



## **AGENDA**

**FOR WORKS AND SERVICES COMMITTEE MEETING TO BE HELD ON  
18 FEBRUARY 2019 AT THE CONCLUSION OF THE BUDGET AND FINANCE  
COMMITTEE**

**IN THE COUNCIL CHAMBER, 12 JAMES STREET, SALISBURY**

### **MEMBERS**

Cr S Reardon (Chairman)  
Mayor G Aldridge (ex officio)  
Cr M Blackmore  
Cr L Braun (Deputy Chairman)  
Cr C Buchanan  
Cr S Ouk  
Cr G Reynolds  
Cr N Henningsen

### **REQUIRED STAFF**

Chief Executive Officer, Mr J Harry  
General Manager City Infrastructure, Mr J Devine  
General Manager Community Services, Ms P Webb  
Governance Support Officer, Ms K Boyd

### **APOLOGIES**

### **LEAVE OF ABSENCE**

### **PRESENTATION OF MINUTES**

Presentation of the Minutes of the Works and Services Committee Meeting held on 21 January 2019.

---

## REPORTS

### *Administration*

- 2.0.1 Future Reports for the Works and Services Committee..... 13
- 2.0.2 Road Renaming at Waterloo Corner ..... 21

### *Landscaping*

- 2.4.1 Netball Courts..... 41
- 2.4.2 Little Corella Update ..... 47

### *Property*

- 2.5.1 Minutes of the Strategic Property Development Sub Committee meeting held on Tuesday 12 February 2019 ..... 169

### *Public Works*

- 2.6.1 Capital Works Report - January 2019 ..... 175
- 2.6.2 Petition Protesting Road Surfacing in Wendy Avenue and Avis Court, Valley View..... 183
- 2.6.3 Gulfview Heights Lake ..... 199
- 2.6.4 Bridgestone Reserve Athletics Facility ..... 209

### *Traffic Management*

- 2.7.1 Traffic Safety - Anson Avenue, Parafield Gardens..... 221
- 2.7.2 Alice Crescent, Burton - Request for indented parking bays ..... 235
- 2.7.3 Traffic Safety - Melvina Road and Kings Road, Paralowie ..... 241
- 2.7.4 Installation of slow points on Daniel Avenue, Globe Derby Park ..... 251

### *Waste Management*

- 2.8.1 Investigation into Development of an App to Report Illegal Dumping ..... 255

## OTHER BUSINESS

## CLOSE



**MINUTES OF WORKS AND SERVICES COMMITTEE MEETING HELD IN THE  
COUNCIL CHAMBER, 12 JAMES STREET, SALISBURY ON**

**21 JANUARY 2019**

**MEMBERS PRESENT**

Cr S Reardon (Chairman)  
Mayor G Aldridge (ex officio) (*from 9.00pm*)  
Cr M Blackmore  
Cr L Braun (Deputy Chairman)  
Cr C Buchanan  
Cr S Ouk  
Cr G Reynolds

**STAFF**

Chief Executive Officer, Mr J Harry  
General Manager City Infrastructure, Mr J Devine  
General Manager Community Services, Ms P Webb  
Governance Support Officer, Ms K Boyd

The meeting commenced at 8:23 pm.

The Chairman welcomed the members, staff and the gallery to the meeting.

**APOLOGIES**

An apology was received from Cr N Henningsen.

**LEAVE OF ABSENCE**

Nil

**PRESENTATION OF MINUTES**

Moved Cr M Blackmore  
Seconded Cr L Braun

The Minutes of the Works and Services Committee Meeting held on  
10 December 2018, be taken and read as confirmed.

**CARRIED**

---

## REPORTS

### *Administration*

#### **2.0.1 Future Reports for the Works and Services Committee**

Moved Cr C Buchanan  
Seconded Cr G Reynolds

1. The information be received.

**CARRIED**

### *Community Centres and Youth*

#### **2.1.1 Para Hills Community Hub Information Update**

Moved Cr G Reynolds  
Seconded Cr M Blackmore

1. The information update report be noted.

**CARRIED**

### *Landscaping*

#### **2.4.1 Review of the Tree Removal Procedure**

Moved Cr C Buchanan  
Seconded Cr L Braun

1. The information be received.
2. The Tree Removal Procedure as contained in Attachment 1 to this report (Works and Services Item 2.4.1, 21/01/2019) be endorsed with the amendment of the proposed new paragraph 6.2 of the Tree Removal Procedure be amended to replace the words six months with two months.

**CARRIED**



**2.4.2 Use of Thermal Methods for Weed Control**

Moved Cr C Buchanan  
 Seconded Cr G Reynolds

1. The information be received.
2. Thermal weed control methods be available to Council staff as an alternative where there are significant environment or health issues, as determined by staff. (Such examples could include community produce gardens or where a member of the public registers a health issue and requests no herbicide application nearby).
3. Staff provide a report on the outcomes of steam technology after a 12 month period in relation to its uses outlined in part 2.
4. Staff continue to keep abreast of technological advances in alternative weed control methods.

**CARRIED**

*Property*

**2.5.1 Maxwell Road Widening Requiring Revocation of Community Land Classification and Rededication of the Paddocks**

Moved Cr C Buchanan  
 Seconded Cr G Reynolds

1. That Council endorse:
  - a. The process by which the Minister for Environment and Water intends to revoke the community land classification over the portion of land known as Lot 100 in Deposited Plan 23933 as described in Crown Record Volume 5752 Folio 719 and more commonly known as The Paddocks;
  - b. That the balance of land shall be rededicated back into Council’s care and control and that the rededication allow for the future development in line with the Paddocks Masterplan;
  - c. That the Manager Property and Buildings or a delegate be authorised to sign the appropriate acknowledgement of the above recommendations when received from the Department for Environment and Water.

**CARRIED**

### 2.5.2 **Revocation of Community Land Classification - Wright Road Reserve**

Moved Cr G Reynolds  
Seconded Cr L Braun

1. Pursuant to the provisions of Section 194(3) (b) of the Local Government Act 1999 and having complied with all the requirements, the City of Salisbury revoke the classification of Community Land over a portion of allotment 282 in Deposited Plan 7897 identified in Certificate of Title Volume 5810 Folio 887, also known as Wright Road Reserve and measuring approximately 281 square metres.
2. A portion of allotment 282 in Deposited Plan 7897 identified in Certificate of Title Volume 5810 Folio 887, also known as Wright Road Reserve and measuring approximately 281 square metres is to be removed from the City of Salisbury's Community Land Register and be declared as Road.
3. The Manager Property and Buildings be authorised to prepare all necessary documentation for rededicating the portion of allotment 282 in Deposited Plan 7897 identified in Certificate of Title Volume 5810 Folio 887, also known as Wright Road Reserve and measuring approximately 281 square metres, as road.

**CARRIED**

### 2.5.3 **Land Transfer Portion of Bolivia Crescent Drainage Reserve, Bolivar**

Moved Cr C Buchanan  
Seconded Cr L Braun

1. Bolivia Crescent Drainage Reserve located at Port Wakefield Road, Bolivar identified as Allotment 8 in Deposited Plan 20967 and described in Certificate of Title Volume 5887 Folio 42 be revoked of its community land classification.
2. The attached report (attachment 3 Item 2.5.3) be adopted for the purposes of Section 194 of the Act and the Manager Property and Buildings be authorised to implement the Public Consultation Program, comprising of a public notice in the Northern Messenger and State Government Gazette with a copy of this wording to appear on Council's website. In addition, letters with the attached report are to be posted to property owners likely to be impacted within the immediate vicinity and that no signage be erected.
3. A further report be presented to Council for consideration of any objections received in response to community consultation. In the event that no objections are received the Manager Property and Buildings be authorised to prepare and submit the necessary documentation to the Minister for approval.

**CARRIED**

---

#### 2.5.4 Future Use of Leased Area - Underdown Park

Moved Cr L Braun  
Seconded Cr M Blackmore

1. Information in this report is received.
2. Staff be authorised to undertake an expressions of interest process to enter into a Lease Agreement for the Northern portion of the Underdown Park Building and License Agreement for the North Eastern playing pitch as outlined in this report.
3. A further report to be presented to Council on the outcome of the public registration of expressions of interest process and recommendations for Council's consideration.

**CARRIED**

#### 2.5.5 Revocation Portion of Edinburgh Road Reserve South to Facilitate Construction of Haulmark Trailers Manufacturing Facility

Moved Cr L Braun  
Seconded Cr C Buchanan

1. Pursuant to the provisions of Section 194 (3)(b) of the Local Government Act 1999, and having dealt with all requirements thereof, the Council of the City of Salisbury hereby revokes the classification as community land of Allotment 905 Deposited Plan 75400 known as Edinburgh Road Reserve South and described in Certificate of Title Volume 5997 Folio 904.
2. Allotment 905 Deposited Plan 75400 known as Edinburgh Road Reserve South is to be removed from Council's Community Land Register.
3. The Manager Property and Buildings be authorised to arrange preparation and execution of all required documentation to transfer the revoked portion of land being portion of Allotment 905 Deposited Plan 75400 from Council ownership to Haulmark Manufacturing Co Pty Ltd. The applicant will pay consideration of \$100 for the land and all associated costs to finalise the transfer.

**CARRIED**

---

**2.5.6 Grant of Easement to SA Power Networks - Main North Road (Central) Reserve**

Moved Cr G Reynolds

Seconded Cr M Blackmore

1. Council grant to SA Power Networks an easement for the installation of underground cables over a portion of Main North Road (Central) Reserve, identified as Allotment 9 in Deposited Plan 11342 as described in Certificate of Title Volume 5539 Folio 345, and delineated in red in Attachment 1, Aerial View, Main North Road (Central) Reserve for \$5,000 plus GST.
2. SA Power networks are to be responsible for all costs associated with the lodgement and documentation of the Easement.
3. The Manager Property and Buildings be authorised to liaise with SA Power Networks in regards to the requested easement and arrange consent of the Letter of Agreement and Grant of Easement Documents.

**CARRIED**

*Public Works*

**2.6.1 Capital Works Report - December 2018**

Moved Cr G Reynolds

Seconded Cr M Blackmore

1. Amend the 2018/19 Building Renewal Program to include Pine Lakes Centre New Shade Shelter and change Skate Park Toilet Renewal from Unity Park to Salisbury North.
2. Construction of new footpaths and/or associated kerb ramps as set out in this report (Item 2.6.1 Works and Services Committee, 21 January 2019) be endorsed as program inclusions within the Council Funded Footpath Program and Kerb Ramp Construction / Upgrade Programs.
3. Submission of a non-discretionary 2018/19 second quarter budget review bid to reflect the additional \$180k of capital income and expenditure associated with the new Greater Edinburgh Parks drainage infrastructure within PR17205 Watercourse Management Works.
4. Submission of a non-discretionary 2018/19 second quarter operating budget review bid for an additional \$100k as a result of the clean-up associated with the inclement weather occurring in spring 2018, enabling the engagement of contractors to complete the backlog of regular tree maintenance services.

5. Submission of an approved non-discretionary 2018/19 second quarter capital budget review bid for an additional \$75k for PR17103 City Pride – Renewal of Feature Landscapes Program, Keyhole Park Reserve and Mawson Lakes Boulevard projects, with staff having the authority to action these projects with approval of this report (Works and Services, Item 2.6.1 21 January 2019).
6. Transfer \$80k of available capital expenditure budget from the PR17055 Outdoor Furniture Program to PR25044 Autism Friendly Play Space Program to enable full scope delivery of the Perry Street Reserve Project.

**CARRIED**

**2.6.2 CoolSeal Pavement Preservation Trial**

*Mayor G Aldridge entered the meeting at 9.00 pm.  
Mayor G Aldridge left the meeting at 09:03 pm.*

Moved Cr L Braun  
Seconded Cr C Buchanan

1. The report be received.

**CARRIED**

**2.6.3 Salisbury Oval Master Plan Implementation - Sport & Recreation Civil and Landscape Works**

Moved Cr C Buchanan  
Seconded Cr G Reynolds

1. That the report be noted.
2. That the 2019/2020 budget for the Salisbury Oval Project be increased to \$1.68M, and that this be reflected in the budget bid, which is to be included as a non-discretionary item into the 2019/20 budget process.
3. That construction of the proposed access road from Brown Terrace be commenced this financial year.

**CARRIED**

---

*Traffic Management*

**2.7.1 Left Turning Lane onto Salisbury Highway**

Moved Cr G Reynolds  
Seconded Cr M Blackmore

1. This report be received and noted.
2. Staff to monitor changes in traffic conditions at the conclusion of the Department of Planning, Transport and Infrastructure's (DPTI) project to install a right turn lane at this location. It is expected that delays for left-turning motorists will be reduced as part of this project.
3. Staff to liaise with DPTI should significant delays for left-turning motorists still exist at the conclusion of this project, which is currently scheduled to be completed within the 2018/19 financial year.

**CARRIED**

**OTHER BUSINESS**

**W&S-OB1 Use of Mulch and Compost in Council Maintained Spaces**

Moved Cr L Braun  
Seconded Cr M Blackmore

1. That Council provides a report on maximising the use of mulch and compost sourced from green waste and chipped trees in Council maintained spaces.
2. The report includes reference to viability of providing free mulch or compost to residents when surplus is available.

**CARRIED**

**W&S-OB2 Reduction of Illegal Dumping**

Moved Cr M Blackmore  
Seconded Cr C Buchanan

1. That Council bring back a report looking at proactive ways of reducing illegal dumping (such as CCTV and increasing awareness of alternative waste services) and associated costs by March 2019 to enable an appropriate budget bid to be prepared.

**CARRIED**

---

**W&S-OB3      Traffic Management Solutions – Jessie Road and Tracey Avenue, Paralowie**

Moved Cr C Buchanan  
Seconded Cr G Reynolds

1. That staff undertake traffic counting and speed measures on Jessie Road and Tracey Avenue, Paralowie.
2. Staff provide a report on traffic management solutions regarding hoon driving on these roads.

**CARRIED**

The meeting closed at 9:21 pm.

CHAIRMAN.....

DATE.....





---

<b>ITEM</b>	2.0.1
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>DATE</b>	18 February 2019
<b>HEADING</b>	Future Reports for the Works and Services Committee
<b>AUTHOR</b>	Joy Rowett, Governance Coordinator, CEO and Governance
<b>CITY PLAN LINKS</b>	4.3 Have robust processes that support consistent service delivery and informed decision making.
<b>SUMMARY</b>	This item details reports to be presented to the Works and Services Committee as a result of a previous Council resolution. If reports have been deferred to a subsequent month, this will be indicated, along with a reason for the deferral.

**RECOMMENDATION**

1. The information be received.

**ATTACHMENTS**

There are no attachments to this report.

**1. BACKGROUND**

- 1.1 Historically, a list of resolutions requiring a future report to Council has been presented to each committee for noting.

**2. CONSULTATION / COMMUNICATION**

- 2.1 Internal
  - 2.1.1 Report authors and General Managers.
- 2.2 External
  - 2.2.1 Nil.

### 3. REPORT

3.1 The table below outlines the reports to be presented to the Works and Services Committee as a result of a Council resolution.

Meeting Item	Heading and Resolution	Officer
14/12/2015 NOM3	<p><b>Traffic monitoring, Kesters Road between Main North Road and Ceafield Road</b></p> <p>1. That following the opening of the Masters store and other new businesses on Main North Road, staff undertake traffic monitoring on the lower part of Kesters Road, between Main North Road and Ceafield Road to determine the impact of the operation of those businesses on traffic flow and volume in the area. The report should include consideration of:</p> <p>a. The requirement for additional parking restrictions in the area</p> <p>b. Vehicle movements of heavy and long vehicles through the area</p> <p>c. Risks to public safety as a result of changed traffic patterns.</p> <p><b>Due:</b> June 2019</p>	Dameon Roy
29/03/2016 2.2.2	<p><b>Implementation of Free Bike Hire Scheme (in conjunction with Bike SA) - investigation findings</b></p> <p>3. The implementation of a Free Bike Hire Scheme within the City of Salisbury be considered again in three years.</p> <p><b>Due:</b> March 2019</p>	Adam Trottman
22/05/2017 2.1.1	<p><b>Investigation of Costs Associated with Waterslide/Diving Platform Installation at Salisbury Recreation Precinct</b></p> <p>2. A decision regarding the installation of the water play feature be deferred pending council consideration of a long term plan for the aquatic facilities.</p> <p><b>Due:</b> March 2019</p>	Adam Trottman
24/07/2017 NOM1	<p><b>Variation to Council Decision 1783/2017: St Kilda Master Plan - Stage 2</b></p> <p>3. That authorisation to progress with priorities 3 to 8 inclusive provided in the St Kilda Stage 2 – Marine Recreation Precinct and Mangroves Master Plan be subject of consideration of further reports to Council.</p> <p><b>Due:</b> February 2019</p> <p><b>Deferred to:</b> March 2019</p> <p><b>Reason:</b> Still evaluating feasibility of project.</p>	Dameon Roy
26/02/2018 2.4.3	<p><b>Cleaning of Creeks and Waterways</b></p> <p>2. A review of the service levels be conducted after 12 months in March 2019.</p> <p><b>Due:</b> March 2019</p>	Mark Purdie

26/03/2018	<b>Long Term Financial Plan and Budget Workshops Actions Update</b>	Mark Purdie
6.4.1	2. A report on the success of the Reserve Upgrade Program and consideration of future sites be included on the Works and Services Future Reports with a due date of December 2018 (per table Budget Workshop 1 – 28 February 2018 item WS1-9).	
	<b>Due:</b> February 2019	
	<b>Deferred to:</b> April 2019	
	<b>Reason:</b> To be included in the Activation Plan Report	
26/03/2018	<b>Long Term Financial Plan and Budget Workshops Actions Update</b>	John Devine
6.4.1	3. A report on the program of sites for Fitness Equipment Program be included on the Works and Services Future Reports with a due date of December 2018 (per table Budget Workshop 1 – 28 February 2018 item WS1-13).	
	<b>Due:</b> February 2019	
	<b>Deferred to:</b> April 2019	
	<b>Reason:</b> To be included in the Activation Plan Report	
26/03/2018	<b>Long Term Financial Plan and Budget Workshops Actions Update</b>	Tamika Cook
6.4.1	4. A report on the program of sites for Autism Friendly Playspaces be included on the Works and Services Future Reports with a due date of December 2018 (per table Budget Workshop 1 – 28 February 2018 item WS1-15).	
	<b>Due:</b> February 2019	
	<b>Deferred to:</b> April 2019	
	<b>Reason:</b> To be included in the Activation Plan Report	
26/03/2018	<b>Budget Bids 2018/2019 - Streetscape Renewal - PSN107</b>	Dameon Roy / Tamika Cook
6.4.2	That a further report come back considering an increase in funding to the Street Tree Program bid PSN107 looking at improving outcomes and quality.	
	<b>Due:</b> February 2019	
	<b>Deferred to:</b> August 2019	
	<b>Reason:</b> Awaiting data received as a result of a city wide street tree audit to further inform the extent of extra funding required.	
23/04/2018 NOM3	<b>Mawson Lakes Community Garden</b>	Adam Trottman
	1. That a report be brought forward advising Council on the process for establishing Community Gardens and identifying potential locations in Mawson Lakes.	
	<b>Due:</b> February 2019	
	<b>Deferred to:</b> March 2019	
	<b>Reason:</b> Awaiting further costing information. Will be incorporating this matter into the report for 2.1.1 from 28/05/2018.	

23/04/2018 WS-OB1	<b>Rollout of Library Catalogue Computer Systems</b> 1. Staff bring back a report with costings and a proposed timeframe for the rollout of necessary system connections with community centres to enable reservations to be made on the library catalogue computer system and an item delivery system for those sites. <b>Due:</b> March 2019	Jo Cooper
28/05/2018 2.1.1	<b>Community Gardens in Reserves</b> 2. Staff prepare a business case which explores options and cost implications for the establishment of a Salisbury Community Gardens program. <b>Due:</b> January 2019 <b>Deferred to:</b> March 2019 <b>Reason:</b> Awaiting further costing information. Will be incorporating NOM3 from 23/04/2018 into this report.	Adam Trottmann
23/07/2018 2.3.1	<b>Outcome of the 'YourTutor' Trial</b> Further Motion: 1. That a further report be brought back on the potential of continuing the Your Tutor program or similar programs through our community centres and libraries, and staff also advise of any alternative programs being offered. <b>Due:</b> March 2019	Jo Cooper
27/08/2018 MON7.8	<b>Traffic Safety: Nelson Road, Para Hills</b> 1. That staff bring back a report to Council investigating whether any traffic calming devices can be installed in regard to increased traffic and vehicles coming too fast over a blind hill on Nelson Road, Para Hills between Milne Road and Miller Avenue, Para Hills. <b>Due:</b> July 2019	Dameon Roy
22/10/2018 2.7.1	<b>Traffic Safety: McGill Crescent, Para Hills</b> 1. That the matter be re-assessed and that a further report be brought back in December 2018. <b>Due:</b> March 2019	Tony Calandro
22/10/2018 MON7.4	<b>Motion on Notice - Footpath Construction Budget</b> 1. That a report be brought forward to the newly elected Council, in time for consideration in the 2019/20 budget, providing advice about the likely impact of one-off increases of \$1m each to the footpath construction and footpath repairs and maintenance budgets, and Council's long term financial management plan, including: • how many additional kilometres of footpath on our capital works program could be accelerated for construction with the additional funds; • the likely increase in rectifying footpath faults; and • the impact on Council's long-term footpath maintenance budget and program, and asset	Dameon Roy

	management plans. <b>Due:</b> March 2019	
17/12/2018	<b>The Salisbury Home and Community Services Business Model Project (Aged and Disability Services) post 2020</b>	Vesna Haracic
2.2.1	3. As a result of Commonwealth delays staff will report options for Council consideration in September 2019. <b>Due:</b> September 2019	
17/12/2018	<b>Traffic Measures - Intersection of Kings Road and Melvina Avenue, Paralowie</b>	Dameon Roy
W&S-OB2	1. Staff bring back a report identifying other measures to prevent drivers turning right onto Kings Road from Melvina Avenue, Paralowie, including appropriate signage. <b>Due:</b> March 2019	
17/12/2018	<b>New Sub-Committee – to consider play space renewal/upgrade program, the streetscape renewal program and the footpath program</b>	Craig Johansen + James Corletto
W&S-OB3	1. Staff bring back a report creating a new sub-committee, including the Terms of Reference, to look at reviewing the play space renewal/upgrade program, the streetscape renewal program and the footpath program. 2. That street tree removal be included in the draft Terms of Reference. <b>Due:</b> February 2019 <b>Deferred to:</b> April 2019 <b>Reason:</b> Awaiting discussion surrounding the Terms of Reference requirements at Informal Strategy.	
17/12/2018	<b>Collective Bargaining for Better Electricity Prices</b>	Matt Harris / Andrew Legrand
MON7.1	1. That the Administration investigate and provide advice to Council on the prospect of creating a critical mass of residential properties that would enable collective bargaining to effect a better electricity price for the residents of the City of Salisbury. <b>Due:</b> April 2019	
17/12/2018	<b>Further Motion: Council Buildings Powered by Renewable Energy</b>	Andrew Legrand
MON7.1	1. That a report be provided by the administration with advice about all Council owned buildings being powered by 100% renewable energy. <b>Due:</b> March 2019	
29/01/2019	<b>Use of Thermal Methods for Weed Control</b>	Mark Purdie
2.4.2	3. Staff provide a report on the outcomes of steam technology after a 12 month period in relation to its uses outlined in part 2. <b>Due:</b> February 2020	

29/01/2019	<b>Land Transfer Portion of Bolivia Crescent Drainage Reserve, Boliver</b>	Tim Starr
2.5.3	3. A further report be presented to Council for consideration of any objections received in response to community consultation. In the event that no objections are received the Manager Property and Buildings be authorised to prepare and submit the necessary documentation to the Minister for approval.	
<b>Due:</b>	May 2019	
29/01/2019	<b>Future Use of Leased Area – Underdown Park</b>	Liz Lynch
2.5.4	3. A further report to be presented to Council on the outcome of the public registration of expressions of interest process and recommendations for Council’s consideration.	
<b>Due:</b>	May 2019	
29/01/2019	<b>Use of Mulch and Compost in Council Maintained Spaces</b>	Mark Purdie
W&S-OB1	1. That Council provides a report on maximising the use of mulch and compost sourced from green waste and chipped trees in Council maintained spaces. 2. The report includes reference to viability of providing free mulch or compost to residents when surplus is available.	
<b>Due:</b>	April 2019	
29/01/2019	<b>Reduction of Illegal Dumping</b>	Andy Legrand
W&S-OB2	1. That Council bring back a report looking at proactive ways of reducing illegal dumping (such as CCTV and increasing awareness of alternative waste services) and associated costs by March 2019 to enable an appropriate budget bid to be prepared.	
<b>Due:</b>	March 2019	
29/01/2019	<b>Traffic Management Solutions – Jessie Road and Tracy Avenue, Paralowie</b>	Tony Calandro
W&S-OB3	1. Staff provide a report on traffic management solutions regarding hoon driving on these roads.	
<b>Due:</b>	May 2019	
29/01/2019	<b>Motion on Notice – Portable CCTV Cameras</b>	Les Hubiak
W&S-OB3	1. As part of Council’s strategy to combat illegal dumping, hoon driving and graffiti: <ul style="list-style-type: none"> <li>• a report be provided informing Council of the cost for the purchase, installation and utilisation of portable hidden CCTV cameras to capture on video and ultimately prosecute offenders;</li> <li>• the report be provided in time for consideration of the matter as part of the 2019/2020 budget process;</li> <li>• Ward Councillors be consulted to identify illegal dumping, hoon driver and graffiti hot spots in the City of Salisbury.</li> <li>• That the strategy also look at ways in which we</li> </ul>	

could network and utilize other CCTV cameras.
<b>Due:</b> April 2019

**4. CONCLUSION / PROPOSAL**

4.1 Future reports for the Works and Services Committee have been reviewed and are presented to Council for noting.

**CO-ORDINATION**

Officer:	Executive Group	GMCI	GMBE	GMCD
Date:	11/02/2019	07/02/2019	07/02/2019	07/02/2019





<b>ITEM</b>	2.0.2
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>DATE</b>	18 February 2019
<b>HEADING</b>	Road Renaming at Waterloo Corner
<b>AUTHOR</b>	Chris Zafiroopoulos, Manager Development Services, City Development
<b>CITY PLAN LINKS</b>	3.1 Be an adaptive community that embraces change and opportunities. 4.3 Have robust processes that support consistent service delivery and informed decision making.
<b>SUMMARY</b>	The Northern Connector has resulted in a number of roads at Waterloo Corner becoming no through roads or dead end roads (Anjanto Road, St Kilda Road, Undo Road and Summer Road). As a consequence it is necessary to consider renaming a section of these roads to avoid confusion of access to properties, particularly for emergency services access. This report seeks to inform Council about the outcomes of the public consultation process for the renaming of these roads and for Council to decide the names for the next step of the process.
<b>RECOMMENDATION</b>	
1.	That pursuant to Section 219 (1) of the Local Government Act 1999, the section of: <ol style="list-style-type: none"> <li>a. Anjanto Road between Port Wakefield Road and the Northern Connector be renamed Davey Road;</li> <li>b. St Kilda Road between Port Wakefield Road and the Northern Connector be renamed Dunn Road;</li> <li>c. Undo Road between the Northern Connector and Robinson Road be renamed Driver Road;</li> <li>d. Summer Road between the Northern Connector and Robinson Road be renamed Robinson Road;</li> </ol> <p>as shown in the plans forming Attachment 2 to this report (Item No. 2.0.2, Works and Services Committee, 18/02/2019), and that the necessary statutory notifications take place.</p>
2.	Owners and occupiers be advised of the new road names and property numbers together with the checklist of notification of change of address as provided as Attachment 5 to this report (Item No. 2.0.2, Works and Services Committee, 18/02/2019).
3.	Staff write to the Department of Transport, Planning and Infrastructure requesting: <ol style="list-style-type: none"> <li>a. Additional “St Kilda Attractions” signs be placed on the eastern side of Pt Wakefield Road, the exit from the Northern Connector to St Kilda and at the Northern Interchange.</li> </ol>

- b. Directional signage for St Kilda Township being placed at the intersection of St Kilda Road and Robinson Road.
- c. Signage at the Northern Interchange clearly identifies the exit for Salisbury.

## ATTACHMENTS

This document should be read in conjunction with the following attachments:

1. Community Responses to Consultation Process
2. Proposed New Road Names
3. Illustration of Proposed St Kilda Road Name
4. DPTI Signage
5. Change of Address Checklist

### 1. BACKGROUND

1.1 The Department of Planning, Transport and Infrastructure is currently constructing the new Northern Connector that will link the Northern Expressway to the South Road Superway. The Northern Connector has resulted in a number of roads becoming no through roads or dead end roads. The affected roads, which are in the suburb of Waterloo Corner, are:

- Anjanto Road
- St Kilda road
- Undo Road
- Summer Road

1.2 As a consequence, it is necessary to consider renaming a section of these roads to avoid confusion of access to properties, particularly for emergency services access. Council is responsible for undertaking the road renaming process.

1.3 An Informal Strategy briefing in May 2018 outlined the proposal to consult the community after the general local government elections to minimise potential confusion with the postal vote process.

1.4 The community consultation process was undertaken in December 2018. This report seeks to inform Council about the outcomes of the consultation process and to confirm the new road names for the next step of the process.

### 2. CONSULTATION / COMMUNICATION

#### 2.1 Internal

- 2.1.1 Property & Buildings, Field Services, Infrastructure Management: City Infrastructure
- 2.1.2 Financial Services, Communications & Customer Relations: Business Excellence
- 2.1.3 Urban Policy, Development Services: City Development

## 2.2 External

2.2.1 The community consultation process was undertaken between 20 November 2018 and 19 December 2018. The consultation included:

- Letters to those property owners and occupiers directly affected by the proposed road change. A total of 26 properties are affected. These letters explained the proposed changes and also provided the proposed new street address. The letters included a pre-paid reply envelope and survey form.
- Letters to those property owners and occupiers and stakeholders indirectly affected by the proposed road rename change. These letters explained the proposed changes and invited them to make a submission, if they wished. The letters included a pre-paid reply envelope and survey form.
- Information on Councils website and online survey to make comments on the proposal.
- Display at the Council office explaining the proposed changes and survey forms inviting comments from anyone wishing to make a comment.
- A public notice that was published in The Messenger on 26 November 2018.
- A presentation at the St Kilda and Surrounds, Development & Tourism Association AGM, held on 1 December 2018.

2.3 A total of eight (8) written submissions were received from the consultation process. Four (4) of the submissions supported the proposed name changes. Four (4) objections have been received in relation to the following:

2.3.1 That the new road from Pt Wakefield road right through to the roundabout on St Kilda Road should be named “St Kilda Road”.

2.3.2 The section of Undo Road proposed to be renamed Robinson Road should be named “Illawara Tip Road”.

2.3.3 One objection made no comment and another suggested one of the proposed names was too long (but did not identify it) and questioned the use of Undo Road (which is an existing road name).

2.4 The comments are discussed in more detail in the report below. A summary of the submissions is provided in Appendix 1.

## 3. REPORT

3.1 Road names are selected so as to be appropriate to the physical, historical or cultural character of the area in accordance with Council’s Naming of Roads and Public Places Policy.

3.2 Given the number of potentially affected properties by the renaming, the rationale was to rename the sections of road which affected the least number of properties and also use names to avoid confusion of access to properties, particularly for emergency services access.

ROAD NAME	DIRECTLY AFFECTED PROPERTIES	NOT DIRECTLY AFFECTED BY PROPOSED CHANGE
Anjanto Road	6	17
St Kilda Road	7	29
Undo Road	8	10
Summer Road	5	12
<b>TOTAL</b>	26	68

3.3 Distinctly different names have been proposed, rather than renaming the existing roads east and west. The key rationale is that:

3.3.1 Distinctive names only affect one side of the road, while the east and west approach would require everyone in the street to have a name change.

3.3.2 The Northern Connector has completely severed the access of the roads and the journey to the other side of the road is not simple as crossing over the Northern Connector and will take some time, which could prove significant for emergency vehicles.

3.4 The proposed new road names have been selected from people that had a historical connection to the locality. Consideration has also been given to names that are unique in the locality. The proposed new road names are:

3.4.1 **Davey Road** for the section of Anjanto Road between Port Wakefield Road and the Northern Connector. Mr Davey was a district farmer who built one of the early huts at St Kilda for fishing and recreation before the township was proclaimed in 1873.

3.4.2 **Dunn Road** for the section of St Kilda Road between Port Wakefield Road and the Northern Connector. Mr Joseph Dunn was one of the original buyers of land when the St Kilda Township was proclaimed on 31 July 1873.

3.4.3 **Driver Road** for the section of Undo Road between the Northern Connector and Robinson Road. Mrs V Driver was an instructor at the first swimming pool at St Kilda in January 1959.

3.4.4 **Robinson Road** for the section of Summer Road between the Northern Connector and Robinson Road. This section of road is an orderly continuation of Robinson Road.

The affected sections of roads are shown in Attachment 2.

3.5 The most significant issue has been raised in the submission from the *St Kilda and Surrounds, Development & Tourism Association* for the new road from Pt Wakefield Road right through to the roundabout on St Kilda Road to be named "St Kilda Road". The rationale for this is to clearly identify the township from both Pt Wakefield Road and the Northern Connector.

- 3.6 The Road Naming Policy states that... *Roads that are maintained by the Department of Planning, Transport and Infrastructure (DPTI) will be named by DPTI. Council will consult with DPTI in relation to naming these roads* [clause 2.1(c)]. If Council wished to pursue the renaming of the new road to St Kilda Road, it will require agreement with DPTI as this affects the new road under construction.
- 3.7 Furthermore, if this change was to be agreed Council would need to rename additional roads that are currently not affected by the renaming process and additional consultation would be required with the community. The additional roads that will require renaming are:
- 3.7.1 Robinson Road, between the new road to be named St Kilda Road and the existing St Kilda Road.
- 3.7.2 St Kilda Road, between Robinson Road and Pt Wakefield Road.
- 3.7.3 Robinson Road south of the new road to be named St Kilda Road,  
or
- 3.7.4 Robinson Road north of the existing St Kilda Road.
- 3.8 Council staff have spoken to the Department of Transport, Planning and Infrastructure in relation to this suggestion as this affects the northern connector that is not in the scope of Council's process. The Department has advised that the naming of the Northern Connector will follow the conventions for the North-South Corridor and provided the proposed signage scheme. The DPTI proposal is to name the new section of road between Pt Wakefield Road and Robinson Road, referred to as the Waterloo Corner Interchange, as Waterloo Corner Road. It is understood that these signs have been commissioned and are being prepared for installation. Refer to Attachment 4 for DPTI signage at the Waterloo Corner Interchange.
- 3.9 The DPTI proposed signage scheme includes clear signs that identify St Kilda and also a "St Kilda Attractions" sign on Pt Wakefield Road. The signage proposed by DPTI is considered to adequately identify the St Kilda Township in the approach to the Waterloo Corner Junction.
- 3.10 It would seem however appropriate to include an additional "St Kilda Attractions" signs on the eastern side of Pt Wakefield Road, at the exit from the Northern Connector to St Kilda when driving north and at the Northern Interchange. The DPTI signage proposal has been provided to the representative of the *St Kilda and Surrounds, Development & Tourism Association* who favours the additional signage.
- 3.11 While not part of this process, it is also considered timely to write to DPTI to clarify that signage at the Northern Interchange also clearly identifies the exit for Salisbury, as there is no exit when driving south to Salisbury at the Waterloo Corner Interchange.
- 3.12 The proposal to use "Illawara Tip Road" in this locality meets the Road Naming Policy as the naming is considered to be consistent with the local history, subject to further investigation and confirmation. It is not however recommended that this name is used for this section of Summer Road that is proposed to be renamed Robinson Road, as this section of road is considered to be a logical extension of

Robinson Road. Clause 2.1(f) of the Road Naming Policy which states...*Wherever practicable, road names will be continuous from the logical start of the road to the logical end of the road, irrespective of Council boundaries, landforms and intersecting roads.*

- 3.13 If Council is satisfied with the road names as recommended during the consultation process, the next steps will involve:
- 3.13.1 Staff writing to the community in March 2019 to inform them of the decision and providing them time in which to update their respective records. It is proposed that the road names be gazette in May 2019, to provide the community sufficient time in which to complete this process. As part of the process, Staff will provide the community a check list for updating their records. Refer to Attachment 5.
  - 3.13.2 Staff will also write to the relevant statutory, state and service authorities to advise them of the proposed road name changes.
  - 3.13.3 A gazette notice will be published for the proposed new road names, including information on Council's website fulfilling the statutory requirement under the Local Government Act.
  - 3.13.4 New street signs will be erected to identify the street names.
- 3.14 In the event Council wished to consider alternative road names, the road renaming process could be postponed to accommodate the alternative. The process will require additional consultation with the community that is directly and indirectly affected by any alternative proposal.

#### **4. CONCLUSION / PROPOSAL**

- 4.1 The consultation process for the road naming of the affected road at Waterloo Corner has provided the community the opportunity to make submissions on the proposals. The most significant concerns expressed by the *St Kilda and Surrounds, Development & Tourism Association* for the new road from Pt Wakefield Road has not been within the scope of this process, as this affects DPTI roads. While DPTI has advised that its naming convention will identify this new road as Waterloo Corner Road, the proposed signage strategy by DPTI will allow for the identification of the St Kilda Township.
- 4.2 It is recommended that Council write to DPTI requesting additional "St Kilda Attractions" signs be placed on the eastern side of Pt Wakefield Road, the exit from the Northern Connector to St Kilda and at the Northern Interchange. Furthermore, that signage at the Northern Interchange also clearly identifies the exit for Salisbury.

#### **CO-ORDINATION**

Officer: EXECUTIVE GROUP

Date: 11.02.19

Name	Property Affected	Support the proposal for the street name & numbering to be changed and have no comment	Support the proposal for the street name and numbering to be changed with following comments	Oppose the proposal	Comments
Donato Belperio	St Kilda Rd, Waterloo Cnr			1	I would support a name change of St Kilda West and St Kilda East
St Kilda & Surrounds Devt & Toursim Assoc Inc (Lindsay Virgo)	St Kilda Road, Waterloo Cnr				New road from Pt Wakefield Rd right through to the roundabout on St Kilda Road be named "St Kilda Road". This would reuquire the section of Robinson Rd between St Kilda Rd and the junction of the new road to be
Michele & Alberina Luongo	St Kilda Rd, Waterloo Cnr	1			No comment
Suzanne Gowley	24-40 Summer Rd, Bolivar	1			No comment
Jennifer Schoepf	Not Specified	1			No comment
Phillip Jobson	Robinson Road			1	Change road name to Illawara Tip Road - horse that was trained up and down the road in the 1950's.
Stephen Coad	All			1	No comment
Suzana Jones	Not Specified	1			Who came up with the names one is too long and naming a street undo really.





### Northern Connector – Where new road names are required (blue highlighted sections)



*Have Your Say*



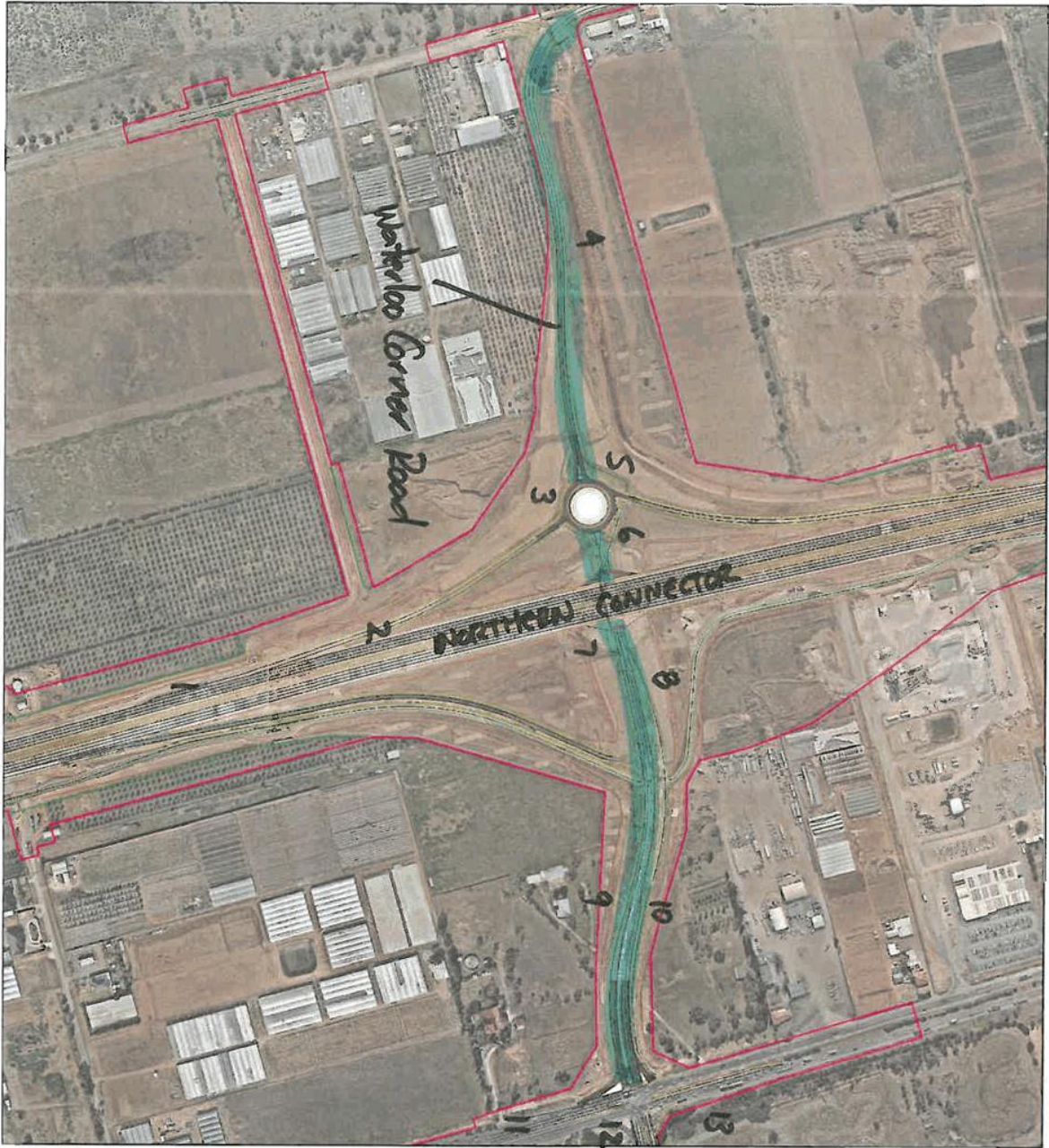


**Illustration of the *St Kilda and Surrounds, Development and Tourism Development Association* proposal to rename new road and portion of Robinson Road to St Kilda Road**



- Section of roads proposed to be named St Kilda Road - Blue**
- Additional properties affected by the proposal - Yellow**

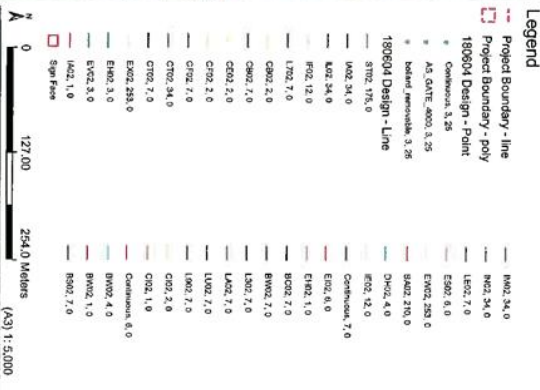




Item 2.0.2 - Attachment 4 - DPTI Signage

Northern Connector Project

Map output from 'the GIS'



The map is shown for reference purposes only. Landmark provides the information complete and conclusions drawn from such information to the responsibility of the user. While every effort is made to ensure the information displayed is as accurate as possible, Landmark will not be held responsible for any loss, damage or inconvenience caused as a result of reliance on such information or data.





Safety & Service Division  
Traffic Operations, Traffic Solutions Unit  
Specific Road Signs - Specifications, South Australia

3.



ADDITIONAL REFERENCE NOTES:

TES 15755 - Name Panel Sheet  
TES 12737(A Series) - Arrow Detail Sheet

NOTE:

Rear of sign to be painted G65 Dark Green to AS2700 'Colour Standards for General Purposes'



Scale: 1:15  
ALL DIMENSIONS ARE IN MILLIMETRES  
Total Sign Area: 1.74 sqm  
Sign Type: Intersection-Direction  
Location: RN5063 - Northern Connector

- NOTE -  
Series 2000 Font

TES 19316

Safety & Service Division  
Traffic Operations, Traffic Solutions Unit  
Specific Road Signs - Specifications, South Australia

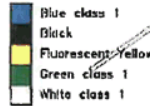
8.



ADDITIONAL REFERENCE NOTES:

TES 15755 - Name panel sheet  
TES 12737(A Series) - Arrow Detail Sheet

NOTE:  
Rear of sign to be painted G61 Dark Green to AS2700 'Colour Standards for General Purposes'



Scale: 1:25  
ALL DIMENSIONS ARE IN MILLIMETRES  
Total Sign Area: 4.98 sqm  
Sign Type: Advance Direction  
Location: RN5063 - Northern Connector

- NOTE -  
Series 2000 Font

PLEASE NOTE  
ROUTE NUMBER COLOUR  
FLUORESCENT YELLOW  
of approved equipment  
(396381) or (400477-7311)

TES 19378

Safety & Service Division  
Traffic Operations, Traffic Solutions Unit  
Specific Road Signs - Specifications, South Australia

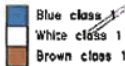
11.



ADDITIONAL REFERENCE NOTES:

TES 14976 - Symbols detail sheet.

NOTE:  
Rear of sign to be painted G61 Dark Green to AS2700 'Colour Standards for General Purposes'.



Scale: 1:25  
ALL DIMENSIONS ARE IN MILLIMETRES  
Total Sign Area: 7.19 sqm  
Sign Type: Tourist Attraction  
Location: RN3500 - RNS024

- NOTE -  
Series 2000 Font

TES 19481

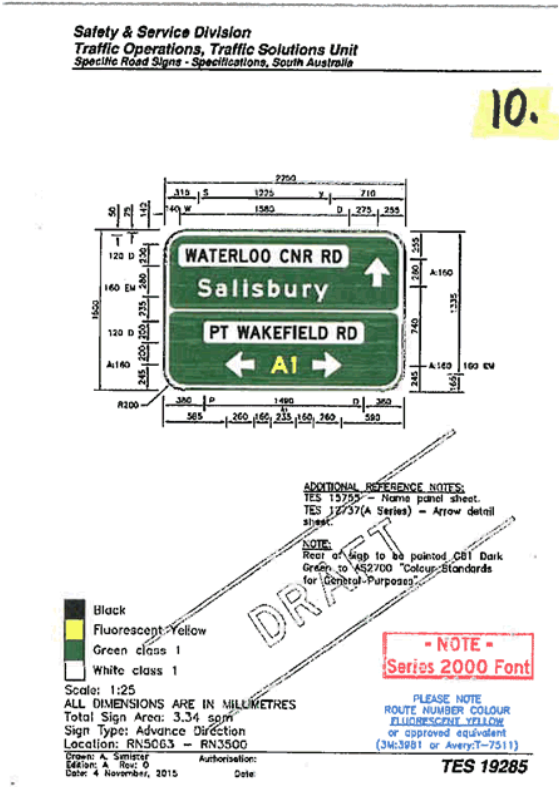
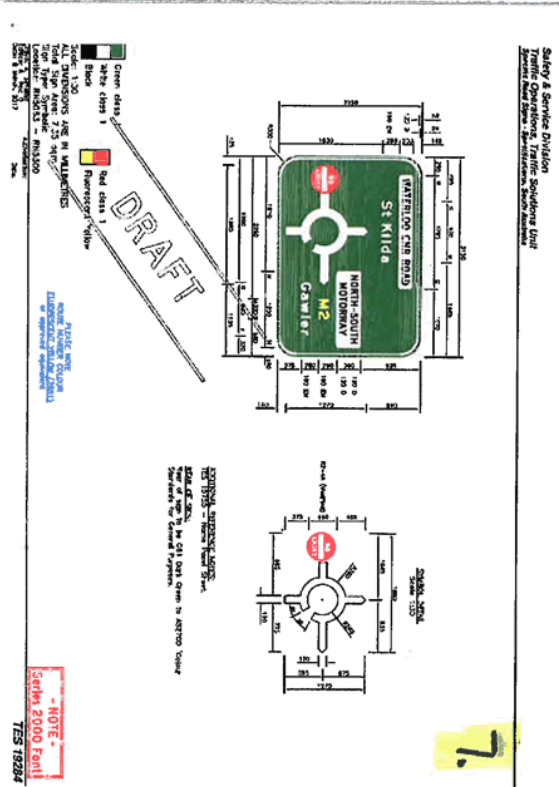
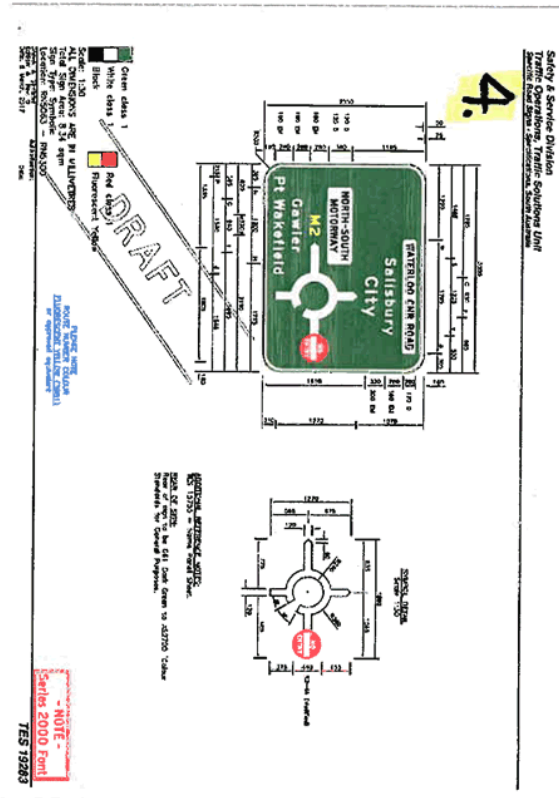
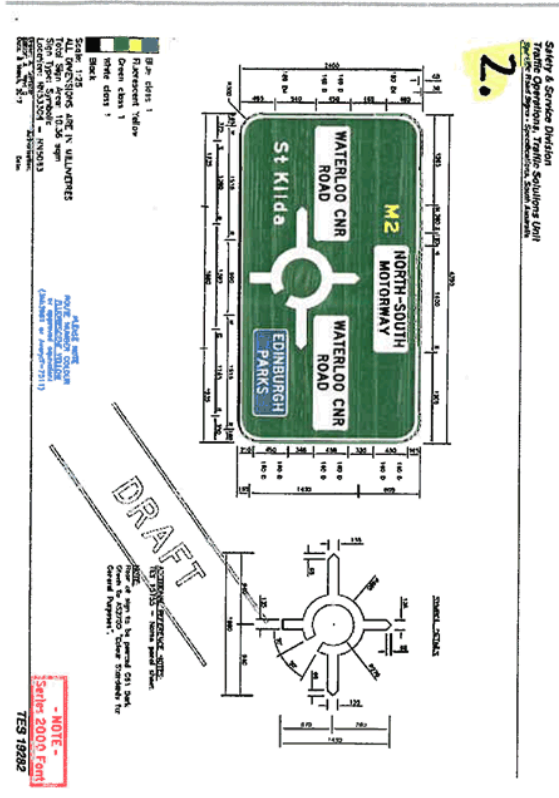
Safety & Service Division  
Traffic Operations, Traffic Solutions Unit  
Specific Road Signs - Specifications, South Australia

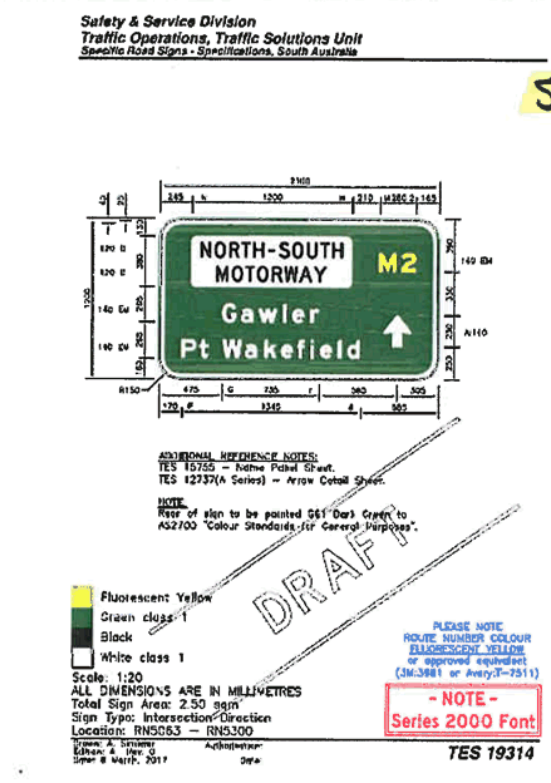
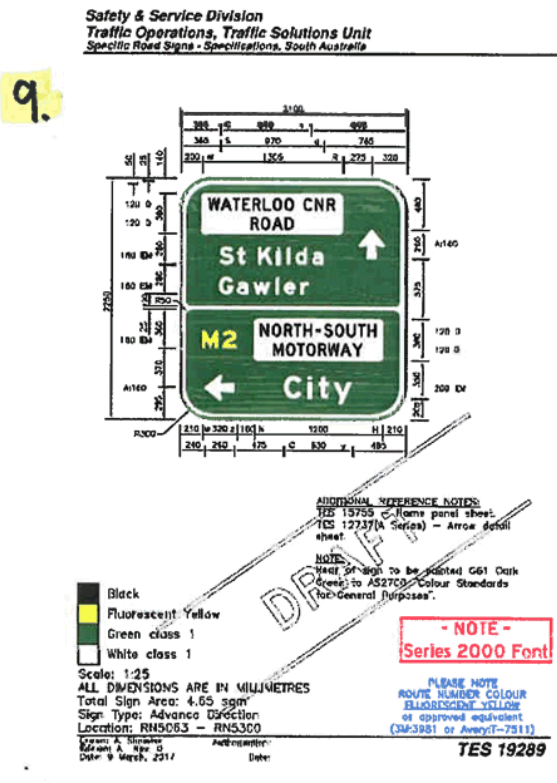
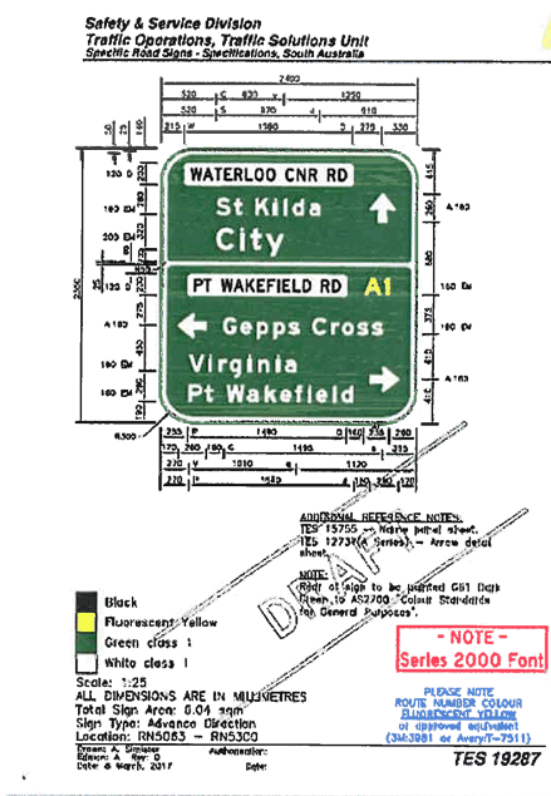
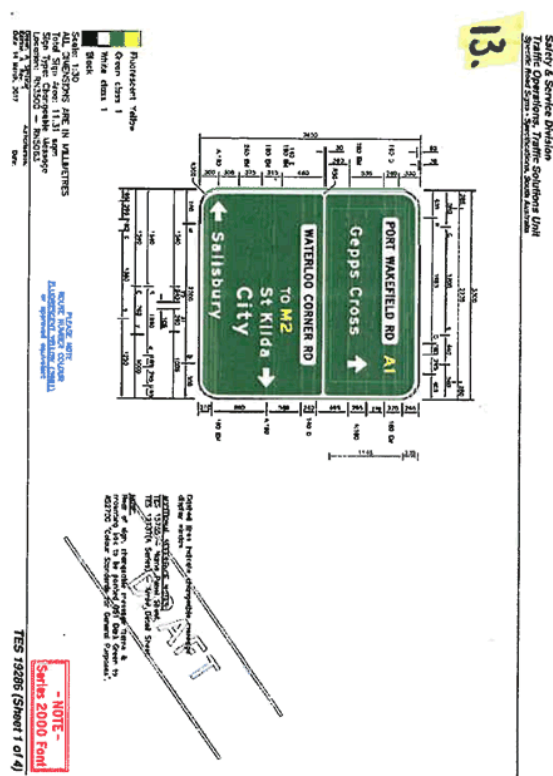
1.



ADDITIONAL REFERENCE NOTES:  
TES 15755 - Name panel sheet  
TES 12737(A Series) - Arrow Detail Sheet  
NOTE:  
Rear of sign to be painted G61 Dark Green to AS2700 'Colour Standards for General Purposes'

- NOTE -  
Series 2000 Font  
TES 19287







6

Safety & Service Division  
 Traffic Operations, Traffic Solutions Unit  
 Specific Road Signs - Specifications, South Australia



ADDITIONAL REFERENCE NOTES:  
 TKS 1b/53 - Name Panel Sheet  
 TES 12/53(A Series) - Arrow Detail Sheet

NOTE:  
 Rear of sign to be printed '051 Dark Green to AS2700 "Colour Standards for General Purposes"

- Blue class 1
- Black
- Green class 1
- White class 1

Scale: 1:15  
 ALL DIMENSIONS ARE IN MILLIMETRES  
 Total Sign Area: 2.60 sqm  
 Sign Type: Intersection/Direction  
 Location: RN5263 - Northern Connector

**- NOTE -**  
 Series 2000 Font

Drawn: A. Smith  
 Edited: S. King  
 Date: 7 December, 2015

TES 19315

Item 2.0.2 - Attachment 4 - DPTI Signage





## City of Salisbury Change of Address Checklist

It is acknowledged that road name changes and/or property re-numbering can cause inconvenience to property owners/occupiers.

When road name changes/property re-numbering is proposed by the City of Salisbury will notify the Registrar-General, the Surveyor-General, the Valuer-General, Land Titles Office, Telstra and Australia Post. Council systems will also be updated so that rates, dog registration, green waste and library contact information will be updated automatically.

To assist you in the process we have also put together a checklist of who you may need to notify of your change of address:

### Utilities

- Gas
- Water
- Electricity
- Home Phone
- Mobile Phone
- Internet
- Cable TV (eg Foxtel, Austar etc)

### Insurance

- Home
- Contents
- Car
- Health / Medicare
- Ambulance

### Other

- Centrelink
- Australian Electoral Commission
- Employer
- Superannuation
- Bank / Credit Union
- Car Registration and Licence
- Lotto
- School / Daycare / Kindy
- Club Memberships
- Newspaper
- Medical Practitioners

### Friends and Family

- Please advise them
- There is no need to arrange mail redirection through Australia Post. Australia Post is aware of the road name change and mail to old addresses will be redirected to your new address





<b>ITEM</b>	2.4.1
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>DATE</b>	18 February 2019
<b>HEADING</b>	Netball Courts
<b>AUTHOR</b>	Adam Trottman, Manager Community Planning & Vitality, Community Development
<b>CITY PLAN LINKS</b>	3.2 Have interesting places where people want to be. 3.3 Be a connected city where all people have opportunities to participate.
<b>SUMMARY</b>	<p>This report relates to a number of requests for the establishment of outdoor netball courts, including a request for a report regarding Salisbury North (per table Budget Workshop 1 – 28 February 2018 item WS1-17).</p> <p>The report canvasses the options relating to the three courts reinstatement at Salisbury Downs Oval with a budget estimate of around \$437,000 (including lighting, fencing, storage, and resurfacing) and \$605,000 for construction of a new single court with appropriate lighting and fencing at Salisbury North Oval (noting lack of off-street parking and access to change/toilet facilities). The report concludes that re-instatement of the courts would not be a practical investment for council due to the changing nature of the downward trend in the sports participation and the trend towards indoor facilities supported by the state and national netball codes.</p>
<b>RECOMMENDATION</b>	<ol style="list-style-type: none"> <li>1. Council notes the attached information.</li> </ol>
<b>ATTACHMENTS</b>	There are no attachments to this report.
<b>1. BACKGROUND</b>	<ol style="list-style-type: none"> <li>1.1 The number of netball courts across the City of Salisbury has declined significantly over the past two decades. The two main reasons are a shift to indoor facilities and the construction of the 20 court regional complex at Golden Grove.</li> <li>1.2 Two clubs are seeking to establish outdoor courts for a variety of reasons including assisting growth in the sport, providing additional access to courts for training players, to better connect with other existing sporting clubs, and to diversify and to be more financially sustainable in the future.</li> </ol>

## ITEM 2.4.1

**2. CONSULTATION / COMMUNICATION**

## 2.1 Internal

- 2.1.1 City Infrastructure – Infrastructure Delivery
- 2.1.2 City Infrastructure – Energy and Lighting Assets
- 2.1.3 City Infrastructure – Property and Buildings

## 2.2 External

- 2.2.1 Netball SA – State Facilities Strategy
- 2.2.2 Salisbury West Netball Club
- 2.2.3 Salisbury North Netball Club

**3. REPORT**

- 3.1 On 26 March 2018 in the Long Term Financial Plan and Budget Workshops, a request was made for a report on the Salisbury North Netball Club pertaining to a request for a new court to be constructed at Salisbury North Oval. Salisbury West Football Club have also approached staff regarding re-instatement of Netball Courts adjacent their club rooms.
- 3.2 Staff have been working on a ‘City Activation Plan’ which will include the amalgamation of strategic documents such as The Game Plan, City Landscape Plan and the Parks and Streetscapes Asset Management Plan. This combined plan will provide strategic guidance to council regarding relative need, growth and the access across the city.
- 3.3 From January 2017 to June 2018, Netball has experienced a decline in participation by both adults (from 4.4% to 3.5%) and children (12.5% to 10.9%) (Source: *Ausplay Survey, Sport Australia*). The Salisbury North Netball Club have gone against this trend with over 80 players now with the club.
- 3.4 A review of plans prepared for the City Activation Plan highlights a decline in the number of netball courts across the City. This reflects the trend of netball over the past decade where the SA Districts Netball Association developed a 20 court regional complex at Golden Grove. This complex services a wide region and lead to a number of outdoor court facilities across the City of Tea Tree Gully and City of Salisbury becoming redundant.
- 3.5 The Gardens Recreation Centre and Ingle Farm Recreation Centre are still used for netball and provide significant indoor facilities for the City.
- 3.6 The Netball SA State-wide Facilities Audit and Master Plan notes a trend towards the desire for indoor facilities requiring a reduction in the number of outdoor courts.
- 3.7 There are currently no playable outdoor courts in the Salisbury North, Burton, Paralowie, or Salisbury Downs area. It should be noted however that Paralowie and Salisbury Downs are in close proximity to the Gardens Recreation Centre located on Kings Road, Parafield Gardens and this centre is not currently over subscribed.
- 3.8 Staff have considered the current requests from both Salisbury North Netball Club and Salisbury West Netball Club to have court(s) installed at the respective ovals.

### 3.9 Salisbury North Netball Club (Salisbury North Oval)

Advantages	Disadvantages
Addresses lack of functional courts in the area	Distance from toilet facilities
Provides training facility for club	No change facilities available
Co-located with existing club	No on-site storage
Provides additional court for community use	No lights for training in netball season restricting court use to around 6:30pm in evenings during winter
Opportunity for future growth and number of people playing	Limited car parking and impact on residents
Provides greater connection between sporting clubs and increased opportunity for collaboration	
May contribute to financial sustainability	

- 3.10 Due to existing site restrictions at Salisbury North Oval, the location of netball courts could only be accommodated at a site located on the opposite side of the reserve from the existing community facility. This location does not have immediate access to off-street parking, toilets, change areas, water, or storage.
- 3.11 Below are indicative budget estimates for the development of a new court at Salisbury North Oval excluding provision of shelter, addressing car parking issues or provision of water to site:

Description	Budget Estimate
Construction of new asphalt lined court (32 x 19m to allow multiple uses)	\$200,000
Cyclone fence surrounding court with entry (102m)	\$25,000
Construction of typical storage shed with base (9 x 4m)	\$30,000
Lighting to average of 100 lux across court	\$350,000

## ITEM 2.4.1

Minor landscaping	\$15,000
-------------------	----------

3.12 A staged approach could be taken with the above works whereby the court, fencing and storage is considered for stage one and lighting and shelter is considered as stage two.

**3.13 Salisbury West Netball Club (Salisbury Downs Oval)**

Advantages	Disadvantages
Provides training facility for club	Limited on-site storage
Co-located with existing club	No lights for training in netball season restricting court use to around 6:30pm in evenings
Provides additional court for community use	
Re-instating of courts that were previously used	
Provides greater connection between sporting clubs and increased opportunity for collaboration	
May contribute to financial sustainability	

3.14 The Salisbury West Oval was once home to a thriving netball competition in the 1980's and 1990's. The three courts are still in place however require resurfacing if they were to be used again. Whilst there are existing lights in place, an assessment of these by staff indicates that they would need to be replaced with new towers and lights.

3.15 The old netball courts at the Salisbury Downs Oval are well located with immediate access to off street car parking, and are adjoining the existing community facility. With three old courts in place and its excellent location, this provides a potentially cost effective solution to provision of external courts in the area.

3.16 Below are indicative budget estimates for the resurfacing of courts at Salisbury Downs Oval excluding provision of shelter:

Resurfacing of three existing courts (subject to suitability of existing base)	\$90,000
Cyclone fence surrounding court with entry (210m)	\$52,000
Construction of typical storage shed	\$30,000



with base (9 x 4m)	
Lighting to average of 100 lux across court	\$250,000
Minor landscaping	\$15,000

- 3.1 A staged approach could be taken with the above works whereby the court resurface, fencing, storage, and minor landscaping is considered for stage one and lighting and shelter is considered as stage two.
- 3.2 The Salisbury West Courts are located less than 1km (direct) and Salisbury North 3km (direct) from the Gardens Recreation Centre. Construction of any outdoor courts in this area may have an impact on use of those indoor courts.

**Other considerations**

- 3.3 Although outdoor courts are declining in popularity and are not preferred by the code, outdoor courts offer a lower cost alternative for participants and may encourage greater participation across the city. They can also provide clubs with the ability to diversify their membership base and encourage family friendly environments as well as encourage males and female (mixed) competitions across sporting codes.

**4. CONCLUSION / PROPOSAL**

- 4.1 A review of plans prepared for the City Activation Plan highlights a reduction in the number of outdoor netball courts across the City. This reflects the trend of netball over the past decade towards indoor facilities. The Netball SA State-wide Facilities Audit and Master Plan notes a trend towards the desire for indoor facilities reduce the number of outdoor courts.
- 4.2 The Gardens Recreation Centre and Ingle Farm Recreation Centre are used for netball and provide significant indoor facilities for the City.
- 4.3 Site restrictions at Salisbury North Oval limit the number of courts that could be developed at the site. The location of a single new court at Salisbury North Oval could be on the opposite side of the reserve from the existing community facility with access to toilets, change rooms, and off-street car parking around 150m away. The cost to develop a single new court with floodlighting, fencing, and storage could be in the vicinity of \$605,000. A single standalone court (with no fencing, storage, or floodlighting) could be in the order of \$200,000.
- 4.4 The Salisbury Downs Oval is the site of three existing courts that are currently unplayable and could be reinstated at cost. The three courts were well used in the 1980s and 1990s prior to the development of the 20 court regional complex at Golden Grove. The courts are well located next to the existing community facility and with access to off-street parking, toilets, and change facilities. The cost to reinstate the three courts with floodlighting, fencing, and storage could be in the order of \$437,000. These courts would be within less than 1km (direct) of the existing indoor courts at the Gardens Recreation Centre.

ITEM 2.4.1

- 4.5 Given the continued decline in the usage of outdoor courts, in line with the state trend and preference to encourage the use of indoor facilities, it is not recommended that Council invest in the proposed re-developments, but rather give consideration to these requests as a part of the development of the Future Directions for Indoor Recreation Facilities.

**CO-ORDINATION**

Officer: Exec Group  
Date: 11/02/2019

---

<b>ITEM</b>	2.4.2
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>DATE</b>	18 February 2019
<b>HEADING</b>	Little Corella Update
<b>AUTHOR</b>	Mark Purdie, Manager Field Services, City Infrastructure
<b>CITY PLAN LINKS</b>	<p>2.2 Have a community that is knowledgeable about our natural environment and embraces a sustainable lifestyle.</p> <p>2.3 Have natural resources and landscapes that support biodiversity and community wellbeing.</p> <p>4.3 Have robust processes that support consistent service delivery and informed decision making.</p>
<b>SUMMARY</b>	<p>This report provides an overview of the status of the Little Corella population in the Burton precinct, including nuisance and impacts and short term actions put in place to curb the problem. The report highlights the need for an integrated longer term strategy and identifies a range of shorter and longer term options that are currently being evaluated and considered.</p>
<b>RECOMMENDATION</b>	
	<ol style="list-style-type: none"> <li>1. The information be received.</li> <li>2. The current short term deterrent methods be continued until the end of the Corella season, estimated to be April.</li> <li>3. Consideration be given to assessing the streets most impacted in the Burton area by Little Corellas for possible inclusion in the 2019/2020 streetscape renewal program, depending on the condition and expected useful life of the street trees.</li> <li>4. Committee notes that a Community Meeting with the residents in the Burton area to update them on Little Corella management actions has been organised on Thursday 21 February 2019.</li> </ol>
<b>ATTACHMENTS</b>	
	<p>This document should be read in conjunction with the following attachments:</p> <ol style="list-style-type: none"> <li>1. Little Corellas. Social and Ecological Research for Managment in South Australia</li> <li>2. Little Corella Management Program - update January 2018 by Ecosure</li> </ol>
<b>1. BACKGROUND</b>	
	<ol style="list-style-type: none"> <li>1.1 The City of Salisbury has been experiencing elevated levels of Little Corella populations, particularly in areas of Burton, since 2017.</li> </ol>

## ITEM 2.4.2

- 1.2 Little Corellas have been in nuisance numbers in other Council areas across the State for many years. The exact reason for the sudden presence of large numbers in Salisbury is not clear but could be related to saturation in other areas, leading the species to find new territories with food, water and roosting sites.
- 1.3 Management of Little Corellas is a complex, state-wide ecological (overabundant native wildlife) issue. A project titled Little Corellas – Social and Ecological Research for Management in South Australia has recently been completed (2017) by the Discovery Circle, a citizen science initiative at the University of South Australia. This project received support from the University of South Australia, Department of Environment and Water, and the Local Government Association of South Australia. Representatives from the City of Salisbury participated in the project. A copy of the final report which is a useful resource on the topic is provided as Attachment 2.

## 1. REPORT

- 1.1 The area most impacted by the Little Corella population is bounded by Springbank Waters to the west, Waterloo Corner Road to the north and Bolivar Road to the east. Refer Figure 1 in Attachment 1.
- 1.2 The elevated populations have generally arrived in the area during November/December and have reduced again through natural migration patterns by March/April the following year.
- 1.3 Little Corellas can be a real nuisance to residential communities with a wide range of social, economic and environmental impacts. Numerous complaints have been received from residents within the Burton community including noise impacts, defoliation of public and private trees, defecation on paths and roads, damage to roofs and electrical cables, displacement of other native birds and damage to soccer pitches. Whilst some queries have been received from residents who enjoy the Little Corellas in the environment, there is an overwhelming sentiment requesting immediate action to curb the problem.

### Actions Taken

- 1.4 As a short term measure, a suitably qualified consultant/contractor with proven experience in successfully managing Little Corella populations was engaged to conduct site assessments, undertake roost dispersal techniques and provide ongoing monitoring and further recommendations. Refer to attachment 1 for a summary report.
- 1.5 Roost dispersal techniques comprising a range of different methods (such as stockman whips, starter pistols, modulated sirens, PA systems, bird distress calls, spotlights/illuminators, lasers) have been employed for 17 days (85) hours between 10 January and 6 February 2019. The community was notified prior to this action being taken to assist in managing impacts to pets, and all works undertaken has complied with relevant Environment Protection Agency (EPA) and South Australia's Audible Bird Scaring Devices-Environmental Noise Guidelines.

- 1.6 Little Corellas are described as intelligent and highly adaptive and therefore a range of techniques are utilised rather than a single method, such as noise, which can quickly become ‘learnt’ and hence no longer effective. The techniques used are based on bird behavior and monitoring their effectiveness.
- 1.7 The objectives of the roost dispersal were to:
- 1.7.1 Fragment larger flocks into smaller groups, keeping them unsettled and keeping them on their wings before roosting to reduce impacts
  - 1.7.2 Relocate roosting to more desirable locations and encourage them to move out of the Council area
  - 1.7.3 Reduce overall impacts to the community
  - 1.7.4 Prevent the flock from increasing in number
- 1.8 Roost dispersal has assisted to curb increases in the population. However, the flock has not left the area presumably due to the strong attraction of permanent water in Springbank Waters and irrigated grasslands nearby providing an ideal food source.
- 1.9 Other actions taken include updating Council’s website information to provide more specific advice to residents on what they can do to assist in deterring Little Corellas from their properties.
- 1.10 In response to the excessive leaf litter caused through defoliation of street trees, weekly street sweeping and footpath cleaning has been implemented in the most affected areas.
- 1.11 The costs to date of managing the Little Corella population are approximately \$12k. It is expected that the total costs for 2018/19, including additional street sweeping and cleansing, is likely to be in the order of \$40k - \$50k based on current actions.

#### Future Options

- 1.12 Whilst the effectiveness of control methods is somewhat contentious, recent reports have indicated that using one short term method of control is ineffective and that an integrated approach involving a combination of short, medium and long term strategies is most effective.
- 1.13 To be effective in the longer term an integrated approach with other Councils, State Government, and major land owners will be required.

#### **Short Term Actions & Considerations**

##### Disruption Techniques

- 1.14 The disruption of Little Corellas through roost dispersal currently being employed is a cost effective and community accepted short term strategy that is recommended to be continued in conjunction with other actions. In particular, focus in future years will be concentrated on ‘scouting birds’ or ‘early arrivals’ as early in the season as possible.

## ITEM 2.4.2

- 1.15 In addition to methods already employed, further consideration is being given to temporary netting on affected grassed areas to deter Little Corellas from the Burton area.

Lethal Deterrents (shooting to deter flocks)

- 1.16 Selective shooting of a small number of birds to assist in disruption techniques whilst continuing dispersal methods is considered to be more effective than either action in isolation. This is particularly effective early in the season when employed on ‘scouting birds’ or ‘early arrivals’.
- 1.17 Selective shooting while only impacting a relatively few birds has the objective of making subsequent dispersal techniques such as spot lighting and noise methods more effective.
- 1.18 Shooting is generally considered more favourable in rural areas and a number of investigations would need to be completed prior to determining if this option is feasible in a residential area. These would include completing a risk assessment, liaising with qualified contractors to assess the specifics of the population area, addressing community concerns and liaising with SAPOL. No permits are required for shooting Little Corellas in South Australia, however activity must comply with relevant codes of practice to ensure humane dispatching and safe practices.
- 1.19 Surveys conducted in the Little Corella Discover Circle Project indicated many respondents (63%) were opposed to lethal actions. However this project also indicated that community engagement and education can assist in community acceptance of management actions. If selective shooting as a deterrent, rather than control, was to be considered, it is recommended that the local community be consulted with a high level of acceptance of the action prior to implementing the strategy.
- 1.20 There is the potential for negative publicity concerning lethal actions, particularly adjacent to residential and wetland areas.

Lethal Population Controls (destruction of large numbers of birds)

- 1.21 Trapping and gassing is a control method available to destroy large numbers of birds. A permit and operator accreditation is required to undertake this activity. This method is expensive and is not considered to be effective (refer attachment 2) with birds often returning after activity ceases. This option may also be considered unacceptable by the community.

**Medium and Longer Term Actions & Considerations**

- 1.22 The development of medium and longer term strategies is considered important as part of an integrated approach to the situation. Options are yet to be fully considered however exploration with consultants on key areas has begun which include:

Barriers to water resources

- 1.23 Assessment of the Springbank Waters wetland and options to increase density of aquatic vegetation to reduce access to water is being undertaken. Options to seasonally drain the wetland for short periods of time next summer are also being considered as a potential deterrent and to enable drainage maintenance of the water body. This may cause other short term impacts such as amenity and odour and would require community consultation as part of the overall management strategy.

Barriers to food availability

- 1.24 The irrigated grassed areas of Springbank Waters and Burton Soccer Fields provide easily accessible food sources for Little Corellas. Seasonal and periodic use of netting is being considered to deter feeding at these locations. Decreasing irrigated lawn area at Springbank Waters and replacing with native grasses is likely to have a negative impact on the visual amenity of the precinct and is not being considered at this stage.

Habitat modification

- 1.25 Assessment of the landscapes in the Springbank Waters precinct is being undertaken to determine options to increase density of vegetation and add understorey plantings which deter Little Corellas.
- 1.26 Prioritising the main affected streets in the precinct for streetscape renewal is being considered to minimise leaf litter impacts in the area and assist in deterring future populations from settling in the precinct.

Identification of Sacrificial Sites

- 1.27 Identifying sites where Little Corellas may inhabit where their nuisance impact is minimised is beneficial in an overall management strategy, with dispersal techniques aimed to shift populations to such sites. This technique has been very successful in small towns where sacrificial sites outside of the residential population have been identified and utilised. Further work is required to assess habitats and sites within the Council area which could be utilised for this purpose.

Regional Approach

- 1.28 Liaising with neighbouring Councils and key stakeholders such as the RAAF Base at Edinburgh to ensure a regional approach and avoidance of uncoordinated strategies and ‘aerial ping pong’ with the flocks is occurring. In addition, staff are liaising with the Department of Environment and Water to advocate for a state-wide strategy, research and funding to assist in managing the Little Corella populations in South Australia.

Community Engagement

- 1.29 A key finding from the Little Corella Discovery Circle project was that many members of the community are not aware of the complexities of Little Corella management and the challenges Councils face in dealing with the problem.
- 1.30 Further to this the project highlighted that workshops with the community helped them to understand the complexities and changed community opinions about the desirability of living with Little Corellas.

**ITEM 2.4.2**

- 1.31 This has been demonstrated in phone calls with concerned residents. Once the complexity of the issues and what actions Council are taking are explained and understood, residents seem more understanding and accepting of the situation.
- 1.32 The local community in Burton have received letters regarding current strategies however the holding of a community meeting in the precinct is proposed to explain the current situation and the actions Council are undertaking.

**2. CONCLUSION / PROPOSAL**

- 2.1 Little Corella populations in parts of the Burton area are causing significant nuisance impacts on residents in the precinct.
- 2.2 The management of Little Corella populations is a complex ecological issue requiring an integrated approach of short, medium and long term actions.
- 2.3 A proactive approach employing suitably qualified contractors to provide short term actions to assist in curbing the nuisance impact has been undertaken, whilst medium and longer term strategies are being assessed and considered.
- 2.4 To be effective in the longer term an integrated approach with other Councils, State Government, and major land owners will be required.

**CO-ORDINATION**

Officer: EXEC GROUP  
Date: 11/02/2019



# Little Corellas

SOCIAL AND ECOLOGICAL RESEARCH FOR MANAGEMENT IN SOUTH AUSTRALIA

Annette Scanlon, Philip Roetman, Michael Stead, Steven Gray and Mark Lethbridge



Scanlon, A., Roetman, P., Stead, M., Gray, S., Lethbridge, M. (2016) **Little Corellas: social and ecological research for management in South Australia**. Discovery Circle Initiative, University of South Australia, Adelaide.



**Little  
corellas**



## Acknowledgements

The *Little Corellas* project has been run in South Australia by the **Discovery Circle** ([www.discoverycircle.org.au](http://www.discoverycircle.org.au)), a citizen science initiative at the University of South Australia. We thank all the contributors to this project, and particularly the members of the South Australian community who contributed time completing surveys, participating in workshops, and showing us around their towns during 2015 and 2016. The *Little Corellas* project was approved by the University of South Australia's Human Research Ethics Committee (34915) and Animal Ethics Committee (U22-15). The project received support from the following partners:

- **University of South Australia**
- **Department of Environment, Water and Natural Resources**
- **Local Government Association of South Australia**

As well as six local government areas:

- **Alexandrina Council**
- **City of Marion**
- **City of Salisbury**
- **District Council of Mount Barker**
- **Flinders Ranges Council**
- **Town of Gawler**

## Project team

### Discovery Circle, University of South Australia:

- **Dr Annette Scanlon** is an environmental scientist and works as a research assistant at the *Discovery Circle* at the University of South Australia. For this project, she was particularly involved in developing and conducting the social survey, Mental-Modeler workshops, field data collection, data analysis and contributed to project design. Annette also led the writing of this report.
- **Dr Philip Roetman** is the research leader of the *Discovery Circle* initiative; he is particularly interested in citizen science – actively involving the wider community in research project. Philip was the overall project leader for the *Little Corellas* project and was particularly involved in developing the research design of the project as well as developing and conducting the social survey, Mental-Modeler workshops and data analysis, and he also contributed to the writing of this report.
- **Michael Stead** is an applied ecologist and professional scientist with experience and expertise relating to: ecological and mathematical modelling; pest and overabundant species management; survey and monitoring design; landscape ecology and restoration; aerial surveys. He was employed at the *Discovery Circle* to contribute to the *Little Corellas* project. Michael undertook the habitat modelling and wrote the habitat modelling section of this report.

### Michigan State University and Mental Modeler:

- **Dr Steven Gray** is an Assistant Professor in the Department of Community Sustainability at Michigan State University and lead developer on the Mental-Modeler software. Steven provided research planning support for designing the modelling workshops, including analysis of the models and scenario building.

### Flinders University:

- **Dr Mark Lethbridge** has research interests in vegetation condition monitoring using field and remote sensing, optimization algorithms, decision support tools in production and natural resource management and ecological, movement and spatial modelling. Mark oversaw the habitat modelling and contributed to project design.



## Table of Contents

List of Tables .....	6
List of Figures .....	6
List of Photos.....	7
List of Photo panels.....	7
<b>Key results and recommendations.....</b>	<b>1</b>
Introduction .....	1
What’s in this report .....	2
Key results.....	3
1. Social factors.....	3
2. Environmental factors.....	4
Recommendations .....	5
Long-term actions and considerations.....	5
Medium-term actions and considerations .....	7
Short-term actions and considerations .....	8
Responsibility for management actions.....	8
<b>Glossary of Terms (relative to little corellas) .....</b>	<b>11</b>
Acronyms .....	13
<b>Introduction .....</b>	<b>14</b>
Scope and purpose of the report.....	14
Legislation, Permits and codes .....	15
Background to little corella problem sites in South Australia .....	16
A mixed-methods approach to investigate a contentious environmental issue.....	17
Human-wildlife conflict.....	17
Human-bird conflict .....	18
Biology and ecology of little corellas .....	20
Description .....	20
Distribution .....	20
Reproduction.....	20
Food, water and roosting resources.....	21
History of little corella problems.....	21

<b>Our mixed-methods approach</b> .....	<b>22</b>
<i>Phase 1: Online survey</i> .....	22
<i>Phase 2: Community workshops – creating interactive “Mental Models”</i> .....	22
<i>Phase 3: Field data collection at little corella sites</i> .....	22
<i>Phase 4: Little corella habitat suitability models</i> .....	24
<i>Phase 5: Data synthesis - creating the master model</i> .....	24
<i>Phase 6: Sharing results</i> .....	25
<b>Results</b> .....	<b>26</b>
The Little Corella Survey .....	26
<i>Broad community engagement</i> .....	26
<i>Participant opinions of and experiences with little corellas</i> .....	26
<i>What do you LIKE about little corellas?</i> .....	28
<i>What do you NOT like about little corellas?</i> .....	29
<i>Trends in little corella presence</i> .....	31
<i>Management of little corellas in South Australia</i> .....	33
<i>Little corella sites across South Australia</i> .....	38
Little corella acceptance capacity .....	40
Opinions about management actions by factor groups .....	41
Community workshops .....	44
Key themes and insights from the workshops.....	45
Little corella habitat suitability models.....	46
<i>South Australian model</i> .....	47
<i>Mount Lofty Ranges model</i> .....	48
<i>Analysis of land use and vegetation fragmentation</i> .....	52
Site-specific characters .....	53
<i>Ovals with irrigated grass and Aleppo pines are typical little corella sites</i> .....	55
<i>Access to food resources at problem sites</i> .....	56
<i>Access to water resources at problem sites</i> .....	57
<i>Access to water resources at problem sites, continued</i> .....	58

<b>Recommendations for management actions .....</b>	<b>59</b>
Integrated management .....	59
1. Creating barriers to roosting and feeding resources .....	60
2. Creating barriers to water resources (lakes, dams, pools, ponds and rivers) .....	67
<i>Increase bank height.....</i>	<i>69</i>
<i>Target water resources at landscape level .....</i>	<i>70</i>
<i>Target water resources at landscape level .....</i>	<i>71</i>
<i>(no)Barriers to river water at problem sites.....</i>	<i>72</i>
3. Identifying and creating sacrificial areas .....	73
<i>A recipe for a sacrificial site .....</i>	<i>73</i>
<i>Broader considerations for sacrificial sites .....</i>	<i>73</i>
<b>Little corella management tool – Master model and management scenarios .....</b>	<b>75</b>
<i>Increasing sacrificial areas ONLY.....</i>	<i>79</i>
<i>Increasing lethal population control ONLY.....</i>	<i>80</i>
<i>Noise deterrents ONLY.....</i>	<i>81</i>
<i>Noise deterrents AND lethal deterrents .....</i>	<i>82</i>
<i>Increase understory plantings (shrub layer) ONLY.....</i>	<i>83</i>
<i>Public education ONLY.....</i>	<i>84</i>
<i>Do nothing .....</i>	<i>85</i>
<i>Integrated management.....</i>	<i>86</i>
<b>Case study 1: Aldinga .....</b>	<b>87</b>
<b>Case study 2: Hawker Township .....</b>	<b>89</b>
<b>Case study 3: Hewett Primary School.....</b>	<b>91</b>
<b>References/Resources.....</b>	<b>93</b>

## List of Tables

<b>Table 1</b>	Relevant organisations and groups for potential collaborations, and their activities .....	10
<b>Table 2</b>	Scoring system for estimating nativeness and cover of ground, shrub and tree vegetation at little corella sites .....	23
<b>Table 3</b>	Emerging themes in participant responses to the survey question: What do you LIKE about little corellas? .....	27
<b>Table 4</b>	Emerging themes in participant responses to the survey question: What do you NOT like about little corellas? .....	27
<b>Table 5</b>	Little corella control measures for which level of support or opposition and perceived effectiveness or ineffectiveness was gauged in the survey .....	34
<b>Table 6</b>	Support for different management actions for three groups of people: all survey respondents, survey respondents concerned about the impacts of little corellas (Factor 1), and survey respondents who intrinsically value little corellas (Factor 2) .....	42
<b>Table 7</b>	Average explanatory power of land use categories surrounding little corella sites .....	53
<b>Table 8</b>	Characteristics of 144 little corella sites surveyed during the project .....	54
<b>Table 9</b>	Description and influence of mental model components .....	76
<b>Table 10</b>	Outcomes of simple and integrated little corella management scenarios .....	79

## List of Figures

<b>Figure 1</b>	Many local councils have invested significant resources into developing materials for the community and management strategies for little corellas .....	21
<b>Figure 2</b>	Maps of sites surveyed during the <b>Little Corellas</b> project; sites were identified from a community survey .....	23
<b>Figure 3</b>	Survey respondents' general opinion of little corellas .....	26
<b>Figure 4</b>	Participant responses to the question: What do you LIKE about little corellas? Sample size was 1,072 respondents .....	28
<b>Figure 5</b>	Participant responses to the question: What do you NOT like about little corellas? .....	29
<b>Figure 6</b>	Survey responses to two statements: 1) In the LAST five years, what has happened to little corella populations in your area? 2) In the NEXT five years, what would you like to see happen to little corella populations in your area? .....	31
<b>Figure 7</b>	Frequency of little corella site visits among month .....	32
<b>Figure 8</b>	Agencies considered responsible for little corella management by survey .....	33
<b>Figure 9</b>	Survey participants' support and opposition of little corella management actions .....	36
<b>Figure 10</b>	Survey participants' perceived effectiveness and ineffectiveness of little corella management actions .....	37
<b>Figure 11</b>	A map of little corella sites in South Australia, nominated through our community survey of 1,270 people .....	39
<b>Figure 12</b>	A model created during a little corella community workshop using Mental Modeler software .....	44
<b>Figure 13</b>	Little corella habitat suitability model for South Australia, with the relative importance (%) of each habitat variable to the final model .....	50
<b>Figure 14</b>	Little corella habitat suitability model for the Mount Lofty Ranges, with the relative importance (%) of each habitat variable to the final model .....	51
<b>Figure 15</b>	The master model created during the <b>Little Corellas</b> project .....	75



## List of Photos

<b>Photo 1</b>	Little corella (above and below right) and the long-billed corella (below left).....	20
<b>Photo 2</b>	Many people enjoy seeing little corellas.....	28
<b>Photo 3</b>	Many people dislike damage to trees by little corellas.....	29
<b>Photo 4</b>	In Aldinga a roof-mounted scare bird sits adjacent to a tree with little corella damage, illustrating their ineffectiveness for long-term management.....	35
<b>Photo 5</b>	Grain stores and bunkers provide food resources for little corellas, many major facilities like this one in Tailem Bend will have ongoing little corella control programs; image from Google Earth.....	38
<b>Photo 6</b>	Little corellas (indicated by red arrow) roosting in tall trees at the Tailem Bend Ferry Terminal .....	54
<b>Photo 7</b>	Enfield Memorial Park and Folland Park: a non-problem site .....	65
<b>Photo 8</b>	Trough modification to prevent access by little corellas .....	68

## List of Photo panels

<b>Photo panel 1</b>	Little corellas can cause damage to infrastructure by chewing wiring and flashing (A, B); they can also cause serious defoliation of trees (C).....	16
<b>Photo panel 2</b>	Social (top row) and traditional (bottom row) media was used to promote the project, to increase reach and participation and to update participants on project findings .....	25
<b>Photo panel 3</b>	Defoliation of trees by little corellas .....	30
<b>Photo panel 4</b>	Little corella presence locations across South Australia (A) and for the Mounty Lofty Ranges (B) used to create habitat suitability models .....	49
<b>Photo panel 5</b>	Town ovals with irrigated grass and Aleppo pines were typical sites for little corella activity .....	55
<b>Photo panel 6</b>	Food resources accessed by little corellas.....	56
<b>Photo panel 7</b>	Water resources readily accessed by little corellas .....	57
<b>Photo panel 8</b>	Water resources readily accessed by little corellas .....	58
<b>Photo panel 9</b>	Beaumont Common: increasing site nativeness in urban areas also decreases site attractiveness to little corellas .....	64
<b>Photo panel 10</b>	Non-tree roosts at problem sites.....	65
<b>Photo panel 11</b>	Aleppo pines ( <i>Pinus halepensis</i> ) were commonly found at little corella sites .....	66
<b>Photo panel 12</b>	Limit little corella access to water resources by increasing bank height.....	69
<b>Photo panel 13</b>	Bonython Park: an emerging resident population of little corellas.....	70
<b>Photo panel 14</b>	Target little corella water resources associated with problem sites .....	71
<b>Photo panel 15</b>	Little corella access to water at river sites.....	72

## Key results and recommendations

### Introduction

While many people enjoy seeing little corellas, large flocks in urban and rural areas cause considerable problems in the warmer months. The most common problems are damage to trees (defoliation), taking grain, and disturbing residents with loud vocalisations. These native birds can also damage buildings, particularly when they chew flashing or wiring, and to tarpaulins, wooden structures, cars and a variety of crops. There is significant public contention regarding the management of little corellas.

Managing little corellas can be difficult. Many local councils have a history of problems with little corellas, and they have invested significant resources into developing strategies for their management. Extensive experience and knowledge of little corellas exists within these individual agencies and in local communities, but little information sharing or coordination of activities occurs among groups.

The purpose of the Discovery Circle's **Little Corellas** project was to explore management issues in city and town areas around South Australia in partnership with state government, local government and local communities. For the **Little Corellas** project, we used a mixed-methods approach, including:

- A social survey (1,270 respondents)
- Nine community workshops
- Field surveys at 144 little corella sites
- Development of models for little corella habitat suitability and land use preferences
- Synthesis of data into a master model for little corella management in South Australia using **Mental Modeler** (<http://www.mentalmodeler.org/>)

Our approach recognised that societal, environmental and regulatory factors are necessary considerations for effective management of wildlife ([Kellert and Clark, 1991](#)); where:

- *Societal factors*: interactions between stakeholders and the values held by stakeholders should influence decision-makers
- *Environmental factors*: biological and ecological requirements of the wildlife should guide the entire process
- *Regulatory factors*: the legal (or policy) system in which managers are operating also guides the process. The need for a state-wide little corella management plan was identified before this project commenced; we collaborated with local and state governments to frame the approach to little corella management

## What's in this report

This report contains the results of our research and provides practical tools and strategies for the management of little corellas in South Australia. We propose an [integrated approach](#) (involving multiple strategies and stakeholders) with long-, medium- and short-term foci, including:

- [Creating barriers to roosting and feeding resources \(including practical recommendations\)](#)
- [Creating barriers to water resources \(including practical recommendations\)](#)
- [Identifying and creating sacrificial sites \(including key considerations for site selection and creation\)](#)
- [Using Mental Modeler to understand and educate about the management of little corellas \(including management strategies and trade-offs, with examples\)](#)

This report also contains three case studies that demonstrate the use of the actions we propose and the use of Mental Modeler in three different scenarios:

1. [Aldinga](#)
2. [Hawker](#)
3. [Hewett Primary School](#)

In this “Key results and recommendations” section we also summarise the [results](#) of our research and provide [recommendations](#), based on our research, for a new Little Corella Management Plan for South Australia, to be developed by the Department of Environment, Water and Natural Resources (DEWNR).

## Key results

### 1. Social factors

Social factors include community knowledge, community acceptance, and how communities work together; we found:

- Some form of little corella management is generally desired, and the development of a **state-wide management plan for little corellas was widely supported**
- **Few participants actually disliked little corellas**, but many did dislike their destructive behaviours (particularly to trees) and their noise
- **Contention exists about the types of management** that are effective and desirable
- **Some management strategies were supported** by survey respondents who place a high intrinsic value on little corellas, and by survey respondents who are concerned about the impact of little corellas (e.g. encouraging little corellas to alternate sites). Other strategies were **opposed by both groups** (e.g. removing tree roosts and “doing nothing”). Neutral responses were recorded for both **effective** (e.g. increasing shrubs, managing water assets) and **ineffective** (e.g. falconry) control measures. Support for some actions (e.g. lethal deterrents) increased in workshops when they were explained
- While some people have extensive experience and holistic views on the management of little corellas, **many members of the community are not aware of the complexities of little corella management**, the actions that are taking place, or the costs involved
- The **Little Corellas** project workshops were useful in both the collection and dissemination of information, enabling a focussed and fair discussion of participants’ knowledge and ideas about the causes and management of little corellas problem sites. Workshops were also useful for increasing **tolerance** and **understanding** of the issues
- Participants indicated that the workshops helped them to understand the complexity of little corella management, how costly management could be, and changed their opinions about the desirability of living with little corellas (overall, a convergence of attitudes was most noticeable, some participants became **more accepting** of little corellas when they realised the complexities of management, while others became **more concerned** about little corellas when they realised the difficulties involved in their management)
- Considerable confusion and misuse of terms was observed in the workshops, indicating that some responses to the survey might have been different if respondents had **more understanding of the terminology** and complexities of little corella management
- The practicalities of little corella management are **frustrated by the absence of any organised way to share resources or knowledge, or coordinating responses** among agencies, and the efforts of some councils maybe undermined by the actions or inaction of others
- A number of people around the state have **extensive experience observing and managing little corellas** (their input was invaluable throughout the project). Extensive discussions about management options were focussed on:

- **Habitat management and modification** (to reduce the attractiveness of problem sites to little corellas)
- **Sacrificial sites** (selecting sites and increasing their attractiveness to little corellas)
- **Lethal deterrents** used to reinforce other controls (and minimising attempts to control the little corella population using lethal methods)

## 2. Environmental factors

Environmental factors include the biology and behaviour of the wildlife species and the landscape in which the species exists; our results included:

- **Over 2,300 little corella sites identified by the public** were mapped within the Adelaide metropolitan area, Mount Lofty and Fleurieu Peninsula region (including Kangaroo Island), along the River Murray, in the Upper and Lower South-East and Mid and Far North sites
- Habitat modelling indicated important resources for little corellas:
  - **At a state-wide level:** river red gums, irrigated green space and major creeks
  - **Around the Adelaide and the Mount Lofty Ranges:** irrigated green spaces and major creeks
- Conversely, our modelling indicated that **little corellas avoid bushland areas**
- Land use analysis indicated that **recreation, agricultural and residential land uses** were consistently the best predictors of little corella distribution – these areas provide abundant food and water resources
- **Field surveys supported the findings of the habitat modelling and land use analysis.** Sites where little corellas are reported typically included extensive irrigated exotic lawn areas, freely available water, open habitat (low tree density, often with pine trees), very few shrubs, and low site “nativeness”. Sports ovals (often surrounded by Aleppo pines) were commonly cited as little corella sites

## Recommendations

The environmental factors described above clearly demonstrate that we have developed ideal conditions for increases in the distribution and abundance of little corellas in South Australia. Little corellas thrive in the agricultural and urban landscapes that we have created. Accordingly, little corellas have increased in distribution and abundance. Little corellas were **not** abundant or problematic in most of the state 50 years ago. Now that these birds are abundant and problematic, **isolated management actions are ineffective**. The approach and culture of pest management practices in urban areas needs revision; proactive and coordinated activities should be ingrained in our approach to these problems, and our reliance on reactionary and isolated (often inefficient) controls needs to be reduced. Further, management that does not account for social factors will be problematic. Therefore, we recommend an [integrated management approach](#), including **long-, medium- and short-term actions** that consider both environmental and social factors. Importantly, it is **necessary to focus on long-term actions first**, as these actions are key to reducing issues at little corella problem sites. Medium- and short-term actions may then be used to alleviate issues while long-term plans are actioned.

*While this report includes practical actions to alleviate problems with little corellas, our recommendations move the **focus away from controlling birds** (short-term impact only) and on to **landscape management to deter birds**, and to reduce their abundance in problem areas over the long-term.*

### Long-term actions and considerations

Long-term actions include planning on a 10+ year timeframe, with actions to be commenced as soon as possible. Long-term actions and considerations include:

- A long-term guided approach to **threat abatement**, including proactive management, to minimise future impacts of current and **emerging urban-adapting** and **urban exploiting** species (see [Glossary](#) for their definitions)
- **Reducing the availability of food and water resources** to little corellas (or creating barriers to these resources), including:
  - **Removal of any unnecessary, open food or water storage** at and around problem sites (e.g. grain piles, water troughs, water tanks)
  - **Installing or planting [barriers to water resources](#)** at and around problem sites (e.g. install trough covers, increase bank height, increase vegetation around water resources to reduce direct access; increase vegetation or screening near water resources because little corellas prefer drinking at open locations)
  - **Installing or planting [barriers to food resources](#)** (e.g. cover grain piles, increase vegetation or screening around food resources as little corellas prefer feeding at open locations)
  - Note that the removal of tree roosts (i.e. removal of trees) is not a management action that is acceptable to the community



- **Habitat modification** to reduce the attractiveness of problem sites and surrounding areas to little corellas, including large-scale habitat planning (e.g. including parks, street trees and paddock wind breaks) to:
  - Increase the **density of trees** (little corellas prefer narrow corridors of trees, which provide vantage points for safety)
  - Increase **understorey planting** (e.g. shrubs and groundcovers; little corellas prefer trees without understorey as open habitats provide vantage points for safety)
  - Decrease **irrigated lawn areas** (e.g. some areas of irrigated lawn can be replaced with native plantings that are more water efficient, or interspersed with [islands of native vegetation](#) while maintaining park amenity)
  - Increase **“nativeness”**. This action enhances local biodiversity, increasing *inter-specific competition* (i.e. competition for resources from other birds). Further, some exotic plants provide far greater food resources than equivalent native species would provide (e.g. Aleppo pines compared to sheoaks or hakeas). Therefore, exotic species should be replaced by native species where possible and acceptable (considering community expectations and potential impacts on other species such as black cockatoos)
  - Modification of problem sites must be done in a strategic way (i.e. considering the broader landscape, all management resources and potential partnerships), which is **sensitive to community needs**
- **Proactive management** should consider sites where little corellas are currently problematic as well as sites where little corellas or other bird species may become problematic in the future. In some locations the ‘problem site’ is quite obviously the central park in a town (usually along a creek). However, in some cases the problem is more dispersed, where little corellas have plentiful food, water and roost resources (e.g. along the Murray River). In these cases the initial focus needs to be in the most affected areas (e.g. where the community feel the ‘biggest’ problem exists). Additionally, little corellas may continue to increase in distribution across the state. While the actions described here are designed specifically for little corella problem sites, they will also reduce the chance of other urban adapting/exploiting bird species becoming problematic (e.g. noisy minors, sulphur-crested cockatoos, ibis and rainbow lorikeets). A long-term guided approach to **threat abatement**, including proactive management, will minimise future impacts of current and emerging *urban-adapting* and *urban exploiting* species
- **Development of a management planning template:** local governments across South Australia should use a management-planning template, based on these recommendations. The aim of the template is to streamline the development of little corella management plans among local councils, and provide the architecture for amending existing strategies. The template should include the glossary from this document to facilitate consistent terminology. This approach will create state-wide uniformity in the management plans. The template must include a strategic and integrated approach to little corella management, with long-, medium- and short-term actions for each local government area, and identify sites where little corellas are problematic

- **Further research:** our focus has been on little corellas in urban and peri-urban areas, including regional townships. Further research into resource availability for little corellas in regional (ex-urban) areas, and how best to reduce these resources is needed; agricultural food and water resources are of particular interest

### Medium-term actions and considerations

Medium-term actions include planning on a 2-9 year timeframe, with actions to be commenced as soon as possible. Medium-term actions should only commence once long-term actions have been planned and set-in-motion. Medium-term actions and considerations include:

- Information sharing and strategic management requires the **establishment of a forum for discussion among groups** and individuals involved in the management of little corellas around South Australia, particularly among local government areas, and with community and state government input. We recommend:
  - Annual community meetings in areas with problem sites
  - Annual meetings of staff involved in the management of little corellas and related community education (from local and state government, and NRM Boards). While this report is focussed on little corellas, we recognise that other, similar issues exist around the state, and therefore recommend the meeting be an **Abundant Bird Species Forum**, to encourage collaboration and the sharing of knowledge in relation to the management of, and education about, abundant bird species in South Australia. These forums should include training in the use of **Mental Modeler** for running little corella management scenarios for management and educational purposes
  - A review of progress every six years, including data collection from the wider community, local government, state government and NRM Boards. The reviews of progress should repeat a social survey, community workshops, and field surveys as conducted during the **Little Corellas** project in order to measure change in social and environmental factors. A literature review should also be conducted to incorporate any related new research findings into management and to update ongoing education initiatives. These reviews should be planned and managed in collaboration with any long-term research (described above)
- Increasing **information and education** to increase public knowledge and tolerance of little corellas, as well as **acceptance of management actions**. Public expectations need to be realistic and based on an understanding of social and environmental factors, as well as management practices. Education should include:
  - **Consistent terminology** (see [glossary](#) in his document)
  - **The relationship between the habitat we create and the species it attracts** (i.e. little corellas and other problematic bird species are not in themselves problematic; these species are utilising resources that we provide for them including open habitat, food and water resources)
  - **The complexities and costs associated with the management of little corellas**. The 'Mental Modeler' models created for this project are available online and useful in explaining these issues



- Creation of **sacrificial sites** as a refuge for little corellas. Land managers and relevant stakeholders should plan, identify and survey potential sacrificial areas and consult widely with those who may be impacted at these sites. If a suitable sacrificial site is available, short-term 'disruption' actions should be orchestrated to promote little corella movement to the sacrificial site. Further details about sacrificial sites are available within this document ([here](#))

### Short-term actions and considerations

Short-term actions include planning on an annual timeframe, with actions to be commenced as required. Short-term actions should only commence once long- and medium-term actions have been planned and set-in-motion. Short-term actions and considerations include:

- **Disruption of little corellas at problem sites.** It is important to note that disruption is best done when little corellas have somewhere else to go (e.g. a sacrificial area) and in conjunction with long-term plans to reduce the attractiveness of the problem site (so that little corellas are less likely to return and **habitual behaviours are affected**). While disruption can be immediately effective (i.e. the birds fly away), without the medium- and long-term strategies described above, the effectiveness of disruption will likely be short-lived (birds will return unless they have somewhere better to go, a sacrificial site)
- Disruptive activities can include:
  - **Spotlighting** (hand-held or automatic)
  - **Noise generation** (hand-held or automatic, including clapping, starter-pistols, guns, gas guns)
  - **Lasers** (hand-held)
  - **Lethal deterrents** (shooting to deter flocks)
- Some disruptive activities may be unacceptable to the local community (e.g. lethal actions in built-up areas and noise generation in residential areas). However, activities may be accepted with engagement and education so that the community understand how the actions fit in with the overall strategy. For example, the acceptance of lethal deterrents may be increased where lethal deterrents are used to increase the effectiveness of non-lethal measures, where the strategic approach is understood by the community, and where lethal deterrents are clearly differentiated from lethal controls see our section about [communication barriers](#), discussed as part of the Community Workshop outcomes)
- Many managers around the state have extensive experience and have had some success at moving little corellas away from problem sites – out of towns and into sacrificial sites (e.g. in the Flinders Ranges Council area). These operators can provide expert knowledge and advice to other managers (i.e. through an Abundant Bird Species Forum), promoting communication and information sharing among groups

### Responsibility for management actions

A broad level of collaboration and engagement is required to manage little corellas in South Australia. Local government manages most of the sites where little corellas are problematic. With our proposed **focus away from controlling birds** and on to **landscape management**, it is reasonable that local

government will continue to make an important contribution to the management of little corellas. However, we recommend increased support for local government. Increased support is already evident through the collaboration of state government, the LGA, universities, and local communities on the **Little Corellas** project. State government is also taking responsibility for the development of a state-wide management strategy. Further opportunities exist to collaborate with NRM Boards and other organisations like Birds SA, Conservation Volunteers, Greening Australia, Landcare Australia, Trees for Life, local plant nurseries, community groups and individuals, agricultural and grain groups. These groups and individuals can assist with community development, revegetation activities and giving advice. It is important to ensure that all groups and individuals are working collaboratively towards the common goals outlined in the local government management plans (described above). See Table 1 below for the types of relevant activities that each group does.

**Actions recommended above should be supported as follows:**

- Natural Resources Management Boards (NRM Boards) should support local councils to plan and implement landscape management, collaborating with other affected landholders (e.g. schools and private landholders)
- Local councils and NRM Boards should facilitate annual community meetings
- LGA and DEWNR should facilitate annual meetings of local and state government staff
- Funding for long-term research should be sought through traditional research grants with leverage funding provided by state government, the LGA and NRM Boards
- Reviews of progress should be conducted by state government, the LGA and NRM Boards
- Whole-of-council approach: in addition to collaborating with other councils and agencies (e.g. NRM, schools) and individuals to manage little corellas, councils should spread the burden of management within their agencies. Pest animal managers should work closely with parks and maintenance staff, environmental and natural resource managers, arborists, town planners and others to develop cohesive plans for problem sites and areas
- DEWNR should provide policy and scientific/environmental management advice to guide available actions to reduce impacts of little corellas at problem sites
- Local community groups and individuals can provide volunteer hands-on assistance with revegetation activities, and identifying water, food and roost resources, in and around urban areas

**Table 1** *Relevant organisations and groups for potential collaborations, and their activities*

ORGANISATION/GROUPS	SUPPORTED ACTIVITIES
Bird groups: <a href="#">Birds SA</a> , <a href="#">Birdlife Australia</a> (including Birdlife Kangaroo Island and Birdlife South East SA)	Promotes local interest and awareness of birds; conducts bird conservation work; provides a source of scientific expertise and speciality knowledge of birds and bird ecology; manages bird resources
<a href="#">Conservation Volunteers</a>	Works in partnership with government (all levels) and communities on environmental projects; mobilises and coordinates volunteers for land restoration, revegetation and weed control activities
<a href="#">Greening Australia</a>	Works on landscape-scale projects, including <a href="#">WildEyre</a> in South Australia; focuses on environmental projects that encourage involvement (and engagement) of local communities
<a href="#">Landcare Australia</a>	A community owned and driven initiative, works on integrating management of environmental resources and farmland (e.g. weed control), and promotes sustainable management of private land. Also manages resources for local groups and activities
<a href="#">Trees for Life</a>	A community-based organisation that works on land restoration, revegetation and conservation projects (including establishing biodiverse plantings on private land, and regenerating bushland)
Local plant nurseries	Can grow locally native plant species for sale and provide information around their use and importance, may decrease availability or discourage the purchase of declared weeds
Community groups and individuals	Can be engaged and mobilised to promote biodiverse landscapes at schools and private gardens, for example
Agricultural and grain handling groups	Large grain storage and handling groups, such as Viterra, conduct little corella control activities at some sites; pest managers there may be able to share information and collaborate with councils to enhance the effectiveness of control activities more broadly

## Glossary of Terms (relative to little corellas)

<b>Call birds</b>	Or early birds; small numbers of birds that arrive in an area before the main flock. See also "Scout birds"
<b>Citizen Science</b>	A scientific endeavour generating new knowledge or understanding that actively involves citizens; the citizens collaborate with scientists and have meaningful roles in projects
<b>Controls</b>	Management activities that include lethal and non-lethal controls, which aim to deter or remove birds (or reduce their numbers) in an area in order to reduce their impacts. See page 30
<b>Carrying capacity</b>	The greatest number of little corellas that an area can support, given the available resources
<b>Cull</b>	To destroy (kill) birds, usually in large numbers, to reduce the overall population size. See also "Lethal population control"
<b>Dietary breadth</b>	A measure of diet variety; highly specialised species have a narrow dietary breadth (specialising on a single food source perhaps), whereas generalist species have great dietary breadth and would feed on many different types of food
<b>Exotic plants</b>	Non-native plant species, also called weeds, introduced plants; can include Australian native plants that are not indigenous (i.e. from other places in Australia)
<b>Exterminate</b>	To destroy (kill) every individual bird and remove the species entirely and permanently from all areas (synonymous with extinction); see also "Cull"; "Lethal Population Control"
<b>Flock</b>	A large number of birds congregating together in a single area; a few birds does not constitute a flock. See also "Flocking behaviour"
<b>Flocking behaviour</b>	A common and natural behaviour in many bird species; cockatoos are highly social and vocal birds, and flocking allows social bonds to develop and provides some safety against predators
<b>Habitat</b>	The environment in which an organism exists and derives its needs; little corella habitat includes roosting and nesting, watering and feeding areas
<b>Habitat modification</b>	Modifying habitat in some way, such as planting reeds along water banks or increasing shrub cover; as a management strategy, habitat modification may be used to attract or deter particular wildlife from target areas
<b>Human-wildlife conflict</b>	Experience of negative interactions with wildlife; causes of this conflict can be varied, from real or perceived danger (i.e. dangerous animals), to economic losses (e.g. crop losses), to a reduction in amenity (e.g. damaging trees or fouling of water)

<b>Inter-specific competition</b>	The competition for resources among species, including from other birds
<b>“Landscape of fear”</b>	An ecological term that describes the level of fear of predators felt by a prey species in its environment; creating a “landscape of fear” involves increasing perceived risk
<b>Lethal deterrent</b>	Lethal destruction of a small number of birds in order to deter a large flock of birds from the area, typically used in conjunction with non-lethal measures
<b>Lethal population control</b>	Lethal destruction of a large number of birds in order to reduce overall population size. See also “Cull”
<b>Loafing behaviour</b>	Loafing areas are where little corellas digest food, preen, play and rest (different to feeding or watering behaviour, for example)
<b>Local enhancement</b>	When the presence (calls and activities) of a few little corellas attracts more little corellas to that area
<b>Mind map</b>	Information organised in a diagram, which shows relationships between different factors associated with a central idea
<b>Mental Models</b>	The output from community workshops using the Mental Modeler software (developed by S. Gray). The models capture experiences and knowledge about little corellas, and can illustrate the outcomes of different management scenarios
<b>Nesting habitat</b>	Hollows in large trees and cliffs comprise nesting habitat for little corellas. Nesting behaviour (forming pair bonds and rearing young) is different to roosting behaviour. Compare “Roosting”
<b>Non-lethal deterrent</b>	Non-lethal actions that deter birds from an area; making noise and flashing lights are typical non-lethal measures
<b>Population reduction</b>	To destroy large numbers of birds to reduce the overall population size. See also “Lethal population control” and “Cull”
<b>Positive reinforcement</b>	Positive reinforcement involves the use of an additional measure (e.g. a lethal deterrent) to reinforce non-lethal activities, with the aim of increasing the effectiveness of the non-lethal activities
<b>Problem site</b>	The <b>Little Corellas</b> project focused on sites identified by participants, where the presence of little corellas is of concern to them, and where management action is wanted. Problem sites may include those with large numbers of birds creating mess and noise or other factors, such as dispute about management at that site
<b>Resident flocks</b>	Traditionally, little corellas form large flocks during warm months in the southern areas and form pair-bonds and disperse north during winter to breed; however, some southern areas are now experiencing small resident flocks of little corellas that persist year-round
<b>Roosting</b>	Birds sleep at their roosts, typically little corellas settle at night in large roost trees. Compare “Nesting”



<b>Sacrificial sites or areas</b>	Identified, suitable areas deliberately set aside for little corella habitat as part of integrated management activities; little corellas are not be moved on from these sites. Where possible, management plans should identify sacrificial areas and strategies to encourage birds to these areas and away from problem areas. The term “sacrificial” in this context does not imply that the site is of no value, but that the area is set aside for this purpose
<b>Scout bird</b>	Or early bird (see also “Call bird”); small numbers of birds that arrive in an area ahead of a main flock. Scout bird is an imprecise term implying that birds report back to other birds in an organised and strategic way about their planned movements, which they don't. Early bird or call bird are preferred terms. See also “Local enhancement”
<b>Trap and gas/euthanize</b>	A method of “Lethal population control”, where birds are captured and then destroyed by carbon dioxide narcosis
<b>Urban adapters</b>	Species that live in natural and modified areas, e.g. little corellas. Compare “Urban avoiders”, “Urban exploiters”
<b>Urban avoiders</b>	Sensitive species that disappear or decline with urban development, e.g. wrens. Compare “Urban adapters”, “Urban exploiters”
<b>Urban exploiters</b>	Species that thrive in modified areas and even depend on urban resources; e.g. rock dove, house mouse and red-backed spiders. Compare “Urban adapters”, “Urban avoiders”
<b>Vocalications</b>	Sounds made by birds that include calls and screeches, which are important for bird communication, e.g. alarm calls, social calls
<b>Wildlife acceptance capacity</b>	A measure of human tolerance of a wildlife species or of a situation involving wildlife (e.g. little corella acceptance capacity), assessed locally or for the general public depending on the situation. Tolerance varies with attitudes, values, background and experiences or understanding of the problem. Varying levels of wildlife acceptance help explain contention surrounding the management of little corellas in some areas. For example, some people enjoy seeing large flocks of little corellas and oppose any control activities whereas other people may have bad experiences with them, do not enjoy seeing them, and want them controlled

## Acronyms

DEWNR	Department of Environment, Water and Natural Resources
NRM	Natural Resources Management
NSW DPI	New South Wales Department of Primary Industry
LGA	Local Government Association of South Australia
NPW Act	<i>National Parks and Wildlife Act 1972</i>
UniSA	University of South Australia

## Introduction

### Scope and purpose of the report

The purpose of this report is to:

- Inform a new **Little Corella Management Plan for South Australia** being developed by the Department of Environment, Water and Natural Resources (DEWNR) in collaboration with the Local Government Association (LGA) of South Australia and other interested parties
- Provide a **relevant and useful resource** that reflects community attitudes towards and experiences with little corellas in South Australia, which is supported by detailed data collection and analysis
- Report back to **community and stakeholder groups** on the findings of the *Little Corellas* project
- Help all stakeholders make **informed decisions** about little corellas
- Develop recommendations to **facilitate communication** among and within agencies working on little corella management in South Australia
- Provide recommendations and tools for **strategic and coordinated state-wide approach** to the management of little corellas
- Develop practical and effective recommendations for **landscape-level and site-specific** management of little corellas in South Australia (long-, medium- and short-term actions)

**No “silver-bullet” or “solution” to management issues associated with little corellas or other wildlife exists.** Rather we aim to identify steps, based on extensive research and consultation, to reduce issues with little corellas. These steps include long-, medium- and short-term actions to alleviate problems at targeted sites. The numbers of little corellas and site problems will continue to increase without long-term coordinated management strategies, and short-term actions are also needed. We focus here on “problem sites” in urban and peri-urban areas, including townships, across South Australia.



## Legislation, Permits and codes

Most **native species in South Australia are protected** under the [National Parks and Wildlife Act 1972](#) (NPW Act), although specific levels of protection may vary among species. **Two corella species** occur in South Australia, and they have two different levels of protection afforded under the NPW Act:

### Little corellas (*Cacatua sanguinea*)

- Listed as an “unprotected” species under Schedule 10 of the NPW Act because they are abundant and can be destructive
- Landowners and shooters acting for landowners **do not** require a *Permit to Destroy Wildlife*, they can shoot an unlimited number of little corellas on their land
- Shooters must comply with the [Code of Practice for the humane destruction of birds by shooting in South Australia](#) and with **all provisions** of the [Firearms Act 2015](#); including those relevant to the storage, transportation and use of firearms and ammunitions
- Lethal trapping and gassing of little corellas requires a permit

### Long-billed corellas (*Cacatua tenuirostris*)

- Long-billed corellas are sometimes mistakenly identified as little corellas
- Listed as “protected” species under the NPW Act, they are not considered to be abundant
- Long-billed corellas were highly threatened and in decline until the 1970s when they started exploiting new cropping resources, their numbers and range have now recovered and even expanded into some areas
- Their natural range includes the south east of South Australia, and a [Permit to Destroy Wildlife](#) is required to destroy them



## Background to little corella problem sites in South Australia

Worldwide, there are hundreds of different species of parrots. They are intelligent birds, often brightly coloured, with curved bills, an upright stance and distinctive feet (two toes forwards and two toes backwards). Cockatoos are a family of parrots found in Australasia, from southern Australia to as far north as the Philippines. Cockatoos nest in tree hollows and are monogamous (they form long-lasting pair-bonds for breeding). Common Australian cockatoos are galahs, sulphur-crested cockatoos, cockatiels, long-billed corellas and little corellas.

While many people enjoy seeing these native birds, large flocks of cockatoos in urban and rural areas can cause considerable problems in the warmer months. The most common problems are damage to trees (defoliation), taking grain and disturbing residents with loud vocalisations. Little corellas can also damage buildings, particularly when they chew flashing or wiring, and to tarpaulins, wooden structures, cars and a variety of crops (Photo panel 1).

**Significant public contention exists regarding the management of little corellas in South Australia.**



**Photo panel 1** Little corellas can cause damage to infrastructure by chewing wiring and flashing (A, B); they can also cause serious defoliation of trees (C)

## A mixed-methods approach to investigate a contentious environmental issue

This research project focused on sites, identified by participants, where little corellas are causing significant problems and where management actions may be required. Problem sites were defined as those areas where large numbers of birds were impacting on site amenity and areas where management actions were locally disputed. Sites were considered problematic if some members of the local community declared them as such (agreement was not required among all members of the community as a site can be a problem for some, but not for others). We aimed to collect existing knowledge and ideas from local communities to explore what made those particular sites problematic. We also aimed to understand the intrinsic factors leading to particular sites being popular with flocks of little corellas and what were the problems faced by the local community.

- This project report **makes practical recommendations** designed to directly influence decision makers and stakeholders so that they can make informed little corella management plans to help reduce the occurrence of problem sites
- The research project involved the local community as much as possible – a “citizen science” approach. The benefit of this approach was that it ensured that all stakeholders had the best-possible understanding of the complex ecological and social dynamics that determine sites where little corellas are reported as problematic. The participatory approach and sharing of knowledge generation maximised learning, **built community resilience and increased ownership of the outcomes of the project** for the people involved.

## Human-wildlife conflict

Human-wildlife conflict is **not unusual**; it is formed by negative experiences with wildlife, and is largely a result of human activities and our **modification of the landscape**. Globally, causes of human-wildlife conflict include:

- **Agricultural areas** expanding into the habitats of animals that can damage or consume crops, livestock and infrastructure. For example, in Africa, elephants eat and trample crops and damage farm infrastructure. Elephants are sometimes shot or poisoned in retaliation. Thus, the human-elephant conflict has poor outcomes for both people and elephants.
- **Residential areas** expanding into the habitats of animals that are (or are perceived to be) dangerous or annoying to people (e.g. wolves, bears, and birds that swoop or are noisy). It should be noted that residential development often displaces wildlife by removing resources such as foraging grounds, roosting trees or shelter. Conversely, residential areas can also attract wildlife by providing these same resources, albeit in a different context. Both displacement and attraction of wildlife can generate human-wildlife conflict.

Two South Australian examples of human-wildlife conflict are:

- 1 **Common brushtail possums** were once common and widely distributed across South Australia, but changes to the landscape, including the removal of trees for agriculture, has led to largescale declines and the species is now listed as rare under the [National Parks and Wildlife Act 1972](#). In contrast, changes in highly urban landscapes have benefited brushtail possums and their abundance in these areas is relatively high. Urban brushtails



can generate conflict when they inhabit and cause damage inside residential roof spaces (a substitute for a tree-hollow), damage ornamental gardens and make excessive noise at night.

- 2 **Grey-headed flying foxes** are listed [nationally as vulnerable](#) and [rare in South Australia](#). Flying foxes roost in large numbers forming “camps” in several large urban centres including Cairns, Brisbane, Sydney, Melbourne, Geelong and Adelaide. Urban areas provide year-round food and water supplies, including from native and non-native urban tree plantings. Human-wildlife conflict can occur when people get upset about the flying foxes damaging trees, producing excessive noise and droppings in urban areas.

Although wildlife are directly involved in human-wildlife conflict, they are not always the crux of the conflict. Human-wildlife conflict may sometimes be more accurately described as **human-human conflict over wildlife** according to [Charles and Linklater \(2013\)](#). Wildlife managers have to grapple with practical problems associated with urban wildlife, as well as public expectations, which may be divergent. For example, in both of the South Australian examples above, there are people who support attracting these species into urban areas and people who support discouraging the species from urban areas.

While humans may respond in different ways to wildlife, wildlife also responds in different ways to humans. Some species of wildlife do not persist in urban areas. These species may not be able to find enough suitable food or shelter, or they may be susceptible to predation in an urban environment. They are termed “**urban avoiders**” and examples include small woodland birds, like wrens and thornbills. In contrast, some species persist in urban areas, as well as persisting in their natural habitats. These species find the resources they need amongst the urban matrix of buildings, streets and parks. They are termed “**urban adaptors**” and both brushtail possums and grey-headed flying foxes fit in this category, as do little corellas. One further category of wildlife response to urbanisation exists, the “**urban exploiters**”. These species exist in urban areas, but are not typically found in natural habitats. Urban exploiters include house mice and red-back spiders.

The range of foods that an animal will consume is known as the [dietary breadth](#) of the species. While some species will consume only a limited range of foods, others will consume a varied diet. In urban areas, an ability to exploit a variety of foods enables ready access to abundant urban foods; enabling population growth and **increased densities**, which test human tolerance levels and **amplify conflict** experiences. For little corellas, the abundance and permanency of urban and peri-urban food resources may also **reduce the need for seasonal movements** and increase the permanency of flocks (i.e. increases in “resident flocks”, see [Glossary](#)).

## Human-bird conflict

Typically<sup>a</sup>, negative experiences with birds leading to conflict in urban areas relates to one or more of these actions:

1. Nesting or roosting behaviours and locations
2. Aggressive behaviours, including attacking humans
3. Fouling of non-roost sites
4. Damaging infrastructure

<sup>a</sup> See [Charles and Linklater \(2013\)](#)

*Feral pigeons or rock doves* are non-native birds found in large numbers in many Australian towns and cities. Their **great dietary breadth** (including scavenging for food scraps) and **flexible roosting** requirements (including a variety of urban structures) enables them to exploit urban areas successfully. [SA Health](#) identify the transmission of disease, odour and noise issues and damage to infrastructure as health risks associated with feral pigeons; the [Australian Transport Safety Bureau](#) consider rock doves to be “a serious risk to aircraft as they take off”. Many local councils in South Australia have control programs for feral pigeons within their Animal Management Plans (e.g. [Town of Gawler](#)).

*Native Australian crows and ravens* occur in diverse habitats and some are very common in cities and suburbs of southern Australia. As scavengers and predators, their broad omnivorous diet includes meat, insects, fruit, vegetables, bread, crop seeds, eggs, nectar and foliage (see NSW Department of Primary Industry’s, DPI, [Crows and ravens Fact Sheet](#)). Australian ravens can create disease risk, mess and excessive noise, they attack other birds, and damage infrastructure. Crows and ravens also damage agricultural and backyard crops of fruits, grains and nuts (e.g. grapes, cherries, olives, plums, berries, pineapples, passionfruit, potatoes, almonds, peanuts).

It is important to recognise that both introduced and native Australian species can generate human-bird conflict in urban areas. Research in many towns and cities around the world has demonstrated some similarities in the way bird species respond to urbanisation. Typically, as urbanisation increases, the number of bird species decreases. Highly urban areas provide resources for only a small number of species, including the introduced species of urban exploiters, like blackbirds and starlings. Urban areas also tend to have quite similar groups of birds present, regardless of where they are in the world, including mostly larger omnivorous and granivorous birds<sup>b</sup>, like little corellas.

While both introduced and native species can generate human-wildlife conflict, there should be a preference for supporting a range of **native species** in cities. Supporting native biodiversity can be beneficial for both birds and humans. Urban areas can support a range of bird species, rather than being dominated by the urban exploiters. Indeed, well planned residential areas can attract and support a diversity of bird species, including species that typically avoid urban areas, like small woodland birds. Supporting small woodland birds is important as many of these species are in decline.

Urban areas with a **diversity of plants and birds are beneficial to people**. Australians certainly appreciate the natural environment in and around Australian cities, demonstrated in a 2014 Property Council report<sup>c</sup> where residents scored various attributes of the cities they lived in. The two most highly-ranked attributes were the range of recreational outdoor environments and the attractiveness of the natural environment. While we may intuitively like to live in attractive natural environment with recreational opportunities, research also shows that living and working in more natural environments improves health and productivity, and may increase house prices<sup>d</sup>.

<sup>b</sup> Chance and Walsh (2006) Urban effects on native avifauna: a review. *Landscape and Urban Planning* 74(1): 46-69

<sup>c</sup> Property Council of Australia (2014) My City Report

<sup>d</sup> See [Roetman and Daniels \(2008\)](#)

## Biology and ecology of little corellas<sup>e</sup>

### Description

Little corellas are a small white cockatoo with body length 35-40 cm and body mass 430-580 g. They have a short upright crest, bare blue-grey skin around the eye and salmon-pink lores (the area between the eyes and nostrils). The underwing and undertail feathers are pale yellow. Little corellas are not sexually dimorphic, i.e. male and female birds are indistinguishable with external examination. Little corellas do look similar to long-billed corellas, but unlike long-billed corellas, little corellas have no red breast feathers and they have a relatively short bill; see photo 1.

Little corellas naturally form large, noisy flocks during warm months; their vocalisations include nasal and guttural sounds and high-pitch screeches.

### Distribution

Pre-European distribution is poorly understood, and is inferred from records of early pastoralists, explorers and naturalists. Until the 1920s little corellas appear to have been largely restricted to the far north east of South Australia. Since then **little corellas have extended their range slowly southwards**; from the 1960s onwards little corellas were recorded continuously and increasingly in the Flinders Ranges, Mount Lofty Ranges and surrounding areas. This movement was probably facilitated by native vegetation clearance as well as the provisions of new permanent water sources (e.g. stock troughs, dams), food from grain crops, and other factors such as drought. In addition to their range expansion, little corellas appear to have increased in abundance (DEH, 2007).

Little corellas are now widespread throughout inland, western and northern Australia. In South Australia little corellas are common in the eastern parts of the state, including: the Mid North, North East, Flinders Ranges, Riverland, Adelaide Plains, Fleurieu Peninsula, Kangaroo Island and in the South East. Little corellas often congregate along tree-lined watercourses from adjacent plains. They have been observed in a wide variety of other habitats including savannah woodland, mallee, mulga, rangelands, spinifex sandhills, gibber, saltbush, native cypress, crops, stubble, mangroves, offshore islands, dams, tanks and cliffs. Increasingly, little corellas occur in urban areas (i.e. "Urban adaptors").

### Reproduction

Between May and September little corellas spread out across a vast landscape in their breeding pairs or small family groups. Breeding usually occurs from August to October; typical nesting sites are tree hollows lined with decayed woody fragments, however little corellas will also excavate cavities in cliffs and in termite mounds to nest in. Two to four white oval eggs are laid per clutch; the incubation period is 24-26 days, and parents share incubation duties and caring for the young. After seven weeks the fledglings and parents join a large nomadic foraging flock, which increases their individual safety. In contrast to the large raucous summer flocks of little corellas, breeding birds are quiet and somewhat inconspicuous. The species is long-lived with captive individuals reaching in excess of 50 years of age, wild animals are unlikely to reach this age.



*Photo 1 Little corella (above and below right) and the long-billed corella (below left)*

<sup>e</sup> Modified from DEH (2007) and references therein, and from Simpson and Day (2004), St John (1994), and Rowley (1997) in DEH 2007

### Food, water and roosting resources

Little corellas are strong fliers that can travel great distances in search of food, water, and roosting and nesting resources, or the safety of a larger flock. The species has habitual roosting sites that flocks return to in successive years (DEH, 2007). However, flock composition is not fixed and individual birds may move among different flocks and roosts each year (DEH, 2007).

At their roosts little corellas preen and socialise. They use loud vocalisations to communicate regularly with the other members of the flock. They also defoliate their roost trees to **create a clear view, increasing visibility of the site and their perceptions of safety from potential predators.**

Roost sites tend to be established near accessible fresh water and food resources. Little corellas are opportunistic foragers of food. For example, in spring they will feed on grass seeds and bulbs, in summer they may congregate in large numbers to feed on stubble remains in paddocks after harvest, and in late summer-autumn they might exploit grain around stock feed troughs. In the southern Flinders Ranges they feed almost exclusively on fallen grain in stubble paddocks. They also exploit artificial water sources (e.g. stock troughs, dams and lakes).

### History of little corella problems

Many local council areas have a history of problems with little corellas, and they have invested **significant resources into developing strategies** for their management (see Figure 1). Extensive experience and knowledge of little corellas exists within these individual agencies and communities, but little information sharing or coordination of activities occurs among councils, and the efforts of **some councils maybe frustrated by the inaction** (or uncoordinated actions) of others. A state-wide strategy that umbrellas local plans is needed; **streamlining access to management resources for local actions should improve uptake and coordination of management activities across the state.**



**Figure 1** Many local councils have invested significant resources into developing materials for the community and management strategies for little corellas



## Our mixed-methods approach

The *Little Corellas* project was conducted during 2015 and 2016. The project had a number of distinct phases using a variety of methods to help us understand community experiences of little corellas, how little corellas are managed, and to develop recommendations for future management.

### Phase 1: Online survey

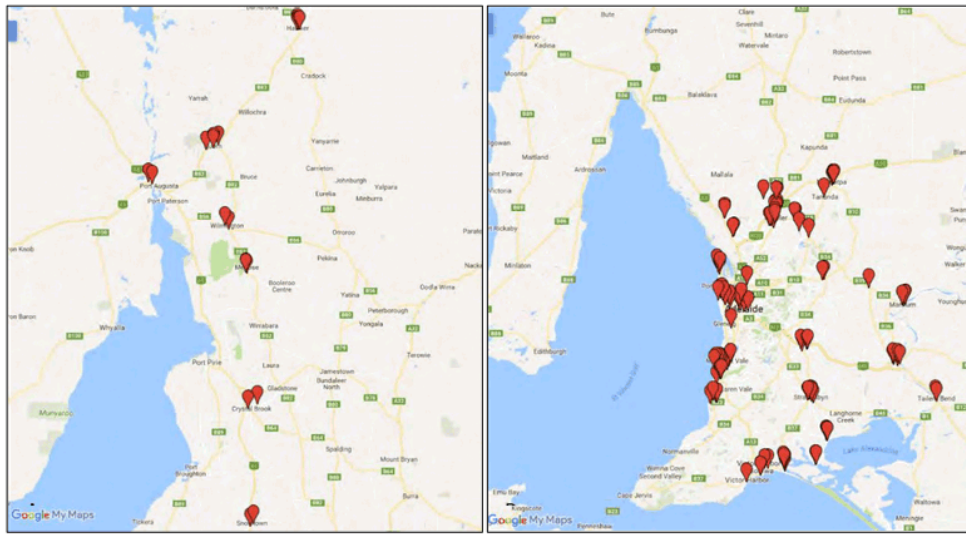
We developed a short online survey to collect information about people's opinions of and experiences with little corellas. The survey was designed to identify people and places to involve in subsequent phases of the project. The survey was open from November 2015 to March 2016, and traditional and social media was used to encourage the community to participate. The survey was also promoted by project collaborators, and paper copies of the survey were available.

### Phase 2: Community workshops – creating interactive “Mental Models”

We hosted nine community workshops with people affected by, or concerned about, little corellas across the state. At the workshops we explored causes of problem locations using purpose-built software called *Mental Modeler*, which was developed by project collaborator Dr Steven Gray of Michigan State University. The software enabled participants to share their ideas and concerns about little corellas. In each workshop we created interactive maps of this complex problem, which included defining relationships between components and creating scenarios for different management regimes. Workshops were held during December 2015 and January 2016 in Hawker, Milang, Onkaparinga, Quorn and Strathalbyn, and two workshops were held in each of Gawler and Mount Barker. The community models were made available to view and download, along with instructions on how to edit and run the models (<http://www.discoverycircle.org.au/projects/little-corellas/community-models/>).

### Phase 3: Field data collection at little corella sites

We visited over 150 sites **identified by survey participants** as locations where little corellas are causing problems for local people, and we surveyed 144 of these sites across South Australia (see Figure 2). Survey areas included: metropolitan Adelaide, Aldinga, Birdwood, Clayton Bay, Cockatoo Valley, Crystal Brook, Gawler, Goolwa, Hawker, Hewett, Mannum, Melrose, Milang, Mount Barker, Murray Bridge, Nuriootpa, Old Noarlunga, Palmer, Port Augusta, Port Elliot, Quorn, Roseworthy, Sandy Creek, Snowtown, Strathalbyn, Taillem Bend, Tanunda, Two Wells, Victor Harbor, Virginia, Williamstown and Wilmington. At each site we assessed and recorded the habitat type, and estimated the nativeness and cover of ground layer, shrub and tree vegetation (See details in Table 2).



**Figure 2** Maps of sites surveyed during the **Little Corellas** project; sites were identified from a community survey

A) Sites ranging from Hawker to Snowtown; B) Nuriootpa to Victor Harbor

**Table 2** Scoring system for estimating nativeness and cover of ground, shrub and tree vegetation at little corella sites

NATIVENESS (0-5)	COVER (0-6)
0. Zero, or nearly zero species	0. Zero cover, or almost zero cover
1. Exclusively, almost exclusively exotic species	1. Sparse cover, < 5%
2. Mostly exotic species	2. Plentiful, but little cover < 5%
3. Mixed native and exotic species	3. Cover of 5 to 25%
4. Mostly native species	4. Cover of 26 to 50%
5. Exclusively, almost exclusively native species	5. Cover of 51 to 75%
	6. Cover of >76%

We also noted the presence, abundance and height of tree species of interest at each site. Species of interest were determined from the literature and from survey responses, they included: Aleppo pines, Norfolk Island pines, Monterey pines, native pines, other conifers, sheoaks, river red gums, other gums and native trees, fruit trees and ornamental trees. The overall cover for all trees was recorded, and we recorded whether any visible tree damage or perceived damage/reduced amenity by little corellas (including defoliation, tree pruning and mess from pruning) was present at the site.

In terms of water resources, we recorded whether the site had: 1) irrigated areas, 2) a water resource, 3) whether any water resource was permanent or ephemeral, 4) the accessibility of water to little corellas (e.g. vegetation barriers or other barriers) and 5) any other point of interest.

#### Phase 4: Little corella habitat suitability models

In order to create little corella habitat models for South Australia we asked: *What landscape features favour little corellas in South Australia?* The purpose of the habitat modelling was to:

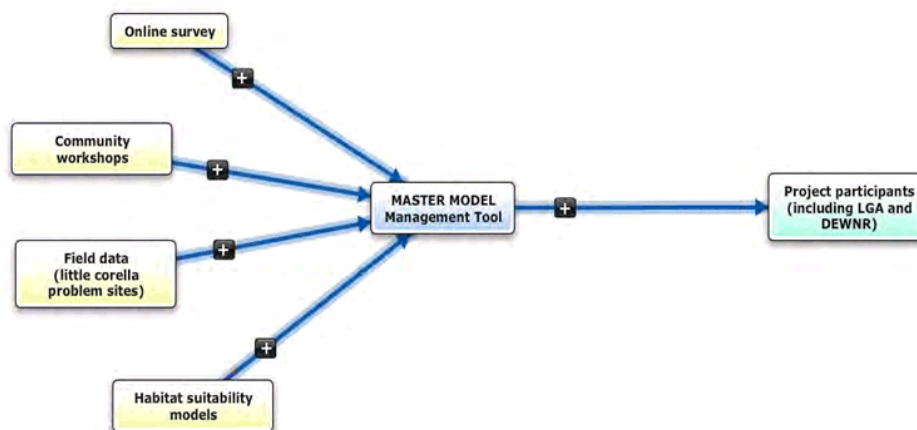
- Understand **little corella distribution across South Australia** (including potential future movements)
- Determine **habitat variables** associated with little corella presence
- Identify **land uses** associated with little corella presence
- Identify potential **habitat management tools** for little corellas

Modelling specifications were:

- Presence-only modelling using community (*Little Corellas* project) survey data; BirdLife Australia *BirdAtlas* data
- Maxent modelling software (version 3.3.3k)
- Habitat variables were identified from the community survey and workshop data, and from a review of the existing literature, they included distance (m) to nearest:
  - Major creek
  - Irrigated green space (i.e. council reserves, golf courses, ovals)
  - Exotic pine
  - Grain storage
  - River red gum

#### Phase 5: Data synthesis - creating the master model

We synthesised results from the survey and community workshops, as well as from field data collection, habitat modelling and previous research, to **develop a master model for little corella management** using Mental Modeler software. The master model is available to download and operate from the [Discovery Circle](#), it can also be upgraded and refined as new research or technologies emerge. The model enables users to create different management scenarios for little corellas, and identifies trade-offs and outcomes.



**Phase 6: Sharing results**

We delivered results from the survey and workshops during the project as they became available. For example, we created a map of little corella sites identified from the survey and posted it on the [Discovery's Circle's webpage](#). The models created during community workshops were also posted there along with an instruction manual for operating the software. Information about the project, getting involved and getting results were posted online (via Facebook, e-mail, Twitter), via postcards and traditional media; see examples in Photo panel 2.



**Photo panel 2** Social (top row) and traditional (bottom row) media was used to promote the project, to increase reach and participation and to update participants on project findings



## Results

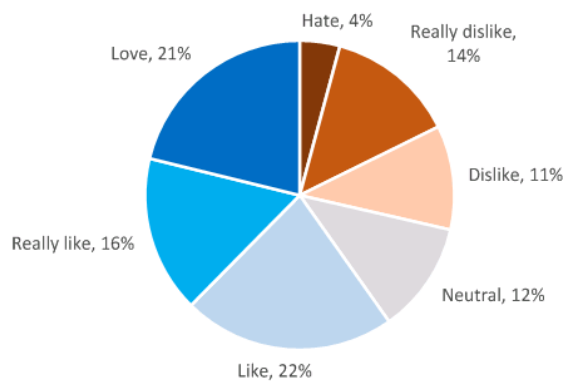
### The Little Corella Survey

#### Broad community engagement

- We received a **strong community response** with 1,270 people completing the survey<sup>f</sup>
- In terms of geographic coverage, we recorded **widespread participation** with residents from 60 of 68 (88%) local councils being represented
- **City of Onkaparinga** had the most respondents (16%, or n = 137 respondents), followed by **Alexandrina Council** (9%, n = 76), **Mid Murray Council** (7%, n = 63) and Town of **Gawler** (4%, n = 37). Appendix 1 lists the frequency of respondents per local government area or authority
- Respondents' residential locations were: 51% urban, 30% peri-urban and 19% non-urban

#### Participant opinions of and experiences with little corellas

- General opinion of little corellas was nominated by participants on a scale from love to hate. We found that **few respondents hated little corellas** outright (4%, n = 53), many more respondents reported to love them (21%, n = 268; see Figure 3). Overall, 60% of respondents reported a positive opinion<sup>g</sup>, just 29% reported any negative opinion of little corellas<sup>h</sup>



**Figure 3** Survey respondents' general opinion of little corellas

<sup>f</sup> A total of 1,571 survey responses were received, we removed incomplete surveys (those with only a few questions answered), surveys where participants were unengaged (little or no variation in response, low standard deviation), and repeated surveys

<sup>g</sup> Participants that selected "Love", "Really like", or "Like"

<sup>h</sup> Participants that selected "Hate", "Really dislike", or "Dislike"

- We grouped open-ended responses to the questions: **What do you LIKE about little corellas?** **What do you NOT like about little corellas?** into the emerging themes (Tables 3 and 4)

**Table 3** Emerging themes in participant responses to the survey question: *What do you LIKE about little corellas?*

THEME	COMMENTS
<b><i>Intrinsic value of native wildlife</i></b>	Comments about little corellas being native birds, Australian wildlife, biodiversity, part of nature, having a role to play and linked to habitat health
<b><i>Value to self</i></b>	Comments about spiritual or sentimental value of little corellas, feeling connected to nature or landscape and loving all creatures
<b><i>Enjoy seeing them</i></b>	Comments about enjoying their interactions, behaviours, intelligence, socialising, gregariousness, flocks, calls, or beauty
<b><i>Other</i></b>	Miscellaneous comments on infrequent themes
<b><i>Negative comments</i></b>	Comments where nothing was liked about little corellas

**Table 4** Emerging themes in participant responses to the survey question: *What do you NOT like about little corellas?*

THEME	COMMENTS
<b><i>Destructive, cause damage</i></b>	Categorised divided into sub-themes: <ol style="list-style-type: none"> <li><i>Destructive, cause damage</i> – to unspecified objects</li> <li><i>Damage to infrastructure</i> – property damage</li> <li><i>Damage to trees, vegetation</i> – defoliation, tree deaths</li> <li><i>Damage to crops, orchards</i> – damage to crops, seeds, vineyards, fruits, nuts</li> <li><i>Damage to lawn, grass, greens</i> – damage to grass</li> </ol>
<b><i>Noise</i></b>	Comments about excessive noise
<b><i>Mess, droppings</i></b>	Comments about large mess, debris
<b><i>Reduced amenity</i></b>	Comments about feeling anxious or stressed about little corellas, about their behaviours affecting a lifestyle
<b><i>Over-abundance</i></b>	Comments about them being a pest or plague
<b><i>Disease, health risks</i></b>	Comments about diseases, mites and rainwater contamination
<b><i>Reduce biodiversity</i></b>	Comments about deterring other birds or biodiversity
<b><i>Community divisions</i></b>	Comments about other people in the community being upset, feeling upset that people complained about little corellas, creating social divisions and harm and perception and intolerance issues
<b><i>Other</i></b>	Miscellaneous comments on infrequent themes
<b><i>Positive comments</i></b>	Comments where nothing was disliked about little corellas

**What do you LIKE about little corellas?**

- Most people **enjoyed seeing little corellas**, they enjoyed their intelligent behaviours, interactions, gregariousness and beauty (48%, n = 519; Photo 2)
- The quotes below demonstrate *Intrinsic value as native wildlife* (Quote 1) and *Value to self* (Quote 2) themes; see Figure 4

**Quote 1** *"I enjoy the variety of parrots that come in waves over our property - Galahs followed by little Corellas followed by Sulphur crested and finally Rosellas. The Corellas are part of that cycle and I'm sure have a role to play in the ecosystem"*

**Quote 2** *"Corellas are truly Australian. Their call always reminds me of good times camping in the bush as a child. Now that I live in the bush the sight and sound of corellas always makes me smile"*



**Photo 2** Many people enjoy seeing little corellas



**Figure 4** Participant responses to the question: What do you LIKE about little corellas? Sample size was 1,072 respondents



**What do you NOT like about little corellas?**

- Most respondents **disliked the damage caused by little corellas** or their destructive behaviours, highlighted in Figure 5 with red columns (70%, n = 762; Photo 3). Respondents also disliked the **noise** made by little corellas (42%, n = 446); **damage to trees** was most disliked form of damage (28%, n = 301); Photo panel 3
- Little corellas were perceived to be over-abundant (see Quotes 3 and 4). Some people felt that little corellas were creating community divisions (Quotes 4, 5 and 6); see Figure 5

**Quote 3** they are “noisy, destructive, are in plague proportions and need to be culled”

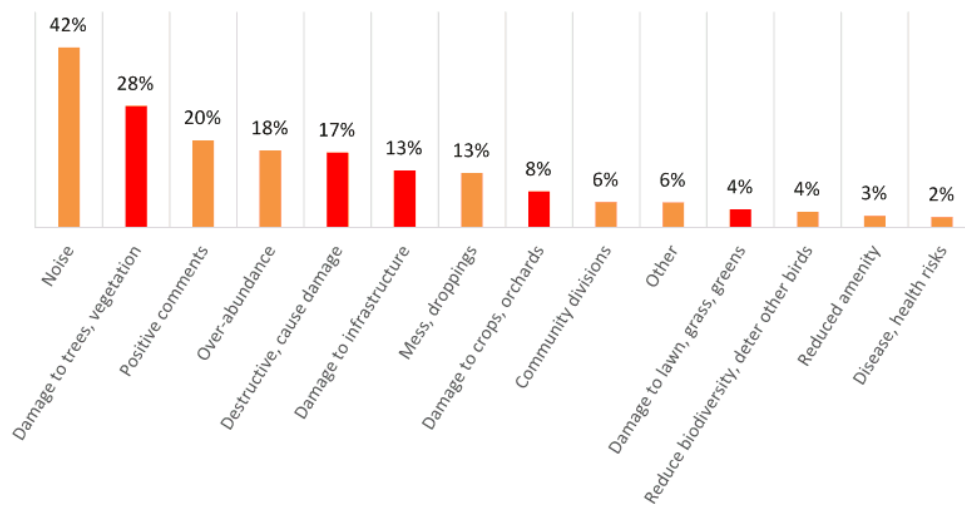
**Quote 4** “I don't like their impacts as an over-abundant species. I don't like the way people get passionate about these birds while ignoring their impacts”

**Quote 5** “They do make a racket. I know they have caused management problems for some towns. A town near us implemented their “de-corella” strategy... and now the corellas have moved onto our town. So now the park is quite noisy and filled with birds”

**Quote 6** “I don't like people complaining about them”



**Photo 3** Many people dislike damage to trees by



**Figure 5** Participant responses to the question: What do you NOT like about little corellas?

Overall, 1,067 people responded to the question. The Destructive (all categories) column represents the sum of all destructive categories (i.e. Destructive, cause damage; Damage to infrastructure; Damage to trees, vegetation; Damage to crops, orchards; Damage to lawn, grass, greens)

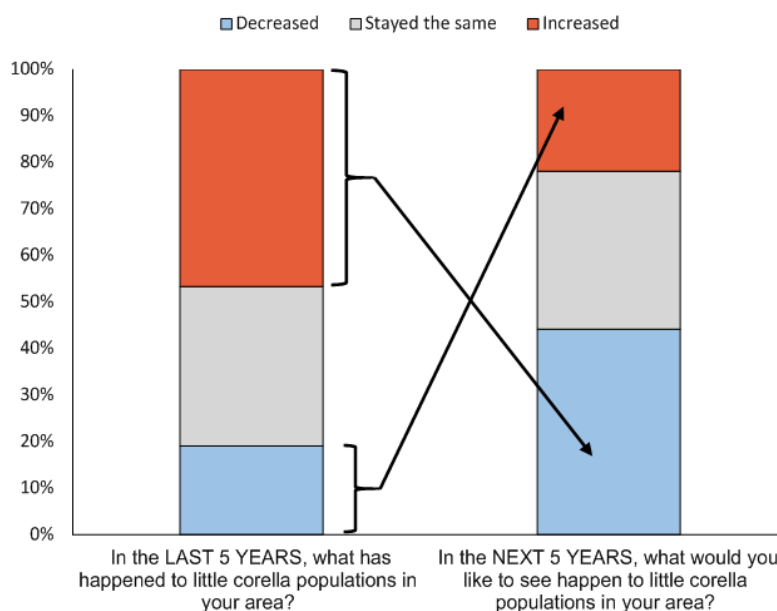


**Photo panel 3** Defoliation of trees by little corellas

A) Norfolk Island pine at Old Noarlunga; B) lemon-scented gum at Lockleys Oval; C) gum tree at Aldinga; D) sugar gums at Palmer; E) Aleppo pine at Old Noarlunga; F) gum tree at Wilmington; G) Norfolk Island pine at Aldinga Hotel; H) gum trees at the Hawker Golf Course

### Trends in little corella presence

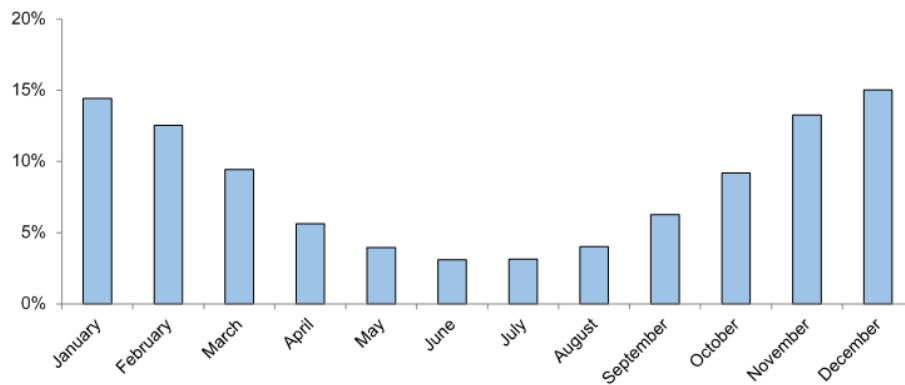
- Respondents were divided when asked about **how long little corellas had been an issue** in their area. About a third of respondents (33%, n = 367) indicated that little corellas were not a problem. Of the respondents who indicated a problem existed (67%, n = 753), 26% indicated that little corellas had been a problem for 1–5 years, 20% selected 6–10 years, 8% selected 11–15 years and 13% selected 16–20+ years
- About a third of the respondents (34%, n = 395) reported that the little corella population in their area had *stayed the same* in the **last five years**. The same percentage of respondents reported that they would like the population to *stay the same* for the **next five years**
- Almost half (46%, n = 537) the respondents reported that the little corella population had *increased somewhat* or *increased greatly* in their area over the last five years. Similarly, 44% (n = 516) of respondents wanted the population to *decrease greatly* or *decrease somewhat* in the next five years. This pattern is repeated, but inverted, when a similar number of respondents that had observed little corellas to decrease in the last five years wanted them to increase in the next five years (see Figure 6)



**Figure 6** Survey responses to two statements: 1) In the LAST five years, what has happened to little corella populations in your area? 2) In the NEXT five years, what would you like to see happen to little corella populations in your area?

Sample sizes were n = 1,152 for statement one and n = 1,167 for statement two. Arrows indicate the opposite trends in recent experience and future expectation

- We tested this trend statistically and found a **strong negative association** between what respondents experienced with little corella populations in the last five years and what they would like to see have in the next five years<sup>i</sup>
- As expected, **strong seasonal trends** in little corella presence were also captured by the survey; these data are presented in Figure 7
- Most respondents reported very few interactions during the cooler months, whereas most people reported **noticing little corellas on a daily basis** during summer (56%, n = 480)<sup>j</sup>.



**Figure 7** Frequency of little corella site visits among month

Sample size was 973 respondents and 4,057 monthly observations

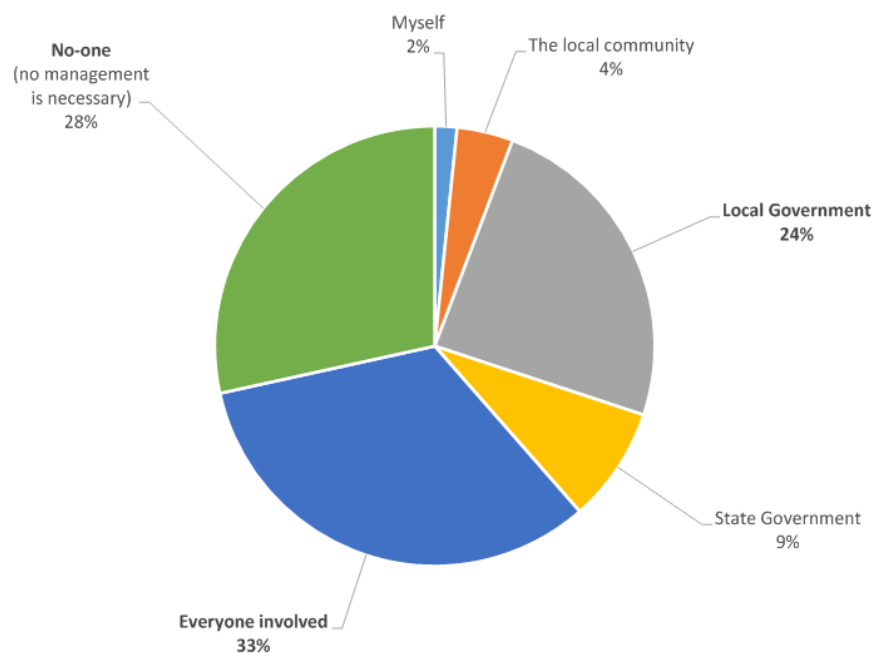
<sup>i</sup> Pearson Chi-Square test of association between two categorical variables (278.121, df = 1, P < 0.001); Phi test for affect size (-0.695, P < 0.001)

<sup>j</sup> Other responses to frequency of sighting during summer were: *every few days*: 20% (n = 175); *weekly*: 7% (n = 62); *every few weeks*: 8% (n = 69); *less often*: 8% (n = 68)



### Management of little corellas in South Australia

- Most respondents (66%, n = 831) agreed that there is a **lot of conflict** about the management of little corellas<sup>k</sup>. Few respondents disagreed with this sentiment (9%, n = 117)<sup>l</sup>
- Little corella management was perceived as the **responsibility of all stakeholders**, with 33% (n = 304) of respondents citing *everyone involved* should take responsibility. Individuals and local communities alone had little perceived responsibility. **Local government was an important agency** (24%, n = 224). *No-one*, indicating no management is necessary, was also cited frequently; see Figure 8



**Figure 8** Agencies considered responsible for little corella management by survey  
 Sample size was 921 respondents

<sup>k</sup> They selected "slightly agree", "agree", or "strongly agree"

<sup>l</sup> They selected "slightly disagree", "disagree", or "strongly disagree",

- We gauged survey participants' level of **support or opposition** and perceived **effectiveness or ineffectiveness** to a series of little corella management actions, presented in Table 5

*Table 5 Little corella control measures for which level of support or opposition and perceived effectiveness or ineffectiveness was gauged in the survey*

CONTROL ACTION	CONTROL DESCRIPTION
<i>Falconry</i>	Using birds of prey to scare little corellas to other sites
<i>Spotlighting</i>	Using spotlights to scare little corellas to other sites
<i>Lasers</i>	Using lasers to scare little corellas to other sites
<i>Noise-generating devices</i>	Using noise to scare little corellas to other sites
<i>Trapping and gassing, lethal control</i>	Destroying little corellas to reduce flock size
<i>Shooting to deter flocks, lethal control</i>	Shooting a small number of little corellas to scare flocks to other sites
<i>Habitat modification, increase shrubs</i>	Making sites less attractive to little corellas by increasing shrubs and reducing lawn
<i>Habitat modification, tree removal</i>	Removing trees that little corellas roost in
<i>Do nothing</i>	No management actions
<i>Education program</i>	Developing education materials to increase acceptance of little corellas
<i>Encourage alternate sites</i>	Identify suitable sites and encourage flocks to those areas
<i>Supplementary feeding</i>	Luring little corellas to alternate sites by providing food
<i>Crop netting</i>	Netting crops to reduce impact of little corellas
<i>Asset management, built</i>	Modifying built structures (like antennas) to prevent them from being damaged by little corellas
<i>Asset management, water</i>	Modifying water troughs to prevent access by little corellas



- In terms of support for different management actions, 68% of respondents supported<sup>m</sup> little corellas being **encouraged to alternate sites** (36% of respondents were *highly supportive* of this particular action). Other actions with more support than opposition were: modifying built structures (60%); education (58%) and supplementary feeding (53%); see Figure 9
- Respondents were particularly **opposed to habitat modification involving tree removal**, over 80% of participants were opposed to this action (*highly opposed*: 60%; *opposed*: 14%; *slightly opposed*: 7%). Many participants were equally **opposed to lethal actions**, with 63% of respondents opposed to trapping and gassing and 62% opposed to shooting to deter flocks
- Another poorly-supported action was use of noise-generating devices (51% of respondents were opposed<sup>n</sup>), and 49% of respondents were **opposed to do nothing**, indicating their support of some action
- Fewer people engaged with the associated survey question about **perceived effectiveness** of management actions, see Figure 10. On average, 165 fewer responses<sup>o</sup> were recorded for this question than for the previous one about support for control actions. Considerable ambiguity was also recorded within the responses (i.e. a high percentage of *neutral* responses), indicating that the relative **effectiveness of various control actions is poorly known** or understood within the community. Increasing education around management options will likely increase knowledge and acceptance of management activities, and NRM Boards or other groups may be effective in this role
- The space between actions that are acceptable to the community and the demonstrated effectiveness of various actions should **provide a focus area for managers**, including in any education actions. For example, falconry was supported by 49% of survey respondents, but 41% of respondents rated its effectiveness as *neutral*. Using falconry to create a “landscape of fear” for little corellas is very expensive, the effects are temporary, and the action is generally considered to be unfeasible (e.g. Temby 1999). Scare birds and retail kites (Photo 4) are also generally ineffective because little corellas quickly become habituated to them

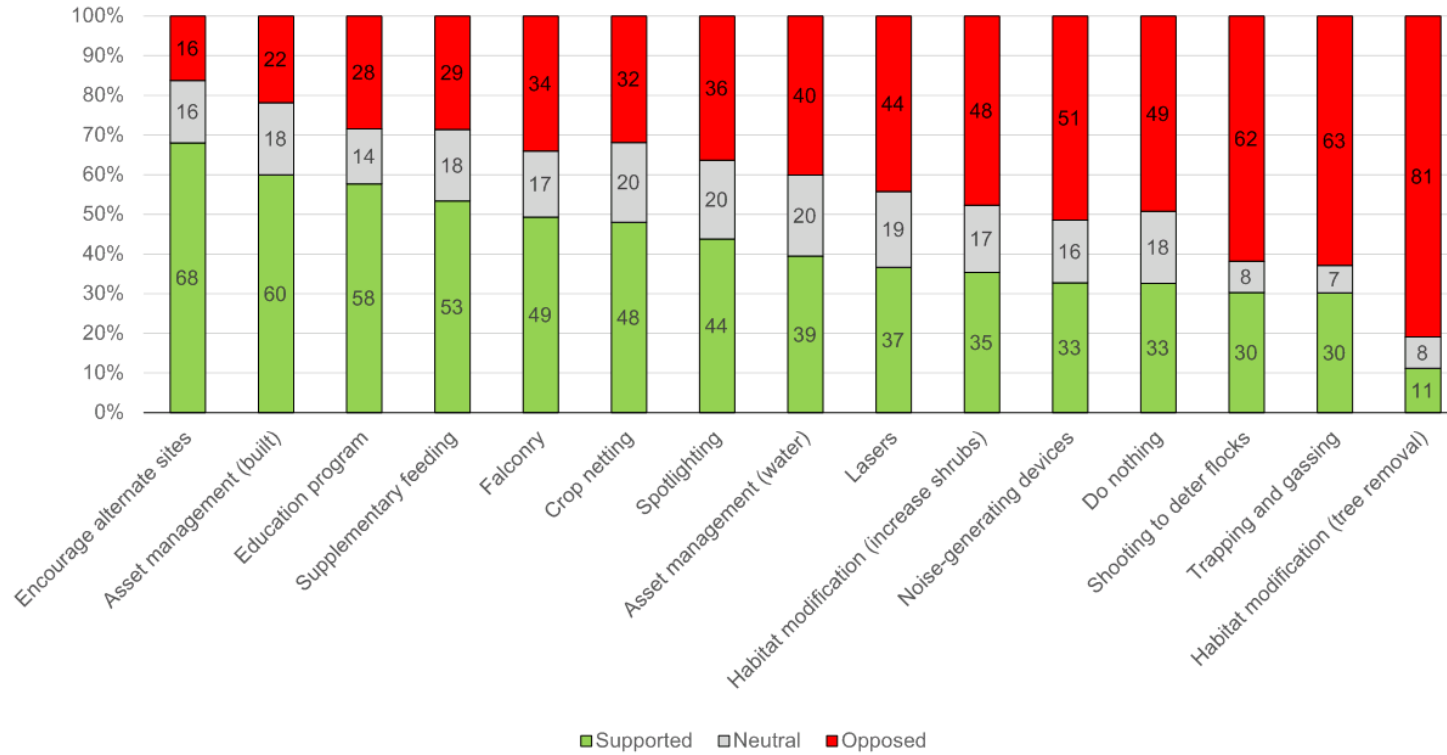


*Photo 4* In Aldinga a roof-mounted scare bird sits adjacent to a tree with little corella damage, illustrating their

<sup>m</sup> They selected “slightly supportive”, “supportive”, or “highly supportive”

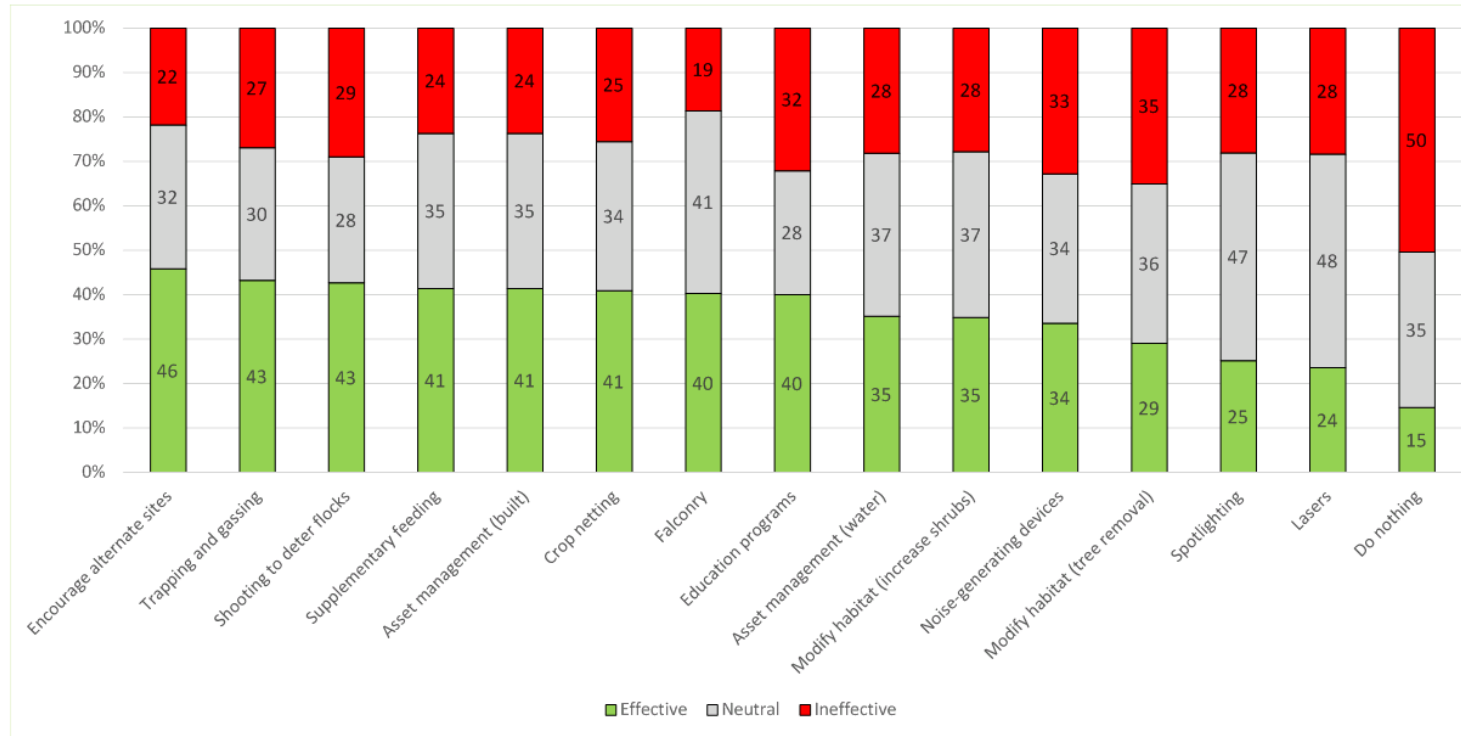
<sup>n</sup> They selected “slightly opposed”, “opposed”, or “highly opposed”

<sup>o</sup> ±1.0, n = 15 (matched categories), the range was 157-169 fewer responses to the question about perceived effectiveness than to the associated question about support for little corella control actions



**Figure 9** Survey participants' support and opposition of little corella management actions

The sample sizes were Encourage alternate sites: n = 873; Asset management (modify built structures): n = 871; Education program: n = 870; Supplementary feeding: n = 870; Falconry: n = 884; Crop netting: n = 873; Spotlighting: n = 877; Asset management (modify water access): n = 872; Lasers: n = 871; Habitat modification (increase shrubs): n = 868; Noise-generating devices: n = 876; Do nothing: n = 861; Shooting to deter flocks: n = 877; Trapping and gassing: n = 881; Habitat modification (tree removal): n = 870



**Figure 10** Survey participants' perceived effectiveness and ineffectiveness of little corella management actions

The sample sizes were Encourage alternate sites: n = 707; Trapping and gassing: n = 712; Shooting to deter flocks: n = 710; Supplementary feeding: n = 705; Asset management (modify built structures): n = 705; Crop netting: n = 706; Falconry: n = 715; Education program: n = 704; Asset management (modify water access): n = 703; Habitat modification (increase shrubs): n = 709; Noise-generating devices: n = 717; Habitat modification (tree removal): n = 705; Spotlighting: n = 712; Lasers: n = 712; Do nothing: n = 704

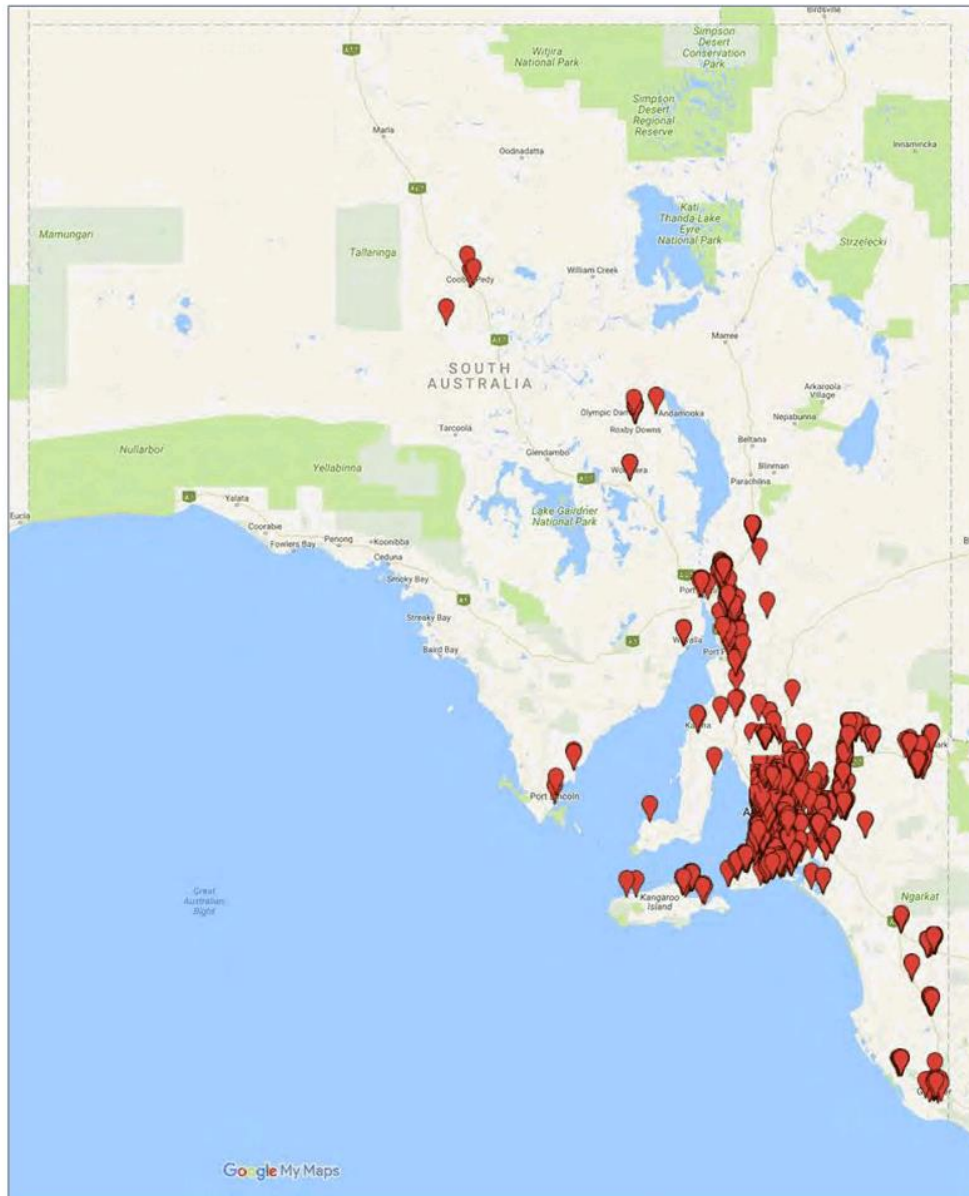
### Little corella sites across South Australia

- As part of the public survey, South Australians identified over **2,340 little corella sites** across South Australia. See sites in the map below, Figure 11
- **Recreational parks** represented 28% of primary sites identified by survey respondents, and **schools** (10%) and **sporting ovals** (7%) were also commonly identified sites
- Large clusters of sites were recorded within the Adelaide metropolitan area, Mount Lofty and Fleurieu Peninsula region (including Kangaroo Island), along the River Murray from Wellington to Renmark, in the Upper and Lower South-East (Keith to Mount Gambier) and Mid and Far North sites ranged from Gawler to Coober Pedy
- Two survey respondents reported **little corellas sites on Eyre Peninsula**, where they have been reported previously (in 2001<sup>p</sup>). These respondents identified correctly different bird species in the survey, and the reported sites were typical of little corella habitat (recreational reserves and a school in Tumby Bay and a caravan park in Port Lincoln). However, local experts have not observed little corellas on the Eyre Peninsula, and know of no recent record of little corellas in the region (G. Kerr, pers. comm. 2016)
- Generally, survey participants demonstrated good bird identification skills for sulphur-crested cockatoos and galahs (84% and 89% correctly identified, respectively). Little corellas were identified correctly by 78% of respondents and long-billed corellas were less successfully identified, with 62% correct (15% were unsure and 22% incorrect)
- Fourteen people mentioned long-billed corellas in their survey responses. Places where small numbers of long-billed corellas were recorded (during all phases of this project) co-occurring within little corella flocks included: metropolitan Adelaide (parklands, Torrens River, Urrbrae), Mount Barker, Mylor, Old Noarlunga, Noarlunga, and Willunga. Large flocks of long-billed corellas mixed with little corellas were reported in the South East. One report was that **90% of corellas in Naracoorte were long-billed corellas**
- Long-billed corellas are native to the Lower South East in South Australia, but little corellas seem newly arrived to some areas there, one project participant mentioned that, *"We already had long-bills, but we didn't get little corellas in Millicent until we got the new grain bunker"*



**Photo 5** Grain stores and bunkers provide food resources for little corellas, many major facilities like this one in Tailem Bend will have ongoing little corella control programs; image from Google Earth

<sup>p</sup> [Species list for NRM Region Eyre Peninsula, South Australia \(2011\). Australian Government, Department of Sustainability, Water, Population and Communities](#)



**Figure 11** A map of little corella sites in South Australia, nominated through our community survey of 1,270 people

Sites were placed as close as possible to the locations described by survey respondents. For privacy reasons, private residences were mapped to the street described rather than on an actual house. An interactive version of this map is available at: <http://www.discoverycircle.org.au/projects/little-corellas/>



## Little corella acceptance capacity

We used participant responses to a series of statements about a flock of little corellas around their house to **generate a measure of each individual's acceptance capacity**. On a 7-point Likert-type scale from *strongly disagree* to *strongly agree*, participants selected their response to 12 statements:

1. *I would enjoy seeing the little corellas*
2. *I would enjoy hearing the little corellas*
3. *I would think that people should learn to live with little corellas*
4. *The little corellas would make me feel close to nature*
5. *I would be concerned about the noise of the little corellas*
6. *I would be concerned about damage to plants by the little corellas*
7. *I would be concerned about damage to property by the little corellas*
8. *I would be concerned about the cost of fixing damage by little corellas*
9. *I would be concerned about diseases spread by little corellas*
10. *I would want the little corellas to be removed*
11. *I would try to scare the little corellas away*
12. *The only good little corella is a dead one*

We conducted a factor analysis to help us understand variations in the way people had responded to these statements. This analysis helped us to identify **two underlying factors that can be used to understand how people feel about little corellas**:

- **FACTOR 1: CONCERN ABOUT IMPACT OF LITTLE CORELLAS**
  - This factor relates to concerns with impacts and management associated with little corellas, and 47% of the variance in our data was explained by this factor
  - Survey respondents with **HIGH SCORES** on this factor typically agreed with these statements:
    - I would be concerned about damage to property by the little corellas*
    - I would be concerned about the cost of fixing damage by little corellas*
  - Survey respondents with **LOW SCORES** on this factor typically agreed with this statement:
    - I would think that people should learn to live with little corellas*
- **FACTOR 2: INTRINSIC-VALUE OF LITTLE CORELLAS**
  - This factor relates to loving little corellas and enjoying them as part of nature, and 23% of variance in our data was explained by this factor
  - Survey respondents with **HIGH SCORES** on this factor typically agreed with this statement:
    - The little corellas would make me feel close to nature*
  - Survey respondents with **LOW SCORES** on this factor typically agreed with this statement:
    - I would want the little corellas to be removed*



Rather than disliking little corellas, decreased acceptance of little corellas typically stemmed from **frustrations or concerns relating to their impacts and management** (Factor 1). People who scored high on this factor were concerned about damage to property and plants, the cost of damage and the noise, they also wanted little corellas removed or scared away. In contrast many people reported in the survey that they **loved little corellas**, and they held intrinsic values about little corellas (Factor 2). These **respondents enjoyed seeing and hearing little corellas**, and little corellas helped them to feel close to nature. We found that:

- As **experience of impacts increased, general opinion of little corellas decreased**
- Impacts increased with an increase in **little corella numbers** in the last five years
- People with high concern for impacts want the little corella population to decrease in the next five years
- Males typically scored higher concern for impact scores
- No moderate or strong correlations and no significant differences occurred between the intrinsic-value factor and most other measures, suggesting that this factor is relatively stable; **if people hold intrinsic value for little corellas, it may be difficult to change this value** (see Appendix 2)

## Opinions about management actions by factor groups

We compared the median **level of support** for different little corella management actions among three groups:

1. *All survey respondents together*
2. *Respondents concerned about impacts of little corellas ([Factor 1](#))*
3. *Respondents that intrinsically value little corellas ([Factor 2](#))*

This analysis enabled us to determine which actions are likely to be **widely accepted, tolerated or contentious within diverse local communities** (i.e. people within communities experience little corellas differently). We generated an overall community **support index** for each control measure. The support index is a score out of 100 (presented in Table 6 as a percentage) based on the combined level of support from the three groups. The support index was calculated by adding the median scores of each group and converting the result into a percentage.. A score of 81 is likely to be well supported within the community whereas a score of 19 is likely to be a contentious activity. Key findings were:

- **Benign actions received broad support** (support index greater than 60)
- **Encouraging alternate sites** (i.e. creating sacrificial areas away from problem sites) was supported by all groups, and “**do something**” was also strongly supported (i.e. little corella management is wanted)
- Both **effective and ineffective benign** activities were supported
- Neutral support was universal for increasing shrubs and managing water assets (effective measures)
- **Lethal control measures were contentious**; overall, survey respondents were highly opposed and, as expected, people concerned about little corella impacts were more supportive of these measures than were people who value the birds intrinsically
- **Tree removal is unacceptable to the community**

**Table 6** Support for different management actions for three groups of people: all survey respondents, survey respondents concerned about the impacts of little corellas (Factor 1), and survey respondents who intrinsically value little corellas (Factor 2)

Median response on a scale from highly opposed to highly supportive is given for each group (i.e. from highly supportive to highly opposed for each management action) and the sample size is provided in parentheses below the median response

Actions are ranked from most supported (towards the top of the table) to least supported (the lower rows in the table) based on a "support index"; the support index was calculated by adding the median scores of each group and converting the result into a percentage.

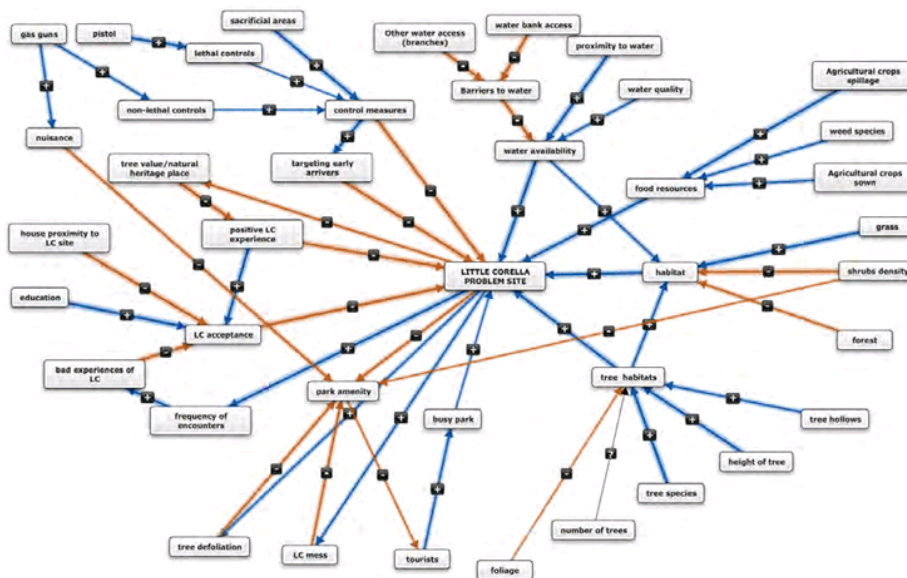
ACTION	ALL SURVEY RESPONDENTS	FACTOR 1 CONCERN ABOUT IMPACT	FACTOR 2 INTRINSIC VALUE	INTERPRETATION	SUPPORT INDEX
<b>Encourage alternate sites</b>	Supportive (863)	Slightly supportive (401)	Supportive (390)	All respondents, respondents concerned about the impacts of little corellas (Factor 1), and respondents with intrinsic value for little corellas (Factor 2) typically <b>supported encouraging alternate sites</b>	<b>81%</b>
<b>Do something</b>	Neutral (852)	Highly supportive (399)	Slightly supportive (383)	Overall the survey respondents were <b>neutral</b> , while both respondents concerned about the impacts of little corellas (Factor 1) and respondents with intrinsic value for little corellas (Factor 2) typically <b>supported doing something</b> .	<b>76%</b>
<b>Falconry</b>	Neutral (869)	Supportive (406)	Slightly supportive (391)	While overall the survey respondents were neutral, both respondents concerned about the impacts of little corellas (Factor 1) and respondents with intrinsic value for little corellas (Factor 2) typically <b>supported falconry</b>	<b>71%</b>
<b>Supplementary feeding</b>	Slightly supportive (861)	Slightly supportive (398)	Slightly supportive (389)	All respondents, respondents concerned about the impacts of little corellas (Factor 1), and respondents with intrinsic value for little corellas (Factor 2) typically <b>supported supplementary feeding</b>	<b>71%</b>
<b>Asset management, built</b>	Slightly supportive (862)	Neutral (401)	Slightly supportive (389)	Overall the survey respondents and respondents with intrinsic value for little corellas (Factor 2) were typically <b>supportive of managing built assets</b> , while respondents concerned about the impacts of little corellas (Factor 1) were typically <b>neutral</b>	<b>67%</b>
<b>Spotlighting</b>	Neutral (866)	Slightly supportive (404)	Neutral - Slightly opposed (390)	Overall the survey respondents were typically <b>neutral</b> , while respondents concerned about the impacts of little corellas (Factor 1) were typically <b>supportive</b> of spotlighting, and respondents with intrinsic value for little corellas (Factor 2) were typically slightly <b>opposed</b>	<b>64%</b>
<b>Lasers</b>	Neutral (860)	Slightly supportive (403)	Neutral (384)	Overall the survey respondents and respondents with intrinsic value for little corellas (Factor 2) were typically <b>neutral</b> , while respondents concerned about the impacts of little corellas (Factor 1) were typically <b>supportive of using lasers</b>	<b>62%</b>

ACTION	ALL SURVEY RESPONDENTS	FACTOR 1 CONCERN ABOUT IMPACT	FACTOR 2 INTRINSIC VALUE	INTERPRETATION	SUPPORT INDEX
<i>Education program</i>	Slightly supportive (861)	Slightly opposed (399)	Slightly supportive (389)	Overall the survey respondents and respondents with intrinsic value for little corellas (Factor 2) were typically <b>supportive</b> , while respondents concerned about the impacts of little corellas (Factor 1) were <b>opposed to education</b>	62%
<i>Crop netting</i>	Neutral (864)	Neutral (401)	Slightly supportive (391)	Overall the survey respondents and respondents concerned about the impacts of little corellas (Factor 1) were typically <b>neutral towards crop netting</b> , while respondents with intrinsic value for little corellas (Factor 2) were typically <b>supportive</b>	62%
<i>Habitat modification, increase shrubs</i>	Neutral (858)	Neutral (400)	Neutral (386)	<b>All respondents, respondents concerned about the impacts of little corellas (Factor 1), and respondents with intrinsic value for little corellas (Factor 2) were typically neutral towards increasing shrubs</b>	57%
<i>Asset management, water</i>	Neutral (862)	Neutral (401)	Neutral (390)	All respondents, respondents concerned about the impacts of little corellas (Factor 1), and respondents with intrinsic value for little corellas (Factor 2) were typically <b>neutral towards managing water assets</b>	57%
<i>Noise-generating devices</i>	Slightly opposed (863)	Neutral (401)	Neutral (389)	Overall the survey respondents were typically <b>slightly opposed</b> , while both respondents concerned about the impacts of little corellas (Factor 1) and respondents with intrinsic value for little corellas (Factor 2) were typically <b>neutral towards using noise-generating devices</b>	52%
<i>Trapping and gassing, lethal control</i>	Highly opposed (870)	Slightly supportive (405)	Opposed (392)	Overall the survey respondents and respondents with intrinsic value for little corellas (Factor 2) were typically <b>opposed</b> , while respondents concerned about the impacts of little corellas (Factor 1) were typically <b>supportive of using lethal population control</b>	38%
<i>Shooting to deter flocks, lethal control</i>	Highly opposed (866)	Slightly supportive (403)	Opposed (390)	Overall the survey respondents and respondents with intrinsic value for little corellas (Factor 2) were typically <b>opposed</b> , while respondents concerned about the impacts of little corellas (Factor 1) were typically <b>supportive of using lethal deterrents</b>	38%
<i>Habitat modification, tree removal</i>	Highly opposed (860)	Opposed (400)	Highly opposed (386)	All respondents, respondents concerned about the impacts of little corellas (Factor 1), and respondents with intrinsic value for little corellas (Factor 2) were typically <b>opposed to tree removal</b>	19%

## Community workshops

In the workshops the modelling software enabled participants to **articulate diverse views** and observations (social, ecological, economic) pertaining to little corellas and helped us to facilitate **complex discussions around the issues**. Comments supporting the value or approach of the workshops, the complexity of the issue, changing opinions and other observations are detailed in Appendix 3.

The model created in each of nine workshops also reflected the priorities and context or experiences of the participants, so although overlap in some themes occurred among workshops, **new themes also emerged**. For example, in a workshop in Onkaparinga we discussed the acceptance of little corellas and factors leading to sites becoming problematic (a social focus), whereas in one workshop in the Flinders Ranges considerable attention was given to the effectiveness of different controls (a management focus). An example of a model built during one workshop is presented in Figure 12. In addition to broad community participation, members of at least seven local councils, including two local mayors, were involved in the workshops. All models and instructions on the modelling are available online at: <http://www.discoverycircle.org.au/projects/little-corellas/community-models/>



**Figure 12** A model created during a little corella community workshop using *Mental Modeler* software

Arrows indicate the connection, direction, the type and strength of the relationship between components. Each connection occurs between two components only, the direction is indicated by the arrow (e.g. “water availability” leads to a “little corella problem site”), the type of relationship can be positive or negative and the strength is indicated by line. Detailed instructions on using the software are [here](#)



## Key themes and insights from the workshops

### *The nature of problem sites*

Problem sites comprised isolated locations, a series of neighbouring sites or diffuse problem zones (e.g. corridors of sites along the River Murray). During the warmer months the experience of problems associated with little corellas can be ongoing (i.e. for people living adjacent to a problem site) and/or associated with a particular event – such as a ceremony in a memorial garden or the Mannum Hot Rod Show; **communities fear the loss or disturbance of their events** by little corella presence. In addition to seasonal inundations and large flock sizes, conspicuousness of little corellas is enhanced by their use of high profile public spaces (such as schools or recreation parks), which increases public encounters (and conflict) and awareness of little corellas generally.

### *Terminology is a barrier*

We found **considerable confusion and misuse of terms** associated with little corella management. We found terms such as “cull” and “extermination” (inferring large-scale destruction and extinction of little corellas) were interchanged for targeted lethal deterrents (destroying a few birds to move a flock). “Scout birds” was also used widely; we do not support the use of this term because it implies that a few birds investigate sites and report back to the flock to inform their movements. We prefer the terms “early bird” or “call bird”. Whatever the context (discussion, report, correspondence) it is important to define clearly all terms.

### *Communication is a barrier*

Many people didn’t understand wildlife management actions, the complexity of management issues, the justification for various approaches, or the problems experienced by councils. The costs of management options were also poorly understood. One cost relayed to us was for \$24,000 to destroy 1,500 birds using trapping and gassing. The little success and limited effect of such an exercise coupled with the high cost would be useful information for a public wanting action. The exorbitant costs of using falconry should also be released in order to increase public understanding of this option and the costs (many people support the idea of this action, but have no understanding of the cost or temporary nature of any effect produced).

We also noted that understanding of lethal deterrents was low. Often people were opposed to lethal deterrents and considered them to be similar to lethal population control measures (like trapping and gassing birds). We found that **people changed their minds about the use of lethal deterrents** during our workshops. Comments from workshop participants suggested that they changed their minds for two main reasons. First, workshop participants better understood the complexities of little corella management. Second, workshop participants better understood the use of lethal deterrents, particularly how lethal deterrents can be used in conjunction with non-lethal measures (e.g. spotlighting or noise-generation) to increase the effectiveness of the non-lethal measures. For example, if a few birds are shot during an initial spotlighting effort to disrupt a flock of little corellas, subsequent spotlighting efforts with no shooting will likely be more effective at disrupting the flock (as the birds associate the spotlighting and with the shooting). Further discussion also brought to light that the careful use of lethal deterrents may help reduce the overall numbers of birds being destroyed (i.e. by avoiding lethal control measures). Thus, the use of lethal deterrents is likely to receive more support from the community than our survey results suggest, but only where lethal deterrents are used to increase the effectiveness of non-lethal measures, where the strategic approach is understood by the community, and where lethal deterrents are clearly differentiated from lethal controls.

### *Local councils want support and co-ordinated action*

Many councils feel that they need to be acting on little corellas, and know that the public want action. They want their activities to be meaningful and effective, but they're not always sure about what to do, what works, and what strategic approaches to take. Many councils have worked in isolation to eventually learn the same lessons; they may react as a problem arises and enact ad-hoc trials of different approaches to manage little corellas. Some councils were curious about what other local councils were doing. They have **no organised way of sharing resources or knowledge, or coordinating responses** among agencies, and many supported the notion of a state-wide strategy. Many councils invest considerable resources into little corella management and have detailed knowledge of their management (e.g. Figure 12), but little reporting, data collection or monitoring occurs. Managing time (field staff) and public expectations are key challenges for some councils. Councils also want residents to know how complex wildlife management is, and for the public to take ownership of the issue.

### Little corella habitat suitability models

For an abundant species, surprisingly little is understood about the mix of landscape characteristics that influence the distribution of little corellas. The aim of this habitat modelling was to identify these landscape features and drivers of little corella distribution, and to understand why little corellas favour certain areas in South Australia. This information should help inform future management strategies.

- We used observations and insights of citizen-scientists collated from the **Little Corellas** project to inform our analyses and merged these with observations of little corellas from *BirdLife Australia Second Atlas*. To our knowledge this is the **first time that habitat suitability models** have been generated for the little corella
- We created two habitat suitability models for little corellas: a state-wide **South Australian model** and a **Mouny Lofty Ranges model**. The second model was necessary because the landscape features of this region are generally uncharacteristic of the rest of the state

Results suggest that little corella habitat was generally characterised by the presence of one or more of the following habitat features: 1) *river red gums*; 2) *major creek lines*; 3) *irrigated green space*; and 4) *pine trees*. However, **depending on where you are in South Australia**, the relative importance of these landscape features differed. Interestingly, although **grain silos may exacerbate** existing little corella issues at a local scale, they were found not to be a strong determinant of little corella distribution in our models.

We believe this study is first to consider the **influence of native vegetation cover and land use type** on little corella distribution. The results of these analyses indicate that:

1. Little corellas **avoid bushland areas** and favour highly fragmented environments
2. **Habitats provided by recreational** (i.e. irrigated green spaces), **agricultural**, and **residential land uses are preferred**



The analyses presented here show us the landscape characteristics favoured by little corellas and provide potentially useful **habitat manipulation strategies**. The relative suitability of the Mount Lofty Ranges, and other temperate agricultural regions, compared to the rest of the state **poses management challenges**; the availability of *irrigated green spaces* is clearly an attractant in these regions<sup>q</sup>. Below we summarise the modelling methods and results. An in-depth description and discussion of the models, including modelling methodology and model limitations, is provided in Supplementary Information 2 (S2). Habitat suitability maps for each of the local government collaborators are included in Appendices<sup>r</sup>.

### South Australian model

- Little corella input data included 3,069 presence locations (1972–present); Photo panel 4A
- The habitat suitability model is shown in Figure 13; **model performance was good-excellent**
- State-wide, the most important habitat features for little corellas were *river red gums*<sup>s</sup>, *irrigated green spaces* and *major creek lines*. These three variables combined explained 90% of the little corella distribution
- Model results suggest that as distance (m) from nearest *river red gum*, *irrigated green space* or *major river* increases, the **probability of little corella presence declines** (Appendix 4)
- *Pines* were less important. Probably because they are planted less frequently in regional South Australia, particularly in the state’s pastoral zones
- Unsurprisingly, as human population density increased so did the occurrence probability of little corellas. This trend is likely to reflect the increased availability of food and water resources within human-dominated environments
- Some uncertainty exists about the current status of little corellas on the Eyre Peninsula. Our habitat models suggest that the habitat conditions are favourable for their establishment there

<sup>q</sup> The predicted habitat suitability values at some of the sites shown in the maps may not be as expected because of two factors: 1) some input datasets are known to be incomplete (e.g. *irrigated green spaces*, *red gums*) and, consequently, information on one or more of these habitat variables is not available at all sites; or 2) other site specific factors not captured by the habitat models influence little corellas at these sites. One or both of these factors will influence the final model predictions. These maps should be considered as indicative of potential little corella distribution only

<sup>r</sup> In addition to tailored maps, extensive resources for partnership councils contain social survey results from their residents, see Appendices 6-11

<sup>s</sup> *Eucalyptus camaldulensis*

### Mount Lofty Ranges model

- Little corella input data included 718 presence locations (1972–present); Photo panel 4B
- The habitat suitability model is shown in Figure 14; model **performance was good-excellent**
- Two-thirds of little corella distribution within the Mount Lofty Ranges was explained by the availability of, and proximity to, **irrigated green space**. The **probability of little corellas increased** as the distance to the **nearest irrigated green space decreased** (Appendix 4). The availability of these spaces within the region is much greater than for the rest of the state
- **Distance to nearest major creek line** was also a factor in determining little corella distribution within the region. Tall eucalypts are used as roost sites. These trees are often concentrated along watercourses in highly fragmented environments
- The influence of **distance to nearest pine** (*Pinus* sp.) tree on little corella distribution was greater within the Mount Lofty ranges than for the rest of the state. Pine trees<sup>†</sup> are largely confined to agricultural regions of South Australia, especially the Mount Lofty Ranges, so are more readily available. That said, little corellas feed primarily on the seeds of grasses and herbaceous plants. Pine seeds may comprise only a minor dietary component ([Higgins, 1999](#))
- Distance to nearest river red gum was not as an important factor within the region. This species of gum is not confined to watercourses and rivers within the Mount Lofty Ranges, as it is across the rest of the state. Further the diversity of tall, emergent tree species within the region is comparatively higher than for the rest of the state. Therefore the dependence of little corellas on river red gums in this region is likely to be less than in other areas of the state

---

<sup>†</sup> *Pinus* species

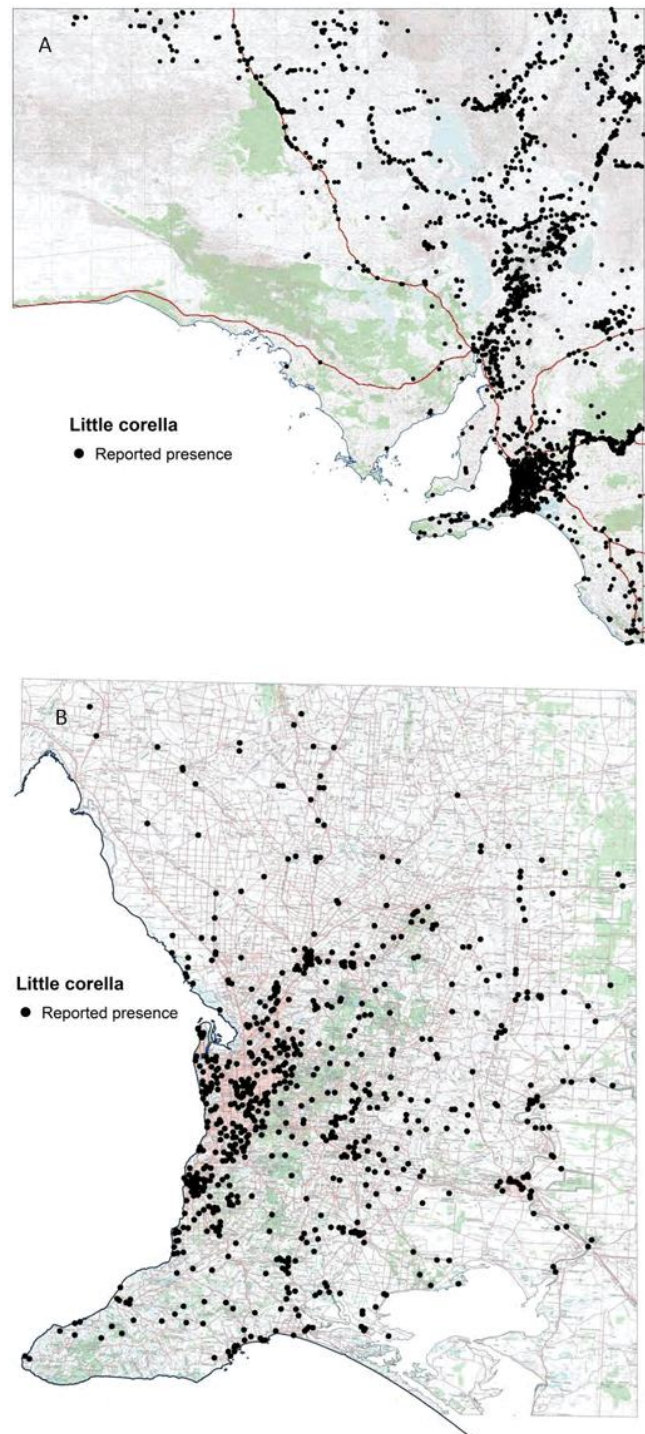
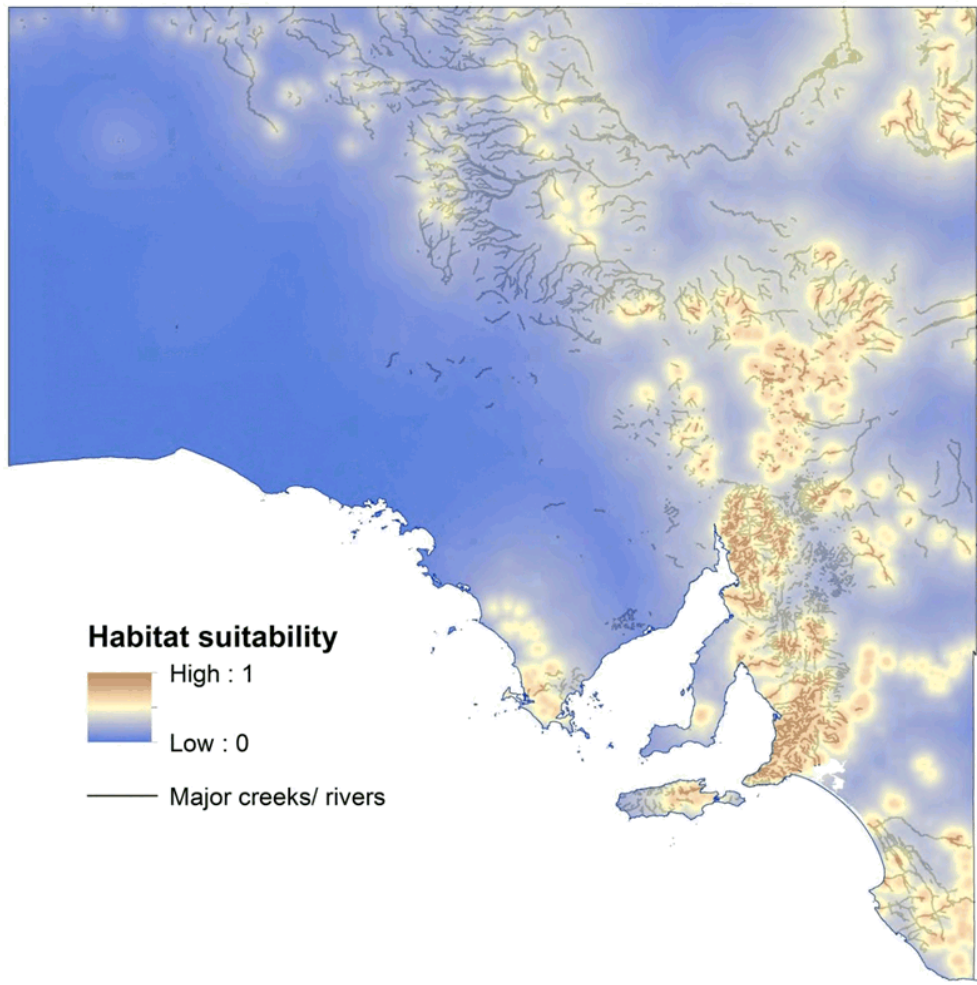


Photo panel 4 Little corella presence locations across South Australia (A) and for the Mouny Lofty Ranges (B) used to create habitat suitability models

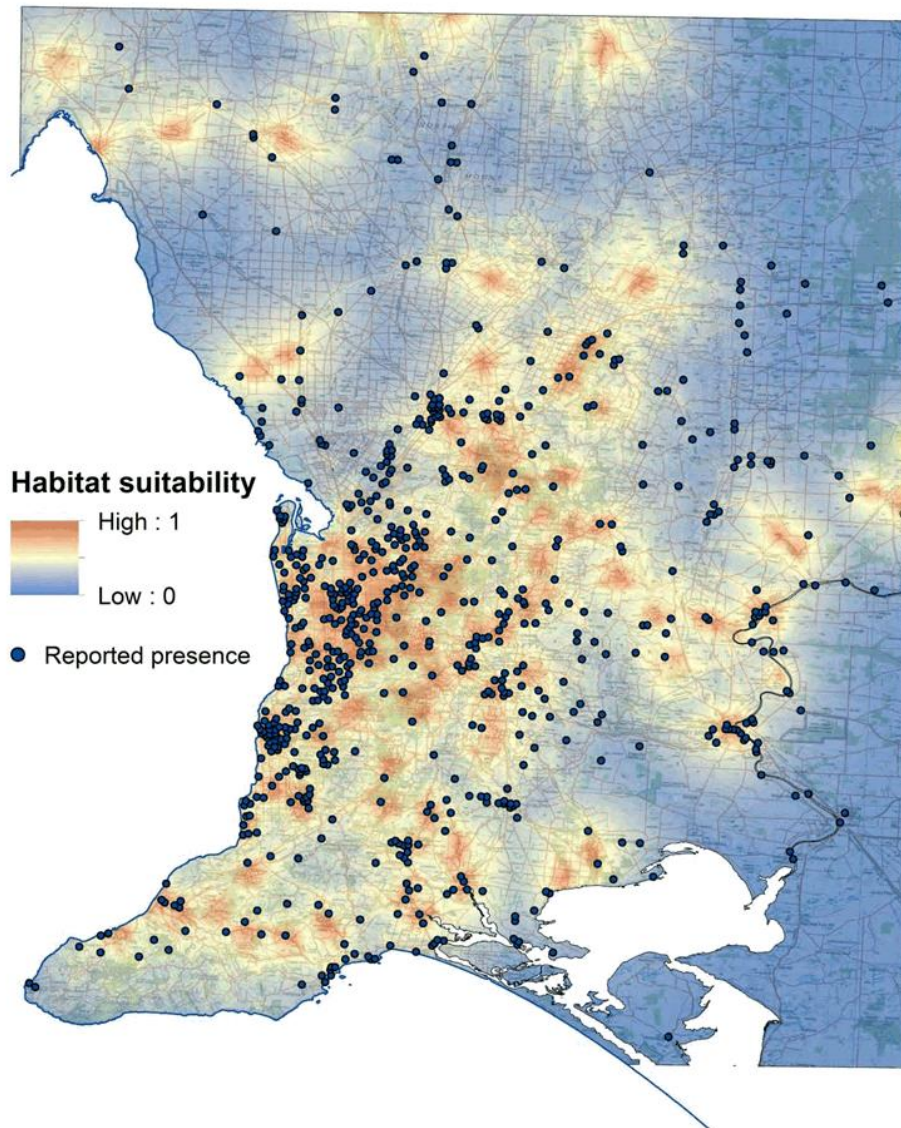


VARIABLE	RELATIVE IMPORTANCE
Distance to nearest <i>river red gum tree</i> <sup>u</sup>	49.1
Distance to nearest <i>irrigated green space</i>	20.1
Distance to nearest <i>major creek</i>	19.2
Distance to nearest <i>pine tree</i>	1.1

**Figure 13** Little corella habitat suitability model for South Australia, with the relative importance (%) of each habitat variable to the final model

<sup>u</sup> Note that “red gum” and “major creek” are highly correlated. This relationship can conflate the relative contribution rankings





VARIABLE	RELATIVE IMPORTANCE
Distance to nearest irrigated green space	59.8
Distance to nearest major creek	23.9
Distance to nearest river red gum tree	14.7
Distance to nearest pine tree	1.7

**Figure 14** Little corella habitat suitability model for the Mount Lofty Ranges, with the relative importance (%) of each habitat variable to the final model

### Analysis of land use and vegetation fragmentation

Landscape composition is likely to have a significant influence on the distribution of little corellas in South Australia. In separate analyses, we examined the influence of land use and native vegetation cover on little corellas. With regard to land use, we were interested not only in the pattern of land uses (i.e. the number, shape and size of patches), but also the relative influence of competing land uses on little corella occurrence. We are not aware of any similar analyses for little corellas. Because of computational complexity, land use was only considered for the Mount Lofty Ranges subregion.

#### Summary

- Irrespective of analysis type (i.e. pattern or proportion), **recreation, agricultural and residential land uses** were consistently the **best predictors** of little corella distribution; see Table 7
- Residential areas and agricultural environments are attractive to little corellas because of their diversity of land uses and habitats, as well as the abundance food and water resources
- Recreation areas (i.e. irrigated green spaces), such as ovals, golf courses, and caravan parks, also provide feeding resources
- Interestingly, both the land use and native vegetation cover analyses suggested that:
  - **Little corellas actively avoid bushland areas** (i.e. "Reserve" in Table 7)
  - Little corellas **favour highly fragmented patches of native vegetation** (e.g. vegetation along roads/rivers, surrounding ovals and in council parks and gardens; see Supplementary Information, S2)
- Because little corellas avoid large areas of native vegetation **increasing nativeness of existing parkland areas represents a constructive action to reduce site attractiveness** to little corellas
- In terms of landscape pattern, the probability of little corella presence increased as the number of patches of above land uses within a 1 km radius increased (Figure 17)
- More recreational land uses (i.e. irrigated green spaces), such as ovals, golf courses, and parks, equates to more potential feeding resources
- As the number of agricultural and/or residential properties within a 1 km radius increases, in general, so does the availability and diversity of these resources. Smaller agricultural holdings are commonly associated with lifestyles and hobby farms. These environments, in particular, provide opportunistic food and water resources for little corellas
- Interestingly, both the land use and native vegetation cover analyses suggested that little corellas actively avoid bushland areas and favour highly fragmented patches of native vegetation (i.e. vegetation along roads/rivers, surrounding ovals and in council parks and gardens). Therefore, increasing the nativeness of existing parkland areas represents a constructive action to reduce site attractiveness to little corellas



**Table 7** Average explanatory power of land use categories surrounding little corella sites  
 Average values are based on radii of 1, 3, 6, 9 and 12 km surrounding little corella sites

LAND USE TYPE	EXPLANATORY POWER (%)
Residential	9.9
Recreation	8.5
Agriculture, livestock, vacant	5.6
Industry	2.4
Commercial	1.4
Forestry, horticulture	0.3
Reserve	0.0

Annotations in the table:  
 - A bracket groups Residential (9.9%), Recreation (8.5%), and Agriculture, livestock, vacant (5.6%) with the text "Favoured by little corellas".  
 - An arrow points from the text "Little corellas avoid bushland" to the 0.0% value for the Reserve category.

### Site-specific characters

- Landscape-level habitat characters (distance to creek, river red gum or irrigated green space) and land use (recreational, residential, agricultural and bushland) will predispose different areas to little corella presence across the state, but site-specific characters are also influential. Site characters can **exasperate existing problems**, or **be manipulated to reduce attractiveness of problem sites** to little corellas in conjunction with other activities (i.e. integrated management)
- We looked for commonalities among 144 little corella sites surveyed during the project (individual sites listed in Appendix 5). Key site characters associated with little corella presence were: **extensive exotic lawn areas, access to water, open habitat** (i.e. low tree density, often including pine trees) **and very few shrubs**; see Table 8, Figure 6, Photo panel 5



**Table 8** Characteristics of 144 little corella sites surveyed during the project

CHARACTER	DESCRIPTION AND MEASURES
Irrigated lawn	<ul style="list-style-type: none"> <li>• <b>HIGH OCCURRENCE:</b> irrigated lawn occurred at 100% of sites</li> <li>• <b>HIGH COVER:</b> median score for lawn cover was the maximum of 5 (&gt; 75% cover)</li> <li>• <b>LOW NATIVENESS:</b> median score for grass nativeness was 1 (exclusively/almost exclusively exotic species)</li> </ul>
Shrubs	<ul style="list-style-type: none"> <li>• <b>LOW COVER:</b> median score for shrub cover: 0</li> <li>• <b>LOW NATIVENESS:</b> median score for shrub nativeness: 0</li> </ul>
Trees	<ul style="list-style-type: none"> <li>• <b>LOW COVER:</b> median score for (short) trees &lt; 10 m was 2 (&lt; 5% cover)</li> <li>• <b>MEDIUM COVER:</b> median score for (tall) trees &gt; 10 m was 3 (5-25% cover)</li> <li>• <b>MEDIUM NATIVENESS:</b> median score for nativeness in short and tall trees was 3 (mixed exotics and natives)</li> <li>• <b>HIGH OCCURRENCE (PINES):</b> pine trees (<i>Pinus</i> spp.) were present at 63% of sites</li> <li>• <b>MEDIUM COVER (PINES):</b> median score for <i>Pinus</i> spp. was 3: 5-25% cover</li> <li>• <b>HIGH DAMAGE:</b> damage to roosting trees such as Norfolk Island pines<sup>y</sup> and native tree species was common. they prune these trees to increase visibility and perceptions of safety, and to maintain good beak condition</li> </ul>
Water	<ul style="list-style-type: none"> <li>• <b>MEDIUM WATER ACCESS:</b> an obvious<sup>w</sup> water resource occurred at 50% of sites; a permanent water resource occurred at 39% of sites</li> <li>• <b>LOW BARRIERS:</b> fewer than 5% of sites with water had a barrier to the resources (vegetative barrier or another barrier such as dam lining)</li> </ul>



**Photo 6** Little corellas (indicated by red arrow) roosting in tall trees at the Tailem Bend Ferry Terminal

This site has a permanent water resource, irrigated green lawn, tall sparse trees and few shrubs – perfect habitat for little corellas

<sup>y</sup> *Araucaria heterophylla*; Norfolk Island pines have a single trunk, and simple symmetrical branching such that damage to these trees has great visual impact (loss of symmetry)

<sup>w</sup> Water resources were only assessed at the immediate site, obscure adjacent resources may have been missed



Ovals with irrigated grass and Aleppo pines are typical little corella sites



**Photo panel 5** Town ovals with irrigated grass and Aleppo pines were typical sites for little corella activity

A) Two Wells; B) Strathalbyn; C) Cockatoo Valley/Sandy Creek; D) Goolwa; E) Milang; F) Tanunda; G) Wilmington oval



Access to food resources at problem sites

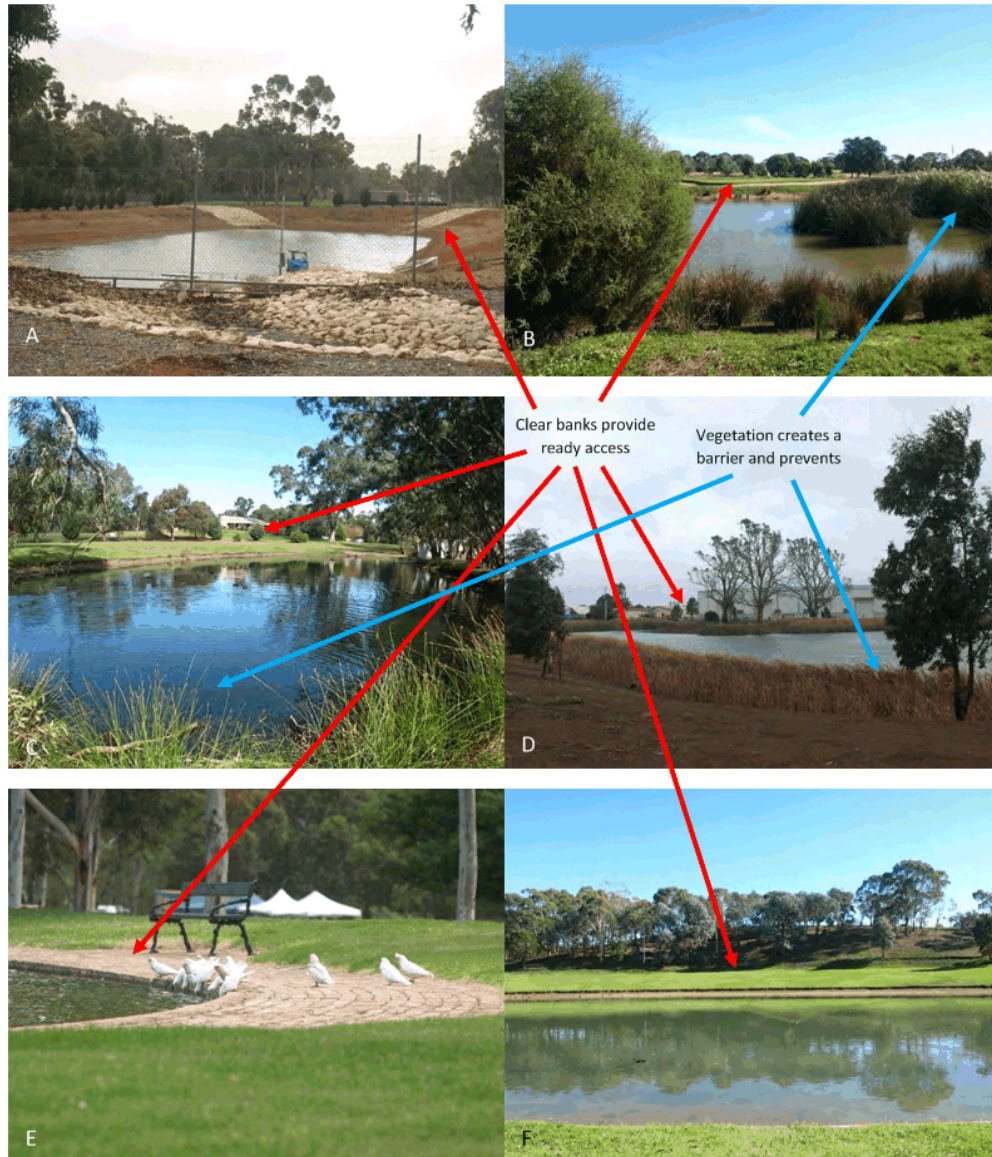


**Photo panel 6** Food resources accessed by little corellas

*A) seeds and bulbs in grass and lawn areas; B) pine nuts, especially from Aleppo pines; C) flower nectar; D) fruits and seeds in olive groves, and other nuts such as almonds; E) spilt grain in farm paddocks and paddock stubble; F) ideal little corella habitat is created by an Aleppo pine windbreak with adjacent paddocks and permanent water accessed via the stock trough (photo F: D. Wingrove)*



Access to water resources at problem sites



**Photo panel 7** Water resources readily accessed by little corellas

*A) a school dam in Gawler; B) wetlands at an Adelaide golf courses; C) a dam at a golf course in Mount Barker; D) a large water body in the Roseworthy industrial area; E) a lake at Bonython Park in Adelaide; F) a lake at Keith Stephenson Park in Mount Barker. Clear open banks allow ready access to the resource (red arrows), whereas vegetated areas can create a barrier with minimal effect on site amenity (blue arrows)*

Access to water resources at problem sites, continued



**Photo panel 8** Water resources readily accessed by little corellas

A) on the banks of the Onkaparinga River; B) the Murray River; C) stock troughs; D) birds drank from this swimming pool in Strathalbyn; E) small puddles on roadsides were used (little and long-billed corellas together); F) small sticks and snags were used to access water at a Strathalbyn park, but it was not the preferred access point



## Recommendations for management actions

### Integrated management

- Integrated management is vital for managing little corella problem sites. Integrated management should occur at different levels and time frames; while immediate and site-specific actions are needed now, land managers also need to **consider future trends and emerging problems** (e.g. new problem sites or new problem species)
- With unlimited access to resources and a reduction in predators near towns, the population growth of little corellas will continue to increase. Control actions then become a **permanent fixture of management regimes**, and **new problems** will continue to emerge. An integrated approach seeks to reduce problem sites and, in the long-term, reduce the need for management of little corellas (managing the sites, rather than the birds)
- It is important that no action should occur in isolation, but as part of a **cohesive plan**; if little corellas are excluded from some areas, then alternate suitable refuge areas will assist in keeping little corellas away from problem sites. These "[sacrificial areas](#)" need to be incorporated into the strategy and good communication among the community is also necessary so that control activities are not undermined or confused
- Managers must **coordinate and target actions at identified problem sites** to make those sites less attractive to little corellas. By **targeting interventions at problem sites** managers avoid spreading resources thinly across a large area with little impact.
- Creating **barriers to resources** is vital and an effective means for reducing problems at targeted sites. Habitat modification (increasing shrubs) and modifying water troughs received good public support compared to some other measures (e.g. lethal population controls or noise deterrents)
- **Increasing "nativeness" of sites** affected by little corellas is key to alleviating little corella pressure, enhancing local biodiversity, and diminishing future threats of over-abundant urban-adapting species thriving in these areas (e.g. Australian white ibis, rainbow lorikeets, noisy minors)
- Irrigated green areas are important for recreation, and modifications need to be meaningful and planned, as well as **sensitive to community needs**
- Enacting integrated management will require **coordination and collaboration within councils and among other agencies and organisations**. For example, within a council it is necessary to have planners and park/landscape managers involved in little corella management, as well as executive support. Council staff will need to liaise with other agencies and organisations to assist and support the integrated management. For example, local Natural Resources Management Boards, schools, golf courses, caravan parks, and other members of the community

## 1. Creating barriers to roosting and feeding resources

Site managers need to differentiate between problem and non-problem sites and tailor any management strategies appropriately:

*Non-problem sites:*

- Identify suitable areas where little corellas are not problematic “non-problem sites”, and designate these areas as “sacrificial” areas where little corellas will not be disturbed

*Problem sites:*

- **Identify and engage with all stakeholder groups associated with the problem site**, including the local Natural Resources Management Board and local community groups who use the park
- **Identify feeding and roosting resources associated with a problem site**, and **list priority trees** for protection at that site (e.g. special heritage trees, memorial trees and trees at risk from pruning/defoliation by little corellas)
- **Develop an integrated action plan** to disrupt how little corella flocks use the problem site; the plan should include:
  - Revegetation activities to **add screening vegetation**, such as an understory shrub layer, to reduce site attractiveness to little corellas (visual screens decrease the openness of habitat and reduce little corella perceptions of safety – remove a clear view of the surrounding area)
    - Photo panel 9 depicts a park where little corellas are not problematic; it includes spaces for **recreation set amongst islands of vegetation** with well-developed understory, shrub-layers and trees
    - Photo 7 depicts a non-problem site (no management problems exist); little corellas feed on grass areas, but they do not roost there. A native woodland patch that reduces little corella perceptions of safety and limited water access decreases the overall site attractiveness to little corellas for roosting
  - Revegetation activities in an area, including street tree selection, should focus on locally native species. **A council-wide approach to native plant selection** should be adopted
    - **Local native plants are optimal** because native flora and fauna are adapted for local conditions, whereas introduced plant species provide new resources and greater risk of creating new problems (adaptive species learn to exploit new resources and have little competition, leading to increased abundance)
    - Note that if local native plants are not feasible/suitable they can be substituted for **non-native alternatives that mimic the structure and character** (e.g. ornamental hedges, shrubs and/or garden beds) of native vegetation to deter little corellas
  - Increased nativeness includes establishment of a **complex understorey** (grasses, shrubs)
    - Native shrubs reduce the openness of problem sites (vantage decreases) and their attractiveness to little corellas will also decrease
    - Complex understories also enhance biodiversity; the loss of bird biodiversity was of particular concern to the community. Noisy minors are also associated

- with open urban parks (sparse trees over irrigated lawn). Once established they dominate and exclude small birds, and they are listed as a [national threatening process](#). Grasses, shrubs and complex tree layers will deter noisy minors and little corellas, and will prevent their attraction to the site initially (i.e. low risk, preventative management)
- Tree cover in the Adelaide metropolitan area is considered to be artificially high because the urban forest has replaced large areas of **low woodlands and shrublands** ([Smith, 2010](#)). Low-statured trees and shrubs help create complex layers for wildlife and should be incorporated into revegetation activities
  - Although falconry as a control technique is prohibitively expensive and any effects produced are temporary, **predatory birds** do cause unease within little corella flocks and these raptors may be encouraged to problem sites through the provision of low-cost specialised roosting/[nesting platforms and hunting perches](#)
    - International resources and tools are available for supplementing raptor habitat (e.g. [building nest boxes for falcons](#)), but activities in South Australia will need to target the requirements of local raptor species and should be developed with advice from local bird experts (research, trials and monitoring maybe required)
  - **Irrigated grass areas** (including invasive environmental weeds such as kikuyu) should be reduced where possible
    - Schools and councils pay large sums to irrigate turf areas, native lawn alternatives should be used in suitable areas to **replace lawn and decrease water use**
    - Substituting turf for appropriate native perennial ground covers will remove food resources for little corellas, and can alleviate public fears about increased risks of snakes in tall vegetation adjacent to paths
  - **Protect important trees at risk** using an electric track system (such as BirdJolt) to stop the use and defoliation of significant trees by little corellas:
    - These systems give a **non-lethal** electric fright to birds that land on it
    - The system can be moved among affected trees and in response to observations and monitoring activities
    - Displaced birds should be monitored to ensure that new roosting areas are suitable (and that the problem is not transferred elsewhere)
    - Temporary netting is also effective for excluding little corellas from trees at risk, including for medium-sized trees (e.g. Morton Bay figs; [Hodgens, 2015](#))
  - **For non-tree roosts at problem sites**, such as fences and buildings at the Hewett Primary School and the Strathalbyn Swimming Pool, the electric track system could also be used to deter little corellas from roosting (Photo panel 10)
    - Screening vegetation or other visual barriers (e.g. canvas screens) should also be used to deter birds from these roosts, note that little corellas will exploit areas if small gaps occur in the screens

- **Remove declared weeds, particularly Aleppo pines**, and replace with locally native trees. Aleppo pines were common at little corella problem sites (see Photo panel 11) where they provide rich food and roosting resources
  - The weed potential of *Pinus* species, especially Aleppo pines (*P. halepensis*) in the Mount Lofty Ranges, provides sufficient justification to consider their removal from public and private lands in South Australia. Their role in exacerbating impact of little corellas at problem sites provides even a greater impetus
  - The negative affect of pine removal on yellow-tailed black cockatoos<sup>x</sup> needs to be considered carefully and incorporated into a planned replacement
  - Locally native cone-bearing plants should be included when replacing Aleppo pines
  - Contact the [Natural Resources Management Board](#) and other identified stakeholders (e.g. Bird groups) to coordinate their removal and to plan revegetation programs
- Use dense planting of **short statured trees adjacent to agricultural crops** and other open areas to reduce site attractiveness and to protect crops from little corella foraging activities ([Jarman, 1986](#))
  - Visibility at these sites may also be reduced by synthetic screens (hessian, canvas, plastic). The low cost of these materials mean that they can be used to experiment with screen configuration
  - Manage the removal and replacement of Aleppo pines as paddock windbreaks (if not before, then particularly as these trees reach senescence)
- **Use traditional management and control activities** to deter and disrupt little corella flocks in trees at problem sites
  - Non-lethal techniques (such as noise and spotlighting) should be favoured as they are most accepted by the community (bearing in mind that some noise-producing devices can be problematic, particularly when their use is ongoing)
  - Non-lethal techniques can be more effective if reinforced by lethal deterrents. Lethal deterrents should only be used with appropriate permissions and safety considerations, and with careful consideration of community attitudes (see our section about [communication barriers](#), discussed as part of the Community Workshop outcomes) where we discuss how acceptance of lethal deterrents may be increased where lethal deterrents are used to increase the effectiveness of non-lethal measures, where the strategic approach is understood by the community, and where lethal deterrents are clearly differentiated from lethal controls)
  - Avoid trapping and gassing or falconry, which are ineffective (e.g. Temby 1999; also supported by workshop data and other data collected during this study – e.g. on the River Murray some people feed carp to encourage kites that then

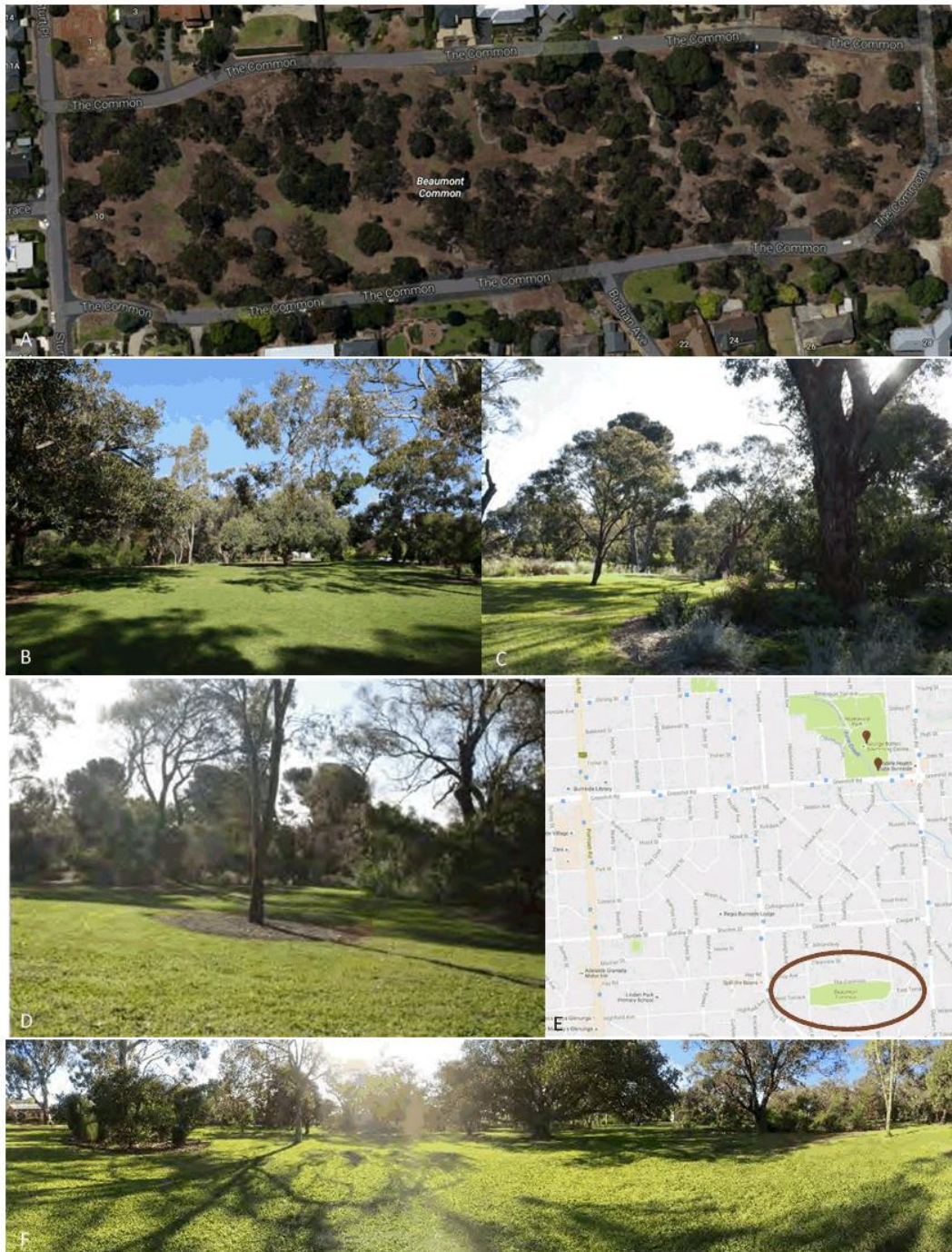
---

<sup>x</sup>*Calyptorhynchus funereus* (listed as Vulnerable in SA)

scare away the little corellas, but noticed little corellas returned when the kites leave)

- Coordinate with landholders to **reduce problems on private land**, and encourage communities to promote [urban biodiversity in private gardens](#) (collaborate with NRM groups on these activities), seek and/or promote beneficial collaborations with other groups and programs (e.g. [Paddock Tree Project](#) by Trees For Life)
- **Communicate with the public** about actions at problem sites; erect signs about management activities at problem sites
- Identify any **other factors that contribute** to the site being problematic. Specifically, adjacent watering areas
- Monitor and review





**Photo panel 9** *Beaumont Common: increasing site nativeness in urban areas also decreases site attractiveness to little corellas*

*Revegetation activities that include understory planting can create beautiful urban parks without compromising on a sense of openness and safety. While little corellas may still use the grassed areas, Beaumont Common was not a problem site*





**Photo 7** Enfield Memorial Park and Folland Park: a non-problem site

Managers of the Enfield Memorial Park reported that little corellas visit the site and feed on grass areas, but that no management problem exists at the site. Limited water access and decreased perceptions of safety for roosting there from a native woodland patch (3.2 hectares) likely reduces the attractiveness of this site to little corellas



**Photo panel 10** Non-tree roosts at problem sites

Problem sites: little corellas roosting on a fence at Hewett Primary School (A) and on steel beams at Strathalbyn Swimming Pool (B)



Aleppo pines should be removed from problem sites, where possible



**Photo panel 11** Aleppo pines (*Pinus halepensis*) were commonly found at little corella sites

A) the corner of Honeypot and South Road; B) Strathalbyn oval; C) Strathalbyn cemetery; D) Grange golf course; E) North Adelaide golf course; F) new Aleppo saplings at Royal golf course; G) Murray Bridge township; H) Aldinga township; I) Roseworthy university campus; J) windbreak at Old Noarlunga; K) windbreak at Melrose; L) Aleppo corridor at Aldinga; M) Two Wells oval

## 2. Creating barriers to water resources (lakes, dams, pools, ponds and rivers)

Site managers need to:

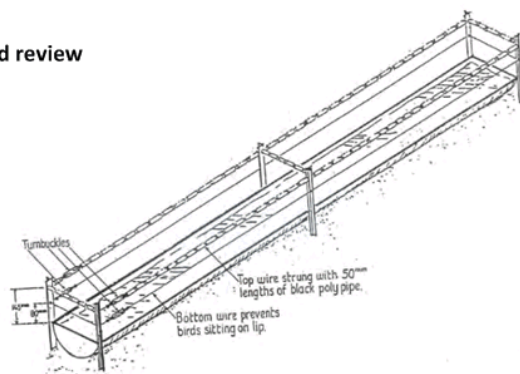
*Non-problem sites:*

- Do not disturb little corella access to water resources at non-problem sites

*Problem sites:*

- **Identify all stakeholder groups** associated with the problem site
- **Identify drinking/watering resources** associated with a problem site
- Develop an integrated action plan to **restrict access to water resources** at problem site; the plan should include:
  - For problem sites with built banks around the water bodies being used by little corellas, to **increase bank height** (or decrease water level) so the distance from bank to water level is greater than the body length of little corellas (i.e. at least 45 cm; see Photo panel 11, 12)
  - In the workshops some people were concerned that changes to bank levels would affect other birds negatively, but we observed common parkland bird species readily accessing water resources from raised banks; however, galahs are also likely to be negatively affected at problem sites. Generally, high public approval was received for this action **once it was explained**
  - Note that we do not propose the replacement of natural banks with built structures, but recommend the slight modification of existing structures at problem sites as an effective approach
  - When communicating this strategy, it is important to stress that water resources will not be removed, rather that little corella **access to the resource is being constrained**
  - If little corellas are observed using **tree snags in lakes or rivers** to land on and drink from at problem sites, then these structures should be pruned to below the water surface
  - Note that tree snags **should not be removed** (only trimmed below the water surface) because they are important aquatic habitat
  - For lakes and ponds with bare earth banks, a physical barrier to water resources should be created by **planting thick reed vegetation** around the edge
    - Note that vegetative barriers should be complete, small gaps may be exploited
  - If large open earth bank areas are required at problem sites, then other actions should be taken to reduce visibility (openness and clear view) and perceptions of safety near those areas. Adjacent dense tree plantings and screening shrub vegetation or material/synthetic screens to remove a clear line of sight when little corellas are drinking will decrease their perception of safety at the site, and make it a less attractive watering site

- Polyethylene **dam liners** may also provide an effective barrier at dam sites because they are reportedly difficult for little corellas to walk on
- **Swimming pool covers** should be used in problem areas such as at Strathalbyn when the pool is closed (see Photo panel 8D), and used in conjunction with other deterrents
- **Stock trough modifications** can be very effective when targeted correctly; PVC pipe on wire around the rim of a trough creates a spinning edge as little corellas try to land and drink. Water levels could also be adjusted so that distance from edge to water level exceeds little corella body length, i.e. > 45 cm (see Photo 8)
  - Stock troughs near problem sites should be targeted first
  - Trough modifications will be more effective in some areas than in others, in dry areas compared to river sites for example
- **Landscape-level considerations:** little corella problem sites may have an obvious watering point or the resource may be at an adjacent site, or not known
  - See examples of problem sites relative to water resources for Bonython Park (Photo panel 13), University of Adelaide Roseworthy Campus (Photo panel 14A) and Snowtown (Photo panel 14 B-C)
  - For problem sites associated with large rivers (e.g. Mannum, Tailm Bend, Murray Bridge, Loxton, Berri etc.), management activities should focus on problem sites and constraining access to water at those sites via red plantings and screening vegetation in conjunction with other management activities
- **Access to river water at problem sites** should also be reduced. Problematic sites along rivers have typical little corella habitat (i.e. open areas of exotic irrigated grass, and ready access to water and roosts). Water access should be reduced by reedy vegetation barriers and increased site nativeness (including native shrubs) to decrease perceived safety at the site for drinking (and for feeding on grass areas); see Photo panel 15
- **Monitor and review**



**Photo 8** Trough modification to prevent access by little corellas

Image from [St John \(1994\)](#)





**Photo panel 12** Limit little corella access to water resources by increasing bank height

A) we watched little corellas repeatedly try to drink water from this high bank, but they were unsuccessful; B) ducks and water fowl used the area and accessed the water from this bank; C) increasing bank height along this levee would reduce water access to little corellas, although snags in the water were also used, they were not preferred and could also be removed as part of an integrated plan; D) a favoured little corella watering resource is within reach at Bonython Park, Adelaide; raising the bank or lowering the water level will exclude little corellas

Target water resources at landscape level



**Photo panel 13** Bonython Park: an emerging resident population of little corellas

A) West Terrace ovals near Adelaide High School, and the water pond at Bonython Park (red arrow); B) little corella sites identified by the survey; C) defoliation of a roost tree adjacent to the water resource; D) little corellas drinking water at Bonython Park

Little corella sites were reported throughout the West Parklands around the Adelaide High School ovals and Bonython Park, Adelaide City. Little corellas feed on the grassed areas of these sites, and move to Bonython Park to drink (B, D). Increasing bank height at Bonython would remove this resource and would influence overall site attractiveness. An integrated plan would also include revegetation activities to increase understory areas, removal of Aleppo pines, and communication and community education components.



Target water resources at landscape level



**Photo panel 14** Target little corella water resources associated with problem sites

A) At University of Adelaide Roseworthy Campus a water treatment pond with black plastic lining excludes little corellas, but other dams with bare banks provide ready access, and stock troughs and Aleppo pines are also abundant at the site; B-C) at Snowtown water resources of town dams are readily available to little corellas (C) and Aleppo pines are abundant (B)



**Photo panel 15** Little corella access to water at river sites

*Open habitat with good vantage (high perceptions of safety for little corellas) and exotic grass banks with no shrubs and adjacent roosting resources at: A) Riverside Drive, adjacent to Berri Riverside Caravan Park; B) Old Noarlunga; C) Mannum Ferry Terminal; D) Many Ann Reserve, Mannum; E) Sturt Reserve, Murray Bridge; F) Long Island Boat Marina, Murray Bridge*



### 3. Identifying and creating sacrificial areas

#### Sacrificial sites are:

- Identified, suitable areas deliberately set aside for little corella habitat
- Sites where no deterrence or control activities occur
- Sites that little corellas are encouraged to move into and away from problem sites
- Sites that provide suitable feeding, watering, and roosting resources
- Sites that little corellas should eventually become accustomed to and return to habitually

Note that the term “sacrificial” in this context does not imply that the site is of no value, but that the area is set aside for this purpose, to offset damage to and concern about specific sites elsewhere

#### A recipe for a sacrificial site

- Is the site near or adjacent to a major creek or other **suitable reliable water** source?
- Does it have **tall scattered gum trees** (trees must not be too dense)?
- Is the **habitat open with good visibility**? (Can little corellas see threats coming from all directions?)
- Is the grass irrigated? If so, does little corella presence conflict with use/users?
- Is the **grass slashed** regularly? (Little corellas feel unsafe in long grass because visibility is reduced)
- Do the **surrounding landholders** want (or tolerate) the little corellas there?
- Are **supplementary** feeding and watering provisions required during roost establishment?
  - Water provision (e.g. a trough) may be sufficient in the long-term
- Are the birds **free of harassment** at this site and on surrounding properties (e.g. from shooting)?
  - Birds should not be harassed when commuting to and from this site

#### Broader considerations for sacrificial sites

- Previously when little corellas have been displaced from their usual roosting (problematic) site, **where did they go**?
  - Do they always go to the same location?
  - Is this location suitable as a sacrificial site, or is it a “no go” location for the community?



- Is it better that they stay where they are?
- Local councils may need to experiment with the flock by deliberately displacing them to determine **their behaviour and site preferences**
- Little corellas may in part seek out townships for **reasons of safety**, including:
  - A general absence of predators (e.g. eagles); and/or to
  - Escape hostility in the surrounding landscape (e.g. shooting)
- Councils must cooperate to ensure that they don't play "**aerial ping-pong**" with little corella flocks
- Councils must **monitor and review** their sacrificial site strategies

An important consideration for all sacrificial areas is **what actions are co-occurring at problem sites** to make the sacrificial area effective as a management tool. Isolated management tools won't work. Little corellas need to be discouraged from problematic sites and, simultaneously, encouraged to sacrificial sites.

## Little corella management tool – Master model and management scenarios

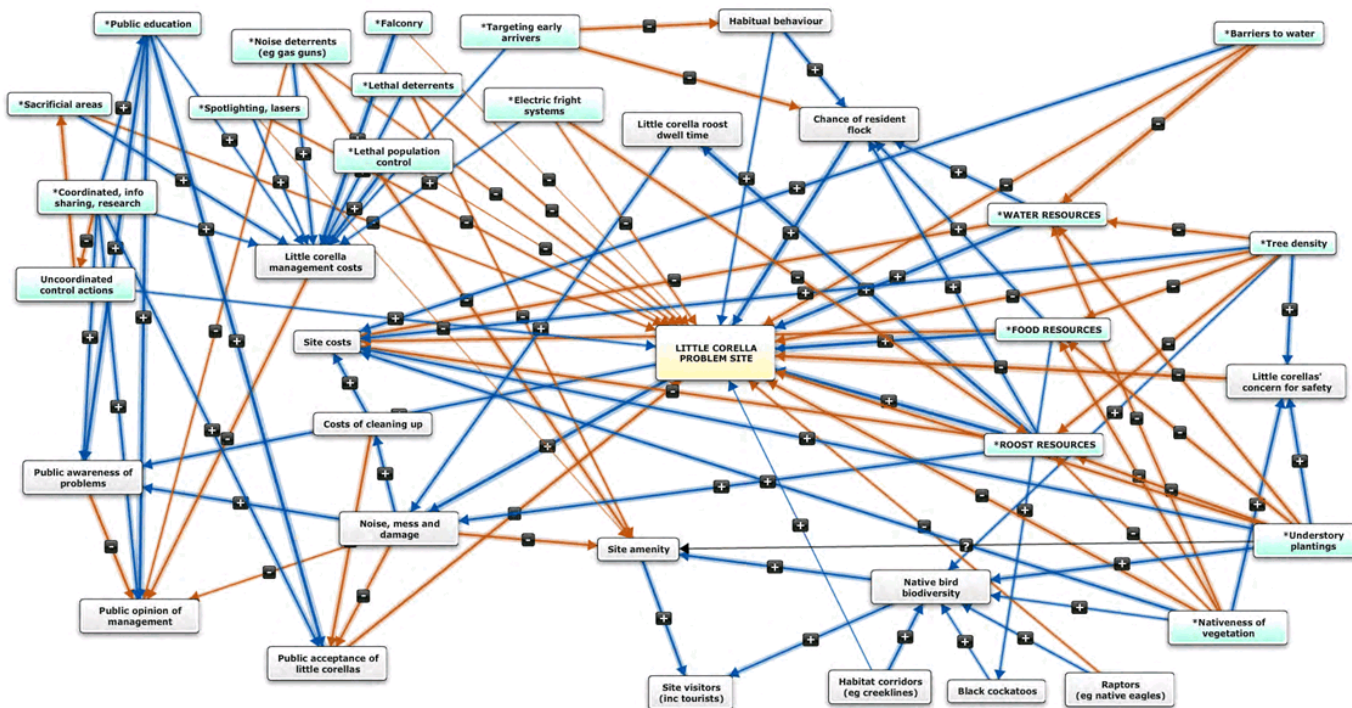


Figure 15

The master model created during the Little Corellas project

Table 9 Description and influence of mental model components

MODEL COMPONENT	COMPONENT DESCRIPTION AND INFLUENCE
<b>LITTLE CORELLA PROBLEM SITE</b>	Identified, specific locations where little corella presence is problematic to some members of the community
<i>Water resources</i>	Typically, <i>problem sites</i> and <i>resident flocks</i> have water access: rivers, creeks, wetlands (natural and reconstructed), effluent ponds, dams, and stock troughs. Water resources decrease as <i>nativeness of vegetation</i> , <i>tree density</i> and <i>understorey plantings</i> increase (visual barriers decrease little corella perceptions of safety)
<i>Barriers to water</i>	Physical barriers can reduce access to water, including stock trough modifications, dam lining, reeds at water edge, increased bank height, and other screens
<i>Food resources</i>	Typically, <i>problem sites</i> have food access including: irrigated grass, agricultural spillage, crops, exotic pines and open ground. Food resources decrease as <i>nativeness of vegetation</i> , <i>tree density</i> and <i>understorey plantings</i> increase
<i>Roost resources</i>	Typically <i>problem sites</i> are roosting areas, resources include low density tall trees in open habitat. <i>Roost resources</i> decrease as <i>nativeness of vegetation</i> , <i>tree density</i> and <i>understorey plantings</i> increase and <i>bird fright systems</i> increase. <i>Roost resources</i> also increase <i>roost dwell time</i> and <i>public experience of noise, mess and damage</i>
<b>MANAGEMENT ACTIONS</b>	
<i>Management costs</i>	All control activities (indicated by asterisk * in the model) incur a cost; cost vary among activities, e.g. <i>lethal population control</i> is more expensive than <i>spotlighting</i>
<i>Targeting early arrivers</i>	Control activities that <i>target early arriving</i> little corellas (ahead of the main flock) will be more effective than actions delayed until the flock resides at the problem site. By <i>targeting early arrivers</i> , managers aim to reduce the <i>chance of resident flock</i> and alter <i>habitual behaviour</i> of flocks from returning to that roost in the future
<i>Habitual behaviour</i>	Little corellas flock to sites habitually; <i>targeting early arrivers</i> may deter main flocks from <i>problem site</i> . <i>Resident flocks</i> increase with habitual use of problem sites
<i>Chance of resident flock</i>	<i>Resident flocks</i> are small groups of little corellas that reside year-round at <i>problem sites</i> instead of dispersing for several months in the cool periods. These flocks are increasing in some areas, and resident birds increase incidences of <i>problem sites</i> when the main flock returns to join them there. Reliable and freely-available <i>water</i> , <i>food</i> and <i>roost resources</i> increases the <i>chance of resident flock</i>
<ul style="list-style-type: none"> <li>– <i>Noise deterrents</i></li> <li>– <i>Lethal deterrents</i></li> <li>– <i>Lethal population control</i></li> <li>– <i>Spotlighting/lasers</i></li> <li>– <i>Electric fright system</i></li> <li>– <i>Falconry</i></li> <li>– <i>Sacrificial areas</i></li> </ul>	<p>These control measures are all linked to <i>management costs</i> and to reducing <i>little corella sites</i>; the weighting of their cost and influence varies among techniques. For example, <i>falconry</i> has high management costs and little negative influence on <i>problem sites</i>, <i>lethal deterrents</i> have a lower relative cost and greater affect in conjunction with other actions (strategic effort)</p> <p>From our survey and workshops we found that <i>noise deterrents</i>, <i>lethal deterrents</i> and <i>spotlighting</i> also had various levels of negative influence on <i>site amenity</i></p>
<i>Uncoordinated control actions</i>	These activities, including non-strategic shooting nearby, undermine coordinated actions and may increase <i>problem sites</i> . <i>Uncoordinated actions</i> also decrease the effectiveness of <i>sacrificial sites</i> as a management tool
<i>Information sharing and research, process formalised</i>	A cohesive approach enhances effectiveness of strategic tools, such as <i>sacrificial sites</i> , and decreases problem sites. It also increases <i>public education</i> , <i>public awareness of issues</i> , <i>public opinion of management actions</i> , and <i>public acceptance of little corellas</i>
<i>Public education</i>	Education includes <i>information sharing</i> ; it enhances <i>public awareness of problems</i> , <i>public acceptance of little corellas</i> and <i>public opinion of management actions</i>

MODEL COMPONENT	COMPONENT DESCRIPTION AND INFLUENCE
<b>INCREASING SITE NATIVENESS</b>	
<i>Nativeness of vegetation</i>	Revegetation programs, restoring sites with native plants, decreases <i>problem sites</i>
<i>Tree density</i>	Increasing <i>tree density</i> tends to reduce <i>roosting resources</i> for little corellas, because they like tall sparse trees in open landscapes for good visibility (perception of safety)
<i>Understorey plantings</i>	Revegetation programs, restoring and amending sites to <i>enhance understorey vegetation</i> (especially shrubs) with local native plants, reduces <i>problem sites</i>
<i>Bird biodiversity</i>	The range of bird species present at the problem site; we found no evidence that little corellas decrease <i>bird biodiversity</i> at <i>problem sites</i> (often sites are in townships with already reduced bird biodiversity). However, increasing <i>site nativeness</i> and improving <i>understorey vegetation</i> will benefit <i>bird biodiversity</i> at managed sites
<i>Black cockatoos</i>	These birds enhance overall <i>bird biodiversity</i> , and share some <i>food resources</i> with little corellas (e.g. pine nuts); therefore, if <i>food resources</i> for little corellas are reduced then <i>black cockatoos</i> may also be affected (the model will flag this impact and it needs to be considered carefully as some black cockatoos are endangered)
<i>Little corellas' concern for safety</i>	A clear field of view provided by open habitat increases little corella perceptions of safety and their association with a particular site. Increasing the <i>nativeness of vegetation</i> , <i>tree density</i> and <i>understorey plantings</i> will decrease site vantage and <i>problem sites</i> . <i>Raptors</i> also decrease perceptions of safety
<i>Habitat corridors</i>	These areas include creek lines, which provide favourable habitat ( <i>food, water roost resources</i> ) for little corellas and increase <i>problem sites</i>
<b>OTHER SITE FACTORS</b>	
<i>Site amenity</i>	Amenity at the <i>problem site</i> ; <i>site amenity</i> will decrease at <i>problem sites</i> ; noise controls may also decrease amenity, but reducing the problem will enhance amenity
<i>Site visitors</i>	Visitors are linked to <i>site amenity</i> , including tourists; site visitation will decrease as litter corella site problems increase
<i>Little corella roost dwell time</i>	The time spent by little corellas in tree roosts at problem sites; <i>roost resources</i> will increase <i>dwell time</i> and the more time that little corellas spend there the more opportunity for the <i>public to experience noise, mess and damage</i> to trees by the birds
<b>PUBLIC EXPERIENCE AND OPINION OF LITTLE CORELLAS</b>	
<i>Public experience of noise, mess and damage</i>	Includes experience of damage to trees and infrastructure, and droppings and tree debris (mess). This component increases with increases in <i>problem sites</i> , and decreases with their reduction
<i>Costs of cleaning up after little corellas</i>	These costs increase with <i>problem sites</i> , as <i>public experience of mess, noise and damage</i> increases
<i>Public acceptance of little corellas</i>	As <i>problem sites</i> decrease, <i>public acceptance</i> of little corellas increases. <i>Public acceptance</i> also decreases as experience of impacts and associated costs increases
<i>Public opinion of management actions</i>	Public opinion decreases with increases in <i>problem sites</i> , and <i>opinion of actions</i> increase as <i>problem sites</i> decline (i.e. the public want effective actions)
<i>Public awareness of problems</i>	<i>Problem sites</i> and their impacts will increase <i>public awareness</i> of management issues, so does <i>information sharing</i> and <i>public education</i>



The model (Figure 15, supporting information in Table 9) has been developed to increase understanding of the complex relationships among factors influencing little corella problem sites. The model is necessarily simplified in order to make it comprehensible. Further, the model is general and may need to be adapted to local conditions. Table 10 provides some working examples of different management scenarios:

- [Increasing sacrificial areas ONLY](#)
- [Increasing lethal population control ONLY](#)
- [Noise deterrents ONLY](#)
- [Noise deterrents and lethal deterrents](#)
- [Increase understory plantings \(shrub layer\) ONLY](#)
- [Public education ONLY](#)
- [Do nothing \(i.e. little corella problem sites increase\)](#)
- [Integrated management](#)

Three integrated management case studies are also provided:

1. [Aldinga](#)
2. [Hawker township](#)
3. [Hewett Primary School](#)

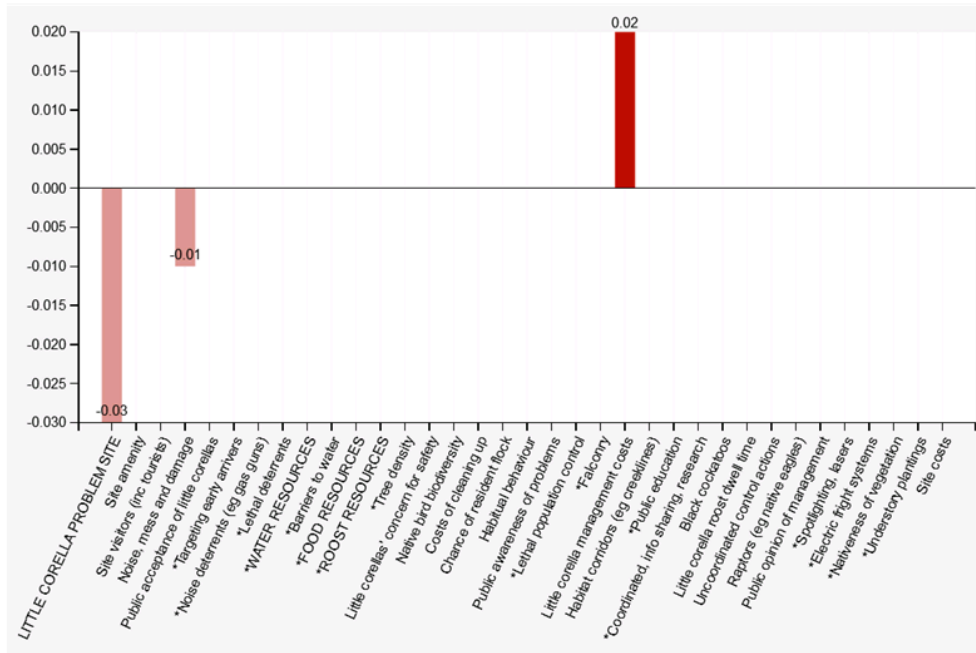




**Table 10** Outcomes of simple and integrated little corella management scenarios

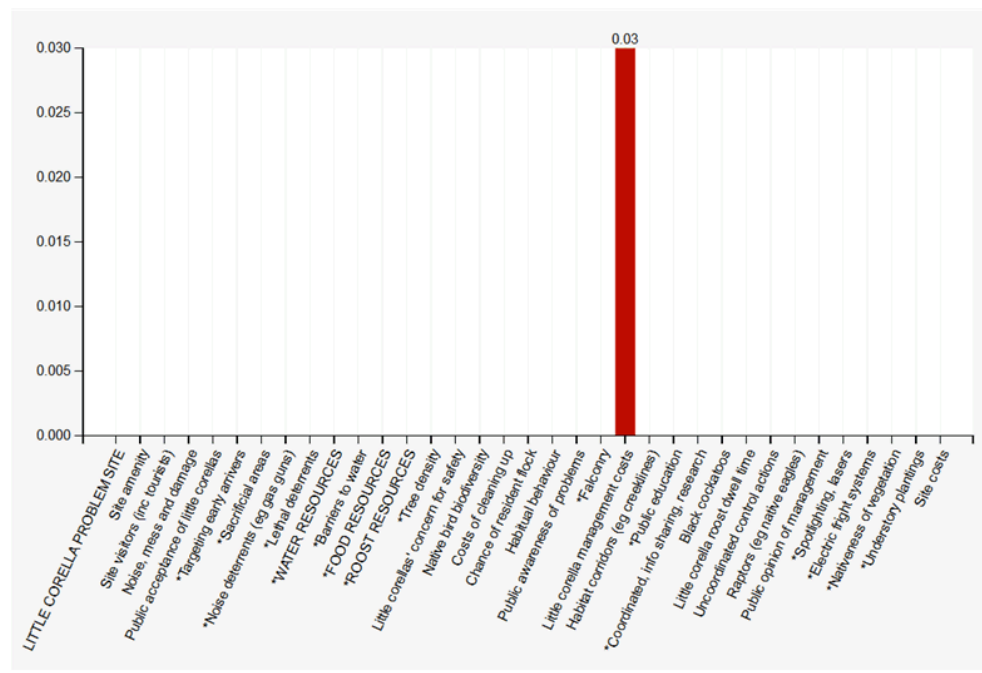
The Mental Model enables managers to see where trade-offs and benefits occur for different scenarios; Table 8 shows components that increased and decreased, and the level of effect

MANAGEMENT SCENARIO	INCREASES	DECREASES	OVERALL EFFECTIVENESS
<b>Increasing sacrificial areas ONLY</b>	<ul style="list-style-type: none"> <li>Management costs (0.02)</li> </ul>	<ul style="list-style-type: none"> <li>Little corella problem site (-0.03)</li> <li>Noise, mess and damage (-0.01)</li> </ul>	<b>POOR:</b> very little effect on decreasing little corella problem sites, and management costs accrued- <b>sacrificial areas only work with measures taken at problem sites to discourage little corellas</b>

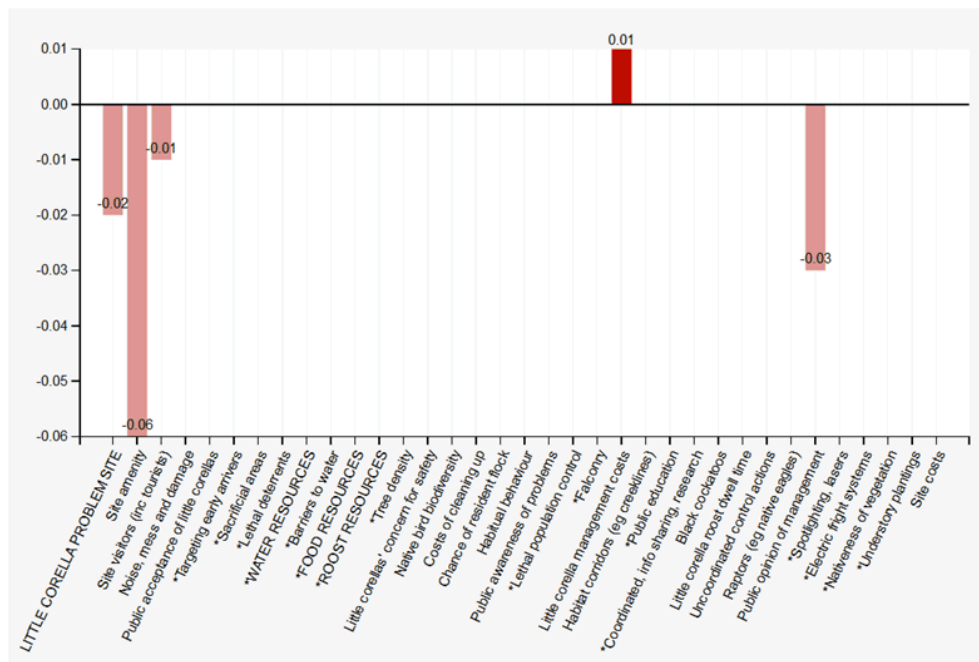


Item 2.4.2 - Attachment 1 - Little Corellas. Social and Ecological Research for Management in South Australia

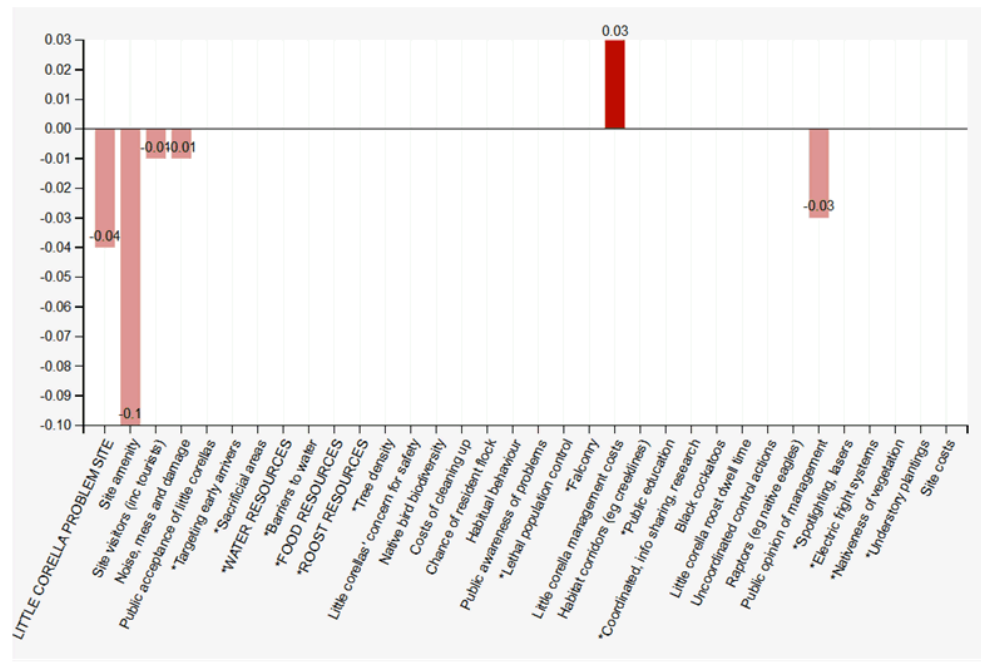
MANAGEMENT SCENARIO	INCREASES	DECREASES	OVERALL EFFECTIVENESS
Increasing lethal population control ONLY	<ul style="list-style-type: none"> <li>Management costs (0.03)</li> </ul>	NONE	<b>VERY POOR:</b> NO effect on decreasing little corella problem sites in the longer term as populations will recover and return; management costs accrued



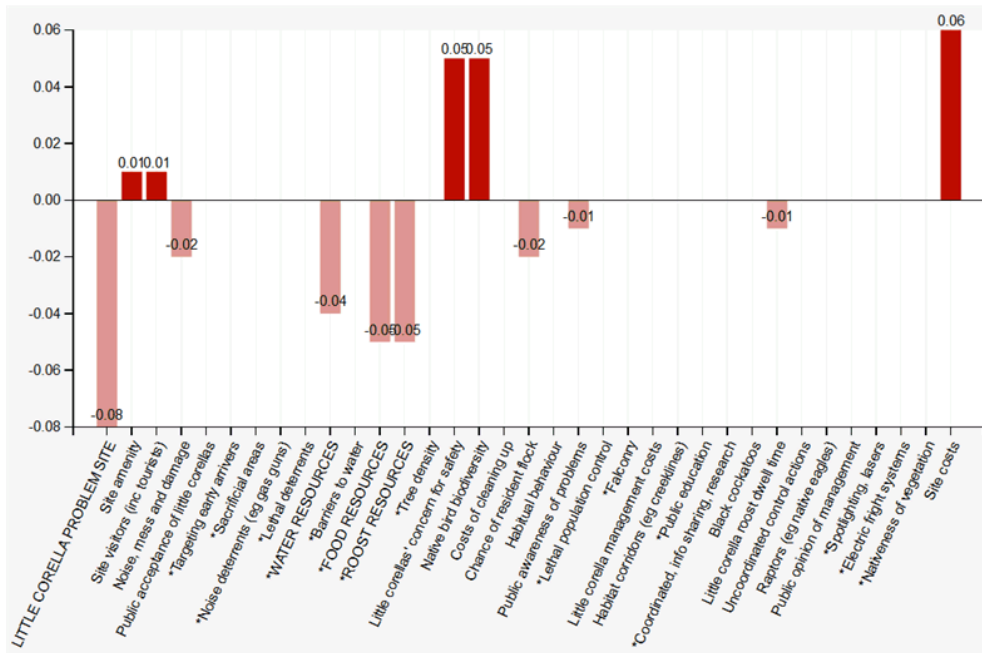
MANAGEMENT SCENARIO	INCREASES	DECREASES	OVERALL EFFECTIVENESS
<b>Noise deterrents ONLY</b>	<ul style="list-style-type: none"> <li>Management costs (0.01)</li> </ul>	<ul style="list-style-type: none"> <li>Little corella problem site (-0.02)</li> <li>Site amenity (-0.06)</li> <li>Public opinion of management actions (-0.03)</li> <li>Site visitors (-0.01)</li> </ul>	<p><b>POOR:</b> very little effect on decreasing little corella problem sites, site amenity is negatively affected, and management costs accrued</p> <p>However, noise deterrents may be effective as part of an integrated strategy</p>



MANAGEMENT SCENARIO	INCREASES	DECREASES	OVERALL EFFECTIVENESS
<b>Noise deterrents AND lethal deterrents</b>	<ul style="list-style-type: none"> <li>Management costs (0.03)</li> </ul>	<ul style="list-style-type: none"> <li>Little corella problem site (-0.04)</li> <li>Site amenity (-0.10)</li> <li>Public opinion of management (-0.03)</li> <li>Site visitors (-0.01)</li> <li>Noise, mess and damage (-0.01)</li> </ul>	<b>POOR-MODERATE:</b> using noise and lethal deterrents together enhances the effect of the control measures and decreases problem sites. Some perceived loss of amenity also occurs



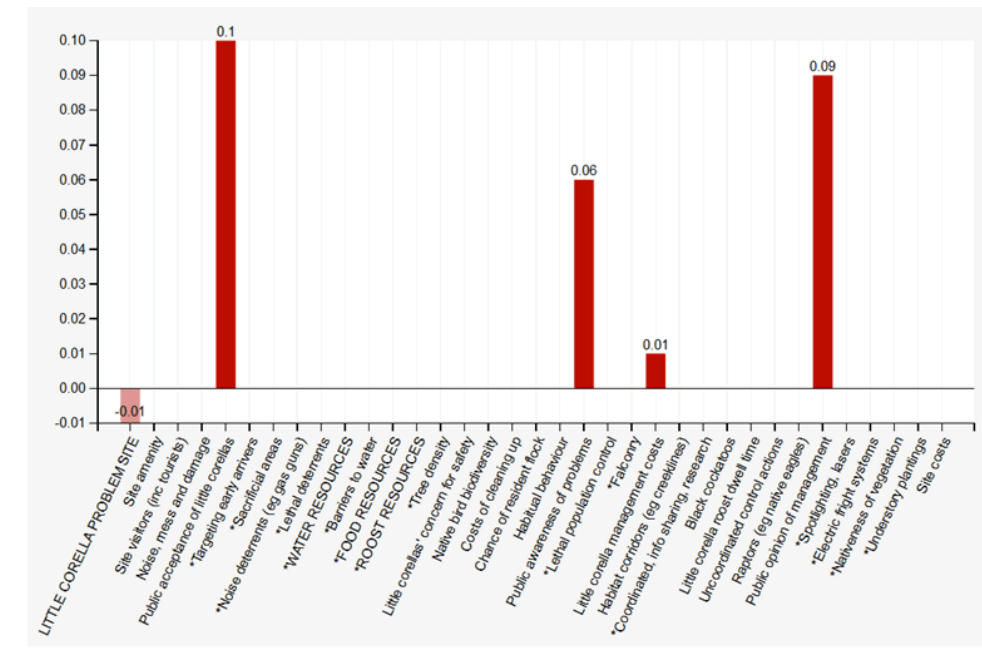
MANAGEMENT SCENARIO	INCREASES	DECREASES	OVERALL EFFECTIVENESS
<b>Increase understory plantings (shrub layer) ONLY</b>	<ul style="list-style-type: none"> <li>Site management costs (0.06)</li> <li>Bird biodiversity (0.05)</li> <li>Little corellas' concern for safety (0.05)</li> <li>Site visitors (0.01)</li> <li>Site amenity (0.01)</li> </ul>	<ul style="list-style-type: none"> <li>Little corella problem site (-0.08)</li> <li>Food resources (-0.05)</li> <li>Roost resources (-0.05)</li> <li>Water resources (-0.04)</li> <li>Chance of resident flock (-0.02)</li> <li>Public experience of noise, mess and damage (-0.02)</li> <li>Public awareness of problems (-0.01)</li> <li>Little corella roost dwell time (-0.01)</li> </ul>	<b>MODERATE:</b> small effect on decreasing little corella problem sites, broad positive influence otherwise, for comparable management costs to other isolated actions (sacrificial site, lethal population control or noise deterrents ONLY)



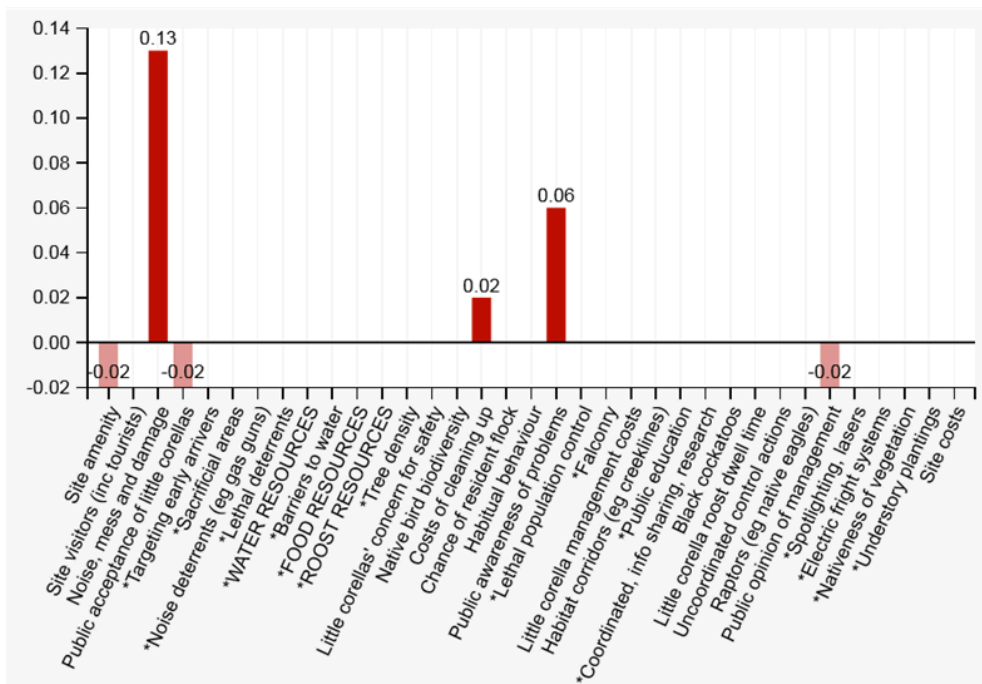


Item 2.4.2 - Attachment 1 - Little Corellas. Social and Ecological Research for Management in South Australia

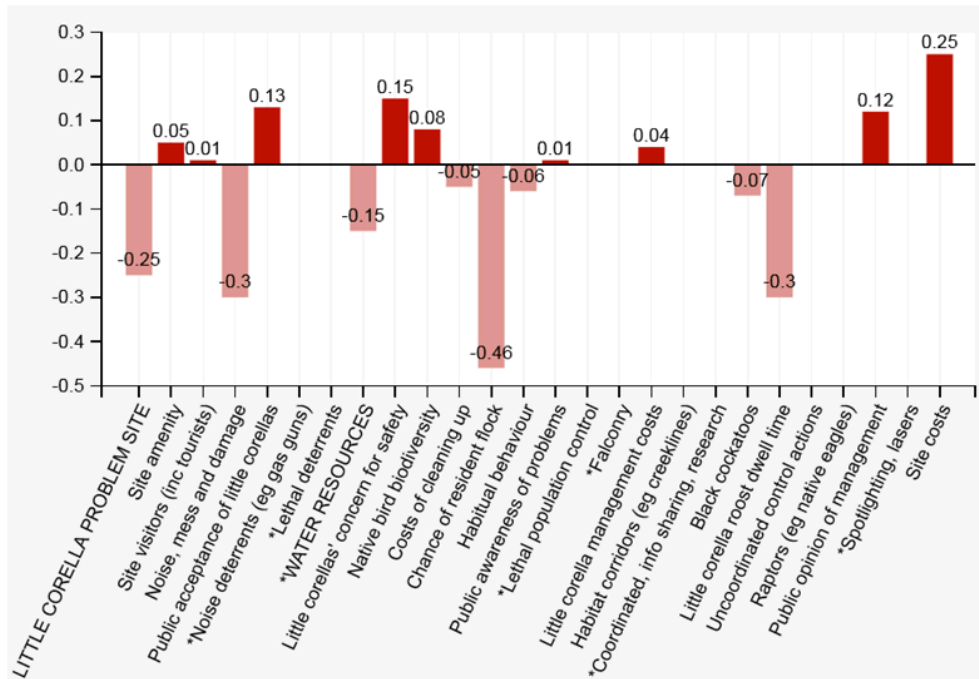
MANAGEMENT SCENARIO	INCREASES	DECREASES	OVERALL EFFECTIVENESS
<b>Public education ONLY</b>	<ul style="list-style-type: none"> <li>Public acceptance of little corellas (0.10)</li> <li>Public opinion of management (0.09)</li> <li>Public awareness of problem (0.06)</li> <li>Management costs (0.01)</li> </ul>	<ul style="list-style-type: none"> <li>Little corella problem site (-0.01)</li> </ul>	<b>POOR-MODERATE:</b> little effect on decreasing little corella problem sites; however for comparable costs to other single-action strategies, considerable public engagement (acceptance, awareness, opinion of actions) is achieved



MANAGEMENT SCENARIO	INCREASES	DECREASES	OVERALL EFFECTIVENESS
<p><b>Do nothing</b> (i.e. little corella problem sites increase)</p>	<ul style="list-style-type: none"> <li>Noise, mess and damage (0.13)</li> <li>Public awareness of problems (0.06)</li> <li>Costs of cleaning up (0.02)</li> </ul>	<ul style="list-style-type: none"> <li>Site amenity (-0.02)</li> <li>Public acceptance of little corellas (-0.02)</li> <li>Public opinion of management (-0.02)</li> </ul>	<p><b>VERY POOR:</b> no action will increase public experience of impacts, awareness of problems and costs of cleaning up; social costs include the loss of amenity, reduced acceptance of little corellas and low opinion of management actions</p>



MANAGEMENT SCENARIO	INCREASES	DECREASES	OVERALL EFFECTIVENESS
<p><b>Integrated management</b></p> <ul style="list-style-type: none"> <li>• Targeting early arrivers</li> <li>• Sacrificial areas</li> <li>• Barriers to water, food and roost resources</li> <li>• Increase tree density, nativeness of vegetation and understorey plantings</li> <li>• Electric fright system</li> <li>• Information sharing</li> </ul>	<ul style="list-style-type: none"> <li>• Site costs (0.25)</li> <li>• Little corellas' concern for safety (0.15)</li> <li>• Public acceptance of little corellas (0.13)</li> <li>• Public opinion of management (0.12)</li> <li>• Native bird biodiversity (0.08)</li> <li>• Site amenity (0.05)</li> <li>• Management costs (0.04)</li> <li>• Site visitors (0.01)</li> <li>• Public awareness of problem site (0.01)</li> </ul>	<ul style="list-style-type: none"> <li>• Chance of resident flock (-0.46)</li> <li>• Public experience of noise, mess and damage (-0.30)</li> <li>• Little corella roost dwell time (-0.30)</li> <li>• Little corella problem site (-0.25)</li> <li>• Water resources (-0.15)</li> <li>• Black cockatoos (-0.07)</li> <li>• Habitual behaviour (flocks returning to problem sites) (-0.06)</li> <li>• Costs of cleaning up after little corellas (-0.05)</li> </ul>	<p><b>VERY HIGH:</b> very strong effect on reducing little corella problem sites, broad positive influence, very strong influence on reducing chance of resident flock (and creation of more problem sites)</p>

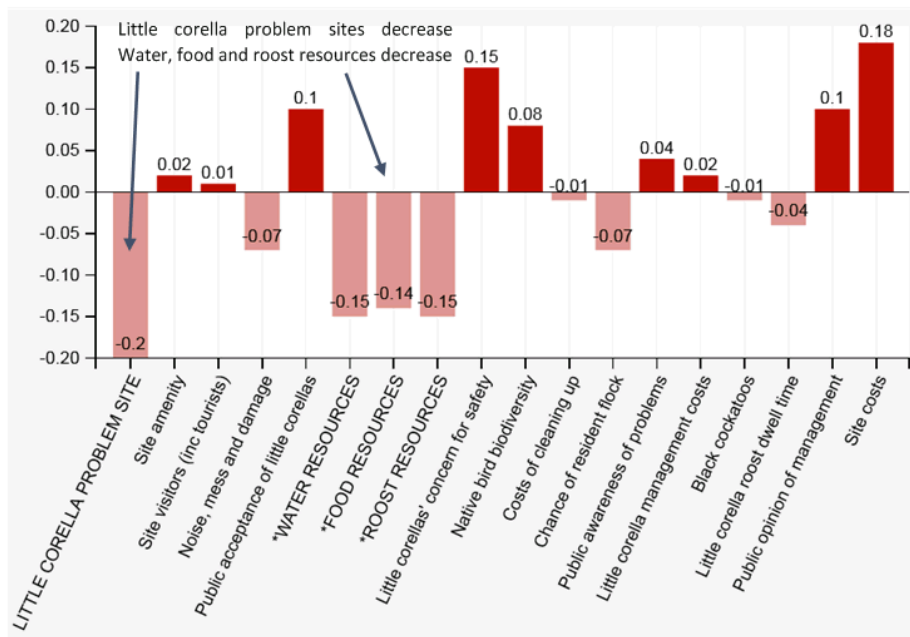


## Case study 1: Aldinga



### Recommended actions:

- Revegetate open roadside areas to increase shrub cover (and visual screening) and reduce foraging opportunities and perceptions of safety for little corellas
  - a. Dense plantings of low-statured trees is also effective and low maintenance
  - b. Use temporary material/synthetic screens to deter birds from revegetated areas
- Remove declared weeds, especially Aleppo pines, replace with local plant varieties
- Create a visual and/or physical barrier to water through planting reeds around dam edges, installing a dam liner, and increasing density and cover of native plants in adjacent areas
- Install barriers to stock troughs in the area
- Consider the social impact of removing significant trees, even declared weeds. Old trees need to be replaced eventually and local native species should replace them. More shrub and screening vegetation should occur around the oval to make it less attractive to little corellas overall
- Install a non-lethal electric bird fright system to deter little corellas from roosting in severely defoliated trees; move the system to affected (problematic roosting) areas as required
- Provide information materials for the public, consult and engage all stakeholders
- Monitor and review



Model actions were:

- Increase barriers to water
- Increase tree density
- Increase public education
- Increase understorey and nativeness of vegetation
- Increase electric fright systems

Management outcomes

- Large decreases occur for: little corella problem sites; access to water, food and roost resources; chance of resident flock
- Noise, mess and damage (and costs of cleaning up) and roost dwell time also decreased
- Large increases occurred for site costs, little corellas' concern for safety, public opinion of management and native bird biodiversity
- Public awareness of problem increased (with public education); management costs and site amenity and site visitors increased slightly
- Black cockatoos decreased slightly because of reduced access to Aleppo pine resources, this management action should be considered closely and planned with advice from NRM and bird groups

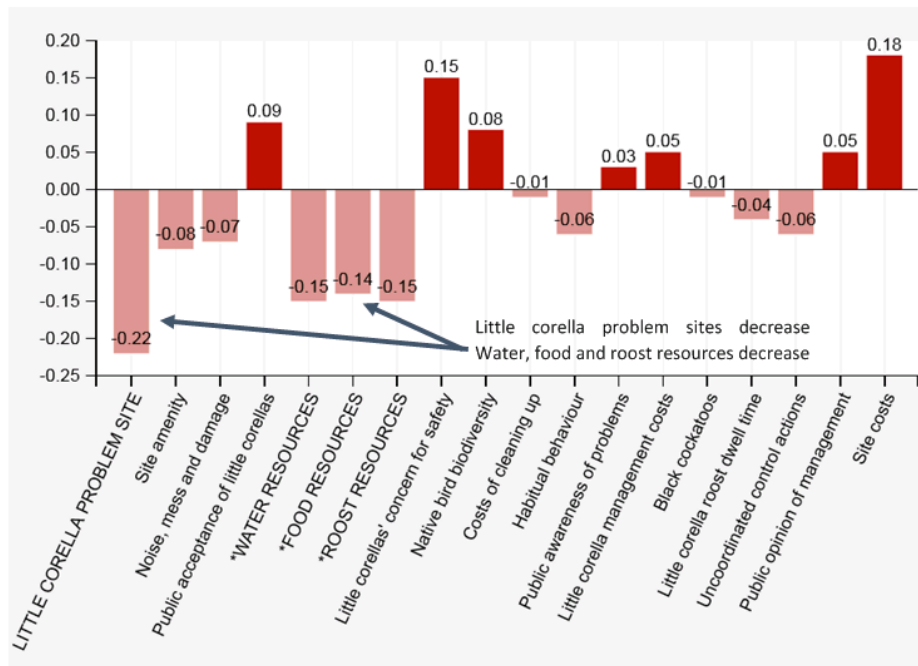


## Case study 2: Hawker Township



### Recommended actions:

- Town dam:
  - a) Install temporary hessian/canvas/shade cloth screens to fill in the gaps in existing vegetation and create a visual barrier to the water
  - b) Revegetate the gaps (over time) to create a long-term closed visual barrier to the water
  - c) Install a dam liner to help conserve water
  - d) Consider removal of the tree at the dam site, (risk: high public opposition exists for tree removal generally), or
  - e) Install a non-lethal electric fright system (e.g. BirdJolt) within the tree to deter the birds from using it as safe retreat
    - Move the system around to other problematic areas in Hawker
- Modify stock troughs near the town to exclude little corellas; review and amend access to all water resources near other problem sites (hospital, golf course, and racecourse)
- Increase understory vegetation and tree density at other problem sites (e.g. golf course)
- Install temporary signage to let local people know what is being done, and why
- Monitor and review



*Management actions were:*

- Target early arrivers
- Establish sacrificial areas
- Noise and lethal deterrents
- Establish barriers to water resources
- Increase tree density, vegetation understorey and nativeness
- Coordinate response, share information
- Electric fright system

*Management outcomes*

- Large decreases occur for: little corella problem sites; water, food and roost resources; site amenity; noise, mess and damage
- Uncoordinated control actions, habitual behaviour, roost dwell time and costs of cleaning up also decreased
- Large increases occurred for: site costs; little corellas' concern for safety; public acceptance of little corellas; native bird biodiversity; management costs; public opinion of management
- Black cockatoos decrease slightly; whenever this outcome is flagged management should consider closely the activities and plan them with advice from NRM and bird groups. However, black cockatoos do not occur in this area so this flag is not locally relevant and action can proceed

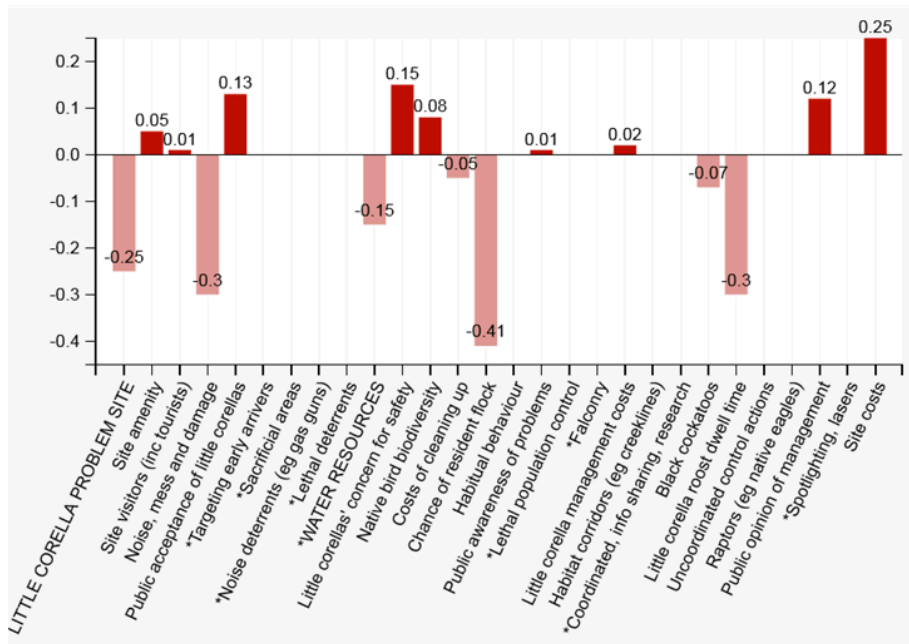


## Case study 3: Hewett Primary School



### Recommended actions:

- Revegetate around water resources to create a visual and physical barrier
- Revegetate understorey and increase tree density throughout the area (excluding oval)
- Revegetate bare ground areas around the school to remove foraging opportunities
- Use sturdy tree guards and/or temporary material screens at revegetation sites to deter birds from the area while the plants establish
- Install a non-lethal electric fright system on affected buildings, fences or trees to remove roosting resources; move system around to different areas as required
- Install temporary signage at the site to let local people know what is being done, and why
- Monitor and review



Management actions were:

- Establish barriers to water, reduce food and roost resources
- Increase tree density, vegetation understorey and nativeness (remove bare ground)
- Public education
- Electric fright system

Management outcomes

- Large decreases occur for: little corella problem site; chance of resident flock; noise, mess and damage; roost dwell time; water resources; costs of cleaning up
- Large increases occur for: site costs; little corellas' concern for safety; public acceptance of little corellas; public opinion of management; native bird biodiversity; site amenity
- Management costs, public awareness of problem and site visitors also increased
- Black cockatoos decreased slightly; this management action should be considered closely and planned with advice from NRM and bird groups

## References/Resources

- [Biodiversity summary for NRM regions \(2011\). Species list for NRM region Eyre Peninsula, South Australia. Department of Sustainability, Environment, Water, Population and Communities, Australian Government](#)
- [Charles, KE and Linklater, WL \(2013\). Dietary breadth as a predictor of potential native avian-human conflict in urban landscapes. \*Wildlife Research\* 40, 482-489](#)
- DEH (2007). *Little corella (Cacatua sanguinea) resource document*. Department for Environment and Heritage
- Higgins, PJ (ed) (1999). *Handbook of Australian, New Zealand and Antarctic Birds. Volume 4: Parrots to Dollarbird*, Oxford University Press, Melbourne
- [Hodgens, P \(2015\). Action strategy for the little corella \*Cacatua sanguinea\* 2015-2019. The Flinders Ranges Council](#)
- Kellert, SR and Clark, TW (1991). The theory and application of a wildlife policy framework. In *Public Policy Issues in Wildlife Management* (ed. Mangun WR). Greenwood Press, New York, pp. 17-38
- Jarman, PJ (1986). *Measures to control the long-billed corella and other cockatoos*. In Proceedings of Public Meeting to Discuss Long-Billed Corella Management and Crop Damage, held at Naracoorte, South Australia (eds. LW Best, R Sinclair, PJ Alexander)
- [Roetman, PEJ and Daniels, C \(2008\). Including biodiversity as a component of sustainability as Australian cities grow: why and how? In David Lawry, Jennifer Gardner and Sascha, pp. 1-12](#)
- Simpson, K and Day, N (2004). *Field guide to the birds of Australia*, 7<sup>th</sup> Edition. Penguin Books, Australia
- Smith, KE (2010). Maintaining green infrastructure. In *Adelaide: water of a city* (ed. Daniels CB). Wakefield Press, Kent Town, pp. 384-395
- St John, B. (1994). *Ecology and management of the little corella (Cacatua sanguinea) in the Southern Flinders Ranges, South Australia*. Masters thesis, University of Adelaide, South Australia









# Little Corella Management Program

Summary report  
January 2019

City of Salisbury



ecology / vegetation / wildlife / aquatic ecology / GIS

Item 2.4.2 - Attachment 2 - Little Corella Management Program - update January 2018 by Ecosure



## Contents

Glossary of Terms.....	iii
Introduction .....	1
Background.....	2
Approach .....	3
Community Consultation .....	3
Dispersal Equipment .....	3
Timing .....	4
Animal Welfare Considerations .....	4
Results.....	5
Roost Assessment.....	5
Roost Dispersal .....	5
Discussion .....	7
Recommendations .....	8
References.....	9

## Glossary of Terms

Active Management	The use of short-term management techniques such as distress calls, pyrotechnics, trapping and culling to disperse or remove birds.
Cohort	A group of animals of the same species.
Diurnal species	Wildlife that are active during the daytime.
Habituation	The tendency for wildlife to become accustomed to certain stimulus when repeatedly exposed to it.
Local enhancement	When the presence (calls and activities) of a few animals attracts more animal to that area.
Off-target species	Other species that can be affected by targeted activities.
Overwintering population	Population or individuals that can stay back over winter.
Passive Management	The modification of habitat, including buildings and other manmade structures to render it less attractive to wildlife.
Physiology	Functions and processes of animals or their parts mainly key processes, such as the regulation of temperature, blood flow and hormones.

## Introduction

The City of Salisbury Council (referred to as the Council hereafter) areas has been experiencing a large number of roosting, loitering and foraging Little Corellas since 2017 with the population substantially increasing for unknown reasons. It is assumed this may be due to the saturation of Little Corella in other local government areas in South Australia, which is leading to the species taking up new territories where ample food supply and favourable roost sites are present.

Distribution and abundance (numbers) of these birds including overwintering population have increased across the region over the past few years resulting in a major impact on managed landscape, biodiversity, infrastructure and community due to Little Corella activities.

Impacts include:

- Digging up newly planted crops and existing crops of almonds, vegetables, fruit, and horticultural gardens, as well as irrigation systems.
- Stripping established native trees.
- Damaging grassed public playing surfaces, leaving sizable and dangerous holes in the surface.
- Damaging private property, including chewing of wires, guttering, stripping out seals between roof tiles and window frames, chewing garden plants.
- Taking apart street-light fittings.
- Destroying shade sails in public playgrounds.
- Damaging telecommunication and lighting towers by chewing through cabling.
- Creating excessive noise at night roosts, making it difficult, if not impossible, for nearby residents to sleep.
- Pose serious bird strike risk to aircraft operating at RAAF Base Edinburgh.

The Council has received numerous complaints and request for immediate action to curb the damages and general nuisance caused by Little Corellas.

As a short term solution the Council engaged Ecosure's wildlife and ecology experts to conduct a site assessment, monitoring and intensive dispersal to break the habituation pattern, large roosting congregations into smaller cohorts and to discourage local enhancement.

The above also served as a trial to assess effectiveness of the approach for future consideration, preparedness and resource allocation.



## Background



Little Corella (*Cacatua sanguinea*) are a small white cockatoo with a short upright crest, bare blue-grey skin around the eye, salmon-pink lores and pale yellow underwing and undertail feathers (Scanlon et.al. 2017). Little Corella are widespread across mainland Australia, however due a number of environmental and urban developmental factors, they have become an overabundant native species.

In South Australia, Little Corellas are common in the eastern parts of the state, including: the Mid North, North East, Flinders Ranges, Riverland, Adelaide Plains, Fleurieu Peninsula, Kangaroo Island and in the South East (Scanlon et.al. 2017).

The species primarily congregate along tree-lined watercourses across a variety of habitats, with increasing observations within urban areas. During Summer to Autumn (December – April), Corella will form large congregations and travel long distances in search of food, water, roosting and nesting resources with flocks using habitual roosting sites for successive years (DEH 2007). Once temperatures begin to cool (May), congregations will disperse to breeding grounds (typically towards the Flinders Ranges) for the season.

As mentioned above, large flocks of Little Corella can have harmful economic, social and environmental impacts.

In order to reduce impacts posed by large flocks, an integrated management program with short-, medium- and long-term actions and considerations should be implemented.

## Approach

Roost dispersal was the chosen approach to disrupt Little Corellas at problematic sites while the Council explore into medium to long-term options. Roost dispersal is a 'tried and tested' methodology that has been effective at dispersing the species and successfully relocating them to a suitable alternative roost site.

## Community Consultation

Social media notifications (via Facebook), notice on the Council website, letters and phone calls were means of interaction on the matter between the Council and the local community. Council residents were notified prior to the commencement of Little Corella roost dispersal program. This was to ensure the majority of the local residents were aware of the proposed works, likely outcomes, to get their feedback and address any concerns.

## Dispersal Equipment

A combination of audible devices outlined below were used in the attempt to disperse Little Corellas from the problematic roosting sites towards more favourable locations:

- stockman whips
- starter pistols
- modulated vehicle sirens
- portable PA systems
- bird distress call
- handheld spotlights
- illuminators and
- pyrotechnics.

## Timing

Works were carried out between the hours of 7 pm and 10 pm in accordance with the *Environment Protection (Noise) Policy 2007* (the Noise EPP) and Environment Protection Agency (EPA) South Australia's Audible Bird Scaring Devices-Environmental Noise Guidelines, 2007.

## Animal Welfare Considerations

There is no model code of practices (COPs) or Standard Operating Procedures (SOPs) on Little Corella or other flocking bird dispersal in South Australia.

General animal welfare practices were taken in consideration to minimise any suffering to Little Corellas and other off-target species. Some of which are as follows:

- Dispersal was carried out in the evening to reduce the chances of heat stroke to the animal.
- Dispersal is not conducted on days where temperatures reach above 40°C.
- The timing of dispersal activity outside nesting season for most of the native bird species mitigates the risk of nest and chick abandonment.
- Detonation of aerial pyrotechnics were at a reasonable distance from the birds.

Birds were dispersed in a manner to ensure they are not flushed onto oncoming traffic.

## Results

### Roost Assessment

Prior to conducting the roost dispersal program, a roost assessment was conducted to determine the current population size, distribution and land-use preferences. The initial population size was estimated at 2,000 individuals. During and following dispersal works, the population currently is estimated to be around 1,000 individuals.

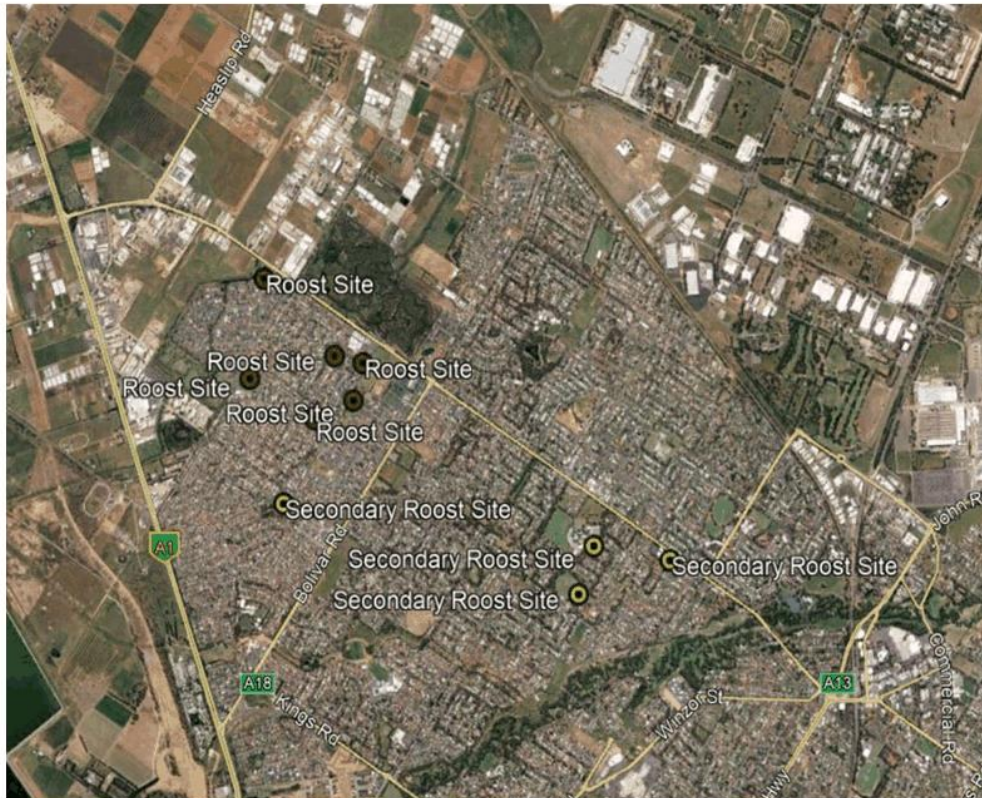
Little Corella foraging and roost site preference was typically associated with irrigated exotic lawns, easily available water, open habitats / canopies and low-density shrub between Springbank Boulevard and Burton Park Football Centre.

### Roost Dispersal

Roost dispersal was conducted for 12 days (72 total man hours) between 10<sup>th</sup> to 30<sup>th</sup> January, throughout the Council areas. Dispersal would commence at the main roost locations, west of Bolivar Road and would continue to the East at various locations (Figure 1).

Once dispersed from the secondary roost site, the flock would generally split and head in a South-East and South-West direction. Monitoring surveys following the dispersal program found no indication of the flock roosting overnight within Burton, Salisbury North or Paralowie suburbs. Further monitoring outside these areas will be conducted to determine the post-dispersal roost location

Figure 1. Little Corella roost dispersal program locations.





## Discussion

The exercise was based on the assumption that Little Corella are a diurnal species and that disturbance caused to the species at night will impact their sleep cycle and physiology; thus their ability to be more active in the day time. To avoid this, the species will move into a refuge habitat or scatter into smaller cohorts. Disturbed Little Corella congregations (consisting of adults and young adults in summer) are less likely to be active in the day and choose to move on over a period of days.

Roost site selection and preparation is a complex process amongst birds. It is difficult to disperse species such as Little Corella, which are highly intelligent and behaviourally adaptive once a roost is established. The dispersal program was effective in moving the flock each night, however the desperate need to remain in the established roost sites and exploit easily available resources in the Council areas make it challenging to get rid of the flocks completely. It is important to note that the dispersal exercise assists in mitigating any further increase in the Little Corella population in the Council areas.

## Recommendations

Essence of Little Corella population reduction and management in an integrated program. This includes, restricting access to food, water, roosting and loitering sites, dispersal and selective culling<sup>1 and 2</sup>.

Ecosure recommends the following interim management options in the absence of a fully integrated Little Corella Management Plan.

- Continue intensive Little Corella dispersal across Council areas.
- Conduct roost assessments to determine post-dispersal roost locations.
- Council to ensure community are updated through social media platforms, notices on the Council's website and letter-drops about the Little Corella management activities.
- Council to ensure watering regimes of the school ovals, sports ovals and parklands are restricted to 9 pm – 5 am.
- Council to liaise with the City of Playford and City of Port Adelaide, Enfield to determine Little Corella distribution across the region.

---

<sup>1</sup> To cull Little Corellas by means other than a firearm, the landholder will need a Permit to Destroy Wildlife Issued under Section 53 of National Parks and Wildlife Act 1972 (NPW Act) by The Department of Environment and Water (DEW). Any culling must be done in a manner which does not cause unnecessary pain to the animal and in accordance with Animal Welfare Act, 1985. Destruction of Little Corellas in South Australia through shooting must comply with Code of Practice for the Humane Destruction of Birds by Shooting in South Australia.

<sup>2</sup> Selective culling is recommended for farmlands with scattered dwellings only as it is generally unacceptable to the local community without education, consultation and their support.

## References

Department of Environment and Heritage 2007. Little corella (*Cacatua sanguinea*) resource document. Department for Environment and Heritage.

Government of South Australia Environment Protection Agency 2007, *Environment Protection (Noise) Policy (the Noise EPP)*.

Government of South Australia Environment Protection Agency 2007, *South Australia's Audible Bird Scaring Devices-Environmental Noise Guidelines*.

Scanlon, A, Roetman, P, Stead, M, Gray, S, Lethbridge, M 2017, *Little Corellas: social and ecological research for management in South Australia*. Discovery Circle Initiative, University of South Australia, Adelaide.



Revision History

Revision No.	Revision date	Details	Prepared by	Reviewed and Approved by
00	31/01/2019	PR4167.RE-Little Corella Management Program – Summary Report	James Binkhorst-Wildlife Biologist	Ronel Jit Principal Environmental Scientist/Regional Manager

Distribution List

Copy #	Date	Type	Issued to	Name
1	31/01/2019	Electronic	Team Leader Parks & Landscape Field Services	Paul Marsden
2	31/01/2019	Electronic	Ecosure Document Tracking	Administration



Citation: Ecosure (2019), Little Corella Management Program - summary report, Report to City of Salisbury, Publication Location – Adelaide

Report compiled by Ecosure Pty Ltd

ABN: 63 106 067 976

admin@ecosure.com.au      www.ecosure.com.au



PR4167.RE-Little Corella Management Program - Summary Report

**Adelaide**

PO Box 145  
Pooraka SA 5095  
P 1300 112 021  
M 0407 295 766

**Brisbane**

PO Box 675  
Fortitude Valley QLD 4006  
P 07 3606 1030

**Gold Coast**

PO Box 404  
West Burleigh QLD 4219  
P 07 5508 2046  
F 07 5508 2544

**Rockhampton**

PO Box 235  
Rockhampton QLD 4700  
P 07 4994 1000  
F 07 4994 1012

**Sydney**

PO Box 880  
Surry Hills NSW 2010  
P 02 9437 6919

© Ecosure Proprietary Limited 2019

Commercial in confidence. The information contained in this document produced by Ecosure Pty Ltd is solely for the use of the Client identified on the cover sheet for the purpose for which it has been prepared and Ecosure Pty Ltd undertakes no duty to or accepts any responsibility to any third party who may rely upon this document. All rights reserved. No section or element of this document may be removed from this documents, reproduced, electronically stored or transmitted in any form without the written permission of Ecosure Pty Ltd.





<b>ITEM</b>	2.5.1
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>HEADING</b>	Minutes of the Strategic Property Development Sub Committee meeting held on Tuesday 12 February 2019
<b>AUTHOR</b>	Chantal Milton, Manager Strategic Development Projects, City Development
<b>CITY PLAN LINKS</b>	4.4 Embed long term thinking, planning and innovation across the organisation. 3.4 Be a proud, accessible and welcoming community. 3.1 Be an adaptive community that embraces change and opportunities.
<b>SUMMARY</b>	The minutes and recommendations of the Strategic Property Development Sub Committee meeting held on Tuesday 12 February 2019 are presented for Works and Services Committee's consideration.
<b>RECOMMENDATION</b>	
	1. The information contained in the Strategic Property Development Sub Committee Minutes of the meeting held on 12 February 2019 be received and noted and that the following recommendations contained therein be adopted by Council:
<b>SPDSC1</b>	<b>Future Reports for the Strategic Property Development Sub Committee</b>
	1. The information be received.
<b>SPDSC2</b>	<b>Appointment of Deputy Chairperson - Strategic Property Development Sub Committee</b>
	1. Cr Shiralee Reardon be appointed as Deputy Chair of the Strategic Property Development Sub Committee for a term of two years.
<b>SPDSC3</b>	<b>Presentation on the Strategic Property Development Program</b>
	1. The presentation be received.
<b>SPDSC4</b>	<b>Tranche 1 Update Report – Completion of Aboriginal Discovery Landscape Works at Emerald Green</b>
	1. That \$2000 be transferred from 19739 Ryans Road – Emerald Green to 388122 Aboriginal Development Project Fund to enable the RAP Working Group to identify an appropriate recognition signage or other acknowledgement for the indigenous burial site, and that this be reflected in the second quarter budget review.

2. That the close-out report for 19739 Ryans Road – Emerald Green will be presented to Strategic Property Development Sub-Committee in June 2019.

**SPDSC5 Tranche 2 - Boardwalk at Greentree Project Update Report**

1. That the report be received and the update on the project delivery status for Boardwalk at Greentree, Walpole Road Stage 3, be noted.

**SPDSC6 Low Cost Affordable Housing Research**

1. That the report be received, and the Low Cost Affordable Housing Research Paper as provided in Attachment 1 (Item SPDSC6, Strategic Property Development Sub Committee, 12/02/2019) be noted.
2. That an Affordable Housing Implementation Plan be developed as part of the two- year minor update of the Strategic Land Review for Council consideration in April 2019.
3. That the Tranche 2 Lake Windemere project expression of interest process (Confidential Item: SPDSC6 – Lake Windemere Residential Update Report, Resolution No. 2077/2017) due to commence in early 2019 be expanded to include approaches to key stakeholders identified in the Low Cost Housing Research Report with the outcomes reported to Council by mid-2019.

**OB1 Framework Development for Additional Green Space in Salisbury**

1. That staff develop a framework by end of July 2019, for identifying opportunities for the strategic acquisition of properties to provide additional green space and/or recreation areas within Salisbury.

**ATTACHMENTS**

This document should be read in conjunction with the following attachments:

1. Minutes Strategic Property Development Sub Committee - 12 February 2019

**CO-ORDINATION**

Officer: GMCID  
Date: 13.02.19



**MINUTES OF STRATEGIC PROPERTY DEVELOPMENT SUB COMMITTEE  
MEETING HELD IN COMMITTEE ROOMS, 12 JAMES STREET, SALISBURY ON**

**12 FEBRUARY 2019**

**MEMBERS PRESENT**

Cr Natasha Henningsen (Chairman)  
Cr L Braun  
Cr K Grenfell  
Cr D Proleta  
Cr G Reynolds

**OBSERVERS**

Cr C Buchanan, Cr P Jensen and Cr J Woodman

**STAFF**

Chief Executive Officer, Mr J Harry  
General Manager City Development, Mr T Sutcliffe  
Manager Strategic Development Projects, Ms C Milton  
PA to General Manager Community Development, Mrs B Hatswell

The meeting commenced at 7.45 pm.

The Chairman welcomed the members, staff and the gallery to the meeting.

**APOLOGIES**

Apologies have been received from Mayor G Aldridge, Cr M Blackmore and Cr S Reardon.

**LEAVE OF ABSENCE**

Nil

Minutes - Strategic Property Development Sub Committee Meeting - 12 February 2019

Item 2.5.1 - Attachment 1 - Minutes Strategic Property Development Sub Committee - 12 February 2019

---

**PRESENTATION OF MINUTES**

Moved Cr D Proleta  
Seconded Cr L Braun

The Minutes of the Strategic Property Development Sub Committee Meeting held on 09 July 2018, be taken and read as confirmed.

**CARRIED**

Moved Cr G Reynolds  
Seconded Cr K Grenfell

The Minutes of the Confidential Strategic Property Development Sub Committee Meeting held on 09 July 2018, be taken and read as confirmed.

**CARRIED**

**REPORTS**

**SPDSC1 Future Reports for the Strategic Property Development Sub Committee**

Moved Cr D Proleta  
Seconded Cr L Braun

1. The information be received.

**CARRIED**

**SPDSC2 Appointment of Deputy Chairperson - Strategic Property Development Sub Committee**

Moved Cr K Grenfell  
Seconded Cr L Braun

1. Cr Shiralee Reardon be appointed as Deputy Chair of the Strategic Property Development Sub Committee for a term of two years.

**CARRIED**

**SPDSC3 Presentation on the Strategic Property Development Program**

Moved Cr G Reynolds  
Seconded Cr K Grenfell

1. The presentation be received.

**CARRIED**

*Cr D Proleta left the meeting at 08:31 pm.*

**SPDSC4 Tranche 1 Update Report – Completion of Aboriginal Discovery Landscape Works at Emerald Green**

*Cr D Proleta returned to the meeting at 08:32 pm.*

Moved Cr G Reynolds  
Seconded Cr K Grenfell

1. That \$2000 be transferred from 19739 Ryans Road – Emerald Green to 388122 Aboriginal Development Project Fund to enable the RAP Working Group to identify an appropriate recognition signage or other acknowledgement for the indigenous burial site, and that this be reflected in the second quarter budget review.
2. That the close-out report for 19739 Ryans Road – Emerald Green will be presented to Strategic Property Development Sub-Committee in June 2019.

**CARRIED**

**SPDSC5 Tranche 2 - Boardwalk at Greentree Project Update Report**

Moved Cr K Grenfell  
Seconded Cr L Braun

1. That the report be received and the update on the project delivery status for Boardwalk at Greentree, Walpole Road Stage 3, be noted.

**CARRIED**

Minutes - Strategic Property Development Sub Committee Meeting - 12 February 2019

Item 2.5.1 - Attachment 1 - Minutes Strategic Property Development Sub Committee - 12 February 2019



**SPDSC6 Low Cost Affordable Housing Research**

Moved Cr G Reynolds  
Seconded Cr L Braun

1. That the report be received, and the Low Cost Affordable Housing Research Paper as provided in Attachment 1 (Item SPDSC6, Strategic Property Development Sub Committee, 12/02/2019) be noted.
2. That an Affordable Housing Implementation Plan be developed as part of the two- year minor update of the Strategic Land Review for Council consideration in April 2019.
3. That the Tranche 2 Lake Windemere project expression of interest process (Confidential Item: SPDSC6 – Lake Windemere Residential Update Report, Resolution No. 2077/2017) due to commence in early 2019 be expanded to include approaches to key stakeholders identified in the Low Cost Housing Research Report with the outcomes reported to Council by mid-2019.

**CARRIED**

**OTHER BUSINESS**

**OB1 Framework Development for Additional Green Space in Salisbury**

Moved Cr G Reynolds  
Seconded Cr D Proleta

1. That staff develop a framework by end of July 2019, for identifying opportunities for the strategic acquisition of properties to provide additional green space and/or recreation areas within Salisbury.

**CARRIED**

**CLOSE**

The meeting closed at 8.51 pm.

CHAIRMAN.....

DATE.....

<b>ITEM</b>	2.6.1		
	<b>WORKS AND SERVICES COMMITTEE</b>		
<b>DATE</b>	18 February 2019		
<b>HEADING</b>	Capital Works Report - January 2019		
<b>PREV REFS</b>	Works and Services Committee	2.6.1	10/12/2018
<b>AUTHOR</b>	Christy Martin, Team Leader Project Support, City Infrastructure		
<b>CITY PLAN LINKS</b>	3.2 Have interesting places where people want to be.		
<b>SUMMARY</b>	The following monthly status report and requests for amendments is presented to effectively manage the City Infrastructure Capital Works Program.		

### RECOMMENDATION

1. Include the air conditioning replacement at Salisbury West Library, Salisbury Downs, within PR18097 Building Renewal Program.
2. As a non-discretionary 2018/19 third quarter budget bid, transfer \$15k from PR21409 Outdoor Sports Surface Renewal / Upgrade Program, together with \$63k from PR25046 Fitness Equipment Program; to PR21456 Reserve Upgrade Program to combine project funding associated with Settlers Park, Paralowie, reserve works.
3. That year two of PR22229 Major Flooding Mitigation Program be increased by \$639k, recognising that grant income for Paul's Drive, Valley View received is \$339k below expectations, and following concept design total project cost has increased by \$300k, to \$2,400k. To enable procurement and delivery of this project the revised 2019/20 budget of be included as a non-discretionary item.

### ATTACHMENTS

There are no attachments to this report.

### 1. BACKGROUND

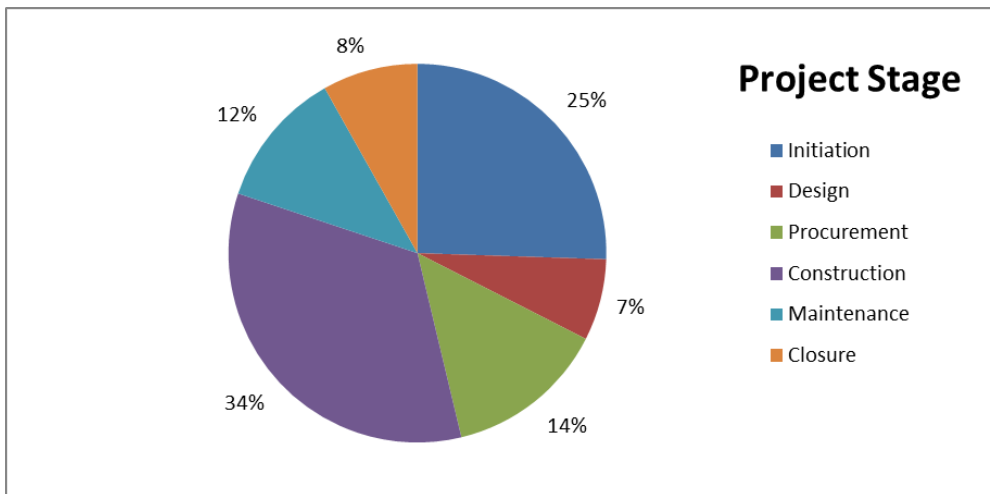
- 1.1 City Infrastructure is responsible for the capital works, associated plant and fleet, building, traffic and civil engineering services, landscape and environmental works. Specifically, these works involve project management, design specification development, construction and recurrent maintenance. Service provision is undertaken by both internal resources and external consultants/contractors. City Infrastructure provides periodic progress reports for these projects.

**2. CONSULTATION / COMMUNICATION**

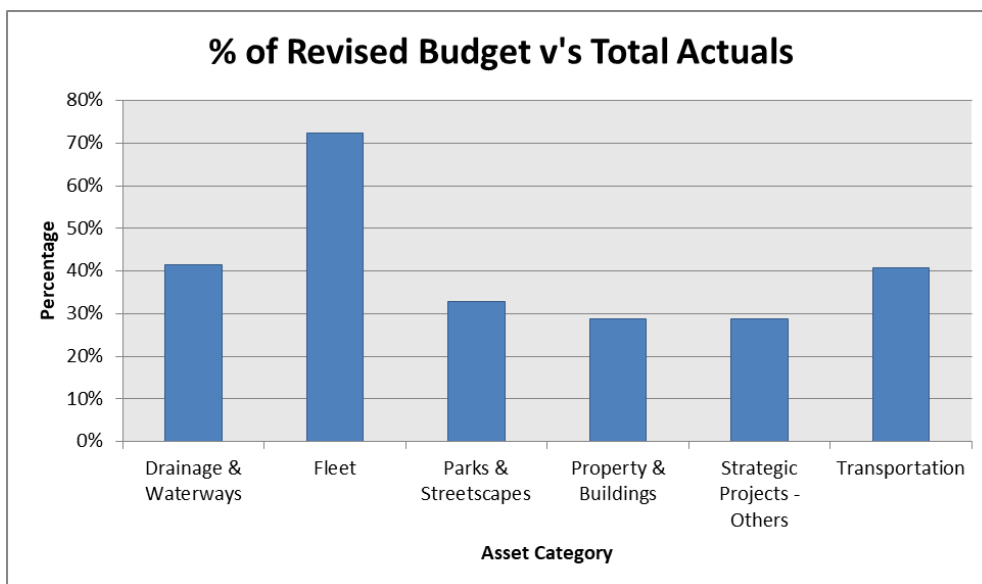
2.1 As part of the management of the City Infrastructure Capital Works Program, communication of the program occurs on a monthly basis via the Works and Services Committee. In addition, a current program of works is available via the City of Salisbury internet site and highlights included within the periodic publication *Salisbury Aware*.

**3. REPORT**

3.1 The Capital Works Program continues to be progressively delivered. Importance is placed on scheduling works to achieve the optimum outcome, such as the programming of landscape works in cooler climates. The current state of the program is distributed across the following stages:



3.2 The status of the program is reflective of the current spend and commitments in place. The following chart defines the percentage of the Revised Budget per asset category, current spend and/or committed;



3.3 The above 'Total Actuals' is the sum of funds spent and commitments raised.

- 3.4 As part of the coordination of the Capital Works Program, it is continuously monitored to ensure it best meets the needs of the community whilst maintaining infrastructure condition. As a result, the following changes are requested;

### Amendment to Program

#### PR18097 Building Renewal Program

Due to failure, the air conditioning system at Salisbury West Library, Salisbury Downs was promptly actioned for replacement. Accordingly, approval is sought to include this location within the 2018/19 Building Renewal Program, noting works have already commenced. It is expected that these works can be accommodated within the current program budget, however this is pending completion of current program procurement activities. Should there be insufficient program funds for this emergency works a subsequent report will be provided.

Recommendation: Include the air conditioning replacement at Salisbury West Library, Salisbury Downs, within PR18097 Building Renewal Program.

Impact: No impact

### Amendment to Budget

#### PR21456 Reserve Upgrade Program

#### PR21409 Outdoor Sport Court Surface Renewal

#### PR25046 Fitness Equipment Program

Settlers Park, Paralowie, is scheduled for upgrade this year as part of the Reserve Upgrade Program. In addition to this, the reserve has approved funding within the Outdoor Sports Court Surface Renewal Program to renew the basketball court. Approval is sought to transfer the \$15k associated with the sports court renewal into the reserve upgrade project. This enables the project to be more efficiently managed as a single project.

To achieve an optimum solution for the community, it is proposed to add Settlers Reserve, Paralowie to the 2018/19 Fitness Equipment Program. \$63k is available within the program, noting within the approved budget bid a second location was to be included within the program once nominated. This now being the nominated site for 2018/19. As above, approval is sought to transfer this budget into the reserve upgrade project to the project to be effectively managed as a holistic single project.

Recommendation: As a non-discretionary 2018/19 third quarter budget bid, transfer \$15k from PR21409 Outdoor Sports Surface Renewal / Upgrade Program, together with \$63k from PR25046 Fitness Equipment Program; to PR21456 Reserve Upgrade Program to combine project funding associated with Settlers Park, Paralowie reserve works.

Impact: No impact

**Amendment to Budget****PR22229 Major Flood Mitigation Program**

As reported in December 2018, via Works and Services Committee, Council was successfully awarded a total of \$711k of grant funding towards flood mitigation works at Pauls Drive, Valley View. This project was scheduled for design only this financial year, with full detail design completion expected April 2019. Herewith this report provides a further project update.

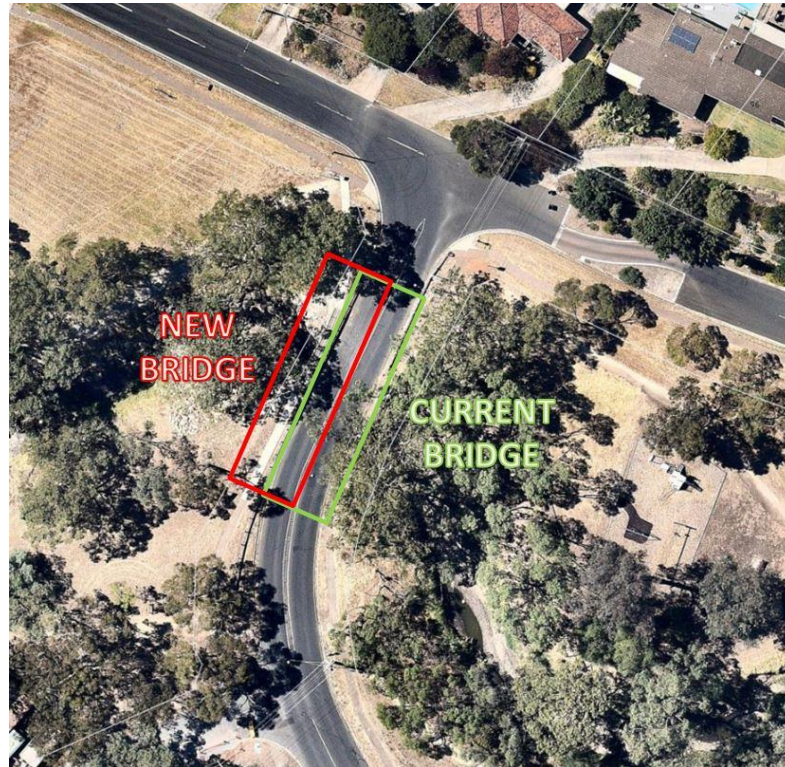
With the concept design now complete, it has enabled the project to continue into detail design. The estimate from the concept design and detailed services planning is \$2.4M with the works proposed to be staged to minimise the impact to the community. This is an increase of \$300k from the initial \$2.1M documented from two years ago within the 2018/19 Major Flood Mitigation Program Budget Bid. This increase is due to a more accurate understanding of what the service relocations will cost and the additional costs based on keeping access across Dry Creek open at all times, to facilitate, in particular the bus movements. The design process has now identified the optimum design solution enabling a detailed cost estimate to be produced which has resulted in the revised estimate of \$2.4M.

The project was able to successfully achieve \$711k of grant funding this financial year as reported, December 2018, whilst being successful it is below the original estimated income budget of \$1,050k within year two of the 2018/19 Major Flood Mitigation Program Budget Bid. The net result to Council will now be \$1,689k following the amendment to income and expenditure budgets as identified within this report. The \$711k of grant funding awarded provides sufficient budget to cover the expected spend this financial year, with the remaining \$1,689k not required until 2019/20.

In order to achieve the obligations and requirements of the grants, plus allow the required supply lead times, the project needs to commence this financial year. By commencing this financial year, it will also enable major construction works to occur in drier conditions of late 2019 / early 2020.

In an effort to minimise the impact of the project on the community, the existing road will remain functional whilst a new section of roadway and storm water infrastructure is built adjacent, refer image on the next page. Following construction of the new section, the existing section will then be demolished. This will then be followed by completion works including kerbing, safety barriers and storm water.





Recommendation: That year two of PR22229 Major Flooding Mitigation Program be increased by \$639k, recognising that grant income for Paul's Drive, Valley View received is \$339k below expectations, and following concept design total project cost has increased by \$300k, to \$2,400k. To enable procurement and delivery of this project the revised 2019/20 budget of be included as a non-discretionary item.

Impact: Amendment of budgets

4. FOR INFORMATION

Item 2.6.1

Item 2.6.1

Recent Completions



After



Little Para Erosion Control Works  
Watercourse Management Works

Before



Nelson Road, Local Flooding Program



Elder Smith Road, Mawson Lakes  
Council Funded New Footpath Program



Recent Completion



**Madison Park, Salisbury East  
Outdoor Sports Surface Renewal Program**

In Construction



**Winara Drive, Ingle Farm  
Road Rejuvenation  
Road Reseal / Reconstruction Program**



**5. CONCLUSION / PROPOSAL**

- 5.1 This summary report regarding the City Infrastructure Capital Works Program be received.

**CO-ORDINATION**

Officer: EXEC GROUP  
Date: 11/02/2019





**ATTACHMENTS**

This document should be read in conjunction with the following attachments:

1. Concept Layout of Proposed Stormwater Works
2. Kerb Works undertaken in 2015
3. Wendy Avenue Kerb works and Driveway Works 2016
4. Proposed Kerb Ramp Works
5. Advice from Pavement Technical Expert

**1. BACKGROUND**

1.1 A petition was received on 14/12/2018 by Council which was signed by a number of residents in Wendy Avenue and Avis Court, Valley View. This petition highlighted a number of persistent issues for the residents in these streets, following individual complaints raised over a number of years:

1.1.1 As part of the Road Reseal Program FY 15/16, Wendy Avenue and Avis Court underwent works including Kerb Works, installation of pram ramps (Kerb Works Diagram – Attachment 2) and a cement stabilisation, spray seal treatment. These works were undertaken in September, 2015.

1.1.2 Residents of 11 Wendy Avenue contacted Elected Member for South Ward in September 2015 that a pram ramp installed as part of the Road Resurfacing Program had been installed in a position that allowed water from the road surface to enter the property, and also into the adjacent property of 9 Wendy Avenue. The email stated that this had occurred in April and September 2015. Evidence via photos was attached to this email.

1.1.3 Following an email communication to the Elected Member, a reply (November 2015) was prepared by the Manager Projects stating that the situation was not necessarily worsened because of the installation of the pram ramp and associated kerb works; and that monitoring over the next 12 months would occur, including during rain events.

1.2 Following an investigation, Manager Technical Services met with the residents at 11 Wendy Avenue at the end of 2015 and communicated to the Elected Member (in January 2016) that a New Initiative Bid in the Local Flooding Program ( to the value of \$55,000) to resolve the flooding in the street had been submitted for the FY16/17.

- 1.3 A series of temporary measures were employed in the wet season of 2016, which partly assisted flooding control during some high rainfall events, although water did enter properties on the low side of Wendy Avenue. The design of the flood resolution was underway at this point, in preparation to begin construction early in the 16/17 Financial Year.
- 1.4 Following a complaint by the residents at 10 Wendy Avenue regarding the road condition, a response by Manager Projects was issued (January 2017). This explained that the initial loss of stone from the spray seal is normal, and a street sweeper would be employed to attend if the situation persisted. A spray seal is an appropriate and standard Council pavement for this road classification, however the subsequent SA Water project ruined the road surface condition and appearance.
- 1.5 A design was issued for alleviation of stormwater runoff entering private property and works completed in February of 2017 (Design of 11 Wendy Ave local flooding (General Construction)).
- 1.6 Throughout 2017 Council has observed that damage was caused to the road surface. This was most likely caused by subcontractors constructing new homes in the street.
- 1.7 Following a number of water main bursts in Wendy Avenue, SA Water began a complete replacement of the water main within the entire length of both Wendy Avenue and Avis Court, with works being undertaken by SA Water's contractor from approximately January to March of 2018.
- 1.8 Following Trench Reinstatement and the bitumen reinstatement, there were a number of issues noted by both residents and Council staff, namely bitumen residue and large clumps of bitumen in the gutter and significant damage from the machinery removing sections of existing bitumen. (Attachment – Photo of bitumen clumps and machinery Marks).
- 1.9 Due to the unsatisfactory reinstatement works, a number of resident complaints were received, namely:
  - 1.9.1 19/03/2018 – 14 Avis Court reported SA Water trench reinstatement is unsatisfactory, works been undergoing from January 2018.
  - 1.9.2 April 2018 – 11 Wendy Avenue, reported poor road condition, and poor SA Water trench reinstatement.
  - 1.9.3 September 2018 – Resident questioning why only patching was done by SA Water and when the entire road will be brought up to the same appearance as adjacent Flinders Drive.

## ITEM 2.6.2

- 1.9.4 September 2018 – Resident complaint received from 14, 16 and 18B Avis Court, in regards to SA Water Trench Reinstatement.
- 1.9.5 October 2018 – Residents at 8 Wendy Avenue, noted that tar from road surface has dragged into driveway and garage and requested this to be rectified by Council.
- 1.10 SA Water engaged their contractor to undertake rectification works and removal of excess stone via street sweeper in September 2018.
- 1.11 City Infrastructure staff have investigated all issues raised in the petition, undertaken a survey of the area and sought technical expert assessments on the issues where necessary.
- 1.12 City Infrastructure staff have sought further clarification from SA Water in regards to whether a 12 month warranty can be acted upon as road condition is still unsatisfactory.

**2. CONSULTATION / COMMUNICATION**

- 2.1 Internal
  - 2.1.1 Development Services, Planning
  - 2.1.2 Elected Member Briefing
  - 2.1.3 Local Residents
- 2.2 External
  - 2.2.1 SA Water

**3. REPORT**

- 3.1 Strategic Context
  - 3.1.1 The suburb of Valley View, as the rest of the City, is in transition to urban consolidation and residential infill. Of the 40 original lots on Wendy Avenue and Avis Court, 6 have been subdivided from one into two properties. A further 2 properties have proposals to be subdivided. It is anticipated that over the next 10 years most of the original blocks will be subdivided.
  - 3.1.2 A Petition was received in December 2018 by Council from a number of residents in Wendy Avenue and Avis Court, Valley View. This petition highlighted a number of persistent issues for the residents in these streets.
  - 3.1.3 All concerns in the petition have been investigated by staff from the Infrastructure Management and Infrastructure Delivery teams, and options to proceed are presented herein. A number of the resident concerns are deemed by City Infrastructure staff to be justified, while others are deemed as an upgrade to the visual amenity of the road that is above Council's endorsed service level for road condition.

### 3.2 Investigation of Persistent Local Flooding Issues

- 3.2.1 Currently there is no existing storm water infrastructure (pipes or inlet pits) within Wendy Avenue or Avis Court. The closest Stormwater Main runs within Rutherford Street.
- 3.2.2 There have been persistent local flooding issues on Wendy Avenue, in particular in front of nos. 1-11. This is due to properties on this side of Wendy Avenue being lower than the road surface, and the verge being at the top of kerb level or lower.
- 3.2.3 In relatively frequent storm events, water builds up and runs into private property. In addition there is a localized low point in the kerb and gutter in front of nos. 14-20 Avis Court. This is due to two reasons, a localized low point in the road corridor, and no Stormwater Infrastructure to convey this water away from the area.
- 3.2.4 A complete engineering survey of Wendy Avenue and Avis Court has been undertaken with stormwater modelling being undertaken and a preliminary concept design prepared, for Budgeting purposes.
- 3.2.5 In order to accommodate the increased stormwater runoff from current and anticipated redevelopment of the area, a new stormwater line to Rutherford Street, with 3 Inlet Pits in Wendy Ave and Avis Court are proposed (Attachment 1). Additionally some regrading of the road surface and kerb will be required in Wendy Avenue to convey overland flows to Rutherford Street. This will also be required in Avis Court.
- 3.2.6 This work is estimated to be \$230,000 and Council staff recommend additional funds be sought at the third quarter budget review to begin construction prior to the 2019 wet season.

### 3.3 Investigation of Road and Verge Condition

- 3.3.1 A full site investigation, pavement site assessment and survey of the road corridor and verge were completed by Infrastructure Management staff in January 2019.
- 3.3.2 An investigation by Council staff, and a site inspection by a leading pavement expert (Bruce Burman – Pavement Asset Services Pty Ltd) has determined that “...apart from a few minor defects due to soil movement, trench settlement and bleeding seals over the water service trench, both roads appear to be structurally sound and do not require geotechnical investigation or pavement rehabilitation at this time.” (Attachment 4)
- 3.3.3 Three existing Pram Ramps were identified as unsatisfactory, and as such are proposed to be upgraded. (Estimated Cost of \$2,500) – (Attachment 5 to be completed as part of the current year Road Reseal Reconstruction program)
- 3.3.4 Because the reinstatement by SA Water was poor, Council is reviewing and negotiating with SA Water the requirements for complete reinstatement. It is expected that either SA Water via their contractors, or the Council, funded through a contribution with SA Water, will reinstate the road to the original condition.

## ITEM 2.6.2

3.3.5 As part of the proposed works to remedy the Local Flooding Issues, work on the footpath will be required including “making-good” any footpath and private residences’ driveways as part of the works.

3.4 Builder’s Rubble on Council Verge and Road

3.4.1 During investigation of Wendy Avenue significant builder's rubble was noticed in front of a building site at 12 Wendy Avenue, Valley View. This was noted by a neighbour as a persistent issue and Council staff noted the trip hazard on Council footpath and danger to vehicles on the road surface. The matter was passed onto the Environmental Health & Safety team and they have contacted the builder to rectify.

3.5 Residents Request for Meeting Prior Further Works Commencing

3.5.1 During site investigations in January 2019, a resident in Wendy Avenue requested a meeting with residents of Wendy Avenue and Avis Court be organized, where Council staff together with Councillors could discuss the proposed works to address the issues raised in the petition, prior to works beginning.

#### 4. CONCLUSION / PROPOSAL

4.1 Three existing kerb ramps to be repaired or upgraded.

4.2 It is recommend that Stormwater Infrastructure installed in Wendy Avenue and Avis Court, including necessary regrading of kerb, road surface and verge is undertaken in order to alleviate the risk of flooding to properties both now and in the future (once ultimate development has been undertaken in the area).

4.3 It is noted that both Council staff and the technical expert engaged by Council are of the opinion that while the road has no structural issues, and is constructed in line with current signed off service levels for the Road Resurfacing program, surface treatment and crack sealing is required to be undertaken. This work will be undertaken once the additional stormwater works have been completed.

4.4 A site meeting will be organized, with residents, Council Staff and Ward Councillors after this report is received by Council, and the outcome of negotiations with SA Water are completed.

#### CO-ORDINATION

Officer: EXEC GROUP

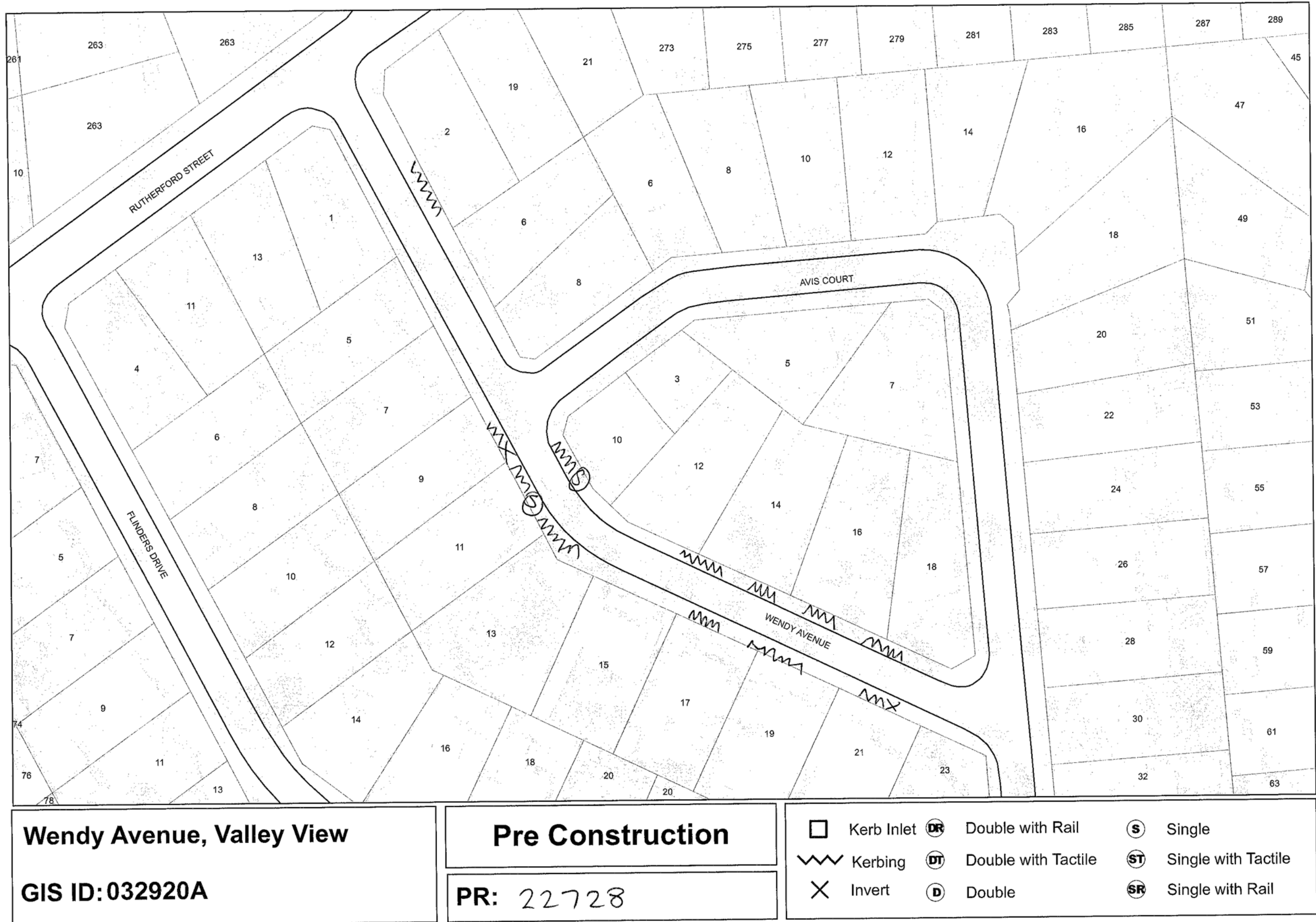
Date: 11/02/2019





Item 2.6.2 - Attachment 1 - Concept Layout of Proposed Stormwater Works

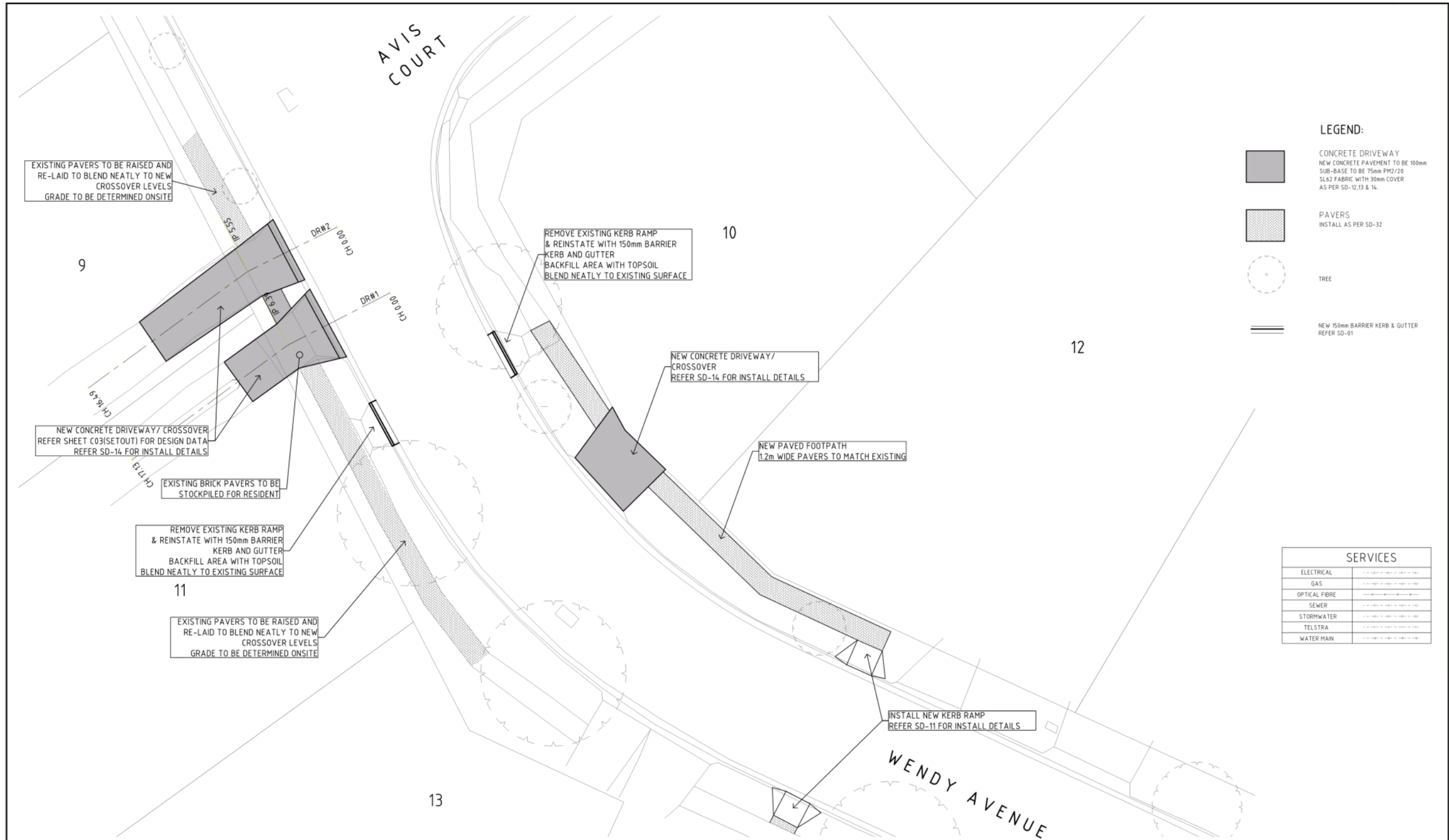




Item 2.6.2 - Attachment 2 - Kerb Works undertaken in 2015







**LEGEND:**

- CONCRETE DRIVEWAY  
NEW CONCRETE PAVEMENT TO BE 100mm  
SUB-BASE TO BE 75mm PM2/20  
SL62 FABRIC WITH 30mm COVER  
AS PER SD-12,13 & 14.
- PAVERS  
INSTALL AS PER SD-32
- TREE
- NEW 150mm BARRIER KERB & GUTTER  
REFER SD-01

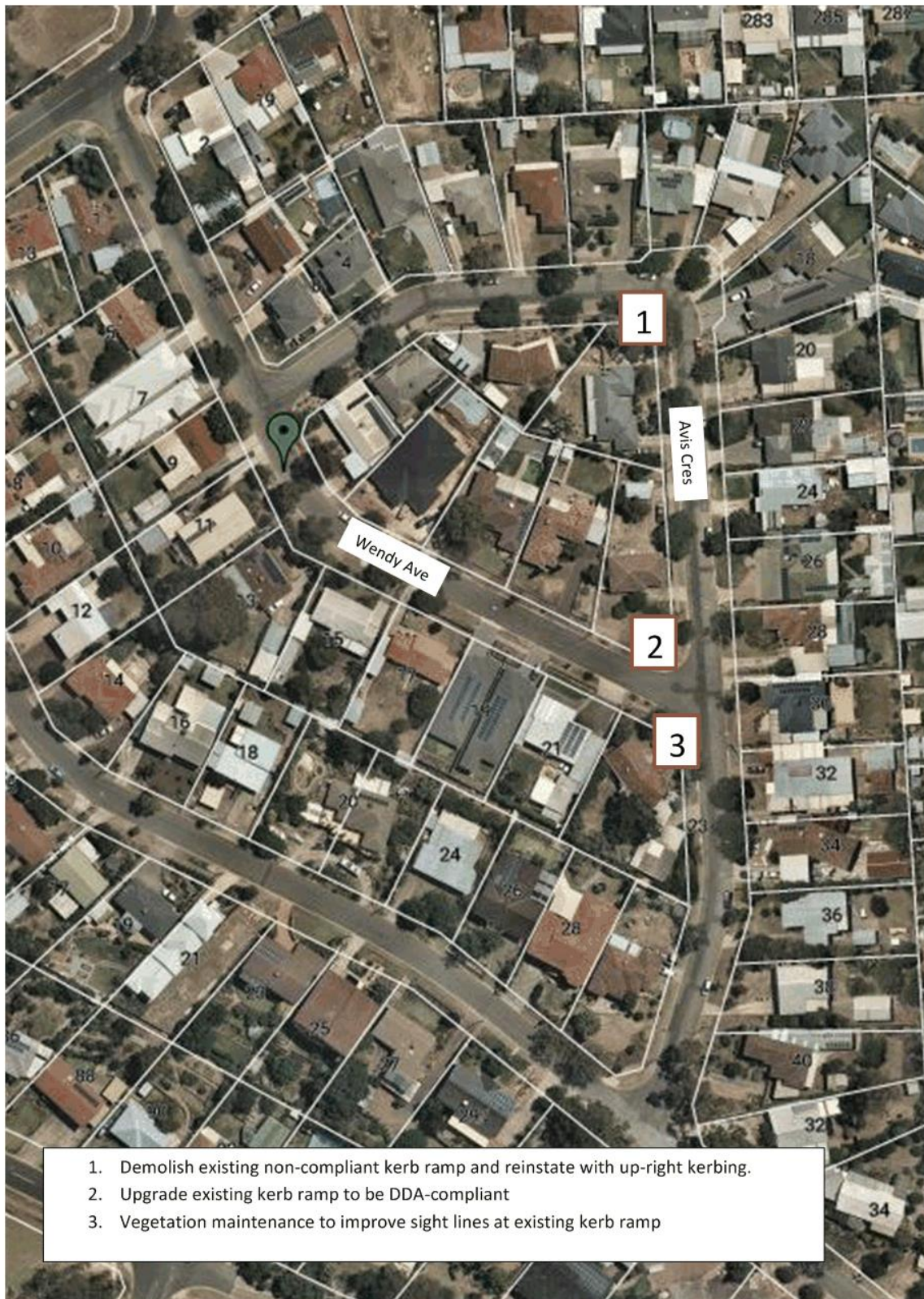
SERVICES	
ELECTRICAL	.....
GAS	.....
OPTICAL FIBRE	.....
SEWER	.....
STORMWATER	.....
TELSTRA	.....
WATER MAIN	.....

PLAN  
SCALE 1:100m

REVISIONS AND ISSUES				DRAWING SHEET DETAILS		 NORTH Meters 0 3 6 1:100	DESIGN VERIFICATION				<b>WENDY AVENUE</b> GENERAL CONSTRUCTION LAYOUT VALLEY VIEW PLAN No. PR23395 SHEET C02	1 REV.
REV	ISSUE/DESCRIPTION	DATE	APPROVED	ORIGINAL SHEET SIZE	A1		DESIGN TITLE	NAME	SIGNATURE	DATE		
1	ISSUED FOR CONSTRUCTION	09-09-2016	D.R.			APPROVED	DAMEON ROY					
						NAME	DAMEON ROY					
						DATE	09-09-2016					









**From:** [Jordan Ward](#)  
**To:** [Velizar Sedev](#)  
**Cc:** [Malcolm Mak](#)  
**Subject:** FW: Wendy Avenue, Avis Cres  
**Date:** Friday, 11 January 2019 8:09:49 AM

---

FYI – Advice from Bruce for inclusion in the report / recommendations that you are preparing in response to the petition

**Jordan Ward**

Graduate Engineer - Civil & Transport  
Infrastructure Management  
D: 08 8406 8281  
E: [JWard@salisbury.sa.gov.au](mailto:JWard@salisbury.sa.gov.au)

City of Salisbury  
12 James St, Salisbury, SA, 5108  
P: 08 8406 8222  
F: 08 8281 5466  
TTY: 08 8406 8596  
W: [www.salisbury.sa.gov.au](http://www.salisbury.sa.gov.au)

---

**From:** Bruce Burman [mailto:[bburman@paveassets.com.au](mailto:bburman@paveassets.com.au)]  
**Sent:** Thursday, 10 January 2019 9:12 PM  
**To:** Jordan Ward  
**Cc:** Peter Levett  
**Subject:** Re: Wendy Avenue, Avis Cres

Hi Jordan,

Great to catch up with you yesterday.

As discussed on site at Wendy Avenue and Avis Ct, apart from a few minor defects due to soil movement, trench settlement and bleeding seals over the water service trench, both roads appear to be structurally sound and do not require geotechnical investigation or pavement rehabilitation at this time.

The existing surface is aged and oxidized and would benefit from rejuvenation by way of edge planning and asphalt overlay (as cross-falls appear to be flat enough to accommodate this treatment), or micro-surfacing with no edge planning.

The infrequent environmental cracks should be crack sealed prior to surfacing.

This treatment is considered in isolation from the drainage issues, but wouldn't change due to regrade of kerbs, even where pavement cross-falls may be changed by re-shaping with asphalt. Reshaping would not necessarily undermine the structural capacity of the pavement and may be expected to improve it, depending upon the level design approach adopted.

Please don't hesitate to contact me if you have any questions or comments

Regards

*Bruce*

Bruce Burman  
Principal Consultant

**Pavement Asset Services Pty Ltd**

M: 0417 870410

E: [bburman@paveassets.com.au](mailto:bburman@paveassets.com.au)



<b>ITEM</b>	2.6.3
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>DATE</b>	18 February 2019
<b>HEADING</b>	Gulfview Heights Lake
<b>AUTHOR</b>	Velizar Sedev, Infrastructure Management, City Infrastructure
<b>CITY PLAN LINKS</b>	<p>2.1 Capture economic opportunities arising from sustainable management of natural environmental resources, changing climate, emerging policy direction and consumer demands.</p> <p>2.2 Have a community that is knowledgeable about our natural environment and embraces a sustainable lifestyle.</p> <p>3.2 Have interesting places where people want to be.</p>
<b>SUMMARY</b>	<p>Gulfview Heights Lake, otherwise referred to as Bayview Parade Dam, is one of 15 flood control dams under the care and control of City of Salisbury. Fed only by rainfall runoff, the dam has the capacity for retention of water, and is also located in a recreational reserve. A notice of motion from Council on 24/9/2018 called for a report on any repairs required and service level of the wider reserve. Council staff have explored the issues raised and proposed actions to address them.</p>
<b>RECOMMENDATION</b>	<ol style="list-style-type: none"> <li>1. The information within the report be received.</li> <li>2. Council consider reactivation of the Bay View Parade reserve irrigation, as part of the 2019/20 Budget Bid process (PSN000355).</li> </ol>
<b>ATTACHMENTS</b>	<p>This document should be read in conjunction with the following attachments:</p> <ol style="list-style-type: none"> <li>1. Gulfview Heights Lake (Bayview Parade Dam) Aerial</li> <li>2. Design Site Plan</li> <li>3. Irrigation Plan - As Constructed</li> </ol>
<b>1. BACKGROUND</b>	<ol style="list-style-type: none"> <li>1.1 At its September 2018 meeting, Council resolved as follows: <ul style="list-style-type: none"> <li><b>MON7.2 Motion on Notice – Gulfview Heights Lake</b></li> <li>1. <i>That a report be provided to Council advising on and investigating various issues regarding the Gulfview Heights Lake / Dam, located on Bayview Parade, Parkside Drive, and Gulfview Circuit, including;</i> <ul style="list-style-type: none"> <li>• <i>advice whether there is any leakage or erosion issues with the current lake, and the cost implications for any repairs deemed necessary;</i></li> </ul> </li> </ul> </li> </ol>

## ITEM 2.6.3

- *advice on the current service levels for the reserve and options to renew and/or upgrade the reserve to improve general aesthetics, accessibility and usage of the space for greater community benefit.*

2646/2018

1.2 Bayview Parade Dam (the dam), is located in the Wynn Vale Gullies reserve, on Bayview Parade, Gulfview Heights.

1.2.1 The lake is a detention dam, providing attenuation of stormwater flows and assisting to reduce the risk of flooding of downstream properties.

1.2.2 The lake was constructed as part of the Para Scarp portion of the Golden Grove Development by Delfin, in 1998.

1.2.3 The lake has an outlet pipe with invert two meters above the base of the dam. As such the dam has design water depth of 2 meters, fed only by natural rainfall.

## 2. CITY PLAN CRITICAL ACTION

2.1 Introduce a City-wide approach to resourcing of place management and activation to capitalise upon existing and future investment in our places and spaces.

2.2 Promote a positive image of Salisbury to attract investment, visitors and tourists, and increase community pride.

2.3 Develop a Wellbeing Strategy for the Council and the community that incorporates healthy lifestyles and recreation, psychological wellbeing and resilience.

## 3. CONSULTATION / COMMUNICATION

3.1 Internal

3.1.1 Elected Members Briefing

3.1.2 Local Residents

## 4. REPORT

4.1 Leakage and Erosion Issues

4.1.1 The dam was originally constructed in 1998 with a clay liner, the purpose of which was to contain captured natural stormwater runoff up to the design level, for as long as possible.

4.1.2 The water level and presence of water (up to the outlet) is directly dependent on rainfall volume and frequency, natural evaporation and ground infiltration.

4.1.3 As part of the original design, the banks along Bayview Parade and part of the reserve to the East were irrigated. (see attachment of irrigation).

4.1.4 Due to the continuing drought conditions, irrigation was turned off in 2009.

- 4.1.5 The ceasing of irrigation has at times caused drying out of the dam to a point where surface cracks in the soil have begun to appear. This is because without irrigation the soil moisture content in the ground surrounding the dam and therefore the clay liner is not maintained and dries out.
- 4.1.6 Due to vandalism, the clay material used as liner in the dam was removed illegally in the summer of 2013.
- 4.1.7 As a result of losing the clay liner, the ground infiltration of rainfall was quite rapid and would see the captured water level drop quite quickly, even though rainfall is erratic. To combat this accelerated drying out of the dam, the section of clay liner removed was replaced in the spring of 2014 when access to the dam floor became available.
- 4.1.8 The clay liner requires some moisture in order to maintain a reasonable seal and prevent rapid ground infiltration. Due to no irrigation being undertaken, the clay liner has dried out more regularly and in some seasons, as with this year, has completely cracked through, meaning that it takes significantly more time for the liner to wet up, expand and seal.
- 4.1.9 The current service level is to maintain existing plantings and routine maintenance as necessary and if there is to be more water retained more regularly in the dam this service level has to be significantly increased to include irrigation.
- 4.1.10 The current condition and remaining life of the structure as a detention dam was assessed by SMEC Engineering in 2017 and deemed satisfactory with no structural concerns.
- 4.1.11 It is proposed that the existing irrigation is reactivated, which will significantly improve the clay liner moisture level and ensure cracks in the liner are mostly closed.
- 4.1.12 A Budget bid has been prepared to reactivate the irrigation at 10 sites per year, which had been turned off across the City during the drought. This site has been included in the initial list. Given there is no prospect in the medium term forecasts of a high level of rainfall, that would fill the dam, a delay until the budget bid is approved will not affect the levels of water in the dam.
- 4.1.13 Similarly, given the evaporation rates, and this January's record dry spell, the dam would have dried out regardless of whether irrigation was reactivated or not.
- 4.2 Biodiversity and Habitat
- 4.2.1 This area forms part of the Escarpment Corridor including its surrounding areas such as Peppermint Gum Gully and Wynn Vale Gullies. Biodiversity corridors serve to link discrete areas of remnant vegetation and important habitat, allowing movement of flora and fauna species. In order to conserve Biodiversity we need to conserve both species and habitats which include ensuring there are sufficient food and habitat resources for the long-term survival of these species. By ensuring water availability for a larger part of the year, this will enhance the provision for increased resources to foster biodiversity.

**5. CONCLUSION / PROPOSAL**

5.1 Activation of Irrigation

5.1.1 The Gulfview Heights Dam has dried out not only because of the extremely dry January, but mainly due to the irrigation being turned off in the surrounding reserve.

5.1.2 To reinstate the lake and lengthen the duration of water being retained the existing irrigation will need to be reinstated to ensure the banks and the clay liner does not dry out. It is estimated that the cost to repair the irrigation will be \$20,000, with \$10,000 per year to be allocated to the cost of irrigation water.

5.1.3 This site has been included in the Budget Bid PSN000355, Greening Salisbury – Irrigation Activation of Open Space, as part of the \$200,000 allocated to reactivate sites previously turned off.

5.2 Review of planting, other portions of reserve.

5.2.1 It is also proposed to conduct a review of the existing path network and suitability of current plantings as part of the site reactivation, in line with the currently being prepared Salisbury Activation Plan.

**CO-ORDINATION**

Officer: EXEC GROUP  
Date: 11/02/2019

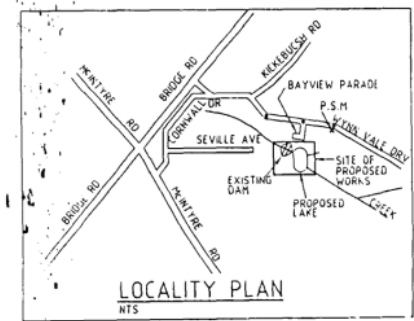
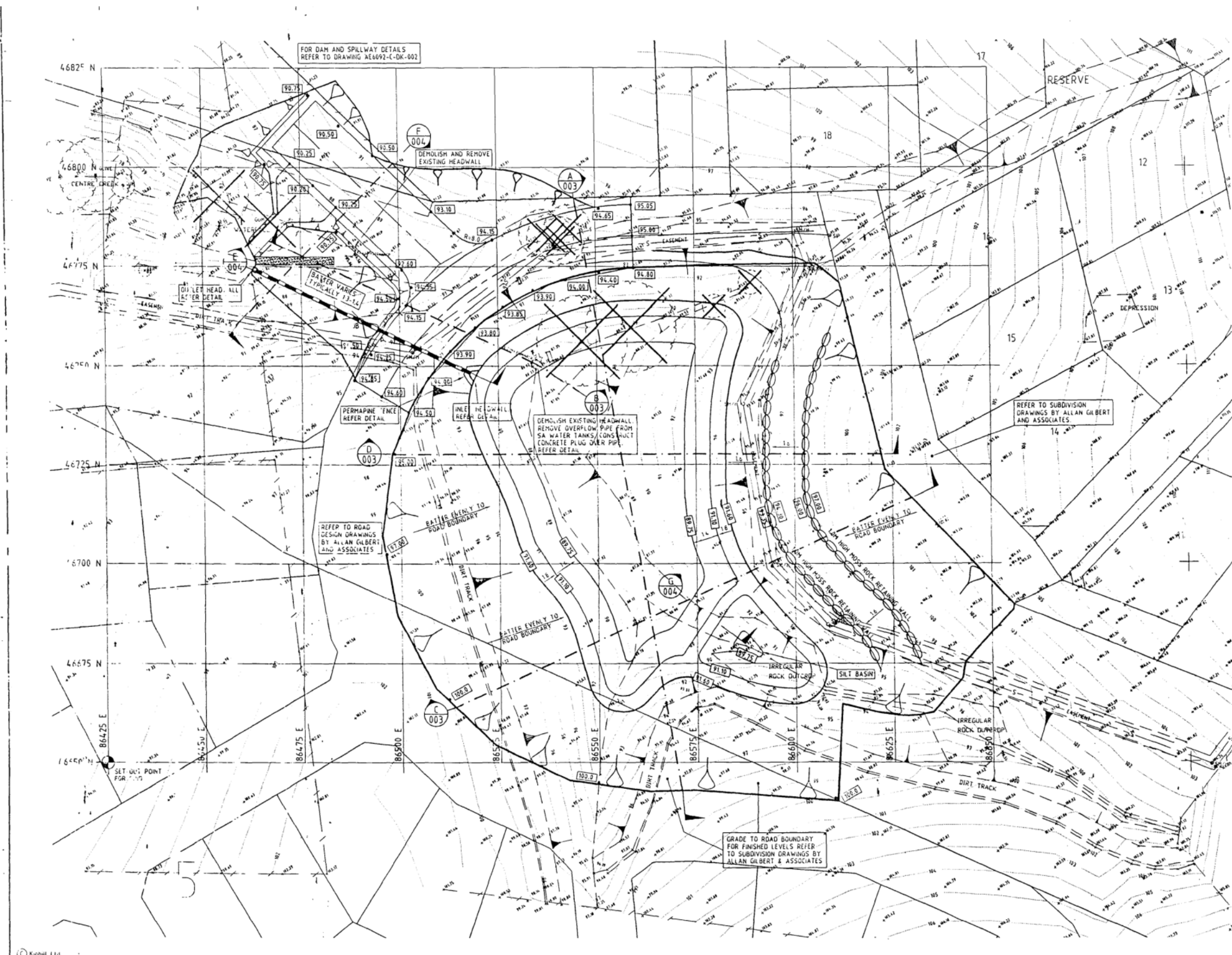




Item 2.6.3 - Attachment 1 - Gulfview Heights Lake (Bayview Parade Dam) Aerial

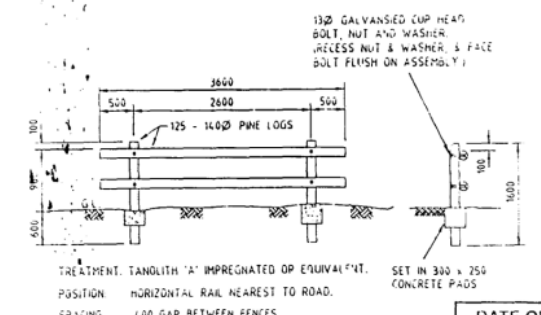






- LEGEND**
- EXISTING LEVEL
  - ⊗ EXISTING TREE TO BE REMOVED
  - S— EXISTING SEWER
  - ( )— 1.0M HIGH MOSS ROCK RETAINING WALL
  - ( )— DESIGN LAKE LEVEL
  - ( )— DESIGN CONTOUR LINE
  - ( )— DESIGN SPOT LEVEL

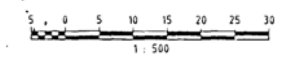
- NOTES:**
1. SURVEY LEVELS BASED ON SURVEY DRAWING PROVIDED BY ALLAN GILBERT & SYMONDS HEIGHT DATUM AND
  2. CONTRACTOR TO VERIFY POSITION OF EXISTING SERVICES WITH RELEVANT AUTHORITIES BEFORE COMMENCING WORK.
  3. CONTRACTOR TO VERIFY ALL DIMENSIONS, QUANTITIES AND ELEVATIONS SITE PRIOR TO CONSTRUCTION.
  4. EARTHWORKS LEVEL SET-OUT SHALL BE SCALED FROM THIS DRAWING.
  5. ALL BATTER INTERFACES AND CHANGES OF GRADE SHALL HAVE SMOOTHLY ROUNDED TRANSITION CURVES.
  6. PERMANENT SURVEY MARK LOCATED ON THE SOUTHERN SIDE OF WYTH VALE DRIVE ROUNDABOUT REFER LOCALITY PLAN.



PERMACHINE FENCE DETAIL  
 150  
**PRELIMINARY ONLY**  
 NOT FOR CONSTRUCTION  
 FOR COUNCIL APPROVAL

DATE OF ISSUE  
 14 APR 1997

No	TITLE
	REFERENCE DRAWINGS



DESIGN	DATE	SCALES
DESIGN CHECK		1 : 500
DRAWN		CAD FILE E6092CAA PLOT SCALE 2 = 1
DRAFTING CHECK		TECHNICAL APPROVAL DATE
		PROJECT APPROVAL
		CLIENT APPROVAL

CODE	DATE	DESCRIPTION	DRAFT	DES	PROJ	SUP
A	14.04.97	ISSUED FOR COUNCIL APPROVAL	FR			

**KINHILL**  
 Kinhill Engineers Pty Ltd A.C.N. 007 660 317

DELFIN PROPERTY GROUP  
 PARA SCARP 902 DETENTION BASIN AND LAKE  
 BAYVIEW PARADE, PARA HILLS

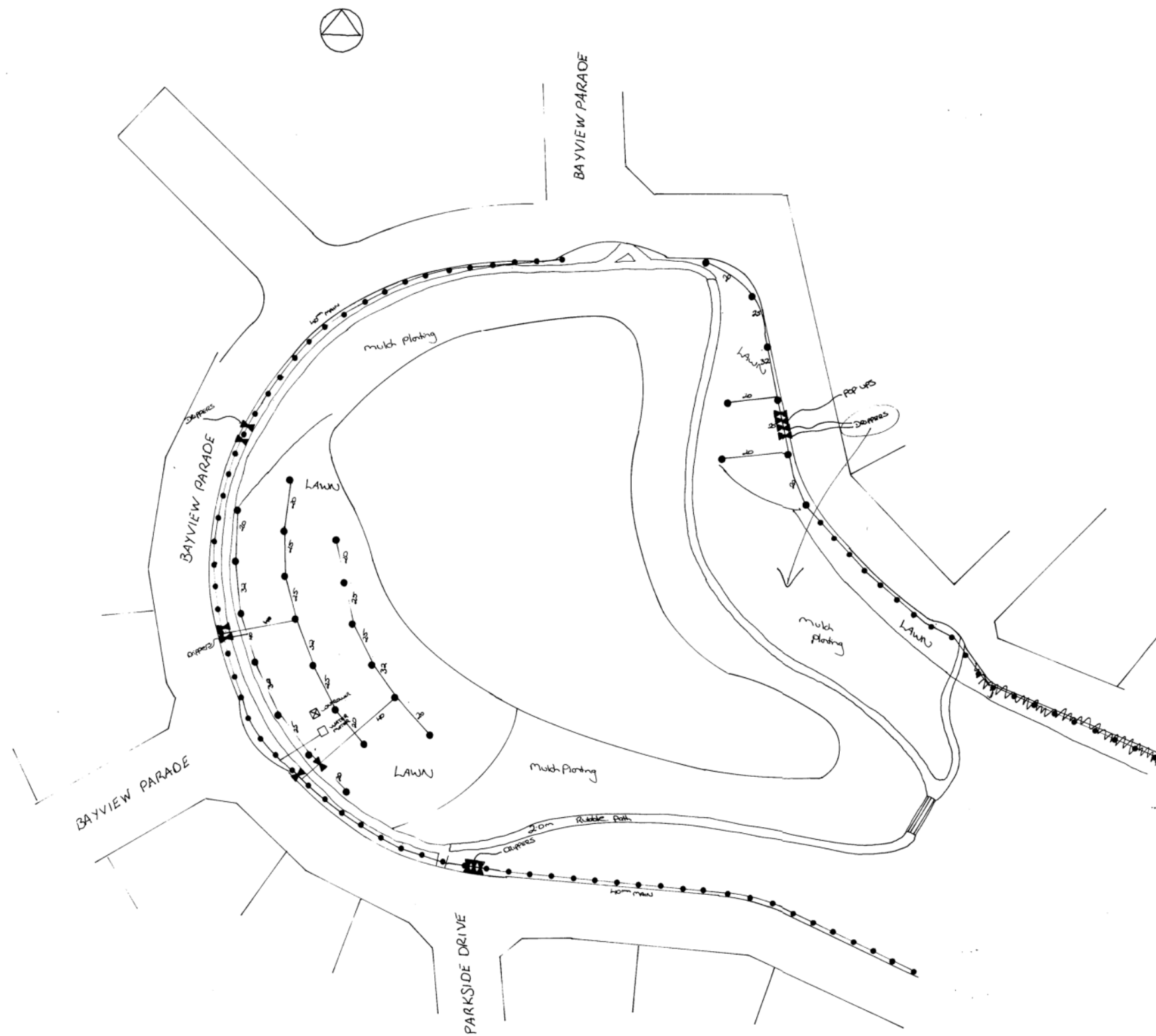
SITE PLAN

DRAWING NUMBER  
**AE6092-C-DK-001**

REVISION  
 1  
 A



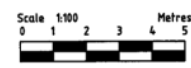
R324-5



**GULFVIEW LAKE.**

LEGEND

- Sprinklers 120 Hunter
- Sprinklers POP UPS 12.04
- ⊠ Sprinklers 40mm 25' Riddell
- ⊠ Control cabinet 12 25mm - Professional
- Water meter with backflow
- Main pipe 40mm class 12
- Riser lines 40mm class 9
- All cables multi core 1.5m
- Spacing 12x12 Triangle
- Spacing 5m
- Min Pressure 344 kPa



G. GEORGIOU  
018829036





<b>ITEM</b>	2.6.4
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>DATE</b>	18 February 2019
<b>HEADING</b>	Bridgestone Reserve Athletics Facility
<b>AUTHOR</b>	Adam Trottman, Manager Community Planning & Vitality, Community Development
<b>CITY PLAN LINKS</b>	3.2 Have interesting places where people want to be. 3.3 Be a connected city where all people have opportunities to participate. 3.4 Be a proud, accessible and welcoming community.
<b>SUMMARY</b>	This report provides an update regarding the Bridgestone Athletics Facility scoping works.

## RECOMMENDATION

That Council note:

1. The information contained in the report, and adjustments included in the second quarter budget review being \$500,000 income gain from additional grant contribution, \$500,000 bid to enable delivery of the project meeting the requirements of the IAAF certification, and the retiming of the project.
2. The increase to the 2019/20 budget bid for Bridgestone Reserve Athletics Facility of \$500,000 to enable lighting meeting IAAF certification, as a result of these funds being omitted from the Sports Field Lighting Program.
3. If approved through the budget process outlined in Recommendation 1 and 2 of this report (Works and Services 2.6.4, 18/02/2019), the project now has anticipated expenditure of \$4.8M, with grant funding of \$1.5M, resulting in Council contribution to the project now revised from \$2.8Million to \$3.3Million.

## ATTACHMENTS

This document should be read in conjunction with the following attachments:

1. Bridgestone Reserve Layout

### 1. BACKGROUND

- 1.1 In November 2017, Council considered a report regarding the development of a synthetic athletics facility at Bridgestone Reserve, Salisbury South.
- 1.2 Council resolution 2153/2017 stated inter alia that:
  - a. *Staff continue the concept development for a regional athletics facility at Bridgestone Reserve, subject to external funding and other key considerations.*
  - b. *The City of Salisbury's application to Round One of the Office for Recreation and Sport's Sporting Surfaces Program for \$1million towards the development of a synthetic athletics track at Bridgestone Reserve;*

## ITEM 2.6.4

*c. The City of Salisbury's application to the Office for Recreation and Sport's Community Recreation and Sport Facility Program for \$500,000 towards the development of a club and change room facility located at Bridgestone Reserve;*

*d. The City of Salisbury's applications to other appropriate funding programs or sources that may be identified in the future for the development of athletics facilities at Bridgestone Reserve;*

*e. Staff continue to engage with potential users of such a facility with a desire to develop partnership agreements with Council.*

*f. A further report be brought back to Council for consideration regarding the detailed scope of works and operating costs, revenue streams and end user commitments associated with Council's preferred option before June 2018.*

*Subject to receipt of significant external funding and end user commitments, a new initiative bid for the 2018/19 Budget be prepared for Council consideration for the development of the endorsed Concept.*

- 1.1 A further report was provided to Council in September 2018 providing an update of scoping work undertaken to date and providing an update on the schedule. This information was noted by Council (resolution 2638/2018).

#### **Athletics participation profile across the City of Salisbury**

- 1.2 Currently athletics participation within the City of Salisbury is located at:
- Rundle Reserve in Salisbury South (Northern Districts Athletics Club)
  - Creaser Park in Parafield Gardens (Salisbury Little Athletics); and
  - Golding Oval in Para Vista (Ingle Farm Little Athletics)
- 1.3 The Northern Districts Athletics Club offers both senior and junior athletics at Rundle Reserve and has around 190 members.
- 1.4 The Salisbury Little Athletics Centre only offer junior athletics at Creaser Park and has over 80 members.
- 1.5 The Ingle Farm Little Athletics Centre also only offers junior athletics at Golding Oval and has over 70 members.
- 1.6 Athletics in South Australia is experiencing a time of significant growth. Athletics SA membership has grown by 46% over the past 4 seasons and has a growth trajectory placing it at a record 29 year high.
- 1.7 In addition to club participation, many children and youth still participate in athletics through schools with most schools still holding an annual athletics day carnival.

#### **Athletics Sports Profile across South Australia**

- 1.8 South Australia currently has no regional level athletics facilities in the State and has only one synthetic athletics facility, which is SA Athletics Stadium (previously SANTOS Stadium) a state level facility, located at Mile End.
- 1.9 In comparison, other States have significantly more synthetic athletic tracks than South Australia (eg. Victoria 25 synthetic athletic tracks, Queensland 12 synthetic tracks).

- 1.10 South Australia is at significant disadvantage compared to the other States in Australia. Furthermore, residents, participants and school students in the North are even more disadvantaged due to being located so far away from the State's only synthetic athletics track. This not only effects participation levels but also future growth opportunities for the sport and the number of athletes from the North that make it through to State and National level representation.
- 1.11 The SA Athletics Stadium at Mile End operates with high levels of school bookings throughout the year with the majority of schools being associated with Secondary School Sport SA (SSSSA), South Australian Primary Schools Amateur Sports Association (SAPSASA), or South Australian Christian Schools Association (SACSA Sports).
- 1.12 This disadvantage for Northern children and adults is reflected in booking numbers at the SA Athletics Stadium which have around 80 bookings per year yet with only 2-3 coming from the Northern Suburbs. It is thought that this is due to the accessibility of the Mile End track to the Northern suburbs including travel time and costs.
- 1.13 SA Athletics Stadium also experiences high use by Athletics, Little Athletics and private coaching which adds to the high number of bookings throughout the year.
- 1.14 Participation in Little Athletics in SA is still high and importantly more than 3,200 members (48.5% of total membership) are located within a 25km radius of Bridgestone Reserve. This supports having a synthetic athletics track facility in this location with significant numbers of participants and their families expected to make use of such a facility.
- 1.15 As there is currently no secondary State athletics facility or even a regional level facility, South Australia also has no back up when the SA Athletics Stadium is booked out.

#### **Background to the development of a Northern Athletics Facility**

- 1.16 Salisbury was identified as early as the mid 2000's as the preferred location for a synthetic track in the North, with the State Sport Facilities Strategy recognizing the need.
- 1.17 In 2011, Bridgestone Reserve was specifically identified as a priority site for the development of a regional synthetic athletics facility by Athletics South Australia in their South Australian Track and Field Facilities Masterplan (2011) based on the following criteria:
  - Physical site conditions
  - Security and safety
  - Access and transport
  - Impact on existing site
  - Demand and usage
  - Alignment with strategic and land use planning

## ITEM 2.6.4

1.18 The following circumstances made it appropriate to consider the opportunity for developing an athletics facility:

- Costs for the project are significantly less (major earthworks were funded through Federal Government and proposed club facilities are more realistic)
- The sport of Athletics is united at both a local and State level
- Other state sporting facility elements have been removed from the project
- Additional \$1.495Million investment into the project from the State Government

**Site location Bridgestone Reserve**

- 1.19 Bridgestone Reserve is located at the site of the former Bridgestone Factory and was once home to an oval used by workers, their families and friends to play sport and recreate. Upon closure of the factory, Bridgestone Australia Pty Ltd gifted the land to the council on the condition that it be retained as community land and was retained for open space and community use.
- 1.20 Bridgestone Reserve lends itself to becoming a regional athletics facility with a range of complimentary uses including a recreational play space, open turfed areas, and community fitness equipment as well as a well-designed site layout and location of the Reserve.
- 1.21 With a train station on the Adelaide to Gawler line servicing the site, Bridgestone Reserve is the most strategically important and well located site for the State's second synthetic athletics facility.
- 1.22 In 2017, Bridgestone Reserve was opened with irrigated turf playing surfaces, a district level play space, public toilets, walking track, community fitness equipment, barbeque, and storm water reticulation scheme and provision has been made for the connection of floodlighting and installation of a synthetic athletics track in case future funding made the project feasible.
- 1.23 Since the opening of Bridgestone Reserve, observations are that the play space and eastern turf playing surface is primarily used by the public with little use of the turf play space located closest to the train line (which is the area identified for a athletics facility).
- 1.24 The proposed layout (see Attachment "A") allows for the retention of unstructured active recreation space on the Eastern turfed area and play space and staff are continuing to explore the feasibility of continuing a fully accessible site to the community for both unstructured and semi-structured recreational use (ie. The athletics tracks at Rundle Reserve, Creaser Park and Golding Oval are currently fully accessible outside of leased periods).
- 1.25 With large numbers of families visiting the site for active recreation purposes on the adjacent Eastern turfed playing field and play spaces, this provides an additional level of passive surveillance which is likely to increase use of the facility compared to that of other athletics facilities in the area due to an increase in safety. Similarly, families are also likely to feel safer at the play spaces due to the number of people using the athletics facilities.

1.26 The following organisations have provided their full support for a regional athletics facility at Bridgestone Reserve:

- Athletics South Australia
- Little Athletics South Australia
- Secondary School Sport SA (SSSSA)
- South Australian Primary Schools Amateur Sports Association (SAPSASA)
- South Australian Christian Schools Association (SACSA Sports)
- Inclusive Sport SA
- Disability Recreation and Sport SA
- Northern Districts Athletics Club

1.27 Adelaide has been named as the preferred bidder for the 2026 Commonwealth Games and Bridgestone Reserve Athletics Facility could be a preferred training venue for athletes in the years lead up to those games.

1.28 This facility will meet the accreditation requirements for the International Association of Athletics Federations as Regional Level 2 Class 3 facility.

## 2. CONSULTATION / COMMUNICATION

### 2.1 Internal

- 2.1.1 City Infrastructure
- 2.1.2 Business Excellence
- 2.1.3 Community Development

### 2.2 External

- 2.2.1 Athletics SA
- 2.2.2 SA Little Athletics
- 2.2.3 Sporting clubs
- 2.2.4 Office for Recreation, Sport and Racing

## 3. REPORT

3.1 This report provides a summary of the project status since the last Council update report received in September 2018 (resolution 2638/2018) and resolution 2153/2017 to continue the concept development of a synthetic athletics facility at Bridgestone Reserve.

### **Design**

3.2 Staff have worked extensively with stakeholder groups, particularly the State associations, clubs and an International Association of Athletics Federation (IAAF) track development subject matter expert nominated by Athletics SA, to determine the functional requirements for the facility.

3.3 The design, functional elements, and construction of this facility is complex and has required extensive work to ensure all elements will achieve IAAF certification and maximize the lifecycle of the facility.



## ITEM 2.6.4

- 3.4 The design of the community facility will be suitable for the co-location of three athletics clubs and for school carnivals, state association activities and others when not being used for athletics, which will have priority.
- 3.5 Importantly the remainder of Bridgestone Reserve to the east of the site would remain as an informal recreation area accessible by the whole community. This area lends itself to informal recreational uses with large irrigated turf areas, BBQ facilities, public toilets and informal play spaces available for use by the wider community.
- 3.6 In September Council supported the further exploration of the requirements and scoping for the track to be IAAF Class 2 Regional level compliant facility.
- 3.7 Staff have been working with Athletics SA, SA Little Athletics, the Office for Recreation and Sport, Athletics Australia, technical officials and the three clubs to scope the user and IAAF requirements.
- 3.8 The layout allows for the installation of a new 8 lane (10 lane straight), 400m synthetic athletics track that meets the International Association of Athletics Federation requirements.
- 3.9 The proposed synthetic athletics track has been certified by the IAAF and will therefore meet Athletics SA and Athletics Australia's technical requirements to host school and interschool competitions, district level club training and competitions, and potential state and national events.
- 3.10 The field requirements (eg. throwing disciplines) proposed at the facility will meet the highest level appropriate for the facility including local, district, state, and national standards.
- 3.11 While the track will meet IAAF standards, ancillary facilities such as change rooms, spectator viewing and floodlighting are unlikely to meet the requirements for International level competition such as the Olympics or World Championships. This would require significant additional investment in lighting suitable for High Definition TV and additional synthetic training facilities which would not be appropriate for this track and is only applicable for major stadiums.
- 3.12 The current design specification however will provide further options for regional, state and national level competition as well as additional training facilities for international athletes in the lead up to competitions such as Commonwealth Games and IAAF meets at the South Australian Athletics Stadium where capacity is reached.
- 3.13 The turf infield will be retained for throwing disciplines and will continue to be accessible for others when not in use for athletics.
- 3.14 The mounding that was developed as part of the previous upgrade will also be retained and offers excellent spectator viewing of the proposed track, throwing, and jumps areas.
- 3.15 Storage facilities will be located separate to the proposed club facility and will consist of a shed with concrete floor and is a cost effective method. This is similar to what is provided at the SA Athletics Stadium.

#### 4. BUDGET SUMMARY

- 4.1 During the initial stages of the Bridgestone athletics track facility scoping conducted in 2017, Council was asked to support \$3.8Million (including grant income of \$1Million) in its budget from 2018/19 to 2021/22 towards the Bridgestone Reserve Athletics Facility. Funding from the Office for Recreation, Sport and Racing of \$995,000 towards the proposed Bridgestone Reserve athletics track (announced February 2018) has been received into the City of Salisbury accounts. This funding must be expended by 30 June 2020. Additional funding from the Office for Recreation, Sport and Racing of \$500,000 was announced on 31 August 2018.
- 4.2 At the time of seeking approval, the detailed scoping works for a IAAF accreditation, had not been completed. Since completing the work to detail the accreditation specifications it now appears that the capital estimate for the works were under what is required. As a result additional funding will be required to construct a facility that meets the requirements of IAAF Class 2 Regional Level 3 which is integral to the regional, state and national level significance of the facility.
- 4.3 As a result a budget review bid for \$500,000 has been included in the second quarter Budget Review considered at the Budget and Finance Meeting tonight item (6.5.1). It should be noted that this \$500,000 bid is offset by the grant funding income gain also included in the budget review.
- 4.4 As part of the project schedule, an amount of \$500,000 through the Sports Field Lighting Program was to be used towards lighting of Bridgestone Reserve in 2019/20 however this was not included in forward estimates.
- 4.5 As a result the Bridgestone Budget Bid for 2019/20 will be amended to include the lighting component that was omitted from the Sports Field Lighting Program.
- 4.6 As a result of all of the changes to the project since the original bid, the project now has anticipated expenditure of \$4.8M, with grant funding of \$1.5M, resulting in Council contribution to the project now revised from \$2.8Million to \$3.3Million.
- 4.7 An timing adjustment has been included in the second quarter Budget Review considered at the Budget and Finance meeting this evening (item 6.5.1), to retime project funds from 2018/19 to 2019/20 with the exception of \$150,000 which will be used to complete the detailed design and documentation.
- 4.8 A further application for \$500,000 has also been submitted through the Australian Government Community Sport Infrastructure Grant Program administered through SportAus (formerly the Australian Sports Commission) with announcements expected around April 2019. Should this funding application be successful this will reduce Council's contribution to \$2.8Million (as originally estimated).
- 4.9 Staff will continue to peruse grant opportunities as they arise to off-set Council's contributions to the project.

**5. TIMING**

- 5.1 When Budget Bids were prepared for 2018/19, it was anticipated that construction of the Athletics Track would commence in early-mid 2019 and be completed in late 2019.
- 5.2 During the detailed scoping phase of this project, and through consultation with National and International industry experts, it was determined that due to Adelaide's weather, the optimal time for construction of the track is during the warmer months in the year and construction could not be done across winter without compromising the integrity of the project.
- 5.3 As a result of the optimal construction period, pre-works on site are expected to commence from 1 July 2019 with construction being undertaken from September 2019 with pouring of the surface at the optimal time of year.
- 5.4 If budgets are approved tenders will be called for shortly and this will confirm the schedule for the project.

**6. MANAGEMENT MODEL**

- 6.1 Staff are finalising options for the most appropriate management model that will result in the maximum opportunity to grow the sport, maximize use of the facility and provide the best return on investment to the City of Salisbury long term.
- 6.2 It is likely that this model will include a single point for managing the operations, hiring, events, and casual use of the facility. This model will maximize the available access to the community and ensure the venue is maximized for school and other community group use.
- 6.3 A further report will be brought back to Council regarding management model options.

**7. CONCLUSION / PROPOSAL**

- 7.1 There is significant community support for this facility including a commitment from three clubs to relocate to the new facility, all relevant state and regional associations, schools, school sporting associations, Bridgestone Australia Pty Ltd, and significant community interest.
- 7.2 The 2018/19 budget included investment of \$995,000 from State Government to the project in addition to \$2.8Million contribution from Council.
- 7.3 In August 2018, a further \$500,000 was allocated by State Government to the project taking the total investment from State Government to \$1.495M.
- 7.4 This additional \$500,000 funding received from State Government in August 2018 is proposed to be used to meet the requirements of a IAAF Class 2 Regional Level 3 facility. This is based on detailed scoping that has been undertaken as part of the project which has refined budget estimates which have been verified by an independent cost estimator.
- 7.5 As part of the project schedule, an amount of \$500,000 through the Sports Field Lighting Program was to be used towards lighting of Bridgestone Reserve in 2019/20 however this was not included in forward estimates.

- 7.6 As a result the Bridgestone Budget Bid for 2019/20 will be amended to include the lighting component that was omitted from the Sports Field Lighting Program.
- 7.7 As a result of all of the changes to the project since the original bid, the project now has anticipated expenditure of \$4.8M, with grant funding of \$1.5M, resulting in Council contribution to the project now revised from \$2.8Million to \$3.3Million.
- 7.8 As a result of the optimal construction period, pre-works on site could commence from 1 July 2019 with construction being undertaken from September 2019 with pouring of the surface at the optimal time of year.
- 7.9 Pending approval through the budget process, tenders will be called for shortly and this will confirm the schedule for the project.

**CO-ORDINATION**

Officer: Exec Group  
Date: 11/02/2019







## Bridgestone Reserve - athletics and field sports option

- ① Synthetic athletics track with grassed field in centre
- ② Long/triple jump
- ③ New club rooms
- ④ 400m synthetic athletics track
- ⑤ Existing playspace
- ⑥ Existing detention pond
- ⑦ Existing tanks and recycled water infrastructure



DRAFT 6/11/17



<b>ITEM</b>	2.7.1
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>DATE</b>	18 February 2019
<b>HEADING</b>	Traffic Safety - Anson Avenue, Parafield Gardens
<b>AUTHOR</b>	Jordan Ward, Civil & Transport, City Infrastructure
<b>CITY PLAN LINKS</b>	3.3 Be a connected city where all people have opportunities to participate. 3.4 Be a proud, accessible and welcoming community. 4.3 Have robust processes that support consistent service delivery and informed decision making.
<b>SUMMARY</b>	Patrons from the local shops located on 24-38 Catalina Avenue, Parafield Gardens are electing to turn right at the egress point, which is in close proximity to the roundabout. For the safe traffic management of the site and intersection, traffic control devices should be installed to ensure patrons can only use this egress point as left out only.

#### RECOMMENDATION

1. Council Staff to liaise with the shopping centre to extend the raised concrete median on the Anson Avenue approach to the roundabout, physically restricting the right turn out movement from the shops, (**Option 3**).

#### ATTACHMENTS

This document should be read in conjunction with the following attachments:

1. Site Location Aerial Image - Anson Ave. and Catalina Ave, Parafield Gardens
2. Observed egress movement
3. Photograph of patron complete right turn out - 1
4. Photograph of motorist completing right turn out - 2
5. Option 3 - Anson Road Traffic Control Improvements

#### 1. BACKGROUND

- 1.1 This report arises from concerns raised regarding traffic performance of the egress point from the local shopping centre located at 24-38 Catalina Avenue, Parafield Gardens.
- 1.2 Patrons from the shops who wish to travel North or East are electing to turn right at the Anson Road egress point, which is located at the roundabout of Anson Road and Catalina Avenue.

1.3 Due to the shaping of the egress point on Anson Road and tight geometry to enter the roundabout, motorists are standing on the Anson Road departure leg of the roundabout, which presents a risk for other motorists completing the range of movements at the roundabout.

1.4 At its September 2018 meeting, Council resolved as follows:

***MWON12.1 Traffic Safety – Anson Avenue, Parafield Gardens***

1. *That a report be brought back with options to improve traffic safety on Anson Avenue, Parafield Gardens adjacent to Catalina Avenue shops.*

2648/2018

## **2. CONSULTATION / COMMUNICATION**

2.1 External

- 2.1.1 Owners and Business operators within the local shopping complex at 24-38 Catalina Avenue for any proposed modifications to the Council owned carpark.

## **3. REPORT**

3.1 The traffic performance of the egress point of local shops at 24-38 Catalina Avenue, Parafield Gardens has been assessed by Council's Traffic Team.

3.2 This site received development approval in the 1980's, with the site operating as the classic "corner store" site. This site now houses a number of specialty stores and grocers, which have a significantly larger catchment and the site attract traffic from outside the immediate local streets.

3.3 The carpark at this local shopping centre is owned by Council, where the City of Salisbury have the responsibility to manage safe traffic movements on our property.

3.4 From a site investigation, a large portion of motorists were observed to be completing the undesirable manoeuvre of turning right out of shops in close proximity to the roundabout.

3.4.1 In-lieu of no additional traffic control devices (pavement arrows or signage) this is a legal manoeuvre under the South Australian Road Rules as motorists are able to cross a solid line in order to enter or exit the roadway.

3.4.2 It is not uncommon for developments to have access / egress points located in close proximity to intersections, depending on the site layout. However, today's best practices would dictate that these access / egress points would be left-in / left-out only.

## **4. CONCLUSION / PROPOSAL**

4.1 The carpark is owned by the City of Salisbury, where we have the obligation to manage safe vehicle movements within the car park, as well as the safe access and egress of patrons to Council Roads. There are a number of traffic control treatments which could be implemented. These include:

- 4.2 **Option 1** - Council are to install a ‘Left Only’ sign and pavement markings at the egress point on Anson Avenue.
- 4.2.1 It is acknowledged that due to current driver behavior, this treatment may not have high compliance.
- 4.3 **Option 2** - Council can install a pavement bar (yellow safety bars) on the Anson Avenue approach to the roundabout to act as a deterrent for motorists completing the undesirable right turn manoeuver.
- 4.3.1 This treatment would likely reduce the number of motorist completing the undesirable right turn manoeuver, however at low speeds some motorists will still elect to enter the roundabout as the safety bar will provide a minor deterrent to motorists (similar to traversing a speed hump). This treatment isn’t recommended by Councils Traffic Team.
- 4.4 **Option 3** - Council can extend the median on the Anson Avenue approach past the local shops egress point, preventing motorists from completing the undesirable right turn manoeuver.
- 4.4.1 This would need to be completed in consultation with business owners. However, as the local road owner and operator, Council reserves the right to install traffic control measures as necessary for safe operation of the road network.
- 4.4.2 With the implementation of an extended median island on Anson Avenue, motorist will either:
- Complete a U-turn further downstream on Anson Ave.
  - Traverse the local street network (Lincoln Ave. and Stirling St.) in order to access Catalina Ave. This may cause annoyance to local residents due to increased traffic on these local roads.
- 4.5 Given that there is likely to be low compliance with **Option 1**, it is recommended that **Option 3** should be constructed as a raised concrete median will provide a physical deterrent for vehicles completing the right turn out manoeuver.

**CO-ORDINATION**

Officer: EXEC GROUP  
Date: 11/02/2019

















Item 2.7.1 - Attachment 3 - Photograph of patron complete right turn out - 1






Item 2.7.1 - Attachment 4 - Photograph of motorist completing right turn out - 2







REVISIONS AND ISSUES				DRAWING SHEET DETAILS		APPROVED _____ NAME Dameon Roy <small>Manager Infrastructure Management</small> DATE _____	 CITY OF Salisbury	OPTION 3 - CONCEPT LAYOUT	
REV	ISSUE/DESCRIPTION	DATE	APPROVED	ORIGINAL SHEET SIZE	A3			PLAN No. #####	SHEET 01
A	CONCEPT	05/02/2018		HORIZONTAL SCALES USED	AS SHOWN				
				COORDINATE SYSTEM	MGA94				
				CAD FILE NAME	DRAWING2.DWG				
				PR No.	PRXXXX				





<b>ITEM</b>	2.7.2
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>DATE</b>	18 February 2019
<b>HEADING</b>	Alice Crescent, Burton - Request for indented parking bays
<b>AUTHOR</b>	Jordan Ward, Civil & Transport, City Infrastructure
<b>CITY PLAN LINKS</b>	3.3 Be a connected city where all people have opportunities to participate. 3.4 Be a proud, accessible and welcoming community. 4.3 Have robust processes that support consistent service delivery and informed decision making.
<b>SUMMARY</b>	<p>A local resident has been in contact with the Ward Councillor regarding on-street parking provisions along Alice Crescent, Burton. A review has determined:</p> <ul style="list-style-type: none"> <li>• Current on-street parking provisions are adequate.</li> <li>• To ensure compliance with the South Australian Road Rules, specifically parking on the footpath and verge, Council's inspectorate division will monitor the area.</li> </ul>

#### **RECOMMENDATION**

1. That the concerned resident who raised the matter of parking along Alice Crescent, Burton, be advised that Council staff have reviewed the request for indented parking bays along Alice Crescent and determined that they not warranted, and no further action is required.
2. Further ongoing consultation be undertaken with residents along the street by Council traffic staff to reinforce the position of Council with respect to parking on the verge and footpath.
3. To ensure compliance with the South Australian Road Rules, Council's inspectorate division to monitor the area

#### **ATTACHMENTS**

This document should be read in conjunction with the following attachments:

1. Site Location Aerial Image - Alice Crescent and Castle Drive, Burton

#### **1. BACKGROUND**

- 1.1 A resident from Burton (Condor Ave) has been in contact with the ward Councillor regarding on-street car parking provisions on Alice Crescent, Burton.
- 1.2 Under this correspondence, the resident raised concerns regarding other resident car parking congestion, along with motorists illegally parking their cars partially on the footpath / verge.

1.3 Council resolved at its September 2018 meeting as follows:

**MON7.1 Motion on Notice – Alice Crescent, Burton – Parking Bays**

1. That a report be brought forward providing advice and associated costings for installing indented car parking bays on the reserve along Alice Crescent, Burton.

2645/2018

1.4 Council further resolved at its December 2018 meeting:

**W&S-OBI Parking Options – Alice Crescent, Burton**

1. Staff bring back a report on off street car parking options in Alice Crescent, Burton, including indented parking and verge parking.

0046/2018

1.5 In response to this request, Council’s inspectorate division has been advised of the illegal parking on footpaths and asked to regularly patrol the area.

1.6 This report addresses the request for indented car parking bays to be installed along Alice Crescent, adjacent to the reserve.

## 2. CONSULTATION / COMMUNICATION

2.1 Internal

- 2.1.1 General Inspectorate – enforcement of South Australian Road Rules, specifically illegally car parking on footpath.

## 3. REPORT

3.1 To reduce on-street parking congestion, a resident requested that indented parking bays be investigated along Alice Crescent, adjacent to the Council Reserve.

3.2 To assess the on-street parking demand for the local area, a site investigation was conducted.

3.2.1 At the time of the site inspection, there were no vehicles parked on-street along Alice Crescent. All indented parking bays on Castle Drive were free.

3.2.2 It is likely that any parking congestion along Alice Crescent is a result of residents parking on-street, as opposed to on their private properties.

3.2.3 It is the responsibility of residents to provide adequate off-street parking provisions at their property.

3.2.4 The parking provision at the Council reserve at the location are considered to be adequate.

3.2.5 It is highly likely that any indented parking facilities, at \$10,000 per park, if they were to be installed along Alice Crescent, would be taken up by residential parking, which wouldn’t meet the Council’s intent.

- 3.3 For safe traffic management on Alice Crescent, Council's Traffic Team has assessed the current on-street parking provisions. This review has considered the following roadside elements:
- 3.3.1 Alice Crescent carriageway measures 7.2m which is adequate for safe on-street parking on both sides of the road, while allowing a minimum of 3m clear space for vehicles movements in accordance with South Australian Road Rules. This is common practice for local roads.
  - 3.3.2 There are parking restrictions at the junction of Alice Crescent and Castle Drive. This is used to manage safe vehicle movements at the junction. There is minimal loss of on-street parking with the traffic control treatment as the Australian Road Rules restrict parking within 10m of an un-signalized junction
  - 3.3.3 The reserve functions as a drainage detention basin, with a number of drainage outlets. This is not considered a destination reserve.
  - 3.3.4 There is adequate on-street parking (7 indented parking bays) on Castle Drive for visitor parking at the reserve.
- 3.4 From discussions with Council's Parks and Open Space Assets Team there are no planned upgrades to the existing reserve that would warrant additional parking provision.
- 3.4.1 If there was a planned upgrade to this reserve, car parking provisions would be reviewed as part of the upgrade, however, from a preliminary assessment, the indented parking bays along Castle Drive appear to be more than sufficient for the reserve in its current state, and for any minor upgrades.

#### **4. CONCLUSION / PROPOSAL**

- 4.1 A review of the current on-street parking provisions along Alice Crescent, Burton has determined that current Council infrastructure is adequate.
- 4.2 Indented parking bays at the Council Reserve are not supported by Council Traffic Management Staff at this time.
- 4.3 Further consultation will be undertaken with residents along the street by Council traffic staff to reinforce the position of Council with respect to parking on the verge and footpath, and educate around the rules with respect to parking near traffic control devices as at the corner of Castle Drive and Alice Crescent.

#### **CO-ORDINATION**

Officer: EXEC GROUP  
Date: 11/02/2019







Item 2.7.2 - Attachment 1 - Site Location Aerial Image - Alice Crescent and Castle Drive, Burton



<b>ITEM</b>	2.7.3		
	<b>WORKS AND SERVICES COMMITTEE</b>		
<b>DATE</b>	18 February 2019		
<b>PREV REFS</b>	Works and Services Committee	2.9.2	10/12/2018
<b>HEADING</b>	Traffic Safety - Melvina Road and Kings Road, Paralowie		
<b>AUTHOR</b>	Jordan Ward, Civil & Transport, City Infrastructure		
<b>CITY PLAN LINKS</b>	<p>3.3 Be a connected city where all people have opportunities to participate.</p> <p>3.4 Be a proud, accessible and welcoming community.</p> <p>4.3 Have robust processes that support consistent service delivery and informed decision making.</p>		
<b>SUMMARY</b>	<p>Motorists are electing to complete dangerous manoeuvres in order to travel eastbound along Kings Road from Melvina Road. To improve traffic road safety, additional traffic control is required at this location.</p>		

#### RECOMMENDATION

1. Council note that staff have been working with DPTI's Traffic Operation Investigations Team (asset owner) to improve the traffic control at this intersection through:
  - a. An extension of the existing concrete median at the protected right turn auxiliary lane on Kings Road near Melvina Road to provide a physical deterrent for motorists electing to complete an eastbound manoeuvre at this location.
  - b. Should this be unsuccessful, Council will request DPTI to install an additional raised median on the west of Kings Road, to ensure the left turn only out of Melvina Road.
2. Council note that staff were notified by DPTI on 11/02/2019 that the Council proposed option of extending the concrete median at the protected right turn auxiliary lane on Kings Road would be implemented at this site. DPTI have refined the concept design and are awaiting Contractor availability to construct this solution.

#### ATTACHMENTS

This document should be read in conjunction with the following attachments:

1. Kings Road and Melvina Road - Original intersection layout (aerial image)
2. Kings Road and Melvina Road - Current intersection layout (aerial image)
3. Kings Road and Melvina Road – Traffic control improvements

## 1. BACKGROUND

- 1.1 Kings Road, including the intersection of Kings Road and Melvina Road, are owned and operated by the Department of Transport, Planning and Infrastructure (DPTI).
- 1.2 Council has received reports of motorists not adhering to the new 'left-out' control at the junction of Melvina Road and Kings Road, Paralowie.
- 1.3 Motorists are turning right at this intersection to travel east along Kings Road.
- 1.4 At its December 2018 meeting, Council resolved as follows:

***W&S-OB2 – Traffic Measures – Intersection of Kings Road and Melvina Avenue, Paralowie***

1. *Staff bring back a report identifying other measures to prevent drivers turning right onto Kings Road from Melvina Avenue, Paralowie, including appropriate signage.*

0046/2018

- 1.5 Council have been working with DPTI's Traffic Operation Investigations Team to review the current road geometry and improvements to the traffic control at this junction outlined in this report.
- 1.6 Under the revised road configuration, motorists travelling eastbound are required to make a left turn manoeuvre from Melvina Road onto Kings Road (westbound) and complete a U-turn manoeuvre at the newly constructed Kings Road and Bolivar Road roundabout.

## 2. CONSULTATION / COMMUNICATION

- 2.1 External
  - 2.1.1 Department of Transport, Planning and Infrastructure (DPTI) for the implementation of improved traffic control at Kings Road and Melvina Road.
  - 2.1.2 South Australian Police (SAPOL) – motorists are ignoring the 'left turn' only traffic sign. This is a traffic offence.

## 3. REPORT

- 3.1 As part of the overall traffic scheme for the area, Kings Road has undergone re-alignment to the west, along with the construction of a new roundabout at Kings Road and Bolivar Road. This was delivered by DPTI.
  - 3.1.1 Kings Road is owned and operated by DPTI.
  - 3.1.2 Under the operational instruction, where a council road intersects with a DPTI owned road, DPTI own the intersection. Consequently, DPTI own the intersection of Kings Road and Melvina Road.
- 3.2 The revised intersection of Melvina Road and Kings Road is intended to operate as a left-out only, where motorists travelling eastbound are required to complete a U-turn manoeuvre at the newly constructed Kings Road and Bolivar Road roundabout.

- 3.3 Some motorists are however choosing to complete a dangerous manoeuvre by travelling the wrong way up the newly constructed right turn lane and completing a U-turn like manoeuvre in order to travel eastbound along Kings Road.
- 3.4 Motorists completing this manoeuvre are placing other motorists on the road at risk and due to driver behavior, additional traffic controls are required at the intersection of Melvina Road and Kings Road to safely manage the flow of traffic.
- 3.5 Council have been working with DPTI's Traffic Operation Investigation Team to improve the traffic control at this junction. Options discussed for improved traffic control at this location include:
  - 3.5.1 The extension of the median for the protected right turn auxiliary bay on Kings Road at Melvina Road to provide further deterrent for motorists to turn right to head eastbound.

This treatment is being investigated by DPTI to see if this is feasible to extend the median, while accommodating the swept path for the design vehicle. Should this not be feasible it is proposed to:
  - 3.5.2 Construct a raised median on Melvina Street to ensure motorists conduct left turn manoeuvre.
- 3.6 Extending the raised concrete median approximately 5m to the west would further restrict this manoeuvre for eastbound traffic and would have the highest probability of preventing this illegal manoeuvre from motorists. This is the preferred solution by Council and has been communicated to DPTI.
- 3.7 DPTI's main concern regarding this treatment is to ensure that vehicles can still operate safely within the revised road geometry. DPTI are reviewing this against the design vehicle swept paths.
- 3.8 Council were notified by DPTI on 11/02/2019 that the Council proposed option of extending the concrete median at the protected right turn auxiliary lane on Kings Road would be implemented at this site. DPTI have refined the concept design and are awaiting Contractor availability to construct this solution.

#### **4. CONCLUSION / PROPOSAL**

- 4.1 The current traffic control at the intersection of Melvina Road and Kings Road, Paralowie is not adequate, as there have been reports of motorists completing dangerous manoeuvres to continue eastbound.
- 4.2 It is recommended that the traffic control should be improved with the extension of the raised concrete median at the turn bay.
- 4.3 Council staff are working with DPTI regarding the proposed modifications to the existing traffic control layout to improve road user safety. DPTI have confirmed that they will implement the extension of the raised concrete median on Kings Road, which was the preferred Council treatment.

#### **CO-ORDINATION**

Officer: EXEC GROUP  
Date: 11/02/2019







Item 2.7.3 - Attachment 1 - Kings Road and Melvina Road - Original intersection layout (aerial image)





**Item 2.7.3 - Attachment 2 - Kings Road and Melvina Road - Current intersection layout (aerial image)**







Item 2.7.3 - Attachment 3 - Kings Road and Melvina Road – Traffic control improvements



<b>ITEM</b>	2.7.4		
	<b>WORKS AND SERVICES COMMITTEE</b>		
<b>DATE</b>	18 February 2019		
<b>PREV REFS</b>	Works and Services Committee	2.7.2	15/10/2018
<b>HEADING</b>	Installation of slow points on Daniel Avenue, Globe Derby Park		
<b>AUTHOR</b>	Jordan Ward, Civil & Transport, City Infrastructure		
<b>CITY PLAN LINKS</b>	<p>3.3 Be a connected city where all people have opportunities to participate.</p> <p>4.1 Strengthen partnerships that enable us to better address our community's priorities.</p> <p>4.3 Have robust processes that support consistent service delivery and informed decision making.</p>		
<b>SUMMARY</b>	<p>A recent Council resolution has requested that a traffic investigation be conducted into installing a suitable traffic control device along Daniel Avenue to reduce hoon driving. This investigation has now been completed and to install a suitable traffic control device would be expected to cost in the order of \$120,000 to \$130,000. The traffic analysis suggests that there is not a sufficient problem to warrant this cost.</p>		
<b>RECOMMENDATION</b>	<p>1. It is recommended by the Traffic Team to continue to monitor this site, in collaboration with the Police, as the warrant for a traffic control device, such as a centre blister, is not met.</p>		
<b>ATTACHMENTS</b>	There are no attachments to this report.		
<b>1. BACKGROUND</b>	<p>1.1 The following resolution from the 16 July 2018 Works and Services Committee was endorsed by Council at its meeting held 23 July 2018:</p> <p style="text-align: center;"><i>That staff bring back a report on the feasibility of the installation of 1-2 slow points on Daniel Avenue in Globe Derby, similar to those on Trotters Drive.</i></p> <p style="text-align: right;">Resolution No. 2563/2018</p>		

- 1.2 A Council Report was prepared for the Works and Services Committee held on 15 October 2018. This report documented that the current traffic controls on Daniel Avenue are satisfactory, with the majority of motorists traveling at acceptable speeds. Council has requested for the design and costing of a centre road blister, similar to that on Trotters Drive, to be implemented on Daniel Avenue.

## **2. CONSULTATION / COMMUNICATION**

### **2.1 External**

- 2.1.1 SAPOL – continue to monitor for hoon driving behavior

## **3. REPORT**

- 3.1 A review of recent traffic data collected for this report has identified that in general terms, the majority of motorists are travelling along Daniel Avenue within an acceptable range for a 50km/h rural speed limit.
- 3.2 At present, Annual Average Daily Traffic (AADT) Volumes are between 510 & 582 vehicles per day and average vehicle speeds are between 39.5 & 47.4 km/h along the length of Daniel Avenue, Globe Derby.
- 3.3 In addition to these vehicle speeds, there were very low daily traffic numbers.
- 3.4 However it is clear that a small number of road users travelling a very high speed, otherwise referred to as “hoon drivers”, are present.
- 3.5 Based on the results of the most recent traffic data for this road, it has been identified that the general patterns do not give cause for concern and the majority of motorists are travelling within an acceptable range for rural limits. The warrants for additional traffic control devices (in example – center island blisters) are not met.
- 3.6 Upon the request of Council, a preliminary cost estimate has been prepared to construct traffic control devices, similar to those along Trotters Drive, on Daniel Avenue.
- 3.7 The preliminary cost estimate considered the following:
  - 3.7.1 Project Management / Site investigations / Engineering Survey
  - 3.7.2 Detailed design documentation to be prepared by Councils Design Team.
  - 3.7.3 Traffic management and associated demolition activities of existing infrastructure (kerbing etc.)
  - 3.7.4 Road pavement widening, new kerbing, new median islands and protuberance.
  - 3.7.5 An allocation for road lighting review – it is likely that the existing light levels will not be sufficient to lighting the proposed traffic control device.
- 3.8 This preliminary cost estimate of between \$120,000 and \$130,000 is to install two traffic control devices on Daniel Avenue, similar to the current device on Trotters Drive.

- 3.9 The design layout of any traffic control device is subject to community consultation. Objections may include:
  - 3.9.1 Reduced property amenity for those situated immediately adjacent to the device
  - 3.9.2 Reduced on-street car parking adjacent to the traffic control device.
  - 3.9.3 Maintaining driveway access with unrestricted vehicle movements.
- 3.10 There are differences between the road reserve on Trotters Drive and Daniel Avenue, whereby implementing a similar traffic control device may not be appropriate.

**4. CONCLUSION / PROPOSAL**

- 4.1 A preliminary cost estimate has been prepared to install traffic control devices on Daniel Avenue, similar to that as currently installed on Trotters Drive.
- 4.2 The cost is in the order of \$120,000 to \$130,000 for the traffic control devices (center blister)
- 4.3 The traffic data collected for this site indicates that the road is operating within acceptable speed ranges for a rural road, albeit with some occurrences of hoon driving behavior. Hoon driver behavior is best managed by the Police.
- 4.4 It is recommended by Council staff that the site continues to be monitored in collaboration with the Police, as the warrant for a traffic control device, such as a center blister, is not currently met.
- 4.5 It is noted that this site, particularly given its isolation, would benefit from remote CCTV monitoring in conjunction with the Police. Budget Bid PBN 000353 “CCTV Upgrade/Expansion” has included the purchase and installation of mobile cameras to assist in the management of hoon driving in hot spots such as on Daniel Avenue.

**CO-ORDINATION**

Officer: EXEC GROUP  
Date: 11/02/2019





---

<b>ITEM</b>	2.8.1
	<b>WORKS AND SERVICES COMMITTEE</b>
<b>DATE</b>	18 February 2019
<b>HEADING</b>	Investigation into Development of an App to Report Illegal Dumping
<b>AUTHOR</b>	Andy Legrand, Sustainable Energy Program Coordinator, City Infrastructure
<b>CITY PLAN LINKS</b>	2.2 Have a community that is knowledgeable about our natural environment and embraces a sustainable lifestyle. 4.2 Develop strong capability and commitment to continually improve Council's performance.

**SUMMARY** Council requested staff report back on the cost of NAWMA developing an application for their truck drivers to report illegal activities such as dumping & graffiti and also the cost to implement the application in Council vehicles. NAWMA sub-contracts the collection of waste to SUEZ who do have systems in place to report illegal activity, but currently do not use the full functionality of their reporting systems. Field staff have recently begun using tablets to capture asset and job data that can be used to report illegal activity. Considering systems are already in place, the development of an application is not warranted.

### **RECOMMENDATION**

1. Request NAWMA ascertain the cost to modify their service level agreement with SUEZ to include reporting of illegal activity.
2. Council receive regular feedback on the reporting of illegal dumping, graffiti and other reportable activity.
3. Council consider the approval of the proposed mobile CCTV budget bid as part of the 2019/20 budget review process.

### **ATTACHMENTS**

There are no attachments to this report.

### **1. BACKGROUND**

- 1.1 At the February 2018 meeting, Council requested staff approach the board of NAWMA to determine the cost of developing an application for NAWMA truck drivers to report illegal dumping, graffiti, & dumped shopping trolleys and subject to this initial enquiry, determine the cost to install the application in Council Vehicles.

**2. CONSULTATION / COMMUNICATION**

- 2.1 Internal
  - 2.1.1 Manager Field Services
- 2.2 External
  - 2.2.1 NAWMA CEO

**3. REPORT**

- 3.1 NAWMA has contracted the collection of residential waste within the City of Salisbury to SUEZ, who own the collection vehicles and employ the drivers.
- 3.2 SUEZ have the ability to report waste issues in real time and real location, but currently do not use this functionality when collecting waste.
- 3.3 If Council would like an additional reporting service from NAWMA, the existing service level agreement with SUEZ would need to be varied and the additional cost of this service included in NAWMA's budget (with costs passed onto Council).
- 3.4 Council has recently implemented the Asset Management Improvement Program that has rolled out the use of tablets to collect and report real time data. These devices are used in and out of vehicles and are assisting with the reporting of a range of City Pride issues such as illegal dumping and graffiti being undertaken by Council staff as they move to and from their normal work. There have been over 200 additional jobs identified since implementation in December 2018.
- 3.5 A new CCTV bid is being submitted for 2019/20 and ongoing to include the purchase and use of mobile cameras in the City to identify and deter this illegal activity, with a focus on known hotspots throughout the City.

**4. CONCLUSION / PROPOSAL**

- 4.1 Development of a new illegal activity reporting application for use in NAWMA and Council vehicles is not required as these systems already exist.
- 4.2 Council staff have requested that NAWMA ascertain the additional cost for SUEZ to report illegal activity so that Council can determine if amending the existing service level agreement between NAWMA and SUEZ is warranted.
- 4.3 With Council field staff continuing to use the new asset management tablets to report illegal activity in the City it is expected that the time between activity and cleanup will be significantly reduced.

**CO-ORDINATION**

Officer: EXEC GROUP  
Date: 11/02/2019