

**Council Agenda** 

## NOTICE OF MEETING

Notice is hereby given that an ordinary meeting of Council will be held in the

Council Chamber – Glenelg Town Hall Moseley Square, Glenelg

Tuesday 11 July 2023 at 7.00pm

Roberto Bria CHIEF EXECUTIVE OFFICER

Please note: This agenda contains Officers' reports and recommendations that will be considered by the Council. Any confidential items listed on the agenda will be circulated to Members separately.

### **Ordinary Council Meeting Agenda**

#### 1. OPENING

*The Deputy Mayor will declare the meeting open at 7:00pm.* 

#### 2. KAURNA ACKNOWLEDGEMENT

We acknowledge Kaurna people as the traditional owners and custodians of this land.

We respect their spiritual relationship with country that has developed over thousands of years, and the cultural heritage and beliefs that remain important to Kaurna People today.

#### 3. SERVICE TO COUNTRY ACKNOWLEDGEMENT

The City of Holdfast Bay would like to acknowledge all personnel who have served in the Australian forces and services, including volunteers, for our country.

#### 4. PRAYER

Heavenly Father, we pray for your presence and guidance at our Council Meeting. Grant us your wisdom and protect our integrity as we carry out the powers and responsibilities entrusted to us on behalf of the community that we serve.

#### 5. APOLOGIES

- 5.1 Apologies Received Mayor Wilson
- 5.2 Absent Councillor O'Donohue (Approved Leave of Absence)

#### 6. ITEMS PRESENTED TO COUNCIL

#### 7. DECLARATION OF INTEREST

If a Council Member has an interest (within the terms of the Local Government Act 1999) in a matter before the Council they are asked to disclose the interest to the Council and provide full and accurate details of the relevant interest. Members are reminded to declare their interest before each item.

#### 8. CONFIRMATION OF MINUTES

That the minutes of the Ordinary Meeting of Council held on 27 June 2023 be taken as read and confirmed.

#### 9. PUBLIC PRESENTATIONS

- 9.1 Petitions Nil
- 9.2 **Presentations** Nil
- 9.3 **Deputations**

#### 10. QUESTIONS BY MEMBERS

- 10.1 Without Notice
- 10.2 On Notice Nil

#### 11. MEMBER'S ACTIVITY REPORTS - Nil

#### 12. MOTIONS ON NOTICE

12.1 Motion on Notice - Business Hub – Co-Working Facility – Councillor Abley (Report No: 221/23)

#### 13. ADJOURNED MATTERS - Nil

#### 14. REPORTS OF MANAGEMENT COMMITTEES AND SUBSIDIARIES

- 14.1 Information Report Southern Region Waste Resource Authority Board Meeting – 26 June 2023 (Report No: 227/23)
- 14.2 Minutes Alwyndor Management Committee 11 May 2023 (Report No: 229/23)

#### 15. **REPORTS BY OFFICERS**

- 15.1 Items in Brief (Report No: 220/23)
- 15.2 Fleet Transition Plan (Report No: 222/23)
- 15.3 Francis Street, Hove Traffic Assessment (Report No: 223/23)
- 15.4 2023 New Year's Eve Glenelg Temporary Dry Zone Extension (Report No: 228/23)

#### 16. **RESOLUTIONS SUBJECT TO FORMAL MOTIONS**

Presented for the information of Members is a listing of resolutions subject to formal resolutions, for Council and all Standing Committees, to adjourn or lay on the table items of Council business, for the current term of Council.

#### 17. URGENT BUSINESS – Subject to the Leave of the Meeting

#### **18. ITEMS IN CONFIDENCE** - Nil

19. CLOSURE

ROBERTO BRIA CHIEF EXECUTIVE OFFICER

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Item No:	12.1
Subject:	MOTION ON NOTICE – BUSINESS HUB – CO-WORKING FACILITY – COUNCILLOR ABLEY
Date:	11 July 2023

#### **PROPOSED MOTION**

Councillor Abley proposed the following motion:

That Administration investigates the viability of establishing a Council-run business hub/coworking facility and provide a report back to Council within the next three months.

Item No:	14.1
Subject:	INFORMATION REPORT – SOUTHERN REGION WASTE RESOURCE AUTHORITY BOARD MEETING – 26 JUNE 2023
Date:	11 July 2023
Written By:	Chief Executive Officer
Chief Executive Officer:	Mr R Bria

#### SUMMARY

The Information Report of the Southern Region Waste Resource Authority Board meeting held on 26 June 2023 is provided for information.

#### RECOMMENDATION

That Council notes the Information Report of the Southern Region Waste Resource Authority Board meeting held on 26 June 2023.

#### STRATEGIC PLAN

A city, economy and community that is resilient and sustainable.

#### **COUNCIL POLICY**

Not applicable

#### STATUTORY PROVISIONS

Not applicable

#### BACKGROUND

Southern Region Waste Resource Authority (SRWRA) is a regional subsidiary established by the Cities of Onkaparinga, Marion and Holdfast Bay (the "Constituent Councils"), pursuant to section 43 of the *Local Government Act 1999*. The functions of SRWRA include providing and operating waste management services on behalf of the Constituent Councils.

In accordance with section 4.5.2 of the SRWRA Charter -2022, there shall be at least six ordinary meetings of the Board held in each financial year.

Furthermore, section 4.5.11 states that prior to the conclusion of each meeting of the Board, the Board must identify which agenda items considered by the Board at that meeting will be the subject of an information report to the Constituent Councils.

In accordance with the above, the Information Report from the Board Meeting held on 26 June 2023 is provided for Members' information.

BUDGET

Refer Attachment 1

Not applicable

LIFE CYCLE COSTS

Not applicable

# Attachment 1





## **Constituent Council Information Report**

### PUBLIC

Board Meeting Date: 26 June 2023

Report By: Chief Executive Officer

In accordance with Section 4.5.11 of the *Southern Region Waste Resource Authority Regional Subsidiary Charter - 2022*, the SRWRA Board identified the following Agenda Items to be the subject of a Public Information Report to the Constituent Councils (Cities of Onkaparinga, Marion, and Holdfast Bay).

### Report Name Report Summary

SRWRA Board Representative Audit & Risk Committee	The term of the SRWRA Board representative and proxy to the Audit & Risk Committee expires on 1 September 2023. The Board appointed Mark Booth as their representative and John Smedley as the proxy, with membership of the Audit & Risk Committee made up of a SRWRA Board Member and three independent members nominated by the constituent councils.
SRWRA Chairperson Allowance Review	The SRWRA Chairperson Allowance is reviewed annually, taking into consideration the workload, movements in CPI and equivalent board roles in the local government sector. This review is in line with the SRWRA Chairperson Allowance Review Policy.
SRWRA Draft Business Plan, Budget & LTFP FY24	The SRWRA Draft Business Plan, Budget, and Long-Term Financial Plan for FY24 was tabled for adoption, following circulation to the constituent councils for feedback during May and June. The adopted budget forecasts a surplus of \$604,000, with capital expenditure of \$4.1 million.
Risk Management Reporting	SRWRA provides quarterly risk management reporting to the Audit & Risk Committee and the Board, this includes regular reviews of the SRWRA risk register and identification of new and emerging risks.

#### Report Name Report Summary

Chief Executive Officer's Report

The CEO summarised key activities over the last few months:

- The Southern Materials Recovery Facility (SMRF) joint venture committee meets every two months, discussions include operational efficiencies and commodity markets, with some SMRF products impacted by a drop in demand for some commodities.
- The Southern Recycling Centre is continuing to perform strongly, monitoring of tonnages received from the City of Holdfast Bay is continuing, to assess the impact of the introduction of weekly FOGO in this council area.
- The Department of Infrastructure and Transport (DIT) has advised that it will delay the implementation of the ban on right hand turns out of Bakewell Drive onto Main South Road, until an upgrade of the Ostrich Farm Road / Victor Harbor Road intersection is complete.
- An upgrade of Ostrich Farm Road is now the key activity required to improve SRWRA site access.
- SRWRA is continuing to develop a communication and education strategy to address demand for facility tours, information on our services and interest in the waste and recycling sector generally. Workshops have been held with key stakeholders, including constituent councils, as part of the development of this strategy.
- The level of engagement at workshops, particularly amongst council education officers was very high, with a range of good ideas and feedback coming out of these sessions.
- Information on the history of SRWRA from 1975 to the current day is now available on our website and fact sheets about our services and how different waste streams are managed and processed are being developed, these will be available on our website and for council education officers as a resource.
- SRWRA offers regular Board member development opportunities, these include the 2023 Australian Landfill and Transfer Stations Conference in June. These are opportunities for the Board members to engage with other members of the waste industry and increase their knowledge of all things waste.

**Next Meeting** The next scheduled meeting date for the SRWRA Board is Monday 21 August 2023

Item No:	14.2
SUBJECT:	MINUTES - ALWYNDOR MANAGEMENT COMMITTEE – 11 MAY 2023
Date:	11 July 2023
Written By:	General Manager, Alwyndor
General Manager:	Alwyndor, Ms B Davidson-Park

#### SUMMARY

The minutes of the Alwyndor Management Committee meeting held on 11 May 2023 are provided for information.

#### RECOMMENDATION

1. That the minutes of the Alwyndor Management Committee meeting held on 11 May 2023 be noted.

#### **RETAIN IN CONFIDENCE - Section 91(7) Order**

2. That having considered Attachment 2 to Report No: 229/23 Minutes – Alwyndor Management Committee – 11 May 2023 in confidence under section 90(2) and (3) (b) of the Local Government Act 1999, the Council, pursuant to section 91(7) of the Act orders that Attachment 2 be retained in confidence for a period of 24 months and that this order be reviewed every 12 months.

#### STRATEGIC PLAN

Enabling the people in our communities to live healthy, engaged and fulfilling lives.

#### **COUNCIL POLICY**

Not applicable

#### STATUTORY PROVISIONS

Not applicable

#### BACKGROUND

This report is presented following the Alwyndor Management Committee Meetings.

The Alwyndor Management Committee was established to manage the affairs of Alwyndor Aged Care. The Council has endorsed the Committee's Terms of Reference and given the Committee delegated authority to manage the business of Alwyndor Aged Care.

#### REPORT

The minutes of the meeting is attached for Members' information.

Refer Attachments 1 and 2

#### BUDGET

Not applicable

#### LIFE CYCLE COSTS

Not applicable

# Attachment 1



#### **CITY OF HOLDFAST BAY**

Minutes of the meeting of the Alwyndor Management Committee of the City of Holdfast Bay held at Alwyndor 52 Dunrobin Rd Hove on Thursday 11 May 2023 at 6.30pm.

#### PRESENT

#### **Elected Members**

Councillor Susan Lonie Councillor Robert Snewin

#### **Independent Members**

Mr Kim Cheater - Chair Ms Julie Bonnici Prof Judy Searle Prof Lorraine Sheppard Ms Joanne Cottle Ms Trudy Sutton Mr Kevin Whitford

#### Staff

Chief Executive Officer – Mr Roberto Bria General Manager Alwyndor – Ms Beth Davidson-Park Manager, Community Connections – Ms Molly Salt Manager, Residential Services – Ms Natasha Stone Representative, Finance – Ms Leisa Humphrey Manager, People and Culture, Ms Lisa Hall Manager Quality & Projects – Ms Emma Burke Executive Assistant – Ms Bronwyn Taylor

#### 1. OPENING

The Chairperson declared the meeting opened at 6.34pm.

#### 2. KAURNA ACKNOWLEDGEMENT

With the opening of the meeting the Chair stated:

We acknowledge the Kaurna people as the traditional owners and custodians of this land.

We respect their spiritual relationship with country that has developed over thousands of years, and the cultural heritage and beliefs that remain important to Kaurna People today.

#### 3. APOLOGIES

- 3.1 For Absence
- 3.2 Leave of Absence
- Nil

#### 4. DECLARATION OF INTEREST

Committee members were reminded to declare any interest before each item. *Attachment 1 – Register of Interests* 

#### 5. CONFIRMATION OF MINUTES

#### **Motion**

That the Public and Confidential minutes of the Alwyndor Management Committee held on 30 March 2023 be taken as read and confirmed.

Moved by Cr Susan Lonie, Seconded by Prof Lorraine Sheppard Carried

#### 6. REVIEW OF ACTION ITEMS

6.1 Action Items

Policy framework will be presented to June meeting.

6.2 Annual Work Plan Noted

#### 7. GENERAL MANAGER REPORT

7.1 General Manager Report (Report No: 08/23) Nil Items

#### 8. GENERAL MANAGER REPORT – CONFIDENTIAL

8.1 General Manager Report – Confidential (Report No: 09/23)

Exclusion of the Public – Section 90(3)(d) Order

- 1. That pursuant to Section 90(2) of the *Local Government Act 1999* Alwyndor Management Committee hereby orders that the public be excluded from attendance at this meeting with the exception of the General Manager and Staff in attendance at the meeting in order to consider Reports and Attachments to Report No: 09/23 in confidence.
- 2. That in accordance with Section 90(3) of the *Local Government Act 1999* Alwyndor Management Committee is satisfied that it is necessary that the public be excluded to consider the information contained in Report No: 09/23 on the following grounds:
  - d. pursuant to section 90(3)(d) of the Act, the information to be received, discussed or considered in relation to this Agenda Item is commercial information of a confidential nature (not being a trade secret) the disclosure of which could reasonably be expected to confer a commercial advantage on a third party of

Alwyndor, in addition Alwyndor's financial position is reported as part of Council's regular budget updates.

In addition, the disclosure of this information would, on balance, be contrary to the public interest. The public interest in public access to the meeting has been balanced against the public interest in the continued non-disclosure of the information. The benefit to the public at large resulting from withholding the information outweighs the benefit to it of disclosure of the information.

3. The Alwyndor Management Committee is satisfied, the principle that the meeting be conducted in a place open to the public, has been outweighed by the need to keep the information or discussion confidential.

Moved by Mr Kevin Whitford, Seconded by Ms Julie Bonnici Carried

#### **RETAIN IN CONFIDENCE - Section 91(7) Order**

1. That having considered Agenda Item 8.1 General Manager's Report (Report No: 09/23) in confidence under section 90(2) and (3)(d) of the *Local Government Act* 1999, the Alwyndor Management Committee, pursuant to section 91(7) of that Act orders that the Attachments and Minutes be retained in confidence for a period of 3 years and that this order be reviewed every 12 months.

Moved by Prof Lorraine Sheppard, Seconded by Ms Jo Cottle

#### 8.2 Finance Report – Quarterly Performance Report Q3 Confidential (Report No:10/23)

Exclusion of the Public – Section 90(3)(d) Order

- 1. That pursuant to Section 90(2) of the *Local Government Act 1999* Alwyndor Management Committee hereby orders that the public be excluded from attendance at this meeting with the exception of the General Manager and Staff in attendance at the meeting in order to consider Reports and Attachments to Report No: 10/23 in confidence.
  - 2. That in accordance with Section 90(3) of the *Local Government Act 1999* Alwyndor Management Committee is satisfied that it is necessary that the public be excluded to consider the information contained in Report No: 10/23 on the following grounds:
    - d. pursuant to section 90(3)(d) of the Act, the information to be received, discussed or considered in relation to this Agenda Item is commercial information of a confidential nature (not being a trade secret) the disclosure of which could reasonably be expected to confer a commercial advantage on a third party of Alwyndor, in addition Alwyndor's financial position is reported as part of Council's regular budget updates.

In addition, the disclosure of this information would, on balance, be contrary to the public interest. The public interest in public access to the meeting has been balanced against the public interest in the continued non-disclosure of the information. The benefit to the public at large resulting from withholding the information outweighs the benefit to it of disclosure of the information.

3. The Alwyndor Management Committee is satisfied, the principle that the meeting be conducted in a place open to the public, has been outweighed by the need to keep the information or discussion confidential.

Moved by Ms Trudy Sutton, Seconded by Cr Bob Snewin Carried

#### **RETAIN IN CONFIDENCE - Section 91(7) Order**

 That having considered Agenda Item 8.2 Finance Report – Quarterly Performance Report (Report No: 10/23) in confidence under section 90(2) and (3)(d) of the Local Government Act 1999, the Alwyndor Management Committee, pursuant to section 91(7) of that Act orders that the Attachments and Minutes be retained in confidence for a period of 3 years and that this order be reviewed every 12 months.

Moved by Cr Susan Lonie, Seconded by Mr Kevin Whitford

Carried

#### 8.3 Finance Report – Draft Budget 2023/24 Confidential (Report No:11/23)

Exclusion of the Public – Section 90(3)(d) Order

- 1. That pursuant to Section 90(2) of the *Local Government Act 1999* Alwyndor Management Committee hereby orders that the public be excluded from attendance at this meeting with the exception of the General Manager and Staff in attendance at the meeting in order to consider Reports and Attachments to Report No: 11/23 in confidence.
- 2. That in accordance with Section 90(3) of the *Local Government Act 1999* Alwyndor Management Committee is satisfied that it is necessary that the public be excluded to consider the information contained in Report No: 11/23 on the following grounds:
  - d. pursuant to section 90(3)(d) of the Act, the information to be received, discussed or considered in relation to this Agenda Item is commercial information of a confidential nature (not being a trade secret) the disclosure of which could reasonably be expected to confer a commercial advantage on a third party of Alwyndor, in addition Alwyndor's financial position is reported as part of Council's regular budget updates.

Carried

In addition, the disclosure of this information would, on balance, be contrary to the public interest. The public interest in public access to the meeting has been balanced against the public interest in the continued non-disclosure of the information. The benefit to the public at large resulting from withholding the information outweighs the benefit to it of disclosure of the information.

3. The Alwyndor Management Committee is satisfied, the principle that the meeting be conducted in a place open to the public, has been outweighed by the need to keep the information or discussion confidential.

Moved by Ms Julie Bonnici, Seconded by Cr Susan Lonie.

#### **RETAIN IN CONFIDENCE - Section 91(7) Order**

2. That having considered Agenda Item 8.3 Finance Report – Draft Budget 2023/24 (Report No: 11/23) in confidence under section 90(2) and (3)(d) of the Local Government Act 1999, the Alwyndor Management Committee, pursuant to section 91(7) of that Act orders that the Attachments and Minutes be retained in confidence for a period of 3 years and that this order be reviewed every 12 months.

Moved by Cr Susan Lonie, Seconded by Mr Kevin Whitford

9. OTHER BUSINESS – Subject to the leave of the meeting Nil

#### 10. DATE AND TIME OF NEXT MEETING

The next meeting of the Alwyndor Management Committee will be held on **Thursday 29 June 2023** in the Boardroom Alwyndor, 52 Dunrobin Road, Hove or via Audio-visual telecommunications (to be advised).

#### 11. CLOSURE

The meeting closed at 8.32pm.

#### CONFIRMED 29 June 2023

#### **CHAIRPERSON**

ltem No:	15.1
Subject:	ITEMS IN BRIEF
Date:	11 July 2023
Written By:	Executive Officer and Assistant to the Mayor
Chief Executive Officer:	Mr R Bria

#### SUMMARY

These items are presented for the information of Members.

After noting the report any items of interest can be discussed and, if required, further motions proposed.

#### RECOMMENDATION

That the following items be noted and items of interest discussed:

- 1. Holdfast Habitat Heroes
- 2. Local Government Association Determination of the Remuneration Tribunal Minimum and Maximum Chief Executive Officer Remuneration
- 3. Outstanding Council Actions Update

#### REPORT

#### 1. Holdfast Habitat Heroes

The Environment Team nominated the Holdfast Habitat Heroes (our volunteers) for the Invasive Species Council's 2023 Froggatt Award. These annual awards are given to those who have made a major contribution to protecting Australia's native plants and animals, ecosystems and people from invasive species. Our wonderful volunteers were selected for a special commendation highlighting their proactive work for more than 15 years to identify and control invasive species in the dunes.

#### 2. Local Government Association Determination of the Remuneration Tribunal – Minimum and Maximum Chief Executive Officer Remuneration

The Remuneration Tribunal, in accordance with section 99A of *the Local Government Act 1999* determines the rates of minimum and maximum remuneration for Chief Executive Officers of Local Government councils in South Australia.

The initial review made a decision to group councils into eight bands. Each band is based on the data provided by councils, relative to the total remuneration package of their Chief Executive Officer. These bands consider the differences between each council and determine the value in relation to the provision of entitlements the Chief Executive Officer receives, beyond that of usual administrative staff.

Refer Attachment 1

#### 3. Outstanding Council Actions Update

A list of outstanding Council Meeting Actions up to 26 June 2023, along with a brief explanation of their status is provided. For brevity, completed actions have not been included.

Refer Attachment 2

# Attachment 1





No. 4 of 2023

### DETERMINATION OF THE REMUNERATION TRIBUNAL Minimum and Maximum Chief Executive Officer Remuneration

#### SCOPE OF DETERMINATION

- 1. This Determination applies to Chief Executive Officers of Local Government Councils to whom section 99A of the *Local Government Act 1999* (SA) applies.
- 2. For the reasons provided in the accompanying report, The Municipal Council of Roxby Downs is not covered by this Determination.

#### MINIMUM AND MAXIMUM REMUNERATION

3. In accordance with section 99A of the *Local Government Act 1999* (SA) (**LG Act**) the Remuneration Tribunal hereby determines the following rates of minimum and maximum remuneration for Chief Executive Officers of Local Government Councils in South Australia:

Band	Total Remuneration Package
1	\$414,000 - \$431,600
2	\$396,240 - \$402,480
3	\$357,760 - \$380,640
4	\$319,280 - \$351,520
5	\$299,520 - \$317,200
6	\$272,480 - \$292,240
7	\$235,040 - \$265,200
8	\$197,600 - \$229,840

- 4. Remuneration figures are expressed on a total remuneration package basis.
- 5. A list of council groupings is included at attachment 1.
- 6. Any decision in relation to an annual increase for CEO remuneration within the bands set by the Tribunal remains a matter for each council in accordance with section 99A(1) of the LG Act.

#### DATE OF OPERATION

7. This Determination shall have operative effect on and from 1 July 2023.

Matthew O'Callaghan **PRESIDENT** 

Dace

Deborah Black MEMBER

Par delan

Peter de Cure AM **MEMBER** 

Dated this 16<sup>th</sup> day of June 2023

Council	Band
Adelaide Hills Council	5
Adelaide Plains Council	6
Alexandrina Council	5
Barunga West Council	7
Berri Barmera Council	7
Campbelltown City Council	3
City of Adelaide	1
City of Burnside	4
City of Charles Sturt	2
City of Holdfast Bay	4
City of Marion	4
City of Mitcham	3
City of Mount Gambier	5
City of Norwood Payneham & St Peters	4
City of Onkaparinga	3
City of Playford	4
City of Port Adelaide Enfield	2
City of Port Lincoln	7
City of Prospect	5
City of Salisbury	3
City of Tea Tree Gully	4
City of Unley	3
City of Victor Harbor	6
City of West Torrens	2
City of Whyalla	4
Clare & Gilbert Valleys Council	7
Coorong District Council	7
Copper Coast Council	6
Corporation of the Town of Walkerville	5
District Council of Ceduna	6
District Council of Cleve	7
District Council of Coober Pedy	8
District Council of Elliston	8
District Council of Franklin Harbour	7
District Council of Grant	7
District Council of Karoonda East Murray	8

District Council of Kimba	8
District Council of Lower Eyre Peninsula	7
District Council of Loxton Waikerie	7
District Council of Mount Remarkable	7
District Council of Orroroo Carrieton	8
District Council of Peterborough	8
District Council of Robe	8
District Council of Streaky Bay	8
District Council of Tumby Bay	7
District Council of Yankalilla	7
Kangaroo Island Council	7
Kingston District Council	8
Light Regional Council	5
Mid Murray Council	6
Mount Barker District Council	3
Naracoorte Lucindale Council	7
Northern Areas Council	7
Port Augusta City Council	6
Port Pirie Regional Council	6
Regional Council of Goyder	6
Renmark Paringa Council	6
Southern Mallee District Council	7
Tatiara District Council	7
The Barossa Council	4
The Flinders Ranges Council	8
The Rural City of Murray Bridge	5
Town of Gawler	4
Wakefield Regional Council	7
Wattle Range Council	7
Wudinna District Council	8
Yorke Peninsula Council	4

# Attachment 2



Meeting	Report	Report Title	Resolution	Resolution	Status
Date	No.		Number		
Non-Confident	ial				
23-May-2023	161/23	Developing a Poultry Policy	C230523/7448	<ol> <li>That Council:</li> <li>endorses the 'Guideline For Keeping Poultry' with the amended wording to reflect 'The keeping of roosters or peacocks in residential areas is prohibited' and;</li> <li>develops a draft By-law for consideration to cover poultry, including prohibiting the keeping of roosters as part of the By-law review process in 2025.</li> </ol>	Action item 1 completed with item 2 to be included in the By- law review process, which will commence in 2025.
23-May-2023	166/23	Motion on Notice - Raising Elected Member Awareness to Development Applications of Note – Councillor Fleming	C230523/7442	That Ward Councillors are informed of development applications that are out for public notification, which come before the Council Assessment Panel for a decision, so that they are made aware of any impending proposals of note and what involvement, if any, they wish to have in the process. Alerts to Ward Councillors can be provided by way of an email containing a link to the relevant plans and documentation on the SA Planning Portal.	Ward Councillors are now being emailed the details of development applications that are subject to public consultation, in addition to the details of such applications being available for perusal by all Councillors via the Hub.
26-Apr-2023	135/23	Western Adelaide Tourism Alliance - Tourism Destination Action Plan 2024	C260423/7424	That Council endorses the draft Western Adelaide Tourism Alliance Tourism Destination Action Plan 2024, subject to minor amendments of formatting and/ or of a minor technical nature in conjunction with other member councils.	The Action Plan is in the process of being finalised with the other member councils.
28-Mar-2023	103/23	Motion on Notice - Reclaiming Footpath Encroachments - Councillor Smedley	C280323/7392	That section 2.7 of Council's Encroachments Policy is amended to require that any existing encroachment over public land that forms part of a new development application, is assessed for its suitability for return to public open space in consultation with the affected landowner, for the purpose of enhancing public safety, accessibility, and walkability, improving the interface between public and private spaces, whilst having regard to any construction costs required to implement the reclamation, and consideration of any logistical practicalities arising with Council assuming care and control of the land.	Amendments drafted.

Meeting	Report	Report Title	Resolution	Resolution	Status
Date	No.		Number		
28-Mar-2023	99/23	Motion on Notice - International Women's Day Breakfast - Councillor Abley	C280323/7391	<ol> <li>That Council:</li> <li>Purchases a table of 10 seats annually to the International Women's Day Breakfast (approx. \$600).</li> <li>Invites the two high schools in the City of Holdfast Bay to select four students to attend the International Women's Day breakfast with the Youth Coordinator and an Elected Member.</li> </ol>	To be actioned by the Youth Coordinator in late 2023. Elected Member to be nominated to attend.
14-Mar-2023	58/23	Motion on Notice - Pedestrian Safety and Traffic Calming Measures – Councillor Smedley	C140323/7369	<ol> <li>That Council installs a raised wombat crossing with amber flashing lights, to replace the existing emu school crossing on Partridge Street, Glenelg adjacent to St Peter's Woodlands School and Council allocates a budget of \$150,000 in the 2022/23 financial year to undertake this work. The preference is for the flashing lights to be school activated.</li> <li>Administration to bring back to Council a report identifying other needed locations for crossings with lights as appropriate, along local and collector roads within the City, adjacent schools and aged care facilities, particularly Alwyndor. Such report is to suggest prioritised locations for gradual rollout as part of annual budget processes.</li> </ol>	Capital allocation has been included in the budget. Planning has commenced on this initiative.
14-Mar-2023	88/23	Motion on Notice - Koala Crossing King George Avenue, Hove – Councillor Fleming	C140323/7373	<ol> <li>That Council:</li> <li>approves the installation of a koala crossing on King George Avenue outside McAuley Community School to replace the existing emu crossing; and</li> <li>allocates a budget of \$40,000 in the 2022/23 financial year to undertake this work.</li> </ol>	Capital allocation has been included in the budget. Planning has commenced on this initiative

Meeting	Report	Report Title	Resolution	Resolution	Status
Date	No.		Number		
24-Jan-2023	07/23	Motion on Notice – Saltram Road Traffic Management - Councillor Miller	C240123/7319	<ul> <li>That Council staff work with the developer and builder of 21- 25 South Esplanade, Glenelg development site to manage traffic during the demolition and construction phase including:</li> <li>Minimising large or heavy vehicles on the local road network including Saltram Road; and</li> <li>If necessary, Council consider vehicle load / length limits and parking restrictions during the construction period.</li> </ul>	Administration is awaiting the finalisation of the development application to embed the construction phase requirements into the Development Approval notice. This will take some time, as the active development applications are either before the Supreme Court or under the association of the SCAP
				3. Following construction, Council review traffic flow in the area and if a significant increase undertakes a traffic study which will include community consultation to determine if changes are required.	assessment of the scar.
28-Feb-2023	30/23	Motion on Notice – Expansion of Existing Glenelg Dry Area – Councillor Patton	C280223/7349	That Administration bring back a report to Council on the considerations of extending the current Glenelg Dry Area to align with the boundaries of the New Year's Eve Extended Dry Areas.	Investigations are continuing in relation to this matter with a report to come back to Council later this year.
24-Jan-2023	06/23	Motion on Notice – Colton Avenue Traffic investigation - Councillor Fleming	C240123/7318	<ol> <li>That:</li> <li>Administration investigate the viability of restricting Colton Avenue to a single direction of traffic southbound, including consultation with the School, waste contractors, and surrounding residents including residents of Colton Avenue, Townsend Avenue, Murray Street, The Crescent (north of King Street) and Wattle Avenue (east of King George Avenue).</li> <li>A report and results of the community consultation is to be returned to Council within six months.</li> </ol>	The traffic team is undertaking community engagement via mailout and letterbox drop to the residents of the Colton Avenue area. The engagement will be undertaken throughout July with a subsequent Council report to follow on the findings.

Meeting	Report	Report Title	Resolution	Resolution	Status
Date	No.		Number		
23-Aug-2022	354/22	Development Policy – Art Deco Review	C230822/7214	<ol> <li>That Council notes the reports prepared by Hosking Willis Architects as to the heritage value attributable to a selection of properties incorporating Art Deco design themes;</li> <li>That Council seek Hosking Willis Architects review their determinations under the criteria set out in Section 67(1)(d) of the Planning, Development and Infrastructure Act 2016 applying a broader lens for all properties under review with particular reference for 25 &amp; 31 Broadway, Glenelg South, 8 Giles Avenue (Retten) Glenelg, 33 Pier Street, Glenelg South, 18A South Esplanade (Shoreham) Glenelg, and 53 Whyte Street (Strathmerton)Somerton Park;</li> <li>That Council notes further consideration will be made to all properties forming the Art Deco Heritage Review utilising all criteria set out in Section 67(1) of the Planning, Development and Infrastructure Act 2016; and</li> <li>That the findings in the Hosking Willis Architect Reports, including supplementary reports received in association with this project at a later date, inform a future Code Amendment process under the Planning, Development and Infrastructure Act 2016 to consider the properties for formal recognition as Local Heritage Places.</li> <li>That the Holdfast Bay History Centre be included to provide additional comments and reports to inform a future Code Amendment process under the PDI Act 2016 to consider the properties for formal recognition as Local Heritage Places.</li> </ol>	The second stage of the Art Deco Review is progressing well, with the research component under way, soon to be followed by site appraisals. It is anticipated that Council Administration will be able to provide a formal update by 30 September 2023.

Meeting	Report	Report Title	Resolution	Resolution	Status
Date	No.		Number		
26-Jul-2022	248/22	Motion on Notice - Portable Solar Speed Monitoring Signs – Councillor Fleming	C260722/2676	<ol> <li>That Council Administration investigate and bring back a Council report on the feasibility of purchasing or hiring temporary, portable or permanent smart solar speed monitoring signs for school zones; and</li> </ol>	Investigation is ongoing. Report to Council is expected August 2023.
				<ol> <li>That the Council report include, the most appropriate locations for the signs around our city, how many may be required and the cost of purchase and maintenance of them.</li> </ol>	
10-May-2022	127/22	Telecommunications Tower at Glenelg Oval	C100522/2594	<ol> <li>That Council enters into a enters into a lease agreement with Vodafone over a portion of land contained within Certificate of Title Volume 5869 Folio 949 (Glenelg Oval) for a period of 20 years, subject to:         <ul> <li>(a) the lessee obtaining Development Approval; and</li> <li>(b) commencing rental of \$23,000 per annum (plus GST) with annual CPI increases.</li> </ul> </li> <li>That the Mayor and the Chief Executive Officer be authorised to execute and seal any documents required to give effect to the lease.</li> </ol>	Development application approved, awaiting finalisation of draft lease due by 31 July 2023.
26-Apr-2022	76/22	Pigeon Control	C260422/2580	<ul> <li>That Council:</li> <li>1. Endorses the following additional strategies for pigeon control: <ul> <li>Review and update the existing bird feeding prohibited signage.</li> <li>Provide signage to businesses with outdoor dining permits to encourage patrons not to feed birds and to discard their waste.</li> <li>Investigate and trial grants for businesses to assist property owners undertaking approved pigeon management actions for proofing and deterrents.</li> <li>Increased communication and enforcement with businesses to clear food waste from tables.</li> </ul> </li> </ul>	A report is due to Council in September/October on the strategies and results of the past 12 months.

Meeting	Report	Report Title	Resolution	Resolution	Status
Date	No.		Number		
				<ul> <li>Provision of information and education campaign via the council's website, social media channels and newsletters.</li> </ul>	
				<ol> <li>Endorses \$10,000 to be included in the 2022/23 Draft Annual Business Plan for the additional pigeon control strategies.</li> </ol>	
				<ol> <li>Review the success of the above strategies over the next 12 months and report back to Council with the results and draft Pigeon Management Policy.</li> </ol>	
23-Nov-2021	397/21	Trial Parklet Installation	C231121/2488	<ul> <li>That Council:</li> <li>1. notes the complexities of installing parklets as outlined in this Report;</li> </ul>	Administration has been evaluating two trial sites for parklets, one at Glenelg and one at Seacliff. As safety
				<ol> <li>Administration put together an Expression of Interest to gauge interest from traders and the community in parklets and their preferred locations;</li> </ol>	considerations are paramount, even the temporary installation of parklets needs careful consideration. Two different
				<ol> <li>allocates \$15,000 to undertake a high level traffic assessment to identify standards against which proposals can be evaluated, along with up to 10 locations that would be most suitable for parklet trials; and</li> </ol>	options are being developed, which are proposed to be commenced in spring, in concert with a community engagement period seeking community views
				4. Administration bring back a Report on the outcome of the Expression of Interest and traffic assessment, along with further recommendations.	about parklets in the City.

Meeting Date	Report No.	Report Title	Resolution Number	Resolution	Status
Confidential					
13-Jun-2023	194/23	Adjourned Report - Tramside Kiosk Lease	C130623/7465	Refer confidential minutes	In progress
23-May-2023	168/23	Jetty Road Masterplan Investment and Design Parameters	C230523/7455	Refer confidential minutes	In progress
26-Apr-2023	140/23	Former Buffalo Site Design	C260423/7427	Refer confidential minutes	In progress
11-Apr-2023	126/23	Adjourned Report - Motion on Notice - Order of Australia Nomination - Councillor Lindop	C110423/7410	Refer confidential minutes	In progress
11-Apr-2023	108/23	Shared E-Bike Trial	C110423/7412	Refer confidential minutes	In progress
24-May-2022	151/20	Seacliff Plaza Amenities and Beach Access	C240522/2616	Refer confidential minutes	In progress
12-Apr-2022	100/22	Glenelg Town Hall - Commercial Areas	C120422/2570	Refer confidential minutes	In progress

Item No:	15.2
Subject:	FLEET TRANSITION PLAN
Date:	11 July 2023
Written By:	Team Leader, Environment and Coast
A/General Manager:	Assets and Delivery, Mr J Mitchell

#### SUMMARY

The City of Holdfast Bay has a target to become a carbon neutral organisation by 2030. In order to transition and work towards this target, Council endorsed our Carbon Neutral Plan 2030 in August 2022.

The first action from this plan is to develop a Fleet Transition Plan and a new project in the 2022/23 Annual Business Plan was endorsed to develop an Electric Vehicle Transition Plan.

The Fleet Transition Plan has been developed with a comprehensive range of recommendations including the upgrade of existing Internal Combustion Engine passenger vehicles to Battery Electric Vehicle as they are scheduled for replacement. Administration will revisit the transition of heavy vehicles in 2025/26 when the market is more mature to establish the viability of a heavy vehicle transition plan.

Life-cycle cost associated with the fleet transition will be incorporated into the Plant and Equipment Asset Management Plan to be developed by November 2024.

#### RECOMMENDATION

That Council notes the report to transition Council's passenger fleet to electric vehicles as they fall due for replacement through the capital renewal program.

#### STRATEGIC PLAN

Holdfast 2050+: Become a carbon neutral council by 2030.

#### **COUNCIL POLICY**

Not applicable

#### STATUTORY PROVISIONS

Not applicable

#### BACKGROUND

In October 2019, the City of Holdfast Bay recognised that the world is in a state of climate emergency and that all levels of government have a responsibility to act. In August 2022 Council endorsed a Carbon Neutral Plan, in which one of the first actions was to develop a Fleet Transition Plan to facilitate the change from fossil-fuel internal combustion engine (ICE) vehicles to battery electrical vehicles (BEV) for Council's fleet. A new project in the 2022/23 Annual Business Plan was endorsed to develop an Electric Vehicle Transition Plan (the plan). This report summarises the findings and recommendations of the plan.

#### REPORT

Council emissions from transport fuel are 26% of Council's scope 1 and 2 emissions. Transport is Australia's third largest contributor to greenhouse gas emissions and the primary source of emissions within the Holdfast Bay community.

The scope of the plan includes:

- Review and analysis of Council's passenger fleet;
- Whole-of-life cost-benefit analysis;
- Charging infrastructure requirements;
- Charging protocols;
- High level discussion of heavy fleet; and
- Action plan.

The plan was developed and written by a consultant in collaboration with Environment, Assets and Field Services staff.

The full range of benefits from electric transport includes:

- Reduced greenhouse gas emissions;
- Reduced local air pollution leading to improved health outcomes and reduced health expenditure;
- Reduced noise;
- Improved energy security from reduced reliance on fossil fuel imports and a reduction in pricing volatility;
- Reduced fuel and maintenance costs;
- Reduced lifecycle costs (in the medium term);
- Reduced vibration and impacts on drivers/passengers and infrastructure; and
- More efficient energy conversion than fossil fuel (ICE) vehicles.

As with any new technology, there are environmental concerns with electric vehicles, mainly that the source of electricity generation to power the cars must be renewable, otherwise the vehicles are still relying on fossil fuel powered electricity and therefore creating emissions. Fortunately, South Australia's power generation is from approximately 65-70% renewable sources, and this is set to rise to 85% by 2026 and 100% by 2030. From January 2023 Council has purchased 100% renewable electricity, this also negates this concern with regards to our fleet. Other issues include the impact of mining for the minerals used in the batteries, and what happens to vehicle batteries at the end of their life. These issues are discussed in the plan (section 5.4).

In terms of charging infrastructure the following has been recommended:

- 4 x 7 kW single phase charging stations at Brighton (estimated \$30k) short term.
- 4 x 7 kW single phase charging stations at Glenelg (estimated \$30k) short to medium term.
- 2 new EV distribution boards at the Depot medium term.
- Consider an additional solar power system on the events shed at the Depot in the medium term.
- Install sub-metering on chargers so vehicle charging can be separated from building consumption.

Each of the 7kW charging station will be shared between two cars that will charge at different times. Charging infrastructure will require capital investment and recommendations have been made to ensure the technology will be future-ready. Along with battery technology, charging technology is also changing rapidly.

Operational charging protocols will be applied to ensure charging locations and times are fitfor-purpose, cost-effective charging is used (i.e. using solar generation during daylight hours; next best time to charge is off-peak hours) and staff access to public charging.

The whole-of-life cost was modelled on a three year basis. The upfront costs of electric vehicles are coming down rapidly to the point where some models are now cost-neutral compared with some of Council's existing passenger fleet, with cheaper models coming to the Australian market later this year. The graph below shows a comparison of whole-of-life costs per year between vehicles in our existing fleet (blue) and potential alternatives (green).





As with ICE and hybrid vehicles, the majority of the cost involved in owning electric vehicles is the capital loss (the difference between list price and resale value), as shown below:

The second-hand market for EVs is still developing and there are many uncertainties with regards to the market value of second-hand EVs.

Once approved, these changes will be reflected in the Plant and Equipment Asset Management Plan when it is renewed (November 2024) and incorporated into the Long Term Financial Plan (LTFP) to ensure the capital expenditure for BEVs and charging infrastructure is included.

It is important to note that the transition will happen in two phases:

Phase 1 – Passenger vehicles (2024/25 – 2030):

- Multiple alternatives on the market, with prices decreasing;
- Vehicles will be replaced as they come up for renewal (not all at once);
- No passenger vehicles due for renewal in 2023/24, therefore the fleet transition will begin in 2024/25; and
- This provides time to begin investigating and install appropriate charging stations.

Phase 2 – Heavy vehicles:

- There are few options in this space currently;
- Review options in 2026/27;
- They must be fit-for-purpose; and
- Affordability may be an issue.
There are many questions and uncertainties around electric vehicles. To provide some confidence to staff, the asset renewal team will consult with staff to ensure that alternative vehicles are fit-for-purpose and meet service and safety requirements. The plan was presented to the Leadership Team in April 2023 in order to give managers some long-term notice of the coming changes. Staff will receive information for each new vehicle as they arrive, particularly about charging.

There is a comprehensive range of recommendations in the plan, provided in Appendix D. The key recommendations from the report include:

- Upgrade Internal Combustion Engine (ICE) passenger vehicles to Battery Electric Vehicle (BEV) as they are scheduled for replacement, providing a fit-for purpose vehicle is available. If a fit-for-purpose BEV is not available, we recommend a hybrid alternative, as these have been demonstrated to save both money and emissions.
- Review the passenger fleet to consider opportunities for consolidation where vehicles are under-utilised.
- For heavy vehicles, revisit this work in 2025/26 when the market is more mature to establish the availability and a heavy vehicle transition plan. Monitor the market in the interim for opportunities to trial new technologies.

Full details can be found in the Fleet Transition Plan Report and Charging Infrastructure Report.

Refer Attachments 1 and 2

#### BUDGET

The costs associated with purchasing electric vehicles and charging infrastructure will be updated in the Plant and Equipment Asset Management Plan to be developed by November 2024.

#### LIFE CYCLE COSTS

Life-cycle cost (acquisition, maintenance/operations, renewal, and disposal) will be incorporated into the Plant and Equipment Asset Management Plan to be developed by November 2024.

# Attachment 1





## Fleet Transition Plan – Final Report

1 | Page

#### Fleet Transition Plan – Final Report

Date: Tuesday, 11 April 2023

Prepared for: City of Holdfast Bay

Prepared by: Gething Pty Ltd Corresponding author: Jake Bugden T +61 405 195 764

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## **1 Executive Summary**

#### 1.1 Introduction

In August 2022 the City of Holdfast Bay (Council) adopted a Carbon Neutral Plan that sets out how the Council will achieve its target of becoming carbon neutral by 2030 for its own operations. The first key action in the Plan is for Council to transition to a Zero Emissions Fleet.

Council engaged Gething Pty Ltd to provide assistance with the development of a Fleet Transition Plan. This report is complimented by a review of electrical capacity at the Civic Centre and Depot.

#### 1.2 Overview of electric vehicles

The transition to electric vehicles is coming quickly, as shown in Figure 1<sup>1</sup>.



Figure 1: Global EV uptake

The shape of Figure 1 sales is reminiscent of disruption curves for other disruptive technologies including petrol powered cars (replacing horse drawn carriages), smart phones and digital cameras.

We believe all of the benefits of EV's are not yet realised. The full range of benefits from electrifying transport includes:

- Reduced greenhouse emissions (refer below)
- Reduced local air pollution leading to improved health outcomes and reduced health expenditure

<sup>&</sup>lt;sup>1</sup> <u>https://www.iea.org/data-and-statistics/charts/global-electric-car-stock-2010-2021-2</u>

- Reduced noise
- Improved energy security from reduced reliance on fossil fuel imports and a reduction in pricing volatility
- Reduced fuel and maintenance costs
- Reduced lifecycle costs (in the medium term)
- Reduced vibration and impacts on drivers/passengers and infrastructure

#### 1.3 Overview of Councils vehicle fleet policies and data

The Plant and Equipment Asset Management Plan 2020 is the most relevant document regarding the vehicle fleet.

We propose to prepare a Fleet Management Policy for Council once there is a level of comfort regarding the recommendations in this report.

Council has provided fleet data in the form of excel worksheets. This is the primary source of raw data used in our analysis.

We <u>recommend</u> Council strengthen data collection and reporting for fleet vehicles. This may include for each vehicle OPEX by type to provide a whole-of-life cost (insurance, registration, FBT, maintenance/servicing, fuel consumption.

#### 1.4 Council's vehicle fleet analysis

Council has a modest vehicle fleet comprising 69 vehicles.

Figure 2 provides an overview of the vehicle fleet. Key categories are specialised plant, passenger vehicles, trucks and utilities.



#### Figure 2: Council light vehicle fleet by type

As the passenger vehicle market is the most well developed this is the immediate focus of this investigation.

We <u>recommend</u> Council review the fleet to consider opportunities for consolidation where vehicles are under-utilised.

As part of this project Gething has developed a bespoke cost-benefit model in Microsoft Excel that Council can use to investigate various scenarios. The key output is the 'WOL cost \$/yr', which is the whole-of-life cost of the vehicle (annualised) to Council. Figure 3 shows the above WOL cost graphically.



Figure 3: Whole of life annual cost for passenger vehicles

This illustrates that:

- Hybrids (based on the Toyota Corolla) have been a cost-effective option and saved Council money and emissions
- The replacement of Corolla hybrid pool vehicles with an electric variant is projected to incur an additional cost in the order of \$1,000 (BYD Atto 3) to \$3,000 per annum (Hyundai Kona).
- The replacement of Camry hybrid pool vehicles with an electric variant is projected to realise a saving in the order of \$1,000 per annum (BYD Atto 3) through to an additional cost in the order of \$1,000 per annum (Hyundai Kona).
- The replacement of Pajero pool vehicles with an electric variant is projected to realise a saving in the order of \$3,000 (Tesla Model Y) to \$7,000 (BYD Atto3).

At present, transport accounts for 26% of Council's greenhouse gas emissions as seen in Figure 4.



Figure 4: Council emissions by facility

Figure 5 from the model shows the extraordinary reductions in full fuel cycle greenhouse emissions that can be achieved through switching to BEVs. Emission reductions range from 60 to 85% compared with the most efficient hybrids and least efficient standard ICE vehicles respectively.



Figure 5: Annual fuel-based greenhouse emissions by vehicle

#### 1.5 Council's heavy vehicle fleet analysis (high level)

In our work with other Councils we have found that typically the utilisation of heavy vehicles is low. Some Councils are reviewing utilisation with a view towards consolidation. We recommend Council undertake a similar review.

We <u>recommend</u> that Council stay across developments for utilities, vans, buses and trucks, and be ready to trial vehicles as they become available. It is worth keeping in mind the low potential residual value of a diesel truck when it reaches the end of its life in ten years' time once EVs become the dominant technology.

In regards to petrol powered equipment, Council has already begun its transition to allelectric minor plant stores, expected to complete within 3-5 years. Building on this initiative, we <u>recommend</u>:

- Where possible the transition to electric tools be accelerated
- Staff be provided with education on the benefits of electric tools and with the opportunity to trial tools
- Funding be provided to allow additional battery packs to be purchased to alleviate concerns re 'range'
- A number of purpose-built fire and explosion resistant charging/storage enclosures be built to cater for increased charging requirements, noting that while modern batteries are very safe adding a large number of batteries to a small area increases the risk profile
- Settling on one (or two) preferred brands so that batteries can easily be swapped between tools

#### 1.6 Transition Plan

While the vehicle market is in transition and it is very difficult to be certain of how the transition will unfold, we believe Council can confidently transition to BEVs in an orderly manner, starting with passenger vehicles.

We <u>recommend</u> Council upgrade ICE passenger vehicles to BEV as they are scheduled for replacement (providing a fit-for purpose vehicle is available). This staggered approach to the transition of passenger vehicles over the next few years will manage resale price risk, allow for further BEV price reductions and model choices and allow staff to become more

With respect to other vehicles we recommend that Council:

- revisit this work in 2027/28 when the market is more mature to establish the availability of heavy vehicles and establish a heavy vehicle transition plan.; and
- keep an eye on the market in the meantime with a view to trialling any proven new heavy vehicles that are fit-for-purpose.

Transitioning to electric vehicles is a key opportunity for Council to show leadership to the community at a modest cost. The transition to electric vehicles is an investment in the future of Australia with significant climate change, health and national security benefits.

#### 1.7 Charging infrastructure

We <u>recommend</u> Council consider the public charging networks as enablers for Councils own passenger vehicle fleet. We <u>recommend</u> that Council provide fleet vehicles with access to public charging networks. Network operators manage billing for public charging via smartphone apps or RFID cards.

In terms of the provision of public charging stations we <u>recommend</u> Council take a cautious approach. In our view it is not necessary for Council to make a significant investment in public charging infrastructure. While not public charging infrastructure per se we <u>recommend</u> Council consider the implication of future charging demands for electric vehicles as well as caravans and motor homes at the Brighton Caravan Park as infrastructure upgrades are likely to be required.

We <u>recommend</u> the charging of electric vehicles should be governed by the following principles (in order of priority):

- Ensure vehicles are charged in a location and within a timeframe that is fit for purpose (i.e., meets the operational requirements of Council).
- Charge vehicles cost effectively. This reflects both minimising the cost of charging infrastructure as an initial capital outlay, and the cost to actually charge the vehicles.

We <u>recommend</u> Council request compliance with the Open Charge Point Protocol for any hardware or control system purchased, in order to avoid being locked into a single provider of hardware or software.

We <u>recommend</u> Council wait a few years to purchase an overall EV charging control system as these systems are developing quickly and in the early years Councils requirements can be managed through simple time control given the relatively small number of EVs likely to be We <u>recommend</u> that for the short-term Council ignore bidirectional charging unless any attractive trials become available.

We <u>recommend</u> Council install sub-metering so vehicle charging can be separated from building consumption.

At all sites we <u>recommend</u> home charging as the primary strategy for home garaged vehicles, at Council's cost.

We recommend Council seek charge stations with the following capabilities:

- Time of use control (minimise charging during the peak demand window, maximise charging firstly from solar power that would otherwise be exported to the grid, then from off-peak electricity)
- Power sharing (share power between co-located charge stations to manage peak demand at the local circuit level)
- Demand management (ability to reduce power output in response to a signal regarding overall site peak demand)

Due to the uncertainties (and opportunities) we <u>recommend</u> that Council do not over-invest in electrical capacity upgrade in the short to medium term.

Electrical capacity reviews of the Civic Centre and Somerton Park Depot have been undertaken. These are detailed in a separate report "Charging Infrastructure Report."

In summary for these sites we recommend:

- in the short-term supplying four nominal single phase 7kW charging stations located behind the Civic Centre and fed from the MSB, which will be sufficient for future requirements.
- in the medium term at the Depot new EV-DBs be installed:
  - adjacent to the MSB at the south-eastern end of the Depot workshop and fed from the spare 100A supply
  - in the Event Workshop in a convenient location to provide charge stations for buses and other vehicles
  - $\circ$  together the above will supply future requirements at the Depot
- that Council install a solar power system on the Event Workshop.
- in the medium term at Wilson Parking to run supplies from DB.C1 to allow for four single phase 7kW chargers at desired locations.

## 2 Glossary

VPP	Virtual Power Plant
FCAS	Frequency Control Ancillary Services
IEEFA	Institute for Energy Economics and Financial Analysis
SAPN	SA Power Networks
ВТМ	Behind The Meter
C&I	Commercial & Industrial
DER	Distributed Energy Resources
VEN	Virtual Energy Network
DB	Distribution Board
ARENA	Australian Renewable Energy Agency
MSB	Main Switch Board
CEFC	Clean Energy Finance Corporation
FIT	Feed-in Tariff
BEV	Battery Electric Vehicle
V2L	Vehicle to Load: an on-board GPO in some types of BEV that allows them to use their stored energy to power external appliances.
V2G	Vehicle to Grid: a system whereby some BEVs can export their stored energy to the electricity grid using a bi-directional charger.
PHEV	Plug-in Hybrid Electric Vehicle
GPO	General Purpose Outlet (ie a powerpoint)

## **3 Introduction**

In August 2022 the City of Holdfast Bay (Council) adopted a Carbon Neutral Plan that sets out how the Council will achieve its target of becoming carbon neutral by 2030 for its own operations. The first key action in the Plan is for Council to transition to a Zero Emissions Fleet.

Council is planning to transition its plant, light vehicle, and heavy vehicle fleet to zero emissions. Key strategic drivers that support this shift include Council's commitment to become a carbon neutral body by 2030 via a staging progress dictated in Council's Carbon Neutral Implementation Plan.

Council engaged Gething Pty Ltd to provide assistance with the development of a fleet transition plan, including consultation with staff, an assessment and cost-benefit analysis of vehicles to be transitioned in the near term, an assessment of heavy vehicles, and a review and update of policies to support the transition. This report is complimented by a review of electrical capacity at the Civic Centre and Depot.

## **4** Fleet Transition Plan

Drawing on subsequent sections of this report the proposed Fleet Transition Plan is summarised in Table 1.

= Council decision required

= Indicative year(s) of delivery or commencement of action

Table 1: Fleet Transition Plan

		Initiative Description	Notes / Estimated Cost / Savings	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
1.	Gov	ernance and Data									
	1.1 1.2 1.3	Adopt Fleet Transition Plan. Strengthen data collection and reporting for fleet vehicles. Prepare Fleet Management Policy.	Fleet Management Policy to be prepared by Gething.								
2. Passenger Vehicles		senger Vehicles									
	2.1	Review the passenger fleet to consider opportunities for consolidation where vehicles are under-utilised.	Include consideration of progressively phasing out private use vehicles.								
	2.2	We recommend Council upgrade ICE passenger vehicles to BEV as they are scheduled for replacement (providing a fit-for purpose vehicle is available).	Whole-of-life cost (annualised) per vehicle is either cost neutral, or cheaper.								
3.	Othe	er Vehicles									
	3.1	Review other fleet to consider opportunities for consolidation where vehicles are under-utilised.									
	3.2	Trial proven electric utilities, vans, buses, and trucks as proven models become available.	Costs and savings subject to review.								

Initiative Description	Notes / Estimated Cost / Savings	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
3.3 Revisit heavy vehicle opportunities through a structured review and subject to the findings, accelerate the transition to electric utilities, vans, buses, and trucks.	Costs and savings subject to review.								
3.4 Complete the transition to battery powered tools, where fit for purpose.	Within existing budgets.								
4. Charging Infrastructure									
4.1 Install four nominal single phase 7kW charging stations behind the Civic Centre, fed from the MSB. Install over two years.	Expected cost \$30,000.								
<ul> <li>4.2 At the Depot new EV-DBs be installed:</li> <li>adjacent to the MSB at the south-eastern end of the Depot workshop and fed from the spare 100A supply</li> <li>in the Event Workshop in a convenient location to provide charge stations for buses and other vehicles</li> </ul>	Expected cost approximately \$350,000.								
4.3 Install a solar power system on the Event Workshop.	Costing TBC.								
4.4 At Glenelg Wilson Car Park, run supplies from DB.C1 to allow for installation of four single phase 7kW chargers at desired locations. Install over two years.	Expected cost in the order of \$40,000.								

Transitioning to electric vehicles is a key opportunity for Council to show leadership to the community at a modest cost. The transition to electric vehicles is an investment in the future of Australia with significant climate change, health and national security benefits.

## 5 Overview of electric vehicles

#### 5.1 Electric vehicle uptake

The transition to electric vehicles is coming quickly, as shown in Figure 6<sup>2</sup>.



The shape of Figure 6 sales is reminiscent of disruption curves for other disruptive technologies including petrol powered cars (replacing horse drawn carriages), smart phones and digital cameras.

Norway is currently reaching the tail end of this transition. Figure 7 shows the decline in ICE (internal combustion engine) car sales since 2017<sup>3</sup>.



Figure 7: Norwegian ICE vehicle sales

<sup>&</sup>lt;sup>2</sup> <u>https://www.iea.org/data-and-statistics/charts/global-electric-car-stock-2010-2021-2</u>

<sup>&</sup>lt;sup>3</sup> https://www.drive.com.au/news/norway-to-hit-100-per-cent-electric-vehicle-sales-by-next-year/

Based on the experience in Norway (and elsewhere), when 3-4% of vehicles on the road are electric the market takes off<sup>4</sup>. The Norwegian Government has provided a range of incentives to achieve this market transformation. New EV incentives in South Australia applicable to commercial practice are limited. The Government currently offers a \$3,000 subsidy on the purchase of BEVs (not applicable to local governments) and a three-year motor registration fee exemption on BEVs.

The rapid development and uptake of EVs overseas will drive down the capital costs of EVs until a tipping point is reached at which EVs are cheaper than ICE vehicles based on capital cost (let alone life cycle costs). This will happen more quickly than expected.

While the number of electric vehicles in Australia is still low, the disruption curve is still evident as shown in Figure 8: Australian BEV sales<sup>5</sup>.



Figure 8: Australian BEV sales

The report State of Electric Vehicles March 2022 by the Electric Vehicle Council provides market data and analysis for the electric vehicle industry in Australia.

The South Australian Government has developed an Electric Vehicle Action Plan. This states that "South Australia will be a national leader in electric vehicle uptake and smart charging by 2025, harnessing renewable energy to lower motoring costs, air, noise and carbon pollution, and reduce electricity costs for all South Australians<sup>6</sup>."

#### 5.2 Review of BEVs

#### 5.2.1 Passenger vehicles

The Battery Electric Vehicle (BEV) passenger vehicle market is the most well developed.

Table 2 provides key statistics for common BEVs<sup>7</sup>. It is important to note that the wait time for most models is quite long due primarily to international chip shortages and more recently

<sup>5</sup> Renew157

<sup>&</sup>lt;sup>4</sup> Interview with Andreas Bjelland Eriksen, Higher Executive Officer, The Norwegian Energy Regulation Authority

<sup>&</sup>lt;sup>6</sup> <u>https://www.energymining.sa.gov.au/industry/modern-energy/electric-vehicles</u>

<sup>&</sup>lt;sup>7</sup> Data extracted from <u>https://ev-database.org/</u>

due to high demand (partly as a result of high petrol prices). Additional details, including availability, regarding the above BEVs are included in Appendix A.

Council could also consider second hand vehicles. Imported BEVs (usually from Japan) are available with low kilometres and under warranty. Local importers can make this process easy. This would reduce capital cost and depreciation.

Overall, in terms of passenger vehicles there are many suitable BEV upgrade options. Many others are coming soon<sup>8</sup>. With most existing major vehicle manufacturers bringing out electric vehicles the range of models will increase dramatically throughout 2023 – 2025. More of these BEVs will come to Australia during these years. We currently only have a small selection of what is available internationally.

#### 5.2.2 Vans

There are not many vans available right now. However, a couple of promising options have been identified:

- Ford E Transit coming early 2023, followed by smaller Ford Custom later.
- Mercedes e-Vito vans and panel vans advertised as coming late 2022.
- Renault Kangoo updated model coming early 2023.

Refer to Appendix A for details.

#### 5.2.3 Utilities

Utility BEV options in Australia are extremely limited at present. Upcoming utilities are listed in Appendix A. For utilities it is a waiting game with no viable options for replacement at present.

The most likely first utility will be the Ford F150 Lightning. There may be a few cases where an alternative vehicle type (e.g., van) is a suitable replacement. PHEVs are likely to come first. Possibly Toyota Hilux and Ford Ranger Isuzu D-Max. Some manufacturers are also looking at hydrogen for this class of vehicle.

#### 5.2.4 Trucks

The BEV truck market is developing with limited options available in Australia at present, however this is changing quickly. Refer Appendix A for a more detailed list of electric trucks.

#### 5.2.5 Buses

Electric buses are developing quickly. Council operates two small (12 seater) buses. The E-Crew EV Automotive electric bus may be suitable.

Council may wish to undertake due diligence regarding the quality of these buses and then consider a trial.

<sup>&</sup>lt;sup>8</sup> <u>https://thedriven.io/2021/12/09/ev-calendar-2022-which-electric-vehicles-are-coming-and-which-are-not/</u>

Model	Cost (excl GST excl stamp duty)	Vehicle Warranty	Size Class	Max charge rate kW (AC/DC)	Realistic Electric Range (km)	Efficiency (kW/100km)	Battery Capacity (kWh)
Hyundai <b>Ioniq 5</b>	\$ 62,804	5 Year (Unlimited km)	Small Passenger	11/220	430	18	72.6
Hyundai Kona Electric (Standard Range)	\$ 51,508	5 Year (Unlimited km)	Small SUV	7.2/70	272	15.7	39
Hyundai Kona Electric (Extended Range)	\$ 56,955	5 Year (Unlimited km)	Small SUV	7.2/70	395	16.2	64
Nissan <b>Leaf</b>	\$ 47,347	8 Year (160,000km)	Small Passenger	6.6/100	320	16.4	62
Kia <b>EV6</b>	\$ 68,152	7 Year (150,000km)	Medium SUV	11/233	527	17.2	77.4
Tesla <b>Model 3 (Standard</b> Range)	\$ 61,769	4 Year (80,000km)	Medium Passenger	11/150	380	15.1	52
Tesla <b>Model Y (Standard</b> Range)	\$ 67,951	4 Year (80,000km)	Medium SUV	11/210	455	16.7	54
MG ZS EV Excite/Essence	\$ 39,327	7 year unlimited km	Small SUV	7/50	300	17	50.3
BYD Atto 3 (Standard Range)	\$ 38,786	7 Year (160,000km)	Small SUV	7/80	345	15.2	50.1
BYD Atto 3 (Extended Range)	\$ 41,405	7 Year (160,000km)	Small SUV	7/80	420	15.2	60.4
Volvo XC40 Recharge	\$ 67,751	5 year (Unlimited km)	Small SUV	11/150	400	25.5	78

#### 5.2.6 Petrol-powered equipment<sup>9</sup>

While not vehicles per se, petrol powered garden equipment presents a significant opportunity for Council. The rapid development in battery powered tools means that there are now viable cordless electric alternatives for many garden tools.

For example, electric mowers are instant starting, quiet, have no fumes for operators to breathe in and are less likely to stall.

Issues with petrol powered garden tools include:

- High levels of pollution: for example, a simple petrol lawnmower can produce more particulates than a petrol car
- Noise and vibration
- High maintenance requirements and running costs
- Reliability, in particular starting
- Safety: high temperatures, fumes and combustible fuels

Electric tools have the following advantages:

- No local emissions, very high reductions in overall greenhouse (and other) emissions
- Low noise and vibration levels
- Low maintenance requirements
- Low running costs
- Reliability, in particular starting
- Relatively low operating temperatures
- Improved safety with no on-site handling of volatile fossil fuels

The main disadvantage is that for some applications electric tools are not powerful enough, however this is changing quickly.

We note that the Council has already begun its transition to all-electric minor plant stores, expected to be complete within 3-5 years.

#### 5.3 Benefits of electric vehicles

In general, we believe all of the benefits of EV's are not yet realised. The full range of benefits from electric transport includes:

- Reduced greenhouse emissions (refer below)
- Reduced local air pollution leading to improved health outcomes and reduced health expenditure
- Reduced noise
- Improved energy security from reduced reliance on fossil fuel imports and a reduction in pricing volatility
- Reduced fuel and maintenance costs
- Reduced lifecycle costs (in the medium term)
- Reduced vibration and impacts on drivers/passengers and infrastructure

Due to the installation of more renewable energy generation capacity in South Australia the emissions factor for electricity is rapidly decreasing. This means that while other industries

<sup>&</sup>lt;sup>9</sup> This section of the report is based on extracts from Renew Magazine issue 155 Garden Tools Buyer Guide

that rely on electricity are reducing their scope 1 and 2 emissions, the transport industry is falling behind with its reliance on fossil fuels (see Figure 9). Reducing transport emissions is therefore the key to Council substantially reducing corporate greenhouse emissions.



Figure 9: SA emission factors

#### 5.4 Environmental issues with electric vehicles

Environmental issues related specifically to electric vehicles include concerns regarding lifecycle emissions from vehicle manufacture and battery manufacturing impacts.

Various studies of the lifecycle energy use and emissions of conventional, hybrid and electric vehicles report that the majority of energy consumed (and associated greenhouse gas emissions) over a vehicle's normal lifecycle occurs during its operational (use) phase, and not from its production, nor the embodied energy in the materials from which it is made<sup>10,11</sup>.

Battery manufacturing requires the mining and processing of lithium and other minerals, all of which result in considerable environmental impacts. However, these impacts are significantly less problematic than those associated with the extraction and refinement of oil, given that the battery is built to last 10 plus years and can be refilled with energy from renewable sources while fossil fuel is required for every kilometre travelled. Nevertheless, the energy storage industry is seeing significant investments in new technologies across the globe in recent years and is expected to continue making advancements in lifecycle efficiencies.

<sup>&</sup>lt;sup>10</sup> <u>https://www.greenvehicleguide.gov.au/pages/UnderstandingEmissions/LifecycleEmissions</u>

<sup>&</sup>lt;sup>11</sup> <u>https://www.epa.gov/greenvehicles/electric-vehicle-myths</u>

At the end of their life as an electric vehicle battery, they can still retain 70-80% of their charge capacity and can, therefore have a second life for another 10 years in a range of alternative applications, including:

- Home, business, industrial and commercial energy storage systems
- For emergency back-up power supplies (replacing lead-acid batteries)
- To power small boats
- For storing electricity for camper trailers
- For use in forklifts

At the end of their second lives, end-of-life battery recycling programs are now being established by car companies and start-ups, such as Redwood Materials. One company reclaims 70% of materials from lithium ion batteries and hopes in the near future to reclaim 97%<sup>12</sup>.

#### 5.5 Hydrogen fuel cell vehicles

Every day there is another article about hydrogen and its enormous potential in the renewable energy transition.

While we envisage a significant role for green hydrogen in difficult to abate sectors (for example industrial processes and long-range shipping) we see a limited future for hydrogen in the domestic economy for the following reasons:

- the conversion efficiency of hydrogen fuel cells puts the technology at a distinct disadvantage to that of BEVs. It takes approximately three units of energy input to provide one unit of energy output.
- technology developments in BEVs are outstripping developments in hydrogen fuel cell vehicles
- batteries are experiencing a declining cost curve
- BEVs have very low maintenance costs due to the lack of moving parts
- hydrogen is difficult to store
- there is a lack of hydrogen infrastructure

According to the International Energy Agency "Hydrogen and its derivatives should play an important role in the decarbonisation of those sectors where emissions are hard to abate and alternative solutions are either unavailable or difficult to implement, such as heavy industry, shipping, aviation and heavy-duty transport."<sup>13</sup>

This is a rapidly developing area and things could change quickly. We advise Council to keep an eye on technology developments and adjust their approach accordingly.

<sup>&</sup>lt;sup>12</sup> <u>https://www.whichcar.com.au/car-advice/what-happens-to-old-ev-batteries</u>

<sup>&</sup>lt;sup>13</sup> <u>https://www.iea.org/reports/hydrogen</u>

## 6 Overview of Council's vehicle fleet policies and data

#### 6.1 Plant and Equipment Asset Management Plan 2020

This is the most relevant document regarding the vehicle fleet. Inclusions of note follow:

- Works in conjunction with:
  - Our Place 2050+ Strategic Plan
  - The Annual Business Plan
  - Asset Management Policy
  - Long Term Financial Plan
  - Disposal Policy
  - Use of Vehicle Policy
- Relevant asset classes are Heavy Vehicles and Car Fleet, as well as some Major Plant (e.g. Construction Machinery and Parks and Garden Machinery) and Minor Plant (e.g. Parks and Garden Machinery)
- Identifies climate change and technology change as drivers of future demand for services. With respect to electric vehicles the following opportunities and risks are highlighted:
  - Higher costs associated with plant and equipment assets that are environmentally sustainable and have advanced technological features.
  - Electric vehicles reduce noise for sensitive areas and after hours.
- In terms of acquisition Council are moving towards hybrid and electric vehicle options for all fleet vehicles, and heavy vehicles where possible.
- Whole-of-life cost will be considered for all new vehicles, including comparisons with the operational, maintenance, reliability, and capital costs of electric and hybrid vehicle options.

Council has already incorporated hybrids into the fleet and purchased one BEV, both of which are useful steps in the transition.

#### 6.2 Fleet Management Policy

Council does not have a fleet management policy at present, and the development of such a policy is a deliverable of this consultancy.

The Plant and Equipment Asset Management Plan is quite comprehensive.

We propose to prepare a Fleet Management Policy for Council once there is a level of comfort regarding the recommendations in this report.

#### 6.3 Available data

Council has provided fleet data in the form of excel worksheets. This is the primary source of raw data used in our analysis.

Limited data are available with respect to the operational costs of fleet vehicles. Data provided includes:

- Vehicle information (make/model/details)
- Operator
- Purchase date
- Registration number

- Vehicle type
- Location
- Personal use
- Kilometres per annum (by calculation)
- Replacement and trade-in cost (for some vehicles)

Data such as fuel, servicing, and FBT costs if consolidated can provide useful and efficient metrics for reviewing assets through a cost benefit lens.

We <u>recommend</u> Council strengthen data collection and reporting for fleet vehicles. This may include for each vehicle OPEX by type to provide a whole-of-life cost (insurance, registration, FBT, maintenance/servicing, fuel consumption).

## 7 Council's vehicle fleet analysis

#### 7.1 An overview of the vehicle fleet

Council has a modest vehicle fleet comprising 69 vehicles.

Figure 10 provides an overview of the vehicle fleet. Key categories are specialised plant, passenger vehicles, trucks and utilities.





All trucks and specialised plant as well as most utilities are parked at the Depot. Passenger vehicles are predominantly parked at the Civic Centre and Glenelg as seen in Figure 11.



Figure 11: Council vehicle locations by type

#### 7.2 Light vehicle fleet

The light vehicle fleet is dominated by Camry and Corolla hybrids as shown in Figure 12.



#### Figure 12: Council passenger fleet by vehicle type

As the passenger vehicle market is the most well developed this is the immediate focus of this investigation. It is important that vehicles are fit for purpose and it seems likely that there is some flexibility to transition from SUVs to electric sedans.

Council has already purchased one electric vehicle, a Hyundai Ioniq. We note some feedback from staff that this vehicle may not be fit for purpose (as equipment needs to be carried a utility may be more appropriate).

From the data provided it appears the average distance travelled is 10,000 km per vehicle per annum as shown in Figure 13.





However, there is some variance in utilisation, as shown by the maximum distance travelled by each passenger vehicle in Figure 14.



Figure 14: Maximum kms per year by vehicle type

Overall, it appears some vehicles travel significantly lower kilometres, while others are heavily utilised. This suggests opportunities for fleet consolidation.

Fleet vehicles usually travel around 30,000 km each year and the business use percentage is usually above 70%. The popular replacement cycles for passenger vehicles are 36 months/90,000 km and 60 months/150,000 km for light commercial vehicles. Trucks are often replaced after seven or eight years and the kilometres vary depending on their purpose<sup>14</sup>.

It is perhaps worth noting that an average passenger vehicle has a utilisation rate of approximately 5%, which is why private vehicles are seen as ripe for disruption by robotaxis<sup>15</sup>, which can travel in the order of 200,000 km per annum. This suggests opportunities for improved utilisation.

We <u>recommend</u> Council review the fleet to consider opportunities for consolidation where vehicles are under-utilised.

<sup>&</sup>lt;sup>14</sup> <u>https://www.mynrma.com.au/business/news/how-long-to-keep-your-fleet-vehicles#:~:text=Fleet%20vehicles%20usually%20travel%20around,km%20for%20light%20commercial%20vehicles</u>

<sup>&</sup>lt;sup>15</sup> A robotaxi (or "robo-taxi"), also known as a self-driving taxi or a driverless taxi, is an autonomous car (SAE automation level 4 or 5) operated for a ridesharing company.

#### 7.3 Cost-benefit analysis

There are several important considerations regarding the potential for upgrading to an electric vehicle and the cost-benefit analysis.

As part of this project Gething has developed a bespoke cost-benefit model in Microsoft Excel that Council can use to investigate various scenarios. This spreadsheet will be passed to Council on final submission to be used as a basis for plant data management. Assumptions are listed in Appendix A. The key output is the 'WOL cost pa', which is the whole-of-life (WOL) cost of the vehicle (annualised) to Council.

Table 3 provides a summary of key model outputs, based on 15,000 km travelled per annum. While the existing average is only 10,000 km we project an improvement based on higher levels of utilisation. Figure 15 shows the WOL cost graphically.

Туре	WOL c	ost pa
Corolla Hybrid Pool	\$	9,199
Camry Hybrid Pool	\$ 1	11,070
Pajero Pool	\$ 1	17,405
Hyundai Kona EV Pool	\$ 1	11,767
BYD Atto 3 EV Pool	\$ 1	10,026
Tesla Model Y EV Pool	\$ 1	14,080
Tesla Model 3 EV Pool	\$ 1	13,125

Table 3: WOL cost pool vehicles



Figure 15: WOL cost per year for passenger vehicles

This illustrates that:

- Hybrids (based on the Toyota Corolla) have been a cost-effective option and saved Council both money and emissions
- The replacement of Corolla hybrid pool vehicles with an electric variant is projected to incur an additional cost in the order of \$1,000 (BYD Atto 3) to \$3,000 per annum (Hyundai Kona).
- The replacement of Camry hybrid pool vehicles with an electric variant is projected to realise a saving in the order of \$1,000 per annum (BYD Atto 3) through to an additional cost in the order of \$1,000 per annum (Hyundai Kona).
- The replacement of Pajero pool vehicles with an electric variant is projected to realise a saving in the order of \$3,000 per annum (Tesla Model Y) to \$7,000 (BYD Atto3).

A very small proportion of the passenger fleet is private use and therefore subject to Fringe Benefits Tax (FBT), which is based on the purchase cost of each vehicle. The FBT is the most significant contributor to the whole-of-life cost of private use vehicles. Note that staff with private use vehicles make an additional pre-tax salary contribution for their vehicles so this cost is not solely borne by Council.

There is a small opportunity for Council to phase out private use vehicles from the fleet. This can be done by providing affected staff with an increase in salary commensurate with the cost of Council providing the vehicles. The benefits of this approach include:

- A small reduction in corporate emissions.
- Council staff take responsibility for their own commute and are not incentivised to drive unnecessarily.
- Fairness. The current system effectively provides additional benefits to staff who drive more/further.

An alternative view is that private use vehicles provide Council with the opportunity to influence vehicle selection in a positive way to further assist with the transition to EVs.

The shortfall in availability of vehicles for work purposes could be made up through the use of ride share services.

We <u>recommend</u> Council consider the merits of progressively phasing out private use vehicles.

We note that the federal government has announced a proposal to remove fringe benefits tax (FBT) on eligible electric cars from 1 July 2022<sup>16</sup>. This policy will be reviewed after three years. This completely changes the outlook for private use BEVs in the fleet, making the transition to electric vehicles much more cost-effective as far as private use vehicles are concerned.

<sup>&</sup>lt;sup>16</sup> <u>https://www.ato.gov.au/General/New-legislation/In-detail/Other-topics/Fringe-benefits-tax-and-electric-</u>

cars/#:~:text=The%20Government%20has%20announced%20a,employee's%20reportable%20fringe %20benefits%20amount.

#### 7.4 Model sensitivity

Figure 16 shows the breakdown of the WOL cost for the vehicles. It clearly demonstrates that capital loss (the difference between list price and resale value) and FBT (where applicable) are the dominant factors. Fuel and servicing costs are lower for the BEVs.



Figure 16: WOL cost breakdown comparison between models currently in Council fleet and full EVs

#### 7.5 Greenhouse emission reductions

At present, transport (fuel) accounts for 26% of Council's greenhouse gas emissions as seen in Figure 17.



Figure 17: Council emissions by facility

Figure 18 shows the extraordinary greenhouse emissions reductions that can be achieved in the full lifecycle production of fuel through switching to BEVs. Emissions reductions range from 60 to 85% compared with the most efficient hybrids and least efficient standard ICE vehicles respectively. In fact emissions reductions will be even higher as the renewables penetration in the grid becomes higher (refer Section 4.3), and even more so as Council has entered into a 100% renewable electricity contract.



Figure 18: Greenhouse emissions by vehicle

It is worth emphasising that by purchasing and holding vehicles for a relatively short period of time (typically 3 years) Council is locking in emissions from the vehicle over the entire life of the vehicle as it will be sold into the second-hand market. This strengthens the case for the purchase of BEVs.

### 7.6 Alternative option – leasing Battery Electrical Vehicles (BEVs)

Various market participants, in particular electricity retailers, are starting to offer leasing options for electric vehicles. For example, AGL<sup>17</sup> now offers an EV subscription service. Costs range from a minimum of \$235 per week (\$12,200 per annum) for a Nissan Leaf to \$399 per week (\$20,748 per annum) for a Tesla Model 3.

Such offers are likely to be significantly more expensive than the current direct purchase arrangement, so this option is not recommended.

#### 7.7 Passenger vehicle transition

While the vehicle market is in transition and it is very difficult to be certain of how the transition will unfold, we believe Council can confidently transition to BEVs in an orderly manner.

We note that there is significant uncertainty, particularly in terms of resale value so a staggered approach provides a good risk management strategy. We also note that any cost penalty for upgrading to BEVs will decline significantly over the next few years. In fact, by 2025 we expect that the WOL cost for BEVs will be cheaper than the WOL cost for ICE vehicles.

<sup>&</sup>lt;sup>17</sup> <u>https://next.agl.com.au/ev-subscription</u>

We <u>recommend</u> Council upgrade ICE passenger vehicles to BEV as they are scheduled for replacement (providing a fit-for purpose vehicle is available). If a fit-for-purpose BEV alternative is not yet available, we recommend looking for a hybrid alternative, as these have been demonstrated to save both money and emissions. This staggered approach to the transition of passenger vehicles over the next few years will manage resale price risk, allow for further BEV price reductions, an increase in model choices and allow staff to become more comfortable with BEVs.

Simplified projections for income and expenditure have been modelled and are shown in Figure 19. This is based on the potential replacement of 15 vehicles as shown in Table 4.

Vehicle model	Replacement year	Model as
Toyota Yaris	2023-24	Corolla
Toyota Corolla x 2	2023-24	Corolla x 2
Toyota Corolla	2024-25	Corolla
Toyota Rav 4	2024-25	Camry
Corolla	2025-26	Corolla
Suzuki Grand Vitara x 2	2025-26	Camry x 2
Toyota Camry x 5	2025-26	Camry x 5
Pajero x 2	2026-2027	Pajero x 2

Table 4: Potential upgrades to electric passenger vehicles to 2026-27.

Figure 19 shows capital and operating costs for the progressive purchase and resale of 15 vehicles as per Table 4, each held for a three year term. This shows that while costs are higher in the first few years (due to the higher cost of electric vehicles and the cost of charging infrastructure this is largely recouped over time (due to lower operating costs and higher resale values).


Figure 19: Annual costs for passenger fleet

Expected annual emission reductions from the transition of the fourteen vehicles are shown in Figure 20.





# 8 Council's heavy vehicle fleet analysis (high level)

#### 8.1 Overview of heavy vehicle fleet

Figure 21 provides an overview of the heavy vehicle fleet, which is dominated by specialised plant, trucks and utilities. Specialised plant includes mowers (3), sweepers (3), chippers (2), loaders (2), water fighters (2) and other miscellaneous fuel powered equipment.



Figure 21: Heavy vehicle fleet by type

#### 8.2 Heavy vehicle review

In our work with other Councils we have found that typically the utilisation of heavy vehicles is low. Some Councils are reviewing utilisation with a view towards consolidation. We recommend Council undertake a similar review. Opportunities may include:

- Selling occasionally used specialised plant and hiring in equipment as required
- Combining work teams to reduce kilometres travelled and staff time
- Replacing some utilities and/or 4WDs with vans or passenger vehicles, provided these alternatives are fit for purpose
- Battery electric alternatives to small plant

Benefits may include:

- less diesel/petrol consumption leading to less electricity consumption from charging
- higher utilisation for some vehicles leading to increased daily demands for charging
- overall a reduction in electric vehicle charging infrastructure costs

# 8.3 Proposed upgrade pathway

#### 8.3.1 Heavy vehicles

The pathway for upgrading heavy vehicles is unclear. While there is significant potential for the application of electric vehicle technology to heavy vehicles the market is not yet mature. However, this is changing quickly. Electric vehicles that are likely to meet Councils requirements are coming soon.

We <u>recommend</u> that Council stay across developments for utilities, vans, buses and trucks, and be ready to trial vehicles as they become available. It is worth keeping in mind the low potential residual value of a diesel truck when it reaches the end of its life in ten years' time once EVs become the dominant technology.

#### 8.3.2 Petrol powered equipment

Several Councils are trialling battery power hand plant from several brands. Typical concerns are lack of power and issues with running time in the commercial environment. In regard to these issues, we note that the power of electric tools is improving rapidly and that multiple batteries can be carried on utilities and swapped over in the field as required. In the future BEV utilities will provide general purpose outlets (GPOs) to allow for charging of batteries (this capability is already present in vehicles such as the BYD Atto3, Hyundai Ioniq 5 and Kia EV6).

In addition, staff require training to ensure PPE is being worn as tools may not appear to be as dangerous as their petrol counterparts.

We note that Council has already started this transition and is due to complete it in 3 to 5 years. We <u>recommend</u>:

- Where possible the transition to electric tools be accelerated
- Staff be provided with education on the benefits of electric tools and with the opportunity to trial tools
- Funding be provided to allow additional battery packs to be purchased to alleviate concerns re 'range'
- A number of purpose-built fire and explosion resistant charging/storage enclosures be built to cater for increased charging requirements, noting that while modern batteries are very safe adding a large number of batteries to a small area increases the risk profile
- Settling on one (or two) preferred brands so that batteries can easily be swapped between tools

# 8.4 Other vehicle transition

As outlined elsewhere in this report the electrification of vehicle types apart from passenger vehicles is still in the early stages. While there are some good opportunities to start trialling some heavy vehicles it is very difficult to set out a transition plan with any level of certainty as developments in electric vehicle technology are uncertain.

We therefore recommend that Council:

- revisit this work in 2025/26 when the market is more mature to establish the availability of heavy vehicles and establish a heavy vehicle transition plan; and

- keep an eye on the market in the meantime with a view to trialling any proven new heavy vehicles that are fit-for-purpose.

While a significant investment will be required as part of the transition it is worth keeping in mind the substantial fuel and emission savings. Figure 22 shows the significant annual savings in annual fuel cost that may be achieved through transitioning all vehicles to electric.



Figure 22: Annual fuel cost compared with potential electricity cost

While not technically feasible, if all of the fleet were transitioned now to electric greenhouse emission savings in the order of 280 tonnes per annum of CO<sub>2</sub>e- would be expected. By 2030 the savings would be even higher as the percentage of renewables in the grid increases further.

# 9 Charging infrastructure

This section of the report provides information regarding charging infrastructure. Site specific information is provided in a separate report.

# 9.1 Introduction

As BEVs are charged from electricity (usually on-site) rather than at fuel stations, charging infrastructure is critical. While for a household charging is generally easy to install, it becomes more complicated at sites where multiple vehicles are parked/charged.

Cars Guide provides a simple description of charging types<sup>18</sup>.

For passenger vehicles 7kW (30A) single phase chargers are of most relevance to Council, as this is well matched to passenger vehicle AC charging capability (which for most passenger vehicles has a maximum AC charge rate of 7kW, with some vehicles at 11kW).

For heavy vehicles (e.g., buses) 22kW three phase chargers and DC fast chargers will be useful.

# 9.2 Public charging infrastructure

There is an existing, albeit small, public charging network of four charge stations within Council's boundary already. Figure 23 shows the number of charging stations in and around Council's boundary and thus close by to Council works and duties. Within the Council boundary there are two charge stations in a public carpark adjacent to the Stamford Grand Hotel, and another two charge stations near the end of Anzac Highway.

<sup>&</sup>lt;sup>18</sup> <u>https://www.carsguide.com.au/ev/advice/ev-charging-stations-in-australia-explained-83987</u>



Figure 23: Number of public EV chargers in proximity to Council's jurisdiction

It is worth noting that the State Government is rolling out a state-wide charging network<sup>19</sup> through the RAA and Chargefox<sup>20</sup> as shown in Figure 24. This will significantly expand the Chargefox network and is expected to be completed by early 2024.

<sup>&</sup>lt;sup>19</sup> <u>https://www.raa.com.au/motor/motoring-services/ev-charging-network</u>

<sup>&</sup>lt;sup>20</sup> https://daily.raa.com.au/raa-to-create-sas-first-electric-vehicle-charging-network/



Figure 24: State-wide charging network

We <u>recommend</u> Council consider the public charging networks as enablers for Council's own passenger vehicle fleet.

We <u>recommend</u> that Council provide fleet vehicles with access to public charging networks. Network operators manage billing for public charging via smartphone apps or RFID cards.

In terms of the provision of public charging stations we <u>recommend</u> Council take a cautious approach. While range anxiety is a barrier to the uptake of electric vehicles the reality is that most charging will be done at home. Key exceptions to this are fleets, long-distance travel and apartment dwellings. The market is also developing quickly, and other parties are pursuing public charge station infrastructure. In our view it is not necessary for Council to make a significant investment in public charging infrastructure.

While not public charging infrastructure per se, we <u>recommend</u> Council consider the implication of future charging demands for electric vehicles as well as caravans and motor homes at the Brighton Beachfront Holiday Park as infrastructure upgrades are likely to be required.

# 9.3 Parking and charging

It is important to recognize that parking for EV charging access for passenger and light commercial vehicles is most appropriate in 90° parking bays with a central charging station bollard.

This allows access via a standard EVSE (charging cable) of 5m length for all models of EV.

Problems occur if angled parking bays or parallel parking bays are supplied as it is not possible to locate the charging outlet equipment in a location accessible by all models of EV due to the different locations of charging port on different model vehicles. Unlike ICE vehicles, EVs do not have a typical charging port location.

Figure 25 shows a simplified diagram<sup>21</sup> of where these different charging port locations are placed on popular commercial EVs. It makes it clear that different EVs have different requirements. While angled parking (front to kerb) works well for a few EVs, for many EVs it is highly problematic. It is illegal in SA (and difficult) to reverse park into an angled parking bay.



Figure 25: Typical EV charging port locations

<sup>&</sup>lt;sup>21</sup> Charles Gregory, AEVA.

A good analogy to understand the potential difficulties is to imagine a petrol station with bowsers located at the front of non-drive through angled parking bays and the chaos that would ensue with fuel lines not reaching the petrol fill location for all vehicles.

Petrol stations currently offer drive through bowsers where you can choose which side of the vehicle to park near the bowser and the distance you can drive forward or back to align the bowser with your vehicle.

Once we move to EV charging in fixed position parking bays that flexibility to align the vehicle is lost (compensated by the convenience of installing charging in many more locations) so the charging equipment must be located to suit all vehicles.

Figure 26 shows a Mitsubishi i-MiEV charging in angled bays in Hindmarsh Square, Adelaide. These pictures illustrate the problems with charging in angled bays.



Figure 26: EV charging in an angled park

This car can only charge front to kerb in the southern bay (LHS) with some creativity. Suspending the cable mid-air is not recommended due to the weight of the cable putting strain on the charging ports. It also creates a pedestrian hazard indicated by the fluoro vest hanging on the cable as a warning.

In the northern bay (RHS) the cable will not reach whichever way it goes around the small car. This problem is worse for larger, longer vehicles with rear or opposite side ports.

Figure 27 makes clear the suitability of right-angled parking compared with angled parking.



Figure 27: Right angle versus angled parking

90-degree parking in groups of four bays with central outlets is the most efficient way to install charging stations in larger carparks, with minimal cable run required for installation.



Figure 28: 90-degree parking in groups of 4 bays with central outlets

Longer than standard EVSE or cable is heavier and more difficult for some to roll/unroll and may lead to excessive cable on the ground as potential trip hazard when used in other locations not requiring the additional length for charging. They are also slightly more expensive.

The bays would not be suitable for public charging where most drivers may arrive with a standard-length cable.

For similar reasons parallel parking bays are also not suitable as indicated in Figure 29. As indicated previously with the charging connector wrapped in fluoro safety vest there is a

safety risk for the driver whilst plugging in with passing traffic, as well as a risk of damage to the charging equipment while plugged in.



Figure 29: Parallel parking while charging

For heavy vehicles like vans and trucks the requirements are different. For these vehicles there is some safety and traffic flow merit in having one-way angled bays.

Charging infrastructure may well be different than central bollards due to the risk of large vehicles accidentally impacting them and also the extra room taken from the parking bays to install stations and safety bollards.

Better options for charging larger vehicles include overhead retractable cables. These would work extremely well under a solar carport.

Other potential options are still under development including retractable bollards and induction charging.

#### 9.4 Principles

We <u>recommend</u> the charging of electric vehicles should be governed by the following principles (in order of priority):

- Ensure vehicles are charged in a location and within a timeframe that is fit for purpose (i.e., meets the operational requirements of Council).
- Charge vehicles cost effectively. This reflects both minimising the cost of charging infrastructure as an initial capital outlay, and the cost to actually charge the vehicles.

In very general terms, slower rates of charging will reduce charging costs (both infrastructure and ongoing demand costs).

Off-peak tariffs can offer opportunities to save on charging costs, as does avoiding maximum demand charges and self-consuming solar power generated on-site.

A simple control system to allow EV charging during the day (when/if solar power systems are exporting) and at night (on the off-peak tariff) and in both cases outside of the maximum demand window will be required.

The ideal locations for charger installation are:

- where BEVs are to be parked, ideally for long periods.
- where existing electrical infrastructure is sufficient to support the load.
- where power costs are cheap, typically either larger sites or where there is also a solar power system with significant export.
- -

# 9.5 Fleet charging management system and the Open Charge Point Protocol (OCPP)

Control and load management of charge stations will be critical to Council as more BEVs are deployed. Out to 2030 BEVs will place a considerable load on electrical infrastructure, particularly at the depot. This will need to be managed to achieve multiple objectives:

- Relatively rapid charging of specific BEVs when required.
- Managed charging of the BEV fleet to:
  - Stay within the physical electrical infrastructure capacities of each site.
  - o Avoid excessive maximum demand charges.
  - Charge at the most cost-effective time in a staged manner (firstly avoid exporting solar to the grid, secondly charge off-peak).
  - $\circ$  Share available power across the vehicle pool (where required).

EV charging control systems are developing rapidly, in particular by the providers of EV charging stations.

Since 2009 the Open Charge Alliance has promoted the benefits of the Open Charge Point Protocol<sup>22</sup> (OCPP) in order to make Electric Vehicle (EV) networks open and accessible. The importance of the OCPP is that compliance with this protocol means that Council will not be locked into one set of hardware or software.

We <u>recommend</u> Council request compliance with the Open Charge Point Protocol for any hardware or control system purchased, in order to avoid being locked into a single provider of hardware or software.

We <u>recommend</u> Council wait a few years to purchase an overall EV charging control system as these systems are developing quickly and in the early years Council's requirements can be managed through simple time control given the relatively small number of EVs likely to be deployed.

# 9.6 Bidirectional charging potential

Bidirectional charging refers to the ability to transmit electricity stored in a BEVs battery into a building or the grid (in addition to standard EV charging – receiving electricity from the grid to charge the BEVs battery).

<sup>&</sup>lt;sup>22</sup> <u>https://www.openchargealliance.org/</u>

At present the following vehicles have some bidirectional charging capability:

- Nissan Leaf
- Mitsubishi Outlander
- Mitsubishi Eclipse Cross PHEV
- Hyundai loniq 5
- ACE vans

We see the following main applications for bidirectional charging:

- For off-grid energy systems to top up their energy storage systems on an occasional basis using a BEV as a transport medium (i.e., BEV travels to supercharger, charges battery, travels home and discharges battery). This could make off-grid systems much cheaper as they may not require a generator or such a large battery capacity
- 2. For holding up part or all of a household during a power failure. For example, the loniq 5's bidirectional capability is limited to an on-board GPO. In the event of a power failure this could presumably be used to keep selected appliances running (e.g., refrigeration) from an extension cord. Also useful for camping or to power equipment on site
- 3. To provide grid services. Under occasional conditions of extreme load/peak demand bidirectional charging could be used to support the electricity grid. This could be through participation in a future Virtual Power Plant (VPP) whereby a third party can charge/discharge the vehicle battery within agreed limits in exchange for a financial benefit.

This space is developing rapidly. We note the following in a recent report from Gabrielle Kuiper at the Institute for Energy Economics and Financial Analysis (IEEFA):

"Some commentators suggest that Vehicle to Home (V2H) and Vehicle to Grid (V2G) technology (allowing use of the car battery to power the home or export to the grid) is in the distant future and likely to encounter many barriers. Contrary to this argument:

- JetCharge is in the process of gaining approvals for their range of V2G chargers
- UK low-carbon electricity producer EDF is already providing V2G for fleet owners of Nissan's LEAF and e-NV200 models in Europe.
- Tesla has taken out a retail licence in the UK.
- The Charging Interface Initiative, an association of Germany's biggest car makers, is working to develop the global standard for charging EVs, including V2H, then V2G.<sup>23</sup>

In addition, SA Power Networks are preparing for V2G and preliminary approvals are now in place.

However, bidirectional charging equipment is very expensive at the moment.

We <u>recommend</u> that for the short-term Council ignore bidirectional charging unless any attractive trials become available. In the medium to long-term it is quite likely that bidirectional charging will become ubiquitous. This does have implications for Council, mainly in terms of adding to the uncertainty of the future and strengthening the case against over-investment in infrastructure in the short term.

<sup>&</sup>lt;sup>23</sup> What Is the State of Virtual Power Plants in Australia? From Thin Margins to a Future of VPP-tailers

# 9.7 Managing charging costs

#### 9.7.1 Introduction

There are four likely charging scenarios to be considered:

- 1. Charging at Council using charging infrastructure provided by Council.
- 2. Charging at fast or superfast chargers on route.
- 3. Charging at home.
- 4. Charging on holiday.

#### 9.7.2 Charging at Council

This is the default scenario. Charging costs are paid for by Council through existing electricity billing mechanisms. We <u>recommend</u> Council install sub-metering so vehicle charging can be separated from building consumption.

At an additional cost the amount of charging undertaken per vehicle could be captured by issuing RFID cards, which are required to commence vehicle charging.

#### 9.7.3 Charging on route

There are an increasing number of fast and superfast charging stations run by a number of different providers. Some of these are free but most are a pay for service (typically 30-60c/kWh). Council could have an arrangement with one or more providers with billing provided per vehicle.

#### 9.7.4 Charging at home

The vast majority of general BEV charging will be done at home, which is very convenient for private users. Charging infrastructure typically costs \$3,000 per dwelling. Charging rates can be quite competitive (where charged on solar or off-peak). There would be some complexity to managing this. At all sites we <u>recommend</u> home charging as the primary strategy for private use vehicles that are garaged at home.

Home charging will require:

- The installation of a smart wall charger and dedicated circuit with RCD at the dwelling paid for by Council or a third party.
- A system to measure (or possibly estimate) charging electricity consumption and reimburse staff.
- A review of governance arrangements in particular ATO requirements and an agreed declining residual value for the charging equipment (to be paid by the staff member if they leave Council).

Home charging will not suit every staff member with a home garaged vehicle.

#### 9.7.5 Charging on holiday

Charging on holiday is generally done through a combination of highway fast charging and destination charging (similar to charging on route and at home).

#### 9.7.6 Options for managing charging costs

As a starting point we <u>recommend:</u>

- Council consider installing charging infrastructure with the capability to manage and record individual vehicle charging data

- Council establish an arrangement with one or more charge station providers for on route charging with billing provided per vehicle

#### 9.7.7 Telematics

Telematics software allow users (Council) to log and monitor vehicular data to gain an understanding of fleet asset movements. Telematics may also offer on-board diagnostics alongside data such as:

- Trip distance
- Trip time
- Fuel consumption
- Faults
- Speed
- Location

Council staff have expressed an interest in the application of vehicle telematics. Telematics provide a broad range of benefits at a cost. In terms of BEVs telematics could assist with vehicle charging cost measurement and verification.

Telematics are an alternative option providing greater control at a cost.

# 9.8 Proposed EV charging infrastructure and control

We <u>recommend</u> that in general Council install 7kW single phase chargers where passenger vehicles are to be parked, with a nominal allocation of one charger for two vehicles.

If parking arrangements are not flexible, then one charge station can be installed per vehicle (with power sharing between the two charge stations) at an additional cost.

We recommend Council seek charge stations with the following capabilities:

- Time of use control (minimise charging during the peak demand window, maximise charging firstly from solar power that would otherwise be exported to the grid, then from off-peak electricity)
- Power sharing (share power between co-located charge stations to manage peak demand at the local circuit level)
- Demand management (ability to reduce power output in response to a signal regarding overall site peak demand)

Intrinsic to these capabilities is the ability of the charge station to communicate with other charge stations and a central control system (such as a Building Management System).

The ability for charge stations to identify users (via an RFID card) and charging duration/electricity consumption/cost would also be useful.

Council should beware of purchasing an overly complicated and expensive central control system as these systems are in the early stages of development and are likely to become more cost effective over the next few years.

Please note that a separate allowance for charging infrastructure costs is included in the cost-benefit analysis – refer Appendix A.

# 9.9 The future of EV charging infrastructure

There are many uncertainties in terms of electric vehicle charging infrastructure. These include the following.

#### 9.9.1 Vehicle technology

Vehicle technology is developing rapidly. As noted in this report the most viable option for BEVs is in the passenger vehicle segment. While we are fairly confident that BEVs will be the technology of choice for most or all Council vehicles, hydrogen could play a bigger role in the future than we expect.

#### 9.9.2 Charging models

Service stations will not easily give up their role as fuel providers. For example, Ampol already has 10 EV charging stations across five sites, delivered in partnership with EVIE Networks<sup>24</sup>. As mentioned in section 9.2 there are significant developments occurring in the development of a public charging network. This may provide a partial or substantial answer to Council's charging requirements.

#### 9.9.3 Charging technology

Charging technology is in the early stages of development. New equipment and capabilities are being developed at a fast pace and costs are coming down. As noted in Section 9.5 in the medium to long-term it is quite likely that bidirectional charging will become ubiquitous.

#### 9.9.4 Dynamic load management

BEVs equate to an enormous and generally flexible load. This is changing the approach to managing peak demand and even electrical design.

A dynamic load management system ensures that the power is split evenly across all the active chargers safely and efficiently. In the event that the total load at the site exceeds the available capacity of the site, the system will limit the power supply to the chargers, allowing vehicles to charge but at a slower pace. This form of managed charging allows more chargers to be installed at a location and grid upgrades can be avoided<sup>25</sup>.

Figure 30 provides an illustration of dynamic load management<sup>26</sup>.

<sup>&</sup>lt;sup>24</sup> <u>https://www.ampol.com.au/about-ampol/news-and-media/ampcharge-launch</u>

<sup>&</sup>lt;sup>25</sup> <u>https://www.ampcontrol.io/post/overcoming-ev-charging-challenges-with-dynamic-load-</u>management-and-ocpp

<sup>&</sup>lt;sup>26</sup> https://chargebay.com.au/services/dynamic-load-management/



Figure 30: Dynamic load management diagram

The installation of EV chargers will result in an increase in both energy use and peak demand. We note that the peak demand in a 30-minute time period will dictate network demand charges for a 12-month period for relevant sites. It is therefore important for dynamic load management not only to manage peak demand from a capacity limitation point of view, but also to minimise short term peak demand. Advanced dynamic load management systems can also prioritise the self-consumption of solar power that would otherwise be exported to the grid.

Dynamic load management systems are available or under development by Chargebay, Evup, Jetcharge, Smartcharge and EVSE.

#### 9.9.5 Solar power and battery storage

Council has already invested in solar power to the maximum extent practical at the Civic Centre and Depot. It may be worth (re)considering solar power at Glenelg where several passenger vehicles are parked.

Battery storage systems are still not cost-effective however, the technology is developing quickly. Battery storage systems can be deployed to store excess solar power and then charge electric vehicles overnight and/or provide additional electrical capacity.

Due to the uncertainties (and opportunities) above we <u>recommend</u> that Council do not overinvest in electrical capacity upgrade in the short to medium term.

# 9.10 Electrical capacity reviews

Electrical capacity reviews of the Civic Centre and Somerton Park Depot have been undertaken. A brief review has also been undertaken of Wilson Parking, Glenelg. These are detailed in a separate report "Charging Infrastructure Assessment".

In summary for these sites we recommend:

- in the short-term install four nominal single phase 7kW charging stations located behind the Civic Centre and fed from the MSB, which will be sufficient for future requirements.

- in the medium term, to supply future requirements at the Depot, new EV-DBs should be installed:
  - adjacent to the MSB at the south-eastern end of the Depot workshop and fed from the spare 100A supply
  - $\circ\;$  in the Event Workshop in a convenient location to provide charge stations for buses and other vehicles
- that Council install a solar power system on the Event Workshop.
- in the medium term at Wilson Parking to run supplies from DB.C1 to allow for four single phase 7kW chargers at desired locations.

High level cost estimates have been developed for required charging infrastructure at key sites. These are summarised in Table 5.

Table 5: High level charging infrastructure cost estimates

Site	Short-term			Medium-term		
	# vehicles	са	pex	# vehicles	ca	pex
Civic Centre	8	\$	30,000	0	\$	-
Depot	2	\$	-	51	\$	350,000
Other	0	\$	-	8	\$	40,000
Total	10	\$	30,000	59	\$	390,000

# 9.11 EVSE suppliers

There are numerous suppliers of EVSE (Electric Vehicle Supply Equipment) and this is a rapidly developing market. Prominent EV charging equipment suppliers are listed in Appendix B.

# **10 Disclaimer**

This report provides a high level assessment, suitable for planning purposes and budget estimates. The findings are only relevant for these specific sites and purpose. The calculations provided are engineering estimates based on limited site and desktop reviews of available information. Limitations include some details that were not available for the purpose of preparing this report and drawings reviewed that might be out of date.

As the vehicle market is in transition to electric there are considerable uncertainties, particularly in regard to vehicle pricing and resale value in the near future. Findings in this report are up to date as of November 2022.

For any charging infrastructure installation it is recommended that the electrical contractor undertakes a complete detailed design including a detailed peak demand assessment and assessment of phase balancing requirements.

Overall charging cost estimates are provided for budgeting purposes only. Please note:

- Cost estimates are not generous and are based on basic features and control capabilities. More sophisticated features and systems will incur higher costs (capex and opex).
- A considerable pricing learning curve is factored into cost estimates (ie it is assumed that costs for chargers, control and installation will drop quite rapidly, and these anticipated price reductions are included in our estimates).
- Where trenching is required it is assumed that Council will identify services, manage traffic and make good asphalt at no cost to the project.

The recommendations in this report are based on such detailed design, supervision and implementation by competent companies and personnel with relevant energy experience. Gething Pty Ltd will not be liable for the results of using inexperienced companies or individuals for these tasks.

# 11 Appendix A – Cost Benefit Analysis Assumptions

Any model is highly dependent on credible inputs. Note all costs exclude GST.

Vehicle cost related data:

- Purchase price. From dealer websites and/or carsales.com.au to provide a consistent basis.
- Fringe benefits tax. For private use vehicles, calculation provided by Council (Finance) i.e., 20% of Base Value X FBT Gross up (2.0802) X FBT rate (47%).
- EV charging infrastructure. One-off allowance per vehicle of \$7,000. Chargers themselves account for approximately 25% of cost nominal 10-year life the remainder is electrical infrastructure at 50-year life. Allow cost premium per vehicle over term of \$3,500.
- Resale value. This is very complicated due to a number of factors:
  - The resale value of early EVs has been lower than ICE vehicles due to poor battery management in early EVs and early EVs being a niche market.
  - The market is in transition. We (and many other commentators) expect that at a certain tipping point the resale value of ICE vehicles will plummet (as they become an obsolete technology).
  - In the end we have used figures from the NZ Government Gen Less Vehicle Total Cost of Ownership Tool<sup>27</sup> with minor modifications.
- Capital holding cost. This represents the cost for Council to have (internally) financed the purchase of the vehicle. Interest rate of 3% (as provided by Council)

Other data:

- Distance travelled per annum. Default is 15,000km. This can be easily altered in the scenario's worksheet (with options of 10, 15, 20 and 30 thousand kilometres).
- Term i.e., how long Council holds vehicle. We have used three years as per current Council practices. Based on past experience (and somewhat surprisingly) the term does not have a large influence on cost-effectiveness.
- Servicing costs for vehicles are from the NZ Government Gen Less Vehicle Total Cost of Ownership Tool<sup>28</sup>.
- Registration from State Government source.
- Fuel type and fuel cost. From Trellis and based on vehicle type.
- Fuel efficiency figures from the Green Vehicle Guide, corrected for real-world performance.
- The South Australian State Government has moved to overturn the EV tax (previously scheduled for 2027) excluded.
- Maintenance costs for EV charge stations and cables are included.

In the model provided the scenarios tab brings it all together and allows for kilometres travelled to be changed. More detailed assumptions are in the Summary tab.

<sup>&</sup>lt;sup>27</sup> https://tools.genless.govt.nz/businesses/vehicle-total-cost-of-ownership-tool/

<sup>&</sup>lt;sup>28</sup> https://tools.genless.govt.nz/businesses/vehicle-total-cost-of-ownership-tool/

Time series model assumptions:

- In the Scenarios tab CAPEX for EVs includes a depreciated allowance for charging infrastructure. This allows for the calculation of an annualised whole-of-life cost. In reality charging infrastructure will need to be installed ahead of purchase of vehicles at full cost. In the time series model CAPEX for charging infrastructure is provided separately
- ICE resale value assumed to decline by 2.5% pa as EVs become preferred vehicle choice
- EV purchase price assumed to decrease by 2.5% pa as EVs achieve economies of scale
- No escalations for fuel or electricity are included in the model
- FBT is excluded from EVs for three years from the beginning of 22/23 (in excl FBT option)

# **12** Appendix B – Electric Vehicle Review

#### 12.1 Passenger vehicles

Following is a list of light vehicles available to order now.



#### BYD Atto 3

This medium size SUV has recently arrived in Australia to good reviews. Test drives available at the BYD Experience Centre, Main North Rd Medindie. Orders taken with delivery of a few months.



#### MG ZS

New model of this small SUV with upgraded features and battery capacity available now. V2L available a with extra adaptor.



#### Hyundai Kona

This small SUV is available with a long-range version (at a price). Similar quality to the loniq. Available to order with approximately 3-month delivery for latest short and long range models.



#### Hyundai loniq 5

This is a premium larger SUV available in three trim levels. Built on a dedicated EV platform like the EV6 but with very different styling. First batch sold out online in 2 hours. Hyundai are taking registrations of interest for the next batch for Australia but ordering via online "lottery" at present.

V2L, towing capacity and good range.



#### **KIA** Niro

This is a slightly larger SUV. New model with improved features recently arrived in Australia.



#### KIA EV 6

This is a premium crossover hatch or large SUV built on a dedicated EV platform.

Also has V2L, good range and towing capacity.

Available to order now with approximately 12 months wait as first batch for Australia sold out very quickly. Kia at least take orders rather than online "lottery".



#### Nissan Leaf

The Leaf was one of the early BEVs on the Australian market. The early 24kWh battery systems were not liquid cooled and considerable range reductions were experienced. The newer Leaf and Leaf e+ are available now with 40kWh and 62kWh battery pack sizes and are proving to be a popular vehicle, however the batteries appear to still be air cooled.



#### Tesla Model 3

While it started out as a luxury BEV manufacturer Tesla is now the most valuable car manufacturer in the world. The Model 3 competes on price with other BEVs in the market and in our opinion is of very high quality with great specifications (including range, battery management and technology). The Model 3 is the highest

selling BEV in developed economies. In Australia sales are similar to that of the Toyota Camry. No regular servicing is required. The wheels should be rotated to provide even tyre wear and after two years the cabin air filter should be changed.

#### Tesla Model Y



Available to order online now. This is a mid-size SUV with versatile cargo space. More spacious than the Model 3 it comes in basic and performance variants. Very popular overseas and same quality as the other Tesla models. Will be available in greater numbers than Ioniq 5 or Kia EV6. Online order with predicted delivery date

#### Mitsubishi Eclipse Cross PHEV



This is not a BEV, however, could provide an option where at present BEVs may not be fit for purpose. Stock availability is good. The Eclipse Cross has a 13.8kWh battery and 2.4 litre engine. Claimed fuel consumption is 1.9 litre/100km. In our experience when running on battery PHEVs are very efficient but when

running on petrol consume around 6 litres/100km.

Mitsubishi claims the average PHEV owner manages over 80% of their driving on full electric. This may be a stretch, particularly in a fleet context.

Mitsubishi have also recently brought out a new model of the **Outlander PHEV** – towing capacity of 1500kg.

**Note:** There are many other models of BEV's in Australia including Volvo, BMW, Porsche, Jaguar and Mercedes. The above are selected to represent the most likely choices for fleet use.

#### **Future Years**

A short-list of vehicles coming in late 2022 and beyond.



This small BYD hatch, known as the Dolphin, overseas but likely to be renamed **BYD Atto 2** for Australia is expected to available to order online from evdirect in late 2022 for April 23 delivery.

It will be Australia's cheapest EV, expected to be under \$40000.

Range expected approximately 300km with possibly a longer-range variant to come.



Nissan will bring the **Nissan Ariya** SUV in late 2022 and a PHEV version of the X Trail based on the Mitsubishi Outlander, also having an upgrade next year.



Expected mid 2023 the **MG4** hatchback has received excellent reviews in the UK. With modern styling it comes with 2 battery pack sizes of 51kWhr and 64kWhr with claimed range of 350- 450km. This would be an excellent replacement for Corolla size vehicles.



Subaru **Solterra** and its twin **Toyota BZ4X**– AWD SUV's built on a dedicated BEV platform.

Available to order late 2022, arriving 2023.

#### 12.2 Vans

#### SMALLER VANS

Not much available at present time until Mercedes panel van below released.

Previously Renault brought in a Kangoo which only had 7kW AC charging.

#### Mercedes EQV people mover, eVito Tourer (8-seater) and eVito Panel Van



Mercedes is advertising all the above models.

The panel van may have a 60kWh battery pack and claimed range of approximately 300km.

# <image>

#### BYD T3 Van via EVDirect (Nexport, Melbourne)

BYD brought in some T3 vans earlier in 2022 (similar to VW Caddy size) but have chosen to focus on the BYD Atto SUV and small hatchback and sedans for now.

#### Renault Kangoo E Tech Electric



This updated version of the Electric Kangoo is expected to arrive in Australia in 2023. With a battery pack of 45kWh it should be capable of real-world range of 250km and has both AC and DC fast charging capabilities making it a vast improvement on the previous model. Pricing from \$50,000.



#### Ford E-Custom

Ford are currently advertising that this van will be delivered into Australia in 2024. Smaller than the Transit it should prove very popular.



#### EC35 – EV Automotive

EVA is currently finalizing the ADR approval for another 2 fully battery electric vehicles. which have already been approved for the UK market with EU certification. We anticipate that the practical testing will be finalized in Q3 following the homologation review by Tiger Spider the independent engineers situated in Melbourne.

This is a smaller van than the EC-11

#### LARGER VANS

#### Ford E Transit Van



The Ford E Transit van will be the first electric vehicle from Ford to arrive in Australia in late 2022 or early 2023. With a 68kWh battery and claimed range of up to 300km (likely 220-250 km real world with load). Payload of 1616kg. AC and DC charging. Pricing unknown but guesstimated \$90,000+. Jarvis Ford is taking registrations of interest.

#### **EC-11 EV Automotive**



Currently available to order, viewed by Council staff in late May.

73kWh battery. Real world range 220-260km. Payload 1700kg. Price \$89,990.

Servicing nationwide through mycar (same as BYD). Vans currently successfully being used for commercial freight pickups and delivery in Tasmania.



In September 2019 Amazon announced it would buy 100,000 electric delivery vans from start-up Rivian. Prototypes may reach Amazon next year, with deliveries from 2021 to 2024<sup>29</sup>.

#### **Rivian Commercial Van**

<sup>&</sup>lt;sup>29</sup> <u>https://www.extremetech.com/extreme/298729-amazon-buys-100000-electric-trucks-from-rivian-total-ev-suvs-pickups-built-to-date-0</u>

# 12.3 Utilities

#### Rivian



Rivian R1T is in production in America and is being tested in Australia. Five tonne towing capacity, long range utility.

#### Ford F150 Lightning



2022 international availability, likely to take a while to come to Australia.

#### Tesla Cybertruck



Going into production shortly in the USA, likely to take a while to come to Australia.

There are many other models of utilities either in planning, preproduction, prototype or pure fantasy being proposed around the world. It is too early to know which may end up coming to Australia. There will definitely be better options in the next few years.



Neutron EV



AtlisXT



Alpha Wolf+





Lordstown



Great Wall



Landcruiser 70 series

# 12.4 Trucks

Following is information on electric trucks of all types by manufacturer (only some of which will be relevant to Council). At present there are few options available in Australia but this is changing quickly.

#### EV Automotive 1.25 tonne Light Truck



This is the second additional vehicle EV Automotive have just brought to Australia – currently undergoing compliance.

Fuso eCanter 7.5 tonne



Marketed as 'The world's first 100% electric production truck ensures great efficiency, performance, zero emissions and virtually no noise.'

The eCanter was first introduced in 2017 and is currently operating in the United States, Europe and Japan. It will be introduced into Australia in February<sup>30</sup>. Australia Post is currently using some of these on 6-year lease

terms along with Coles and Bunnings. The range is only 100km, but the truck can be charged in 90 minutes. The short range may not be suitable for Council use.

#### **SEA Electric**



Rather than being a truck/van manufacturer SEA Electric installs electric drivetrains and batteries into current model ICE cab/chassis rigid trucks and vans, working alongside automotive manufacturers.

They have 4 different sizes of Power System depending on vehicle size and requirements.

The Sea Drive 100 Power System suits trucks GVM 4.5t to 6.5 t which could suit

Council.

<sup>30</sup> <u>https://www.fuso.com.au/News/Article/Fuso-eCanter-Charges-Into-</u> <u>Australia#:~:text=Fuso%20will%20introduce%20the%20world's,United%20States%2C%20Europe%2</u> <u>0and%20Japan</u> These are the only electric trucks available to order at the present time in Australia. Delivery possible within 6-9 months.

#### Foton iBlue



Expected in Australia late July 2022 in a 4.5T or 6T gross vehicle mass option with an 81kWh or 100kWh battery respectively. Fast charging times are estimated around 1.5hrs and slow charging 12-14hrs, which delivers a max speed of 95kph. Foton Mobility are currently taking registrations of interest for test drives.

#### BYD



BYD have a range of electric trucks in production. Two models of BYD electric trucks will be offered to the Australian market: the T5 and T6 models. Each of the models has a range of 300 km on a single charge and will be targeted towards the small to medium logistics companies in Australia<sup>31</sup>.

Volvo

<sup>&</sup>lt;sup>31</sup> <u>https://reneweconomy.com.au/chinas-byd-teams-up-with-macquarie-to-bring-electric-trucks-to-australia-24012/</u>

The Volvo FL Electric has capacity for a GVW (gross vehicle weight) of 16 tonnes and offers a range of up to 300 km in distribution transport. Linfox are currently using these in Melbourne.



The larger Volvo FE Electric has capacity for a GVW of 27 tonnes and a range of 120km for refuse collection<sup>32</sup>.

#### Daimler



Daimler have the Freightliner eCascadia, a heavy-duty electric truck for long-distance operations (>15 t GVW). A fully electric variant of the Freightliner eM2 106 covers the

<sup>&</sup>lt;sup>32</sup> <u>https://www.volvotrucks.com.au/en-au/trucks/electric-trucks/volvo-fl-electric.html</u>

medium segment (9 to 12 t GVW). The Freightliner eCascadia has a battery capacity of 550 kWh and range of up to 400 km<sup>33</sup>.

<sup>&</sup>lt;sup>33</sup> <u>https://freightliner.com/trucks/ecascadia/</u>

#### Tesla



The Tesla Semi is now in production. Tesla have announced two options: a 300-mile (480 km) range or 500-mile (800 km) range. The powertrain is provided by four independent motors on rear axles.

At the time of writing this report it appears we are three years away from delivery of the Tesla Semi to Australia.

The Tesla Semi has a quoted efficiency of 2kWh per mile, equivalent to 1.25kWh/km.

#### **Janus Electric**



This Australian based company is currently using Swap n Go battery packs in prime movers on the Brisbane to Sydney freight run. The battery packs are swapped by forklift and have a range of 400-600 km. This technology and convenience may be implemented in future in smaller trucks, buses and garbage collection.

Janus Electric's revolutionary exchangeable batteries power electric heavy vehicles which can be changed in four minutes (quicker

than refuelling with diesel) at a Janus Electric Charge & Change Station - powered by renewable energy sources like solar or wind.

Similar to Sea Electric they retrofit to existing trucks.

#### 12.4.1 Garbage Trucks

Garbage trucks are rapidly becoming available and undergoing trials around the world. Both electric and hydrogen fuelled waste collection models are becoming available.

In 2019 East Waste purchased a single pure electric waste collection vehicle from SEA Electric to replace a diesel waste collection vehicle in their existing fleet. Waste trucks are a perfect match for electrification due to the start/stop nature of their operation and the potential to capture this energy through regenerative breaking. Other benefits include reduced noise and vibration. The waste truck did not meet East Waste's modest expectations.

PAE Council are currently trialling the use of a Sea Electric garbage truck through Cleanaway. Yarra Valley Council in Victoria has a Sea Electric tipper truck in use for hard rubbish collection.

Some names to watch are:

Electric - Mack, E-trucks Europe, Volvo (pictured) and Nikola



<u>Hydrogen</u> – Hyzon Motors with Australian partner Superior Pak have contracted to deliver their first 5 waste collection trucks in 2022. Also, Cummins, Volvo, E-Trucks Europe.

In December 2020 E-trucks completed a 20-month trial in the Netherlands which showed a range of up to 400km and refuelling time of 17 minutes for their Hydrogen waste collection truck.

Cummins also recently supplied fuel cells for FAUN, a leader in waste collection vehicles and sweepers in Europe. Each truck has a range of up to 560 km, which is enough to run the collection route multiple times carrying 10 tons of waste.

# 12.5 Tractors

Another rapidly developing range of vehicles with the current offerings primarily compact tractors or large autonomous agricultural and harvesting models.

UK and USA models include Farmtrac 251, Kubota L340, Sonalika Tiger Electric and New Holland 3037 NX.

USA based Solatrac has 3 existing electric tractor models flagged for international release in 2022.

Kubota and others also have prototype electric tractors and light electric earthmoving equipment.


#### 12.6 Buses

There are now many bus manufacturers entering the Australian market, primarily with full size public transport offerings at this stage.

Companies include BYD in use in NSW and Volvo/Volgren in WA.

Bustech, based in Adelaide, have indicated they may produce a 20-seater bus in future.

Otherwise, the small and medium buses electric replacements are available now from EV Automotive based in Brisbane as follows.



EV Automotive – 12–25-seater buses

Multi-purpose vehicle:

-12 seat

- 9 seat plus wheelchair

Test vehicle in Australia – ADR compliant

Warranty on the EC-11 12-seater e-Crew

Bus or the e-Cargo Van is eight years on the main battery, and three 3 years/200,000km on the vehicle. Price is \$98,500 excluding GST and on roads.

Technical training can be provided on delivery of a new vehicle by a highly experienced EV technician, who will provide workshop staff with a full understanding of the vehicle, including service requirements and annual servicing needs in addition to a local service network.

Spare parts including bumpers and panels held in their Brisbane warehouse

#### Skywell - EV Automotive



Model 6722 - 21-seater incl driver 141kWh Lithium Ion Battery Range of 200 km. Top speed of 100 km/h Charging CCS type 2 \$184,650 excluding GST and registration costs

Included in offer:

- Onsite Service training by factory trained technician
- Free service at 90 days
- Free Annual inspection and service at 12 months
- Battery warranty 8 years
- General Warranty 5 year or 200,000km
- Delivered to Adelaide, South Australia

Whilst some companies are also looking at hydrogen power, for the two small we recommend BEV only replacements.

## **13 Appendix C – EVSE Suppliers**

#### EVSE

Supplier and installer of universal electric vehicle chargers. Brands include Keba, EO and Tritium. The EO Genius Intelligent Charging range provides load management functionality and is OCPP compliant.

#### **JET Charge**

Delivering turnkey electric car charging infrastructure. Brands include Qubev, Wallbox, Wallpod, EVLink (Schneider) and Tritium. JET Charge's Energy Management System CORE is developed in accordance with OCPP standards and is capable of dynamically load managing charging station of different brands.

#### **Gelco Services**

South Australia automotive industry consulting firm specialising in Electrochemical Engineering, particularly related to the testing of automotive batteries and the supply and install of equipment including charge stations. Brands include EVSE, Keba, AeroVironment. A well-established local supplier currently designing new fleet charging equipment with 4 outlets per central bollard.

#### Tritium

Tritium is a leading manufacturer of fast electric vehicle chargers. In 10 minutes the Veefil-PK high power charging system, operating at 350 kW, can add 350 kilometres of range to an electric vehicle. The chargers come in a range of sizes.

#### Tesla

Tesla are shifting their charging technology to be available to other vehicles. The wall chargers are available to other vehicle types already. The new Gen 3 wall chargers have communications. In groups of up to six chargers one can act as a master and control the remainder to manage peak demand limits, etc. The DC fast chargers are slowly being made available to other vehicles, starting in Europe.

#### Jolt

Use advertising as a revenue stream. Significant number of public charge stations throughout Australia.

#### ABB

ABB has years of experience in creating, installing and maintaining charging infrastructure, including several nationwide charger networks. ABB chargers were recently installed at the SAPOL headquarters in Angas St Adelaide.

#### Chargefox

Chargefox is developing a large EV charging network in Australia. Their wider charging network includes AC and DC chargers (from 5kW to 475kW). Recently purchased by Australian motoring clubs.

#### **Evie Networks**

Evie Networks design, build and operate EV charging stations. They are building a large network in Australia.

#### Siemens

Siemens supplies electric vehicle charging stations for municipalities and corporations.

#### **Smart EV Solutions**

Offer RFID and QR code and phone app payment models, sell Wallbox chargers, load management systems for fleets, etc.

### **14 Appendix D – Complete list of recommendations**

Following is a complete list of recommendations from the report.

We <u>recommend</u> Council strengthen data collection and reporting for fleet vehicles. This may include for each vehicle OPEX by type to provide a whole-of-life cost (insurance, registration, FBT, maintenance/servicing, fuel consumption).

We <u>recommend</u> Council review the passenger fleet to consider opportunities for consolidation where vehicles are under-utilised.

We <u>recommend</u> Council consider the merits of progressively phasing out private use vehicles.

We <u>recommend</u> Council upgrade ICE passenger vehicles to BEV as they are scheduled for replacement (providing a fit-for purpose vehicle is available). If a fit-for-purpose BEV alternative is not yet available, we recommend looking for a hybrid alternative, as these have been demonstrated to save both money and emissions.

We <u>recommend</u> Council review utilisation of heavy vehicles with a view towards consolidation undertake a similar review.

We <u>recommend</u> that Council stay across developments for utilities, vans, buses and trucks, and be ready to trial vehicles as they become available.

We note that Council has already started the transition to battery powered tools and is due to complete it in 3 to 5 years. We <u>recommend</u>:

- Where possible the transition to electric tools be accelerated
- Staff be provided with education on the benefits of electric tools and with the opportunity to trial tools
- Funding be provided to allow additional battery packs to be purchased to alleviate concerns re 'range'
- A number of purpose-built fire and explosion resistant charging/storage enclosures be built to cater for increased charging requirements, noting that while modern batteries are very safe adding a large number of batteries to a small area increases the risk profile
- Settling on one (or two) preferred brands so that batteries can easily be swapped between tools

With regard to heavy vehicles we recommend that Council:

- revisit this work in 2025/26 when the market is more mature to establish the availability of heavy vehicles and establish a heavy vehicle transition plan; and
- keep an eye on the market in the meantime with a view to trialling any proven new heavy vehicles that are fit-for-purpose.

We <u>recommend</u> Council consider the public charging networks as enablers for Council's own passenger vehicle fleet.

We <u>recommend</u> that Council provide fleet vehicles with access to public charging networks.

In terms of the provision of public charging stations we <u>recommend</u> Council take a cautious approach. In our view it is not necessary for Council to make a significant investment in public charging infrastructure.

While not public charging infrastructure per se, we <u>recommend</u> Council consider the implication of future charging demands for electric vehicles as well as caravans and motor homes at the Brighton Beachfront Holiday Park as infrastructure upgrades are likely to be required.

We <u>recommend</u> the charging of electric vehicles should be governed by the following principles (in order of priority):

- Ensure vehicles are charged in a location and within a timeframe that is fit for purpose (i.e., meets the operational requirements of Council).
- Charge vehicles cost effectively. This reflects both minimising the cost of charging infrastructure as an initial capital outlay, and the cost to actually charge the vehicles.

We <u>recommend</u> Council request compliance with the Open Charge Point Protocol for any hardware or control system purchased, in order to avoid being locked into a single provider of hardware or software.

We <u>recommend</u> Council wait a few years to purchase an overall EV charging control system as these systems are developing quickly and in the early years Council's requirements can be managed through simple time control given the relatively small number of EVs likely to be deployed.

We <u>recommend</u> that for the short-term Council ignore bidirectional charging unless any attractive trials become available.

We <u>recommend</u> Council install sub-metering on chargers so vehicle charging can be separated from building consumption.

At all sites we <u>recommend</u> home charging as the primary strategy for private use vehicles that are garaged at home.

We recommend:

- Council consider installing charging infrastructure with the capability to manage and record individual vehicle charging data
- Council establish an arrangement with one or more charge station providers for on route charging with billing provided per vehicle

We <u>recommend</u> that in general Council install 7kW single phase chargers where passenger vehicles are to be parked, with a nominal allocation of one charger for two vehicles.

We recommend Council seek charge stations with the following capabilities:

- Time of use control (minimise charging during the peak demand window, maximise charging firstly from solar power that would otherwise be exported to the grid, then from off-peak electricity)
- Power sharing (share power between co-located charge stations to manage peak demand at the local circuit level)
- Demand management (ability to reduce power output in response to a signal regarding overall site peak demand)

We <u>recommend</u> that Council do not over-invest in electrical capacity upgrade in the short to medium term.

For specific Council sites we recommend:

- in the short-term install four nominal single phase 7kW charging stations located behind the Civic Centre and fed from the MSB, which will be sufficient for future requirements.
- in the medium term, to supply future requirements at the Depot, new EV-DBs should be installed:
  - $\circ~$  adjacent to the MSB at the south-eastern end of the Depot workshop and fed from the spare 100A supply
  - $\circ\;$  in the Event Workshop in a convenient location to provide charge stations for buses and other vehicles
- that Council install a solar power system on the Event Workshop.
- in the medium term at Wilson Parking to run supplies from DB.C1 to allow for four single phase 7kW chargers at desired locations.

# Attachment 2





## Charging Infrastructure Assessment – Final Report

#### **Charging Infrastructure Assessment – Final Report**

Date Tuesday, 11 April 2023

Prepared for the: City of Holdfast Bay

Prepared by: Gething Pty Ltd Corresponding author: Jake Bugden 268 Waymouth St, Adelaide SA 5000 T +61 405 195 764

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## **1 Executive Summary**

#### 1.1 Introduction

The City of Holdfast Bay (Council) engaged Gething Pty Ltd to develop a Fleet Transition Plan and to undertake an electrical capacity review of the Civic Centre and Depot to identify charging infrastructure requirements to support the transition to electric vehicles.

This report should be read in conjunction with the Fleet Transition Plan.

#### 1.2 Brighton Civic Centre

Seven passenger vehicles and one utility are parked at the Civic Centre. We <u>recommend</u> in the short-term supplying four nominal single phase 7kW charging stations which will be sufficient for future requirements.

As there is no spare physical space for an additional outgoing supply from the MSB directly to this new EV DB, the supply would have to be sourced from DB-SW-BD-A which is located within the MSB.

As an alternative Council could establish a new EV-DB adjacent to SW-BD 'B' at the Library.

Charging should be done during the day on weekends where possible to utilise solar power that is otherwise exported to the grid.

#### 1.3 Somerton Park Depot

There are two main supplies to the site.

- the main depot workshop at 16 Seaforth Somerton Park
- the events workshop and house at 17 Wilton Ave Somerton Park

There are 53 vehicles parked at the Depot, including two passenger vehicles and nine utilities.

As a short-term measure Council can use existing GPO's to charge electric vehicles.

The load at the Depot will increase substantially in the future as the fleet is electrified. The additional load from electric vehicles and plant could be in the order of 250,000kWh per annum. This would represent a seven-fold increase in mains electricity consumption.

We <u>recommend</u> that in the medium term a new EV-DB be installed adjacent to the MSB at the south-eastern end of the workshop and fed from the spare 100A supply. 15-20 of 7 kW EV chargers could be connected here, catering for 30-40 passenger vehicle equivalents. The EV-DB should be oversized to allow for future growth.

Charging should be done overnight to retain benefits of high feed-in tariff during the day, subject to more detailed analysis.

We <u>recommend</u> that in the medium term a new EV-DB be installed in the Event Workshop in a convenient location to provide charge stations for buses and other vehicles. The EV-DB should be oversized to allow for future growth. 18-25 of 7 kW EV chargers could be connected here, catering for 35-50 passenger vehicle equivalents.

We recommend that Council install a solar power system on the Event Workshop.



#### 1.4 Wilson Parking, Glenelg

Seven passenger vehicles and are parked in this underground carpark.

Depending on flexibility regarding vehicle parking locations, the supplies for the existing GPOs and Regulatory Services switchboard could be used or adapted in the short term to support electric vehicle charging

In the medium term it will likely be necessary to run supplies from DB.C1 to allow for four single phase 7kW chargers at desired locations.

#### 1.5 Overall

With Councils proposed vehicle transition over the next few years it is critical that charging infrastructure is in place, in particular at the Civic Centre. Beyond these requirements, we <u>recommend</u> against investing too much in infrastructure at this early stage, while making sure that investments are future proofed to the extent possible. Refer to the Fleet Transition Report for more information.



## 2 Introduction

The City of Holdfast Bay (Council) engaged Gething Pty Ltd to develop a Fleet Transition Plan and to undertake an electrical capacity review of the Civic Centre and Depot to identify charging infrastructure requirements to support the transition to electric vehicles.

This report should be read in conjunction with the Fleet Transition Plan.

## 3 Brighton Civic Centre/Library

#### 3.1 Introduction

The Civic Centre is located at 24 Jetty Rd, Brighton.

The electricity meter NMI is SAAAAAC930. It is installed in the MSB. It is connected to CT's with a ratio of 400/5.

Figure 1 shows an aerial view along with electrical infrastructure and recommended upgrades.



Figure 1: Aerial view of Civic Centre

#### 3.2 Transformer, MSB and Switchboards

#### 3.2.1 Existing Transformer

The transformer is located at the front of the Civic Centre. A photo is shown in Figure 2. No information regarding the transformer has been received from SA Power Networks at the time of writing this report.



Figure 2: Transformer

#### 3.2.2 Existing Main Switchboard

The main switchboard (MSB) shown in Figure 3 is located inside the Civic Centre. It was built in 1993. The rated current according to the MSB nameplate is 600A. According to the SLD the main switch is 630A.





Figure 3: MSB

We therefore conclude that the maximum capacity of the supply is 600A (or less).

#### 3.2.3 Existing Distribution Boards

The MSB feeds the sub-mains shown in Table 1.

Table	1:	MSB	submains

Name	Location	Circuit Breaker Rating	Notes
SW-BD 'A'	Incorporated into the MSB	200A	
SW-BD 'B'	Library (external NE corner)	63A	Solar system connected
SW-BD 'C'	SW corner of Civic Centre	160A	
DSB-F	Planning/records corridor	160A	Solar system connected



The distribution switches are shown in Figure 4. There is no spare switch.



Figure 4: Distribution switches



#### 3.3 Existing Maximum Demand

Figure 5 from the SA Power Networks portal shows electricity consumption and export and more importantly maximum demand at the site over the last 20 months.



Figure 5: Average load profile

The maximum demand during a half hour period as recorded by SAPN was 124kW in July 2021 as per Figure 5.

#### 3.4 Electricity Consumption and Generation

Figure 6 shows that the highest grid electricity consumption across the year is in the winter months. Figure 6 also highlights the substantial amount of solar generated energy that is exported, in particular during late spring, early autumn and summer.

This represents an opportunity to use the surplus solar generated energy for EV charging.



Figure 6: Energy Time of Use over a year

Figure 7 and Figure 8 show the energy use across a week. As to be expected, on each weekend day, the energy use is less than half of that of a weekday. Again, this represents an opportunity to charge EV's over the weekend.



Figure 7: Energy Time of Use over a week in summer



Figure 8: Energy Time of Use over a week in winter



In Figure 9 it can be seen that the highest net energy use is during the middle of the day in summer. Figure 10 shows the load profile over a winter's day, with much higher usage in the morning likely due to bringing the building up to temperature using the AC system.



#### 310 days ago: Monday 10 January, 2022

Figure 9: Energy Time of Use over a day in summer



Figure 10: Energy Time of Use over a day in Winter

## 3.5 Assessment of Spare Demand Capacity at the MSB and Supply Level

With a supply rating of 600A (to be confirmed via SAPN response), representing 400kVA, and a current maximum demand of 124kW, equalling approx. 155 kVA, this indicates that there is spare capacity at the supply level in the order of 250kVA.

To cater for some minor future growth of the general demand in the order of 10%, we conclude that a maximum additional capacity of 230kVA is available for EV chargers if all phases are balanced well. This is equivalent to 27 of 7kW EV chargers at full load.



#### 3.6 Distribution Boards

#### 3.6.1 SW-BD 'A'

SW-BD 'A', shown in Figure 11, is incorporated into the MSB. It appears to have spare physical capacity.



Figure 11 Administration building DB



#### 3.6.2 SW-BD 'C'

SW-BD 'C' is located in the south-west corner of the Civic Centre. It was originally the location of the MSB. The board is poorly located with respect to vehicle parking but has plenty of spare physical capacity as shown in Figure 12. This board supplies sub-board E.



Figure 12: Distribution Board A

#### 3.6.3 SW-BD 'B'

SW-BD 'B' serves the Library and is located on the external wall to the NE as shown in Figure 13. It is well located with regard to car parking.

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Figure 13: Library Distribution Board B

While the main switch is rated at 250A the supply from the MSB is rated at only 63A. Solar power is connected through this board. The board appears to have some spare physical capacity as shown in Figure 14.



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Figure 14: Library DB B internal

#### 3.6.4 DSB-F

DSB-F is located in the planning/records corridor. The board nameplate capacity and main switch are 160A. Solar is connected to this board. The board is poorly located with respect to vehicle parking. There is a small kitchen sub-board supplied from DSB-F.

### 3.7 EV Charging

#### 3.7.1 Overall EV charging requirements

Seven passenger vehicles and one utility are parked at the Civic Centre.

The load at the Civic Centre will increase in the future as the fleet is electrified. The additional load from electric vehicles will be in the order of 15,000kWh per annum. This would represent only an eight percent increase in mains electricity consumption.

This data is based on indicative fuel efficiency figures for ICE and BEV vehicles.



#### 3.7.2 Behind Civic Centre

The parking area behind the Civic Centre, to the north of the MSB is shown in Figure 15.



Figure 15: Parking area behind Civic Centre

There are some preliminary plans to relocate the tank. This would allow for at least six EV charging stations in this immediate area.

It appears straight-forward to supply from the MSB four new single phase 7kW wall chargers on the external wall shown in the centre of Figure 15.

We <u>recommend</u> supplying four nominal single phase 7kW charging stations which will be sufficient for future requirements behind the Civic Centre from the MSB

As there is no spare physical space in the MSB itself, the supply would have to be sourced from DB-SW-BD-A which is located within the MSB.

Based on the current known load and preliminary existing maximum demand calculations for DB A based on limited information, we calculate that there is spare electrical capacity within DB A for at least 27kVA which equals 3 of 7kW EV chargers. However, as not all EV chargers will be used simultaneously at full rated capacity, this supply could support at least 4 EV chargers with peak demand limiting control.

#### 3.7.3 Behind Library

The parking area behind the Library serves at least six vehicles and is immediately adjacent to SW-BD 'B' as shown in Figure 16.



Figure 16: Parking area behind the Library

As an alternative to the area behind the Civic Centre, Council could establish a new EV-DB adjacent to SW-BD 'B' at the Library to allow for four nominal single phase 7kW charging stations which will be sufficient for future requirements. However, we note that the DB outside of the library while designed for a larger capacity load, has a limited supply from the MSB and this supply would likely have to be upgraded.

## 4 Somerton Park Depot

#### 4.1 Introduction

There are two main supplies to the site.

The electricity meter at the main depot workshop at 16 Seaforth Somerton Park is NMI 2001006156. It is installed within the MSB.

The electricity meter at the events workshop and house at 17 Wilton Ave Somerton Park is NMI 20010061545.

Figure 17 shows an aerial view along with electrical infrastructure and recommended upgrades.



Figure 17: Aerial view of Depot

#### 4.2 Main depot

#### 4.2.1 Transformer, MSB and Switchboards

Transformer 15506, shown in Figure 18, is located at the front of the depot.



Figure 18: Depot transformer

No information regarding the transformer has been received from SA Power Networks at the time of writing this report.

The MSB is located at the eastern end of the main workshop as shown in Figure 19 and Figure 20. The MSB nameplate rating and the main incoming isolator switch are both rated at 250A.



Figure 19: Main Switchboard location





#### Figure 20: MSB

The outgoing circuit breakers in the MSB are shown in Figure 21.

There is a spare 100A supply which is ideal to repurpose for EV charging via a dedicated EV DB.





Figure 21: Spare Supply Capacity in MSB

#### 4.2.1.1 Existing Distribution Boards

The MSB feeds the sub-mains shown in Table 2.

Table 2: MSB submains

Name	Location and notes	Circuit Breaker Rating and Setting
Spare		100A
DB kitchen	Main offices	50A
DB.1 supply		100A
DB office 1	Main offices	50A
DB W		50A
Truck DB		44A


## 4.2.1.2 DB W

The main supply circuit breaker at the MSB for DB W, shown in Figure 22, has a maximum settable rating of 63A, however this is currently set to 50A.



Figure 22: DB W

DB W appears to have plenty of spare physical capacity, including some redundant circuits, as shown in Figure 23.





Figure 23: DB-W internals

In the main workshop area there are a three single phase 15A outlets and one 32A three phase outlet near the open space area where the sweeper is parked as shown in Figure 24.

The 32A three phase outlet may be useful for EV charging in the short term. These outlets may have been disconnected but could presumably be reconnected without much effort. These outlets are fed from DB W.





Figure 24: Three phase outlets

## 4.2.1.3 DB Office

This distribution board is shown in Figure 25 and is of limited use for EV charging.





Figure 25: DB office

## 4.2.1.4 Truck shed DB

This board, shown in Figure 26, has limited capacity. While the main switch is 80A this is limited at the MSB to 44A.





Figure 26: Truck shed DB

## 4.2.2 Existing Maximum Demand

Figure 27Figure 5 from the SA Power Networks portal shows electricity consumption and export and more importantly maximum demand at the site over the last 20 months.



Figure 27: Average load profile

Maximum demand during the period was approximately 24kW in June 2021. Exports to the grid are substantial and exceed the grid demand in summer.

## 4.2.3 Electricity consumption and generation

Figure 28 shows that the highest grid electricity consumption across the year is during winter months. Figure 28 also highlights the substantial amount of solar generated energy that is exported, in particular during summer.



Figure 28: Energy Time of Use over a year

Figure 29 and Figure 30 show the energy use across a week. On each weekend day the energy use is less than half of that of a weekday.



44 weeks ago: Monday 10 January, 2022

Figure 29: Energy Time of Use over a week in summer





In Figure 31 it can be seen that the highest grid electricity use (after solar generation has been used onsite behind the meter) during summer is during the early morning hours. The profile also indicates an influx in usage around midday and close of business time. Figure 32 shows a similar profile for winter, however, a larger demand throughout the day due to lower solar generation.



Figure 31: Energy Time of Use over a day in Summer



Figure 32: Energy Time of Use over a day in winter

The Depot has a 30kW solar power system. Expected generation from such a system ranges from 73kWh/day in winter to 166 kWh/day in winter.

The State Government feed-in tariff for solar exports theoretically only applies to the first 45 kWh the solar power system exports each day. However from a brief review of available data it appears that Council is receiving the full feed in tariff for all energy exported. This should be confirmed through a more detailed analysis.

Assuming that Council continues to be paid the full legacy feed-in tariff for all energy exported from a cost-effectiveness perspective Council should seek to charge vehicles overnight at this site. The feed-in tariff expires in 2028.

GET ING

## 4.3 Events workshop and house

## 4.3.1 MSB and Switchboards

The events workshop and house have a separate supply to the main Depot. DB 1 is the main switchboard. It is fed from a pole top supply on Vincent Ave as shown in Figure 33.



Figure 33: Events workshop supply

The main switch has a capacity of 160A. There is plenty of spare physical capacity in the board as shown in Figure 34.





Figure 34: Events workshop MSB

There are three single phase 15-20A outlets at the eastern end of the southern wall, recently installed as shown in Figure 35.





Figure 35: GPOs

DB 2 is in the event workshop, as shown in Figure 36.



Figure 36: DB2

There is also a House DB – not sited.

## 4.3.2 Existing Maximum Demand

Figure 37 from the SA Power Networks portal shows electricity consumption and export and more importantly maximum demand at the site over the last 20 months.



Figure 37: Average load profile

Demand is increasing at the event workshop, in line with increased utilisation. Maximum demand during the period was 6.6kW in November 2022.

## 4.3.3 Electricity Consumption and Generation

Figure 37 and Figure 38 show that demand and electricity consumption across the year are relatively consistent.





Figure 38: Energy Time of Use over a year







Figure 39: Energy Time of Use over a week in summer



Figure 40: Energy Time of Use over a week in winter



In Figure 41 it can be seen that energy use during summer is typically a small load throughout the day. The profile also indicates an influx in usage around the morning, midday and close of business time. Figure 42 shows a similar profile albeit at a higher consumption.



Figure 41: Energy Time of Use over a day in Summer





Figure 42: Energy Time of Use over a day in Winter

There is no solar power system at this site. Subject to further investigations we <u>recommend</u> that Council install a solar power system. Such a system would allow for excess solar to charge electric vehicles as they are deployed.

# 4.4 EV Charging

4.4.1 Overall EV charging requirements

Table 3 shows the number of vehicles parked at the Depot.

Table 3: Depot vehicle number by type

Vehicle type	Depot
Utility	9
Truck	15
Passenger	2
Van commercial	2
Bus (12 seater)	2
Specialised plant	23
Total	53

The load at the Depot will increase substantially in the future as the fleet is electrified. The additional load from electric vehicles and plant could be in the order of 250,000kWh per annum. This would represent a seven-fold increase in mains electricity consumption.

This data is very high-level and is based on existing fuel consumption, type and number of vehicles at the depot as well as indicative fuel efficiency figures for ICE and BEV vehicles.

## 4.4.2 Short-term – existing GPOs

As a short-term measure Council can use existing GPO's to charge electric vehicles. These are described in section 4.2 and 4.3.

## 4.4.3 Long term – Area near MSB, Main Depot

With a supply rating of 250 A (to be confirmed via SAPN response), representing 170 kVA, and a current maximum demand of 24 kW, equalling approximately 30 kVA, this indicates that there is spare capacity at the supply level in the order of 140kVA.

To cater for some minor future growth of the general demand in the order of 10%, we conclude that a maximum capacity of 135 VA is available for EV chargers if all phases are balanced well. This is equivalent to 16 of 7kW EV chargers at full load.

As per 4.2.1 the MSB is located at the eastern end of the workshop. There is a spare 100A supply which is ideal for EV charging. Conveniently this area is already used for vehicle parking. We <u>recommend</u> that, if fit for purpose, a new EV-DB be installed adjacent to the MSB. The EV-DB should be oversized to allow for future growth.

This spare supply of 100A can support nine single phase chargers at full load with no diversity. However, it could support more EV chargers taking into considerations that they won't be all used at once to 100% load each. The best way to achieve this is to provide maximum demand control across the fleet of EV chargers connected here and as a result 15-20 of 7 kW EV chargers could be connected here.

Depending on the details of the MSB construction and design, a potentially larger supply could be derived from the MSB for the EV DB, subject to detailed analysis and design.

Charging should be done overnight to retain benefits of high feed-in tariff during the day, subject to more detailed analysis.

## 4.4.4 Long term – Event workshop

With an assumed supply rating of 160 A (to be confirmed via SAPN response), representing 110 kVA, and a current maximum demand of 6.6 kW, equalling approx. 8kVA, this indicates that there is spare capacity at the supply level in the order of 102 kVA.

To cater for some minor future growth of the general demand in the order of 10%, we conclude that a maximum capacity of 100 kVA is available for EV chargers if all phases are balanced well. This is equivalent to 12 of 7kW EV chargers at full load.

As per 4.3 the MSB has spare physical capacity. We <u>recommend</u> that, if fit for purpose, a new EV-DB be installed in the Event Workshop in a convenient location to provide charge stations for buses and other vehicles. The EV-DB should be oversized to allow for future growth.

The supply can support 12 single phase chargers at full load with no diversity. However, it could support more EV chargers taking into considerations that they won't be all used at once to 100% load each. The best way to achieve this is to provide max demand control across the fleet of EV chargers connected here and 18-25 of 7 kW EV chargers could be connected here.



Together the proposed upgrades should be sufficient to cater for all vehicle charging requirements at the Depot.

If a solar power system is installed as per Section 4.3.3 charging should be done during the day to utilise solar power that would otherwise be exported to the grid at low value.

# 5 Wilson Parking Glenelg

## 5.1 Introduction

While not part of the quoted scope of works a very brief review was undertaken of Wilson Parking, located off Colley Terrace in Glenelg, as several passenger vehicles are parked here.

The main carpark electricity meter NMI is 2002153898. It is installed in the MSB.

## 5.2 Switchboards

The Council distribution board DB.C1 shown in Figure 43 is located near the MSB. The main switch has a capacity of 100A.



Figure 43: Council distribution board and switch

Based on a review of the schedule the board DB.C1 appears to be lightly loaded.

The Regulatory Services switchboard to the west is fed from DB.C1, as are two external GPOs as shown in Figure 44. The GPO's include one of 15A single phase and one of 32A three phase.



Figure 44: Regulatory services board and GPOs



# 5.3 EV Charging

## 5.3.1 Overall EV charging requirements

Seven passenger vehicles are parked at Wilson Parking in Glenelg. For full electrification this suggests a requirement for four of 7kW / 32A single phase chargers. Parking arrangements are shown in Figure 45.



## Figure 45: Car parking arrangement

The load at Wilson Parking will increase in the future as the fleet is electrified. The additional load from electric vehicles will be in the order of 15,000kWh per annum. This data is based on indicative fuel efficiency figures for ICE and BEV vehicles.

## 5.3.2 Short term – Existing GPOs and Regulatory Services switchboard

Depending on flexibility regarding vehicle parking locations, the supplies for the existing GPOs and Regulatory Services switchboard could be used or adapted in the short term to



support electric vehicle charging. We <u>recommend</u> this be explored further to allow for vehicle charging in the short-term.

## 5.3.3 Long term – supply from DB.C1

In the long term it will likely be necessary to run supplies from DB.C1 to allow for four single phase 7kW chargers at desired locations. There are some complexities regarding electrical capacity, cable routes and landlord approvals which require further consideration.



# 6 Disclaimer

This report provides a high level assessment of electrical capacity, suitable for budget estimates. The findings are only relevant for these specific sites and purpose. The calculations provided are engineering estimates based on limited site and desktop reviews of available information. Limitations include some details that were not available for the purpose of preparing this report and drawings reviewed that might be out of date.

For any installation it is recommended that the installation company undertakes a complete detailed design including a detailed peak demand assessment and assessment of phase balancing requirements.

Cost estimates are provided for budgeting purposes only. Please note:

- Cost estimates are not generous and are based on basic features and control capabilities. More sophisticated features and systems will incur higher costs (capex and opex).
- A considerable pricing learning curve is factored into cost estimates (ie it is assumed that costs for chargers, control and installation will drop quite rapidly, and these anticipated price reductions are included in our estimates).
- Where trenching is required it is assumed that Council will identify services, manage traffic and make good asphalt at no cost to the project.

The recommendations in this report are based on such detailed design, supervision and implementation by competent companies and personnel with relevant energy experience. Gething Pty Ltd will not be liable for the results of using inexperienced companies or individuals for these tasks.

Item No:	15.3
Subject:	FRANCIS STREET, HOVE – TRAFFIC ASSESSMENT
Date:	11 July 2023
Written By:	Traffic and Transport Lead
A/General Manager:	Assets and Delivery, Mr J Mitchell

#### SUMMARY

The Traffic team were requested by Council to investigate traffic behaviours on Francis Street, Hove, following the development of a service station at the intersection of Francis Street and Brighton Road (Council Resolution Number C131222/7299).

Traffic volumes were found to have increased following the development, indicating that the development has drawn more traffic to use this street than previously. However, the volumes remain well below the local road network's capacity.

The traffic speeds have remained consistent with previous behaviour and with the traffic volumes remaining well below the local road network's capacity, the only recommended change is to install controls at the intersection of Francis Street and MacArthur Avenue, to provide improved control of turning movements.

#### RECOMMENDATION

The Council:

- 1. notes the report; and
- 2. endorses improvements to the Francis Street and MacArthur Avenue intersection to provide improved control of turning movements, subject to consultation.

#### STRATEGIC PLAN

Support the creation of safer places.

#### **COUNCIL POLICY**

Not applicable

#### STATUTORY PROVISIONS

Road Traffic Act 1961

#### BACKGROUND

The development of a service station on the corner of Francis Street and Brighton Road, Hove has been perceived as generating additional traffic on Francis Street. Council, on 13 December 2022 endorsed via Resolution No: C131222/7299 that a traffic study be undertaken in the first six months of 2023 to determine if the development has increased traffic along Francis Street, with a report to be brought back to Council.



Figure 1. Location plan

#### REPORT

The service station in question has multiple access points both from Francis Street and Brighton Road. Observations at peak periods indicate that access to the site is predominantly via traffic on Brighton Road either turning left into Francis Street and immediately right into the service station, or entering directly from Brighton Road. Queuing on Francis Street was observed to occur at a particularly busy period, however this queuing lasted only a very brief period. The service station appeared well-frequented during the observations, with the majority of vehicles departing the site via a left-turn back onto Brighton Road.

Traffic data was collected using Metrocount traffic classifiers at two different locations along Francis Street and compared with historical counts collected in similar locations just prior to the opening of the service station in September 2021.

Road	Section	Survey	Vehicles per day	85 <sup>th</sup> Percentile
		year	(7-day average)	speed (km/h)
Francis Street	Brighton – Maple	2021	852	51.3
Francis Street	MacArthur - Patterson	2021	712	52.9
Francis Street	Brighton - Maple	2023	1110	51.3
Francis Street	Patterson - Day	2023	870	52.5

#### Traffic volumes:

The traffic volumes have increased at both locations following the development in the two years since initial counts were taken:

- 30% increase in traffic volume between Brighton Road and Maple Avenue; and
- 22% increase in traffic volume east of Day Street

Traffic volume increases post-development indicate that the development has drawn more traffic to use this street than previously. However, these volumes remain well below the local road network's capacity. Peak hour volumes during count periods did not exceed 120 vehicles per hour (2 vehicles per minute past any one point on the road) which is also well within an acceptable range.

Traffic volumes are biased towards eastbound traffic, with approximately 25% more vehicles traveling east than west in any given period. This can indicate that Francis Street is being used as an alternate route to connect to Dunrobin Road via MacArthur Avenue. It can also indicate that right-hand turns out Francis Street onto Brighton Road, while possible, can be problematic and any traffic wanting to travel northbound will likely find an alternate connection with traffic signals, such as Oaklands Road.

#### Traffic speeds:

The 85th percentile speeds (the speed at which 85 percent of vehicles are travelling at or below) on Francis Street have remained the same pre and post development, with the following 85th percentile speeds recoded post-development:

- 51.3 km/h between Brighton Road and Maple Avenue; and
- 52.5 km/h east of Day Street (slightly reduced from 52.9 km/h pre-development)

While speeds are higher than ideal, with a percentage of road users exceeding the speed limit, it does not appear to have been particularly altered by the development of the service station.

#### **Traffic impact:**

Francis Street accepts additional traffic flows from Brighton Road due to timed right hand turn restrictions at the intersection of Dunrobin and Brighton Roads. Vehicles then access Dunrobin Road via MacArthur Avenue to reach Diagonal Road or Morphett Road. It is likely this demand has occurred since the introduction of the timed turn restrictions at the intersection of Dunrobin and Brighton Roads and would not have been impacted by the service station development.

It was noted during the on-site observations that a proportion of traffic travelling through the intersection with MacArthur Avenue (particularly right-out of Francis, and left-into Francis) were able to maintain a reasonable traffic speed and tracked across the centre of the intersection. Francis Street is a natural Give Way arrangement as it is the terminating road. It is proposed that a pavement bar treatment is added to discourage vehicles from deviating from their traffic lane and to reduce turning speeds to a more appropriate level.

#### RECOMMENDATION

Traffic speeds have remained consistent with previous behaviour and traffic volumes remain well below the local road network's capacity. The only recommended change is to install controls at the intersection of Francis Street and MacArthur Avenue, to provide improved control of turning movements.

The proposed controls include installing line marking and concrete pavement bars (typical pavement bar treatment in Figure 2) leading up to the intersection of MacArthur Avenue. This treatment will require consultation with adjacent residents to inform of any impact to on-street parking.



Figure 2: Typical Pavement Bar treatment

#### BUDGET

Recommended improvements to the MacArthur Street intersection are minor in nature and can be funded using the existing operational budget for line marking.

#### LIFE CYCLE COSTS

The additional line marking assets have an expected lifecycle of 3 years, and pavement bars a life of 7-10 years.

City of Holdfast Bay

Item No:	15.4
Subject:	2023 NEW YEAR'S EVE GLENELG TEMPORARY DRY ZONE EXTENSION
Date:	11 July 2023
Written By:	Development Administration Team Lead
General Manager:	Strategy and Corporate, Ms P Jackson

#### SUMMARY

Over the years, the extension of the Glenelg Dry Area on New Year's Eve has not only proven vital in assisting South Australian Police to regulate alcohol related anti-social behavior in the area, but it has also assisted Council in creating a 'family-friendly' atmosphere on the night.

As a result of this, Administration seeks to temporarily extend the boundaries of the Glenelg Long-Term Dry Area for 2023 New Year's Eve to ensure adequate crowd control and prevention of alcohol related anti-social behavior.

#### RECOMMENDATION

- 1. That in accordance with section 131 of the *Liquor Licensing Act 1997,* Council temporarily extends the boundaries of the Glenelg Dry Zone for 2023 New Year's Eve as outlined in Attachment 1 for the period 6:00pm Sunday 31 December 2023 to 6:00am Monday 1 January 2024; and
- 2. That the associated boundaries and conditions of the 2023 extension remain the same as in 2022.

#### STRATEGIC PLAN

Wellbeing: Providing opportunities for inclusion and participation by all

#### **COUNCIL POLICY**

Liquor Licensing Policy

#### STATUTORY PROVISIONS

Liquor Licensing Act 1997 [s 131]

#### BACKGROUND

Each year Council temporarily extends the boundaries of the Glenelg Dry Area for New Year's Eve celebrations. This is done in conjunction with South Australian Police (SAPol) to assist in the regulation of any anti-social behavior. As such, Administration once again intends to temporarily extend the boundaries of the Glenelg Dry Area for 31 December 2023.

#### REPORT

#### Dry Zone Boundaries

As per previous years, the 2023 Glenelg Dry Area extension will include the area bounded by:

- the northern property alignment on Augusta Street between Colley Terrace and Brighton Road;
- the eastern property alignment on Brighton Road between Augusta Street and High Street (including the Dunbar Terrace & Maxwell Terrace Transport Terminus);
- the southern property alignment on High Street and College Street between Brighton Road and the western property alignment of St John's Row;
- the eastern boundary of the existing permanent dry area from the South Esplanade Lane on the southern side of the Stamford Grand Hotel to the northern property alignment of Anzac Highway.

Refer Attachment 1

#### **Operational Times**

The extended area will be operational between 6:00pm Sunday 31 December 2023 and 6:00am Monday 1 January 2024.

#### **Operational Conditions**

The area will be designated as one of **total prohibition for alcohol** in both sealed and unsealed containers on public land.

#### Advising the Community

Members of the public will be notified about the extension through Council's website as well as the Government Gazette in the lead up to New Year's Eve 2023.

This report is limited to seeking authorisation for the application of a Dry Zone for New Year's Eve. Council Administration continues to progress the resolution of Council made at its meeting held 28 February 2023 (Resolution No. C280223/7349), which sought Administration to bring back a report to Council on the considerations of extending the current Glenelg Dry Area to align with the boundaries of the New Year's Eve Extended Dry Areas. Investigations are continuing in relation to this matter, with a separate report to be brought back to Council.

#### BUDGET

At this present time the only costs associated with a short-term dry zone applications relate to the Government Gazette publication costs. As per previous years, this cost is incurred by the Development Services business unit.

#### LIFE CYCLE COSTS

At this stage, there are no additional costs to Council associated with that contained within this report.

# Attachment 1



# EXTENDED DRY AREA NEW YEARS EVE 31 DECEMBER 2023



