



Argyll & Bute Council Mainland Ferries Study



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Comparative Analysis of Options for Council-run
ferries

April 2024

Caledonian Economics



Introduction

Argyll & Bute Council is responsible for four ferry services to Jura, Luing, Easdale and Lismore. Three of the four routes are operated using ageing vessels and none have any vessel redundancy. The services currently operate at a significant deficit with a Scottish Government settlement required to help bridge the funding gap.

The forthcoming Islands Connectivity Plan (ICP) being produced by Transport Scotland seeks to address the future of ferry and alternative transport for Scottish Islands but excludes those ferry services operated by Local Authorities. This report seeks to address the mainland ferry services operated by Argyll and Bute Council.

The Jura – Islay route is not considered in this report. This is due to separate legislation that covers this specific route which is set in a unique location and is subject to wider workstreams already in motion.

The current Lismore service was initially considered within this report. The route is currently serviced by the newest vessel in the fleet, with a life expectancy of at least 15 years. There are issues with timetable provision which encroach on the operational performance, these will be dealt with through a proposed ferry user forum to be established.

This report concentrates on the lifeline services provided between Luing – Seil and Easdale - Seil. Both services are supported by aging vessels and insufficient infrastructure which does not comply with current Equalities Act Legislation. This report seeks to provide further information on current services and offers potential future solutions in both locations along with information gathered via public consultation with local users.



Isle of Luing and Easdale Island Ferry Crossings Past, Present and Future

1. Background: Population trends and subsidies
2. Isle of Luing/Cuan Crossing:
 - Past and present
 - Options, analysis and conclusions
3. Isle of Easdale:
 - Past and present
 - Options, analysis and conclusions
4. Other Impacts on Public Services
5. Final Comments
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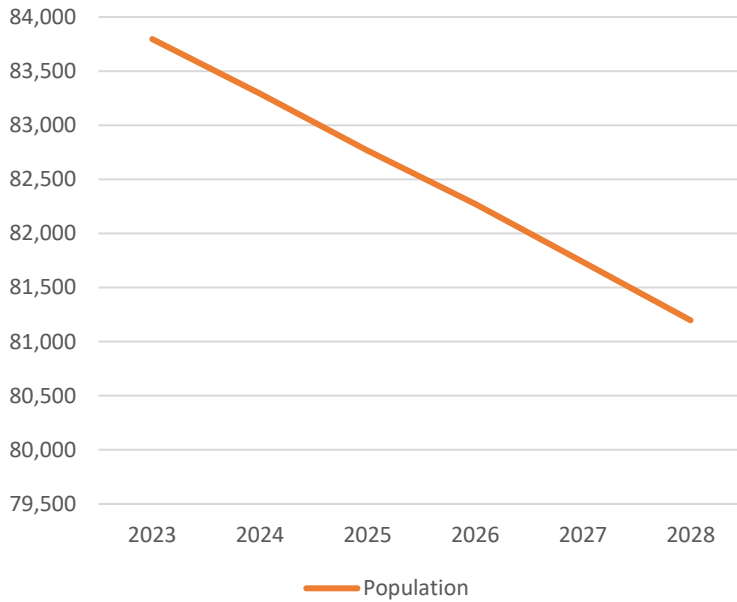


Population Trends

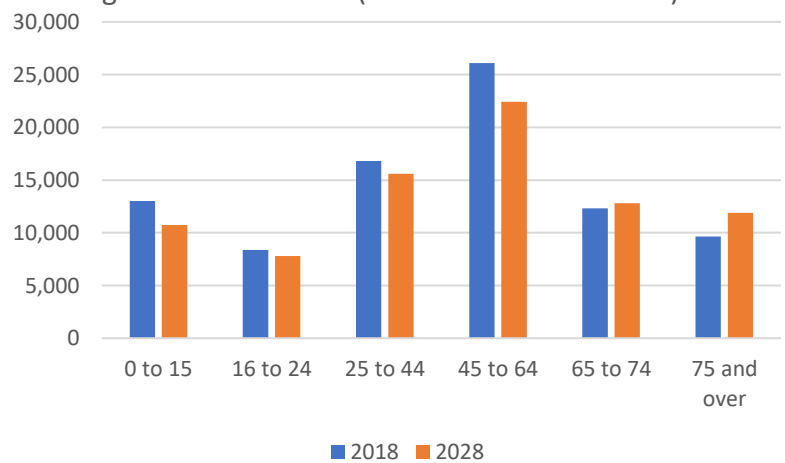
Argyll and Bute Population Forecasts

(Source: National Records of Scotland)

Argyll and Bute Population Forecast (2018 based, Source NRS)



Age cohort forecasts (2018-2028 Source: NRS)



The population of Argyll and Bute is forecast to fall and age

Population Trends Oban, Lorne and the Isles (Source: NHS Scotland)

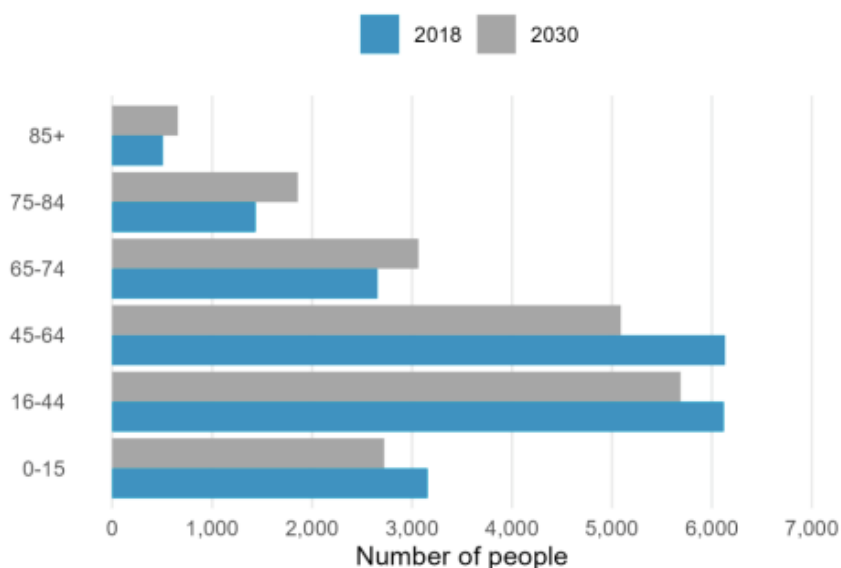


Year	0-15	16-44	45-64	65-74	75-84	85+	Totals
2018	3,156	6,120	6,132	2,655	1,435	507	20,005
2019	3,133	6,065	6,079	2,643	1,503	514	19,937
2020	3,106	5,989	6,057	2,678	1,509	522	19,861
2021	3,097	5,928	5,994	2,701	1,531	533	19,784
2022	3,059	5,890	5,931	2,658	1,625	539	19,702
2023	3,035	5,857	5,833	2,659	1,667	570	19,621
2024	2,969	5,852	5,737	2,667	1,734	588	19,547
2025	2,895	5,842	5,635	2,733	1,759	603	19,467
2026	2,851	5,795	5,572	2,774	1,797	608	19,397
2027	2,812	5,771	5,461	2,839	1,816	617	19,316
2028	2,771	5,763	5,312	2,927	1,837	624	19,234
2029	2,750	5,718	5,191	3,009	1,835	654	19,157
2030	2,721	5,687	5,089	3,064	1,857	657	19,075

Source: Improvement Service Population Projections for Sub Council Areas 2018 based

- The population of Oban Lorne and the Isles is forecast to fall and age, following a similar pattern to Argyll and Bute presented on the previous page

- School roll forecasts for Easdale and Luing were presented during the statutory consultation on the future of Luing Primary School. These indicate a similar picture of population decline



Source: Improvement Service Population Projections for Sub Council Areas 2018 based

Isle of Luing Cuan Sound Crossing Past Studies



Scottish Transport Appraisal Guidance (STAG)

Study, Cuan 2007

STAG Options Appraisal for Cuan Sound Crossing – key points

- **Appraisal Conducted:** Evaluation by STAG of the transport possibilities for the Cuan Sound crossing.
- **Options Considered:** A range of solutions including high/low level bridges, a causeway, a tunnel, and enhancements to the ferry service schedule.
- **Identified Issues with current provision:** Disruptions in the ferry service, insufficient capacity during peak times, limitations for large vehicle transport, constrained Sunday/evening services, financial challenges, high perceived costs, and limited access to Seil and the mainland.
- **Community Perspective:** Debate on whether to retain and improve the current ferry service or construct a fixed link.
- **Excluded Options:** low-level bridge, causeway, and tunnel options were rejected from initial list due to navigation, environmental, geological, and financial concerns.
- **Appraisal Conclusion:** A detailed appraisal indicated that a bridge provides the most significant improvement in accessibility, benefiting social inclusion, economic gains, and local business growth.
- **Overall Recommendation:** Advised building a high-level bridge for optimal economic and social advantages.

Framework for Luing's Future 2022

Isle of Luing Community Housing and Business Needs Survey Report 2023

Consultation overview:

- Studies were carried out on behalf of the community
- Involved residents (past and present), stakeholders and authorities

Key Findings

- Strong community interest in enhancing connectivity
- Poor transport links are cited as a reason for people leaving the island
- Request for more reliable and frequent transport links to support local economy and accessibility.
- Plans to develop housing and expand the economy
- Concerns about the current infrastructure's capacity to meet future demands.

Isle of Luing Cuan Sound Crossing Current Situation



- **MV Belnahua provides all sailings.** The Grey Dog and/or alternative vessel is hired in when MV Belnahua is away for her refits.
- The service runs at an **annual loss** of around £366,000 (based on the 2023 Service Review), expected to rise to £470,000 as the vessel ages.
- **MV Belnahua was built in 1972** and is at the end of her reasonable and already extended life. Parts can no longer be sourced for her engines and work is required to bring her up to standard with current marine requirements. She is also operating around 25% above capacity to support demand, especially in summer. She is scheduled to have a life extending refit early in 2024 that will fit new engines and other compliant equipment such as fixed firefighting equipment and bilge alarms. This should extend her life for around 5 years but she needs to be retired.
- Current plan is that **a new vessel will be built for the Jura-Islay route** which would free up MV Eilean Dhiura to replace the MV Belnahua.
- This is **currently unfunded** so there is not a timescale for this. The condition of the MV Belnahua would dictate a maximum of 5 years to prepare the Cuan crossing in readiness for the MV Eilean Dhiura to use it, if it is freed up by then.
- The gradient on the pier on **Luing does not meet Equalities Act guidelines** and there needs to be facilities for an overnight berth for the vessel.
- Previous proposals suggested **a new slip would be constructed** to suit MV Eilean Dhiura. This would need be complicated by the need to operate the current slip until a new slip was completed.

Isle of Luing Cuan Sound Crossing Ferry Services Data



Passenger/Vehicle Numbers (on basis of tickets sold)	2022/23 Actual	HITRANS 2003
SPT Concessionary Travel	1044	
Foot Passengers and drivers (single and return)	9,805	
Foot Passengers and driver on 5-Return Journey tickets	$5 \times 2 \times 2,453 = 24,530$	
Total Passengers	35,379	20,170
Private motor cars	3,276	
Private motor cars on 5-Return tickets	$5 \times 2 \times 1,406 = 14,060$	
Car Blue Badge	633	
Motorcycles	52	
Total cars and MCs	18,021	14,337
Commercial vehicles/coaches – 5-8m	484	
Commercial vehicles/coaches – 8-12m	138	Not available
Commercial vehicles/coaches – 12-18m	5	

- Passenger numbers increased by around 75% and private vehicles up 25% from 2003 to 2023

Isle of Luing Cuan Sound Crossing Ticket Prices



	Adult return	Car return	Commercial return
Per STAG (Published March 2007 so data assumed to be from 2006)	£1.45	£5.90	£13.20 (>3.5t)
Current 2023	£2.50	£9.70	£17.10 (5-8m)
% increase	72%	64%	30%

- A range of other tickets are offered in addition to those shown, including multi-journey booklets, concessions and children.
- Price inflation for the period 2006 to 2023 was around 65% so the price of the basic passenger and car tickets appear to have kept pace with inflation.
- The price of tickets for commercial vehicles seems to have lagged inflation although the basis of classifying commercials has changed from weight to length.
- SPT concessionary travel is too small value to be claimed back

Isle of Luing Cuan Sound Crossing Future Options Assumptions



- **Option 1** – Operate MV Belnahua for five years, then open low bridge

- **Option 2** - Operate MV Belnahua for five years, then use MV Eilean Dhiura* for five years to the same timetable, then open low bridge

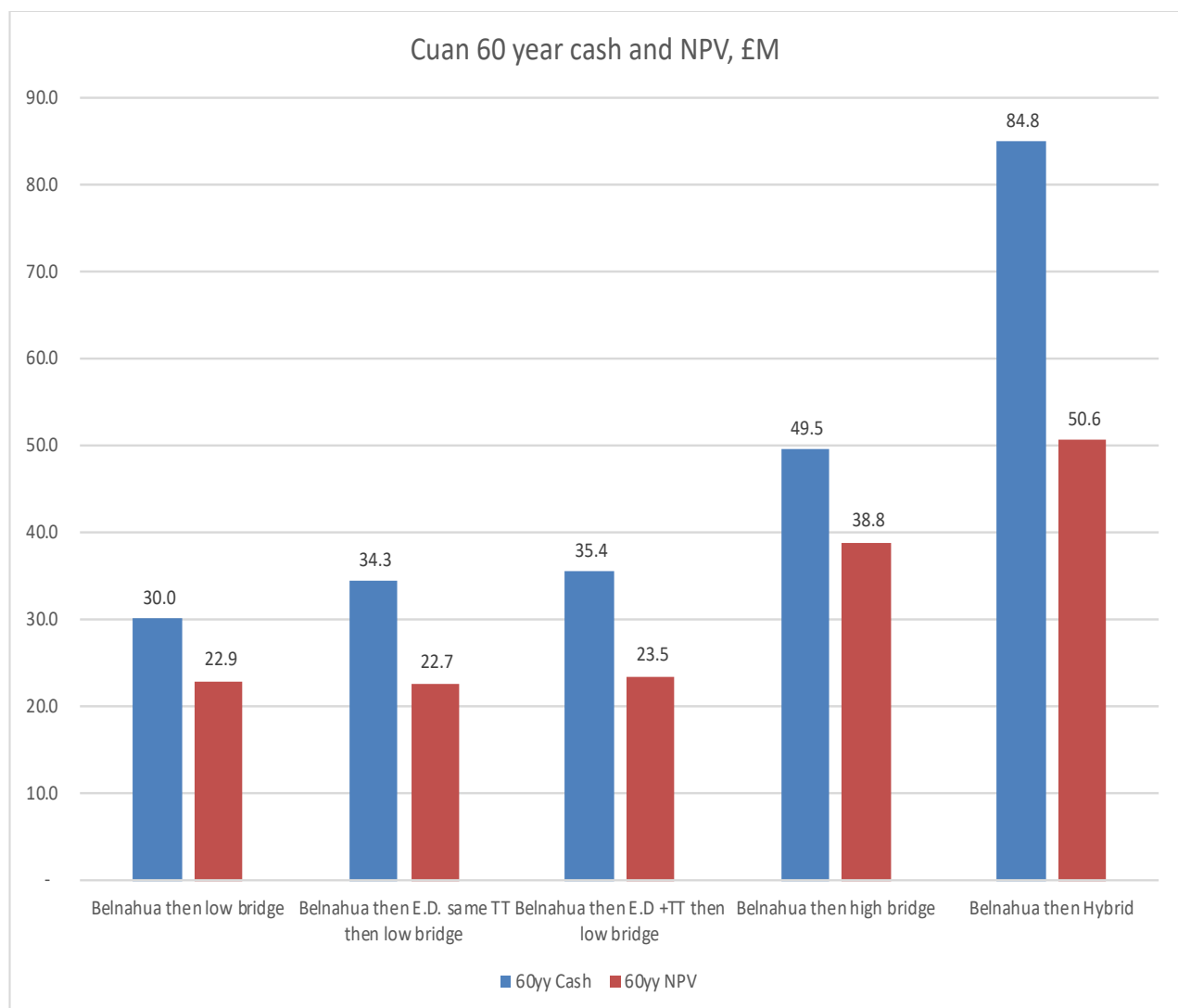
- **Option 3** - Operate MV Belnahua for five years, then use MV Eilean Dhiura* for five years with an enhanced timetable, then open low bridge

- **Option 4** – Operate MV Belnahua for five years, then open high bridge

- **Option 5** - Operate MV Belnahua for five years, then use a new vessel (hybrid-powered) for the remainder of the period of the analysis (with mid-term replacement)
 1. *Assumed no scrap/resale value for ferries*
 2. *'Low bridge' would be an opening bridge to allow vessels to pass through*
 3. *'High bridge' would have clearance for vessels to pass under*

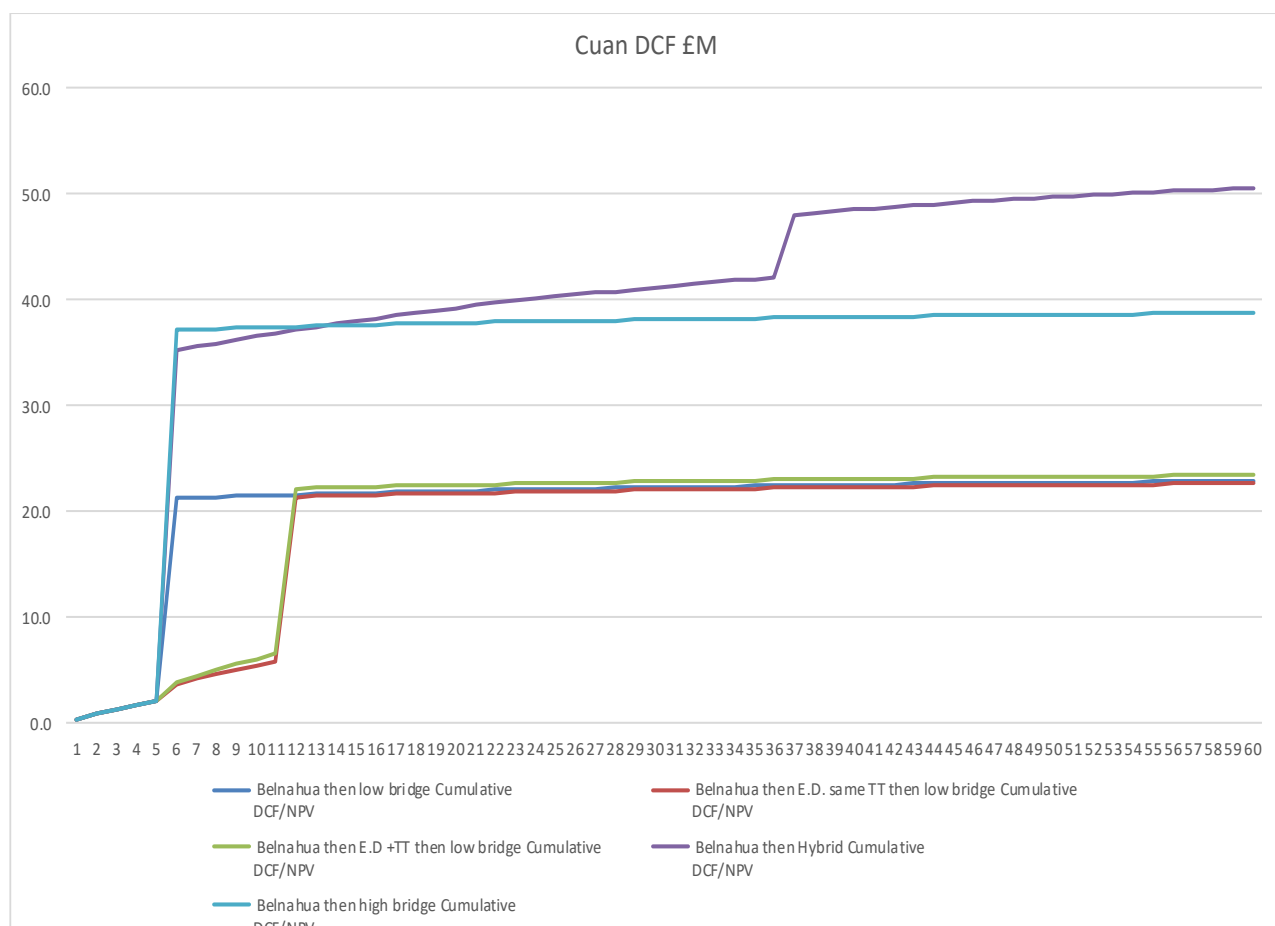
** MV Eilean Dhiura currently operating on the Jura to Islay route and this option is subject to Argyll and Bute Council gaining funding for a replacement vessel for this route.*

Isle of Luing Cuan Sound Crossing Options Net present value



- *Net present value (NPV) using the Treasury Green Book discount rates is the correct metric to use for investment appraisal of this type.*
- *Total cash is also shown for comparison.*
- *Capital cost cashflows are assumed to happen in the first year of operations for the asset concerned.*

Isle of Luing Cuan Sound Crossing Options Discounted cash flow



- See Appendix 2.1 to 2.5 for details of how costing estimates were prepared

Isle of Luing Cuan Sound Crossing Options Residents Survey Findings (2024)



Support for a Fixed Link (Bridge or Tunnel):

- Over a quarter of respondents expressed explicit support for a fixed link, either a bridge or tunnel
- those expressing support saw benefits in terms of connectivity and ease of access for work, leisure and essential services.
- There were few specific objections to a fixed link - more people would simply prefer an improved ferry service

Support for Ferry Service:

- Over half respondents expressed a preference for retention of the ferry service,
- However, many are dissatisfied with the vessel, the reliability, and the level of service.
- Commonly expressed views include a better vessel, an extension of the timetable, better links with other public transport, and reduced fares.

Common Concerns and Suggestions:

- **Cost:** A common theme is the concern over the cost of the ferry service and its impact on the island's residents, with suggestions for reduced fares.
- **Accessibility:** Several comments mention the need for better accessibility, especially for wheelchairs and prams.
- **Timetable:** Many residents express a desire for a ferry timetable that accommodates residents' needs, including later services and better synchronization with buses.
- **Sustainability:** Some responses highlight the need for sustainability, mentioning electric ferries and a service that doesn't rely on the ferry.
- **Employment:** The ferry service is noted as providing local employment, which is valued.



Isle of Luing Cuan Sound Crossing Options Conclusions

Financial Analysis¹:

- a fixed link (low level) as soon as possible is the lowest cost in cash terms.
- Using the MV Eilean Dhuira before building a fixed link (low level) adds around £4M to the total in cash terms, no material difference in NPV
- Extending the timetable adds slightly over £1M in cash and NPV terms
- Compared to a low level bridge, a high level bridge adds around £20M (cash) or £8M (NPV). A high level bridge would be preferable from a navigability and resilience perspective.
- A permanent ferry solution is almost three times to cost of a low level bridge in cash terms, or around 1.7 times the cost of a high level bridge in NPV terms

Community views:

- There is notable dissatisfaction with the current arrangement
- This is a general preference for improving the ferry service, although a significant number of respondents see real benefits in a fixed link
- Few specific objections to a fixed link were raised.

Next steps/way forward:

- This is a preliminary analysis that could be expanded on in future studies. It is not intended to be a full options appraisal in line with the STAG and HMT Green Book methodologies, but it follows their principles and can be considered a starting point for full studies in the future.
- There is **no plan for the route beyond the life of the existing aged vessels** (MV Belnahua and MV Eilean Dhiura).
- Thus, **a solution needs to be in place** in five years (without Eilean Dhiura) or in ten years (if Eilean Dhiura becomes available)
- The long-term options are **either a new vessel or a fixed link**.
- The **long-term costs of a fixed link are significantly less** than a replacement ferry.
- The community has expressed **dissatisfaction with the existing arrangement**. Some in the community would prefer to see this addressed by an improved ferry service, others would prefer a fixed link.
- The **community has plans** to attract new families to the island and to develop the local economy, including reopening a quarry. Good transport connectivity will help these important initiatives succeed.
- Either solution will require **significant capital investment**. A fixed link would provide a permanent solution at a lower cost, address many aspects of the community's dissatisfaction with the current arrangements, and facilitate improvements in public service delivery.
- Considering long-term sustainability and cost-effectiveness, this study concludes that the **preferred option** from a technical and financial would be a **fixed link**.
- It is **recommended that these options be explored more fully** including detailed technical appraisals, updated STAG study and relevant community engagement in line with legislation.



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**Easdale Island
Easdale Sound Crossing
Past Studies**



Scottish Transport Appraisal Guidance (STAG) study, Easdale 2009

Transport Options Appraisal for Easdale Island – key points (2009)

- **Appraisal Conducted:** Evaluation by STAG to determine suitable transport options for Easdale Island.
- **Options Explored:** Considered either an upgrade to the existing ferry service or the construction of a causeway with a fixed bridge.
- **Ferry Service Option:** Found to be more cost-effective, aligned with transport objectives but would require additional infrastructure and presented financial risks for the Council.
- **Responsibility Transfer:** Suggested that giving Islanders control could lead to better financial management and tailored services (although it was unclear if there was appetite or capacity for this in the community)
- **Causeway Construction Option:** Better reliability and safety at higher cost. Would require an Environmental Impact Assessment. Community acceptance uncertain (presumably meaning that the community could block the development at the planning stage)
- **Community Consideration:** The causeway's benefits would depend on how much it is utilised by the island's residents (although presumably this would be at least the same as the ferry use)
- **Overall Recommendation:** the study was inconclusive.

Easdale Island Easdale Sound Crossing Current Situation



- Per the Easdale STAG, the route is covered by MV Fladda and ML Easdale (relief vessel).
- The service runs at an **annual loss** of around £290,000 (based on the 2023 Service Review), expected to rise to over £600,000.
- No plans for changes/improvements until the results of this appraisal are available.
- The harbour is owned by 'Eilean Eisdeal', the Easdale Island Community Development Group
- Slipway is owned by Argyll and Bute Council
- Easdale Island is **privately owned**. Owner was contacted for comment as part of this study but has not responded.
- Ongoing dredging of the harbour at Easdale is undertaken by the Council if deemed necessary along with any routine repairs to both slips as required.

Easdale Island Easdale Sound Crossing Ferry Services Data



Passenger Numbers Easdale	2022/23 Actual ¹	HITRANS 2003 ²
SPT Concessionary Travel	346	n/a
Out of Hours (before and after midnight).		
Foot Passengers (individual single journeys).	10,690	
Foot Passengers – travelling on 5-return journey books sold)	12,422	
Freight Customers	n/a	
Other (please specify)	n/a	
Total Usage (individual journeys)	23,458	18,172³

- **Use has increased by around 29% 2003-2023**

¹ ABC - Marine Operations Data Requirements v3 (17 July 23)

² Strategic Sea Crossings in the Highlands and Islands: Development Opportunities 2005-2025, Nov 2005, Fisher Associates on behalf of HITRANS

³ a figure of 13,000 was given in the text of the STAG report

Easdale Island Easdale Sound Crossing Ticket Prices



	Adult return	Car return	Commercial return
Per STAG (Published March 2009 so data assumed to be from 2008)	£1.55	Passenger-only service	
Current 2023	£2.50		
% increase	61%		

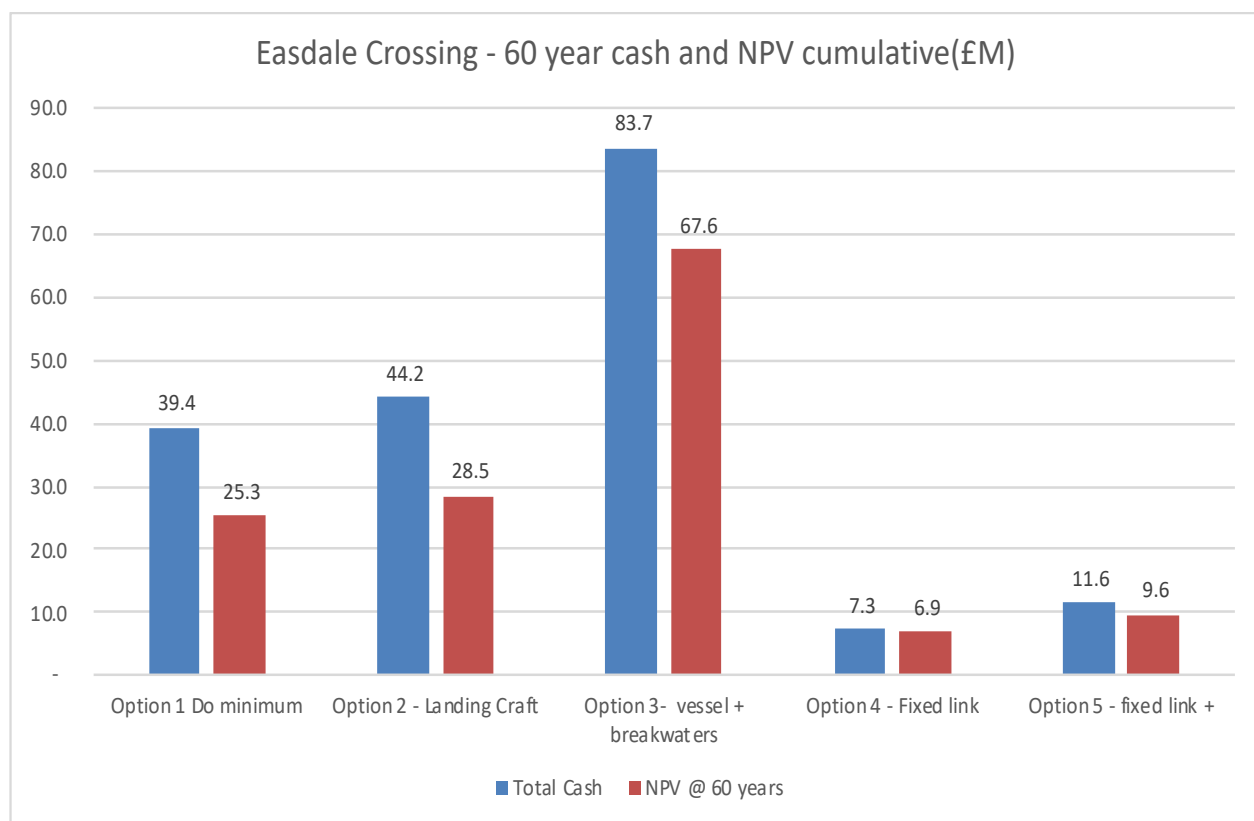
- A range of other tickets are offered in addition to those shown, including multi-journey booklets, concessions and children.
- Price inflation for the period 2008 to 2023 was around 65% so the price of the basic passenger ticket appears to have kept pace with inflation

**Easdale Island
Easdale Sound Crossing
Future Options Assumptions**



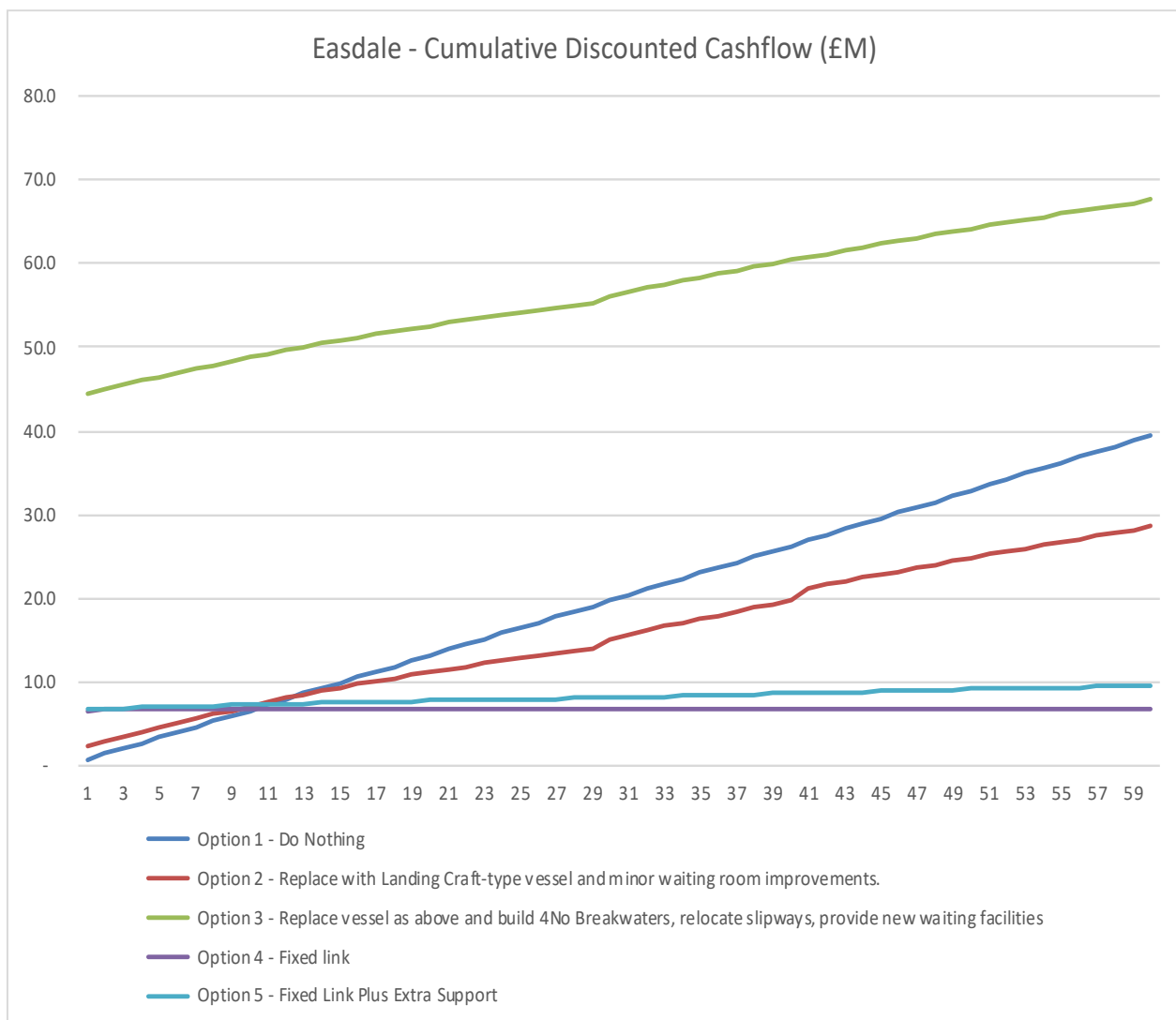
- **Option 1** - Do minimum, continue to provide current service and replace vessels like for like - minor improvements to waiting room/staff accommodation
- **Option 2** - Replace the vessel with a Landing Craft-type vessel & minor waiting room improvements (with mid-life replacement)
- **Option 3** - Replace the vessel as above and build four breakwaters, relocate slipways, and provide new waiting facilities
- **Option 4** - Install fixed link (footway to take vehicles no larger than quad bike size)
- **Option 5** - Install fixed link as above with additional services

**Easdale Island
Easdale Sound Crossing
Net Present Value**



- See Appendix 1.1 to 1.5 for details of how costing estimates were prepared

Easdale Island Easdale Sound Crossing Discounted Cash Flow



- See Appendix 1.1 to 1.5 for details of how costing estimates were prepared

Easdale Island Easdale Sound Crossing Residents Survey Findings (2024)



Support for Improving the Ferry Service:

- Residents prioritise compliance with legislation and addressing access issues due to climate change. Many called for a solution to the infilling of the harbour.
- There is a desire for a ferry better equipped to handle a range of items, reduce manual handling issues, and improve accessibility
- Several residents emphasised the need to retain the ferry service to preserve the island's character and prevent negative ecological impacts. Suggestions include better parking, improved ferry facilities, and enhanced welfare facilities for staff
- There are calls for multiple breakwaters to be constructed to reduce weather interruptions, ensure safety and stop the problem of slate filling the harbour.

Support for a Fixed Link:

- A very small number express a preference for a fixed link to modernise access to the island, with one respondent specifically suggesting a bridge for its modern convenience and potential to enhance trade.

Concerns and Additional Suggestions:

- The concerns about infrastructure extend to the preservation of the island's ecology and the well-being of its wildlife, with some respondents worried about the introduction of invasive species if a fixed link were built (Responses #5, #57).
- Residents express a deep appreciation for the ferry staff and the community spirit they embody, highlighting the social aspect of the ferry service.
- There is an acknowledgment of the island's unique character and its appeal to tourists, which many feel would be compromised by infrastructure changes.
- Financial sustainability of the ferry service was also mentioned, with suggestions for integrating ferry ticket costs into council tax for residents and increasing prices for visitors.

Easdale Island Easdale Sound Crossing Conclusions



Financial Analysis:

- In cash terms, a fixed link is a fifth of the cost of maintaining the current arrangement, around one quarter in NPV terms.
- Continuation of the existing arrangement is around £5M cash (£3M NPV) less than replacement with a Landing Craft-type vessel with replacement at year 30.
- In NPV terms the cost of creating breakwaters (with replacement vessels and slip upgrades to meet regulations) is ten times the cost of creating a fixed link

Community views:

- There is resistance to a fixed link
- Concerns about a fixed link include ecological issues and fear of problems brought by visitors.
- Residents express a deep appreciation for the ferry staff and the community spirit they embody, highlighting the social aspect of the ferry service.
- The community values the island's unique character and its appeal to tourists. Many feel this would be compromised by a fixed link.

Next steps/way forward:

- This is a preliminary analysis that could be expanded on in future studies. It is not intended to be a full options appraisal in line with the STAG and HMT Green Book methodologies, but it follows their principles and can be considered a starting point for full studies.
- The cost of maintaining **the existing arrangement is unviable.**
- The **costs of breakwaters are prohibitive.**
- The **long-term costs of a fixed link are far less** than maintaining the existing arrangement.
- Considering long-term sustainability and cost-effectiveness, this study concludes that the **preferred option** from a technical and financial perspective would be a **fixed link.**
- It is **recommended that these options be explored more fully** including detailed technical appraisals, updated STAG study and relevant community engagement in line with legislation.
- The communities on Jura and Ulva operate ferry services themselves, funded directly by central government. This is an additional option to consider for Easdale if the community were to present a sustainable and deliverable long-term business model.



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Impacts/Implications Council Services



Waste Collection - Luing:

- Currently a 'narrow width' refuse vehicle is used to provide waste pick up from Luing. The weight of the the vehicle and refuse is restricted by the ferry weight limit. The Council has a limited number of such vehicles which increases the risk of service interruption due to breakdowns.
- A fixed link would permit the use of a standard-width refuse vehicle on this route. This would improve the volume capacity and would reduce the risk of service interruption due to breakdowns.

Waste Collection - Easdale:

- A fixed link would allow for easier transportation of the bins to Ellenabeich. This would support a more regular pickup, reducing the demand for storage space and reducing the pressure on public bins in Ellenabeich.
- A fixed link along with some improvements to the footpath network may also support transport and recycling of heavier items such as white goods and building materials.

School transport:

- **Luing** – under the present arrangement, some pupils have to wait for the next scheduled sailing. A fixed link would remove this constraint.
- **Easdale** – pupils sometimes must wait for space on the ferry, particularly during busier summer months when school is still in session. A fixed link would remove this constraint
- **In both locations** – inclement weather can prevent the ferries from sailing, resulting in pupils being removed from school early to ensure they return home safely. A fixed link would reduce the frequency of these occurrences.
- **In both locations** - families incur additional ferry fares to attend parents' evenings after after-school events, and in some cases timetable restrictions may preclude attendance. A fixed link would remove these costs/constraints.

Impacts/Implications

Social, Health and Emergency Services



Social and health:

- Under the current arrangements, social and healthcare professionals are limited in their ability to provide care on **both islands** outside the ferry operating hours.
- A fixed link would provide unhindered access to and from **both islands** allowing the same standard of at-home care as in Seil and the mainland.

Blue light services:

- At **Easdale**, an air ambulance is used for every medical emergency. The provision of a fixed link would enable the Scottish Ambulance Service to triage and send local ambulances to attend when it is more appropriate to do so.
- At **Luing**, ferry staff are kept on standby to operate the ferry should emergency access be required. A fixed link would allow emergency vehicles to attend emergencies more quickly, especially during bad weather.

Impacts/Implications Other Services



Other potential impacts:

- **EV charging and utilities management** – A fixed link would enable easier access for upgrading and maintaining essential utilities. This could include an upgrade to the electricity network which may be required to expand EV charging provision.
- **Plans for Quarry on Luing** – Luing Community Trust plans to develop the quarry at Cullipool, reviving small-scale slate production, protecting the island heritage and ensuring traditional methods are passed on. A fixed link would support this by making it easier and less costly to transport explosives, plant and equipment, and slate exports to and from the island.
- **Housing** – with a fixed link in place, the costs of transporting materials to **Luing** will be less and should result in lower construction costs. Similarly, a fixed link may also attract new people to the island, currently put off by the restrictions of a ferry connection.
- In **Easdale**, the transport of goods would be unrestricted, making it easier to receive deliveries of cooking gas and fuel for power tools and similar needs. It may also reduce the costs of trade services such as electricians, plumbers, and other aspects of small-scale building projects.
- **Tourism** – A fixed link to both islands may enhance tourism opportunities by improving connectivity, extending the tourist season, and providing opportunities for more unique attractions, which would further enhance the visitor experience.

Final Comments



Luing Conclusions:

- A fixed link (low-level bridge) is identified as the most cost-effective solution in the long term. A high-level bridge would provide navigability and resilience advantages.
- The community shows dissatisfaction with the current ferry service arrangement, although there's a preference for improving the ferry service.
- A significant proportion of respondents see benefits in a fixed link. Few specific objections to a fixed link were raised.
- Considering long-term sustainability and cost-effectiveness, the study concludes that a fixed link is the preferred option from both technical and financial perspectives.
- It is recommended that these options be explored further, including detailed technical appraisals, an updated STAG study, and relevant community engagement.

Easdale Conclusions:

- The financial analysis reveals that a fixed link is substantially less costly over the long term than maintaining or upgrading the current ferry arrangement.
- There is resistance within the community to a fixed link due to ecological concerns and the potential impact on the island's character.
- A fixed link would resolve many issues related to service accessibility and reliability.
- The community values the ferry service for its employment opportunities and the community spirit it fosters.
- Despite the financial advantages, the community's preference is for improving the ferry service rather than establishing a fixed link.

Impacts on Public Services in the Islands:

- a fixed link could improve waste collection, school transport, and emergency services by providing unrestricted access and addressing the limitations of ferry services.
- a fixed link could extend the tourist season and offer opportunities for unique attractions and new jobs.

In summary, from a financial and technical standpoint, a fixed link presents a more sustainable and cost-effective long-term solution for both Luing and Easdale. However, community sentiment, particularly in Easdale, leans towards improving the existing ferry services due to concerns over the cultural and ecological impact of a fixed link



Appendices

estimates/assumptions used in financial calculations
(provided by Argyll & Bute Council)

Appendix 1.1

Easdale Options 1

Do Minimum – Cost Estimates

Do minimum, continue to provide current service and maintain existing vessels– minor improvements to waiting room/staff accommodation				
	Annual costs	Capital costs	Annual Income	Life span
Staff costs	£400,000.00		0	
Annual vessel and infrastructure maintenance	£240,553.00		0	Annual - cost varies
Reset gabion baskets with imported fill *		£100,000.00	0	10 years
Dredging of Easdale Harbour	£40,000.00		0	2 years
Additional refuse collection costs	£30,000.00			Annual
Income from ticket sales			£45,870.00	Annual
Waiting room improvements **		£50,000.00	0	25 years
Totals	£690,553.00	£150,000.00	£45,870.00	

- Staff costs include, 4 x skipper and crew, Technical Officer Ferries 25%, Admin Officer 15%, Marine Ops Manager 5% (includes pay, holiday pay, pension, training and Contracted staff costs)
- Vessel and infrastructure costs based on average of costs incurred between FY's 2013 - 2023 includes for vessel maintenance, infrastructure maintenance, ticketing software, VHF licensing, crew PPE, safety checks, audits and inspections, CCTV, fuel etc
- Income based on financial year 22/23 ticket sales
- Annual dredging based on actual costs for work carried out in 2022 and 2024 averaged
- * Gabions - based on estimate of 4,000 tonnes of granite material at £20 per tonne delivered and baskets refilled and rebuilt. Estimate 3-4 weeks work, 2 persons and excavator
- ** Small sum for waiting/staff room improvements - details not determined

Appendix 1.2

Easdale Options 2

Landing Craft – Cost Estimates

Replace current vessels with Carvorria type vessel, minor waiting room improvements				
	Annual costs	Capital costs	Annual Income	Life span
New vessel costs ***		£270,000.00	0	30 years
Replacement vessel in year 30		£2,000,000.00	0	
Amendments to existing pier to suit new vessel and Equality Act requirements ****		£1,500,000.00	0	40 years
Staff costs	£400,000.00		0	
Annual vessel and infrastructure maintenance	£240,553.00		0	
Reset gabion baskets with imported fill *		£100,000.00	0	10 years
Dredging of Easdale Harbour	£40,000.00		0	2 years
Income from ticket sales			-£45,870.00	
Waiting room improvements **		£50,000.00	0	
Totals	£680,553.00	£3,920,000.00	-£45,870.00	

- Staff costs, annual vessel and maintenance costs, dredging costs, gabions, waiting room improvements and income as previous pages - does not allow for increased number of crew to provide more sailings than current timetable allows.
- refuse collection costs removed - anticipated to be included in staff costs/time if this option implemented.
- ***New vessel costs - assumption based on CMAL Carvorria vessel. Cost £200k in 2017 increased by inflation at 5% per year. New vessel anticipated life is 30 years. Alternative vessels may cost more
- ****Existing slip improvement costs based on Iona slipway repairs at £650,000 for one slipway - doubled for two plus round up to include for additional costs to get plant/materials to Easdale

Appendix 1.3

Easdale Options 3

Breakwater – Cost Estimates

Replace vessel as above and build 4No Breakwaters, relocate slipways, provide new waiting facilities				
	Annual costs	Capital costs	Annual Income	Life span
New vessel costs		£270,000.00		30 years
Replacement vessel in year 30		£2,000,000.00		
Construction of new breakwaters		£30,777,000.00		100 years
Construct new slipways and additional infrastructure (waiting room/fuel store/path network on Easdale)		£15,000,000.00		100 years
Staff costs	£400,000.00			
Annual vessel and infrastructure maintenance	£240,553.00			
Income from ticket sales			-£45,870.00	
Totals	£640,553.00	£48,047,000.00	-£45,870.00	

- Staff costs, vessel and replacement vessel costs and annual income as described in previous pages.
- Breakwater volumes based on cross section area of 35m wide by 11m high with 5m wide flat top = 181m². Length of breakwaters estimates as follows West (Seil) - 190m, West (Easdale) - 225m, East (Seil) - 160m, East (Easdale) - 105m - total volume 123,080m³
- Breakwater cost based on average of latest Iona Breakwater estimate at £225/m³ plus Dunoon breakwater in 2020 at £209/m³ - average cost used of £217/m³
- Anticipate constructing new slips to reduce commitment to dredge harbour (not A&BC owned) Seil slipway approx 80m long by 6m wide (480m²) Easdale slip 95m long x 6m wide (570m²)
- New waiting room costs - £300,000 (based on Iona toilet block costs at £215,000) includes for additional pipe network or septic tank, upgrade of path network and new exclusive use fuel store at Ellenabeich.

Appendix 1.4

Easdale Options 4

Fixed Link – Cost Estimates

Install fixed link				
	Annual costs	Capital costs	Annual Income	Life span
Design and construction costs		£4,760,000.00	0	
Land purchase		£2,240,000.00	0	
Annual inspection and maintenance	£5,000.00		0	125 years
Totals	£5,000.00	£7,000,000.00	£0.00	

- Suggested design of short length of causeway to reduce span. Max span estimated at 70m to maintain access via sea for smaller vessels - suggest steel truss or composite beams. Bridge to be designed to suit crowd loading by pedestrians, cyclist and quad access. Max 4m wide with a parapet height of 1.5m, min design life of 125 years. Not suitable for vehicular access larger than a quad bike or similar.
- Consider additional gate (perhaps coded?) on Easdale side for residents to manage night-time access.
- On completion, structure will be added to existing bridge inspection and maintenance regime. (Assumption max £5k per annum, likely less in first 10 years of operation)
- A&BC in-house design team may have availability to carry out design which may offer a reduced cost.

Appendix 1.5

Easdale Options 5

Fixed Link – Additional support - Cost Estimates

Possible additional costs that could supplement a fixed link provision				
	Annual costs	Capital costs	Annual income	Life span
Local Ranger Service (continues employment in area)	£70,000	0	0	As required
Provision of coin operated trolleys and trolley store for transporting heavy goods/luggage		£6,000	0	15 year
Provision of quad bike and training for operatives to move refuse bins	£500/year	£8,000	0	20 years
Improvements to bin storage area		£10,000	0	20 years

- Local ranger service, providing local employment. Based on 2 x full time employees, with duties to include managing visitor behaviour, littering, car parking etc where feasible Could extended to wider community duties on Easdale, Seil and Luing.
- Trolleys based on SBS Trailers marina troller. 10 @ £400 plus sum to create two trolley stores, one located near car park and one centrally on Easdale (Hall?)
- Quad bike costs based on a £5,000 for Honda quad bike and trailer plus £1,000 for storage shed and £2,000 for sundry items such as training, PPE, etc. Annual £500 towards servicing, fuel etc
- Sum for improvements, e.g. hardstanding, fencing, for bin storage area on Easdale

Appendix 2.1

Cuan Options

Current service assumptions

Current service				
	Annual costs	Capital costs	Annual Income	Life span
Staff costs	£450,000.00			
Annual vessel and infrastructure maintenance	£205,000.00			5 years remaining
Annual costs towards bathymetric surveys and dredging	£10,000.00			
Income from ticket sales			-£190,336.00	
Totals	£665,000.00	£0.00	-£190,336.00	

- Staff costs include, 4 x skipper and crew, Technical Officer Ferries 25%, Admin Officer 15%, Marine Ops Manager 5% (includes pay, holiday pay, pension, training and Contracted staff costs)
- Vessel and infrastructure costs based on average of costs incurred between FY's 2013 - 2023 includes for vessel maintenance, infrastructure maintenance, ticketing software, VHF licensing, crew PPE, safety checks, audits and inspections, CCTV, fuel etc.
- Income based on financial year 22/23 ticket sales.
- Annual dredging and survey costs based on percentage share of wider council framework contract.

Appendix 2.2

Cuan Options Assumptions

Eilean Dhuira on current timetable

Replace vessel with Eilean Dhuira, same timetable				
	Annual costs	Capital costs	Annual Income	Life span
Staff costs	£450,000.00			5 - 10 years
Annual vessel and infrastructure maintenance	£280,000.00			
Annual costs towards bathymetric surveys and dredging	£10,000.00			
Income from ticket sales			-£190,336.00	
Minor amendments to existing pier to suit new vessel and Equality Act requirements ****		£1,500,000.00		25 years
Totals	£740,000.00	£1,500,000.00	£190,336.00	

- Staff costs, dredging costs and income as previous page.
- Annual vessel and maintenance costs based on Eilean Dhuira costs in current location.
- Slip improvements required for Eilean Dhuira based on Iona slipway repairs at £650,000 for one slipway - doubled for two plus round up to include for additional costs to get plant/materials to Luing.
- Eilean Dhuira has 40 tonne capacity compared to Belnahua at 15 tonnes. Will allow larger vehicles access to the island to support community projects.
- Eilean Dhuira replacement not anticipated in next 5 years, Eilean Dhuira will have limited life span at point of relocation.

Appendix 2.3

Cuan Options Assumptions

Eilean Dhuira with extended timetable

Eilean Dhuira with extended timetable – 2 additional crew members				
	Annual costs	Capital costs	Annual Income	Life span
Current staff costs	£450,000.00			5 - 10 years
Staff costs * 2	£175,000.00			
Annual vessel and infrastructure maintenance	£280,000.00			
Annual costs towards bathymetric surveys and dredging	£10,000.00			
Income from ticket sales			-£190,336.00	
Minor amendments to existing pier to suit new vessel and Equality Act requirements ****		£1,500,000.00		
Totals	£915,000.00	£1,500,000.00	£190,336.00	

- Staff, maintenance, vessel and infrastructure costs as Appendix 2.1.
- Assumed a minimum of 2 additional staff required to provide an extended timetable beyond current provision
- Slip improvements required for Eilean Dhuira based on Iona slipway repairs at £650,000 for one slipway - doubled for two plus round up to include for additional costs to get plant/materials to Luig.
- Income based on financial year 22/23 ticket sales. Potential additional income not predicted.

Appendix 2.4

Cuan Options Assumptions

New Hybrid Vessel

Replace with hybrid vessel, new slipways, extended timetable (more staff)			
	Annual costs	Capital costs	Annual Income
Current staff costs	£450,000.00		
Staff costs * 2	£175,000.00		
New vessel		£17,220,000.00	
New slipways and waiting room/crew room facilities at both sides		£23,000,000.00	
Annual vessel and infrastructure maintenance	£10,000.00		
Annual costs towards bathymetric surveys and dredging	£10,000.00		
Income from ticket sales			£190,336.00
Totals	£645,000.00	£40,220,000.00	£190,336.00

- Vessel costs based on MV Catriona, constructed in 2015. Unlikely this specific class is suitable for the route but provides a reasonable cost comparison for the construction of a hybrid vessel.
- At least a minimum of 2 additional crew members required to operate a new vessel.
- This option would require construction of new slipways, overnight berth and new waiting facilities. This is likely to require additional land purchase to complete.
- This would present an opportunity to review fares and increase to reflect expenditure and increase capacity on the route. Income left at current rates for this report.

Appendix 2.5

Cuan Options Assumptions

Fixed Link

Design and Build Fixed Link (High/Low level costs)				
	Annual costs	Capital costs	Annual Income	Life span
Design and construction costs - low level		£23,500,000.00		125 years
Design and construction costs - high level		£43,000,000.00		125 years
Annual inspection and maintenance	£5,000.00			
2 x staff costs - options are possible ranger service for area if high level options selected or operators for low level swing bridge	£70,000			as required
Low Level Total	£75,000	£23,500,000		125 years
High Level Total	£5,000	£43,000,000		125 years

- High level bridge is anticipated to require meterage of new road on both approaches. New road would be twin track to provide optimum forward sight distance on approaches.
- Low level bridge is anticipated to require a section of the bridge that will open to sea traffic. This will require a minimum of 2No staff members plus relief.
- Any bridge would be designed to current DMRB standard for all classification of vehicles and be added to the Council's bridge inspection list.
- It should be noted that the existing roads in this area are reasonably weak and any solution that would likely increase the volume or load capacity of vehicles on the Islands of Luig and Seil may result in a need to invest further fund into the local road network to support usage.
- This includes for both a fixed link or any replacement vessel with a great tonnage or capacity to carry more vehicles than at present.

Appendix 2.6

Cuan Options Assumptions

Possible timings of option

	Option				
	1	2	3	4	5
	Belnahua then low bridge	Belnahua then E.D. same TT then low bridge	Belnahua then E.D +TT then low bridge	Belnahua then high bridge	Belnahua then Hybrid
Belnahua final service year	5	5	5	5	5
Eilean Dhura first service year	0	6	6	0	0
Eilean Dhura final service year	0	11	11	0	0
Hybrid Vessel Life Expectancy	0	0	0	0	30
Hybrid first service year	0	0	0	0	6
Hybrid final service year	0	0	0	0	36
Replacement Hybrid first service year	0	0	0	0	37
Replacement Hybrid final service year	0	0	0	0	67
Fixed link open (year 0 = never)	6	12	12	6	0
Select High Level (1) or Low Level (0)	0	0	0	1	1
Select Eilean Dhura Timetable Current (1) or Extended (0)	1	1	0	1	1

* Indicates year i.e. Year1, Year 6 etc. Year 0 = never