrated transport network that is inclusive and facilitates equitable transport choices.*

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)	City's Resources to Implement the Action
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation					
1	Continue to deliver priority actions identified in the City's Skeletal Footpath Network Program, in order to provide a well-connected and high quality pedestrian network. As part of this, review the Skeletal Footpath Network Program criteria to align with the ITS focus areas.	✓	✓	✓				Plan, Deliver and Seek Grant Funding Opportunities	Community, DoT	Ongoing	Between \$100k to 500k	<p><u>Responsible Team(s):</u> Technical Services - Design, Service Delivery</p> <p><u>Budget:</u> Within current budget. Future year's budget will be reviewed and updated accordingly against priorities as determined by Council.</p> <p><u>Grant funding opportunities:</u> DoT's WA Bicycle Network (WABN) Grants Program.</p>
2	Continue to deliver priority actions identified in the City's Access and Inclusion Plan.	✓	✓	✓				Plan and Deliver and Seek Grant Funding Opportunities	MRWA, Access and Inclusion Committee	Ongoing	Between \$100k to 500k	<p><u>Responsible Team(s):</u> All Staff.</p> <p><u>Budget:</u> Within current budget. Future year's budget will be reviewed and updated accordingly as determined by Council.</p> <p><u>Grant funding opportunities:</u> City of Armadale's Community Grant Funding.</p>
3	Continue to deliver priority actions identified in the City's Bus Shelter Program.	✓	✓	✓				Plan, Deliver and Seek Grant Funding Opportunities	PTA	Ongoing	Between \$100k to 500k	<p><u>Responsible Teams(s):</u> Technical Services - Design, Asset Lifecycle, Service Delivery</p> <p><u>Budget:</u> Within current budget. Future year's budget will be reviewed and updated accordingly as determined by Council.</p> <p><u>Grant funding opportunities:</u> PTA's Bus Shelter Subsidy Program</p>
4	Continue to advocate for bus stops upgrades under the PTA's Disability Discrimination Act (DDA) Compliant Bus Stop Program.	✓	✓	✓				Advocate and Seek Grant Funding Opportunities	PTA	Ongoing	Below \$100k	<p><u>Responsible Team(s):</u> Technical Services - Design</p> <p><u>Budget:</u> Officer's prioritised time.</p> <p><u>Grant funding opportunities:</u> PTA's DDA Compliant Bus Stop Program</p>

5	Undertake an audit of existing transport facilities, including requirements for DDA compliant parking, and accessible taxi / on-demand transport pick-up and drop-off locations, to improve levels of accessibility and safety where required. Additionally, ensure signage is in place to enable parking enforcement where applicable.  As part of this, identify gaps to ensure DDA compliant facilities are provided in the City in locations where there is a need, including new developments and redevelopments. Facilities must be well-located to meet user requirements and easily identifiable / visible (e.g. signage).	✓	✓	✓				Investigate	DoT, Access and Inclusion Committee	Short term	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Design, Service Delivery (lead)  <u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed to undertake the audit.
6	Continue to actively monitor the use of existing DDA designated parking bays and apply enforcements for non-compliant use.	✓	✓					Deliver	N/A	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Community Services - Ranger and Emergency Services  <u>Budget:</u> Officer's prioritised time.
7	Continue to promote sustainable transport options, including walking, riding and public transport, through the City's existing communication platforms and community events.  For example this could include continuing to: - Integrate key ITS outcomes into the City's Tourism Strategy - Promote Transperth's fare zone cap initiative and Journey Planner app - Provide up to date travel maps and travel information - Provide information on end of trip facilities - Host events such as riding skills and bicycle maintenance workshops - Publish positive news stories to increase the visibility of / normalise the use of sustainable transport modes within the community	✓		✓	✓	✓		Plan and Deliver	PTA, DoT	Ongoing	Below \$100k	<u>Responsible Team(s):</u> CEO Office – Communications and Marketing CEO Office Economic Development Development Services - Health Services  <u>Budget:</u> Officer's prioritised time. Within current budget. Future year's budget will be reviewed and updated accordingly as determined by Council.
8	Plan suitable housing density codes for walkable / rideable catchments around train stations.	✓		✓				Investigate	DPLH	Short term	Below \$100k	<u>Responsible Team(s):</u> Development Services - Planning  <u>Budget:</u> Officer's prioritised time.

**Focus Area: Safe**

*An integrated transport network that is safe.*

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)	City's Resources to Implement the Action
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation					
1	Continue to develop Local Area Traffic Management Plans for areas where excessive speeding and / or hooning is reported to be an issue. Prioritise the new local road network surrounding the rail level crossing removal, to investigate the influence on vehicle speeds.	✓	✓	✓				Plan and Seek Grant Funding Opportunities	MRWA, WA Police	Ongoing	Between \$100k to 500k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time.  <u>Grant funding opportunities:</u> MRWA's Low Cost Urban Road Safety Program
2	Continue to investigate the installation of local area traffic management measures and devices in areas where excessive speeding and / or hooning is reported to be an issue.  For example in Roleystone, Seville Grove, North Armadale, Mt Nasura (as per previously developed Local Area Traffic Management Plans). Examples of measures may include speed cushions, road plateaus, slow points, signage and line marking.	✓	✓	✓				Plan, Deliver and Seek Grant Funding Opportunities	MRWA, WA Police	Ongoing	Greater than \$500k	<u>Responsible Team(s):</u> Technical Services - Design, Service Delivery  <u>Budget:</u> Officer's prioritised time. Within current budget. Future year's budget will be reviewed and updated accordingly as determined by Council.  <u>Grant funding opportunities:</u> MRWA's Low Cost Urban Road Safety Program and Black Spot Program
3	Continue to provide or advocate for safe crossing opportunities for people walking and riding, in alignment with desire lines, across busy streets and roads such as Nicholson Road, Armadale Road, South Western Highway and Albany Highway.	✓	✓	✓				Plan, Deliver / Advocate and Seek Grant Funding Opportunities	MRWA, DoT	Ongoing	Between \$100k to 500k	<u>Responsible Team(s):</u> Technical Services - Design, Service Delivery  <u>Budget:</u> Officer's prioritised time. Within current budget. Future year's budget will be reviewed and updated accordingly as determined by Council.  <u>Grant funding opportunities:</u> MRWA's Black Spot Program



4	Continue to advocate for the application of safer speeds in locations with high pedestrian activity (existing and future), for example in city / town centre environments and around schools, noting that Armadale City Centre has an existing 40 km/h zone that functions well.	✓	✓	✓		✓	✓	Advocate	MRWA	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time.
5	Continue to work with WA Police to target excessive speeding and hooning in hotspot locations, including through town centres.		✓	✓			✓	Advocate	WA Police	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time.
6	Advocate for the provision of additional fixed speed cameras in the City, working with WA Police to identify suitable locations.		✓	✓				Advocate	WA Police	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time.
7	Review and plan street lighting upgrades in accordance with the City's street lighting audit, including plans to install smart lighting technology.	✓	✓	✓	✓		✓	Plan and Deliver	Western Power	Medium term	Greater than \$500k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time. Within current budget. Future year's budget will be reviewed and updated accordingly as determined by Council.
8	Continue to implement the City's Local Planning Policy PLN 3.14 – Designing out Crime as part of development, investigating the application CPTED principles in suitable locations.	✓	✓	✓			✓	Plan and Deliver	N/A	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Development Services - Planning  <u>Budget:</u> Officer's prioritised time.

9	Continue to monitor locations and seek funding through MRWA's Black Spot program.		✓			✓	✓	Advocate and Seek Grant Funding Opportunities	MRWA	Short term	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time.  <u>Grant funding opportunities:</u> MRWA's Black Spot Program
10	Continue to work with MRWA to address safety issues at key intersections and roads. Planned interventions and measures proposed must adequately address the issue and deliver improved road safety outcomes for all modes.  For example, this may include assessing the suitability of dual lane roundabouts for all modes and advocating for alternative treatments like traffic signals where applicable.		✓					Advocate and Seek Grant Funding Opportunities	MRWA	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time.  <u>Grant funding opportunities:</u> MRWA's Black Spot Program
11	Ensure that the riding network can safely accommodate eRideable users through the delivery of a high quality, well-connected riding network.	✓	✓	✓				Plan, Deliver and Seek Grant Funding Opportunities	DoT	Short to Medium term	Between \$100k to 500k	<u>Responsible Team(s):</u> Technical Services - Design, Service Delivery  <u>Budget:</u> Officer's prioritised time. Within current budget. Future year's budget will be reviewed and updated accordingly as determined by Council.  <u>Grant funding opportunities:</u> DoT's WABN Grants Program

**Focus Area: Community**

*An integrated transport network that empowers the community to choose sustainable modes of transport.*

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)	City's Resources to Implement the Action
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation					
1	Undertake a walking study around schools to identify the issues unique to each location, recommend solutions to improve safety and increase the number of students walking / riding to school.	✓	✓	✓				Investigate and Seek Grant Funding Opportunities	Schools, DoE, MRWA, DoT	Short term	Below \$100k	<p><u>Responsible Team(s):</u> Technical Services – Design</p> <p><u>Budget:</u> Future year's budget will be reviewed and updated accordingly as determined by Council.</p> <p><u>Grant funding opportunities:</u> MRWA's Black Spot Program, DoT's WABN Grants Program and Connecting Schools Grants Program</p>
2	Update the City's Local Bicycle Network Plan to align with the current network context, including the Long-term Cycle Network.	✓	✓	✓				Investigate and Seek Grant Funding Opportunities	DoT, PTA, MRWA, METRONET	Short term	Below \$100k	<p><u>Responsible Team(s):</u> Technical Services - Design</p> <p><u>Budget:</u> Officer's time. Within current budget.</p> <p><u>Grant funding opportunities:</u> DoT's WABN Grants Program</p>
3	Support the provision of ancillary infrastructure for active transport (e.g. end of trip facilities, bicycle repair stations etc.)	✓	✓	✓			✓	Advocate / Plan and Deliver	DoT, METRONET, Private developers	Short term	Between \$100k to 500k	<p><u>Responsible Team(s):</u> Development Services - Planning Technical Services - Design</p> <p><u>Budget:</u> Officer's prioritised time.</p>

4	<p>Continue to work with the PTA, and METRONET where applicable, to review the existing and future public transport network servicing the City, and advocate for improved public transport services where required.</p> <p>As part of this, ensure good bus service connectivity is provided as part of the Thornlie-Cockburn Link rail line, targeting the suburbs of Piara Waters, Harrisdale and Forrestdale within the City.</p> <p>As well as advocate for the development of a mid-tier public transit system servicing the City and connecting to key destinations.</p>	✓		✓		✓	✓	Advocate	PTA, METRONET	Ongoing	Below \$100k	<p><u>Responsible Team(s):</u> Development Services - Planning Technical Services - Design</p> <p><u>Budget:</u> Officer's prioritised time.</p>
5	<p>Implement the recommendations in the PTA's Station Access Strategies to provide high quality connections between people's homes and the relevant train stations.</p>	✓	✓	✓	✓			Plan, Deliver and Seek Grant Funding Opportunities	PTA, DoT	Ongoing	Greater than \$500k	<p><u>Responsible Team(s):</u> Technical Services - Design, Service Delivery</p> <p><u>Budget:</u> Officer's prioritised time. Within current budget. Future year's budget will be reviewed and updated accordingly as determined by Council.</p> <p><u>Grant funding opportunities:</u> DoT's WABN Grants Program, PTA's Bus Stop Accessibility Works Program</p>
6	<p>Continue to support and encourage community based behaviour change programs for (e.g. 'Your Move – schools, community and workplace program' run by the DoT).</p>	✓		✓				Advocate and Seek Grant Funding Opportunities	DoT, Schools	Ongoing	Below \$100k	<p><u>Responsible Team(s):</u> Development Services - Health Services (lead) CEO Office – Communications and Marketing</p> <p><u>Budget:</u> Officer's prioritised time.</p> <p><u>Grant funding opportunities:</u> DoT's Your Move and Connecting Schools Grants Programs</p>
7	<p>Advocate for the delivery of schools in growth areas to increase walkability to schools and reduce the need for transport to schools by car.</p>			✓				Advocate	DPLH, DoE, Schools	Short term	Below \$100k	<p><u>Responsible Team(s):</u> Development Services - Planning</p> <p><u>Budget:</u> Officer's prioritised time.</p>

8	<p>As part of new community facilities or the redevelopment of existing community facilities (e.g. development of the Armadale Regional Recreation Reserve), support access via all transport modes, prioritising active modes, particularly pedestrian movements.</p> <p>This includes end of trip facilities, such as investigating provision for eRideable devices (e.g. secure storage).</p>	✓		✓				Plan and Deliver	N/A	Medium term	Between \$100k to 500k	<p><u>Responsible Team(s):</u> Community Services - Community Planning, Recreation Services Technical Services – Program Delivery</p> <p><u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.</p>
9	<p>Advocate for continued improvements to existing train stations and rail services along the Armadale Line. This includes support for the suite of initiatives identified in the PTA's Rail Growth Plan, such as the Station Access Improvement Program and Platform and Signalling Upgrade Program.</p>	✓		✓		✓		Advocate	PTA	Ongoing	Below \$100k	<p><u>Responsible Team(s):</u> Technical Services Design Development Services - Planning</p> <p><u>Budget:</u> Officer's prioritised time.</p>

**Focus Area: Environment**

*An integrated transport network that enhances community amenity through designs that are coordinated with Armadale's natural beauty, and highlights the City's diverse landscapes and environment.*

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)	City's Resources to Implement the Action
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation					
1	Continue to identify opportunities for preserving existing trees and vegetation as well as planting new trees and vegetation as part of transport related projects.  As part of this, continue to implement the City's Local Planning Policy PLN 2.4 – Landscape Feature and Tree Preservation which highlights the importance of tree and landscaping feature retention.	✓		✓	✓	✓	✓	Plan and Deliver	MRWA, PTA, METRONET, OMTID	Ongoing	Between \$100k to 500k	<u>Responsible Team(s):</u> Technical Services – Design Technical Services - Environment and Sustainability  <u>Budget:</u> Officer's prioritised time.
2	Continue to implement the City's Local Planning Policy PLN 2.6 – Water Sensitive Design and investigate suitable locations to apply water sensitive urban design principles along transport corridors.				✓			Plan and Deliver	Water Corporation, DEWR	Ongoing	Between \$100k to 500k	<u>Responsible Team(s):</u> Technical Services – Design Technical Services - Environment and Sustainability  <u>Budget:</u> Officer's prioritised time.
3	Develop a Trails Network Plan as endorsed by Council. The plan may include identifying suitable locations for walking, riding and horse riding trails / loops. As part of the plan, identify suitable locations to install lookout points.	✓		✓	✓	✓		Investigate	DBCA	Short term	Below \$100k	<u>Responsible Team(s):</u> CEO Office – Economic Development  <u>Budget:</u> Officer's prioritised time.
4	Prepare a Biodiversity Protection Policy and Procedure to inform avoidance, mitigation and offset of impacts as relates to infrastructure provision.				✓			Plan and Deliver	N/A	Short term	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Environment and Sustainability  <u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.

**Focus Area: Economic Development and Growth**

*An integrated transport network that facilitates growth and provides regional connections to support a strong local economy and reinforce the City's role as a Strategic Metropolitan Centre.*

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)	City's Resources to Implement the Action
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation					
1	Embed sustainable transport infrastructure as part of new development areas and continue to implement the City's Local Planning Policy PLN 2.10 – Environmentally Sustainable Design and PLN 2.4 – Landscape Feature and Tree Preservation.	✓		✓	✓	✓		Plan and Deliver	Private developers	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Development Services - Planning Technical Services - Design  <u>Budget:</u> Officer's prioritised time.
2	Support localised freight movements and deliveries through the provision of fit-for-purpose loading areas in key locations.		✓			✓		Advocate	Private developers, MRWA	Short term	Below \$100k	<u>Responsible Team(s):</u> Development Services - Planning Technical Services - Design  <u>Budget:</u> Officer's prioritised time.
3	Undertake a study to investigate alternative freight and delivery vehicle service provision in the Armadale City Centre, as demand for kerbside space increases.  For example this could include measures to encourage off-peak delivery times, or using more space efficient vehicles, such as eRideables, for the last mile delivery of goods.		✓			✓		Investigate	MRWA, Private developers, DPLH	Medium term	Below \$100k	<u>Responsible Team(s):</u> Economic Development Technical Services – Design (lead)  <u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.
4	Continue to support the development and continuous improvement of high quality activity centres which meet the needs of the community, though existing and proposed activity centre / precinct plans.	✓	✓	✓	✓	✓		Plan and Deliver	METRONET, PTA, MRWA, DPLH, Private developers	Ongoing	Between \$100k to 500k	<u>Responsible Team(s):</u> Development Services - Planning  <u>Budget:</u> Officer's prioritised time.

5	Continue to advocate for the delivery of high quality station precinct and public realm outcomes, delivered as part of METRONET projects. As part of this, ensure that project outcomes are aligned with, and can successfully meet, both the City's and METRONET's strategic planning objectives.	✓	✓	✓	✓	✓	✓	Advocate	METRONET, MRWA, PTA	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Community Services - Community Planning Development Services - Planning Technical Services - Design  <u>Budget:</u> Officer's prioritised time.
6	Advocate for improved weekend and night-time bus services to support an evening economy, as the City's land uses develop to support activation of the Armadale City Centre.	✓	✓	✓		✓		Advocate	PTA	Medium term	Below \$100k	<u>Responsible Team(s):</u> Economic Development Technical Services - Design  <u>Budget:</u> Officer's prioritised time.
7	Continue to support the committed and funded Tonkin Highway Extension project, in support of improved connectivity for freight / heavy vehicles.		✓			✓		Advocate	MRWA	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time.
8	Continue to advocate for the development of strategic east-west routes to support the movement of freight along routes that can move goods efficiently and safely, for all road users.  This includes working with key partners to understand potential impacts for the City resulting from the Westport project, which identifies Anketell-Thomas Road as the strategic freight corridor. Further, work with key partners to identify the role of Rowley Road as a key strategic east-west link.  Additionally, advocate for the planning and implementation of a freight bypass route connecting Albany Highway, South Western Highway and Brookton Highway, to reduce freight movements through the Armadale urban areas.	✓	✓	✓		✓		Advocate	MRWA, Westport	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Economic Development Development Services - Planning Technical Services - Design  <u>Budget:</u> Officer's prioritised time.



9	Continue to monitor road conditions along major road corridors under consideration in the MRWA Future State Administered Roads Project – Metropolitan, and advocate for upgrade and classification assessment as required. Roads that are currently under consideration include Ranford Road, Nicholson Road, Warton Road and Rowley Road.	✓			✓			Advocate	MRWA	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time.
10	In recognising the importance of regional transport connectivity for the City, continue to collaborate with surrounding neighbouring Councils to improve and enhance transport, including road safety, efficiency planning and issues relating to boundary roads.	✓	✓	✓		✓		Plan, Deliver / Advocate and Seek Grant Funding Opportunities	Neighbouring Local Government Authorities, MRWA, DoT	Ongoing	Below \$100k to greater than \$500k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.  <u>Grant funding opportunities:</u> MRWA's Black Spot Program, MRRG Road Improvement Grant Program, DoT's WABN Grants Program

**Focus Area: Leadership and Innovation**

*An integrated transport network that is future ready, demonstrating leadership and our commitment to improving the way people move to, from and within the City.*

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)	City's Resources to Implement the Action
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation					
1	<p>Trial the application of the Healthy Streets Approach to a project to identify, deliver and measure the impacts of interventions to create inclusive, healthy environments, including:</p> <p>1.) Using the Qualitative Street Assessment to set out the scope of the project.</p> <p>2.) Applying the Design Check tool at each stage of a planned project to quantify how street design improves the 10 Healthy Street Indicators.</p> <p>3.) Using the Healthy Streets Survey to elicit stakeholder views on the project street before and after implementation.</p> <p>4.) Using Healthy Streets framing in public facing communications.</p> <p>The trial will be assessed to determine success and next steps for embedding the approach into Council activities and operations.</p> <p>As part of this, upskill key decision makers, including Elected Members and senior members of staff, on delivering the Healthy Streets Approach as part of their roles / undertaking training to become qualified Healthy Streets practitioners.</p>	✓	✓	✓	✓		✓	Plan and Deliver	N/A	Short term	Below \$100k	<p><u>Responsible Team(s):</u> Development Services - Health Services Technical Services – Design (lead)</p> <p><u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.</p>
2	Continue to electrify of the City's operational vehicle fleet as per the City's Corporate Greenhouse Action Plan.			✓	✓	✓	✓	Plan and Deliver	N/A	Ongoing	Greater than \$500k	<p><u>Responsible Team(s):</u> Technical Services - Asset Lifecycle Technical Services - Environment and Sustainability</p> <p><u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.</p>
3	Partner with key stakeholder / explore different partnership agreements to investigate the feasibility of, including suitable locations, to provide electric vehicle charging infrastructure.	✓			✓		✓	Advocate	DoT, RAC, WALGA, Private developers	Medium term	Below \$100k	<p><u>Responsible Team(s):</u> Economic Development Technical Services – Asset Lifecycle</p> <p><u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.</p>

4	Investigate the feasibility of supporting a privately operated car share scheme, to support the reduced need for private vehicle ownership.	✓		✓	✓	✓	✓	Investigate	DoT, Private companies	Medium term	Below \$100k	<u>Responsible Team(s):</u> Economic Development  <u>Budget:</u> Officer's prioritised time.
5	Investigate on-demand transport options to supplement gaps in existing public transport service provision.  For example this may include for the suburbs of Roleystone and Mt Nasura, which are challenging areas to service effectively via buses.	✓	✓	✓			✓	Investigate	DoT, PTA	Short term	Below \$100k	<u>Responsible Team(s):</u> Economic Development  <u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.
6	Undertake a study to explore the potential application of Intelligent Transport Systems within the City.  For example, this may include: · Modal priority at traffic signals · Dynamic speed signs and variable messaging (e.g. displaying live vehicle speeds, smiley / sad face icons) · School speed limit signs · Real-time information (e.g. live bus tracker information at bus shelters, or Park and Ride availability at train stations) · Freight management systems · Smart lighting technology (in locations additional to those already identified as part of the City's street lighting audit)	✓	✓			✓	✓	Investigate	MRWA, PTA, DoT, Disability Sector	Medium term	Between \$100k to 500k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.
7	Continue to advocate with METRONET, PTA and MRWA to ensure the train line closures (for METRONET projects) have minimal impact on people who use public transport.	✓	✓				✓	Advocate	METRONET, PTA, MRWA	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Community Services - Community Planning Development Services - Planning Technical Services - Design  <u>Budget:</u> Officer's prioritised time.

8	Investigate external funding opportunities to support the delivery of this Action Plan. As an example this may include through the Department of Transport's Active Travel Officer Grant category which provides funding to support Local Government Authorities to employ an Active Travel Officer to deliver local active travel initiatives.						✓	Investigate and Seek Grant Funding Opportunities	DoT	Short term	Below \$100k	<u>Responsible Team(s):</u> Technical Services - Design  <u>Budget:</u> Officer's prioritised time. Future year's budget will be reviewed and updated accordingly as determined by Council.  <u>Grant funding opportunities:</u> DoT's Active Travel Officer Grant Program
9	Continue to review staff travel behaviour, including: · travel during work hours – optimisation of travel time through OneCouncil Work Management module · travel staff commuting patterns including implementing the recommendations as per the City's Corporate Greenhouse Action Plan e.g. encourage staff travel via sustainable modes of transport.				✓		✓	Plan and Deliver	N/A	Ongoing	Below \$100k	<u>Responsible Team(s):</u> Development Services - Health Services Corporate Services - Business Improvement Technical Services - Service Delivery Technical Services - Environment and Sustainability  <u>Budget:</u> Officer's prioritised time.

## **CONCLUSION**

The Integrated Transport Strategy has been developed as a key strategic document for the City and includes an Action Plan with a series of interventions and initiatives, to demonstrate how the City is proposing to resolve the challenges and realise the opportunities, to ultimately achieve the City's transport vision.

## **RECOMMEND**

### **That Council:**

- 1. Endorse the City of Armadale Integrated Transport Strategy as a strategic guide to future transport investment by the City.**
- 2. Note the Action Plan on the understanding that the resources and future investment required to implement the actions will be subject to the future consideration by Council during the annual budget and long-term financial planning processes.**

## **ATTACHMENTS**

- 1. Integrated Transport Strategy 2023-2050**

***1.2 - PARKING RESTRICTIONS - HASLEMERE DRIVE, MOUNT NASURA***

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WARD : RIVER  
FILE No. : M/657/23  
DATE : 9 November 2023  
REF : DC/SA  
RESPONSIBLE : Executive Director  
MANAGER : Technical Services

**In Brief:**

- Residents from Haslemere Drive raised concerns due to their view that hospital visitors were using this road as overflow parking when visiting the Armadale Hospital. The residents claimed that the parked visitor vehicles reduced parking opportunities for residents and caused on-street congestion, narrowing the road width around bends and restricting sight lines leading to safety concerns.
- Recommend that Council approve the installation of linear parking control signage and yellow 'No Stopping' line marking as indicated on the attached plans.

**Tabled Items**

Nil

**Decision Type**

- ☐ **Legislative** The decision relates to general local government legislative functions such as adopting/changing local laws, town planning schemes, rates exemptions, City policies and delegations etc.
- ☒ **Executive** The decision relates to the direction setting and oversight role of Council.
- ☐ **Quasi-judicial** The decision directly affects a person's rights or interests and requires Councillors at the time of making the decision to adhere to the principles of natural justice.

**Officer Interest Declaration**

Nil

**Strategic Implications**

**1.2 Improve Community Wellbeing**

- 1.2.1 Advocate for the delivery of services and programs as well as increased resources to contribute to improvements in community safety

### **Legal Implications**

Assessment of legislation indicates that the following are applicable:

*Local Government Act 1995* – Schedule 9.1, Section 3.1  
*Road Traffic Code 2000* – Part 12, Division 2, Section 140 – No Stopping Signs and  
142 – No Stopping on Carriageway with Yellow Edge Line.

### **Council Policy/Local Law Implications**

General assessment of Policy/Local Law indicates that the following is applicable:

- Parking and Parking Facilities Local Law.

### **Budget/Financial Implications**

The costs associated with the installation of the proposed signage and line marking can be accommodated within the 2023/24 – Community Safety Projects Budget.

- One Council Code: CP000602

Available Budget: \$226,632

Estimated costs for line marking: \$10,000

Community Safety funds are allocated to projects throughout the year arising from required actions that fall into this category. The City has existing projects that have not yet been fully investigated, designed or costed.

### **Consultation**

1. Ranger Services
2. Community consultation with residents along Haslemere Drive and Mader Crescent

## **BACKGROUND**

In 2021 the City investigated parking complaints received related to Armadale Hospital overflow parking along Haslemere Drive. The outcome of that investigation was that the rate of adverse parking was low and therefore, no benefit in considering parking restrictions. Resident concerns were again received in August 2023, that Armadale Hospital visitors were frequently using Haslemere Drive as overflow parking when visiting the Armadale Hospital. The main concerns raised were in regard to parked vehicles causing a perceived traffic hazard and road safety issues. In response to residents concerns, further investigations were conducted.

The City's investigation included a public consultation survey and frequent Ranger inspections.

Ranger Services conducted regular patrols at various times between 11 August and 1 September 2023, and found no vehicles to be parked contrary to the City's *Parking and Parking Facilities Local Law*.

Below is a list of the Rangers patrol outcomes over an extended period:

- a) 11/08/23 - 1600hrs No vehicles sighted on the carriageway.
- b) 12/08/23 - 0900hrs No vehicles sighted on the carriageway.
- c) 13/08/23 - 0850hrs No vehicles sighted on the carriageway.
- d) 14/08/23 - 1100hrs 6 vehicles sighted, all legally parked.
- e) 16/08/23 - 1000hrs 1 vehicle sighted, legally parked.
- f) 16/08/23 - 1340hrs No vehicles sighted on the carriageway.
- g) 17/08/23 - 0845hrs 1 vehicle sighted, legally parked.
- h) 28/08/23 - 1245hrs No vehicles sighted on the carriageway.
- i) 29/08/23 - 1215hrs 1 vehicle sighted, legally parked.
- j) 30/08/23 - 0900hrs 1 vehicle sighted, legally parked.
- k) 31/08/23 - 1414hrs No vehicles sighted on the carriageway.
- l) 01/09/23 - 1345hrs 2 vehicles sighted, both legally parked.







### Public Consultation

The City carried out a community consultation survey in the period 11 August 2023 to 28 August 2023. The findings were collated and formed part of the investigation.

The survey highlighted the following main points along Haslemere Drive:

- Overflow parking mostly occurs in the mornings through to midday, with Monday to Wednesday being the most problematic period
- Overflow parking occurs within a 200m distance from Albany Highway
- Overflow parking occurs on both sides of the street often leaving room for only one direction of traffic flow
- Overflow parking is causing road user obstruction to oncoming traffic through the bends along Haslemere Drive and for vehicles entering and exiting Albany Highway off Haslemere Drive

Please note that out of the 45 public consultation surveys sent out, of those returned 88% of respondents supported parking restrictions:

- 15 supported parking restriction
- 2 did not support parking restriction.
- 28 did not respond.

### COMMENT

In view of available information, public consultation survey outcomes and an internal assessment, City Officers recommend the most cost-efficient and effective means to address the safety concerns as a result of the congestion, is to implement parking restrictions.

- Install linear parking control signage along Haslemere Drive for the first 200m from Albany Highway

- Introduce yellow 'No Stopping' line marking be installed at the intersection of Haslemere Drive and Albany Highway to highlight and reinforce that this is a no parking area as per the Road Traffic Code.

These will ensure sight lines are maintained through the bends along Haslemere Drive, and the area is kept free of parking congestion, resulting in maintaining safe two-way traffic movement.

## OPTIONS

### Option 1

Not proceed any further

### Option 2

- Implement linear parking control signage along one side only of Haslemere Drive for the first 200m from Albany Highway.
- Introduce yellow 'No Stopping' line marking be installed at the intersection of Haslemere Drive and Albany Highway to highlight and reinforce that this is a no parking area as per the Road Traffic Code.

### Option 3

- Install linear parking control signage along both sides of Haslemere Drive for the first 200m from Albany Highway. Noting that this restriction could be a disadvantage to residents as well (ie: no parking will be available for lawn mowing contractors/visitors etc to resident homes in the affected area during the posted no parking time frames.)
- Introduce yellow 'No Stopping' line marking be installed at the intersection of Haslemere Drive and Albany Highway to highlight and reinforce that this is a no parking area as per the Road Traffic Code.

## CONCLUSION

Officer's recommendation is to proceed with Option 2.

## RECOMMEND

### That Council:

1. **Option 2 - Approve the installation of linear parking control signage (to restrict parking on the road and verge between 8am and 3pm on weekdays on one side only) and install yellow 'No Stopping' line marking, as identified on drawing number E23-90-02.**

## ATTACHMENTS

1. E23-90-02 - Parking Restriction Map - One Side
2. E23-90-03 - Parking Restriction Map - Two Sides
3. Location Map

***\*\*1.3 - LOCAL ROADS AND COMMUNITY INFRASTRUCTURE INVESTMENT  
PROGRAM - PHASE 4 - PART B - EXTENSION***

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WARD : ALL

FILE No. : M/659/23

DATE : 9 November 2023

REF : SA

RESPONSIBLE : Executive Director  
MANAGER : Technical Services

**In Brief:**

- For the first time, the City is eligible to apply for funding (\$549,970) under Phase 4 Part B of the Federal Government's Local Roads and Community Infrastructure (LRCI) Program, which aims to stimulate the economy by supporting Local Governments to deliver priority Local Road and Community Infrastructure Projects.
- This report recommends that Council prioritise the following projects for LRCI Phase 4 Part B funding and submit the projects to the Federal Government for approval.
- Recommend that Council prioritise and approve the following Local Area Traffic Management (LATM) projects for LRCI Phase 4 Part B funding facilitating the submission of the projects to the Federal Government for approval:
  - Talus Drive and Bedforddale Hill Rise Road
  - Skeet Road.

**Tabled Items**

Nil

**Decision Type**

- ☐ **Legislative** The decision relates to general local government legislative functions such as adopting/changing local laws, town planning schemes, rates exemptions, City policies and delegations etc.
- ☒ **Executive** The decision relates to the direction setting and oversight role of Council.
- ☐ **Quasi-judicial** The decision directly affects a person's rights or interests and requires Councillors at the time of making the decision to adhere to the principles of natural justice.

**Officer Interest Declaration**

Nil

### **Strategic Implications**

- 1.2 Improve Community Wellbeing
  - 1.2.2 Facilitate the alignment of service and program delivery to identify social priorities within the community.
- 2.5 Quality development that enhances the amenity and liveability of the City of Armadale
  - 2.5.3 Protect the amenity of infill areas and the City Centre by strengthening the planning frameworks for middle density development and addressing catchment management as well as transport and traffic planning.

### **Legal Implications**

General assessment has not revealed any restrictions.

The projects will need to be undertaken in compliance with the LRCI Program funding criteria, which includes a condition that all projects must be completed by 30 June 2025.

### **Council Policy/Local Law Implications**

General assessment has not revealed any applicable policies or local laws, however, should Council adopt the recommendation contained within this report, procurement of the relevant goods and services will need to be in accordance with Council Policy *ADM 19 – Procurement of Goods and Services*.

### **Budget/Financial Implications**

The City is eligible to receive \$549,970 under Phase 4 Part B of the LRCI program. The projects proposed to be nominated as detailed in the report recommendation are proposed to be funded from this allocation.

### **Consultation**

- 1. Inter Directorate.

## **BACKGROUND**

The LRCI program aims to help Local Governments deliver local road and community infrastructure projects and create local job opportunities. The Australian Government partners with local, state and territory governments to deliver services and build infrastructure that delivers benefits and supports jobs in local communities.

Every Local Government, in all 150 electorates across Australia, can nominate projects for LRCI Program funding.

The City has previously received funding allocations under Phases 1, 2 & 3 of the LRCI Program, and as part of the Phase 4 Part B Program, the City is now eligible to receive, in addition to Phase 4 *Part A* \$953,448, an allocation to the amount of \$549,970 for roads projects. This funding is available from this financial year.

On the 16 October 2023 Council approved “Local Roads and Community Infrastructure Investment Program - Phase 4 Extension-*Part A*”. The City is now seeking to obtain Part B funding for LATM (Local Area Traffic Management) for Talus Drive, Bedforddale Hill Rise Road and Skeet Road.

Funding received under Part B is available to be invested in eligible “local rural, regional or outer-urban road projects” as defined by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts.

This could include projects involving any of the following associated with a road:

- traffic signs,
- traffic calming/control equipment,
- street lighting equipment,
- a bridge or tunnel,
- a facility off the road used by heavy vehicles in connection with travel on the road (for example, a rest area or weigh station),
- facilities off the road that support the visitor economy; and
- road and footpath maintenance, where additional to normal capital works schedules.

For Councillors reference, projects (either partially or fully) funded under Phases 1, 2, 3 & 4 (Part A) of the program are as follows:

LRCI Phase	Project	Current Status	Total Project Cost	LRCI Funding
<b>Phase 1</b>	Creyk Park Pavilion	Completed	2,359,639	953,448
<b>Phase 2</b>	Solar Panel Project – Orchard House	Completed	205,360	200,000
	Solar Panel Project – Champion Centre	Completed	96,331	100,000
	Solar Panel Project – Armadale Fitness and Aquatic Centre	Completed	667,463	600,000
	Westfield Heron Reserve upgrade	Completed	1,421,393	1,369,398
	Harber Reserve Upgrade	Completed	573,004	363,000
	Frye Park Fencing	Completed	217,943	65,000
	Wilcannia Park Upgrade	Completed	53,429	50,000
	Dawson Park Upgrade	Completed	115,503	100,000
	Solar Panel Projects – COA Facilities	Progressing	175,000	175,000
<b>Phase 3</b>	Civic Precinct Lighting and Amenity Improvements	Progressing	1,002,884	1,002,884
	Frye Park – Sports Lighting	Completed	315,318	315,318
	Springdale Oval – Sports Lighting	Completed	387,662	387,662
	Dog Park Lighting (4 sites)	Completed	201,031	201,032
<b>Phase 4 Part A</b>	Gwynne Park Tennis club Lights	Agreement stage	\$350,000	\$350,000
	Cross Park Lighting Upgrade	Agreement stage	\$253,448	\$253,448
	Piara Waters Oval Carpark	Agreement stage	\$350,000	\$350,000

## DETAILS OF PROPOSAL

Projects receiving funding under Phase 4 of the program will need to be completed by 30 June 2025 and to receive the funding, it is a requirement that Councils maintain their overall capital spending on construction or maintenance of roads or footpaths, funded by their own revenue, at or above their 2023-24 capital spending level. In this respect, consideration has been given to projects not already fully funded in Council's 2023-24 annual budget.

To ascertain priorities with respect to the allocation of the Phase 4 funding, eligible projects were suggested by the City's Manager Design based on priority and risk levels.

## OPTIONS

### Option 1 - LATM Projects

Road	Notes	Cost Estimate
Talus Drive & Bedfordale Hill Rise Road, Mt Richon	Mid-block treatments such as speed humps, speed cushions and median islands are commonly implemented to reduce vehicle speed and discourage non-local through traffic, while improving amenity	\$220,000
Skeet Road, Harrisdale	Mid-block treatments such as speed humps, speed cushions and median islands are commonly implemented to reduce vehicle speed and traffic, while improving amenity	\$329,970
<b>Total</b>		<b>\$549,970</b>

These roads are currently listed in Technical Services' Design team's *LATM (Local Area Traffic Management) Road Register*, which is generated from customer requests and recommendations from the LATM studies undertaken by independent consultants. All roads in the register are ranked by a scoring system, which is based on assessment on the traffic volumes, speed, crash history, road design and topography, vulnerable road users, and activity generators such as schools and retail.

### Option 2 - Footpath Projects

Road	Included Links	Cost Estimate
Serls Street	Serls Street (Galliers Avenue to Public Access Way), Armadale	\$44,982.00
Cronin Place	Cronin Place (Girraween Street to Cul-de-sac), Armadale	\$72,954.00
Ward Crescent / Banyard Avenue	Ward Crescent (Camillo Road to Banyard Avenue), Kelmscott Banyard Avenue (Ward Crescent to Railway Avenue), Kelmscott	\$243,412.00
Ringwood Road/Rogers Lane	Ringwood Road (Owtram Road to Dower Court), Armadale Rogers Lane (Owtram Road to Ringwood Road), Armadale	\$88,622
Sherwood Court/Sheriff Place	Sherwood Court (Dale Road to Cul-de-sac), Armadale Sheriff Place (Dale Road to Cul-de-sac), Armadale	\$100,000
<b>Total</b>		<b>\$549,970</b>

The above footpath projects have been identified from the approved Skeletal Path Network. Missing path sections within the Council endorsed Skeletal Path Network were identified where the path link would enhance and improve the existing path network and resolve existing safety issues.

## CONCLUSION

Under the Phase 4 Part B LRCI Program, the City is eligible to receive funding to an amount of \$549,970 for eligible local rural, regional, or outer-urban road projects. Similar to Phases 1, 2 and 3 of the LRCI program, and as a result of the success thereof, the aim of the program is the continuation of Federal Government to Local Government support in delivering local jobs through local projects.

Following the feedback received from Technical Services regarding suitable projects for Phase 4 Part B LRCI program funding, it is recommended to nominate Option 1 for Phase 4 Part B LRCI Program funding. These projects will be delivered along with the other LATM projects identified for delivery before June 2025.

## RECOMMEND

**That Council:**

- 1. Endorses the following projects being submitted for Phase 4 Part B LRCI Program funding to the amount of \$549,970:**
- 2. Pursuant to Section 6.8 of the *Local Government Act 1995* (as amended):  
Amends the 2023/24 Annual budget as follows:**

### REVENUE

<b>LRCI Part B Grant Funding</b>	<b>\$549,970</b>
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### EXPENDITURE

Talus Drive & Bedforddale Hill Rise Road	<b>\$220,000</b>
Skeet Road	<b>\$329,970</b>
<b>Total</b>	<b>\$549,970</b>

## ABSOLUTE MAJORITY RESOLUTION REQUIRED

## ATTACHMENTS

There are no attachments for this report.

## **2.1 - FAUNA RESEARCH AND MANAGEMENT - PROJECT UPDATE**

WARD : ALL  
FILE No. : M/3/23  
DATE : 4 January 2023  
REF : AB  
RESPONSIBLE : Executive Director  
MANAGER : Technical Services

### **In Brief:**

- In 2016, Council endorsed a three-year Fauna Project. The project undertook research and monitoring, threat mitigation and identification of opportunities to create ecological corridors.
- As a result of the recommendations arising from the 2016 report, the program was extended for a further two years, finalising in 2021.
- The report provides insights into the investment and the benefits obtained such as the Feral Animal Control Program success in conserving native fauna and evidence of stable and increasing native fauna populations in the City's high priority reserves through the actions implemented from the 2016 commissioned project.
- This report presents recommendations for the project's continuation.

### **Tabled Items**

Nil.

### **Decision Type**

- ☐ **Legislative** The decision relates to general local government legislative functions such as adopting/changing local laws, town planning schemes, rates exemptions, City policies and delegations etc.
- ☒ **Executive** The decision relates to the direction setting and oversight role of Council.
- ☐ **Quasi-judicial** The decision directly affects a person's rights or interests and requires Councillors at the time of making the decision to adhere to the principles of natural justice.

### **Officer Interest Declaration**

Nil.

### **Strategic Implications**

- 2.1 Conservation and restoration of the natural environment.
- 2.1.7 Biodiversity is managed to preserve and improve ecosystem health.
- 2.1.8 Facilitate the creation of partnerships and support strategies for the maintenance and enrichment of the natural environment.
- 2.1.9 Ensure that the health of the City's natural environment is regularly monitored and the effectiveness of environmental programs are periodically assessed.



### **Legal Implications**

General assessment of relevant legislation has not revealed any restrictions.

### **Council Policy/Local Law Implications**

General assessment has not revealed any applicable Policies/Local Laws.

### **Budget/Financial Implications**

Implementing the recommendations detailed within this report will require additional funds to be allocated to this project in the 2024/2025 Budget and the City's Long Term Financial Plan (refer Table 11): \$720,000 investment between 2024-25 to 2028-29 – averaging \$144,000 p.a.

### **Consultation**

Intra-directorate.

## **BACKGROUND**

The City is home to a diverse array of native fauna, occurring across an array of land tenures. The City is the primary manager to over 1,500 hectares of natural areas, where the vesting purpose designates conservation. These areas include species that are threatened and endangered.

Threats such as dieback, clearing, fire regimes, pathogens, and feral animals impact on the persistence of fauna populations within the City's bushland reserves. Monitoring and evaluating patterns of change in biodiversity is essential to inform condition and the ecological response to environmental change and adaptive management activities. Considering the financial commitment involved in the proposed expenditure, it is shrewd to note the potential for future investments that may arise. Failure to actively address the abovementioned threats, may lead to even greater costs in future to mitigate the adverse effects on ecosystem health, directly contributing to population decline, and/or the irreversible loss of native fauna, if not addressed in the nearer term. For example, reactive feral animal control is likely to be more costly than an ongoing program. A precautionary approach is recommended, as outlined in Attachment 1, reflecting the data obtained through ongoing monitoring, and therefore, evidence-based tools to respond to the decision making, expenditure and ultimately to inform stakeholders and the wider community. Monitoring contributes to the adaptive management of faunal populations in bushland reserves by evaluating whether current environmental management actions are effective and where refinement is required, ensuring responsiveness and flexibility to adapt to evolving research and emerging technologies in the field. The recommendations can be staged over time to minimise any risk of unforeseen expenditures and ensure long term health and persistence of native fauna over generations.

In 2016, Council received and noted a report/project proposal to enhance fauna research and management in the City's bushland reserves (M/397/16). The project aimed to establish benchmark information regarding the presence and abundance of vertebrate species, and to identify trends, to inform future management. The nature of the project was consistent with several of the City's strategic environmental documents, namely:

- *City of Armadale State of the Environment Report 2011/12 to 2015/16*
- *City of Armadale Local Biodiversity Strategy 2009*
- *Bungendore Park Strategic Directions 2009*

- *Armada Settlers Common Strategic Directions 2002*
- *Department of Parks and Wildlife Forrestdale Lake Nature Reserve Management Plan 2005*

A hierarchy of criteria was used to identify the most biodiverse reserves within the City and those that would therefore benefit from fauna research. The following three priority reserves were identified:

- Forrestdale Lake Nature Reserve
- Bungendore Park
- Armada Settlers Common Reserve.

The following fauna project targets were endorsed. Delivery actions to achieve these targets are shown in Table 1.

- Site specific baseline species richness (the number of different types of species)
- Site specific baseline species abundance (the number of individuals of each species)
- Obtain data to provide a measure for monitoring change to assess the effectiveness of current environmental management activities
- Build on the City's existing program of fauna habitat supplementation and feral animal control.

This project commenced the first strategic and targeted actions to manage fauna within City bushland reserves.

*Table 1. Activities proposed at the project commencement:*

Reserve	Year 1 (2016/17)	Year 2 (2017/18)	Year 3 (2018/19)
Forrestdale Lake Nature Reserve	<ul style="list-style-type: none"> <li>▪ Baseline monitoring</li> <li>▪ Feral animal control</li> <li>▪ Fencing</li> <li>▪ Investigate ecological linkages</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fauna/feral monitoring</li> <li>▪ Feral animal control</li> <li>▪ Installation of trails</li> <li>▪ Fencing</li> <li>▪ Research/Education</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fauna/feral monitoring</li> <li>▪ Feral animal control</li> <li>▪ Signage</li> <li>▪ Habitat supplementation</li> <li>▪ Research/Education</li> </ul>
Bungendore Park	<ul style="list-style-type: none"> <li>▪ Feral animal control</li> </ul>	<ul style="list-style-type: none"> <li>▪ Baseline monitoring</li> <li>▪ Feral animal control</li> <li>▪ Fencing</li> <li>▪ Habitat supplementation</li> <li>▪ Investigate ecological linkages</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fauna/Feral monitoring</li> <li>▪ Feral animal control</li> <li>▪ Signage</li> <li>▪ Habitat supplementation</li> <li>▪ Research/Education</li> </ul>
Armada Settlers Common	<ul style="list-style-type: none"> <li>▪ Feral animal control</li> </ul>	<ul style="list-style-type: none"> <li>▪ Feral animal control</li> </ul>	<ul style="list-style-type: none"> <li>▪ Baseline monitoring</li> <li>▪ Feral animal control</li> <li>▪ Habitat supplementation</li> <li>▪ Research/Education</li> <li>▪ Investigate ecological linkages</li> </ul>

At the conclusion of the three-year program, recommendations were made to intensify and expand the existing Feral Animal Program and Dieback Treatment Program with a final Fauna Monitoring Survey to review the increased management activities. This Council report summarises several technical documents that resulted from the program, reviews effectiveness and recommends further actions in an adaptive management approach.

Additionally, the Roley Pools Management Plan endorsed in February 2018, included a designated budget to action natural area management activities such as feral animal control,

revegetation and fauna habitat works. The City used this budget to seed alternative grant funding to enhance and match the City's efforts. In 2021, the City was successful in obtaining a Rivercare Grant, for the Roley Pools area. The Rivercare Grant provided funds to undertake Fauna Monitoring and the outcomes of this survey are also included within this report.

Successes from the project include:

- Research based approach to natural area management:
- Evidence of stable and increasing native fauna populations in high priority City reserves.
- Native fauna research has been successful in identifying changes in fauna trends, to inform the City's management approach.
- Feral animal control programs targeting pigs, goats and foxes are successful in conserving native fauna.
- Demonstrated conservation and preservation of local biodiversity including the protection of endemic fauna and their habitat.

## DETAILS OF PROPOSAL

Biodiversity monitoring, such as fauna surveys, are a tool used to evaluate the state of fauna populations. This information, in turn, can inform the management response. The fauna survey works undertaken within the City's reserves were undertaken by several WA industry leading fauna experts with very different approaches to their work. The monitoring approach has provided to the City with a growing and varied dataset to understand fauna in City reserves and to target management actions.

This report proposes several recommendations for consideration in the Long Term Financial Plan. These recommendations are also consistent with the risks and mitigations identified in the draft Biodiversity Strategy.

A summary of the results of the program is provided below. In the Analysis section of this report, recommendations in relation to these results are presented for Council's consideration.

### 1. FORRESTDALE LAKE NATURE RESERVE (RESERVE 27165)

In 2017, fauna monitoring and research that included an ecological link analysis was undertaken by a specialist environmental consultant in the Forrestdale Lake Nature Reserve (Figure 1).



Figure 1. Target Survey Area at Forrestdale Lake Nature Reserve in 2017

As a result of recommendations of the survey, upgrades to reserve infrastructure were installed in 2017 including major upgrades to perimeter fencing to address threats associated with off-road vehicle access. Complementary access control works included camera surveillance and installation of new signs and gates.

Council resolved on 27 February 2017 (D/7/2/17) to request that the Department of Parks and Wildlife (now the Department of Biodiversity, Conservation and Attractions) confirm acceptance of the vesting of Reserve 27165 (excluding the Armadale Golf Course lease area). Implementation of the land rationalisation project is progressing with finalisation anticipated in 2024.

Results of the fauna project works at Forrestdale Lake Nature Reserve 27165 were communicated to Council in October 2018 (M/572/18). Council resolved to note the Forrestdale Lake Nature Reserve Fauna Report and provide a copy to the Department of Biodiversity, Conservation and Attractions for their information for their consideration and implementation. No further works or fauna surveys have been scheduled by the City to occur in Forrestdale Lake Nature Reserve.

### **1.1 Fauna Monitoring Summary 2017**

- Six species of frogs recorded, two of which are considered conservation significant CS3 (locally significant) namely, the Moaning Frog and Crawling Toadlet.
- The area was identified as an important breeding site for Squelching Froglet.
- An intact assemblage of breeding frogs were recorded, and the survey identified the importance of habitat links between the golf course and the lake for breeding.
- Abundance was lower than expected for reptiles with 18 species recorded, one of which was considered conservation significant CS2 (listed as Priority by DBCA), the Perth Lined Lerista.
- The survey recorded an almost complete bird assemblage that is currently in good condition, with 58 species recorded, however may be in process of losing indicator species that were currently in high abundance. These species included the Splendid Fairy-wren and White-browed Scrub-wren.
- 18 bird species were considered conservation significant (two CS2 and 16 that are CS3).
- Lower diversity of ground dwelling mammals was expected and not observed with three native species and four introduced species recorded.
- Three native species recorded in the reserve included Quenda, Honey Possum and Western Grey Kangaroo.
- Four introduced species included the feral cat, red fox and black rat.
- Quenda recorded as abundant within the reserve.
- Low numbers of Honey Possums were noted.
- Bat assemblage was considered intact for habitat present and species were relatively abundant.
- Five out of an eight expected species were recorded in the reserve including conservation significant including the Lesser Long-eared Bat and Western Long-eared Bat.

- Connectivity with other reserves was noted to support several species within the survey.

## 2. BUNGENDORE PARK RESERVE

Bungendore Park is a 498-hectare Class A reserve in Bedfordale, located along the western edge of the Darling Scarp. The Reserve is vested in the City of Armadale and is considered one of the most biodiverse reserves in the City, and a part of Wungong Regional Park.

Key elements of the survey design for Bungendore Park are described below:

- The small mammal assemblage was selected as an indicator group representative of other varieties of fauna within the park.
- Different habitat types were sampled to provide a comprehensive sampling approach across the park.
- Feral animal abundance and dieback presence/absence were used as variables to compare mammal abundance given that they are threats that are actively managed as part of the City's works program.

### 2.1 Fauna Monitoring Program Summary 2018-2022

- Increase in conservation significant species and decline in introduced species physically trapped from 2018-2022 (Table 2).
- Two Chuditch with pouch young trapped for the first time in 2022 (Figure 2) and identified 25 times on camera traps (Table 3). This suggests that current management within the park and an increase in feral animal control efforts implemented from 2018-2022 (Table 5), may have contributed to the return of the species to Bungendore Park. Therefore, if efforts continue and predation remains low, the pouched young may join the population as breeding adults.
- Table 3 shows camera captures of Echidna, Bobtails and Brushtail possums were increased during this program (Figures 3 & 4). These species are susceptible to predation by foxes and potentially cats. The increase in feral control efforts may contribute to an increase in abundance of native animals.
- Decrease in 2022 camera recordings of Western Brush Wallaby and Western Grey Kangaroo compared to 2018, the reason for this is unknown (Figure 5).
- Both studies in 2018 and 2022 demonstrate a healthy Quenda population within Bungendore Park and Quenda remain the species with the highest population abundance (Figure 3).
- There was a higher abundance of male Quenda than females caught in 2022 (Table 4).
- There is no significant difference over time in the sex ratio of Quenda caught in 2018 and 2022. Females are smaller than males and therefore less able to defend themselves against predation. Therefore, in areas of high Quenda predation, there is typically a sex bias in favor of males, as the data suggests for Bungendore Park.
- The difference in individual species captures during physical trapping between 2018 and 2022 is considered statistically significant ( $P < 0.01$ ). (*Note, a P-value of less than 0.5 is considered statistically significant*).
- There were no statistically significant differences in the number of individual species caught between dieback infested and dieback free areas ( $P = 0.8$ ).



Figure 2. Chuditch (left) and Mardo with pouch young (right) that were trapped, marked and released in Bungendore Park 2022



Figure 3. Quenda that was trapped, marked and released during the survey in Bungendore Park 2022 (left) and camera recording of an Echidna (right) within Bungendore Park in 2022

Table 2. Comparison of vertebrate physical trapping captures 2018 and 2022

Species	Common name	2018	2022	Increase/ Decrease
<i>Antechinus flavipes</i>	Mardo	3	16	↑
<i>Dasyurus geoffroii</i>	Chuditch	0	2	↑
<i>Isodon fusciventer</i>	Quenda	60	81	↑
<i>Mus musculus</i>	House Mouse	17	6	↓
<i>Trichosurus vulpecula</i>	Brushtail Possum	1	4	↑
<i>Varanus gouldii</i>	Sand Goanna	0	1	↑
<i>Diplodactylus lateroides</i>	Speckled Stone Gecko	0	1	↑
<i>Pseudonaja affinis</i>	Dugite	0	1	↑
<i>Tiliqua rugosa</i>	Bobtail	49	51	↑
<i>Gymnorhina tibicen</i>	Magpie	1	3	↑
<i>Egernia napoleonis</i>	South-western Crevic-skink	1	0	↓
<i>Felis catus</i>	Cat	1	0	↓



Table 3. Comparison of vertebrate species identified on camera traps in 2018 and 2022

Species	Common name	2018	2022	Increase/ Decrease
<i>Macropus fuliginosus</i>	Western Grey Kangaroo	84	81	↓
<i>Macropus irma</i>	Western Brush Wallaby	47	23	↓
<i>Sus scrofa</i>	Pig	24	5	↓
<i>Vulpes vulpes</i>	Fox	36	14	↓
<i>Canis lupus</i>	Dog	10	8	↓
<i>Felis catus</i>	Cat	11	4	↓
<i>Tiliqua rugosa</i>	Bobtail	11	25	↑
<i>Tachyglossus aculeatus</i>	Echidna	36	41	↑
<i>Gymnorhina tibicen</i>	Magpie	22	23	↑
<i>Corvus coronoides</i>	Australian Raven	5	7	↑
<i>Isodon fusciventer</i>	Quenda	50	71	↑
<i>Trichosurus vulpecula</i>	Common Brushtail Possum	21	28	↑
<i>Malurus splendens</i>	Splendid Fairy Wren	2	8	↑
<i>Varanus gouldii</i>	Gould's Goanna	1		↓
<i>Calyptorhynchus latirostris</i>	Carnaby's Cockatoo	3		↓
<i>Barnardius zonarius</i>	Australian Ringneck	4	9	↑
<i>Phaps chalcoptera</i>	Bronzewing	6	12	↑
<i>Oryctolagus cuniculus</i>	Rabbit	2	6	↑
<i>Purpureicephalus spurius</i>	Red-capped Parrot	1	1	-
<i>Capra hircus</i>	Goat	2		↓
<i>Antechinus flavipes</i>	Mardo	1	12	↑
<i>Dacelo leachii</i>	Kookaburra	3		↓
<i>Anas superciliosa</i>	Pacific Black Duck	1		↓
<i>Bos taurus</i>	Cow	2		↓
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill		2	↑
<i>Dromaius novaehollandiae</i>	Emu		2	↑
<i>Dasyurus geoffroii</i>	Chuditch		25	↑
<i>Eopsaltria griseogularis</i>	Western Yellow Robin		1	↑
<i>Malurus cyaneus</i>	Blue Wren		1	↑
<i>Colluricincla harmonica</i>	Grey Shrike-thrush		1	↑

Table 4. Sexes of captured Quenda in 2018 and 2022

Sex	2018	2022
Males	40	68
Females	14	12
Unknown	5	1



*Figure 4. Bobtail Lizard (left) and Common Brushtail Possum (right) that were trapped, marked and released in Bungendore Park in 2022.*



*Figure 5. Camera recordings of Western Grey Kangaroo with young (left) and Western Brush Wallaby (right) captured on a camera trap in Bungendore Park in 2022.*

## **2.2 Feral Animal Control Program – Bungendore Park and Wungong Gorge**

Managing fox and pig populations, limits habitat destruction, predation, and population establishment in City reserves, safeguarding the survival of native fauna, and ensuring protection of biodiversity and ecosystems.

### **2.2.1 Feral Animal Control Program Summary 2016-2022**

- The program commenced in 2016 in collaboration with the Department of Biodiversity, Conservation and Attractions (the Management Authority of Wungong Gorge).
- Two programs are undertaken annually in autumn and spring, targeting pigs, foxes, and goats (Figure 6). Additionally, in some years, cats and rabbits have been targeted.
- The program was intensified in 2018 from seven days to 14 days in Bungendore targeting foxes, and from 14 to 21 days in Wungong Gorge, targeting pigs.
- On average, 12 foxes, 35 goats and 35 pigs are removed annually from the Bungendore/Wungong area.
- Significant decrease in goat presence from 2016-2022
- Average overall yield per night effort has been decreasing which may indicate ongoing decline in feral animal population numbers.

Results of feral animal control in Bungendore Park and the Wungong Gorge are provided in Table 5. Feral animal Control and Management recommendations are further considered in the Analysis section of this report and program recommendations are provided in Attachment 1.





Figure 6. Fox (left) and Feral Pigs (right) captured on camera traps during 2022 survey

Table 5. Feral animal control results for Bungendore Park & Wungong Gorge 2016-2022

Bungendore Park	Foxes	Goats	Pigs	Cats	Rabbits	Sheep
Autumn 2016	6	35	9	1		
Spring 2016	4	8	13			
Autumn 2017	6	20	23			
Spring 2017	4	25	21			3
Autumn 2018	6	37	33			
Spring 2018	6	31	7			
Autumn 2019	4	26	7			
Spring 2019	4	23	9	1		
Autumn 2020	5	12	22			
Spring 2020	7	18	19			
Autumn 2021	7	8	17			
Spring 2021	6	0	21		21	
Autumn 2022	10	0	27			
Spring 2022	9	7	19			
<b>Total</b>	<b>84</b>	<b>250</b>	<b>247</b>	<b>2</b>	<b>21</b>	<b>3</b>

### 2.3 Habitat Tree Mapping 2022 – Bungendore Park

Three endemic species of black cockatoo occur in the south-west of Western Australia. All species occur within Bungendore Park (Figure 7); these include:

- Baudin's Cockatoo (*Calyptorhynchus baudinii*)
- Carnaby's Cockatoo (*Calyptorhynchus latirostris*)
- Forest Red-tailed Black Cockatoo (FRTBC) (*Calyptorhynchus banksii*)

The Forest Red-tailed Black Cockatoo is listed as Vulnerable under the *Western Australian Wildlife Conservation Act*, and the *Environmental Protection and Biodiversity Conservation Act* (EPBC Act). Both Baudin's and Carnaby's, ('white-tailed black cockatoos') species are listed as Endangered under the *Western Australian Wildlife Conservation Act* and the EPBC Act.

In November 2022, mapping was undertaken within Bungendore Park to establish a baseline survey of existing and potential Black Cockatoo breeding and habitat trees.

Key outcomes of the survey were to:

- Identify existing and potential breeding hollows suitable for use at present or in future by black cockatoo *Calyptorhynchus spp.*
- Provide opportunistic observations on black cockatoos such as behaviour, feeding residues, age of residues, and flock numbers.

- Identify feral species which compete with black cockatoos for breeding hollows.

The habitat assessment provides the City with robust baseline to determine where existing nests are located within the Reserve and monitor species use. This is cutting edge data and provides the City with the means to monitor and map temporal and spatial changes, providing an opportunity to determine resilience to environmental shocks such as bushfire where suitable habitat may be lost, and contribute to existing research programs. It is recommended to repeat the survey in ten to 15 years to monitor changes of suitable habitat within the reserve.



Figure 7. Female FRTBC (left) and Male Carnaby's Cockatoo (right).

### 2.3.1 Habitat Tree Mapping Results

A total of 234 trees were tagged including nest trees located during earlier pre-2003 surveys distributed across the reserve (Figure 8), comprising:

- One *Eucalyptus pilularis* (Blackbutt)
- Six *Eucalyptus wandoo*
- 12 *Eucalyptus marginata* (Jarrah)
- 215 *Corymbia calophylla* (Marri)

The trees tagged were mainly Marri and ranged in diameter at breast height (DBH) from 477 mm to 1494 mm representing an age range of 118 – 357 years, with an average age of 207 years.

Foraging residues were dominated by activity from FRTBC, although residues were recorded from all three species of black cockatoos (Figure 9).



Figure 8.-Female Baudin's Black Cockatoo



Figure 9. Marri feeding residues of Baudin's (left), Marri feeding residues of FRTBC (middle), and Jarrah feeding residue of Carnaby's Black Cockatoo (right)

## **2.3.2 Discussion**

### **2.3.2.1 Baudin's Black Cockatoo**

During the 2022 survey, the species were recorded on 12 occasions with the largest flock containing 23 individuals. Foraging activity was observed at 49 locations mostly contained to the southeast corner of the park.

Previous studies note this species as 'mostly a post-nuptial visitor between February-June, usually in pairs or small family groups and occasionally small to larger flocks (50->100) visit a known roosting site located near the Wungong Dam. The largest number recorded in 1998 at the roost site was 680 with numbers declining over time (Johnstone and Kirkby 2009). This data combined with the establishment of a hollow monitoring program may contribute to ongoing research and conservation efforts, given the current population of Baudin's are an estimated 2,500-4,000 mature individuals (Karakin 2023).

### **2.3.2.2 Carnaby's Black Cockatoo**

Carnaby's were seen on two occasions during the 2022 survey. A flock of ~100 were observed in the area during February and a flock of ~50 observed flying south in June which while slightly earlier than expected, aligns with the migratory pattern of the species breeding season (DPaw 2013). Foraging activity confirms species presence within the reserve, likely as a visitor rather than a resident. Given foraging habitat for the species include nectar and native seed comprised from the *proteaceae* genera, including *Banksia sp.*, *Grevillea sp.*, and *Hakea sp.*, the City has an opportunity to further enhance the habitat structure of the reserve and increase available foraging species through additional revegetation activity (DEC 2008).

### **2.3.2.3 Forest Red-tailed Black Cockatoo**

During the 2022 survey, FRTBC were observed during every visit to the Reserve and were feeding almost exclusively on the seeds of Jarrah. Older residues indicate extensive feeding on Marri in previous months from November 2021 to January 2022. FRTBC were recorded breeding during the survey in both natural hollows and artificial nesting boxes.

These findings correlate with current research on the species distribution. Given the population is estimated at 15,000 individuals, the findings provide the City with an opportunity to enhance and preserve available foraging and breeding habitat through management activities (Garnett et al. 2011).

### **2.3.2.4 Opportunistic Feral Species Observations – Bungendore Park**

Several feral species were opportunistically observed as direct competition for occupancy or prospecting nesting hollows suitable for black cockatoo during the survey (Figure 10). European honeybees were recorded in 11 trees during the survey and Galah appeared to be well establish throughout the reserve.

The Little Corella and Eastern Long-billed Corella were observed on several occasions. Given the lack of suitable foraging habitat available for the three species, it is likely these species are breeding or prospecting hollows within the reserve. Galah/Little Corella hybrids were present in the reserve. It was noted that it was likely higher numbers of feral species would be identified, occupying tree hollows during a targeted survey.



Figure 10. Eastern Long-billed Corella in Marri hollow (left) and Little Corella in Jarrah nest hollow (right) within Bungendore Park.

Feral birds are a significant threat to the black cockatoo species, being in direct competition for suitable breeding habitat. There is currently a gap in a statewide coordinated management effort, and due to species migration phenology, these populations move in and out of municipalities across the state creating short term management actions for many individual Local Government Authorities (LGA's). Management of these species are considered below in the Analysis section of this report.

## 2.4 Habitat Supplementation Program – Bungendore Park

Works in relation to monitoring and maintaining habitat supplementation boxes and the 25 cockatubes are ongoing. In 2022, four cockatubes were used by FRTBC, one chick was observed, and several eggs were identified. Installation of boxes in new areas, consistent with reserve management plans, is also ongoing.

## 3. ARMADALE SETTLERS COMMON

Armada Settlers Common Reserve, herein referred to ASC, is a 383-hectare bushland reserve within the City of Armadale, in final stages of the entire reserve being vested with the City, including an area of 63-hectares identified as Armadale Settlers Common East. The reserve forms part of the Darling Range Regional Park.

In 2017, Bamford Consulting Ecologists (BCE) were commissioned by the City to undertake various fauna monitoring techniques in ASC to establish baseline data and inform management of the reserve (Table 6). The entire suite of surveys was repeated in 2022. The monitoring program now has a valuable data set to examine spatial and temporal changes in vertebrate species, community composition.

Table 6. Fauna Monitoring undertaken in ASC between 2017 and 2022

	2017	2018	2021	2022
Bird Census	x	x	x	x
Camera Survey	x	x		x
Pitfall and Funnel trapping	x			x
Autonomous Recording Units (ARU's)	x			x
Digging and scat transects	x			x

### 3.1 Fauna Monitoring Program Results 2017-2022

#### 3.1.1 Avian Census Summary

- ~111 bird species may occur around ASC, with the majority estimated to be regular visitors or residents.
- 39 species were recorded during the 2022 survey in comparison with 37 species recorded during the 2021, 45 in the 2018 survey and 44 species in 2017.
- 57 species have been recorded within ASC in total.
- The Australian Owlet-nightjar was recorded for the first time in 2022.
- Two avian species of CS1 Conservation Significance are now known to occur frequently (Forest Red Tail Black Cockatoo) and infrequently (Baudin's Black Cockatoo) in the reserve.
- The Forest Red-tailed Black Cockatoo appears to be a resident and Baudin's Black Cockatoo may be an occasional visitor to the site.
- A further 20 bird species are considered locally significant CS3).

Species-specific trends include:

- Little Corella and Western Whistler have increased their range within ASC,
- Overall Little Corella abundance in the reserve is low (relative to other species).
- Galah appear to be well established throughout the reserve.
- Rainbow Lorikeet has increased its distribution within ASC.
- Varied Sitella demonstrated a notable increase in presence in the south of ASC during the 2022 survey.
- The Grey-Strike-thrush has seen a distinct southerly shift in distribution.
- Brown Honeyeater has contracted its distribution to the south and east (very little presence in the north-west of the reserve)
- The overall spatial pattern in species richness shown a statistically significantly lower diversity of birds in dieback affected areas.
- Most bird species (c. 66%) are expected to be resident or regular visitors to the reserve.

#### 3.1.2 Fauna Monitoring Summary 2017-2021

- Overall capture rates were low, however this may be representative of terrestrial vertebrate abundance in a Jarrah Forest.
- Four species not previously detected at ASC were recorded in 2022:
  - Dugite (*Pseudonaja affinis*) (Figure 11)
  - Mardo (*Antechinus flavipes*) (Figure 11)
  - Speckled Stone Gecko (*Diplodactylus lateroides*) (Figure 12)
  - Western Granite Worm Lizard (*Aprasia pulchella*) (Figure 12)
- No correlation between spatial patterns and species occurrence of mammals in areas present/absent of dieback.



- Three species of bat were recorded on the ARU's during the most recent survey, all previously detected within ASC.
- Southern Forest Bat
- Goulds Wattled Bat
- White-striped Free-tailed Bat
- Quenda was the most recorded species on camera traps despite a marked decline in detection rates during the 2022 survey (Figure 13).
- Species with the most widespread distribution include Quenda, Fox and Western Grey Kangaroo.
- Absence of cats during 2022 is promising however records of cats from previous surveys were low. Cats present a major threat to ground-dwelling native fauna.
- Increase in fox activity may indicate a temporal trend of the observed decrease in Quenda abundance within ASC (Figure 13).
- Quenda data in 2022 is comparable to the 2017 survey, suggesting that Quenda abundance has altered within ASC during this timeframe (Figure 13).
- Fox presence has increased in 2022 (Figure 13).
- Correlation between fox presence and rabbit abundance (Figure 13).
- It is estimated that the estimated kangaroo density is  $0.22 \pm 0.08$  kangaroos/ha. Given a total area of c. 63 ha for the Armadale Settlers Common East reserve, this equates to a kangaroo population of c.  $14 \pm 5$  animals supported by the site.



Figure 11. Dugite (left) and Mardo (left)



Figure 12. Speckled Stone Gecko (left) and Western Granit Worm Lizard (right).

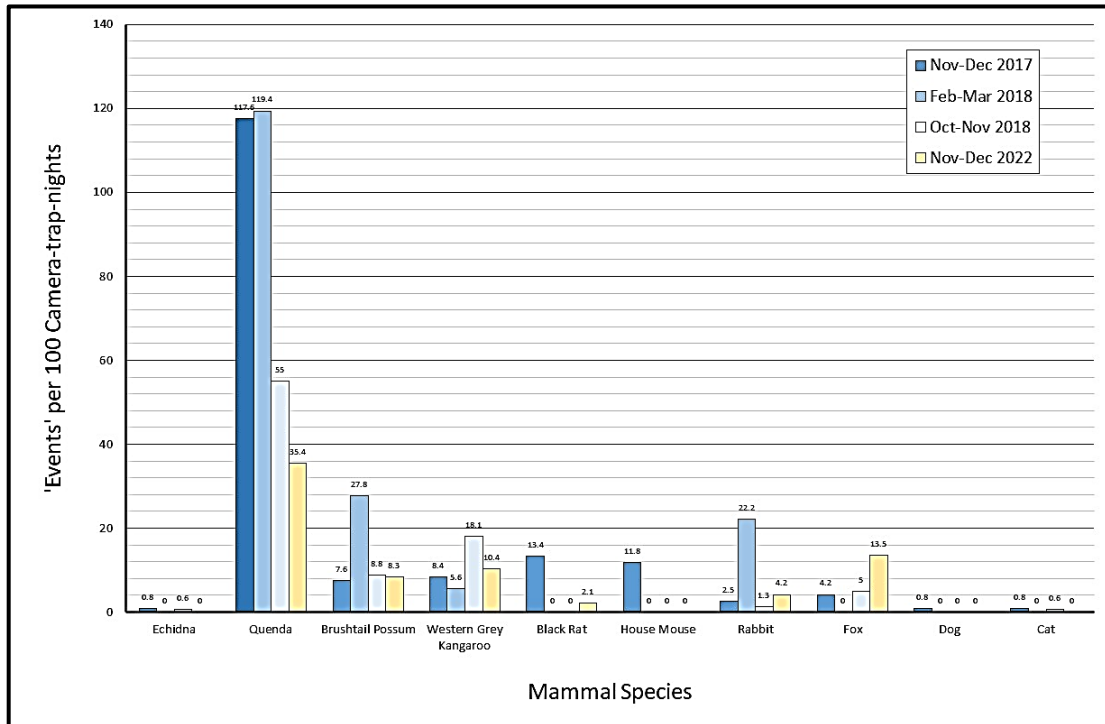


Figure 13. Comparison of mammal detections during camera surveys within ASC 2017-2022.

### 3.2 Feral Animal Control Program – Armadale Settlers Common

- Feral animal control has been undertaken collaboratively with the Department of Planning Lands and Heritage (in the neighbouring ASC West) since 2016. The entire reserve is now under land management of the City.
- In 2019 the program was increased from 7 nights to 14 nights per program, twice annually in autumn and spring, targeting foxes.
- Results of the program show that on average 13.4 foxes are removed annually and the average feral animal yield per night effort is 1.27 (Table 7).
- Given the abovementioned increase in fox numbers and marked decrease in Quenda abundance demonstrated in Figure 12, the frequency and effort may require reviewing and intensification or alternative management measures may be required. In addition, habitat refuge for Quenda should be considered. Management actions are further described in the Analysis section of the report.

Table 7: Feral animal control results for ASC between 2016 and 2022

ASC	Foxes	Rabbits	Cat
2016	7		1
2017	15		
Autumn 2018	5	12	
Spring 2018	3	8	
Autumn 2019	6		
Spring 2019	7		
Autumn 2020	9		
Spring 2020	12		
Autumn 2021	8		
Spring 2021	8		
Autumn 2022	7		
Spring 2022	7		
<b>Total</b>	<b>94</b>	<b>20</b>	<b>1</b>
<b>Average per annum</b>	<b>13.42</b>	<b>2.85</b>	<b>-</b>

### 3.3 Habitat Tree Mapping 2018 – Armadale Settlers Common

Habitat tree mapping was undertaken in 2018 with the survey recording the following:

- 35 dead trees
- 16 *Eucalyptus rudis* (Flooded Gum)
- 865 *Eucalyptus marginata* (Jarrah)
- 233 *Corymbia calophylla* (Marri)

A total of 510 habitat trees, identified as susceptible to dieback were identified during the survey and were subsequently treated in 2019 and added to the City's annual program as a resolution of Council.

### 3.4 Habitat Supplementation – Armadale Settlers Common

The use of habitat boxes by the Forest Black Cockatoos for breeding has been recorded in both ASC and Bungendore Park. Works are ongoing to maintain 26 habitat supplementation boxes in ASC, which include:

- 15 Cockatubes
- 5 Small species boxes (i.e. phascogales)
- 3 Possum boxes
- 3 Bat boxes

## 4. ROLEY POOLS - FAUNA MONITORING PROGRAM 2022

Roley Pools Heritage Walk Trail (hereafter 'Roley Pools') is a ~23 ha conservation and recreational reserve along the Canning River in Roleystone. The reserve has a comprehensive Management Plan, and an outcome of this plan was to establish a baseline dataset for mammal fauna that are present in the reserve (Figure 14).



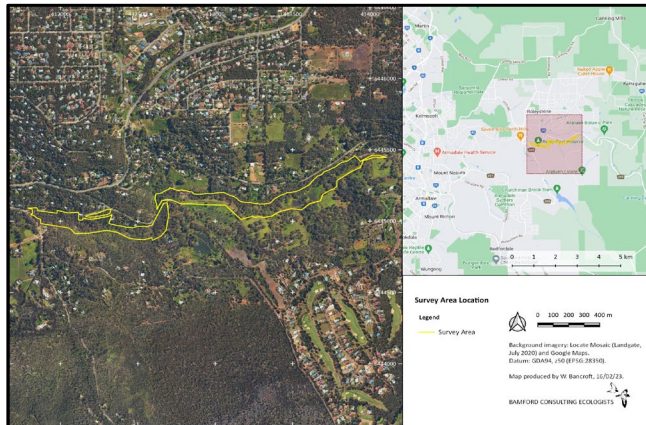


Figure 14. Target Survey Area at Roley Pools Heritage Walk Trail 2022

#### 4.1 Fauna Monitoring Summary 2022

- It is estimated that twenty-eight species are likely to occur within the reserve. Twelve of the species are of conservation significance or considered locally significant.
- 10 species of mammal were recorded within the reserve during the survey (Table 8).
- All are expected to be residents within the reserve, except the bat (regular visitor).
- The most observed species were Quenda and the Black Rat.
- Quenda and Rakali are both listed as Conservation Significant Species (Level 2)
- The Western Free-Tailed Bat is considered a locally significant species due to their distribution pattern (Conservation Significance 3 - CS3)

The fauna results of the Roley Pools survey are summarised in Table 8 below.

Table 8. Summarised Findings and Recommendations of the Roley Pools Fauna Survey 2022

Fauna group	Roley Pools survey findings	Interpretation of results	Future management Recommendations
Ground dwelling mammals	<ul style="list-style-type: none"> <li>28 expected species were detected during the survey including 4 native ground dwelling species: <ul style="list-style-type: none"> <li>- Quenda</li> <li>- Common Brushtail Possum</li> <li>- Western Grey Kangaroo</li> <li>- Rakali</li> </ul> </li> <li>Five introduced species present including feral cat, red fox, rabbit, house mouse and black rat.</li> <li>High numbers of Quenda and Black rat within the reserve.</li> <li>Expected Echidna, Mardo, Chuditch, Brush-tailed phascogale, Dunnarts, Pygmy Possum Brush Wallaby and Honey Possum noticeably absent and possibly absent.</li> </ul>	<ul style="list-style-type: none"> <li>A higher diversity of native mammals was expected and not observed.</li> <li>Healthy Quenda population.</li> <li>Black rat abundance to be monitored.</li> </ul>	<ul style="list-style-type: none"> <li>Ongoing monitoring is recommended to detect reduction in numbers by deploying motion cameras.</li> <li>Continued control of cats, foxes.</li> <li>Connectivity with other similar large reserves in area would help support Honey Possum. Investigate habitat linkages.</li> <li>Re-monitoring recommended to measure change.</li> </ul>

Fauna group	Roley Pools survey findings	Interpretation of results	Future management Recommendations
Bats	One conservation significant (CS3 species) - Western Free-tailed Bat out of an expected nine species were recorded.	<ul style="list-style-type: none"> <li>Bat assemblage was not well documented but expected to be intact for habitats present and species relatively abundant.</li> <li>Roley Pools provides source of fresh water and plentiful insect prey.</li> </ul>	Bat assemblage is considered robust and monitoring every five years using ultrasonic detectors is considered adequate.

## 4.2 Feral Animal Control Program Results – Roley Pools 2020-2023

Results of feral animal control in Roley Pools are provided in Table 9. The results show that on average 5.33 foxes are removed annually. Given the detection in fox numbers within the fauna monitoring program, this level of effort appears to be effective.

*Table 9. Feral Animal Control Results in Roley Pools Reserve between 2020 and 2022*

Roley Pools	Foxes	Rabbits	Cat
Autumn 2020	2		
Spring 2020	4		
Autumn 2021	2		
Spring 2021	3		
Autumn 2022	3		
Spring 2022	2	3	
<b>Total</b>	<b>16</b>	<b>3</b>	<b>0</b>
<b>Average per annum</b>	<b>5.33</b>		

## 4.3 Habitat Supplementation Program – Roley Pools

In 2016, 71 habitat trees were identified as suitable to provide habitat for a number of species. An additional 24 trees were identified as suitable for artificial nest boxes. Works to monitor and maintain habitat boxes in Roley Pools are ongoing. The City has a collaborative partnership with local schools, whereby students provide habitat boxes to the City for ongoing installation and the City undertakes an annual installation workshop with the students.

## 5. ANALYSIS

### 5.1 Assessment of Feral Animal Program Performance

The importance of feral animal control within the survey areas were identified as a key management recommendation across all studies. It is also included within the Armadale Settlers Common, Bungendore Park and Roley Pools Management Plans. The Feral Animal Program, coupled with the Fauna Research Program facilitates an adaptive management approach, both contributing to efficiency (intensity and reduction of feral species) and ecological outcomes in terms of the native fauna response.

Within Armadale Settlers Common, small mammals have declined markedly in terms of the abundance of native species captured across the survey area. In contrast, Bungendore Park has resulted in substantial increase in detection of small native mammal assemblages within the reserve, including Mardo and Chuditch (comparative to previous studies) and the reduction of invasive species. Additionally, the absence of mange during the 2022 survey

may be attributed to the increased effort of feral management in Bungendore Park as recommended and endorsed by Council in 2019.

It was noted within the Fauna Monitoring Survey that a predator proof fence was the only way to keep exotic individuals such as foxes out of the reserves in the long term.

The City has received an increase in enquiries relating to Corella control within its municipality. Effective management requires an integrated and collaborative approach due to the high mobility of the species. Little literature is available regarding scientific research into the phenology and biology of the species, however, a seven-year project conducted by Blythman and Porter in 2020 found that the behaviour of the introduced Eastern Long-billed and Little Corella in WA do not greatly vary from those in their native range (Blythman & Porter 2020). The ability of Corella's to readily move, may indicate their success in establishing themselves in south-western WA whereby resources are sought on a seasonal basis.

Between 2016 and 2019, WALGA, with funding provided collaboratively from Local Governments and DBCA, implemented a coordinated Corella Control Program in Perth, Peel and the Southwest to support a coordinated management effort across multiple municipalities. The program removed ~4,400 introduced corellas. The Department of Primary Industries and Regional Development (DPIRD) are currently preparing a Pest Parrot Management Strategy, due to be finalised in 2024 which aims to provide a collaborative strategic framework with effective monitoring and evaluation programs in addition to the consideration of funding support. In addition, the City remains involved in a Little Corella Management Group comprised of neighbouring Local Governments and not-for-profit organisations to collaborate and knowledge share on successes and challenges associated with Corella control. It was noted that given the species can be long lived to ~40 years, Corella populations may persist for years to come and reactive lethal control measures are unlikely to contribute to the long-term management of the species in comparison to ongoing management.

The outcome of the abovementioned DPIRD strategy is envisaged to guide an array of land managers management response. The City recommends that funds be considered for allocation towards an integrated and collaborative program when the opportunity arises. Following the release of the DPIRD Pest Parrot Management Strategy, a case study will be prepared for consideration relating to the potential expansion of the feral animal control program to include pest parrots. Passive management and dispersal tactics should be considered for immediate implementation and have been recommended in Attachment 1.

In terms of the ecological impacts of pest parrots. The recent survey in Armadale Settlers Common indicates that while Corella's have increased their range within the reserve, their relative abundance remains low. The ecological response in Bungendore Park remains unknown and it is recommended that a pest parrot survey be conducted to further understand the current and potential impacts on native fauna within the same range.

A summary of the full program findings and recommendations is summarised in Table 10. A full list of recommendations relating to feral animal control is provided in Attachment 1.

Table 10. Overall program findings and future management recommendations

Feral Species	Program findings	Interpretation of results	Officer recommendations
Goats (Bungendore Park only)	<ul style="list-style-type: none"> <li>In 2021, goats were notably absent from Bungendore Park/Wungong Gorge for the first time since the animal program commenced.</li> <li>The City was alerted by the Shire of Serpentine Jarrahdale of an incident whereby a domestic flock of goats escaped, which is thought to be the source of the goats that have been removed from subsequent programs in 2022.</li> </ul>	Effort of control targeting goats is considered adequate	<ul style="list-style-type: none"> <li>Continue the Feral Animal Control Program targeting goats in Bungendore Park at the existing level of effort.</li> </ul>
Pigs (Bungendore Park only)	<ul style="list-style-type: none"> <li>Long term success has been limited by the ongoing illegal release in the Wungong Gorge region by recreational hunters (the presence of piglets captured with docked tails indicates ongoing release activities).</li> </ul>	<ul style="list-style-type: none"> <li>A contributing factor to the ongoing use of the area is unauthorised access that is difficult to address control, across multiple tenures spanning a large perimeter.</li> <li>Effort of management targeting pigs is considered adequate.</li> </ul>	<ul style="list-style-type: none"> <li>Continue Feral Animal Control Program targeting pigs in Bungendore Park at the existing level of effort.</li> <li>Investigate access issues in collaboration with DBCA.</li> <li>Explore opportunities for collaboration across land tenure.</li> <li>Explore opportunities to limit access to water sources for pigs in Wungong in collaboration with DBCA and Watercorp.</li> </ul>
Foxes	<ul style="list-style-type: none"> <li>Increase in fox sightings and range in Armadale Settlers Common</li> <li>Decrease in fox detections within Bungendore Park</li> </ul>	<ul style="list-style-type: none"> <li>Foxes are generally found in low abundance and as individuals move out of an area, a void is created for the next seasons young to occupy the vacant niche.</li> <li>Effort and frequency within Bungendore Park and Roley Pools considered adequate.</li> <li>Effort in Armadale Settlers Common may require intensifying.</li> </ul>	<ul style="list-style-type: none"> <li>Continuation of the Feral Animal Program with increased frequency and effort within the ASC.</li> <li>Recommend investigation into genetic sampling in Bungendore Park and Armadale Settlers Common to provide a measure of species health and genetic diversity.</li> </ul>
Rabbits	<ul style="list-style-type: none"> <li>Increased reports of rabbit activity, in recent years.</li> <li>Increased capture rates within the Feral Animal Control Program over time.</li> <li>Under the <i>Biosecurity and Agriculture Management Act 2007</i>, and landowners are responsible for rabbit population control on their</li> </ul>	<ul style="list-style-type: none"> <li>An imbalance in predator-prey dynamics resulting from reduced fox numbers can lead to an increase in rabbit populations due to reduced predation and alteration of trophic position</li> </ul>	<ul style="list-style-type: none"> <li>A specialist fauna management consultant has been commissioned to design a rabbit control program for priority natural areas and on private lands. The program will be designed by January 2024 with opinion of</li> </ul>

Feral Species	Program findings	Interpretation of results	Officer recommendations
	property.	(energy exchange within food web) <ul style="list-style-type: none"> <li>Direct correlation between rabbit abundance and fox presence.</li> </ul>	probable costs provided. A probable sum has not been included in Table 11 and will be subject to an additional report. <ul style="list-style-type: none"> <li>Expansion of the feral animal control program to include contractor administered rabbit control (RHDV) in City reserves.</li> <li>Potential to investigate assistance to private landholders to achieve rabbit control through the Habitat Links Program.</li> </ul>
Rats	<ul style="list-style-type: none"> <li>The presence of rats was recorded as abundant in Roley Pools reserve (&gt;1000 captured on camera traps)</li> </ul>	<ul style="list-style-type: none"> <li>Abundance can vary markedly, and the baseline data does not provide enough information as to seasonal variation in species numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Continued monitoring and control of species be considered if required in Roley Pools Reserve.</li> </ul>
Feral Birds Little Corella, Long-billed Corella and Galah	<ul style="list-style-type: none"> <li>Increased abundance of introduced bird species observed in Bungendore Park.</li> <li>Little Corella have increased their range within ASC.</li> <li>Abundance within ASC has increased from 2017-2022 however, relative abundance is considered low.</li> <li>Both species identified within several breeding hollows in Bungendore Park.</li> <li>Galah are well established in both ASC and Bungendore Park.</li> </ul>	<ul style="list-style-type: none"> <li>While abundance is relatively low, an increase or establishment of these species pose a major threat to native fauna City reserves.</li> <li>Direct competition for Black Cockatoos for resources such as breeding sites.</li> <li>Corella can remove eggs from nests and maim or kill advanced nestlings of other species.</li> <li>Little research or knowledge on migration phenology and breeding habits in a Western Australian context is available.</li> </ul>	<ul style="list-style-type: none"> <li>Consider an allocation of funds toward a coordinated management response across multiple municipalities as an outcome of DPIRDs Pest Parrot Management Strategy.</li> <li>A targeted exotic bird species survey is recommended in ASC and Bungendore Park to determine the current and potential ecological impact of the species on endemic species.</li> <li>As a result of the above, a case study be prepared to investigate and implement control measures.</li> <li>Passive control methods be investigated and implemented.</li> <li>Continued liaison with Corella Management Group to complement and coordinate individual LGA's management efforts.</li> <li>Participate in research (i.e., OvoControl) as opportunities arise.</li> </ul>
Cats	<ul style="list-style-type: none"> <li>Thought to be a resident in</li> </ul>	<ul style="list-style-type: none"> <li>Major threat to</li> </ul>	<ul style="list-style-type: none"> <li>The Cat Act is currently</li> </ul>

Feral Species	Program findings	Interpretation of results	Officer recommendations
	<p>Armadale Settlers Common however fauna monitoring between 2017-2022 demonstrates that abundance remains low.</p> <ul style="list-style-type: none"> <li>Cats appear to be low in abundance within Bungendore Park.</li> </ul>	<p>native fauna if populations increase or become established within City reserves.</p> <ul style="list-style-type: none"> <li>Cat numbers can rapidly increase and reduce abundance of small and medium sized mammals and reptiles</li> </ul>	<p>under review with finalisation estimated for 2024.</p> <ul style="list-style-type: none"> <li>Consider cat prohibited areas adjacent bushland reserves.</li> <li>Education opportunities to residents' adjacent reserves.</li> <li>Ongoing camera monitoring in City reserves.</li> </ul>
Bees/Bee hives	<ul style="list-style-type: none"> <li>Well established in several Bungendore Park habitat tree hollows.</li> </ul>	<ul style="list-style-type: none"> <li>Direct competition against Black Cockatoos for breeding habitat.</li> </ul>	<ul style="list-style-type: none"> <li>Targeted response be investigated and implemented as required.</li> </ul>

## 5.2 Dieback Management

Dieback spread is noted as one of the key threats to fauna across all surveys. Dieback management is primarily undertaken in Armadale Settlers Common and Bungendore Park through a rotational treatment program of dieback fronts, habitat susceptible trees and through hygiene management including:

- Upgrades to the Bungendore Park's recreational system with the inclusion of new phyto-fighters and looped sign posted access tracks.
- Recreation trails in Armadale Settlers Common (East) have been upgraded to minimise the chance of dieback spread.
- The Armadale Settlers Common (West) recreation strategy is in the implementation phase to deliver an additional 16 phyto-fighters throughout the reserve in addition to several existing hygiene stations. These works will assist in minimising risks associated with recreational dieback spread.
- Habitat trees with hollows or with the potential to form hollows are currently treated as part of the three yearly dieback treatment program within Bungendore Park. As a result of the recommendations endorsed by Council in 2019, the dieback program was expanded to include habitat trees in Armadale Settlers Common.

In addition to the already scheduled works, it is recommended that any habitat trees identified in the 2022 survey that are not included within the current dieback program be included.

## 5.3 Vegetation Corridors and Habitat Supplementation

The importance of vegetated corridors for fauna between bushland remnants was noted in both studies.

Bungendore Park is well connected to larger areas of native vegetation, primarily through the Wungong Gorge in areas managed by DBCA and Aroona, with adjoining private lands. Management of threatening processes such as unauthorised access and feral animal control is important for maintaining the park's connectivity to other areas.

The Armadale Settlers Common Reserve is connected to Bungendore Park through private property but this connection, whilst suitable for large home range and active species such as the fox, is inhibited by Albany Highway for native mammal species.

As a result of the recommendations endorsed by Council in 2019, seven reserves with vegetated linkages between Armadale Settlers Common and state forest were modified under the *Land Administration Act 1997* to include the word “conservation” to enable formal consideration into environmental programs (such as weed control and dieback treatment). Further habitat supplementation was recommended through the following mechanisms:

- Mapping of habitat trees within Armadale Settlers Common and Bungendore Park to obtain data pertaining to their protection and management.
- An annual allocation towards salvage and relocation of logs from development, or other sites was approved and implemented.
- An annual allocation toward ongoing habitat supplementation including maintenance and monitoring.
- Raking around known habitat trees prior to fire mitigation works as a result of data obtained during the habitat tree survey.

Habitat fragmentation remains an increasing environmental disturbance influencing ongoing ecological processes and patterns many of which occur over long periods of time. Habitat loss is one of the largest concerns of extinction, often due to the reduction in quality habitat and delayed extinction debts (time lag between and environmental event i.e. habitat loss and climate change, and the subsequent loss of species).

As described within the report, habitat supplementation within City reserves is ongoing. Key actions identified for the protection of vegetation corridors, habitat trees and logs are summarised in Attachment 1.

#### **5.4 Future Monitoring of Fauna Changes**

The re-monitoring recommendations endorsed by Council in 2019, for Bungendore Park and Armadale Settlers Common, the survey results presented in this report provide a robust benchmark to monitor faunal changes. Repeating the small mammal fauna study in five years’ time in Armadale Settlers Common, and Bungendore Park is recommended with the addition of genetic sampling of target species such as the Quenda and Chuditch. It is recommended that the Feral Animal Control program is extended for genetic sampling of Fox species. The inclusion of genetic testing provides the City with a better understanding of demographic and genetic flow within populations to predict species ability to persist in future generations.

Genetic diversity, provides indicators such as:

- Adequate connectivity of habitat corridors to facilitate gene flow and movement of individual species.
- Potential for genes that may be more resistant to environmental change (i.e., temperature)
- Potential visitors from other populations.
- Indicator for smaller, fragmented, or isolated populations at risk of inbreeding.

Populations with reduced genetic diversity have a heightened risk of extinction and are at risk to environmental stochastic environmental events and potentially lower adaptive capacity against disease and environmental change (i.e., fire, climate change).



It is recommended that the need for a City wide comprehensive fauna management plan is considered, as an ongoing annual budget allocation with a review date of ten years (recommended as an outcome of the Biodiversity Strategy).

## CONCLUSION

Fauna Monitoring aims to preserve both individual species and ecosystems. Introduced species often disrupt these ecosystems by altering the balance of predator-prey relationships, nutrient cycling and vegetation composition and habitat structure.

The Fauna Project initiated the first strategic and targeted actions by the City to manage fauna across several priority bushland areas. Recommendations provided are subject to further interrogation to understand the financial implications of the adaptation to existing programs and expansion of the project.

This report presents the fifth-year results of various elements of the fauna project including fauna abundance surveys and adaptation of environmental programs (such as feral animal control, dieback treatment and habitat supplementation).

In summary, recommendations include:

- ongoing monitoring of faunal abundance at periodic intervals.
- modification to and expansion of, City programs such as the feral animal control, dieback management and habitat supplementation programs.
- participate in working groups to address catchment-based issues effecting fauna conservation.
- data obtained from the Fauna Project is comprehensive providing the City with an opportunity to publish its findings, informing practitioners and community members.

Attachment 1 summarises all recommendations of the fauna project. Some items can be achieved under operational works plans or through administrative processes. Items listed in the budget column of Attachment 1 are recommended to be referred for consideration during the 2024/2025 budget and Long-Term Financial Plan deliberations and are summarised in Table 11.

*Table 11. Summary of items proposed for 2024/2025 budget consideration.*

Budget Request	2024/2025	2025/2026	2026/2027	2027/2028	2028/2029
Feral Animal Control	\$70,000	\$70,000	\$70,000	\$70,000	\$70,000
Bungendore – Avian survey targeting pest parrots	\$25,000				
Remove feral bees in breeding hollows (when identified)	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Salvage of Habitat Trees	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Maintenance of Habitat boxes	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Unauthorised Accessed Infrastructure and Maintenance	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Additional Dieback Allocation	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
ASC – Repeat fauna survey works for				\$70,000	



reptiles, bats, small mammal, feral animals and avian fauna on a five yearly rotation (last undertaken in spring 2022)					
Bungendore – Repeat small mammal monitoring					\$80,000
Roley Pools – Repeat small mammal monitoring			\$25,000		
Revegetation – Armadale Settlers Common	\$10,000	\$5,000	\$5,000		
<b>Total</b>	<b>\$135,000</b>	<b>\$105,000</b>	<b>\$130,000</b>	<b>\$170,000</b>	<b>\$180,000</b>

## REFERENCES

Department of Parks and Wildlife (2013). Carnaby's Cockatoo (*Calyptrorhynchus latirostris*) Recovery Plan. Western Australian Wildlife Management Program No. 52.

Devenish-Nelson, E. S., Richards, S. A., Harris, S., Soulsbury, C., & Stephens, P. A. (2014). Demonstrating frequency-dependent transmission of sarcoptic mange in red foxes. *Biology Letters* (2005), 10(10), 20140524–20140524. <https://doi.org/10.1098/rsbl.2014.0524>

Garnett, S., J. Szabo & G. Dutson (2011). The Action Plan for Australian Birds 2010. CSIRO Publishing. Available from: <http://birdsindanger.net/taxatable>.

Johnstone and Kirkby, Birds of Bungendore Park 2009.

Western Australian Department of Environment and Conservation (2008). Forest Black Cockatoo (Baudin's Cockatoo *Calyptrorhynchus baudinii* and Forest Red-tailed Black Cockatoo *Calyptrorhynchus banksii naso*) Recovery Plan.

## RECOMMEND

### That Council:

1. **Receives the fifth year Fauna Project report and endorses the recommendations contained in Attachment 1 which refers items for consideration for inclusion in the City's 2024/2025 budget and Long-Term Financial Plan.**
2. **Approves the publishing of a summary report of the Fauna Project for practitioners and community review – proposed to be budgeted as \$1,200 in FY2024/2025.**

## ATTACHMENTS

1. Summary of Proposed Fauna Management Action

### **3.1 - GUERIN RESERVE FIRE**

WARD : LAKE  
FILE No. : M/698/23  
DATE : 29 November 2023  
REF : NM  
RESPONSIBLE : Executive Director  
MANAGER : Technical Services

**In Brief:**

- A confidential report is presented at Attachment B-1 to this Agenda.

#### **Strategic Implications**

The subject of this report has impact on the following objectives of the Strategic Community Plan 2020-2030:

- 2.2.4 Develop, improve and maintain quality parks, playgrounds and public open spaces throughout the City.
- 2.2 Attractive, inclusive and functional public places
  - 2.3.5 The City maintains its operational infrastructure in the most cost-effective manner to sustain service delivery.

#### **Legal Implications**

Sections 5.36, 5.38 and 5.39 of *Local Government Act 1995*.

#### **Council Policy/Local Law Implications**

General assessment has not revealed any applicable Policies/Local Laws.

*A Confidential Report is presented at Attachment B-1 to this Agenda.*

#### **ATTACHMENTS**

#### **4.1 - STREET SIGNAGE - FRYE PARK (REFERRAL ITEM)**

At the Council meeting held on 16 October 2023, Cr J Keogh, referred the following matter to Technical Services Committee.

*That the matter of signage for Frye Park Pavilion be referred to the Community Services Committee.*

#### **Comment from Cr J.Keogh**

Cr Keogh would like an investigation into the costs involved for a sign to be put up on the corner of Albany Highway and Gilwell Avenue that indicates where Frye Park is. The type of sign below is what is suggested as a starting point. The sign should have “Frye Park or “Frye Park Pavilion”.



#### **Officer Comment**

The Engineering Design Team is responsible for investigating requests for Blue Pointer signage against Australian Standard 1742 Part 5: Street name and community facility name signs.

Frye Park does meet the criteria under section 3 ‘Community Facility Name Signs’ for sporting and recreational grounds and facilities. The appropriate location for this signage is at the intersection of Gilwell Avenue and Albany Highway under the existing street name sign.

The estimated cost for the sign purchase and installation is a maximum of \$1,000.00 and includes the possible need for traffic management - this will be covered by Service Delivery’s operations budget.

#### **RECOMMEND**

##### **That Council:**

1. **Approves the installation of one Blue Pointer sign stating “FRYE PARK” at the Gilwell Avenue / Albany Highway intersection for an approximate expenditure of \$1,000.00.**

#### **ATTACHMENTS**

There are no attachments for this report.

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#### ***4.2 - CORELLA CONTROL IN PARKS & RESERVES (REFERRAL ITEM)***

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At the Council meeting held on 11 September 2023, Cr S Mosey referred the following matter to Technical Services Committee.

*That the matter of Corella control in Parks and Reserves be referred to the Technical Services Committee.*

#### **Comment from Cr S Mosey**

Corellas or White Cockatoos as many people refer to them, are a destructive pest that cause many environmental impacts throughout the City of Armadale.

I have had numerous recent complaints from ratepayers that their numbers appear to have increased significantly and the destruction, noise pollution and environmental damage they are doing is severe.

I raise this Councillor Item in the hope that we can consider an effective and efficient way to control these Corellas in the City's many parks and reserves.

#### **Officer Comment**

Pest parrots, including Corella's compete with native bird species and can cause substantial damage to crops and infrastructure. Several species of parrots and cockatoos are declared pests under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) and are subject to control measures.

Between 2016 and 2019, WALGA, with funding provided collaboratively from Local Governments and DBCA, implemented a coordinated Corella Control Program in Perth, Peel and the Southwest to support a coordinated management effort across multiple municipalities. The program removed ~4,400 introduced Corellas. The Department of Primary Industries and Regional Development (DPIRD) are currently preparing a Pest Parrot Management Strategy, due to be finalised in 2024 which aims to provide a collaborative strategic framework with effective monitoring and evaluation programs in addition to the consideration of funding support.

In 2016 Council endorsed a three-year Fauna Project which undertook research and monitoring and threat mitigation amongst other objectives. This program was extended for a further two years, finalising in 2021. The outcomes of the fauna project, as relates to Pest Parrot research in priority conservation reserves in the City of Armadale is summarised below.

- Little Corella and Eastern Long-billed Corella were observed on several occasions during survey of habitat trees in Bungendore Park.
- Galah/Little Corella hybrids were present in Bungendore Park
- It was noted that it was likely higher numbers of Pest Parrots would likely be identified, occupying tree hollows during a targeted survey in Bungendore Park.
- Little Corella has increased its range in the Armadale Settlers Common Reserve.
- Overall Little Corella abundance in the reserve is low (relative to other species) in Armadale Settlers Common Reserve.
- Galah appear to be well established throughout the Armadale Settlers Common.

- Rainbow Lorikeet has increased its distribution within Armadale Settlers Common.

A Fauna Research and Management Paper has been prepared for this Committee to present the project findings and recommendations including the matter of Corella control.

In summary the following is noted in the Paper.

- Effective management requires an integrated and collaborative approach due to the high mobility of the species.
- Little literature is available regarding scientific research into the phenology and biology of the species.
- The ability of Corella's to readily move, may indicate their success in establishing themselves in south-western WA whereby resources are sought on a seasonal basis.
- The species can be long lived to ~40 years. As a result, Corella populations may persist for years to come and reactive lethal control measures are unlikely to contribute to the long-term management of the species in comparison to ongoing management.
- The City remains involved in a Little Corella Management Group comprised of neighboring Local Governments and not-for-profit organisations to collaborate and knowledge share on successes and challenges associated with Corella control.
- The Department of Primary Industries and Regional Development (DPIRD) are currently preparing a Pest Parrot Management Strategy, due to be finalised in 2024. The outcome of the strategy is envisaged to guide management.

In summary the following is recommended in the Paper.

- Following the release of the DPIRD Pest Parrot Management Strategy, prepare a case study (for Council's consideration) relating to potential expansion of the feral animal control program to include Pest Parrots.
- Further research the extent of Pest Parrots in Bungendore Park using ecological survey techniques.
- Integrate passive management and dispersal tactics into City operations by developing strategies to incorporate into design and existing management programs such as:
  - Increasing native ground cover and planting shrubs/understorey near large trees to deter loitering behaviours in open space areas.
  - Removal or pruning of preferred species.
  - Altering vegetation types that are undesirable to Corellas (native vegetation is supported and requires less maintenance).
  - Watering turf and POS areas after dark thereby removing water source.
  - Consider subsurface watering, altering construction practices (covering soil piles, retention ponds and preventing water pooling).
  - Increased native groundcover.
  - Consider sacrificial/refuge sites for containment of species and potential site for future lethal control.

Please refer to Fauna Research and Management – Project Update report for further information.

## **RECOMMEND**

### **That Council:**

- 1. Notes the information provided in the Fauna Research and Management Paper presented in this agenda.**

## **ATTACHMENTS**

There are no attachments for this report.

***COUNCILLORS' ITEMS***

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Nil

***EXECUTIVE DIRECTOR TECHNICAL SERVICES REPORT***

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Nil

**MEETING DECLARED CLOSED AT \_\_\_\_\_**

<b>TECHNICAL SERVICES COMMITTEE</b> <b>SUMMARY OF ATTACHMENTS</b> <b>4 DECEMBER 2023</b>		
<b>ATT NO.</b>	<b>SUBJECT</b>	<b>PAGE</b>
<b>1.1 INTEGRATED TRANSPORT STRATEGY</b>		
1.1.1	Integrated Transport Strategy 2023-2050	67
<b>1.2 PARKING RESTRICTIONS - HASLEMERE DRIVE, MOUNT NASURA</b>		
1.2.1	E23-90-02 - Parking Restriction Map - One Side	121
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<b>2.1 FAUNA RESEARCH AND MANAGEMENT - PROJECT UPDATE</b>		
2.1.1	Summary of Proposed Fauna Management Action	124

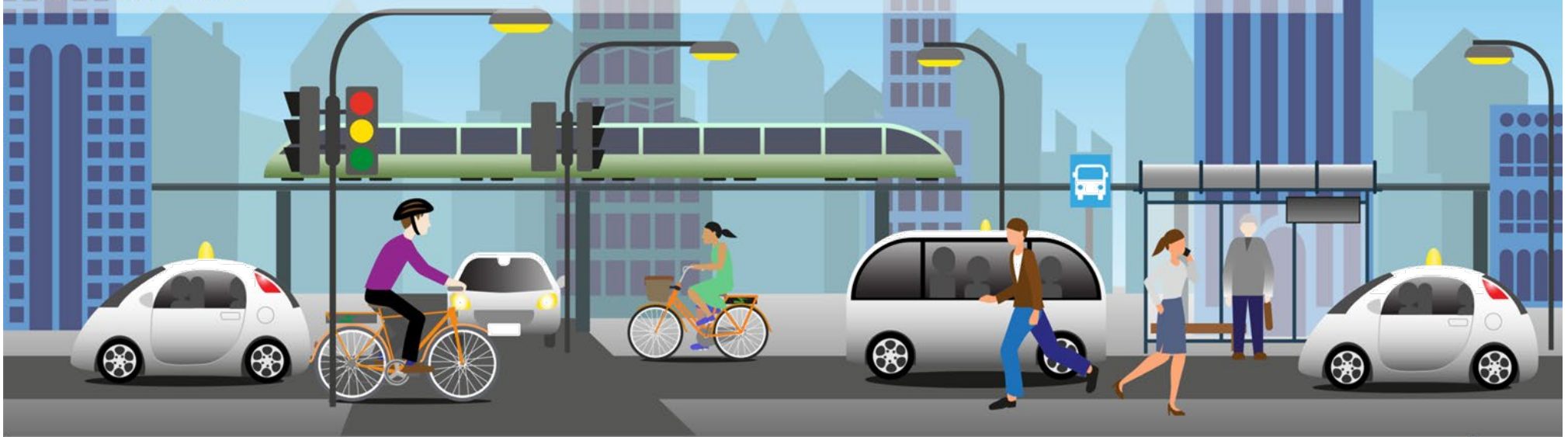


# CITY OF ARMADALE

## Integrated Transport Strategy 2023 - 2050

Prepared by WSP on behalf of the City of Armadale

November 2023




Integrated Transport Strategy 2023 – 2050

City of Armadale

Document number: PS124871-REP-000 RevC  
Revision: Final

Document control


Revision	Date issued	Details
D	13/11/2023	Final City of Armadale Integrated Transport Strategy

	Name	Date	Signature
Prepared by	Melissa Rachan	10/11/2023	<i>M. Rachan</i>
Approved by	Leigh Dawson	13/11/2023	



Question today  
*Imagine tomorrow*  
Create for the future





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We acknowledge that every project we work on takes place on First Peoples lands. We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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## EXECUTIVE

### SUMMARY

Located only 28 kilometres from Perth, the capital city of Western Australia the City of Armadale Local Government Area extends over 560 square kilometres of urban development, farm and forest in Perth's southeast.

Armadale provides a transition between the urban conurbation of the Swan Coastal Plain Armadale and the rural and bushland landscapes of the Perth Hills and represents a gateway between Perth's metropolitan urban area and the regional hinterlands and towns beyond.

The City's vision of its identity is centred round its unique character and location:

***"Where City meets Country - A place of natural beauty, rich in heritage and respectful of culture, with diverse landscapes and lifestyles, and a wealth of business and investment opportunities."*** - Strategic Community Plan 2020-2030

The City's population of approximately 98,000 residents is projected to increase to 160,000 by 2050, making it Perth's third fastest growing Local Government.

The City's key growth areas include Harrisdale, Piara Waters and Forrestdale in addition to suburbs of Haynes and Hilbert which currently form DevelopmentWA's "Wungong Urban" redevelopment area.

Additionally, urban infill is expected around the City's key activity centres including the Armadale City Centre and Kelmscott Town Centre.

Armadale's road network also performs a critical role in supporting regional freight movements, essential for the economic vitality of the Perth metropolitan area and the regions.

The city centre of Armadale, a designated Strategic Metropolitan Centre, is planned to undergo continued significant land use change and development from investments such as the Government's extension of the passenger rail network to Byford, the METRONET elevated rail viaduct and grade separation through the Armadale City Centre and Kelmscott Town Centre, in addition to a range major public and private sector investment and urban renewal projects over the next 25 years.

These projects will boost employment opportunities within Armadale and reduce the need for Armadale community members to travel outside the City for work.

The transport network plays a fundamental role in connecting Armadale's community members to the work, school, recreation and leisure opportunities available to them, which are in turn, largely determined by the area's transport infrastructure, facilities and services.

The City has developed its Integrated Transport Strategy (this strategy) to plan and advocate for initiatives through to the year 2050, that will enhance and grow the travel opportunities available for safe and effective transport by the Armadale community. It is also intended to influence and be integrated with other key Armadale strategies and plans, in addition to influencing the plans of State Government agencies and adjacent Local Governments.

This strategy sets out the City's vision and areas of strategic focus to facilitate better access and mobility across all transport modes used by the Armadale community.

The City has included an Action Plan identifying a series of interventions and initiatives supporting this strategy which is aimed at enhancing travel opportunities available to the diverse Armadale community and achieving Council's vision for transport and mobility for the residents of Armadale over the term of the strategy.

### OUR TRANSPORT VISION

*"A safe and inclusive integrated transport network that efficiently connects people to places, encourages sustainable travel, supports growth and vitality of Armadale's economy."*

### OUR FOCUS AREAS



INCLUSIVE



SAFE



COMMUNITY



ENVIRONMENT



ECONOMIC DEVELOPMENT  
AND GROWTH



LEADERSHIP AND INNOVATION

INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

CITY OF ARMADALE

## 1. WHY DO WE NEED AN INTEGRATED TRANSPORT STRATEGY (ITS)?

The City is undergoing a period of rapid change, with a population that's increasing at twice the rate of the Perth Metropolitan area.

As the Armadale City Centre continues to mature, its role as a major destination servicing Perth's south-eastern corridor will be elevated. Land uses will continue to diversify to offer more places for people to shop, work, learn and play.

Not only will there be more people living and working in the City, there will be more people visiting the City to access services: retail, health care, leisure and recreation. These are key ingredients to support a vibrant and thriving City.

With this comes an increase in diversity as residents and visitors use the transport network to access the places they want to go.

Effort is required to ensure that infrastructure and services are delivered in alignment with the level of development occurring within the City, and importantly, in line with the growing communities' diverse access and movement needs.

Many transport projects and initiatives in and around the City are either currently in delivery, or in the planning pipeline (see Section 9.2).

These projects and initiatives will all have an impact, in big and small ways, on the way people travel to, from and within the City.

The State Government's METRONET projects (see Section 9.2.2), in particular the Byford Rail Extension which will include a new elevated Armadale Station and provide increased corridor connectivity, will have a material impact on the City.

The new station amenities and network changes will make our roads safer by removing interfaces between the road and rail, while also having a profound impact on the surrounding urban form. This will attract more people to use and live close to public transport.

This affords the City with an opportunity to provide and advocate for the design and delivery of an integrated transport network that:

- is inclusive
- is safe
- is community-focussed
- supports positive environmental outcomes
- supports economic development and growth of the City
- highlights the City as a leader and innovator

Accordingly, this ITS is intended as a key strategic document to guide the City's decision-making as well as transport planning, delivery and advocacy pursuits, so that our transport network meets the needs of the community now and into the future.



INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

CITY OF ARMADALE

## 2. HOW WE DEVELOPED THIS ITS

### 2.1 Key parts of development

Development of this ITS has been structured around four key parts as per Figure 1:

**Part One** was focused on reviewing existing background information and available data to understand the transport-related challenges and opportunities associated with the City.

**Part Two** involved seeking thoughts and ideas from the community (see Section 3). The outcomes from consultation were essential in developing the vision and identifying strategic focus areas to clearly set out what this ITS is seeking to achieve.

**Part Three** involved identifying potential solutions based on a detailed understanding of the key transport challenges and opportunities faced by the City over the next 30 years.

**Part Four**, is consultation on the draft ITS, to understand if the solutions proposed in this strategy meet the needs of Armadale's existing and growing community.

### 2.2 Strategic alignment

This ITS recognises the importance of working towards an agreed and cohesive vision that aligns with the planning frameworks for the City and its surrounds, including planning aspirations at both state and local level.

As such, this ITS has been developed in line with various existing policies, strategies, plans and documents as depicted in Figure 2.

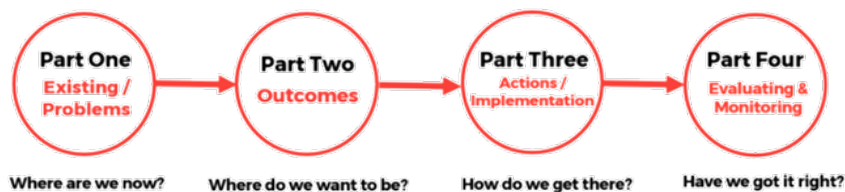


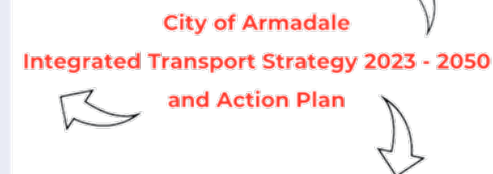
Figure 1: Key ITS project parts

### STATE

- Perth & Peel @3.5M
- Transport @3.5M
- METRONET initiatives
- South Metropolitan Peel Sub-Regional Planning Framework
- State Planning Policies (various)
- Long-term Cycle Network
- Driving Change: Road Safety Strategy for WA 2020 – 2030
- State Disability Strategy 2020 - 2030
- Western Australian Climate Change Policy
- The Declining Rate of Walking and Cycling to School in Perth

### OTHER

- ABS census data
- Existing transport network conditions and available transport data
- On-site observations
- Current and proposed projects and initiatives



### LOCAL

- Local Planning Scheme No.4
- Local Planning Strategy
- Local Planning Policies (various)
- Strategic Community Plan 2020 - 2030
- Bike Plan 2016
- Skeletal Path Network
- Community Perceptions Survey 2018
- Community Infrastructure Plan 2021 – 2037
- Economic Development Strategy 2018 - 2022
- Asset Management Plan
- Draft Armadale City Centre Structure Plan
- Access and Inclusion Plan 2021 – 2026
- Advocacy Priorities Strategy 2022-2030
- Activity and Retail (Commercial) Centres Strategy 2020
- Community Health and Wellbeing Plan 2021 – 2024
- Tourism Destination Strategy 2015 – 2019
- Urban Forest Strategy 2014
- City of Armadale Local Area Traffic Management Plans (various locations)
- Corporate Greenhouse Action Plan 2020/21 – 2029/30
- Armadale City Centre Transformation Technical Report 2022

Figure 2: Policy alignment

Figure 2







INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

CITY OF ARMADALE

### 3. COMMUNITY CONSULTATION

The views and thoughts of stakeholders, including community members, were sought through a community survey.

These responses serve as critical inputs into the development of this ITS, taking into account the feedback received from people using the transport network and therefore, those that will be directly impacted by decisions made relating to transport.

Engagement objectives were twofold, including:

— Understanding the challenges / issues and opportunities / strengths currently experienced in relation to transport to, from and within the City; and

— Capturing thoughts and ideas on how people want to move around the City in the future.

The community survey was conducted using an online platform and was open for four weeks from 4 April 2022 to 2 May 2022.

High levels of interest in the project from the community was evident. The platform attracted 1,564 total visits, with 594 unique visits (i.e. 'total visits' captures people visiting the page more than once).

Two key features were used to capture comments:

1. **Interactive map (137 comments received):** enabled respondents to provide comments linked to geographical locations, in the categories of 'something I like', 'something to fix' and 'ideas / suggestions'.
2. **Survey (66 responses received):** included questions on current travel methods and how transport journeys could be improved.

Figure 3 provides a summary of common themes and comments from survey respondents, while Figure 4 (overleaf) provides a snapshot of survey responses showing that **an overwhelming majority of respondents' most common method of transport was car (80%)**, with 48% citing their reason being 'it's practical and suits my needs'.

In addition to the above, respondents were asked for the most important factors to improving their transport journeys, using a ranking system of most to least important. **Improving public transport services was ranked highest by far.**

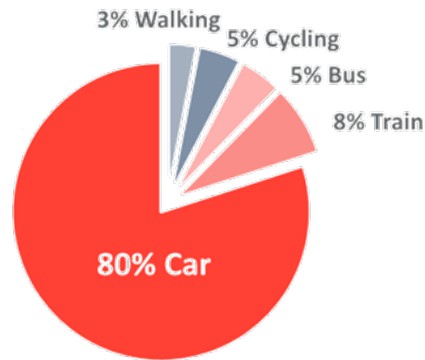


Figure 3: Key themes from the community survey responses

INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

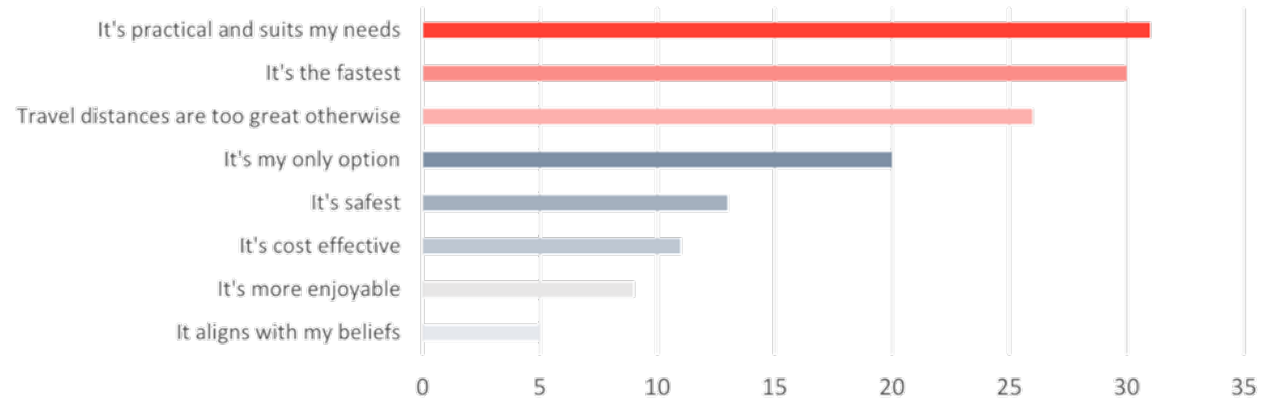
CITY OF ARMADALE

### Most Common Travel Mode



*While Armadale's residents rely on their cars to get around because it's practical and faster, better public transport services and better infrastructure for riding bikes and eRideables are important to improve how they get around.*

### Reason for Travel Mode



### Ranked Demands for Transport Improvements

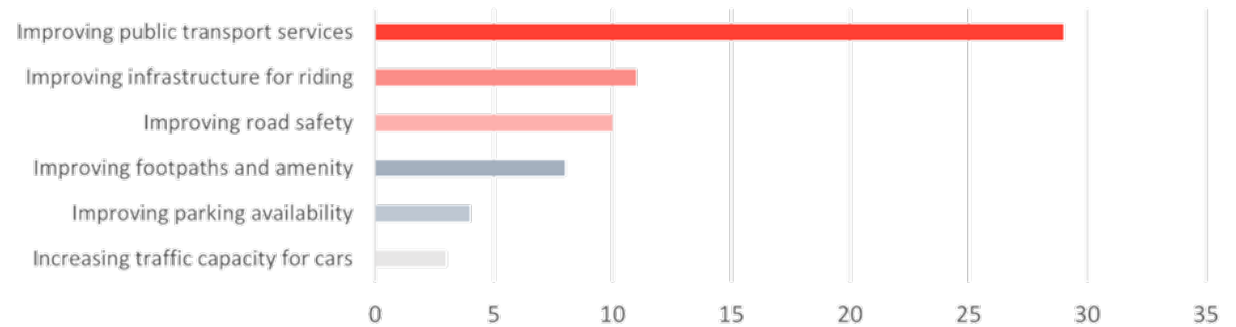


Figure 4: Snapshot of community survey responses

INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

CITY OF ARMADALE

## 4. WHAT OUTCOMES DO WE WANT TO SEE?

The ITS vision statement articulates our aspiration for enhancing and improving the way people get to, from and move within the City.

It provides a focal point to ensure that, in collaboration with key partners, we are working towards an agreed vision.

Six strategic focus areas have also been established that lead the direction of this ITS.

The vision and focus areas are a reflection of what is important to the Armadale community as articulated in the City's Strategic Community Plan and through community consultation (see Section 3).



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## 5. THE CITY'S TRANSPORT CHALLENGES AND OPPORTUNITIES

### 5.1 Challenges and opportunities in focus

A core component of developing this ITS has been building an understanding of the unique and localised transport challenges and opportunities as viewed by the Armadale community and relevant stakeholders. These transport challenges and opportunities are linked to each focus area, and are presented on [pages 9 to 25](#).

For each focus area the following has been identified:

— **The challenge**

Articulates some key challenges and issues relating to transport

— **The opportunity**

Articulates some key strengths and opportunities relating to transport

— **Desired outcomes / benefits**

Outlines what we hope to achieve

— **Strategic alignment**

Outlines key relevant government policies, plans and documents

### 5.2 Action Plan

The 2050 time horizon of this ITS enables us to be aspirational in the kinds of initiatives we'd like to see. However, this strategy is complemented with a practical Action Plan, to demonstrate how the City is proposing to resolve the challenges and realise the opportunities, to ultimately achieve our transport vision.

Each action is categorised with:



**Alignment with focus area**

While each action corresponds to a specific focus area, some actions can help achieve the desired outcomes of multiple focus areas



**The City's role**

Identifies the City's role to investigate, plan, deliver, advocate and / or seek grant funding opportunities from sources such as Main Roads WA (MRWA), Department of Transport (DoT) and Public Transport Authority (PTA).



**Key partners / stakeholders**

Identifies external partners and stakeholder that the City will collaborate with to achieve the action



**Timeframe**

- **Ongoing**
- **Short term:** 5 years
- **Medium term:** beyond 5 years, less than 10 years

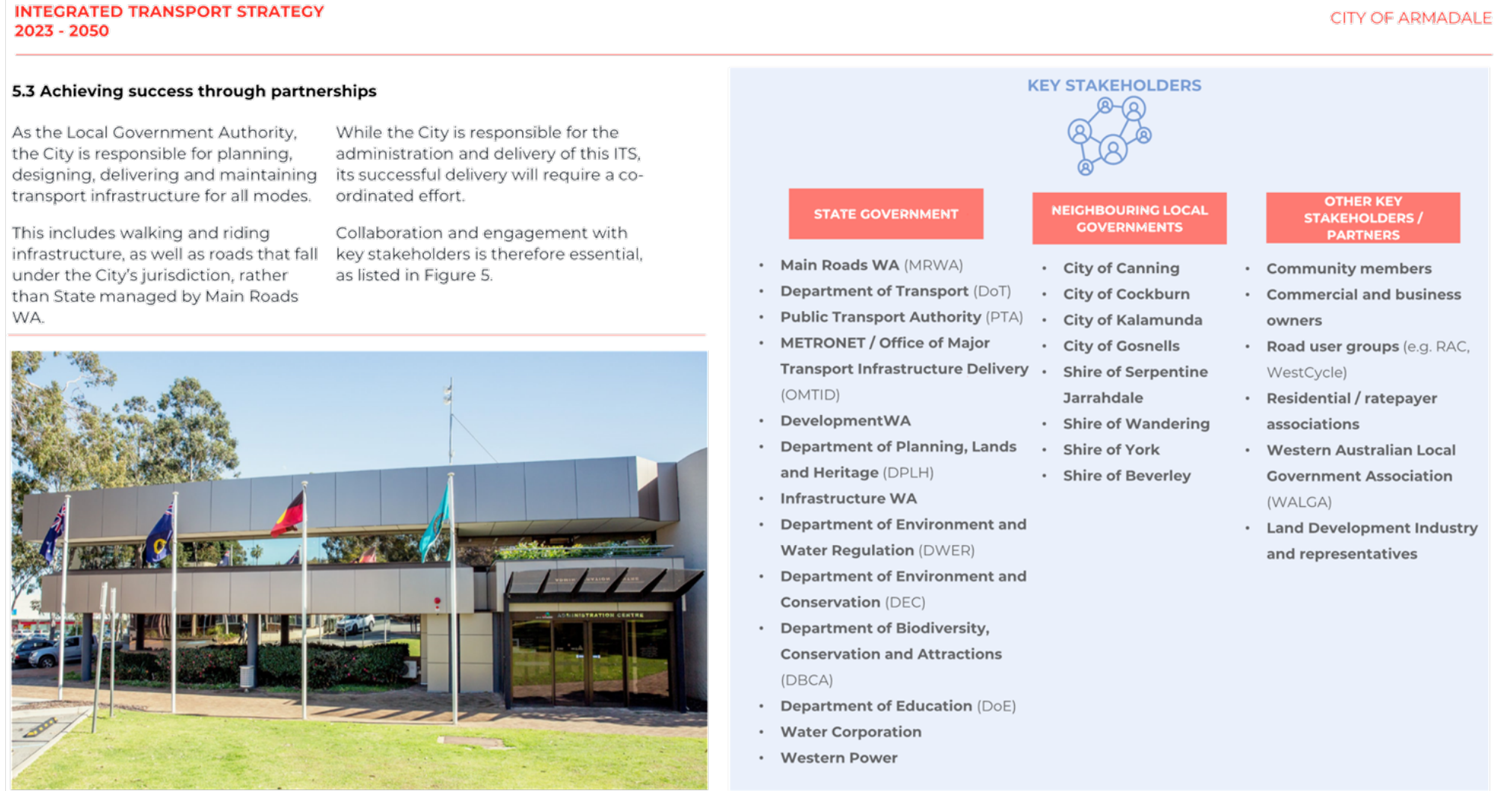


**Cost (to the City)**

- Below \$100k
- Between \$100k to \$500k
- Greater than \$500k







INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

CITY OF ARMADALE



FOCUS AREA

**INCLUSIVE**

An integrated transport network that is inclusive and facilitates equitable transport choices

**THE CHALLENGE**

*As one of the fastest growing local governments in Australia, the City's community is highly diverse. With population growth comes changes in demographic composition, which differ vastly across the City's 19 suburbs. This diversity presents a challenge in providing appropriate infrastructure, amenity and services to meet community needs.*

There are prominent differences in the levels of social disadvantage across the City (see Section 7.2). Low-income households are significantly more affected by transport availability, as the cost of private vehicle mobility (e.g. cost of the car, petrol, maintenance, insurance) can consume a large proportion of household expenditure.

People who don't have access to a car, cannot drive or face other barriers to using private vehicles for most of their transportation needs, are disproportionately impacted where alternative transport options are lacking.

Certain people in the community, such as people with a disability, older adults and young people, experience a greater level of disadvantage and can be unfairly impacted by actions taken relating to the ongoing maintenance of the existing transport network as well as decision-making regarding the future of the transport network.

**THE OPPORTUNITY**

*Underpinning this strategy is a goal to ensure that all people can access the places they want to go in a safe and convenient manner. This includes access to services such as education, employment, health care, retail and leisure.*

By actively prioritising vulnerable user groups, there is an opportunity to create a transport network that is accessible for the broadest cross-section of the community.

This requires contextually-sensitive solutions to be investigated and implemented, which can only occur through effective engagement and consultation to understand user requirements.

Providing and / or advocating for high quality alternative transport options (i.e. modes other than private motor vehicle) is critical to meeting the desired outcomes of this focus area, including interventions to improve conditions for people walking, riding or using public transport, taxis / on-demand transport services.

While local, state and federal policy connections are identified, this strategy strongly aligns with broader international aspirations. The United Nations Sustainable Development Goals, specifically 'Goal 3: good health and well-being', 'Goal 10: reduced inequalities' and 'Goal 11: sustainable cities and communities', can all be achieved through a well-planned transport network.

**DESIRED OUTCOMES / BENEFITS**







- + People of all ages and abilities can safely and conveniently access the places they want to go, with equal access to opportunities and services.
- + Good alternative transport options are available which reduces reliance on private motor vehicles
- + Promotion of social connectedness and community cohesion.

**STRATEGIC ALIGNMENT**

- + City of Armadale Strategic Community Plan 2020 -2030
- + City of Armadale Access and Inclusion Plan 2021 - 2026
- + City of Armadale Community Infrastructure Plan 2021 – 2037
- + City of Armadale Local Planning Strategy
- + State Disability Strategy 2020-2030

**INTEGRATED TRANSPORT STRATEGY  
2023 - 2050**

CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
											
1	Continue to deliver priority actions identified in the City's Skeletal Footpath Network Program, in order to provide a well-connected and high quality pedestrian network. As part of this, review the Skeletal Footpath Network Program criteria to align with the ITS focus areas.	✓	✓	✓				Plan, Deliver and Seek Grant Funding Opportunities	Community, DoT	Ongoing	Between \$100k to \$500k
2	Continue to deliver priority actions identified in the City's Access and Inclusion Plan.	✓	✓	✓				Plan, Deliver and Seek Grant Funding Opportunities	MRWA, Access and Inclusion Committee	Ongoing	Between \$100k to \$500k
3	Continue to deliver priority actions identified in the City's Bus Shelter Program.	✓	✓	✓				Plan, Deliver and Seek Grant Funding Opportunities	PTA	Ongoing	Between \$100k to \$500k
4	Continue to advocate for bus stops upgrades under the PTA's Disability Discrimination Act (DDA) Compliant Bus Stop Program.	✓	✓	✓				Advocate and Seek Grant Funding Opportunities	PTA	Ongoing	Below \$100k
5	Undertake an audit of existing transport facilities, including requirements for DDA compliant parking, and accessible taxi / on-demand transport pick-up and drop-off locations, to improve levels of accessibility and safety where required. Additionally, ensure signage is in place to enable parking enforcement where applicable.  As part of this, identify gaps to ensure DDA compliant facilities are provided in the City in locations where there is a need, including new developments and redevelopments. Facilities must be well-located to meet user requirements and easily identifiable / visible (e.g. signage).	✓	✓	✓				Investigate	DoT, Access and Inclusion Committee	Short term	Below \$100k



INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
6	Continue to actively monitor the use of existing DDA designated parking bays and apply enforcements for non-compliant use.	✓						Deliver	N/A	Ongoing	Below \$100k
7	Continue to promote sustainable transport options, including walking, riding and public transport, through the City's existing communication platforms and community events.  For example this could include continuing to: <ul style="list-style-type: none"> <li>Promote Transperth's fare zone cap initiative and Journey Planner app</li> <li>Provide up to date travel maps and travel information</li> <li>Provide information on end of trip facilities</li> <li>Host events such as riding skills and bicycle maintenance workshops</li> <li>Publish positive news stories to increase the visibility of / normalise the use of sustainable transport modes within the community</li> </ul>	✓		✓	✓	✓		Plan and Deliver	PTA, DoT	Ongoing	Below \$100k
8	Plan suitable housing density codes for walkable / rideable catchments around train stations.	✓		✓				Investigate	DPLH	Short term	Below \$100k

INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

CITY OF ARMADALE



FOCUS AREA

**SAFE**

An integrated transport network that is safe

THE CHALLENGE

*Community safety, both residents and visitors, is paramount. This includes the provision of safe roads and streets for people, regardless of transport mode, as well as personal safety and security.*

Continued collaboration with key stakeholders, such as the WA Police and the PTA, is essential to ensure perceptions of personal safety and security don't function as barriers to access or suppress growth in the adoption of public transport and other sustainable modes.

Crash hotspots have been identified in the City (see Section 9.1.6), with the majority of crashes occurring on State managed roads. Several arterial roads facilitate access to / from and within the City. These routes carry significant vehicle volumes travelling at high speeds, with limited crossing opportunities when passing through urban areas. This creates a barrier to access for people crossing the road on foot or by bike.

Speeding has also been raised as an issue through various community perception surveys and studies undertaken by the City. In some locations this has been attributed to the design of the local road network, including straight alignments with limited to no traffic calming devices and stretches of winding roads with restricted sight lines.

THE OPPORTUNITY

*The actions outlined in this strategy can directly influence road safety by providing and maintaining safe road infrastructure and by creating the conditions to ensure people feel safe getting to the places they want to go.*

While a robust understanding of localised issues is the most effective approach to identifying solutions to each area's specific needs, the combination of infrastructure improvements, policy and advocacy pursuits identified in this strategy aim to improve safety for all users of the transport network.

This includes reducing the number and severity of conflicts occurring on paths and roads, completing gaps in path and road infrastructure, upgrading pedestrian and cycling routes, encouraging safer speeds on local roads or areas with high levels of pedestrian activity, supporting safer crossing opportunities for people walking and riding, and improving personal safety during all hours of the day and night.

The Byford Rail Extension project (see Section 9.2.2) provides a significant opportunity to support community safety outcomes, by employing Crime Prevention Through Environmental Design (CPTED) principles in the design of station precincts and removal of road / rail conflict areas.

DESIRED OUTCOMES / BENEFITS

- + Reduction in the number and / or severity of transport related crashes
- + Reduction in excessive vehicle operating speeds
- + Safe crossing environments for people walking and riding along key desire lines
- + Maintain a positive trend for 'community safety' as measured through the City of Armadale Community Perceptions Survey

STRATEGIC ALIGNMENT

- + City of Armadale Community Perceptions Survey 2018
- + City of Armadale Local Planning Strategy
- + Local Planning Policy PLN 3.14 – Designing out Crime
- + City of Armadale Transport Infrastructure Asset Management Plan 2021/22 – 2035/36
- + City of Armadale Local Area Traffic Management plans (various locations)
- + Driving Change: Road Safety Strategy for WA 2020 – 2030

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INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
1	Continue to develop Local Area Traffic Management Plans for areas where excessive speeding and / or hooning is reported to be an issue. Prioritise the new local road network surrounding the rail level crossing removal, to investigate the influence on vehicle speeds.	✓	✓	✓				Plan and Seek Grant Funding Opportunities	MRWA, WA Police	Ongoing	Between \$100k to \$500k
2	Continue to investigate the installation of local area traffic management measures and devices in areas where excessive speeding and / or hooning is reported to be an issue.  For example in Roleystone, Seville Grove, North Armadale, Mt Nasura (as per previously developed Local Area Traffic Management Plans). Examples of measures may include speed cushions, road plateaus, slow points, signage and line marking.	✓	✓	✓				Plan, Deliver and Seek Grant Funding Opportunities	MRWA, WA Police	Ongoing	Greater than \$500k
3	Continue to provide or advocate for safe crossing opportunities for people walking and riding, in alignment with desirelines, across busy streets and roads such as Nicholson Road, Armadale Road, South Western Highway and Albany Highway.	✓	✓	✓				Plan, Deliver / Advocate and Seek Grant Funding Opportunities	MRWA, DoT	Ongoing	Between \$100k to \$500k
4	Continue to advocate for the application of safer speeds in locations with high pedestrian activity (existing and future), for example in city / town centre environments and around schools, noting that Armadale City Centre has an existing 40 km/h zone that functions well.	✓	✓	✓		✓	✓	Advocate	MRWA	Ongoing	Below \$100k

INTEGRATED TRANSPORT STRATEGY  
2023 - 2050







CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
											
5	Continue to work with WA Police to target excessive speeding and hooning in hotspot locations, including through town centres.		✓				✓	Advocate	WA Police	Ongoing	Below \$100k
6	Advocate for the provision of additional fixed speed cameras in the City, working with WA Police to identify suitable locations.		✓					Advocate	WA Police	Ongoing	Below \$100k
7	Review and plan street lighting upgrades in accordance with the City's street lighting audit, including plans to install smart lighting technology.	✓	✓	✓	✓		✓	Plan and Deliver	Western Power	Medium term	Greater than \$500k
8	Continue to implement the City's Local Planning Policy <i>PLN 3.14 - Designing out Crime</i> as part of development, investigating the application CPTED principles in suitable locations.	✓	✓	✓			✓	Plan and Deliver	N/A	Ongoing	Below \$100k
9	Update <i>PLN 3.14 - Designing out Crime</i> to include consideration of CPTED principles as part of redevelopment and existing urban realm improvements, for example this could be applied in association with planned redevelopments to the Armadale City Centre and Kelmscott Town Centre.	✓	✓	✓			✓	Investigate	N/A	Short term	Below \$100k
10	Continue to monitor locations and seek funding through MRWA's Black Spot program.		✓			✓	✓	Advocate and Seek Grant Funding Opportunities	MRWA	Short term	Below \$100k

DATA 1.1

INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
											
11	Continue to work with MRWA to address safety issues at key intersections and roads. Planned interventions and measures proposed must adequately address the issue and deliver improved road safety outcomes for all modes.  For example, this may include assessing the suitability of dual lane roundabouts for all modes and advocating for alternative treatments like traffic signals where applicable.		✓					Advocate and Seek Grant Funding Opportunities	MRWA	Ongoing	Below \$100k
12	Ensure that the riding network can safely accommodate eRideable users through the delivery of a high quality, well-connected riding network.	✓	✓	✓				Plan, Deliver and Seek Grant Funding Opportunities	DoT	Short to Medium term	Between \$100k to \$500k

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**INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE



FOCUS AREA

**COMMUNITY**

An integrated transport network that empowers the community to choose sustainable modes of transport

**THE CHALLENGE**

*The high reliance on, and a preference for, private vehicle travel by residents of the City is clearly demonstrated by ABS census data and community survey findings (see Section 7.1 and Section 3 respectively).*

The existing transport network creates many barriers to encouraging people to use sustainable modes of transport, including walking, cycling / eRideables and public transport.

Barriers include disconnected / missing links as well as the quality of the City's walking and cycling network in some locations (e.g. poor surface treatment, path condition, limited to no separation from traffic).

Limited bus network coverage and / or service frequencies is also a barrier, creating service gaps and reducing accessibility.

There are many challenges in effectively and efficiently providing bus services through the City. These include the layout of the local road network, topography, or limited potential patronage. In particular, low-density residential zones and newly developed suburbs are often faced with infrequent service or limited coverage.

**THE OPPORTUNITY**

*There is a significant opportunity to effect mode shift from car-based journeys to sustainable transport for travel to, from and within the City, resulting in a healthier, happier and more vibrant community.*

The actions in this strategy aim to encourage sustainable modes of transport as the first choice, by curating an environment where walking, cycling / eRideables and public transport are viewed as legitimate, safe and convenient ways to travel.

As improvements to Perth's rail network are delivered, planning for improved connectivity between communities and the heavy rail network will take focus, including improvements to bus services and investigations into mid-tier transit solutions by the State Government.

The City will continue to deliver and / or advocate for the provision of a well-connected, high quality network of walking and cycling routes and improved public transport, with supporting infrastructure such as end of trip facilities and wayfinding. This includes improving walkability and rideability in the Armadale City Centre, where existing conditions are highly in favour of these modes, building on the existing finer grain street network and good provision of street trees.

Sustainable transport modes are encouraged for access to train stations and localised trips, given the large number of existing and planned activity centres, relatively evenly dispersed around the City (see Section 8.1). The actions also reflect the importance of education and behaviour change measures in encouraging and normalising sustainable travel.

**DESIRED OUTCOMES / BENEFITS**

- + Effect a mode shift from car-based trips to sustainable transport modes
- + Foster healthy communities through increased physical activity and positive mental health benefits
- + Enhance community liveability, wellbeing and safety through increased opportunities for passive surveillance
- + Promote social connectedness and community cohesion
- + Improve air quality from reduction of traffic related CO<sub>2</sub> emissions and noise pollution

**STRATEGIC ALIGNMENT**

- + City of Armadale Skeletal Path Network program
- + City of Armadale Community Infrastructure Plan 2021 – 2037
- + City of Armadale Community Health and Wellbeing Plan 2021 – 2024
- + City of Armadale Local Planning Strategy
- + Perth and Peel @3.5million
- + PTA Station Access Strategies

INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
1	Undertake a walking study around schools to identify the issues unique to each location, recommend solutions to improve safety and increase the number of students walking / riding to school.	✓	✓	✓				Investigate and Seek Grant Funding Opportunities	Schools, DoE, MRWA, DoT	Short term	Below \$100k
2	Update the City's Local Bicycle Network Plan to align with the current network context, including the Long-term Cycle Network.	✓	✓	✓				Investigate and Seek Grant Funding Opportunities	DoT, PTA, MRWA, METRONET	Short term	Below \$100k
3	Support the provision of ancillary infrastructure for active transport (e.g. end of trip facilities, bicycle repair stations etc.)	✓	✓	✓				Advocate / Plan and Deliver	DoT, METRONET, Private developers	Short term	Between \$100k to \$500k
4	Continue to work with the PTA, and METRONET where applicable, to review the existing and future public transport network servicing the City, and advocate for improved public transport services where required.										
	As part of this, ensure good bus service connectivity is provided as part of the Thornlie-Cockburn Link rail line, targeting the suburbs of Piara Waters, Harrisdale and Forrestdale within the City.	✓		✓		✓	✓	Advocate	PTA, METRONET	Ongoing	Below \$100k
	As well as advocate for the development of a mid-tier public transit system servicing the City and connecting to key destinations.										

INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
5	Implement the recommendations in the PTA's Station Access Strategies to provide high quality connections between peoples homes and the relevant train station.	✓	✓	✓	✓			Plan, Deliver and Seek Grant Funding Opportunities	PTA, DoT	Ongoing	Greater than \$500k
6	Continue to support and encourage community based behaviour change programs for (e.g. 'Your Move – schools, community and workplace program' run by the DoT).	✓		✓				Advocate and Seek Grant Funding Opportunities	DoT, Schools	Ongoing	Below \$100k
7	Advocate for the delivery of schools in growth areas to increase walkability to schools and reduce the need for transport to schools by car.			✓				Advocate	DPLH, DoE, Schools	Short term	Below \$100k
8	As part of new community facilities or the redevelopment of existing community facilities (e.g. development of the Armadale Regional Recreation Reserve), support access via all transport modes, prioritising active modes, particularly pedestrian movements.  This includes end of trip facilities, such as investigating provision for eRideable devices (e.g. secure storage).	✓		✓				Plan and Deliver	N/A	Medium term	Between \$100k to \$500k
9	Advocate for continued improvements to existing train stations and rail services along the Armadale Line. This includes support for the suite of initiatives identified in the PTA's Rail Growth Plan, such as the Station Access Improvement Program and Platform and Signalling Upgrade Program.	✓		✓		✓		Advocate	PTA	Ongoing	Below \$100k

DATA 1A



INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE



FOCUS AREA

**ENVIRONMENT**

An integrated transport network that enhances community amenity through designs that are coordinated with Armadale's natural beauty, and highlights the City's diverse landscapes and environment

THE CHALLENGE

*The loss of tree canopy and reduction of native vegetation can be the outcome of urban development, which can pose a challenge for areas in Perth.*

As noted on the City's Urban Forest Strategy webpage "Armadale is one of the fastest growing areas in Perth and with this rapid urban sprawl comes a loss of tree canopy and a greater need to plant and maintain trees in our neighbourhoods, creating what is known as an 'urban forest'."

In recognising the positive benefits associated with trees and vegetation in our streetscapes, the City became one of the first councils in WA to develop an Urban Forest Strategy.

The Urban Forest Strategy seeks to retain and increase the City's natural assets, building on the City's identity as a leafy, green place with high natural value, and the unique offering due to its location within in a transitional zone between the urban and natural environment.

Over the course of five years, 4,792 new street trees have been planted, in addition to the ~700 to 800 planted on residential verges throughout the City each year. The success of providing new trees through the Urban Forest Program is coupled with other measures adopted by the City to preserve trees including Local Planning Policy *PLN 2.4 - Landscape Feature and Tree Preservation*.

THE OPPORTUNITY

*The City's roads and streets provide a significant opportunity to increase tree canopy and vegetation coverage.*

In addition to providing habitat for wildlife, street trees and vegetation provide shades, reduce the urban heat island effect, enhance streetscape amenity and provide pleasant environments for people to walk and ride.

Access to green spaces is linked to positive mental health and wellbeing outcomes, while street trees support the creation of spaces where people can stop to rest and socialise with one another, thereby contributing towards the vibrancy of Armadale's streets.

The Urban Forest Strategy highlights opportunities for tree planting to be used as a means of traffic calming, aiding a reduction in vehicle speeds, and as a measure for enhancing the natural wayfinding attributes of a street.

The actions outlined in this strategy continue to prioritise the preservation of, and increase in, the City's natural assets, ensuring that such considerations are embedded early on in the lifecycle of transport projects.

DESIRED OUTCOMES / BENEFITS

- + Continue to support the retention of existing, and planting of new trees and vegetation as part of transport projects
- + Provide shade for people, reduce temperatures in summer and reduce the impacts of the urban heat island effect

- + Create pleasant environments that encourage people to walk and ride
- + Beautify streets and bolster sense of place within communities
- + Provide habitat for wildlife and enhance local biodiversity
- + Positive public health outcomes







STRATEGIC ALIGNMENT

- + City of Armadale Strategic Environmental Commitment
- + City of Armadale Urban Forest Strategy 2014
- + City of Armadale Local Planning Strategy
- + Local Planning Policy *PLN 2.4 - Landscape Feature and Tree Preservation*
- + Local Planning Policy *PLN 2.6 - Water Sensitive Design*
- + City of Armadale Community Health and Wellbeing Plan 2021-2024

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CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
											
1	Continue to identify opportunities for preserving existing trees and vegetation as well as planting new trees and vegetation as part of transport related projects.  As part of this, continue to implement the City's Local Planning Policy <i>PLN 2.4 – Landscape Feature and Tree Preservation</i> which highlights the importance of tree and landscaping feature retention.	✓		✓	✓	✓	✓	Plan and Deliver	MRWA, PTA, METRONET, OMTID	Ongoing	Between \$100k to \$500k
2	Continue to implement the City's Local Planning Policy <i>PLN 2.6 – Water Sensitive Design</i> and investigate suitable locations to apply water sensitive urban design principles along transport corridors.				✓			Plan and Deliver	Water Corporation, DEWR	Ongoing	Between \$100k to \$500k
3	Develop a Trails Network Plan as endorsed by Council. The plan may include identifying suitable locations for walking, riding and horse riding trails / loops. As part of the plan, identify suitable locations to install lookout points.	✓		✓	✓	✓		Investigate	DBCA	Short term	Below \$100k
4	Prepare a Biodiversity Protection Policy and Procedure to inform avoidance, mitigation and offset of impacts as relates to infrastructure provision.				✓			Plan and Deliver	N/A	Short term	Below \$100k

**INTEGRATED TRANSPORT STRATEGY  
2023 - 2050**

CITY OF ARMADALE



**FOCUS AREA**

**ECONOMIC DEVELOPMENT & GROWTH**

An integrated transport network that facilitates growth and provides regional connections to support a strong local economy and reinforce the City's role as a Strategic Metropolitan Centre

**THE CHALLENGE**

*The City's role as a Strategic Metropolitan Centre, coupled with the growth of supporting activity and retail will support local jobs and attract regional employment, increasing the number of people living in the City and number of visitors to the area. The consequence of this additional activity is an increased pressure on the City's existing transport infrastructure, particularly the regional road network.*

To support this, significant investment in infrastructure is occurring in and around the City, including the State Government's METRONET projects (see Section 9.2.2). This will have a material effect on the urban form of the area and will require careful design to ensure that it supports the City's local planning objectives.

A sufficient supply of parking is necessary to facilitate the economic viability and growth of the Armadale City Centre, as private motor vehicles continue to be the dominant form of mobility. Appropriate parking policy and management methods can be used to mitigate the adverse impacts of over-supply, creating an equitable and efficient system which supports activity in the city centre environment.

In future, freight throughput is also expected to increase along the extensive network of freight routes that run through the City (see Section 9.1.7). It is vital that the transport network facilitates the efficient movement of goods, while mitigating the impact of the growing freight task on the City's residents and road users.

**THE OPPORTUNITY**

*The success of the City as a Strategic Metropolitan Centre, supporting the growth and vitality of Armadale's economy, requires a co-ordinated effort between multiple agencies and key stakeholders.*

The significant Government investment on METRONET projects in the area is an opportunity to deliver positive outcomes that contribute towards supporting the City (particular the Armadale City Centre) as a major destination in Perth's southeast. This includes providing high quality station precincts with appropriate car parking provisions, to create places that meet the needs of users.

Advocating for the strategic development of freight links is also key to supporting economic growth and commercial activity, while also maintaining a safe road network.

The City is expected to experience a scale of change and development that will reduce the need for people to travel for work and services outside of the City. This creates an opportunity to shape the travel behaviour of new residents by making sustainable travel a compelling choice, particularly for short-distance travel to local services and facilities.

To achieve this, high quality infrastructure (e.g. shared / bicycle paths) should be embedded as part of new developments, as retrofitting these facilities to existing urban areas can be slow and expensive. For the redevelopment of the City's established areas, opportunities will be investigated as part of major developments and streetscape improvements.

**DESIRED OUTCOMES / BENEFITS**

- +Ease of access to jobs and services in the City for residents and visitors
- +Highly accessible activity and retail centres
- + High quality station precincts, public transport infrastructure and supporting services
- + Efficient movement of goods
- + Mode shift to sustainable transport options, particularly for localised journeys

**STRATEGIC ALIGNMENT**

- +Draft Armadale City Centre Structure Plan
- +City of Armadale Local Planning Strategy
- +Local Planning Policy PLN 2.10 – Environmentally Sustainable Design
- +Local Planning Policy PLN 2.4 – Landscape Feature and Tree Preservation.
- +Activity and Retail (Commercial) Centres Strategy 2020
- +City of Armadale Community Economic Development Strategy 2018 - 2022
- +Perth and Peel @3.5million

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2023 - 2050

CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
1	Embed sustainable transport infrastructure as part of new development areas and continue to implement the City's Local Planning Policy <i>PLN 2.10 – Environmentally Sustainable Design</i> and <i>PLN 2.4 – Landscape Feature and Tree Preservation</i> .	✓		✓	✓	✓		Plan and Deliver	Private developers	Ongoing	Below \$100k
2	Support localised freight movements and deliveries through the provision of fit-for-purpose loading areas in key locations.		✓			✓		Advocate	Private developers, MRWA	Short term	Below \$100k
3	Undertake a study to investigate alternative freight and delivery vehicle service provision in the Armadale City Centre, as demand for kerbside space increases.  For example this could include measures to encourage off-peak delivery times, or using more space efficient vehicles, such as eRideables, for the last mile delivery of goods.		✓			✓		Investigate	MRWA, Private developers, DPLH	Medium term	Below \$100k
4	Continue to support the development and continuous improvement of high quality activity centres which meet the needs of the community, though existing and proposed activity centre / precinct plans.	✓	✓	✓	✓	✓		Plan and Deliver	METRONET, PTA, MRWA, DPLH, Private developers	Ongoing	Between \$100k to \$500k
5	Continue to advocate for the delivery of high quality station precinct and public realm outcomes, delivered as part of METRONET projects. As part of this, ensure that project outcomes are aligned with, and can successfully meet, both the City's and METRONET's strategic planning objectives.	✓	✓	✓	✓	✓	✓	Advocate	METRONET, MRWA, PTA	Ongoing	Below \$100k

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CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
6	Advocate for improved weekend and night-time bus services to support an evening economy, as the City's land uses develop to support activation of the Armadale City Centre.	✓	✓	✓		✓		Advocate	PTA	Medium term	Below \$100k
7	Continue to support the committed and funded Tonkin Highway Extension project, in support of improved connectivity for freight / heavy vehicles.		✓			✓		Advocate	MRWA	Ongoing	Below \$100k
8	Continue to advocate for the development of strategic east-west routes to support the movement of freight along routes that can move goods efficiently and safely, for all road users.	✓	✓	✓		✓		Advocate	MRWA, Westport	Ongoing	Below \$100k
	<p>This includes working with key partners to understand potential impacts for the City resulting from the Westport project, which identifies Anketell-Thomas Road as the strategic freight corridor. Further, work with key partners to identify the role of Rowley Road as a key strategic east-west link.</p> <p>Additionally, advocate for the planning and implementation of a freight bypass route connecting Albany Highway, South Western Highway and Brookton Highway, to reduce freight movements through the Armadale urban areas.</p>										

**INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
											
9	Continue to monitor road conditions along major road corridors under consideration in the MRWA Future State Administered Roads Project – Metropolitan, and advocate for upgrade and classification assessment as required. Roads that are currently under consideration include Ranford Road, Nicholson Road, Warton Road and Rowley Road.	✓			✓			Advocate	MRWA	Ongoing	Below \$100k
10	In recognising the importance of regional transport connectivity for the City, continue to collaborate with surrounding neighbouring Councils to improve and enhance transport, including road safety, efficiency planning and issues relating to boundary roads.	✓	✓	✓		✓		Plan, Deliver / Advocate and Seek Grant Funding Opportunities	Neighbouring Local Government Authorities, MRWA, DoT	Ongoing	Below \$100k to Greater than \$500k

INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE



FOCUS AREA

LEADERSHIP & INNOVATION

An integrated transport network that is future ready, demonstrating leadership and our commitment to improving the way people move to / from and within the City

THE CHALLENGE

*Transport is currently experiencing a transformation at an incredibly rapid rate, with the introduction of new and disruptive technologies. This has a profound impact on the way people move around, and will continue to do so into the future.*

Examples of emerging technology in the field of transport include electric vehicles, autonomous or driverless vehicles, drones and eRideables such as e-scooters, e-skateboards, e-unicycles, hoverboards, and even include continuous advancements in e-bike technology.

Anecdotal evidence indicates that there has been a surge in demand in the use of eRideables in and around the City, which is expected increase. While such devices are extremely effective in servicing first and last mile trips, their uptake will be contingent on the provision of suitable riding conditions.

eRideables have similar space requirements and travel at similar speeds as bicycles, as such, it is expected that demand on the City's cycling network will increase.

On a broader scale, there will be an increase in demand for the use of road space as the City further develops, and the movement of people and goods grows. This presents a challenge for the City, in managing a finite amount of road space, coupled with some degree of uncertainty as to how emerging transport technologies will change peoples' travel choices, and to what extent.

THE OPPORTUNITIES

*There have been many "firsts" in the City of Armadale and the Council has demonstrated progressive sector leadership and innovation over multiple areas including health, economic development, environment, planning and transport innovations which provides a City platform to extend the boundaries through integrated transport projects and initiatives.*

Transport is the second largest source of carbon emissions in Australia, therefore, has a major role in supporting the State Government's goal to achieve net zero greenhouse gas emissions by 2050.

The City's commitment to reducing carbon emissions as per its Corporate Greenhouse Action Plan, contains several actions relating to transport. The role of emerging transport technologies in making Armadale's streets and roads safer and more efficient will also be investigated, alongside adopting best-practice, evidence-based approaches to help plan, manage and deliver transport in Armadale.

The Healthy Streets Approach is one example of a framework that can be used to assess how Armadale's streets perform. At it's core this approach is about making streets healthy places for everyone and places people and their experience at the centre of decision-making.

DESIRED OUTCOMES /  
BENEFITS

- +The City is a known leader in adopting and applying best-practice transport approaches
- +Emerging technology is used to support the realisation of the City's transport vision
- +The City is well positioned in understanding how emerging transport technologies can impact travel choices and network requirements

STRATEGIC ALIGNMENT

- +City of Armadale Corporate Greenhouse Action Plan 2020/21 – 2029/30
- +City of Armadale Local Planning Strategy
- +City of Armadale Strategic Community Plan 2020-2030
- +Western Australian Climate Change Policy

INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE







No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
1	<p>Trial the application of the Healthy Streets Approach to a project to identify, deliver and measure the impacts of interventions to create inclusive, healthy environments, including:</p> <ul style="list-style-type: none"> <li>Using the Qualitative Street Assessment to set out the scope of the project.</li> <li>Applying the Design Check tool at each stage of a planned project to quantify how street design improves the 10 Healthy Street Indicators.</li> <li>Using the Healthy Streets Survey to elicit stakeholder views on the project street before and after implementation.</li> <li>Using Healthy Streets framing in public facing communications.</li> </ul> <p>The trial will be assessed to determine success and next steps for embedding the approach into Council activities and operations.</p> <p>As part of this, upskill key decision makers, including Elected Members and senior members of staff, on delivering the Healthy Streets Approach as part of their roles / undertaking training to become qualified Healthy Streets practitioners.</p>	✓	✓	✓	✓		✓	Plan and Deliver	N/A	Short term	Below \$100k
2	Continue to electrify of the City's operational vehicle fleet as per the City's Corporate Greenhouse Action Plan.			✓	✓	✓	✓	Plan and Deliver	N/A	Ongoing	Greater than \$500k

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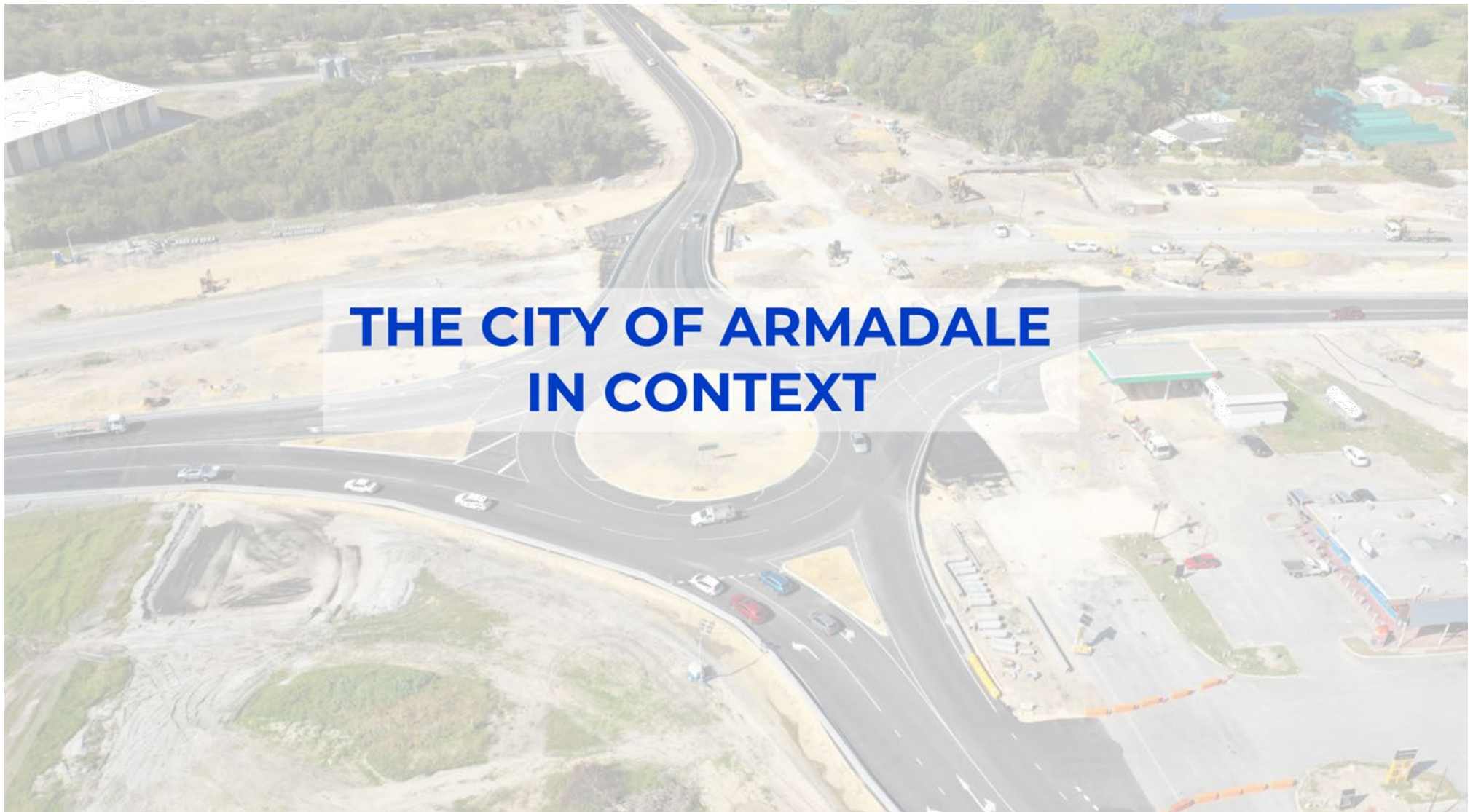
CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
											
3	Partner with key stakeholder / explore different partnership agreements to investigate the feasibility of, including suitable locations, to provide electric vehicle charging infrastructure.	✓			✓		✓	Advocate	DoT, RAC, WALGA, Private developers	Medium term	Below \$100k
4	Investigate the feasibility of supporting a privately operated car share scheme, to support the reduced need for private vehicle ownership.	✓		✓	✓	✓	✓	Investigate	DoT, Private companies	Medium term	Below \$100k
5	Investigate on-demand transport options to supplement gaps in existing public transport service provision.										
	For example this may include for the suburbs of Roleystone and Mt Nasura, which are challenging areas to service effectively via buses.	✓	✓	✓			✓	Investigate	DoT, PTA	Short term	Below \$100k
6	Undertake a study to explore the potential application of Intelligent Transport Systems within the City.										
	For example, this may include:										
	• Modal priority at traffic signals										
	• Dynamic speed signs and variable messaging (e.g. displaying live vehicle speeds, smiley / sad face icons)										
	• School speed limit signs	✓	✓			✓	✓	Investigate	MRWA, PTA, DoT, Disability Sector	Medium term	Between \$100k to \$500k
	• Real-time information (e.g. live bus tracker information at bus shelters, or Park and Ride availability at train stations)										
	• Freight management systems										
	• Smart lighting technology (in locations additional to those already identified as part of the City's street lighting audit)										

**INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE

No.	Action	Alignment with Focus Areas						The City's Role	Key Partners / Stakeholders	Timeframe	Cost (to the City)
		Inclusive	Safe	Community	Environment	Economic Development & Growth	Leadership & Innovation				
7	Continue to advocate with METRONET, PTA and MRWA to ensure the train line closures (for METRONET projects) have minimal impact on people who use public transport.	✓	✓				✓	Advocate	METRONET, PTA, MRWA	Ongoing	Below \$100k
8	Investigate external funding opportunities to support the delivery of this Action Plan. As an example this may include through the Department of Transport's Active Travel Officer Grant category which provides funding to support Local Government Authorities to employ an Active Travel Officer to deliver local active travel initiatives.						✓	Investigate and Seek Grant Funding Opportunities	DoT	Short term	Below \$100k
9	Continue to review staff travel behaviour, including: <ul style="list-style-type: none"> <li>Travel during work hours – optimisation of travel time through OneCouncil Work Management module</li> <li>Travel staff commuting patterns including implementing the recommendations as per the City's Corporate Greenhouse Action Plan e.g. encourage staff travel via sustainable modes of transport.</li> </ul>				✓		✓	Plan and Deliver	N/A	Ongoing	Below \$100k



INTEGRATED TRANSPORT STRATEGY  
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CITY OF ARMADALE

## 6. SITE CONTEXT

Located in Perth's south-eastern suburbs, approximately 28 kilometres (km) from the Perth CBD (see Figure 6), the City is surrounded by multiple other Local Government Areas (LGA), highlighting the importance of regional transport connectivity for the City.

This includes the City of Cockburn to the west, the City of Gosnells and the City of Kalamunda to the north, the Shire of York and the Shire of Beverley to the east as well as the Shire of Serpentine Jarrahdale and the Shire of Wandaring to the south.

The City is uniquely situated at the foothills of the Darling Range, resulting in the City being made up of a large portion of dense bushland, particular to the east.

Historically, the City has identified itself as a country town, sitting on the fringes of the Perth metropolitan area.

However, it has since transitioned and is rapidly evolving into a major regional activity centre, servicing key growth areas both within the City as well as in areas surrounding the City (e.g. Byford).

The City encompasses a large geographic area with a total of 19 suburbs, many of which include populations with diverse needs and / or with a range of socio-economic groups.

Over the next 30 years, Armadale will experience a step change in land use to accommodate the anticipated growth in population, with key growth areas planned for the City, including both greenfield development as well as increased densification through infill and urban renewal.

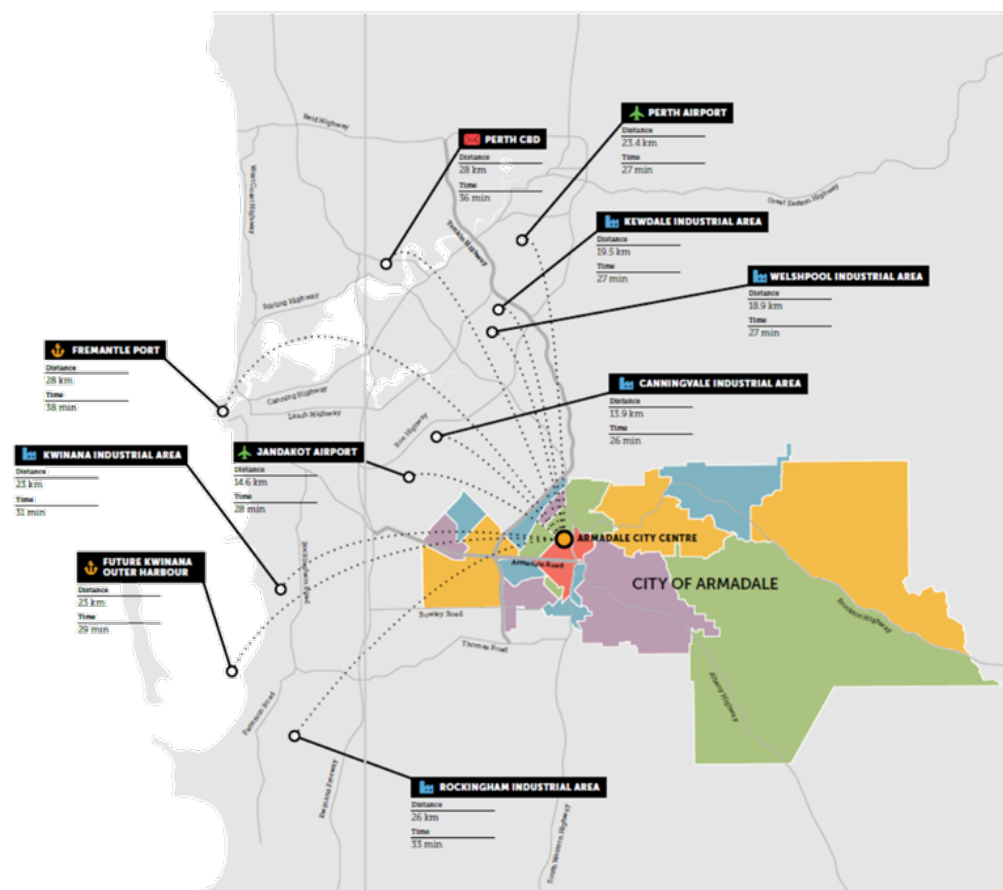


Figure 6: Location context (City of Armadale Business Investment Prospectus 2022 – 24)



7. THE PEOPLE

7.1 Existing

As per 2021 ABS census data (sourced through ABS TableBuilder) the City's average households are made up of:

- 54% couples with children
- 18% couples without children
- 8% people living alone
- 12% one parent families
- 7% other households
- 12% seniors vs. 16% Greater Perth
- 23% young people vs. 19% Greater Perth

5% people with a disability which is aligned with Greater Perth

There is a higher number of households in the City that own more than one vehicle (58%) compared to Greater Perth (52%).

The majority of residents commute to work by driving a car, as depicted in Figure 9 overleaf. The proportion of residents driving a car to access work (91%) is significantly higher than Greater Perth (86%).

This indicates a strong reliance on private motor vehicle use by the City's residents. This is also evidenced in the community survey, where 80% of respondents' most common travel mode was car (see Section 3).

Seventy percent of the City's working age residents are employed which is less than the 73% of Greater Perth. Key employment sectors include 'health care and social assistance' (15%), 'retail trade' (10%) and 'construction' (9%).

As per Figure 7, overall, there are more workers living in the City than there are number of jobs available in the City. As a result of this, the majority of residents are required to travel outside of the City to access their place of work, as shown in Figure 8, thereby inducing demand on the City's road network.

A key objective in the City's future planning framework is to increase the City's employment self-sufficiency by growing the local economy.

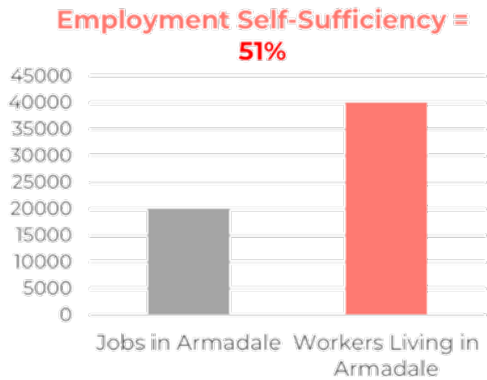


Figure 7: City of Armadale jobs vs. residents

Where do City of Armadale residents travel for work?

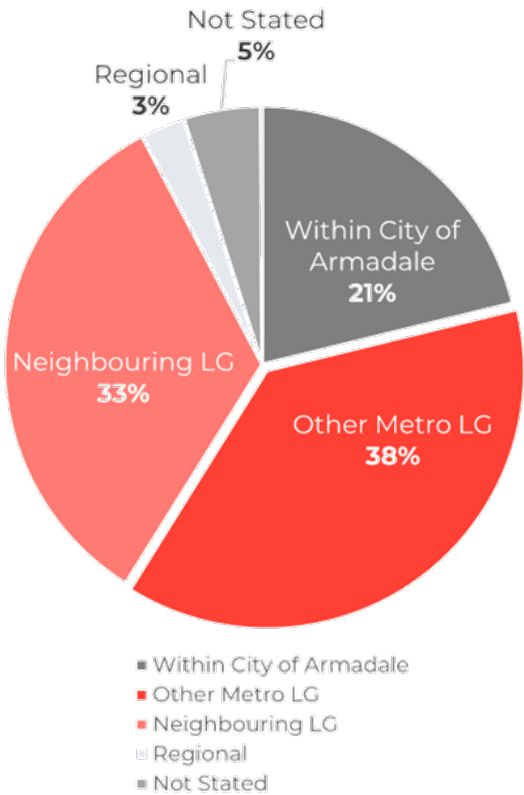


Figure 8: Work locations of City of Armadale residents

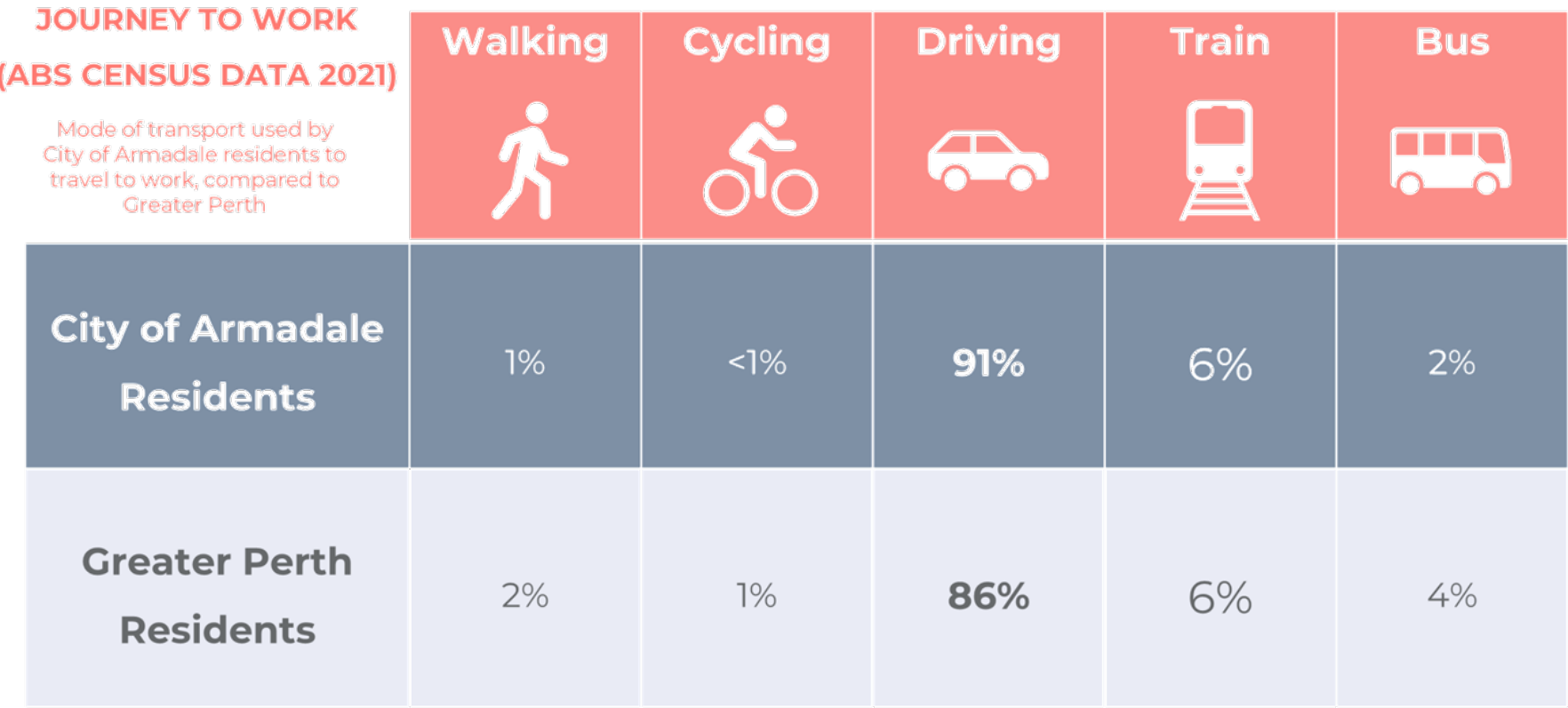


Figure 9: ABS census data – Journey to Work (2021)



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CITY OF ARMADALE

## 7. THE PEOPLE

### 7.2 Socio-economic profile

Figure 10 depicts information from the Socio-Economic Indexes for Areas (SEIFA), which ranks and displays areas according to relative levels of socio-economic advantage and disadvantage.

SEIFA is derived from attributes such as level of income, educational attainment, level of employment and occupations.

As can be seen, the older / established suburbs of the City, are ranked with high levels of social disadvantage, including the suburbs of:

- Armadale
- Camillo
- Kelmscott
- Seville Grove

Conversely, the City's eastern suburbs, as well as the western suburbs of Harrisdale and Piara Waters to the west, are identified as areas with the least social disadvantage.

The variances between the City's suburbs are extremely diverse. Piara Waters ranks in the top 4% of suburbs with the least disadvantage, while Armadale (south) ranks in the bottom 4% of suburbs, with high levels of social disadvantage.

In recognition of this disparity, this ITS has been developed to support access and mobility in a way that will not have a disproportionate social impact.

*The ITS seeks to provide a transport network that functions in support of social equality and access for all. This is particularly important for the City where there is a clear disparity between areas of high and low social disadvantage.*

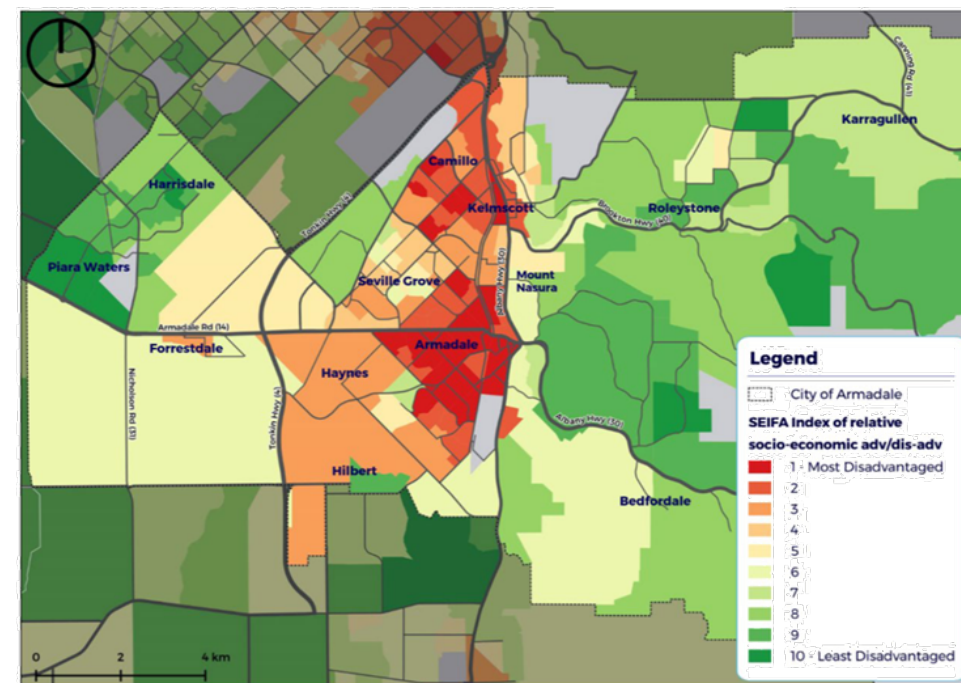


Figure 10: SEIFA Index (2016 ABS census data)

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CITY OF ARMADALE

## 7. THE PEOPLE

### 7.3 Future

Over the next 30 years, the City is expected to experience a step change in land use to accommodate the anticipated growth in population.

As outlined in previous sections, the City's population is forecasted to grow from almost 98,000 at present, to just under 152,000 by 2041, and 160,000 by 2051, making it the third fastest LGA in Western Australia.

The growth potential for the City can be attributed to greenfield development as well as increased densification through infill and urban renewal. Additional key growth areas planned for the City are identified in Section 8.2 of this ITS.

Figure 11 depicts the increase in dwellings between 2016 to 2041 forecasted for the City's suburbs. The largest concentration of increase in dwellings is observed within the City's western suburbs, including:

- Hilbert
- Piara Waters
- Harrisdale
- Haynes
- Forrestdale

Minimal change in dwelling yields is expected to occur in the locality's eastern suburbs, preserving the character of this rural, low density residential area.

In total, the number of dwellings in the City is anticipated to increase from 32,000 in 2016 to almost 58,000 dwellings in 2041.

With this growth also comes change in demographic composition, including cultural and linguistic community diversity within the City.

As per 2021 ABS census data, 36% of Armadale's community were born overseas, while households where a language other than English is spoken rose by 5% between 2016 and 2021.

As such, the transport network will need to be maintained and developed in a way that can sustainably support this large amount of growth, as well as meeting the needs of the diverse Armadale community.

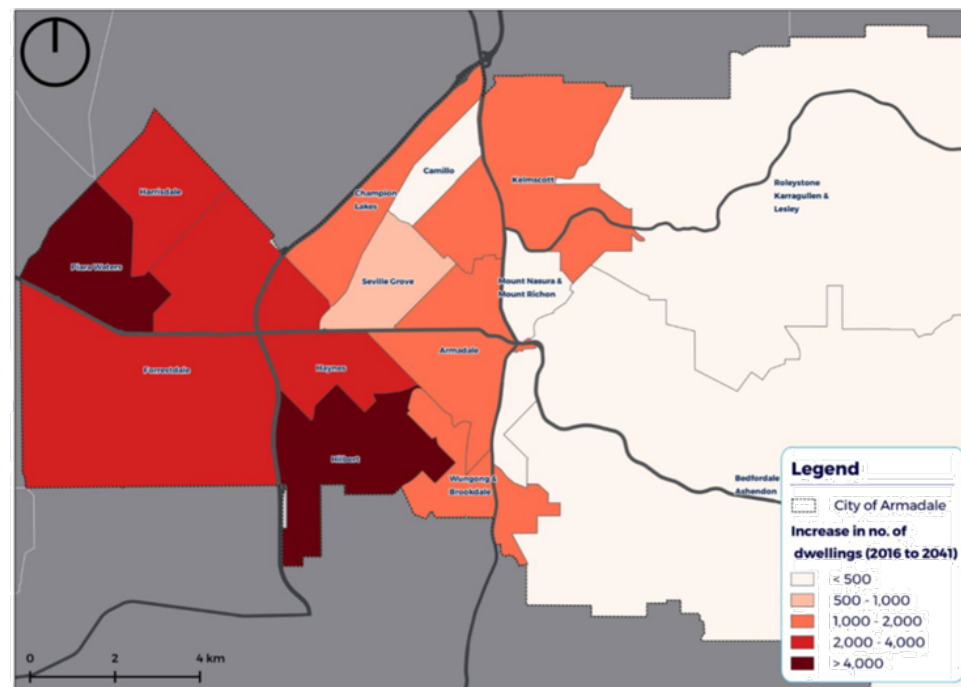


Figure 11: Increase in dwellings between 2016 to 2041

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## 8. THE PLACES

### 8.1 Existing

The City contains a diverse range of land uses and destinations, including 26 existing activity and retail centres, which is set to grow to a total of 44 in future (refer to Figure 12).

This includes the Armadale City Centre which is identified by the State Government as one of only ten Strategic Metropolitan Centres in Perth.

Strategic Metropolitan Centres are multipurpose centres that provide the full range of economic and services necessary for the community, and have an important focus on rail and / or high frequency bus connectivity to and from the centre.

Kelmscott, Harrisdale and Hilbert are identified as District Centres, and are supported by several lower order Neighbourhood and Local Centres.

These centres are essential places where people work, shop, socialise and access key services such as health care.

In addition, the Armadale Health Centre functions as a key destination in the City for medical provision.

The City also houses a range of educational facilities, including primary and secondary schools as well as the South Metropolitan TAFE Armadale Campus which are key trip attractors.

The City contains a number of significant industrial areas which are vital in facilitating economic development within Armadale, as well as supporting the State's long-term economic growth.

A wide variety of community facilities are provided by the City, including high quality public open / recreational spaces, playgrounds, parks, walking trails, sporting reserves, the Armadale Fitness and Aquatic Centre and the state of the art Champion Lakes Regatta Centre.

The Canning River and Wungong River also run through the City, with these natural features serving as recreational attractors for the region.

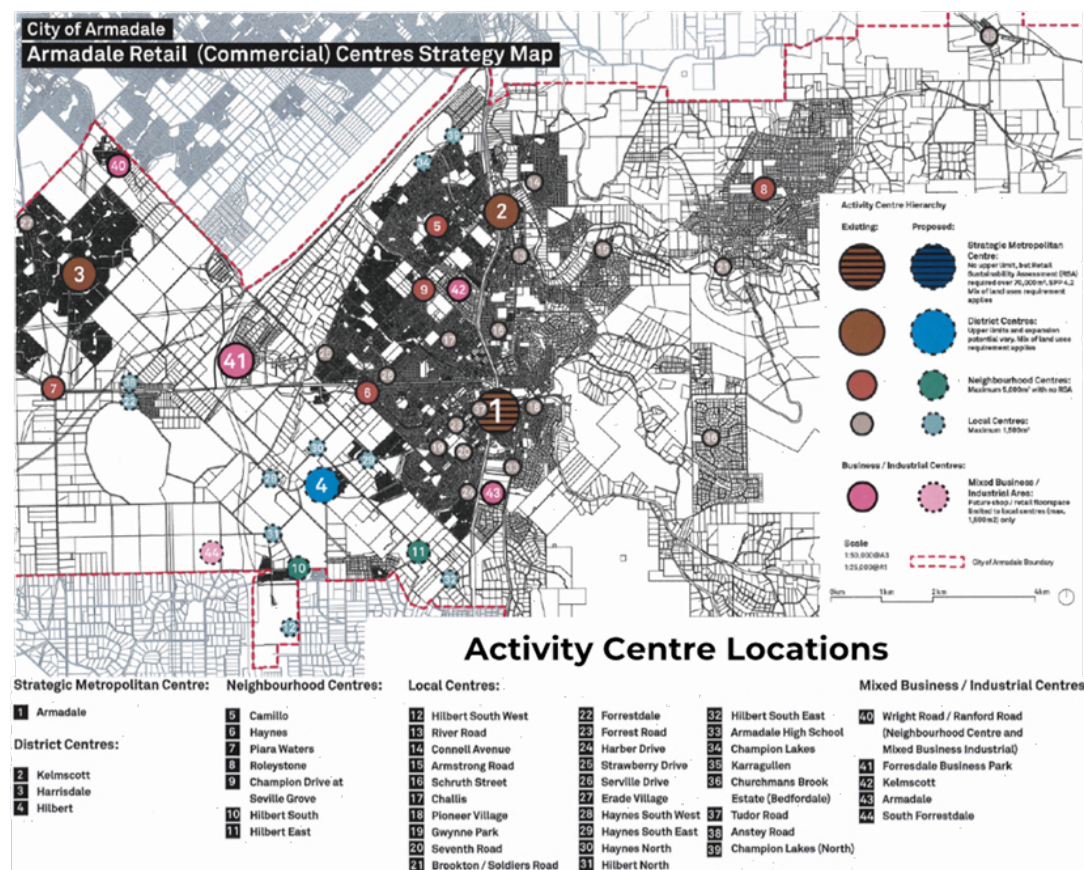


Figure 12: City of Armadale Activity and Retail (Commercial) Centres Strategy map



8. THE PLACES

8.2 Future

There are several proposed development areas planned for the City to support the needs of the growing community.

The **Draft Armadale City Centre Structure Plan** (the structure plan) was developed to guide the growth of the Armadale City Centre, supporting the estimated changes outlined in Table 1:

Table 1	EXISTING	FUTURE
HOUSES	236	1,250 – 2,300
PEOPLE	456	5,000 – 7,000
JOBS	3,000	18,000

The structure plan divides the Armadale City Centre into nine distinct precincts, each meeting unique requirements (Figure 13), however, two core objectives for the area relating to transport are underlying:

- People first:** Seize opportunities to foster vitality and create human scale spaces, focusing on walkability, safety and comfort
- A connected city:** Create a connected, sustainable, efficient and convenient all-modes transport network to underpin the city's urban regeneration

Other key development areas include precinct planning for the **Kelmscott District Centre Precinct Structure Plan**. The area's urban form is set to evolve, with greater emphasis on higher density living near public transport and the town centre, in line with the core objectives of METRONET (see Section 9.2.2).

DevelopmentWA's **Armadale Redevelopment Area 2** is another initiative that consists of a number of defined project areas including: Champion Lakes, Forrestdale, Kelmscott and Wungong Urban Water. As part of these developments, provision of new community facilities, housing opportunities, and business opportunities are planned.

The City's activity and retail centres, pictured in Figure 12, will strengthen its role as the strategic centre of Perth's south-eastern corridor, offering more places for people to live, work and play.

These centres are relatively evenly dispersed throughout LGA. This presents an opportunity to encourage short-distance walking and riding to access local services.

On the whole, the transport network will have a critical role in connecting people to these existing and emerging, facilitating access to jobs, and therefore, supporting economic growth and development.



Figure 13: Draft Armadale City Centre Structure Plan precincts

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CITY OF ARMADALE

## 9. THE TRANSPORT NETWORK

### 9.1 Existing

#### 9.1.1 Walking

Collectively, the City's existing network currently comprises of 566 km of footpaths and shared paths.

The City is responsible for managing this network, including maintaining and, to a certain extent, developing the network in conjunction with new developments.

*Regardless of which mode a person travels by, everyone experiences being a pedestrian at some point in their journey.*

Even those that drive to work or the shops need to park and walk to their destination.

The benefits of walking are widely recognised, and include improving liveability, enhancing social connectedness and fostering healthy communities.

With the exception of the higher order roads (which primarily perform a direct vehicle movement function) the City's road network surrounding existing residential developments is largely characterised by a curvilinear pattern.

This type of road network typically favours motor vehicle usage, introducing a cul-de-sac street pattern / design to reduce / eliminate through movements and non-local circulation in local residential streets.

This has the effect of diminishing the pedestrian experience by introducing indirect and often circuitous walking routes.

The City's public access ways (PAWs) provide more direct linkages and enhance accessibility, although the use of PAWs can be inhibited by perceptions of personal safety and security.

A core objective of the State's planning framework is to increase residential infill, with a focus on areas with good access to public transport and other amenities.

As a result, the number of people living within the immediate walkable catchments of key activity centres, including the Armadale City Centre and Kelmscott Town Centre will increase, as will the level of service offerings for residents and visitors.

This will potentially drive a shift in the way residents access services and amenities within the City and serve as a catalyst for reducing the high level of reliance on private motor vehicles currently experienced within the City.

Major roads including Armadale Road, South Western Highway, Albany Highway as well as the rail line function as barriers to access in the Armadale CBD, reducing the effective extents of the walkable catchment.

This impact is particularly evident to the east of the city centre where many homes in Mount Richon's north lie well outside of a 15-minute walking distance to the city centre, despite being less than 1,200 m away.

Reducing this severance effect will allow more people access to the centre safely and conveniently.



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CITY OF ARMADALE

## 9. THE TRANSPORT NETWORK

### 9.1 Existing

#### 9.1.2 Cycling

Riding routes within the City exist in various forms, including on and off-road bike lanes and shared paths, providing for both bicycle riders and eRideable users (e.g. e-scooters, e-skateboards etc.)

The City contains a number of principal shared paths (PSPs) and other high quality shared paths which connect to the finer grain cycling network. PSPs runs along Tonkin Highway, Armadale Road and parallel to the Armadale rail line. However, gaps remain along some of these linkages.

Changes to the WA Road Traffic Code in 2016 has resulted in people of all ages being able to ride on footpaths (except where signed otherwise), providing an increased level of accessibility for those riding to, from and within the City.

While the City's localised footpath network provides lower order cycling access, these paths are of varying quality and are often disjointed or missing, which makes them unattractive for higher speed or long distance trips.

While several good road riding environments and bicycle lanes / sealed shoulders are provided, some of these routes are considered unlikely to attract a broad segment of the population, due to real or perceived safety issues (high speed traffic, large vehicle combinations, intersection conflicts).

*As outlined in Section 3, improving infrastructure for bikes / eRideables ranked as the second most important measure to improve people's transport journeys in the community survey.*

Topography also presents a challenge for everyday, commuter riding within the City. While less of a barrier for eRideable users, the City's east is defined by a steep and undulating environment.

These unique characteristics draw users from a different subset of the riding community, including sports cyclists and recreation riders, for fitness or high intensity training. This presents opportunities for the City to develop a cycling tourism economy and identify opportunities for trail riding, leveraging on its proximity to the Perth foothills and gateway to the internationally renowned Munda Biddi Trail.

Major roads function as barriers to riding as well as walking, due to the high volumes of vehicles travelling at speed, and limitations in safe crossing provision.

This issue is pronounced to the east of the Armadale City Centre along Armadale Road and South Western Highway, where some areas northeast of the city centre are not considered accessible to cyclists as a result of severance effects.

Improvements to the riding network, including the provision of a highly connected, direct and safe network (e.g. separation from traffic, dedicated crossing points) are considered to be essential elements to get more people riding in the City.



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9. THE TRANSPORT NETWORK

9.1 Existing

9.1.3 Public transport: train

There are four train stations located within the City, including Armadale Station, Sherwood Station, Challis Station and Kelmscott Station, as pictured in Figure 14.

All services stop at these stations, irrespective of the service pattern, with good service frequency during peak periods. Armadale Station is located in zone 4 of the Transperth network, with all other stations located in zone 3.

Regional connections are provided via Transwa coaches to the State's east and southeast, and the Australind service provides connections to Bunbury via rail.

Armadale Station is located within the Armadale City Centre and Kelmscott Station is located in relatively close proximity to the town centre. As outlined in Section 8.2, the areas surrounding these stations are expected to undergo significant development in the coming decades.

In response, both stations will have a heightened role in connecting people to these areas, not only in continuing to connect the current catchments, but also in supporting the increased number of trips to the Armadale City Centre and Kelmscott Town Centre as they further evolve into key attractors for both the local and wider community.

Both stations serve a large catchment area. Kelmscott Station is close to residential zones in the eastern hills catchment, and Armadale Station currently functions as an end-of-line station, servicing an extended area that extends through to Byford.

However, METRONET's Byford Rail Extension project (refer to Section 9.2.2 for more information) will see the extension of the Armadale rail line to Byford, which will function as the new end-of-line station and is expected to have a significant impact on travel patterns for these users, providing direct connectivity to the rail network.

In contrast, the catchments surrounding Sherwood Station and Challis Station are predominantly comprised of low-density residential housing, however have higher R-Codes to provide for housing diversity and intensification. Both are expected to continue to function as minor suburban stations.

*With four train stations located in the City, the rail line provides excellent connectivity between Armadale, the Perth CBD and other key destinations along the line (e.g. Cannington). This, coupled with the large investment committed to improving public transport, provides a significant opportunity to promote multi-modal journeys, and encourage a greater share of trips via the train.*

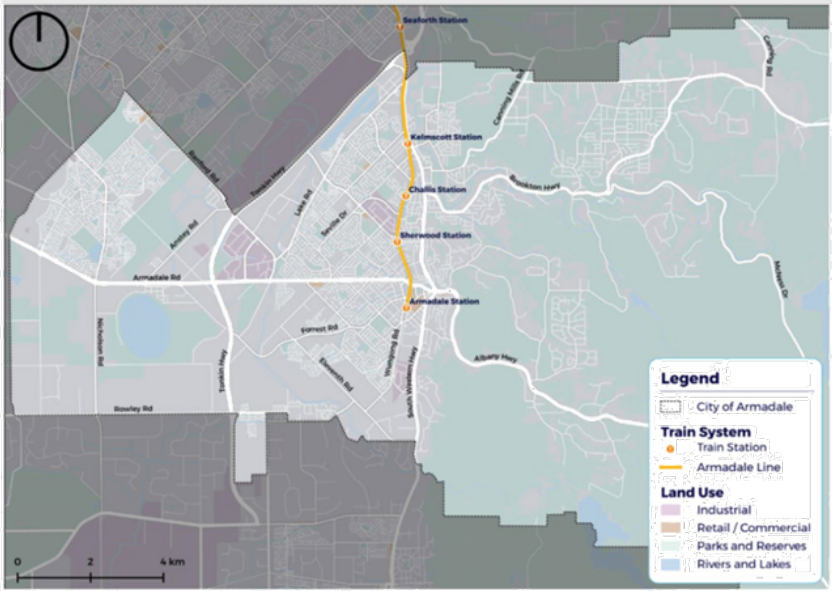


Figure 14: Train stations in the City of Armadale

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CITY OF ARMADALE

## 9. THE TRANSPORT NETWORK

### 9.1 Existing

#### 9.1.4 Public transport: bus (network coverage)

A total of 14 bus routes service the City, as shown in Figure 15. Each route's frequency is shown overleaf in Table 2.

Bus services are predominantly routed to feed into Armadale Station and Kelmscott Station, both of which have bus interchanges, supporting a sizeable number of bus-to-train transfer trips.

*While the areas immediately west of Armadale Station are best serviced by bus routes, a number of service gaps throughout the broader area have been identified.*

The suburbs of Hilbert and Haynes currently do not have bus services. While Piara Waters, Harrisdale, Forrestdale and the eastern residential catchment in the hills, such as Roleystone, Mt Nasura and Bedforddale, are considered to have limited bus coverage.

The expansion of the rail network, and corresponding changes to bus routes to support use of the new Thornlie-Cockburn link is expected to fill the existing service gap area in Piara Waters and Harrisdale (see Section 9.2.2 for more information).

However, a number of challenges remain through the eastern suburbs, which may be difficult to overcome. The hilly terrain and the indirect street network both create an environment that is hard to effectively and efficiently service by bus. There are also broader challenges in servicing a low-density area where there is only a limited potential demand.

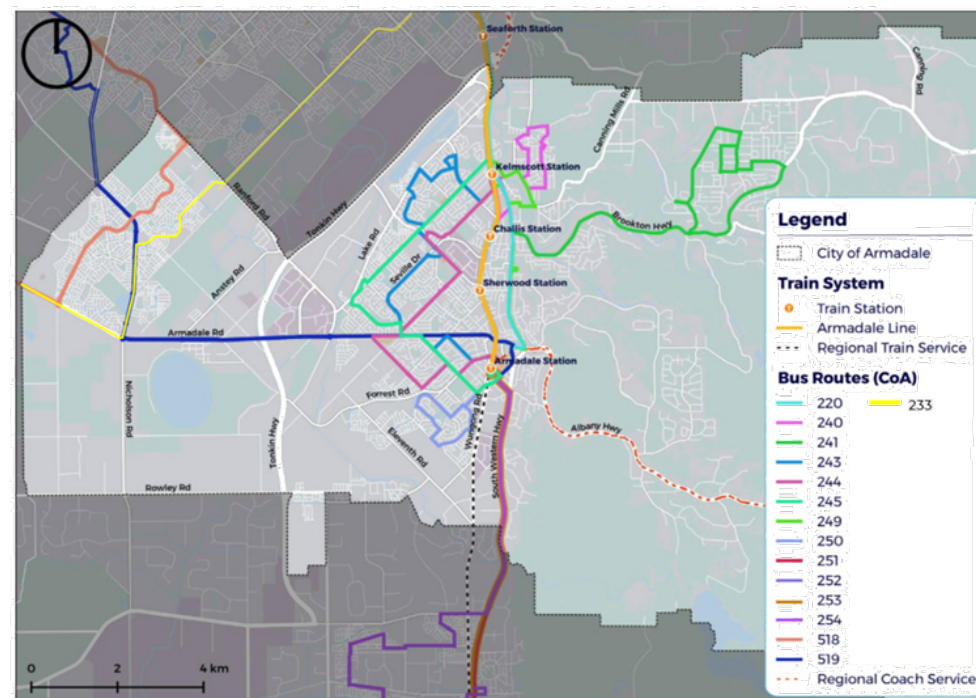


Figure 15: Bus routes in the City of Armadale

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CITY OF ARMADALE

## 9. THE TRANSPORT NETWORK

### 9.1 Existing

#### 9.1.5 Public transport: bus (service frequency)

As shown in Table 2, bus routes 233, 250, 518 and 519 operate approximately every 15 minutes during peak hours. Outside of peak hours, service frequencies decrease markedly.

The 250 bus route operates inbound, connecting the suburbs of Armadale (south) and part of Brookdale to Armadale Station. Bus routes 519, 518 and 233 travel outbound, providing connections westwards to Murdoch TAFE, Cockburn Central and Gosnells Station.

A bus service is considered to be 'high frequency' where it runs at least:

— Every 15 minutes between 7am and 7pm Monday to Friday

— Every 15 minutes between 8am and 7pm on Saturdays

— Every 15 minutes between 9am and 7pm on Sundays

Based on this definition, there are no high frequency bus services currently operating in the City, even without considering the reduction in weekend service.

*On the whole, bus service network coverage and frequency will need to be improved in future in order for the Armadale City Centre to be able to successfully fulfil its role as a Strategic Metropolitan Centre.*

With more people expected to live in the City and travel to the City for work and leisure in the future, the public transport network, both train and bus, will have an essential role in getting people to / from and around the City.

As outlined in Section 3, the community survey identified improvements to public transport services as the most important measure to improve people's transport journeys.

The benefits of getting more people to use public transport are far reaching. Fewer cars on the road means less congestion, air pollution and noise pollution, safer environments for all forms of travel and more attractive spaces for activity. *High quality public transport services are also the key to delivering an equitable transport system.*

Table 2: Bus service frequencies in the City of Armadale

BUS NO.	DEPARTURE	DESTINATION	AM PEAK SERVICES	PM PEAK SERVICES	WEEKEND SERVICES
220	Perth Busport	Armadale Stn	1	2	1
220	Armadale Stn	Perth Busport	3	1	1
233	Gosnells Station	Cockburn Central Station	4	4	1
233	Cockburn Central Station	Gosnells Station	4	4	1
240	Kelmscott Stn	Kelmscott Stn	1	2	-
241	Kelmscott Stn	Kelmscott Stn	1	3	1
243	Armadale Stn	Kelmscott Stn	3	2	1
243	Kelmscott Stn	Armadale Stn	1	2	1
244	Armadale Stn	Kelmscott Stn	3	2	1
244	Kelmscott Stn	Armadale Stn	2	2	1
245	Armadale Stn	Kelmscott Stn	3	3	1
245	Kelmscott Stn	Armadale Stn	3	3	1
249	Armadale Station	Kelmscott Station	1	1	-
249	Armadale Station	Kelmscott Station	1	1	-
250	Armadale Stn	Armadale Stn	4	4	1
251	Kingsbury Dr / Jacaranda Av	Armadale Stn	1	-	1
251	Armadale Stn	Kingsbury Dr / Jacaranda Av	1	1	1
252	Kingsbury Dr / Jacaranda Av	Armadale Stn	2	1	1
252	Armadale Stn	Kingsbury Dr / Jacaranda Av	1	2	1
253	Kingsbury Dr / Jacaranda Av	Armadale Stn	1	-	1
253	Armadale Stn	Kingsbury Dr / Jacaranda Av	-	2	1
254	Clifton St / South Western Hwy	Armadale Stn	3	4	1
254	Armadale Stn	Clifton St / South Western Hwy	2	2	1
518	Murdoch TAFE	Cockburn Central Stn	4	4	1
518	Cockburn Central Stn	Murdoch TAFE	4	3	1
519	Murdoch TAFE	Armadale Stn	2	4	-
519	Armadale Stn	Murdoch TAFE	4	3	-

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CITY OF ARMADALE

9. THE TRANSPORT NETWORK

9.1 Existing

9.1.6 Motor vehicles and road safety

The City is responsible for managing and maintaining 790 km of roads, making up almost half of the City's asset portfolio. The local and primary road network performs a critical role in connecting the community to local services and amenities and to the wider metropolitan network and beyond.

Armadale Road provides a crucial east-west connector to the suburb of Cockburn and the coastline, as well as linking to the State's southeast and Albany via Albany Highway. Rowley Road provides access to the west, while Brookton Highway connects the City to the State's eastern region.

Key north-south roads include Tonkin Highway, which transitions into Great Northern Highway, connecting to the State's north-eastern region, and Albany Highway which provides access to the Perth CBD to the north, and to State's southwest region via South Western Highway.

High speed roads with posted speed limits up to 100 km/h sever some residential areas from the broader network.

Speeding and hooning have also been identified by the community as a recurring issue along lower-speed streets.

There were a total of 3,557 reported crashes in the City between 2016 to 2020, the majority of these occurring on State managed roads, with a consistent occurrence per year (see Figure 16 and Table 3).

High concentrations of crashes have been identified at several locations: at and between the intersections of Streich Avenue / Denny Avenue (rail level crossing) and Brookton Highway / Albany Highway, as well as in close proximity to intersections along the Tonkin Highway (Figure 16).

More people living, working and visiting the City in future, will increase demand on the City's road network. *The Road Safety Strategy for Western Australia 2020 - 2030 specifies the need to "ensure that investments in road infrastructure planning, design and construction align with safe system principles"* which focus on safer roads, safer speeds, safe vehicles and safer driver behaviour.

Ultimately, road safety is the shared responsibility of everyone. The City will continue to work with key partners and the community to support a safe transport network for all road users.

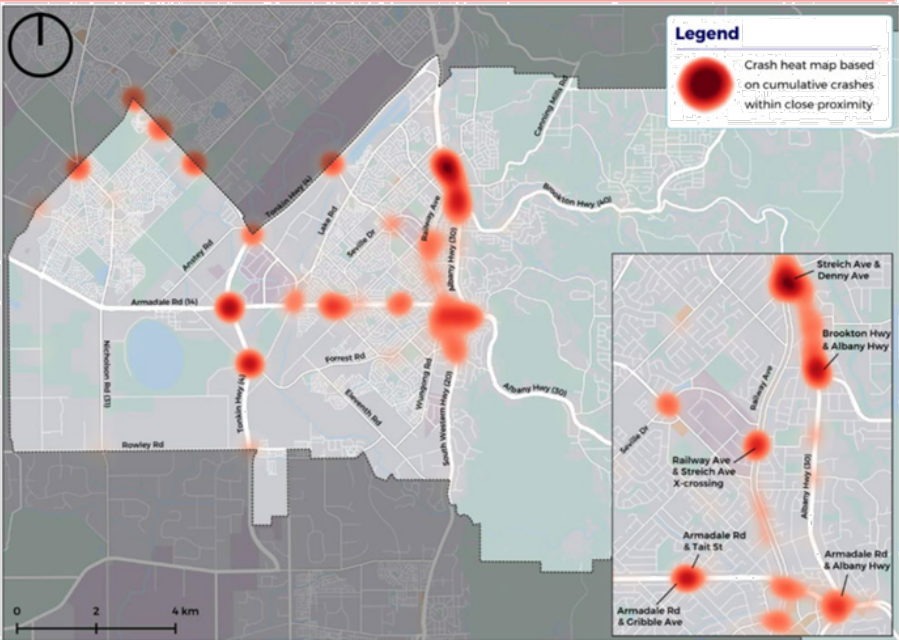


Figure 16: Heatmap of crash locations in the City of Armadale between 2016 to 2020 (fatal, hospital and medical categories only)

Table 3: Total number of crashes in the City of Armadale 2016 – 2020

YEAR	CRASH SEVERITY				TOTAL
	Fatal	Hospitalisation	Medical	Property Damage	
2016	3	37 (3)	93 (1)	642 (3)	775 (7)
2017	5 (1)	46 (2)	93 (2)	549 (3)	693 (8)
2018	2	34 (2)	90	604 (5)	730 (7)
2019	5 (1)	36 (1)	83	624 (4)	748 (6)
2020	5	41 (4)	79 (1)	486 (1)	611 (6)
TOTAL	20 (2)	194 (12)	438 (4)	2,905 (16)	3,557 (34)

Note: (x) Number of crashes that involve bicycles

9. THE TRANSPORT NETWORK

9.1 Existing

9.1.7 Freight

In addition to the movement of people, the transport network performs an important task in the movement of goods.

The movement of goods through the City is expected to significantly increase in the future. An efficient and effective freight network is therefore critical to the State's long-term development and continued economic growth.

As can be seen in Figure 17, the City is well-positioned in terms of connectivity to the wider freight network, and benefits from being close to major movement corridors including Tonkin Highway, Albany Highway, South Western Highway, Armadale Road and Brookton Highway.

There are large areas of industrial land within the locality that are fully established or available for development. Major industrial estates within the City include Forrestdale Business Park, South Forrestdale - Rowley Road Precinct, South Armadale and Kelmscott Industrial Precinct.

In addition to the above, the State Government, through the established Westport Taskforce, is in the process of planning for a new land-backed container port in the Kwinana Industrial Area (see Section 9.2.3 for more information). This will affect the frequency and distribution of freight traffic across the Perth Metropolitan Area, including within the City.

*The planned growth and importance of industrial land uses within the City will only strengthen in future. To ensure that businesses and communities continue to have reliable access to goods and services in light of increasing demand, the transport network will need to be managed and upgraded accordingly.*

However, it will be vital to ensure that the City's residents aren't negatively impacted by any increase in freight throughput. This requires consideration for increased congestion, noise and air pollution or increased conflicts between heavy vehicles and other road users. Mitigation measures will be required to protect people and places from these effects.

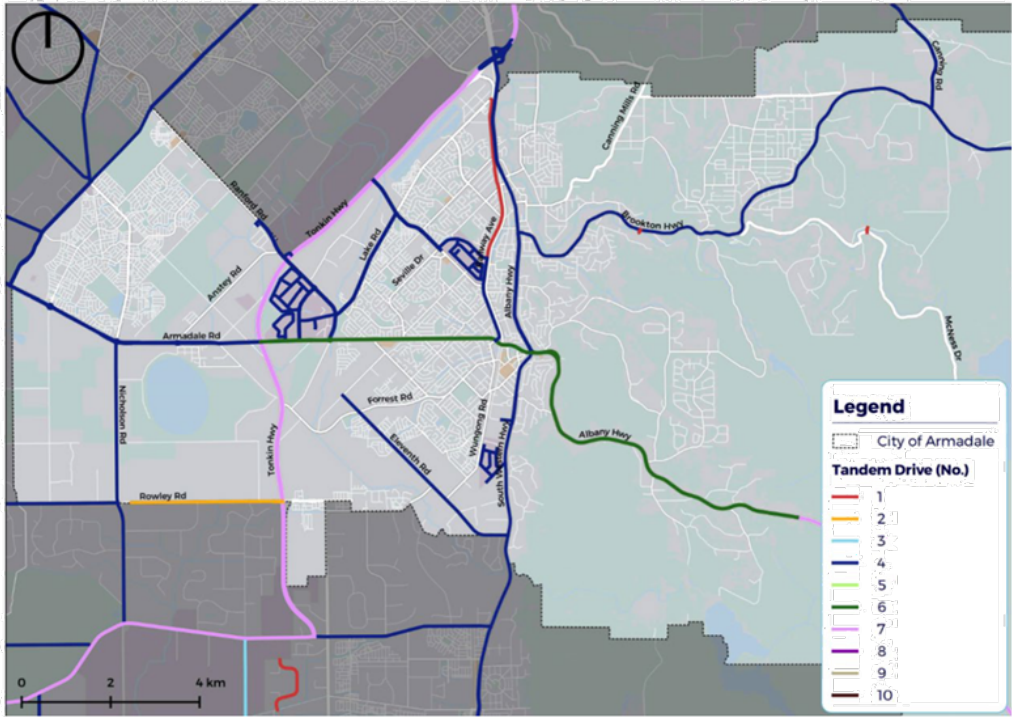


Figure 17: Freight network in the City of Armadale (Tandem Drive 1 – 10)



9. THE TRANSPORT NETWORK

9.2 Future

The level of investment in transport infrastructure and activity centre revitalisation projects concentrated within and around the City is significant, both planned or in delivery.

There is an opportunity to leverage on this investment to ensure **high quality transport and land use outcomes** are delivered as part of these projects.

Fundamentally, on completion these projects need to support the provision of a well-connected, inclusive, safe and highly integrated transport network, providing people with travel options and alternative transport modes. Key projects are listed below.

9.2.1 Cycling projects / initiatives

**LONG-TERM CYCLE NETWORK (LTCN)**

WA's LTCN provides a strategic approach to the provision of cycling links for the entire Perth and Peel region, rather than looking at individual areas in isolation.

This approach acknowledges that a well-connected cycling network that is safe, legible and intuitive to use is the key to attracting more people to ride.

Central to the LTCN is the WA cycling network hierarchy, as pictured in Figure 18 alongside the City's Council-endorsed LTCN, which is made up of primary, secondary and local routes.

The WA cycling network hierarchy is categorised by “function”, that is, the role that each route plays in connecting people to places, rather than “form” (i.e. specific infrastructure type).

Within the City, primary routes are identified along the major east-west road corridors of Armadale Road and Rowley Road (and part of Wungong Road), as well as along the major north-south road corridors of Tonkin Highway and Railway Avenue / Wungong Road, following the Armadale train line alignment and continuing southwards to Byford.

The primary routes are complemented with a number of secondary and local routes, which collectively form the LTCN.

**ARMADALE LINE PRINCIPAL SHARED PATH (PSP)**

Along the Armadale train line, several PSP projects have been delivered in recent years as part of DoT's PSP Expansion Program. This includes completing missing sections of path between Lake Road to Challis Station and Kelvin Road to Albany Highway. As mentioned above, the PSP is planned to continue southwards of Armadale Station, as part of the Byford Rail Extension project (see Section 9.2.2).

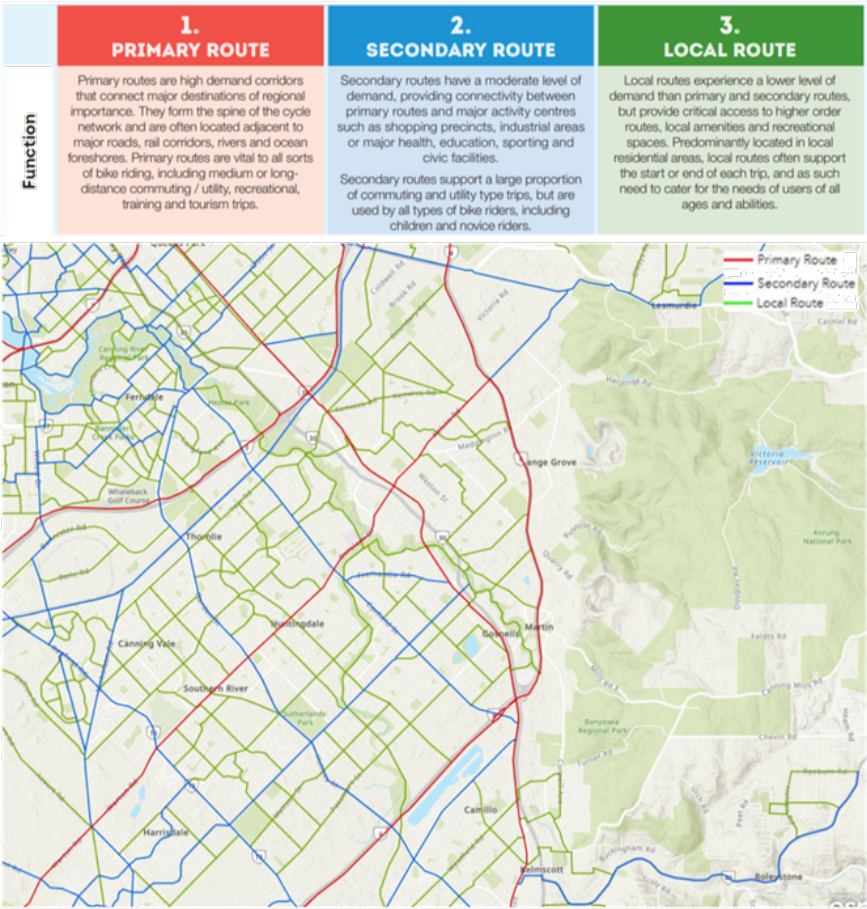


Figure 18: WA LTCN Hierarchy and LTCN in and around the City of Armadale  
Source: Department of Transport

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CITY OF ARMADALE

## 9. THE TRANSPORT NETWORK

### 9.2 Future

#### 9.2.2 Public transport projects / initiatives

#### DENNY AVENUE LEVEL CROSSING REMOVAL

The Denny Avenue Level Crossing in Kelmscott is now permanently closed, making it the first crossing to be removed under the METRONET Level Crossing Removal program. As part of this, a new east-west connection rail-over-road underpass was built at Davis Road.

While the City is in the process of developing the Kelmscott District Centre Precinct Structure Plan, this excludes a portion of land near Kelmscott Station which comes under the planning control of DevelopmentWA.

The City will continue to work with key partners to ensure that the full benefits of station precincts can be realised in this project location as envisaged through METRONET (see Figure 19).

#### BYFORD RAIL EXTENSION

The METRONET project will connect Byford to the existing Armadale Station and remove level crossings at Armadale Road, Forrest Road, Church Avenue, Byron Road and Eleventh Road (see Figure 20).

Armadale Station will be upgraded, with brand new station facilities and a higher level of amenity, presenting an opportunity to attract new users to public transport.

Much like the Denny Avenue Level Crossing Removal project, the City will continue working with key partners to ensure high quality station precinct and urban realm outcomes are achieved through the design and delivery of the project, as well as aligning with the City's local planning aspirations for the area (see Section 8.2).

#### THORNLIE-COCKBURN LINK

The Thornlie-Cockburn Link will connect the Mandurah Line and Thornlie Line, with two new stations developed on the existing freight rail line.

This project will improve the accessibility and growth of the southern suburbs and support future development opportunities.

While not directly within the City, the new Ranford Road and Nicholson Road Stations will be adjacent to the locality's north western border, near Piara Waters and Harrisdale. This will serve in filling an existing public transport service gap surrounding these areas.



Figure 19: Excerpt from 'Delivering successful METRONET station precincts' document  
Source: METRONET



Figure 20: Byford Rail Extension project overview  
Source: METRONET

DATA ILL



INTEGRATED TRANSPORT STRATEGY  
2023 - 2050

CITY OF ARMADALE

## 9. THE TRANSPORT NETWORK

### 9.2 Future

#### 9.2.2 Public transport projects / initiatives (continued)

##### PUBLIC TRANSPORT FARE ZONE CAP

The State Government has capped public transport fares at a 2 zone fare rate (standard fare costing \$4.90).

This presents an opportunity to promote the initiative with a view to encourage more residents, especially in outer suburbs, to travel using public transport as it becomes more affordable.

In particular, this will provide positive benefit to the City's residents with all stations in the locality located in zone 3 (\$5.80 standard fare) and zone 4 (\$6.90 standard fare).

This initiative, combined with other rail upgrades and extensions, both planned and in delivery, will significantly increase the attractiveness of public transport, and has real potential to encourage a mode shift from motor vehicle to public transport, thereby reducing pressure on highways and major roads.

##### RAIL GROWTH PLAN

The Rail Growth Plan outlines the PTA's long-term strategy to support forecasted growth in population and rail patronage through to 2051, with the following objectives:

- Provide sufficient capacity on the rail network
- Meet increased dependency on public transport
- Integrate Government land use policies with transport planning

As part of the plan, a series of supporting initiatives are identified. This includes Station Access Strategies, which form part of the broader [Station Access Improvement Program](#).

The strategies determine requirements for future investment, to ensure people can safely, efficiently and conveniently access their closest station, with a preference for sustainable modes of access.

Added to this, the PTA has initiated the [Platform and Signalling Upgrade Program](#) to enable higher service frequencies and train capacities along Perth's heritage lines (Armadale, Midland and Fremantle Lines).

The program developed from the PTA's Rail Growth Plan, which aims to meet increased demand on public transport and provide sufficient capacity across the rail network.

A business case is currently being prepared to explore options for lengthening the platforms, with all stations along the Armadale Line requiring platform lengthening / station upgrades in order to support the potential for longer and higher frequency train services in the future



DATA FILE

## 9. THE TRANSPORT NETWORK

### 9.2 Future

#### 9.2.3 Road projects / initiatives

##### TONKIN HIGHWAY EXTENSION

The Tonkin Highway extension is currently in development and will connect Thomas Road to South Western Highway (see Figure 21). This will accommodate the growing travel demand in Perth's southeast, while supporting safe and reliable freight connection.

##### WESTPORT

Westport is the State Government's long-term program to build a future port in Kwinana with integrated road and rail transport networks.

A business case is currently being developed to recommend to Government high-level designs and staging options / timeframes and scenarios to transition from the Inner Harbour in Fremantle to the Outer Harbour in Kwinana.

While Anketell-Thomas Rd (in the Shire of Serpentine Jarrahdale) is identified as the key strategic corridor from Westport (Outer Harbour) in Kwinana to Tonkin Highway, the role of Rowley Road as a key east-west route which runs within the council area is also a consideration for the City. With opportunities to strengthen the City's industrial economy (e.g. South Forrestdale – Rowley Road industrial areas).

### LONG-TERM ROAD PLANNING

In support of the longer term vision for Perth's transport network, a number of transport planning studies and investigations have been undertaken over the years by both the City and stakeholders.

This includes strategic transport modelling to determine future demand on the road network in response to development, as well as road reservation studies to support changes to the relevant statutory planning frameworks, so that the ultimate form and function of the road can adequately support the future demand.

Ongoing studies will likely be required to ensure currency of the information and to consider changes materialising from any revised planning context.

It's an exciting time for the future of transport with the number of projects and initiatives planned and currently in delivery within and around the City.

*Through this ITS, we hope to positively shape the project outcomes, to provide great places for people and deliver a well-connected network of paths, streets and roads that are used safely by all.*




Figure 21: Tonkin Highway Extension project overview  
Source: Main Roads WA










ROAD OR  
VERGE  
8 AM - 3 PM  
MON - FRI

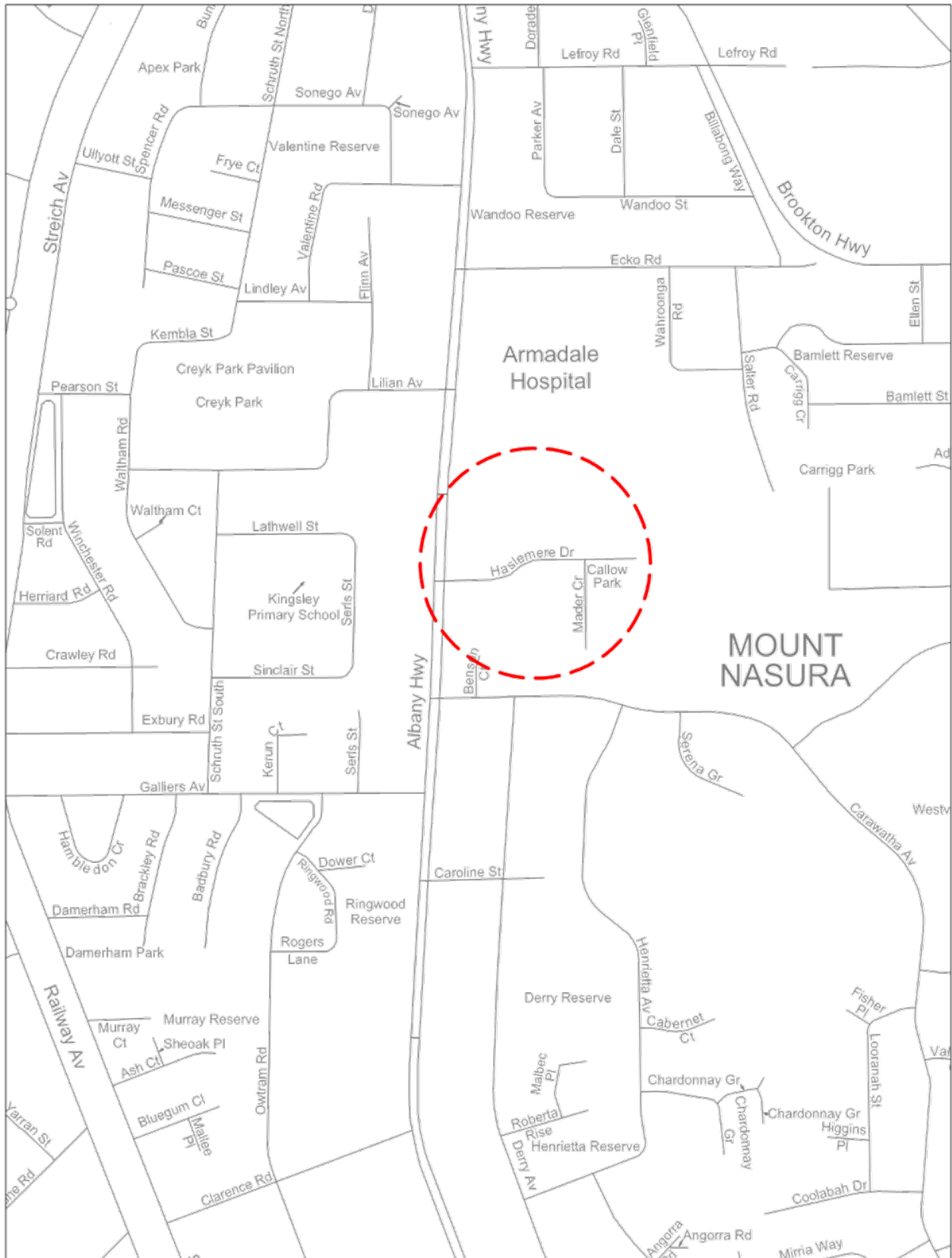


IPC No.	
CMR No.	
Sheet No.	1 of 1
Revision No.	1
OWG No.	E23-90.

NOTE: ARROWS INDICATED ON SIGNS ARE  
DIAGRAMMATIC ONLY AND DO NOT REFLECT THE  
CORRECT DIRECTIONS REQUIRED TO BE INSTALLED.



(PIC NO.)	
(CIR NO.)	
(Sheet No.)	3 of 3
(Revision No.)	0
(DWG NO.)	E23-90-03



**Haslemere Drive**  
**Proposed Parking Restriction**  
MOUNT NASURA  
Location Plan



Attachment 6 - Summary of Proposed Fauna Management Actions

Item reference	Proposed action	Strategy detail	Budget estimate (GST incl)
<b>Feral Animal Control Actions</b>			
1	Increase the effort in fox control in Armadale Settlers Common from 14 days per program to 21 days per program	Modify trapping program to include an increased number of traps and trapping duration in Armadale Settlers Common.	\$70,000 pa (for Items 1 and 2)
2	Expansion of the Feral Animal Control Program to include Roley Pools Reserve in the City's ongoing annual budget allocation	Modify trapping programs to include trapping duration in Roley Pools Reserve.	\$70,000 pa (for Items 1 and 2)
3	Following the release of the DPIRD Pest Parrot Management Strategy, prepare a case study (for Councils consideration) relating to potential expansion of the feral animal control program to include Pest Parrots.	Recommended for inclusion as an action of the Biodiversity Strategy (in preparation)	Item 3 - Operational
4	Further research the extent of Pest Parrots in Bungendore Park using ecological survey techniques.		Item 4 - \$25,000 in 2024/2025
5	Prepare a report (for Councils consideration) relating to potential expansion of the feral animal control program to include Pest Rabbits.	A specialist fauna management consultant has been commissioned to design a rabbit control program for priority natural areas and on private lands. The program will be designed by January 2024 with opinion of probable costs provided.	Item 5 - Operational
6	Investigate opportunities to undertake a Black rat control in Roley Pools if they are further recorded in the reserve	Reconsider priority of this action following further fauna monitoring.	
7	Removal of beehives from mapped habitat trees in Armadale Settlers Common and Bungendore Park when identified		Item 7 - \$5,000 pa
8	Encourage private land feral animal control, especially in properties (1) between Armadale Settlers Common and Bungendore Park where fox movement is recorded and (2) on private lands south west of Bungendore Park where pigs are concentrated.	Develop strategies to incorporate into existing programs such as the Habitat Links project	Item 8 - Operational
9	Integrate passive management and dispersal tactics into City operations	Develop strategies to incorporate into design and existing management such as: - Increasing native ground cover and planting shrubs/understorey near large trees to deter loitering behaviours in open space areas - Removal or pruning of preferred species - Altering vegetation types that are undesirable to Corellas (native vegetation is supported and requires less maintenance) - Watering turf and POS areas after dark thereby removing water source - Consider subsurface watering, altering construction practices (covering soil piles, retention ponds and preventing water pooling) - Increased native groundcover - Consider sacrificial/ refuge sites for containment of species and potential site for future lethal control	Item 9 - Operational
<b>Habitat Supplementation Actions</b>			
10	Expansion of the dieback treatment program to include mapped susceptible habitat trees in Bungendore Park, that are outside of the current dieback treatment program, that are in dieback infected areas.		Item 10 - Adjust allocation to dieback control program with an additional \$10,000 pa
11	Expansion of the dieback treatment program to include City reserves susceptible to dieback as recommended for inclusion by the Dieback Contractor, and include dieback mapping of identified habitat corridors	Subject to a separate Dieback Recommendations Report (associated with Tender)	
12	Expansion of the dieback treatment program to map additional reserves that may be susceptible to dieback, for consideration and inclusion into the program, including identified habitat corridors.	Subject to a separate Dieback Recommendations Report (associated with Tender)	
13	Prepare and adopt a procedure to protect mapped habitat trees during fire management practices.		Item 13 - Operational
14	Undertake re-mapping of habitat trees in 10-15 years to analyse change over time.		Item 14 - \$20,000 for resurvey in Armadale Settlers Common
15	Develop a policy to salvage large habitat trees or logs from development, or other sites, for use as habitat logs in natural areas, where there is no disease risk associated with the works.	Recommended for inclusion as an action of the Biodiversity Strategy (in preparation)	Item 15 - Operational
16	Develop a policy statement encouraging the avoidance of impact in design works for internal and external use.	Recommended for inclusion as an action of the Biodiversity Strategy (in preparation)	Item 16 - Operational
17	Ongoing implementation of the habitat supplementation program including maintenance and monitoring of existing habitat boxes.		Item 17 - \$5,000 pa
18	Unauthorised Accessed Infrastructure and Maintenance		Item 18 - \$5,000 pa
19	Salvage of Habitat Trees (implementation)		Item 19 - \$5,000 pa



20	Revegetation program in Armadale Settlers Common to increase habitat cover for small mammal assemblages	Post installation - reconsider priority of this action following further fauna monitoring.	<b>Item 20</b> Year 1 - \$10,00, Year 2 - \$5,000, Year 3 \$5,000 municipal funding for three years.
<b>Re-monitoring</b>			
21	Repeat the fauna survey works for reptiles, bats, small mammal, feral animal assemblage and avian fauna on a five yearly rotation (last undertaken Spring 2022 due Spring 2027) in Armadale Settlers Common.		<b>Item 21</b> - \$70,000 in 2027/2028
22	Re-monitoring of the small mammal assemblage in Bungendore Park using Mark-Release-Recapture methods and camera trapping.		<b>Item 22</b> - \$80,000 in 2028/2029
23	Repeat the fauna survey works in Roley Pools to provide a dataset to measure change over time.		<b>Item 23</b> - \$25,000 in 2026/2027
24	Investigate genetic sampling of target species to ascertain private allele frequencies as an indicator of population health and/or source populations	Consider priority of this action after investigating suitability of incorporating genetic monitoring to complement efforts in: 1) Obtaining quotes for fox DNA as part of the feral animal program; 2) Include target species, recommend quenda inclusion in ASC and Bungendore Park and chuditch in Bungendore Park; and 3) Investigate collaborative research with partnering universities	<b>Item 24</b> - Operational
25	Prepare a comprehensive fauna management plan for City reserves (potential expansion of target areas)	Recommended for inclusion as an action of the Biodiversity Strategy (in preparation)	<b>Item 25</b> - Operational



