

Item: 8

Development and Infrastructure Committee: 2 February 2021.

Churchill Barriers – Wave Overtopping.

Report by Executive Director of Development and Infrastructure.

1. Purpose of Report

To present the outcome of consultation on five options for wave overtopping at Churchill Barrier Number 2.

2. Recommendations

The Committee is invited to note:

2.1.

That, in October 2019, the Council agreed to undertake consultation, by way of a survey based communication, to seek views on five options for wave overtopping at Barrier Number 2, with the following:

- Key national agency stakeholders.
- Orkney Opinions.
- All households in South Ronaldsay and Burray.
- All Community Councils.
- The main ferry operators.
- Business representatives, including those servicing the main supermarkets.

2.2.

That the consultation, referred to at paragraph 2.1 above, was undertaken during the period March to October 2020.

2.3.

A summary of the survey results, as detailed in section 4 of this report, which indicates that there is no clear majority view emerging for any particular option, with full details attached as Appendix 1.

2.4.

Options for the next steps in respect of dealing with wave overtopping at Barrier Number 2, as detailed in section 5 of this report.

It is recommended:

2.5.

That the Committee considers the options for the next steps in respect of dealing with wave overtopping at Barrier Number 2, referred to in section 5 of this report.

3. Background

3.1.

On 10 September 2019, the Development and Infrastructure Committee noted:

- That project work had been ongoing for a number of years to explore options for wave overtopping at Barrier Number 2, a summary of which was attached as Appendix 1 to the report by the Executive Director of Development and Infrastructure.
- That, on 2 April 2019, when reviewing historic activity in respect of wave overtopping and a tidal energy scheme concession for the Churchill Barriers and considering the next steps, the Development and Infrastructure Committee recommended that consideration of commissioning a study to further assess the viability and cost of beach recharge at Barrier Number 2, be deferred.
- That the recommendation to defer commissioning a study was to enable the Executive Director of Development and Infrastructure to undertake consultation with the community, through South Ronaldsay and Burray Community Council, to seek opinions of residents in the linked south isles on the proposed options for wave overtopping at Barrier Number 2.
- That, on 2 May 2019, the Council resolved that the method of consultation to be undertaken with the community on proposed options for wave overtopping at Barrier Number 2 be referred back to the Development and Infrastructure Committee for further consideration.
- The proposed method of consultation to be undertaken with the community on proposed options for wave overtopping at Barrier Number 2, as detailed in section 4 of the report by the Executive Director of Development and Infrastructure.

3.2.

The Committee recommended:

- That the Executive Director of Development and Infrastructure should undertake consultation, by way of a survey based communication, with the following:
 - Key national agency stakeholders.
 - Orkney Opinions.
 - All households in South Ronaldsay and Burray
 - All Community Councils.
 - The main ferry operators.
 - Business representatives, including those servicing the main supermarkets.

- That the consultation would aim to seek views on the following options for wave overtopping at Barrier Number 2:
 - Option 1 – Develop a project to resurface the east side of Barrier Number 2, at an estimated cost of £13 million, through the Capital Project Appraisal process. When complete this would reduce closures of the Barriers by around 60%.
 - Option 2 – Develop a project to progress with a bridge to replace Barrier Number 2, at an estimated cost of £24.5 million, through the Capital Project Appraisal process. When complete this would eliminate closure in all but the most extreme conditions.
 - Option 3 – Progress a study, at an estimated cost of £60,000, to further assess the viability of beach recharge.
 - Option 4 – Remove the caisson and take no further action in relation to a project to prevent wave overtopping at Barrier Number 2.
 - Option 5 – Improvements to data regarding closures, through improved electronic signage, linking information in respect of tides and weather.
- That the Executive Director of Development and Infrastructure should submit a report, to a meeting of the Committee in early 2020, detailing the outcome of the consultation exercise.

3.3.

The final form of the survey was developed with input from the three Elected Members representing the East Mainland, South Ronaldsay and Burray Ward, and addressed the five options noted above, with an additional “take no further action” option.

3.4.

The original target was to undertake the survey in spring 2020 and report back to the summer 2020 round of meetings. This timeframe was disrupted by COVID-19. However, the community survey commenced on 11 March 2020, with the business survey being delayed until 9 October 2020. Whilst this timescale has delayed overall progress, it has allowed an extended period for comments to be registered with the Council, as the survey was open to all throughout the March to October 2020 period.

4. Survey Results

4.1.

On 11 March 2020, letters were sent to 226 addresses in Burray and 515 in South Ronaldsay, which included an online link to the Barrier Survey. Community Councils were also notified of the survey at this time. On 9 October 2020, a letter with the link was sent to 97 businesses within the Burray and South Ronaldsay area plus other key stakeholders, including the following:

- McAdie and Reeve Limited.

- Northwards Limited.
- Streamline Shipping Group.
- Pentland Ferries.
- Littlejohn Removals Limited.
- JBT Distribution Limited.
- Orkney Ferries Limited.
- J W Gray and Co.
- James Wilson Orkney Limited.
- Scottish Water.
- Scottish Environment Protection Agency.
- NatureScot.
- Tesco Superstore.
- Kirkwall BID.
- Marine Scotland.
- Crown Estate Scotland.
- Isbister Bros Limited.
- Lidl.
- Co-op.
- John O'Groats Ferries.

4.2.

It should be noted that the survey was accessible for anyone in Orkney to complete online, as it had been advertised by press releases. The survey closed on 23 October 2020, during which time six paper returns had been received. There were 355 surveys fully completed and 25 partially completed, making a total return of 380 from householders, businesses and stakeholders. Only 14 responses were received from the second run of the survey, from 9 October to 22 December 2020, when businesses and other stakeholders were notified of the survey. The full survey results are attached as Appendix 1 to this report.

4.3.

It is clear from the survey results that there is limited support for the “no further action” option, with over 60% of respondents ranking this as either fifth or sixth preference. However, there is no majority view arising for what alternative option is considered within the top first or second preference brackets. The options to reface the east side of the barrier or to build a bridge attracted the highest first and second preference responses at approximately 47% each. Only 28% of respondents recorded a first or second preference for the beach recharge option.

4.4.

There are wide ranging qualitative comments provided with the survey which include a number of alternative solutions to the wave overtopping problem. It is important to

record that such alternative solutions have been reported to Committee previously and that the Council has undertaken an exhaustive engineering appraisal of options.

5. Next Steps and Options

The Committee is invited to review the survey responses and consider the following options as a basis for next steps.

5.1.

Option 1: Accept that, notwithstanding public interest and concern for these matters, there is no clear public preference for a single solution, or obviously viable or deliverable option available to the Council at this stage, and accordingly no further action should be taken to explore options for wave overtopping at this time.

5.1.1.

It should, however, be noted that there have been substantial improvements within the last eight years in terms of communication to the public of the likelihood of closures.

5.1.2.

The Committee could consider establishing a review period for this option in several years' time.

5.2.

Option 2: Seek to promote a wave overtopping project as part of the forthcoming prioritisation process for additions to the capital programme.

5.2.1.

Previous cost estimates for a bridge solution (£23M) and refacing of the east side (£16.5 to £25M) were prepared in 2014 and would need to be updated to reflect present day pricing.

5.2.2.

It would be necessary to establish a project budget to support the ongoing staff time resources and external consultant fees which would be required to review and update the previous work on options and costs.

5.2.3.

This process would be progressed through the Capital Project Appraisal (CPA) process, noting that there has been extensive work undertaken on options appraisal to date and it is likely that this work will be sufficient to reduce the level of options appraisal required for the Stage 1 CPA. In this regard, the technical work that has already been undertaken is likely to be equivalent or more advanced than a standard Stage 1 CPA.

5.2.4.

However, a review and refresh of these matters would be necessary to inform the CPA process and it is suggested that a project budget of £25,000 would be required for this initial work noting that the options themselves would remain unchanged from 2014 and only the costs would be revisited.

5.2.5.

After this, a revised options report could be taken to Committee on the basis of the options presented in 2014, at which point a clear steer on a preferred option would be required in order to work this up to Stage 1 CPA.

5.2.6.

It is estimated that additional fees of £50,000 would be required to develop the Stage 2 CPA once a preferred solution is identified.

6. Corporate Governance

This report relates to governance and procedural issues and therefore does not directly support and contribute to improved outcomes for communities as outlined in the Council Plan and the Local Outcomes Improvement Plan.

7. Financial Implications

7.1.

The cost of carrying out the extended consultation exercise has been estimated at £2,000, including advertising, printing and postage costs, which has been met from within the Development and Infrastructure Service revenue budget. This includes an estimation for staff time at senior management and administration levels.

7.2.

In the event that a preferred option is selected, which includes development of a capital project(s), then the Capital Project Appraisal process would be followed. Ordinarily this would include the proposal being referred initially to the Corporate Planning Asset Management Working Group for onwards submission and due consideration by Senior Management Team as a means of establishing a project budget to develop an outline Stage 1 Capital Project Appraisal.

7.3.

In this case for example, if Option 2 is selected, the Service Committee would have the option to identify the funding source from within existing resources to establish a project budget of £25,000 or alternatively a request could be submitted to the Corporate Planning Asset Management Working Group for additional resources.

7.4.

A Stage 1 Capital Project Appraisal would be duly considered by the relevant Service Committee before making an appropriate recommendation to the Policy and

Resources Committee. Any decision to further develop a detailed Stage 2 Capital Project Appraisal would then be taken by the Policy and Resources Committee when factors such as competing priorities and the affordability of the capital programme would also be considered.

8. Legal Aspects

The Council has a duty to make arrangements which secure best value. The Council should ensure that, whichever option is chosen, resources are effectively and cost-efficiently managed.

9. Contact Officers

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10. Appendix

Appendix 1: Responses to Churchill Barriers – Wave Overtopping Survey.

Consultation on Barrier No. 2 over topping - March/April and October 2020

1. Consultation on Barrier No. 2 over topping

1. In order that we can get a better understanding of the public views on various options, please rank the following options in the order that you feel would be most worth further consideration by the Council if further work is to be undertaken (please note the constraints in the introduction). Please select your preference to each of the 6 options below. If you wish to give any comments or reasoning please do so in the comments box.

	First preference	Second preference	Third preference	Fourth preference	Fifth preference	Sixth preference	Response Total
Progress a study, at an estimated cost of £60,000, to further assess the viability of beach recharge.	13.8% (48)	14.6% (51)	19.2% (67)	28.9% (101)	9.2% (32)	14.3% (50)	349
Develop a project to reface the east side of Barrier Number 2, at an estimated cost of £13.5 million, through the Capital Project Appraisal process. When complete this would reduce closures of the Barriers by around 60%.	15.8% (55)	31.8% (111)	16.9% (59)	8.3% (29)	24.6% (86)	2.6% (9)	349
Develop a project to progress with a bridge to replace Barrier Number 2, at an estimated cost of up to £23 million, through the Capital Project Appraisal process. When complete this would eliminate closure in all but the most extreme conditions.	35.7% (126)	11.3% (40)	9.6% (34)	11.0% (39)	5.1% (18)	27.2% (96)	353

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Improvements to communication regarding closures, through improved electronic signage, linking information in respect of tides and weather.	18.1% (63)	17.2% (60)	28.9% (101)	28.1% (98)	5.7% (20)	2.0% (7)	349
Remove the caisson and take no further action in relation to a project to prevent overtopping at Barrier Number 2.	6.3% (22)	14.3% (50)	15.2% (53)	15.8% (55)	41.5% (145)	6.9% (24)	349
Take no further action in relation to a project to prevent overtopping at Barrier Number 2.	10.9% (38)	10.3% (36)	9.8% (34)	7.5% (26)	13.5% (47)	48.0% (167)	348
						answered	353
						skipped	2
Comments: (168)							
1	11/03/2020 17:06 PM ID: 137468177	Whilst I have made the above choices, I would rather see the wave wall demolished and something done further out at sea					
2	11/03/2020 17:40 PM ID: 137470267	Put lockable gates, similar to snow gates at each barrier. Close them and LOCK THEM at times of overtopping when it is not safe to cross. These are islands after all, with inhabitants who like the idea of living on an island, but want 24/7 road access. These people cannot be trusted to make sane decisions in regards to their own safety, so that decision must be taken from them. Just the same as with the snow gates south.					
3	11/03/2020 17:53 PM ID: 137471172	Make xxxx get his finger out and actually do something useful.					
4	11/03/2020 17:58 PM ID: 137471466	None of the above. The problem with overtopping could be reduced by making the waves break					

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		First preference	Second preference	Third preference	Fourth preference	Fifth preference	Sixth preference	Response Total
								before they hit the barrier. So why not place a pile of concrete blocks 50m from the current barrier - this would force the waves to break before they hit the barrier
5	11/03/2020 17:59 PM ID: 137471385							Stop wasting money take away wave wall
6	11/03/2020 18:02 PM ID: 137471593							Having lived in the Hope for 21 years, before wave walls and safety barriers, I want to see responsibility move back to where it should be, to people themselves. If you can't judge whether it's safe to cross or not, then it is a sad society we live in - move away from the blame culture please.
7	11/03/2020 18:02 PM ID: 137471713							
8	11/03/2020 18:05 PM ID: 137471850							One often repeated comment is that people cannot get to the Hope for the ferry when the barriers are closed. It would be useful to know how many times the ferry was running when the barriers were closed as I suspect that this would show a very minor problem.
9	11/03/2020 18:15 PM ID: 137472303							Shetland have many bridges, are the needs of the Shetland outer islanders more important than that of the orcadian south islanders? Do the OIC care less about the islanders than SIC? Or are SIC simply greater in wealth, infrastructure and common sense?
10	11/03/2020 18:17 PM ID: 137472493							The first barrier is often as bad or worse than 2 so just fixing 2 will still have closures. Better communication is therefore my first preference.
11	11/03/2020 18:48 PM ID: 137474337							The number of times the barrier is closed each year does not justify the amount of money suggested.
12	11/03/2020 19:17 PM ID: 137475787							If sea levels are rising, there really is no alternative to raising the height of all the barriers, and a bridge to allow waves/spray to pass underneath makes sense, starting with No 2, then No 1, No 3 and finally No 4. Given that there is money for flood prevention I would strongly recommend getting UK/Scottish Government to make this a spending priority.
13	11/03/2020 19:25 PM ID: 137476244							stop messing about I have the email address of a company in Norway they have tonnes of rock, all the money they have wasted already would have fixed most of it
14	11/03/2020 19:43 PM ID: 137477142							Why can't a long breakwater be built on the eastside at a much lesser cost? Use the blocks similar to those sitting at Burwick?
15	11/03/2020 19:56 PM ID: 137477667							With the projected rise in sea levels, the only viable long term and best value option is the construct a bridge. All the other options do not real deal with the root cause of the problem and are really only bandaids to temporarily appease the general public
16	11/03/2020 20:29 PM ID: 137479225							It has already been suggested by several people that using large dumb barges full of concrete in a similar way to blockships would reduce the problem and be cheap as they can be obtained second hand and have no engine or fuel and minimum electrics, so could be cleaned cheaply. This option appears to have been ignored for no apparent reason while very expensive options are being considered. Is it that the council do not want to consider anything which may actually be possible?

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		First preference	Second preference	Third preference	Fourth preference	Fifth preference	Sixth preference	Response Total
17	11/03/2020 20:36 PM ID: 137479531							I cross the barriers daily and have done for the past 16 years. I feel that enough money has been spent over the years in 'studies' and 'reports'. Everyone knows what the issues are - several local folk have given opinions on how the issues can be remedied (many of which have REAL experience of engineering / tides / sea bed movement etc). Enough talk now - more action required - global warming and sea level rises mean this issue will get worse not better.
18	11/03/2020 20:54 PM ID: 137480260							Stop all the surveys, if you want to solve the barrier issue take a load of the wave blocks at burwick and dump them subsurface between lambholm and the reef beyond the wrecks, this will create a wave out there and not let the swell through the gap there!! It will also create a really sheltered dive area creating more diving tourism and eventually it will create a beach there totally eliminating the issue. Costs will be well below some of the ridiculous figures mentioned above that could be spent of more pressing matters. I am a local surfer and I regularly freedive at the 2nd barrier so I understand the wave action there and know that what I have suggested will eliminate the problem. Common sense doesn't mean spending vast sums of taxpayer money on something that is a relatively easy fix.
19	11/03/2020 21:10 PM ID: 137480875							The OIC need to start listening to the people of South Ronaldsay and Burray. For years the locals have said the same thing - a second breakwater needs to be installed further out so the waves are dispersed before they reach the barrier. Why pay thousands on fancy consultations that only suggest ridiculous and expensive solutions.
20	11/03/2020 21:10 PM ID: 137480885							Consider sinking more block ships or creating a second barrier of concrete blocks to the east of barrier no 2.
21	11/03/2020 21:41 PM ID: 137482014							I feel that we need to preserve the barrier in its current form due to it's historical significance but maybe the removal of the wave wall would be beneficial as that has only worsened matters since it's inception
22	11/03/2020 22:26 PM ID: 137483264							Have tunnels been looked at? What about higher barriers (maybe called a bridge) with turbines underneath?
23	11/03/2020 22:27 PM ID: 137483270							Have tunnels been looked at? What about higher barriers (maybe called a bridge) with turbines underneath?
24	11/03/2020 22:31 PM ID: 137483323							I think this a poor survey, there are many other options I would like to see explored such as the sinking of a large concrete barge, similar to the old block ships, this would provide habitat for marine life and added interest to divers over time. So this is a poor, biased survey that will be used to argue what the council have already decided what they want to do similar to the town scape exercise blind consultation.
25	11/03/2020 22:36 PM ID: 137483506							Taken no action at all? Ludicrous, out of the question completely, but then again why try to come up with a solution to help the residents of South Ronaldsay. Look at the flood defence!
26	11/03/2020 22:42 PM ID: 137483681							For the average number of closures per year affected by waves on the east side of B2 (less than 5 per year), it really is insignificant compared with the amount of money any solution would cost. Although closures are inconvenient, it really is just that. As mentioned in the over topping report, other islands are far more inconvenienced by weather disruption.

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27	11/03/2020 23:06 PM ID: 137484172							It's a part of the way we live, improved signage would be the cheapest and most effective option. The sand blown into the fourth barrier and third barrier will eventually fill in this space too.
28	11/03/2020 23:19 PM ID: 137484374							It's not worth millions
29	12/03/2020 00:39 AM ID: 137485421							I would only want to replace barrier 2 with a bridge IF the barrier itself was removed, or the height was at least reduced to sea level. This is for ecological reasons ant to promote the return of natural tidal patterns. If there is no hope of this happening, then a bridge is pointless.
30	12/03/2020 01:20 AM ID: 137485698							As I do not live on South Ronaldsay/Burray which may bias my answer, I am curious whether the economic impact for a few days a year justifies the spending of such a large amount.
31	12/03/2020 07:38 AM ID: 137488998							No comment
32	12/03/2020 08:28 AM ID: 137490690							Salvage the cuboids from the bottom of Walliwall Quarry (bought and paid for by the OIC) and place them on the East Face for simple installation cost with local Civil Marine Contractors
33	12/03/2020 09:32 AM ID: 137494969							Why can they not take some of the energy out of the waves by dumping more blocks where the caisson is. Loads of them are at Burwick and in the quarry and more could be made. Would be cheaper than a bridge and resurfacing. I put 'beach recharging' as my option one on the basis that this is what would happen. However, if it is just a way of consultants making 60 grand and nothing ever happens then I would not agree to it. We all know the council is not going to build a bridge or spend anything like the millions that would be needed to solve the problem. They haven't even addressed the dangerous surface on Barrier One which is going to end up killing some unsuspecting motorcyclist one day.
34	12/03/2020 09:59 AM ID: 137496902							Question 1, and I am already frustrated and irritated by the nature of this electronic survey, as it restricts and channels the available options for responding. In truth, my answer to the above questions is ""None of these"", but you have not provided a button for that. I have been driving over the barriers every day for well over twenty years and can say with confidence that the greatest danger is from unexpected waves when crossing in the dark, at night. This can happen when the conditions are not considered bad enough for closure. Lighting could help, possibly at low level (solar leds?) along the armco barrier or floodlighting from the quarry end illuminating the state of the sea for drivers to assess before crossing. There may also be other technical solutions that have not been considered or presented - has there ever been discussion of a half circle shaped tunnel with steel ribs and a thick concrete top covering the roadway on the northern half of the second barrier, like an avalanche shelter? Waves from either side would flow over, rather than crash against, such a structure, dissipating their destructive force. Where is the evidence that ideas like these have been sought or considered?
35	12/03/2020 10:13 AM ID: 137497810							Are full details of the feasibility study available to the public? I am assuming this is a reasonably unique problem; possibly companies/ feasibility study have been exploring traditional methods only to resolve the problem rather than being innovative? The causeway is already in place, has a bridge been considered to cover half the causeway (covering the problematic area) and join with the existing causeway to reduce costs? Has an overtopping ""ramp"" been considered to carry water over the causeway,

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								in both directions on the problem area? I am thinking along the lines of the tunnels in aquarium such as Deep Sea World where the tunnels are supporting millions of litres of water. Could this been put out as a competition with financial incentive to engineering universities to provide an innovative and cost effective solution?
36	12/03/2020 10:49 AM ID: 137500515							Please just purchase a cheap old ship, sink it, open it to divers and call it a man made reef. Will cost very little but will be very effective.
37	12/03/2020 12:28 PM ID: 137507511							It is difficult to comment or evaluate these options without a full explanation for some of the terminology used, including an environmental impact assessment for each. For instance, what is a beach recharge? What is meant by resurfacing the east side of Barrier 2 - is this removing part of it or simply adding an external coating / reshaping [bearing in mind that the shape of the northern additions on the east side has simply ADDED to the problems because the waves are not visible, so you cannot anticipate them and they are sent vertical which has a heavier impact on descent. If a bridge was to be developed, would the barrier be out of commission for the duration? Would the bridge be above it, or to the east or to the west? [Too many variables / unknowns to comment].
38	12/03/2020 13:05 PM ID: 137510005							Bridge or tunnel. This is done in many other countries to link islands - Norway for eg. And even a bridge linking Skye to the Scottish Mainland. We need to progress and move forward. This will in turn be a great benefit to the local economy. More people will consider moving to Burray and South Ronaldsay if there is better road networks with better improved 'connections'. The system at the moment is out dated and behind the times. Not something that should be happening in 2020 in the UK. It proves that the Council do not care about residents of the linked South Isles. We are treated like 2nd class citizens. The stress it causes parents working in town, and their children are at school in Burray or the Hope is crazy. Not being able to get home at night. Having your car damaged by the waves water just going to work and back is outrageous. Hundreds of pounds we have to pay on car repairs -just to get to work and home again. Having to make the decision if its safe to cross (even when the police deem it is safe) It scares the *** out of you. PLEASE MAKE A SENSIBLE AND RESPONSIBLE DECISION AND INVEST IN THE FUTURE OF THE LINKED ISLES. Thank you.
39	12/03/2020 13:26 PM ID: 137511347							Dont close the barriers we dont close icy roads no difference set up a rescue vehicle if needed to be operated by a voluntary rescue team stop wasting time and money
40	12/03/2020 14:37 PM ID: 137516541							None of them. Maybe the Council could listen to what local seafarers think best about the situation rather than getting in somebody that doesn't know the waters, tides etc. They should have done this years' ago instead of survey after survey wasting money.
41	12/03/2020 14:46 PM ID: 137517212							Refacing or a bridge are a huge cost compared to the actual impact of disruption.
42	12/03/2020 15:55 PM ID: 137524430							This seems a limited range of options. No mention made of sinking some 21st cent blockships: big 'uns not a piddling little caisson. Local knowledge has often suggested this but it is always dismissed or ignored.
43	12/03/2020 16:43 PM ID: 137528337							using the existing quarry / the old breakwater blocks at burwick etc create a break water further out to deflect the waves/ swell coming into the corner there. No need to close the barriers just signs advising people that its not advisable to

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								cross but passible with good old common sense ie one car on the barriers at a time and no sauntering over. Don't do what was done in the eighties when there was warning lights advising and they would be left on for days after the actual warning.
44	12/03/2020 18:02 PM ID: 137532662							Go back to 15 years ago when it was up to the driver. Let people take responsibility for their own actions. Have a warning but leave it up to the driver. So many times the police/OIC shut the barriers they are perfectly crossable for locals who have driven across them for years.
45	12/03/2020 18:57 PM ID: 137535096							Really why not consider encasing the whole barrier in a tunnel structure to prevent water on the road surface. Like snow tunnels elsewhere for rock falls etc
46	12/03/2020 19:49 PM ID: 137537317							The only thing I think is that wave wall causes problems when you are coming from Kirkwall. If the wind keeps away from the SE there is not much of a problem.
47	12/03/2020 20:42 PM ID: 137539333							I cannot understand the need for these massive projects! I think the use of block ships at or below scrap value sunk between lamb Holm quarry and the skerry would break the sea. Alternatively hire a rock barge to dump large boulders at high water. Waves generally breaks in 1.3 - 1.5 it's depth. I've lived and fished these waters for years and have been sailing as a ship captain for years. I know you are barrage by armchair experts but I cannot understand the complications that are being repeatedly brought up.
48	13/03/2020 12:40 PM ID: 137564559							Basically, things are fine as they are except perhaps resurface Barrier One.
49	13/03/2020 14:11 PM ID: 137570441							Build a breakwater which would be by far the cheapest option.
50	13/03/2020 14:24 PM ID: 137571511							1. Overtopping from the west has become an increasing problem - and will probably continue to be so. 2. You do not explain what a caisson is, and its significance. The same with beach recharge. 3. It would be nice to be able to rate two things in the same preference.
51	13/03/2020 16:09 PM ID: 137578579							Both the options for actually doing something are too expensive. The other proposals will do nothing to alleviate the problem and plenty has already been spent on consultants. This part of the survey seems designed to prove that nothing should be done. It would have been better if we could grade each proposal from 1 to 10 then if we thought that they were all perfect or all useless we could have graded them as such. The way that it is arranged could make it appear that I support some of the proposals which I do not. Either badly designed or deliberate.
52	13/03/2020 16:59 PM ID: 137581241							You have concrete blocks stored at Burwick and Walliwall, why not use them.
53	13/03/2020 17:53 PM ID: 137583774							The option of creating a breakwater either side of the barrier - using say concrete blocks running parallel to, but say 50 yards off either side of the barrier - doesn't seem to have been considered. Surely that would be a cost effective solution relative to the other options presented here? I don't know what you mean by "beach recharge" - I assume you mean creating a beach on either/ both sides and have assumed that in my response above. I am familiar with the undersea conditions east of the barrier, having dived there

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								continuously for the last 20 years. I can tell you that the sea on the east side is becoming progressively shallower due to sand build up, by maybe 10cm pa. I assume this is a similar process to what happened at barrier 4. Has anyone thought about the medium term impact that would have on whatever plan is put in place?
54	13/03/2020 17:54 PM ID: 137583808							Current safety of the barrier is not adequate. The barriers are not kept a close eye on and shut when there is sufficient danger to the public. Not once this winter have I seen anyone assessing the barriers for closure. Communication as to barrier closures are also poor with limited regular updates. There is no point installing signs if no one is even assessing the condition of the barriers.
55	13/03/2020 19:43 PM ID: 137587370							A Breakwater to the east of the Barrier would be the best. If the meaning of refacing the east side of the barrier is a longer wall then that would be a NO.
56	13/03/2020 20:39 PM ID: 137588882							In this day and age the obvious solution would be to build a bridge on the west side of barrier two while at the same time installing electricity turbines that would make good use of the 9 knot + tide that would run through the channel once the existing barrier was removed. The other benefit of opening up this channel would be the flushing system of Scapa Flow with the through tides, we speak about environmental concerns but the Churchill Barriers have had the biggest impact on Orkney's natural environment than anything else in the time since they were built.
57	13/03/2020 20:56 PM ID: 137589261							Stop wasting these "limited resources" and let folk moan about them being closed. The council has wasted more than enough money on pointless surveys that have achieved absolutely no significant improvement.
58	14/03/2020 08:55 AM ID: 137597363							Give UP TO DATE reports! And earlier warnings.
59	14/03/2020 10:36 AM ID: 137599611							It is about time the Council started some blue sky thinking. There are various options that the Council may wish to consider. Open an engineering competition to obtain the views of the professional engineering world. Consider realigning the road from the Holm direction so the road joins the Barrier at about a halfway point. Consider building a tunnel as there now appears to be plenty of money for infrastructure projects eg bridge to Northern Ireland. The Chinese also appear to be very keen in getting involved in major infrastructure projects. I am sure there are many more options out there that should be considered by the Council. Come on lets get the finger out.
60	14/03/2020 10:50 AM ID: 137599945							I strongly disagree with most of these ideas but it won't let me put them as my 6th preference.
61	14/03/2020 11:29 AM ID: 137600890							Do not overthink this problem. All that is needed is a large quantity of rock armour placed on the east side. How is it these problems could be sorted in the 1940s yet seem to be beyond the wit of man in 2020? This is nothing short of a scandal the inaction over this problem.
62	14/03/2020 11:46 AM ID: 137601282							Closures don't bother me. What bothers me is heavy splashing at night and we cannot judge our driving. Consider some form of lights so the driver can best judge the water spray/pace of the waves. I actually don't know what a "beach recharge" study is but suggest that we need a proper study of the eastern area. The main evidence for this opinion is I have noticed this winter that something different is happening with regards to the

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								<p>waves on the east (there seems to be new reflections and a possible "diffraction" effect mitigating the over-topping). This needs to be properly studied in the "beach recharge" which at £60k is probably way under budgeted to do a proper job. Let's spend the correct money to find out what is happening on the east by proper surveys, wave monitoring and modelling. It therefore seems absolutely bonkers now to take out the caisson now especially if sand is building up before a comprehensive study is performed. If the study says that the caisson should stay in, then resolve the temporary permit by making it permanent (yes this can be done) and settle up with the owners of the caisson. More environmental damage and cost could be involved by removing the caisson.</p> <p>It is interesting that a consultation on barrier 2 many years ago in St. Margaret's Hope that local fishermen highlighted that the area could sand up with a little help. This was strongly "contested" by the consultants at the time and I distinctly remember how "arrogant" the consultant was to the information provided from the floor. It was not whether the floor information was correct or incorrect, it was the poor engineering practice of "ignoring" local information freely given at a public event - no way to treat a member of the public. However it does seem that what was suggested from the floor is happening in some way and the study should seek to best let nature resolve the problem with a little help.</p> <p>So my steer is to get the correct study/survey scoped out and the correct resource engaged to properly understand the dynamics of the area rather than a low cost budget, to a lowest cost bidder who turns out a "boiler plate" study not worth anything and we are back to where we are now in a couple of years' time! The technology and the expertise is out there, let's do a good job and commission this expertise. If there is £60k +£262k= £322k around to spend, this should be the budget (or higher).</p> <p>Not worried about the west.</p>
63	14/03/2020 12:46 PM ID: 137602625							<p>If you buy a house or move to South Ronaldsay, you should understand the Barriers and use your common sense during bad weather. The council's activities to close them during bad weather are excellent but never the less due to those folk who do not have or refuse to use their common sense. There was never a problem 10 years ago, the local lived with it and used their brains. With the increased population and building of lots of houses, those living here and new to Orkney/South Ronaldsay are far too quick to complain. 13 or 30 million could be much better spent elsewhere in Orkney for the benefit of those most in need. Common sense, If you decide to move to the North Pole you can expect it to be cold, why do those living in South Ronaldsay expect the barriers to be solved by the Council when it was their choice to live there. I live in South Ronaldsay (for 20 years) and I don't have a problem apart from folk that can't drive when the rains on, never mind a wee wave.</p>
64	14/03/2020 14:45 PM ID: 137605603							<p>Not knowing how the expenditure will impact local services, or if the road will fail completely if no action is taken. My thoughts could change if I knew these things.</p>
65	14/03/2020 14:46 PM ID: 137605637							<p>Not knowing how the expenditure will impact local services, or if the road will fail completely if no action is taken. My thoughts could change if I knew these things.</p>
66	14/03/2020 14:56 PM ID: 137605867							<p>Would a bridge be closed to high sided vehicles at times? What would be the effects of sea going through this sound? Last week I once had a huge dump of sea from before the wave wall at north side of barrier 2, and twice heavy spray from the west side.</p>
67	14/03/2020 15:49 PM ID: 137607150							<p>Performing surveys and measures such as building the wave wall and the caisson have proved a waste of time and money. Less costly solutions were</p>

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								offered and dismissed. Unless action is taken to solve the problem I think it is pointless to perform costly surveys. Better communication should be a priority in the meantime.
68	14/03/2020 19:59 PM ID: 137612125							As someone who has crossed the barriers for over 17 years, sometime more than once a day, it seems that the caisson has in fact made the problem worse, not better.
69	14/03/2020 21:35 PM ID: 137613624							I really found this very difficult as I do not think any of them are good ideas. Why would you want to remove the caisson, is it doing any harm. I would like to see the wave wall removed so we have better visibility and lower waves coming over and leave it up to individuals like it used to be before a couple of people caused a great big fuss over it.
70	14/03/2020 22:38 PM ID: 137614319							Would have been sorted long ago if it was Kirkwall or Stromess.
71	15/03/2020 14:05 PM ID: 137625076							Look, it's not going to be a single pronged solution to fix this, and we should be looking at a longevity solution rather than a quick fix -- we don't want to be back here in 5/10 years' time. I think that a bridge would be the best solution, there was a planning application submitted a couple years back that looked into the generation of tide energy and bridge rolled into one, that way the solution would effectively pay for itself after a number of years (and help toward Orkney's renewable goal!). I think electronic signage would also be incredibly useful, when the barriers are closed it doesn't require anyone to go and fix them, and when not they could potentially be used for other road closure information, weather conditions, or even for advertising which could also help pay for the project.
72	15/03/2020 15:24 PM ID: 137627664							Sort it out once and for all. SMH is the 3rd largest town in Orkney and has an important ferry link. Cost should not interfere with a 100% solution. How much money will/ have been spent of ferries.
73	15/03/2020 16:03 PM ID: 137628660							The only proposal above which has any merit is the one that I have marked, although I don't quite understand what is meant by 'reface'. I have only ranked the others because the survey wouldn't work without it.
74	15/03/2020 17:34 PM ID: 137633528							<p>The poll is flawed. It is impossible to leave unacceptable options out and express not preference at all for them. For clarity: Only Preferences 1 and 2 are accurate. The others are false and have only been put in to allow the software to run. They are NOT to be taken as preferences.</p> <p>It is unclear how the overall cost benefit analysis of the options has been considered in the light of changing priorities:</p> <ol style="list-style-type: none"> 1. The arrival of a better grid around 2025 connection to Orkney will enable energy to be exported. Lack of capacity has held up schemes to date. 2. The production of synthetic fuels from hydrogen had not been factored in as a new potential export opportunity for the county. 3. The technology to harvest energy from the tides is continuing to progress and reduce in cost. c.f. Orbital Marine 4. The increasing storminess and rising sea-levels will overwhelm the Barriers. It is a matter of when, not if. Credible sea level rise scenarios are being revised and a bridge option with Barrier removal remains the only means of protecting against infrastructure loss. 5. If the Hope becomes the major ferry route out of Orkney then the pressure to provide a dependable means to access it will grow. <p>To date the assessments have been carried out by people with little apparent vision.</p>

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75	17/03/2020 11:52 AM ID: 137735370							I do not actually support ANY of the above recommendations - your survey does not permit to continue unless I make a submission.
76	17/03/2020 12:45 PM ID: 137740587							Remove the wave wall first and see how things go before anything is done
77	18/03/2020 13:26 PM ID: 137804699							As has happened at No. 4 Barrier, eventually tidal deposits of sand will eliminate the overtopping problem. In an ideal world, my preference would be to breach all four barriers in order that tidal flow could return to pre-barrier patterns, and ecology would benefit. Three tunnels could then be built to replace the road crossings to Burray and South Ronaldsay, and a bridge built to Lambholm could facilitate traffic flow to the Chapel and for agricultural use.
78	18/03/2020 13:41 PM ID: 137805678							OIC has a huge sum of money from the North Sea oil and gas discoveries back in the 30th Century. The so called rainy day fund should be used to finally solve the problem. Spending money on yet another study would be stupid.
79	18/03/2020 14:23 PM ID: 137808238							None of the above so see below
80	18/03/2020 17:25 PM ID: 137817563							No comments
81	18/03/2020 23:38 PM ID: 137826022							You can't do nothing. This problem isn't going to go away. There has to be a reasonable cost solution.
82	19/03/2020 19:05 PM ID: 137862071							What about sinking barges? I don't want any of these, but I have to tick boxes to move along the survey. The above are NOT CHOICES I have made.
83	20/03/2020 15:01 PM ID: 137894434							Although we have only been resident in St Margaret's Hope for 8 and a half years we have been coming to Orkney every year since 1991. It is obvious that OIC have no interest in the safety and well being of people in the south Isles. Several incidents have occurred on Barrier 2 and 2 deaths on barrier one in our time here. Barrier one road surface continues to get worse (Take a look after rain you will see the corrugations). I know the closures are relatively few but if it delays a cardiac patient from getting to hospital it can be quite serious. I wonder if it would be more important if it were reversed and the hospital was in South Ronaldsay.
84	21/03/2020 10:31 AM ID: 137917903							My preferences are for safety reasons. The east side of Barrier No 2 is by far the most dangerous. I have lived on the east coast of South Ronaldsay all my life and when I hear that a vehicle has been damaged on the barrier after the wind has dropped following a south easterly gale I am not surprised as the sea continues to roar for days after. I do not think that this is something the authorities appreciate so therefore are putting peoples lives at risk. Unfortunately this is not likely to improve and sometimes a large amount of money needs to be spent to keep people safe.
85	21/03/2020 18:27 PM ID: 137928616							Burray and South Ronaldsay have become populated areas, more so since the Barriers were built, where building and further infrastructure is very much on the increase. Young families, elderly require if possible access to the hospital without hindrance or without the worry of getting over the Barriers if the weather is bad and the tide is high. There are people who live in Burray and South Ronaldsay who work in essential jobs who need access to areas of work on mainland Orkney. It would be very short sighted of OIC if they do not help to improve access across the Barriers during bad weather.

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86	24/03/2020 07:54 AM ID: 138005100							This is only a problem that is going to get worse. To get the tidal movements back and help everything, a bridge is the best answer. Remove the barrier altogether. It seems a lot of money, but look at it in the long term. Money spent now doing anything else is just money wasted as it will not solve the problem, and in a few years time we will be back here with you asking what we think isbest. Dont be short sighted!!
87	25/03/2020 14:10 PM ID: 138083810							Please can we have no more studies. it is a waste of money if no-one does anything with the information. This is a problem which has unfortunately gone on for far too long. Building up the beach to break the wave surge is probably the easiest and cheapest solution but not the answer if it only reduces closures by 60%. A bridge or causeway to the west side of the existing barrier might sort the problem once and for all.
88	26/03/2020 22:59 PM ID: 138163142							As the sand builds up the problem will eventually go away No minimal at the moment
89	27/03/2020 13:12 PM ID: 138214647							The best long term and cost effective solution is likely a bridge. Anything else is only going to be a short to medium term solution, due to rising sea levels. Doing nothing is clearly NOT an option. Twitter etc., announcements are only effective to those with access to the internet, and there are a surprising amount of folk here who can't get any kind of connection. For the same reason, text warning to a list of subscribers will likewise not reach everyone. Electronic roadside signage is a good idea, as it will reach everyone trying to cross the barriers, giving folk the choice of continuing and just waiting at the barrier, or to go home. Additionally, they can be activated remotely, so council employees/police will have to waste less time travelling out and back.
90	30/03/2020 19:05 PM ID: 138365570							We live on an island and enjoy all that implies, a rural life, a more simple outdoor life etc, etc. There are occasions when that is very inconvenient but no life is perfect. Very, very occasionally we can't get where we want when we want, we manage.
91	31/03/2020 08:47 AM ID: 138377491							The Caisson can go any time, it has been a complete joke and made no difference what so ever. Something so tiny was never going to make any difference, even primary school children recognise that fact, it's not rocket science. It is a running joke in the South Isles and does not help trying to paint OIC in a better light, just another own-goal.
92	31/03/2020 09:41 AM ID: 138380452							Years of studies at unknown cost have been undertaken but very little has changed. Why spend more money on further studies? Pick a solution and progress it. The beach idea is sensible but why do another study on it? Put the 60k into a beach. I have lived over and crossed them for 30+years. Signs are a good idea in theory but are often wrong, showing closed when open and vise versa. If digital signs would be more correct then they are a good idea otherwise they are a waste of time. Signs at the barrier to say in adverse weather give oncoming traffic priority would be good. This is an unspoken rule with regular users but more and more people just horse on regardless and don't give way. None of the above seem worthwhile but the study won't let me not fill them in which is going to give false results.
93	02/04/2020 12:35 PM ID: 138500202							In over 30 years of crossing the Barriers at least daily, my worst crossing have been with westerly weather. The over-topping from the west is with wind-driven waves, the over-topping in the northern end of N0. 2 Barrier is generally swell-related. The 'wave wall' has created the vertical plumes of water which consequently fall onto the road surface. The SHEDs (Semi-Hemispherical Energy Dissipaters) developed for the Burwick/Gills Bay Terminals would appear a suitable means of absorbing the swell energy, rather than having it reflected or

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								re-aligned as happens with the solid 'wave wall.' The incidence of westerly or (south)-easterly winter storms can be correlated with long term weather cycles - eleven or twenty two years, generally - ultimately connected to sun-spot activity. Thus a long data record is required to describe the pattern, direction and severity of likely over-topping events.
94	04/04/2020 11:00 AM ID: 138593003							We have to fill in this section. Do not really approve of any, except maybe the reface the east side of the barrier which is a bit expensive and would take time, enough time has been wasted already The bridge is probably the answer, but i understand is a bit too expensive.
95	08/04/2020 13:44 PM ID: 138753522							<p>This 2020 survey is not a well organized especially in view of the defeatist-sounding introduction which gives no confidence that the council would, even now after 25 years, be willing to spend the substantial sums required to fix the Barrier. In the box below I have included my views from a similar 2010 Barriers Consultation Survey which remain the same today. The options given then are listed below with my answers to questions:-</p> <p>Options Barriers Consultation Document (late August 2010)</p> <ol style="list-style-type: none"> 1. Do nothing 2. Extending the existing 1.5m wave wall 3. Revetment - Extend/Reface the slope 4. Build a Concrete Breakwater 5. Beach Recharge <p>Q2 Considering the options 1-5 identified, which is your preferred option(s) and why?</p> <p>Both options 3 & 4 are suitable. Why? Because either of these are the only two sensible options which will provide a thorough, comprehensive and final solution to eliminating dangerous overtopping.</p> <p>During serious southeast gales the sea running in to that corner of Barrier No2 is full force and almost unbroken producing wave action as heavyweight as almost anything the North Sea can muster. It is well known how wave energy on this scale erodes and collapses Orkney's cliffs, the backwash suction effect ripping off blocks of stone, rolling rocks and huge boulders around which in turn smash up the cliff base causing more erosion.</p> <p>All these parallels exist at Barrier No2 – heavy water and spray crashing down causing damage to vehicles, heavy wave action rolling the 5T concrete armour blocks around as though they weighed a fraction of that, gouging and cracking them.</p> <p>This is a heavyweight sea, but, unlike on a remote sea cliff, at Barrier No2 humans are coming in direct and very close proximity contact with overwhelming forces. It is not a calm harbour-type environment, but very much an open exposed site. Very heavyweight forces need a very heavyweight solution. There is no way round this if a substantial, long lasting and permanent cure for Barrier No2's overtopping problem is to be found. Certainly either of options 3 and 4 will cost a huge sum of money. Undoubtedly they will. But this can't be avoided if there is to be complete confidence and certainty that overtopping will be completely arrested. Options 3 and 4 are the only solid common sense solutions, and I would urge the council to consider only these options.</p> <p>My own belief is that Option 3 the rock revetment – extending the slope by ideally many dozens of yards would work if it is done very substantially in order to push</p>

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							<p>the sea right back and break the waves' energy long before it reached the Barrier. This slope must extend out a very large distance and also extend along at least half the length of the Barrier with lots of material – ideally similar to the large Norwegian rocks used (for example) at Burwick. Finer infill material could be used as a base to fill in the deep depression hole just off the barrier, possibly using Balfour and Beatty's original net envelope system to keep it all together. There is a possible danger that fine loose material could be flung up onto the road by waves. From an engineering point of view this option may be easier to do – using rock from the Lambholm quarry as offered by the owner Tommy Sinclair – and thus cheaper.</p> <p>Q3 Are there any of the options 1-5 identified that you would think are not suitable, and if so why?</p> <p>Option 1, 2 and 5 are not suitable. Why? Option 1 is not really an option at all for the reasons already stated on this consultation document (ie) the continuance of danger and risk to life, and the erosive effect of extreme wave action mining into and undercutting the Barrier, causing washout of inner core material and threatening the road surface from below. In 1995 before the wave wall was built large holes and recesses were found in that area, though these were later filled in when the base of the wall was constructed. Replacing the 5T armour blocks alone as was the current maintenance regime is useful for protecting the physical structure but the limited annual number of new blocks laid in recent years still comes nowhere near improving the slope profile which remains too short and steep So wave energy is only dissipated too close to the road and overtops. The slope must be radically extended to take the sea away from the Barrier.</p> <p>Option 2 is not suitable because, for reasons already mentioned above, a 1.5m wave wall is not an appropriate engineering solution for such an exposed and open deepwater site subject to the heaviest unbroken wave action like the Churchill Barriers. Recurved sea walls for deflecting waves of this height may be ideal for inner harbours or shallower more gently shelving areas where there is some but not extreme wave action. Thurso front has an example of this. At Barrier No2 the existing 1.5 metre high wave wall has never been high enough to deflect dangerous overtopping. In moderate wave/wind conditions when the wind is no more than 22 knots the wall does in fact stop small lumps of light spray coming over. But these are not the conditions that often pose the greatest risk of damage to vehicles or life threatening injury. Higher wind speeds, much larger breaking waves - especially if the sea has been running high for a long time and/or when the tide is rising – will hit the Barrier and throw lumps of water and spray up to 40 above the wave wall, its presence having little effect in preventing this. To come anywhere near effectiveness a wave wall on the Barriers would need to be many times its present height. From an engineering point of view this is not feasible in this particular situation due to the enormous weight such a structure would inevitably be. Extending the present 1.5 metre wave wall along the whole length of the Barrier would thus be ineffective and a genuine waste of resources.</p> <p>Option 5 is not suitable because it is too uncertain a solution, given an incomplete understanding of the issues surrounding the oceanography linked to the local topography. The fact that sand has accreted at Barrier No4 does not necessarily mean that if sand is placed at Barrier No2 it will remain there. The offshore topography, tidal currents and waterflow streams are highly localised in every section of coastline, one small area of the seabed (eg) a sandbar, a reef, a jutting peninsula etc affecting another. Unnaturally changing one area may affect somewhere else. Or it may not. In order to determine whether an artificial beach would remain in place extensive and detailed marine/oceanographic surveys would first need to be done in the surrounding environment of Weddel Sound and</p>

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								<p>beyond to understand how the existing currents and tides affect the coastline, and in particular how this relates locally to movements of large bodies of sand on the seabed. This would cost a lot in time and money which I doubt the council would wish to spend. Which means uncertainty – a vast sum of sum of money spent on something which might work, or might not. More evident as a problem with creating a sand beach is, once again, the scale of the wave forces breaking at that corner of Barrier No2. The scouring and backwash action is very extreme here, which is why a deep hole or depression developed just offshore (re-soundings carried out by the Council in 1996). Washout of artificial accreted sand seems very likely in the face of such harsh forces. One only need ask why, when there is plenty if sand in the vicinity, did a broader beach never develop naturally along the base of Barrier No2? Before setting out on any very costly solution there has to be certainty that the objective – to completely eliminate overtopping - will work. Options 1, 2, and 5 don't provide this certainty.</p> <p>Q4 Do you foresee any significant reason for objection to any of the options 1-5 identified or significant issues that should be considered in the selection of options?</p> <p>Most local people would object to option 1 not being an option at all since that has been the status quo for the last 15 years, and the widely held view in the community is that something has to be done to completely stop overtopping. Similarly, option 2 is objectionable on the grounds that it has been overwhelmingly shown that the wave wall has not been effective in preventing dangerous overtopping and accidents.</p> <p>Q5 Are there any other key issues that you think need to be investigated during the design development?</p> <p>Extent of the seabed hole off Barrier 2 would need to be ascertained first with an up-to-date underwater survey. Accurate and detailed tidal and weather forecasts would need to be taken into account during advanced planning. Ideally you would wish to coincide work with lowest tides of year (usually spring) and not, for example, in the run up to equinoctial gales autumn into winter. The wave wall was built in early winter late 1995 during stormy southeast gales when heavy waves were breaking on the eastside of Barrier No2. Conditions for the workmen were appalling and dangerous, in my view unacceptable. Better advanced planning would avoid men having to endure such harsh and unsafe working conditions. We don't want to see a situation where safety is being improved for the public but with no consideration for the people making it happen.</p> <p>Q6 Are there any other comments you would like to make or alternative suggestions for reducing wave overtopping?</p> <p>Over the years various ideas and alternative solutions have been suggested – some outlandish and completely impractical. My view is that the most feasible workable solutions, with the only real possibility of getting a result are those we are already have - the two most considered over the years – either extending the slope (revetment) or building a substantial stone/concrete breakwater (not a blockship). In other words options 3 and 4. This is basic coastal protection. It is solid (albeit expensive) coastal protection works that need to be applied. In conclusion I would urge the council not to waste money on less expensive options that wont, in the long run, solve the problem of dangerous overtopping.</p>
96	08/04/2020 17:20 PM ID: 138769495							<p>Please note the following which are NOT given as options above</p> <p>1. Our first preference would be to establish a breakwater east of barrier 2 rather</p>

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								<p>than refacing the east side of this barrier, and also to remove the present caisson ie wave wall on Barrier 2.</p> <p>2. Our second preference would be to remove the curved top from the wave wall and height the wall structure.</p>
97	08/04/2020 20:10 PM ID: 138762468							<p>Refinement to preferences, please note:</p> <p>1. Improvements to communication are an effective, relatively low cost way of quickly improving the situation for all. Everyone, even elderly residents on South Ronaldsay and Burray, should be confident they can, and know how to, access information on whether they can cross the Barriers or not.</p> <p>2. Had there been an option to remove the wave wall AND take further action such as improving communication that would have been my second preference. The wave wall is distrusted, indeed feared, and it's removal would at least allow drivers to once again see approaching waves.</p> <p>3. Any solution to reface the east side of the barriers should include removing the wave wall.</p> <p>Terminology: Caisson - think many people replying to this survey will be unsure both of what this means and what it refers too. I initially thought it meant the wave wall but after checking the meaning assume it can't possible mean that. Unsure what it does refer to though assume it must be a floating breakwater of some kind? Reface - again it's not clear what this word means in this context - extra blocks on the east side of the barrier?</p>
98	09/04/2020 17:06 PM ID: 138816365							<p>Any remedial work will really need to be based on a risk analysis. It does not seem cost effective to try to engineer a solution that removes totally the risk of barrier closure from either direction. It is possible that a more affordable solution could be engineered after completing the model analysis which reduced the number of closures down to say 10 a year. I understand that the wave wall was anticipated to limit the barrier closures down to about 13 a year and therefore has been quite successful in that respect.</p>
99	09/04/2020 18:35 PM ID: 138821749							<p>Why not look at the pictures from years back. The bit that's missing seems to be boats is it not. Why not buy to old decommissioned boats and sink them just oot from where the old ones have rotted away at. New wave brake and new diving grounds.</p>
100	09/04/2020 18:50 PM ID: 138822443							<p>Why does it need to be so complicated? Look at the barriers themselves. Built 80 years ago and they are still there and working. Just fill in the east side with several thousand tonnes of heavy rock and face it up with barrier blocks. Job done.</p>
101	09/04/2020 18:51 PM ID: 138822461							<p>I like the idea of the bridge but equally feel it would be very sad to see a huge part of Orkneys history removed.</p>
102	09/04/2020 19:23 PM ID: 138823587							<p>Construct a breakwater further out on the East side using imported stone on barges and tip over the side as has been done in numerous parts of the world, this not cost anything like the scare mongering figure that has been quoted.</p>
103	09/04/2020 19:41 PM ID: 138824990							<p>Before anything gets done the existing wave wall should be removed</p>
104	09/04/2020 19:55 PM ID: 138825634							<p>all above 6th preference!!</p>

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105	09/04/2020 20:01 PM ID: 138824868							<p>The science of controlling strength of the wind and the strength of the sea are exactly the same.</p> <p>You cannot stop the wind and you cannot stop the sea - unless at a huge and needless cost.</p> <p>If you build a solid wooden fence - unless grossly over engineered, the wind will hit it, come over it and eventually remove it.</p> <p>If you build a slatted wooden fence (gaps in it) - this reduces the force / pressure against the structure, and at the same time reduces the wind strength and effect - controls and reduces.</p> <p>The same applies to the sea - you can certainly engineer a solution to stop it at huge cost - as with the fence, over engineered.</p> <p>Nobody wants the sea to lift / throw debris over the wave wall or barrier or to send hundreds of tonnes of water down on drivers.</p> <p>Break the seas strength / momentum prior to it reaching no,2 barrier.</p> <p>As with the slatted wooden fence, use concrete hollow spheres - as used at Burwick South Ronaldsay.</p> <p>Build / locate as required on the south east side of the wave wall.</p> <p>The force / strength of the sea will be greatly reduced prior to reaching the wave wall, then the wave wall will enhance barrier protection.</p> <p>Maximise what is already in place, keep costs to a minimum, use known and proven material, an engineered solution.</p>
106	09/04/2020 20:37 PM ID: 138827467							<p>'Consultant'.</p> <p>How do you know this is someone who won't rinse you?. How do you built trust in them? What are their motivations to get you value for money?</p> <p>They will hear public project and see pound symbols in their eyes.</p> <p>Some of these proposals are insane money which benefit a few hundred people a few days of the year.</p> <p>There will be 100s of more pressing issues. Due to the Coronavirus I don't see how you can justify serious spend on this.</p>
107	09/04/2020 20:48 PM ID: 138828003							<p>Look at funding from green energy and get wave power generation installed under a new bridge. You could also look at getting strong acrylic to make some higher sides on metal frames that bolt down.</p>
108	09/04/2020 22:05 PM ID: 138830818							<p>How about a block ship 50 meter out from the barrier, 1, it would improve fishing</p> <p>2. Take the worst of the sting out of the wave before hitting the barrier.</p>
109	10/04/2020 08:10 AM ID: 138836230							<p>What is the estimated useful life of the option to reface the barrier east side (taking into account storm damage/erosion, rising sea levels and worsening climate change effects)? Simple arithmetic indicates that each of the 4 days of average closure saved will cost £3.25M. What is the total economic cost to Orkney of those closures, taking account of the usual time of the year and time of day when closures occur?</p> <p>How does the above useful life compare to that of a bridge?</p>
110	10/04/2020 09:14 AM ID: 138837514							<p>This is not a fair way to view our preference, but please do not waste any more money on another survey that is not going to resolve the issue. Please let me speak with you projects manager personally.</p>
111	10/04/2020 10:56 AM ID: 138841608							<p>Don't waste more money on more 'surveys' just get on and do something!</p>
112	10/04/2020 11:32 AM ID: 138843739							<p>Some time back I saw a film of north Norway where part of the sea defence was a large number of concrete items which looked rather like the 3 legged Isle of Man symbol. They appeared to be very effective in breaking up the water which to me, more so than solid blocks and hopefully cheaper too.</p>

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113	10/04/2020 11:54 AM ID: 138844503							<p>Get xxxx in and fill in that east side problem area with a pile of rock armour. It can then be shored up with those redundant blocks that have lain at Burwick for 20 years. The capability, machinery and materials is here on the islands if the OIC would stop procrastinating and commissioning studies, talking about incorporating renewable energy generators etc etc.</p> <p>JUST GET ON WITH IT !!!</p> <p>If some wartime engineers from 1939 can manage to build 4 barriers that are still in use today surely it is not beyond the wit of man in 2020 to get this done?</p>
114	10/04/2020 14:12 PM ID: 138854392							<p>Mr xxxx offered to build a breakwater to prevent eastside closure for 2million. Why was his offer dismissed? Considering economic downturn perhaps he should be approached. Why are locals not being approached for ways to achieve the same goal without costing the earth? Your current plans are based on outdated information. With covid 19 you cannot say that these quotes still hold true.</p>
115	10/04/2020 14:14 PM ID: 138854464							<p>The barriers are historic and a part of Orkney's heritage. I feel they should be preserved and changed in appearance as little as possible</p>
116	10/04/2020 14:27 PM ID: 138855029							<p>Sink 2 or 3 old dry docks 100 meters east of the barrier. This will deal with the waves for some years, and may lead to the gap filling with sand rather like the barrier no 4 between Burray and South Ronaldsay I think Mr xxxx of yyyy did something similar at the south side of his ferry route, and could help you source the old dry docks? I think he filled the ones at Gills bay with concrete.</p>
117	10/04/2020 14:55 PM ID: 138856518							<p>The OIC should be ashamed that they would consider the possibility of spending any more capital on an issue that is in real terms not an issue to the infrastructure of Orkney.</p> <p>The OIC has forgotten that Orkney is an Archipelago with a ferry fleet not fit for purpose both in terms of vessels and the timetables run.</p>
118	10/04/2020 16:12 PM ID: 138860285							<p>OIC should spend no further capital on this project. The OIC has a ferry fleet unfit for purpose. The ferries run a timetable which does not allow people to live and work on the islands of orkney.</p>
119	10/04/2020 20:30 PM ID: 138867948							<p>Use the materials we have and fill the east side of number 2 barrier and face with rock armour and the cobs that are at Burwick and the ones that are hiding in Walliwall quarry, Put the job out to local contractors we have the knowledge in Orkney to complete this job at a fraction of the cost that are being quoted, we opened a quarry in Sandy and built breakwater bund for the pier at loth,</p>
120	10/04/2020 22:56 PM ID: 138870750							<p>It's possible that there is a compromise between some of the options on offer. Most logical one would be to realign the block works on the east side of the barrier to direct tidal flow at an angle to the barrier, which would reduce the over topping problem. Other considerations are too costly and I wonder where the costs might come from.</p>
121	11/04/2020 09:36 AM ID: 138875714							<p>I personally feel Scapa Flow would be healthier if water was allowed to flow through the channel at Barrier 2 again. A bridge would be great. But I understand the extreme levels of disruption. Would like to see a tidal bridge as an option (a bridge that seconds as a mounting structure for tidal turbines).</p>

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122	11/04/2020 13:40 PM ID: 138881793							<p>There is a need to better improving the signage and the use of digital technology to improve communications, but too I suggest opening up a competition to anyone who wished to, to provide various solutions to the overtopping.</p> <p>Ask public to provide solutions with a cash competition for those who seriously provide solution. ONLY then when you have a range of options from the public, add these suggestions to the engineers and those doing the study to put in place a feasibility study.</p>
123	12/04/2020 17:45 PM ID: 138932694							<p>Yes remove the caisson and replace it with something a substantial size, like a floating dry dock, that can be sunk and filled with stone and also filled in from the quarry/shore side.</p>
124	12/04/2020 22:55 PM ID: 138938734							<p>If this were a survey about the road from Stromness to Kirkwall, there would be no debate. The necessary money would have been spent a long time ago to keep the road open. A lot of traffic, tourists, haulage vehicles etc use the barriers and I have a ringside seat to witness the hazardous conditions that drivers have to face and this should not be allowed to continue. The only option is to bite the bullet and spend the money, replace the barrier with a bridge.</p>
125	13/04/2020 14:45 PM ID: 138957931							<p>This survey does not give a full impression of our feelings on the subject. we would have preferred the opportunity to select '6th preference' for more than one option.</p> <p>It seems quite clear that this survey is not fit for purpose and has ultimately been designed to give limited options therefore giving the impression that public opinion is aligned with what the Council have already decided.</p> <p>It would be interesting to know who the Council believe these alterations are intended for, as the survey is only given to residents of the Southern Islands, but I am sure if you spoke to each resident, you would find fewer acknowledgements of problems caused by disruption than is being suggested.</p> <p>We would like to know what justification there is for destroying a historical landmark and part of the heritage of Orkney to build a bridge. To escape the waves, logic dictates that you must go higher, therefore encountering much more of the wind. It seems that as the barriers get closed due to high waves largely affected by the wind surely building a taller structure will not change the situation at all. Another point to be considered is what kind of bridge does £23 million get you. How can the residents approve such a structure without any detailed plans, designs or costings being made available.</p>
126	13/04/2020 22:24 PM ID: 138970028							<p>Being honest, I fail to understand the value of this survey. The problem requires an engineering solution and there are a few options to be considered, a few of which do not even appear here as choices i.e sheet piling and back filling. The way forward is simply to select the most robust, cost effective solution and progress it. I'd be surprised if anyone relevant to this poll choose to do nothing!</p>
127	14/04/2020 10:47 AM ID: 138981601							<p>Would say beach replenishment next to Barrier 2 would be the cheapest option. There is plenty of sand at Barrier 5 where the sand could be taken. Blocks and rocks could be made to provide a reef. Sure this has been done in Norway. However, the swell can still have an impact on the road. Sand put on the side of the Barrier and lots of it would prevent the water from coming anywhere near it.</p>
128	14/04/2020 11:18 AM ID: 138983910							<p>REMEMBER THAT THERE HAVE BEEN DEATHS ON THESE COUNCIL MAINTAINED BARRIERS WITH ONE DUE DIRECTLY TO A WOEFUL</p>

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								<p>SURFACE AND ONE DUE TO HITTING THE JAGGED BLOCKS.</p> <p>NO OTHER AUTHORITY IN THE WORLD WOULD JUST LEAVE THINGS AS THEY ARE, BUT YOU DO - SHAMEFUL. AS LONG AS THE ROAD IS NEWLY LAID OUTSIDE THE COUNCIL OFFICES YOU DON'T CARE.</p> <p>SORT IT OUT OR BE OUT OF A JOB AT THE NEXT ELECTION.</p>
129	14/04/2020 12:35 PM ID: 138988068							<p>There should be a Bridge over barriers and then removed for the Safety/Travel purposes but also for the Environment. The barriers cause unnatural flow to tides.</p> <p>Really even though I have to put other preferences I do not agree with any of them bar the Bridge so they are really irrelevant to me answering this survey. I would have put N/A at all of the above so really they don't count in my opinion</p>
130	14/04/2020 12:35 PM ID: 138988095							<p>There should be a Bridge over barriers and then removed for the Safety/Travel purposes but also for the Environment. The barriers cause unnatural flow to tides.</p> <p>Really even though I have to put other preferences I do not agree with any of them bar the Bridge so they are really irrelevant to me answering this survey. I would have put N/A at all of the above so really they don't count in my opinion</p>
131	14/04/2020 12:35 PM ID: 138988108							<p>There should be a Bridge over barriers and then removed for the Safety/Travel purposes but also for the Environment. The barriers cause unnatural flow to tides.</p> <p>Really even though I have to put other preferences I do not agree with any of them bar the Bridge so they are really irrelevant to me answering this survey. I would have put N/A at all of the above so really they don't count in my opinion</p>
132	14/04/2020 12:37 PM ID: 138988223							<p>There should be a Bridge over barriers and then removed for the Safety/Travel purposes but also for the Environment. The barriers cause unnatural flow to tides.</p> <p>Really even though I have to put other preferences I do not agree with any of them bar the Bridge so they are really irrelevant to me answering this survey. I would have put N/A at all of the above so really they don't count in my opinion</p>
133	14/04/2020 17:04 PM ID: 139002949							<p>Although not an option listed, the removal of the wall at the north end of Barrier 2 would make actually driving on the Barrier very much safer in the daylight as you would be able to see waves coming and time your drive accordingly.</p> <p>What is beach recharge? We cannot comment on it without knowing what it is.</p>
134	14/04/2020 17:14 PM ID: 139003508							<p>I haven't been convinced that refacing ""Barrier 2"" is a viable solution to the problem. With limitless funds, a bridge or a tunnel solution would be best, and would mirror the solutions found in Norway and the Faeroes. To me though, the best engineering solution is one where physics and nature are used to assist the project.</p> <p>To me, this means encouraging the build-up of sand to the east of Barrier 2. In other similar projects, concrete obstacles have been used to encourage this, and these would work here, but only if they can be secured well, using appropriate existing North Sea technology. This has been done successfully in both Japan and Holland. Then, sand build-up will be encouraged, and to speed it up, this can be augmented by mechanical sand placement in eastern Holm Sound.</p> <p>This won't stop the worst peak waves, but I doubt anything will. We will have to live with some closures during easterly gales and spring tides. The sand solution though, will reduce the impact of these waves, and make it unnecessary to close the barrier in all but the most violent of weather.</p>

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								<p>I've watched this. When there's an easterly sea the waves get refracted around Rose Ness and Burray Ness. These wave deflection patterns then interfere with each other, which creates a peak of destructive wave motion off the eastern side of Barrier 2. The aim of the sand is to reduce the impact of this wave motion. There's been a huge natural build-up of sand in Skerry Sound, which means its now very shallow. This though, actually increased the height of waves during high spring tides. The solution at Barrier 2 is therefore most likely to make this sand barrier extend as high as the surface of high springs, from Lambs Holm to Glims Holm.</p> <p>Of course, a sand solution would need extensive study, but it has the potential of being considerably cheaper than all other options.</p>
135	14/04/2020 18:59 PM ID: 139008180							<p>Yet more expensive studies? Waste of time and money. None of the ""studies"" from the last 20-30 years have amounted to anything helpful. If anything, the issue has worsened. A bridge at £13.5 million is also totally ridiculous. Surely the most sensible and most cost effective solution would be to build another barrier connected from half way along the second barrier on the west side (only half of the second barrier is a problem for serious overtopping) and joining back onto the point of Lamb Holm. Either road could then be used and they would act as breakwaters for each other depending on the direction of wind. I refuse to believe this would cost anywhere near £13.5 million or even as much as the amount which has been spent along the front of Kirkwall or Stromness in recent years, where the roads were not posing any threat to people's lives.</p>
136	14/04/2020 22:35 PM ID: 139013806							<p>All these suggestions are absolutely rubbish. There NEEDS to be a build up of stone/sunken ship or whatever at Lambholm connecting to the skerry. It's so obvious as a solution and it would not cost anywhere near any of the proposed solutions.</p>
137	15/04/2020 08:18 AM ID: 139018347							<p>Alternative breakwater project from east of Lambholm Quarry should be considered to break up swell before it reaches the barrier. This should be a more D I Y solution incorporating the ability to dispose of Builders rubble and the likes of Quarry waste from Cursiter and Finstown Quarries rather than a massively expensive Civil Engineering solution. This might also be commenced immediately adjacent to the South end of the existing causeway where the break - up of the block-ship over the years has probably reduced protection.</p>
138	15/04/2020 08:41 AM ID: 139019356							<p>Enough money has already been spent on surveys and studies. Surely somewhere in all this there are some sensible options, unless the OIC has not asked the right people to do these studies. Whatever is chosen there is going to be a large expenditure so the choice has to be the best long-term option for people's health and safety and the economics of Burray and South Ronaldsay. The wave wall has proved a costly mistake and if anything has increased rather than decreased the dangers of the overtopping. The time for inaction has long since passed and whatever the cost, the recommendations of impartial physicists and engineers must be considered and a decision reached sooner rather than later.</p>
139	15/04/2020 14:55 PM ID: 139046187							<p>Construct a breakwater on the east side.</p> <p>The wreck in the corner provided a form of protection</p> <p>Prior to the wave wall there were practically no accidents. With the wave accidents became a frequent occurrence</p>

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								<p>Compulsory closure should be imposed in extreme conditions. People should accept this as inevitable at certain times.</p> <p>Improving signage and introducing traffic lights to enforce one way traffic in splashy conditions.</p>
140	15/04/2020 15:39 PM ID: 139050723							<p>Spent too much on studies already. Just use concrete hollow blocks as per Burwick and spread them out further on each side. Or sink a couple of old ships, as before , and promote it for diving . Much cheaper than other options.</p> <p>Above questions do not allow for ' none suitable ' or ' all waste of money ' as the layout has to be filled in to progress.!!</p>
141	15/04/2020 18:33 PM ID: 139062845							<p>The extraordinarily high costs of any solution which would allow the road to be as accessible as the other roads, and the limited level of short term disruption caused to a small population who have chosen to enjoy the benefits of island life suggests to me that the problems should be accepted as unavoidable.</p> <p>As the attached report establishes, the average number of closures per year is seven for a relatively short period averaging less than 4 hours on each occasion. In comparison to the disruption of ferry services, and the convenience of a road connection over a ferry, it appears absurd and unjust that sums of money of such magnitude are even under consideration.</p> <p>I would therefore suggest that none of the above be considered and it be clarified to the affected population that small limitations to transport to and from the islands need to be accepted when considering choice of occupation and location of residence.</p> <p>It is appreciated that in recent years the level of use of the causeways has increased dramatically, with employment and shopping options taken up outwith the local area, when previously most activity occurred within the locality. This has wider implications in terms of pollution, climate change and the continuing production of increasing numbers of 'disposable' vehicles and in eroding community cohesion and viability.</p> <p>Another massive increase in traffic, and associated expectations of uninterrupted movement, is due to the increasing popularity of the local ferry, with streams of arrivals moving through to Kirkwall and beyond with several articulated lorries now a daily occurrence. It needs to be appreciated by ferry users that, in landing on an island relatively remote from their destination, onward travel across the causeways may occasionally involve extra delays.</p> <p>I feel certain relatively economical options could be implemented which would ease the inconvenience or anxiety involved in using the causeways in extreme weather(it is accepted that incidences may become more common putting engineering solutions under even greater pressure, with the continuing commitment to high expenditure). These relate to lifestyle and expectations covered above, Education and awareness of tidal and weather conditions, and the gathering and dissemination of information on changing conditions, which illicit your suggestions listed below, and simple road courtesy and changes in behaviour, such as suggesting Single direction traffic with no overtaking in these conditions.</p> <p>I would include the essential need for overhead lighting, at least at the wave wall to allow motorists to wait and assess the situation, also a public emergency telephone connection (protected in a structure)</p> <p>The willingness of the Police to monitor and make decisions on road closure was a breakthrough, giving the responsibility to officials when previously risks were taken.</p> <p>As a major beneficiary of the road network the Ferry operators could be invited to contribute to the expense of improvements and upkeep that would benefit their</p>

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								business. As the Council has no control over choice of route or location of ferry port made by a private concern, it should not be assumed that the current status quo be the basis for high expenditure. A broader approach to these issues could involve questions such as creating a lagoon with a second causeway to the east of barrier two, allowing a choice of carriageway depending on wind direction. A further issue concerns the ferry route and location of its port, which could avoid the obstacle of the causeway by relocating to St Mary's or even Scapa.
142	15/04/2020 18:49 PM ID: 139063721							The council have been discussing this for over 30 years they need to stop sitting on their hands and solve this problem once and for all. This delay is an absolute disgrace.
143	16/04/2020 13:08 PM ID: 139096948							Save £60,000 cassion removal costs Build breakwater similar to burwick over top of cassion, best location decided by previous survey Use surplus materials from burwick to face up the fill material to south side of breakwater cheaper local rock can be used on north side
144	17/04/2020 11:26 AM ID: 139140813							Place cassions further out to break sea before hitting the barrier
145	17/04/2020 11:46 AM ID: 139141745							My first and second choices are the only two that interest me. My family were born and bred in South Ronaldsay and Burray and go back hundreds of years, I am related to many families out here. I live in Burray and have worked for the OIC for nearly 40 years, having travelled back and fore over the barriers at least once a day for three quarters of them. My one remaining auntie in South Ronaldsay remembers walking over the Hope barrier when it was just rubble to go to the bakers in Burray with her mum for bread. Both of these islands are thriving communities and as such deserve the same as the rest of Orkney ie money being spent on keeping their economy and well-being safe. Another survey is just a big waste of time and indeed money we are sick to the very back teeth of seeing money filtered away on having companies with supposed 'solutions' being paid vast quantities to come up with nothing. Spending proper money and fixing the perceived problem is the ONLY way for the problem to disappear, go, be forgotten about. OIC needs to take note of that and move the process on NOW!!!!
146	17/04/2020 12:07 PM ID: 139143603							Including a fee to cross the bridge Subsidised for residents therefore taking the overall cost down.
147	17/04/2020 15:14 PM ID: 139158583							The wave wall is the main problem and needs to be removed so you can see the sea and to stop the waves from crashing on top of vehicles
148	17/04/2020 18:50 PM ID: 139170358							I think the barriers and associated weather conditions are an attractive feature of Orkney. The people who live south of the barriers are considerably better off in terms of communications than those people who live on the islands served by the OIC ferries. At a time of severe financial pressure I think there are more pressing issues to be addressed.
149	19/04/2020 08:45 AM ID: 139198917							Action is needed, not more surveys. Please spend money on solutions not consultants.
150	19/04/2020 11:55 AM ID: 139202971							There is all those blocks sitting onshore at burwick why not put them to some use, it is clear to see where the swell is building on the second barrier and if you

1. In order that we can get a better understanding of the public views on various options, please rank the following options in the order that you feel would be most worth further consideration by the Council if further work is to be undertaken (please note the constraints in the introduction). Please select your preference to each of the 6 options below. If you wish to give any comments or reasoning please do so in the comments box.

		First preference	Second preference	Third preference	Fourth preference	Fifth preference	Sixth preference	Response Total
								had the blocks put in to reduce its effect that would be very helpful, the sea wall you were advised wouldn't work it needs taking away just topple it over it would do better laid flat. You will ignore anyone that has good advice and hire ""experts"" at a ridiculous expense.
151	19/04/2020 13:55 PM ID: 139205619							I feel ashamed that the OIC would consider spending any more capital on an island with a fixed link. Orkney is an archipelago with terrible ferry timetables !!
152	20/04/2020 10:34 AM ID: 139225564							Improved signage / education to help people cross safely would be appreciated. It should be clear that in bad conditions only one vehicle should be on the barriers at any one time. This would improve safety a great deal. This would be helpful whatever other projects are progressed.
153	21/04/2020 08:56 AM ID: 139269048							Years pass, expensive studies are commissioned but nothing happens. Number 1 Barrier surface awful for motorbikes - supposed to be repaired four years ago but nothing happens. Bridge hideous, exposed, too expensive. What is there works, just needs improving. ""New electronic signs & communication "" are not a solution, just an avoidance of the problem.
154	21/04/2020 10:35 AM ID: 139274391							Its a disgrace that one of the options is electronic signage, etc. This should be available now not as a future cheap option. Where is the option for consulting people with local knowledge Where is the evidence from past surveys - what was their recommendations?
155	21/04/2020 12:00 PM ID: 139279570							Dumping rock to create a breakwater beside the barrier should be considered as a solution as the waves seem to build their height on the shallows along with the back wash from the barriers steep face if the waves were completely broken down before they reached the barrier there would be almost no over topping of the barrier, the current wave wall could be removed and used along with the blocks currently at burwick and stone dumped into the blocks.
156	21/04/2020 13:11 PM ID: 139286502							Incorporate facilities for tidal power generation system under the bridge so the project would be economically viable in the long term
157	21/04/2020 17:24 PM ID: 139305659							When its overtopping just accept you can't cross. the tide will go down the wind will drop. have patience!!
158	25/04/2020 11:56 AM ID: 139480475							Under no circumstances should we spend this kind of money, look for renewables project to connect north isles. NOTE I object to having to put 5th and 6th preferences to allow me to complete the survey when I do not agree with these options at all!
159	05/05/2020 19:09 PM ID: 140194207							The Barriers linking the South Isles to Kirkwall, because of the number of people who choose to travel into and out of Orkney with Pentland Ferries, should be considered of major significance in transport links between Orkney and the Scottish mainland. Because of this, I think a major investment in this route is very justified.
160	11/05/2020 16:51 PM ID: 140776305							I think enough public money and time has been spent on studies and surveys over the many years, it is now time for positive, constructive action.
161	13/10/2020 12:13 PM ID: 150043669							I think the situation at the Barrier is perfectly satisfactory as it is. The occasional splashing or closed barrier is part of the mystique of living in or visiting Orkney.
162	15/10/2020 11:50 AM ID: 150200740							This seems a ridiculous amount of money to spend on a project that could be done so much cheaper if the council would listen to locals. There is a quarry practically on the door step of the barrier that the landowner would be willing to let OIC excavate from. Lots of money has been wasted on pointless surveys that have gotten things nowhere. The amount of traffic using this road and the amount

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		First preference	Second preference	Third preference	Fourth preference	Fifth preference	Sixth preference	Response Total
								of money brought into the Orkney economy from the ferries operating from South Ronaldsay surely outweighs the cost of resolving the barrier problem.
163	23/10/2020 01:18 AM ID: 150820343							I think that the money even being considered for a hairbrain scheme like a bridge is an obscene amount to even consider spending when there is so many more important things this council should be applying its mind to and not spending tax payers money on such an airy fairy impractical ideas. Maybe this money could go to the north Isles ferries which are crying out for the new boats but seem to be being failed at every turn. The barriers have worked for many years and those who use them understand that there are a few hours occasionally which makes very little difference and it is part of living and working in orkney. That's part of its charm. They are part of the fabric of the south isles with a very honourable history.
164	22/12/2020 10:35 AM ID: 155174994							None of these options are adequate. An alternative solution not offered in the above selection of options is outlined overleaf.
165	22/12/2020 10:47 AM ID: 155175821							To ensure a constant barrier opening (except in extremely bad weather conditions) lay a concrete filled old ship further out to the east side as a breakwater to prevent overtopping of the barrier at the east side. Much less expensive.
166	22/12/2020 11:03 AM ID: 155176843							It would be preferable to erect a breakwater at the eastside of wrecks instead of refacing.
167	22/12/2020 11:07 AM ID: 155177162							It would be better to erect a breakwater at eastside of wrecks instead of re-facing.
168	22/12/2020 11:27 AM ID: 155178448							I am unable to complete the online survey as I do not consider this to be a very smart survey at all. Firstly it is clear that any expensive solution cannot/would not be implemented. Secondly, there is no option to select ""Don't Know"" or ""No opinion"". Ordering the options in order of preference infers that I agree with all of them to some extent, which I do not. This is why I have not selected any of them. Unfortunately the survey forces the user to complete sections before allowing progression to the next page, so I have no idea what that contains. In short I consider this survey to be a waste of money.

2. The Council is interested in views on improvements to communication systems which have been put in place over the last few years to provide earlier warning of potential closures. The current Twitter/Facebook/Mobile phone messaging system and fixed warning signs outside Kirkwall and St Margaret's Hope have proved popular. There is potential for the Council to consider improving these, for example with more sophisticated electronic signage systems, and/or mobile phone warning applications. Your views on this are also appreciated. Please select the relevant number to each of the 4 options below if you think any of them are worth further exploration.

	1 - Very worthwhile	2 - Worthwhile	3 - Not very worthwhile	4 - Not at all worthwhile	Response Total
The provision of digital roadside signs (like snow warning signs on the A9) at a cost of circa £262,000 (quoted about 3-4	21.4% (76)	26.5% (94)	22.0% (78)	30.1% (107)	355

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years ago) in Kirkwall and St. Margaret's Hope advising drivers on the current and future state of barrier closure.					
Development of the current SEPA Floodline, Met Office and other weather-related applications to link automatically with the digital road signs above. Not costed.	14.1% (50)	33.2% (118)	26.8% (95)	25.9% (92)	355
Development of apps for mobile phones to link with individual users and transport terminals (air, bus and ferry) advising drivers on the current and future state of barrier closure. Not costed.	35.5% (126)	31.3% (111)	18.0% (64)	15.2% (54)	355
The provision of automatic gates to close the barriers in adverse weather conditions operated remotely by the use of weather cams by OIC and Police Scotland. Not costed. Requires a change in road traffic legislation.	14.6% (52)	20.3% (72)	19.7% (70)	45.4% (161)	355
				answered	355
				skipped	0
Comments: (125)					
1	11/03/2020 17:06 PM ID: 137468177	A lot of people in the hope and bursary have no mobile signal.			
2	11/03/2020 17:40 PM ID: 137470267	Don't waste money on apps. In the ""snow gates"" are closed, put it on the traffic Scotland website. End of. The above question is flawed, in that it wants you to say that something is 1, something else is 2, etc. The reality is, option 4 is the only one that is very worthwhile. The rest are not at all worthwhile.			
3	11/03/2020 17:59 PM ID: 137471385	You just need to let people know but most of the folk that live hear already know. Automatic text is best way we dont want anymore signs blotting the landscape. The ones we have do the job.			
4	11/03/2020 18:02 PM ID: 137471593	I don't agree with the above, only able to select a different category of worthwhile for each option. Development of an app would also be very worthwhile. Digital signs and the SEPA options would be worthwhile.			
5	11/03/2020 18:02 PM ID: 137471713	A notification app would be great			
6	11/03/2020 18:05 PM ID: 137471850	It is not possible to choose the same answer for two or more options!			

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7	11/03/2020 18:05 PM ID: 137471815	I think there is an error in the page design - the choice from 1-4 should either be simple ranking in order of preference without the consequences being specified or else it should be possible to rank more than one proposal equally. I don't consider the proposal for automatic gates to be 'not at all worthwhile' but less of a priority given the change of legislation and the probable cost. Given that number 2 depends on no 1, then would make no sense to rank this as more worthwhile than no 1, but that does not imply that number 2 is not worthwhile either. The development of apps would clearly be useful whatever else was put in place.					
8	11/03/2020 18:15 PM ID: 137472303	Only In extreme circumstances should any road in Orkney be closed. We have the wealth to fix for good the problems at the barriers. I refuse to accept any other alternative. There is no need for digital signage when the longest drive to the barriers is under 1 hour in duration. We have country roads, not motorways.					
9	11/03/2020 19:17 PM ID: 137475787	If OIC kept the twitter feed up to date and posted at the times promised that would be the biggest help - cost not a lot! Also none of the above options are very worthwhile but the survey said there was an error when I tried to submit without one of each - terrible design, reduce headcount by one and save some money.					
10	11/03/2020 19:24 PM ID: 137476124	Digital and electronic signage would be fantastic but only if linked to a reliable website or app. Fair enough having one at the top of St Margaret's Hope, but what about folk between there and the barrier? A sign would also be required on Burray.					
11	11/03/2020 19:43 PM ID: 137477142	You cannot gauge a true representation of the water over topping by remote viewing on a camera it often looks worse than it actually is. The money would be better spent on solving the issue than putting these measures in place. This question should not be based on a 1-4 scale putting in order. I would rank all the options as a 4 based on my above comment.					
12	11/03/2020 19:56 PM ID: 137477667	None of the above - none of these options will get me over the barriers to either get into work or back home. We need solutions no social media warnings					
13	11/03/2020 20:29 PM ID: 137479225	The only option that would be useful is the phone app but the form will not allow more than one item to be marked as not worthwhile.					
14	11/03/2020 20:36 PM ID: 137479531	The current 'twitter' alerts are useful - but often not updated soon enough. When the barriers are being 'reviewed' at a certain time - it can be up to 20 mins or so before the twitter is updated. This is so frustrating, when you're at home waiting to get to work or for an appointment. The closures are also inconsistent - which leads to frustration. My employer's attitude is that if the barrier is open - then I should cross. Quite frankly, there have been times when the barriers are 'open', I have crossed, and not only been terrified, but they have been dangerous at other times, they've been closed, when just 'splashy'.					
15	11/03/2020 20:54 PM ID: 137480260	None of the above are worthwhile however it won't let me pick any of the above.					
16	11/03/2020 20:56 PM ID: 137480293	This question is poorly designed as it requires the options to be rated in order rather than acknowledging that all of them are pointless! None of these options are worthwhile given the massive inconsistencies in how and when the barriers are closed. Far more important is the OIC and Police					

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		Scotland getting their act together and coming up with clearer guidance on what constitutes grounds for closure, or keeping the barriers open.					
17	11/03/2020 21:10 PM ID: 137480875	All these options will only work if the information they are given is accurate and timely. Twitter can report a review time and quite often the update is not posted till 15 - 30 minutes after the said update. That is not good enough.					
18	11/03/2020 22:12 PM ID: 137482846	Automatic gates are fine as long as they are not left closed. Also if you are physically restricted from crossing who pays your wages for being prevented from getting to work. How would this work if an emergency service vehicle required to cross and the remotely operated gate was closed?					
19	11/03/2020 22:26 PM ID: 137483264	This is poorly designed because I do not think any of these are particularly worthwhile but the survey seems to need me to rate them 1 to 4, and none get a 1 from me! This in no way represents my views but has to be done to progress with the survey.					
20	11/03/2020 22:27 PM ID: 137483270	This is poorly designed because I do not think any of these are particularly worthwhile but the survey seems to need me to rate them 1 to 4, and none get a 1 from me! This in no way represents my views but has to be done to progress with the survey.					
21	11/03/2020 22:42 PM ID: 137483681	I would have put not very worthwhile to all of this if it would let me.					
22	11/03/2020 23:19 PM ID: 137484374						
23	12/03/2020 00:39 AM ID: 137485421	It would be useful to suggest signage across the south isles, not only SMH - it does, after all, affect us getting in to work.					
24	12/03/2020 01:20 AM ID: 137485698	Improving communication is certainly worthwhile. What would the opportunity cost saving of installing automatic gates over the current method? I cannot imagine there would be one over the current method as the gates would be considerable expensive to install and maintain at such an exposed area. (plus people hit stationary bollards the whole time. Is it safe?)					
25	12/03/2020 09:32 AM ID: 137494969	I would say none of the above are worthwhile but I could not pick that option more than once. Making people more aware of the closures is not the issue here. Gates are a waste of time as someone is needed on the ground to assess the situation. All the other options are a waste of money as we already have social media to spread the word.					
26	12/03/2020 09:59 AM ID: 137496902	Question 2, Please ignore the answers that the software has forced me to submit above! Again, none of the above! Where is the button for that? Why have you restricted Sepa and weather forecast information to dissemination via digital road signs? Communication could be improved simply by updating the current twitter feed timeously, regularly and reviewed when promised (which does not happen at present) and providing additional information such as high tide times (east and west) and wind speed and direction forecasts as part of the current twitter feed arrangement. That should not cost very much.					

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27	12/03/2020 10:13 AM ID: 137497810	<p>Communications to major transport hubs in the area are key. For local residents, such as myself, maintaining good communications via messaging/ twitter is key also.</p> <p>Sometimes you are advised via twitter that the status of the barriers will be reviewed at a set time however often the update will not be made until 30/45 mins after the stated time which can be frustrating.</p>					
28	12/03/2020 12:28 PM ID: 137507511	The selection options for this question are badly designed. There are 2 options which are VERY Worthwhile - digital road signs and mobile phone apps. The other 2 options are both Worthwhile considering.					
29	12/03/2020 13:05 PM ID: 137510005	<p>The twitter updates are awful. Question 2 is pointless. Please just one and for all sort out a permanent solution to the Barrier issue. Thank you.</p> <p>When barrier reviews are taking place - it can often take up to 45 mins to update people on Twitter.</p> <p>tell me - how on earth does that help someone who needs to make a decision to go home to their children?</p> <p>PLEASE PLEASE PLEASE Take some sensible action. Sort out your comms.</p> <p>The weekends are awful too. You might as well put a message in a bottle, throw it in the sea, cross your fingers and hope it is found.</p>					
30	12/03/2020 13:26 PM ID: 137511347	Leave them open stop fussing.					
31	12/03/2020 15:55 PM ID: 137524430	<p>SEPA alerts are based on an algorithm outwith the county and doesn't take into account unique local conditions.</p> <p>We don't all use apps (especially given a 2G phone signal)</p>					
32	12/03/2020 16:43 PM ID: 137528337	The automatic gates is wrong as who has the say so to close and open them someone with no local knowledge or experience with the barriers, and no doubt it will be left shut for days, like what used to happen with the lights. Start asking directly with the communities over the barrier and start saying why some of these ideas that are put forward are not warranted instead of throwing them in the bin.					
33	12/03/2020 17:27 PM ID: 137531085	The ideas above may not be mutually exclusive.					
34	12/03/2020 20:36 PM ID: 137538507	I don't think the government would change legislation for an area with such a low population density and an issue that only seems to impact for around 24 hours a year.					
35	12/03/2020 20:42 PM ID: 137539333	<p>I personally think the monitoring of the barriers requires a local person with local knowledge preferably on Burray or South Ronaldsay. There are many differentials to be considered. Direction, swell, wind against tide, pressure affecting tide etc.</p> <p>I've seen the barriers shut when I could have walked across and open when the side crash barriers were ripped off and the wind was only 15 mph.</p>					
36	13/03/2020 12:40 PM ID: 137564559	Situation fine as it is. SEPA warnings are totally useless as they cry wolf too often in order to cover themselves.					
37	13/03/2020 14:24 PM ID: 137571511	The use of commercial sites like Facebook and Twitter may be popular - but not appropriate for public services - as it opens users to data tracking by the sites.					

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38	13/03/2020 15:25 PM ID: 137575556	I used to have to travel over the barriers regularly on a Saturday night at about 7.30pm. More than once I got caught by very large waves in spite of the barriers being open. I was not the only person who had this experience and a contact in the coastguards told me that the council employees responsible for decision making were less vigilant (ie not there) on Saturday nights. So a warning system is only as good as the watchkeepers.					
39	13/03/2020 16:09 PM ID: 137578579	I do not think that any of the proposals are very worthwhile but am forced by the design of the survey to rate each proposal differently and cannot put that they are all to a varying degree not worthwhile.					
40	13/03/2020 17:53 PM ID: 137583774	I don't want any of this rubbish - the current communication is fine. Neither do I want "more communication" to become the soft option, instead of OIC addressing the actual problem of overtopping. As it is I do not think the barriers should ever be "closed" anyway - I think it should be a matter of personal choice/ responsibility whether or not to cross the barriers. Some of the folk (the police) who are making the decision to close/reopen frankly have no clue about the conditions and so are not equipped to be making those decisions in the first place.					
41	13/03/2020 17:54 PM ID: 137583808	This would pose an issue for emergency services and contribute more to the problem of people not actually properly checking the condition because what you see on a screen and reality can be different.					
42	13/03/2020 19:43 PM ID: 137587370	OIC Roads Twitter notification page is very good					
43	14/03/2020 00:32 AM ID: 137592134	I think a road signage about the meteo at the barriers would be great.					
44	14/03/2020 10:50 AM ID: 137599945	They would all be complicated to install and setup but would be an advantage.					
45	14/03/2020 11:29 AM ID: 137600890	Never mind warning systems. The OIC has procrastinated on this long enough. GET THE PROBLEM SORTED then you don't need warning systems!!!					
46	14/03/2020 11:46 AM ID: 137601282	The twitter/website/mechanical signs work fine let's concentrate on best practice and do these well rather than inventing in new fangled apps (I know this is boring and the new apps are exciting!) I do like the 24hr warning on twitter counting down when the first assessments are done. As a resident, we know the pace of the weather and when the reviews will be done so we just look and can get the information. I just want to complement the OIC officials who have to judge when to close and open the road. I think they do a very difficult job very well.					
47	14/03/2020 12:46 PM ID: 137602625	If the barriers are closed then they are closed, the signs already there are adequate and Twitter is very good.					

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48	14/03/2020 14:56 PM ID: 137605867	I receive SEPA warnings on my landline. 9 out of 10 prove unnecessary, but at least I've been warned. There is no mobile signal where I live and I'm not on Twitter or Facebook. Please don't ruin Orkney anymore with A9 type electronic signs.					
49	14/03/2020 15:31 PM ID: 137606552	The current signing adopted for dealing with crossing the barriers places significant responsibility on the road user. While drivers should always take care when using any road, the main responsibility always falls on local authorities and police forces to carry out their obligations to provide a safe road network. The barriers are as much part of the road system as any other stretch of road.					
50	14/03/2020 15:49 PM ID: 137607150	Better communication of disruption or the likelihood of it would be beneficial. At this time, update notifications are often slow and sometimes do not appear at all. There is no easy place to find out the tides times. Tide times specifically for barriers would be appreciated. Road users could then avoid using the barriers at high risk times if possible. Webcams for public use would be beneficial. Ideally covering barriers 1, 2 & 3. xxxx webcam is a great service on days where the conditions of barrier 2 is a concern. Having all this information available in one place, ideally on both a website and an app would be beneficial. Remotely closing the barriers through webcam footage is ridiculous. Assessment should be given on site, preferably after crossing the barriers. Spray and water coming over can often look similar but varies hugely when experienced. Visibility is also a huge factor, especially when traffic is moving in both directions. There are lots of inconsiderate/inexperienced drivers that cross during bad weather, this causes further risk. Perhaps the use of traffic lights with sensors could be developed for use during period of overtopping and these could be set to steady red during closures					
51	14/03/2020 19:59 PM ID: 137612125	Whereas improved communication would help, not everybody uses iphones. The thing which most annoys residents is the fact that the barriers are now closed far more often than they used to be a few years ago, and this is NOT because the weather has got worse.					
52	14/03/2020 20:55 PM ID: 137613120	I live on South Ronaldsay and find the Twitter feed useless as it is not updated on a regular basis. There will be a time announced for the barriers to be reviewed but then the update will not be posted for some time afterwards - this has been up to 45 minutes or an hour AFTER the review time on some occasions which makes it impossible to decide whether to drive to the barrier or not . For example (copied directly from the Twitter feed): Feb 7 07 February 2020 at 20:30: The barriers are OPEN. Conditions will be reviewed at 21:30 07 February 2020 at 22:30: The barriers are OPEN. Drivers should take care when crossing.					

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		.					
53	14/03/2020 21:35 PM ID: 137613624	A mobile phone app would be useful. Automatic gates would be a disaster as they would be left in place when not necessary.					
54	15/03/2020 15:24 PM ID: 137627664	A finger in the dyke. Information is important but It would be better to spend on the solution					
55	15/03/2020 16:03 PM ID: 137628660	I should say that the OIC twitter messages and the signs already in place are adequate. I am worried by the suggestion that Police Scotland, which I understand operates from outwith Orkney, would be making decisions on local conditions which they not only probably know nothing about, but can't even see properly at the time.					
56	15/03/2020 16:16 PM ID: 137629132	Note the third option doesn't take into account that not much of Burray and South Ronaldsay have sufficient mobile coverage. Also signs at Hope and Kirkwall not much use if leaving home in Burray to go to work.					
57	16/03/2020 12:59 PM ID: 137662159	The development of phone apps is only going to a difference to those with mobile reception. He in St Margaret's Hope there are many areas without any reception whatsoever.					
58	17/03/2020 11:05 AM ID: 137730918	Driving across in overtopping conditions could be controlled by making it one way with reduced speed for a couple of minutes at a time in each direction so that vehicles do not meet when spray is landing.					
59	17/03/2020 11:52 AM ID: 137735370	I do not actually support ANY of the above recommendations - your survey does not permit to continue unless I make a submission.					
60	18/03/2020 13:26 PM ID: 137804699	Whatever happened to personal judgement and responsibility? Surely the provision of information has the potential for compensation claims?					
61	18/03/2020 13:41 PM ID: 137805678	Build a bridge.					
62	18/03/2020 14:23 PM ID: 137808238	What if you live in Burray then the signs in the Hope are of no use?					
63	18/03/2020 23:38 PM ID: 137826022	This won't solve the problem					
64	19/03/2020 16:42 PM ID: 137855566	An app would be helpful IF there was a mobile phone signal in St Margaret's Hope. The automatic gates option is sensible but would need 8 gates as a closed gate in St Margaret's Hope would not help someone living in Burray.					
65	19/03/2020 19:05 PM ID: 137862071	The communication is fine as it is.					
66	21/03/2020 10:31 AM ID: 137917903	Closing No 2 barrier in a SE gale has no doubt prevented accidents but many accidents and damage to vehicle have still occurred before and after these closures when it has been deemed safe to cross by the authorities. OIC are definately endangering lives of school children, their own staff, the general public					

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			1 - Very worthwhile	2 - Worthwhile	3 - Not very worthwhile	4 - Not at all worthwhile	Response Total
		and the majority of tourists coming into Orkney through South Ronaldsay. I appreciate that it is very difficult for councillors from Kirkwall and the West Mainland to understand that the driving force for change to the barriers is not the economic/disruption to life factors but the SAFETY factor. Comparing the disruption to ferries cancelled to the islands and the closure of the barriers is pointless. The danger does not stop from the east side when the wind drops and accidents have happened with huge waves when OIC and police have decided it is safe to open them. On a dark night when Barrier No 2 has been closed during daylight hours and will probably closed again later that day (but probably not because the south east wind has dropped although the waves are as big as earlier) is of no use to a foreign tourist coming off the ferry with his family and driving to Kirkwall and being swamped by a huge wave. People all over Orkney expect to travel safely on all roads and OIC have to make these roads safe.					
67	24/03/2020 07:54 AM ID: 138005100	I personally find any means of finding out if they are shut - useless. Twitter isnt updated often enough, and facebook is just totally rubbish. Radio Orkney facebook gives the most info, but that's not often enough.					
68	25/03/2020 14:10 PM ID: 138083810	I don't live over the barriers so can only guess the best solutions. It would always be helpful to know if they were closed either before you left home for Kirkwall or were trying to return home at night.					
69	26/03/2020 22:59 PM ID: 138163142	Nothing is open 24 hours 365 days. It's unrealistic to expect the barriers to be perpetually passable.					
70	30/03/2020 19:05 PM ID: 138365570	As a person who does not have a mobile phone, information via these would be of little value to me but I have nothing against them. If I am concerned about the barriers then I check the oic roads page.					
71	31/03/2020 08:47 AM ID: 138377491	Why waste money on signs, just get some concrete in the water to defend the barrier, again, it's not rocket science. Digital signage is 'nice to have', and don't actually solve the problem.					
72	31/03/2020 09:41 AM ID: 138380452	Conditions change so quickly the current signage and digital information online is often wrong. Anything that provides accurate information would be good. Barrier closure gates are a definite NO and I am sure they would very quickly disappear in the night should they be installed.					
73	04/04/2020 11:00 AM ID: 138593003	Once again all costing money, which would be better spent doing something constructive, even making more concrete blocks.					
74	08/04/2020 17:20 PM ID: 138769495	Please note: Under no circumstances would we want automatic gates, barriers should remain an option for crossing in medical emergencies. The reason I have marked the development of an app as not very worthwhile is because we would not be able to access this technology.					

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			1 - Very worthwhile	2 - Worthwhile	3 - Not very worthwhile	4 - Not at all worthwhile	Response Total
75	08/04/2020 20:10 PM ID: 138762468	Signs should be used rather than automatic gates. Gates would be a disastrous solution if a medical emergency means crossing justifies the risk and could mean the difference between life of death. Anything automatic will also be susceptible to the extreme conditions and unlikely to be a robust solution. Communication should also provide an option for elderly people who may not be computer literate or possess a mobile capable of using apps. Digital signage would ideally offer the following information: - status of barriers: if cross at own risk, under review or closed - if closed when likely to open - if under review current weather: wind direction and strength and state of tide - if under review weather forecast: wind direction and strength and state of tide					
76	09/04/2020 00:00 AM ID: 138781718	Notification via mobile would be beneficial giving you time to head home from your workplace in Kirkwall or beyond.					
77	09/04/2020 18:50 PM ID: 138822443	Fix the problem. No need for warning signs then.					
78	09/04/2020 19:23 PM ID: 138823587	See above					
79	09/04/2020 19:55 PM ID: 138825634	all above not at all worthwhile					
80	09/04/2020 20:01 PM ID: 138824868	When humans are involved - I am afraid the best signage in the world will not deter some! In the HSE world - engineering is the top / best mitigation solution, signage etc is the bottom mitigation solution.					
81	09/04/2020 20:01 PM ID: 138825837	fix the wave problem I travelled to the hope for 15 years nearly travelled to work every day in all weathers					
82	09/04/2020 20:37 PM ID: 138827467	Surprised at the quotes you get. £262k seems very high. Do you get 5+ companies to bid?					
83	09/04/2020 20:48 PM ID: 138828003	Just put signs up saying you take no responsibility for any accident caused by waves and allow people to make their own mind up about crossing. Higher acrylic sides would do the job.					
84	10/04/2020 09:14 AM ID: 138837514	Just a simple text message would do due to mobile phone 3,4 and 5G coverage					
85	10/04/2020 09:23 AM ID: 138838107	Automatic gates would mean Police resource is not required for the duration of the road closure. Police don't have the resource for current setup.					
86	10/04/2020 10:56 AM ID: 138841608	Maybe not automatic gates but definitely gates and a person to go shut/open them. I feel you should run them the same way as the snow gates are used on the A9.					
87	10/04/2020 11:32 AM ID: 138843739	Perhaps also advice to cross only when there is no other vehicle on the barrier (in adverse conditions) and certainly to keep well back from any vehicle in front.					

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88	10/04/2020 11:39 AM ID: 138844168	Why not just renew the block ships					
89	10/04/2020 11:54 AM ID: 138844503	never mind high tech, expensive warning and communication systems. Fix the original problem and you don't need any of it.					
90	10/04/2020 14:12 PM ID: 138854392	Automatic gates are a terrible idea.					
91	10/04/2020 14:55 PM ID: 138856518	There is no requirement for any additional measures, drivers can wait circa an hour for tides to drop or plan their journeys accordingly, as previously mentioned the OIC should be ashamed to continue to spend capital on a non essential issue. The 'Linked ' isles should be grateful they are linked and not relying on an inadequate ferry fleet which actively discourages people from living on any island in orkney.					
92	10/04/2020 16:12 PM ID: 138860285	Stop spending money on an island which has a fixed link. spend money on ferries or fixed links to those without					
93	10/04/2020 20:30 PM ID: 138867948	the police don't really know what is bad weather, closing barrier from the westside, when it is just light spray is not good, a system where traffic only goes one way at a time, with light system would help. not the dangerous convoy system, that was really stupid.					
94	10/04/2020 22:56 PM ID: 138870750	Add advance warning for residents on the linked isles is preferable to guesswork.					
95	11/04/2020 08:03 AM ID: 138874049	Emergency situations mean gates closed and unmanned could put lives in danger					
96	11/04/2020 13:40 PM ID: 138881793	<p>The cost of signage is from mainstream system providers is excessive, and the Council should support and ask local companies to provide solutions and support, and very sure this would be below the costings provided. Technology has moved on and the Council has already trials and supported 5G, so why not look to developing this. The Council should source and support locally to develop the solutions and the technology.</p> <p>Digital signage and electronic monitoring systems can be provided and sourced through local suppliers, with industry technology. otherwise obviously costs escalate.</p> <p>There are companies in Orkney already delivering mobile/wireless solutions and I am sure, would be keen to work and deliver.</p>					

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97	13/04/2020 14:45 PM ID: 138957931	<p>It seems the phrase ""If it's not broke, don't fix it"" seems appropriate here. Though you say that the signs have been popular, this is Orkney and not the A9, and £262,000 seems a flagrant over expenditure for something that will tell you nothing more than what it does already.</p> <p>In the age of the smartphone and social media, it is widely known that the OIC Roads twitter account is most people's first port of call when it comes to the Barrier's opening status. though it is good it's not always updated when the weather is bad. The idea of a dedicated app that is reliable and constantly updated with the present barrier status and potential closures seems like a very sensible idea. If people know they are closed then they won't go out until they are open. This combined with the current signage seems perfectly adequate.</p> <p>The idea of automatic gates to close in bad weather in our opinion is a very dangerous and reckless idea that will inevitably lead to injury if not worse. Similarly to railway crossing gates, there will always be those who decide to try and beat them and potentially get stranded in a dangerous situation.</p>					
98	13/04/2020 22:24 PM ID: 138970028	A total waste of money and resources. Fix the problem.					
99	14/04/2020 10:47 AM ID: 138981601	Automatic gates might work. However, there is always going to be people who take it into their own hands to cross the barrier. So would these automatic barriers be subject to vandalism? If the weather is really bad could they be destroyed?					
100	14/04/2020 11:18 AM ID: 138983910	<p>STOP WASTING TIME PROMOTING CHEAP VANITY PROJECTS LIKE APPS - NOT EVERYONE HAS A PHONE, OR A PHONE SIGNAL. AND YOU SHOULDN'T ENCOURAGE PEOPLE TO BE USING APPS WHILE DRIVING - TOTALLY ILLEGAL.</p> <p>BUILD A BRIDGE FROM ST MARY'S TO BURRAY AND TAKE ALL THE GLORY YOU WANT. WE WILL TAKE AN IMPROVED LIFELINE ROUTE.</p> <p>SORT IT OUT NOW.</p>					
101	14/04/2020 12:35 PM ID: 138988068	If you built a bridge there would be no requirement for the above					
102	14/04/2020 12:35 PM ID: 138988095	If you built a bridge there would be no requirement for the above					
103	14/04/2020 12:35 PM ID: 138988108	If you built a bridge there would be no requirement for the above					
104	14/04/2020 17:04 PM ID: 139002949	The current social media system works well.					
105	14/04/2020 17:14 PM ID: 139003508	At the moment, warning is patchy. Not everyone uses Twitter, and the OIC doesn't seem to provide timely updates via Facebook or other social media platforms. This would require a proper cross-platform approach, from the OIC website, Facebook, Twitter etc., so it can be seen by the maximum number of people in the South Isles, or folk planning to use the ferries. Ideally, an app notifying folk of closures via mobile phone messages (if they sign up for it) would					

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		be an excellent way of doing this too. Fancy road signs would be great, but by then folk have already left for work or their ferry. They really want to know what's happening before they've left their house.					
106	14/04/2020 18:59 PM ID: 139008180	I don't believe any of these are particularly worthwhile. The current social media updates are adequate but long term you should be using your resources to fix the actual problem.					
107	15/04/2020 14:55 PM ID: 139046187	All have a certain amount of validity. Costs are relevant.					
108	15/04/2020 18:33 PM ID: 139062845	See above					
109	16/04/2020 13:08 PM ID: 139096948	A 10 metre high light column at east end of no 2 barrier to illuminate area of sea before it hits sea wall would give additional warning in darker conditions, just to be used in bad weather conditions Fit web cam to column to provide advanced warning to police and drivers.					
110	17/04/2020 11:26 AM ID: 139140813	Road signs better placed at barrier 1 southbound and barrier 3 Northbound.					
111	17/04/2020 18:50 PM ID: 139170358	I think that people who drive across the barriers need to take responsibility for their actions. There is a limit to what the council can and should be expected to do to support people who are - supposedly - competent to drive a motor vehicle.					
112	19/04/2020 08:45 AM ID: 139198917	These are low cost measures but do not resolve the issue.					
113	19/04/2020 13:55 PM ID: 139205619	As above					
114	20/04/2020 10:34 AM ID: 139225564	I think that for the majority of the time, warnings given from OIC/Police are good.					
115	21/04/2020 10:35 AM ID: 139274391	Circa £262,000 quoted 3-4years ago Circa means approximately A quote is a fixed price Surely it's either 3 or 4 years ago? If you are going to come with prices at least get your facts right Surely if it might cost this amount it would be better spent doing something at the barrier					
116	21/04/2020 11:43 AM ID: 139279937	Twitter feed badly maintained and not everyone has access to it. The above are better solutions worth investigating.					
117	21/04/2020 12:00 PM ID: 139279570	I don't know how improvements to the warning system helps to cure the issue, the sea has done damage to the barriers in the past it would be money better spent on a solution that would see no over topping.					
118	21/04/2020 17:24 PM ID: 139305659	There are snow gates to close roads in the highlands. Just the same here.					

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119	25/04/2020 11:56 AM ID: 139480475	All about conveying information and not spending on physical solutions. Use the technology to inform people of choices.					
120	11/05/2020 16:51 PM ID: 140776305	The link to mobiles would be very beneficial as long as it is on a 24 hour basis as not all people working across the barriers do so during the day.					
121	13/10/2020 12:13 PM ID: 150043669	SEPA Floodline is completely useless as it 'cries wolf' 90%+ of the time.					
122	15/10/2020 11:50 AM ID: 150200740	Focus on spending the money on solving the initial problem to avoid having to put the above measures in place!					
123	23/10/2020 01:18 AM ID: 150820343	It is interesting that most of these ideas are not costed, so it seems that one can't judge overall what is appropriate and cost effective and what isn't.					
124	22/12/2020 10:35 AM ID: 155174994	The problem is that the actual weather conditions at the barrier(s) need to be witnessed in person by coastguard personnel. Reliance on automatic systems is not very satisfactory.					
125	22/12/2020 10:47 AM ID: 155175821	Facebook updates are extremely helpful to a regular barrier user and phone updates are easily updated on the current state of the barrier.					

3. If you have any ideas that have not already been mentioned above the Council would welcome them in this section of the questionnaire.

			Response Percent	Response Total
1	Open-Ended Question		100.00%	137
1	11/03/2020 17:06 PM ID: 137468177	Take the wall down, build a breakwater further out. If you are going to close the barriers then you must remove the ""drivers cross at own risk"" signs. Teach people how to cross safely as was the case in the seventies and eighties when one driving instructor taught pupils how to do this.		
2	11/03/2020 17:40 PM ID: 137470267	Consider some kind of "armour plated" vehicle transporter that can take emergency vehicles across if the Snow gates"" are closed. Could be like a flat vehicle transporter that is capable of having an ambulance driven onto the back. Transported would look like something from Northern Ireland with armour plated glass, roof and protection for the carried vehicle on the back. In the event that an ambulance has to transit the barriers when they are closed, and its not safe for the ambulance to go on its own, run it onto the transporter, take it over on that, and drop it off at the other side. Image something like https://c8.alamy.com/comp/G9N84X/broken-down-ambulance-to-the-rescue-G9N84X.jpg but armoured, with the ambulance in an armoured box, and the cab and running gear of the transporter suitably ""wave proofed""		
3	11/03/2020 17:53 PM ID: 137471172	Replace all the barriers with a bridge.		

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			Response Percent	Response Total
4	11/03/2020 17:58 PM ID: 137471466	see comments on question 1		
5	11/03/2020 17:59 PM ID: 137471385	Stop spending wasted money remove wave wall. Sink a few ships where people tell you to and enjoy the money you will have saved.		
6	11/03/2020 18:02 PM ID: 137471593	Return to a ferry service?		
7	11/03/2020 18:05 PM ID: 137471850	It would be useful to remove the extra height of the east side at the north end so that you can see the waves approaching.		
8	11/03/2020 18:05 PM ID: 137471815	I realize this is a complex issue. One of the complexities is that installing physical barriers to overtopping almost inevitably reduces visibility. At the moment, approaching barrier 2 from the north, particularly after dark, is a bit of a gamble as it is impossible to see how high and how often waves may break over the barrier. I think most drivers who are accustomed to the barriers are adept at timing their crossing if they can see the waves. Is there any solution that could erect a second barrier to the east of the current one that would break the force of the waves? Would it be possible to erect electronic signs that not only indicated when the barriers were closed but gave more specific information about conditions especially on the approach from Lambs Holm to the second barrier? I am glad that the Council has taken this initiative so please be assured my comments are meant constructively.		
9	11/03/2020 18:15 PM ID: 137472303	For the money that has been squandered over the years on surveys and the wages of council workers sitting at closed barriers this problem could have been solved years and years ago, give your friends at Shetland islands council a call they seem to be more pragmatic.		
10	11/03/2020 19:14 PM ID: 137475630	No the bridge was what I had been thinking so I am very excited to see it being listed as a possible.		
11	11/03/2020 19:17 PM ID: 137475787	Build a breakwater to the east of the second barrier roughly where the caisson is sited. It only needs to run about 3/4 the length of barrier number 2 from the shore of Lamb Holm southward. It could be formed around a sunk Pelamis already owned by OIC and rusting away doing nothing.		
12	11/03/2020 19:24 PM ID: 137476124	Use the mass of hollow blocks/cobs from Burwick and use these to slow and break the water in the bay to the East of barrier 2. I'm sure this isn't the first time it has been proposed!		
13	11/03/2020 19:25 PM ID: 137476244	Stop messing about I have the email address of a company in Norway they have tonnes of rock, all the money they have wasted already would have fixed most of it I did email them several years ago £36.00 delivered		
14	11/03/2020 19:32 PM ID: 137476605	Something definitely needs to be done about the changing condition of the East side of No.2 barrier. The waves come rolling in with incredible force nowadays during a SE gale.		
15	11/03/2020 20:54 PM ID: 137480260	Stop all the surveys, if you want to solve the barrier issue take a load of the wave blocks at burwick and dump them subsurface between lambholm and the reef beyond the wrecks, this will create a wave out there and not let the swell through the gap there!! It will also create a really sheltered dive area creating more diving tourism and eventually it will create a beach there totally eliminating the issue. Costs will be well below some of the ridiculous figures mentioned above that could be spent of more pressing matters. I am a local surfer and I regularly freedive at the 2nd barrier so I understand the wave action there and know that		

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			Response Percent	Response Total
		what I have suggested will eliminate the problem. Common sense doesn't mean spending vast sums of taxpayer money on something that is a relatively easy fix.		
16	11/03/2020 20:56 PM ID: 137480293	Traffic lights/control and making the barriers single lane during bad weather so that they are safer to cross.		
17	11/03/2020 21:10 PM ID: 137480875	Return to the common sense approach to crossing the barriers. For many years people crossed at their own risk. Closing the barriers for hours on end is not only inconvenient but quite often costly to the residents of South Ronaldsay and Burray. If the barriers are extremely bad then yes by all means close them but if they improve then those confident in crossing them should be allowed to pass. As for updating the public, better communication between the Police/OIC/Coast guard and the person posting the updates is definitely needed. It's quite bad when many of the locals rely on xxxx webcam to see if the barriers are open or closed.		
18	11/03/2020 22:07 PM ID: 137482703	Why not moor a large barge or floating dry dock that could be utilized when the weather is good.		
19	11/03/2020 22:31 PM ID: 137483323	Poor questionnaire design as you have to "" rank"" your responses, where in actual fact you may think all the suggestions are fundamentally flawed or not desirable. I would rather see a proper public consultation process that is without pre designed Council agenda's. This is Not an unbiased consultation process it merely ticks a box on a consultation process having taken place.		
20	11/03/2020 22:36 PM ID: 137483506	The barriers have been an ongoing issue for years, with the council reluctant to listen to the residents of South Ronaldsay so I highly doubt my ideas or input will be worth anything but here it goes... first and foremost a bridge is (in my opinion) yes the answer to prevent closures from happening, the barriers cause chaos for people, folk can't get to work, they can't get home, they become increasingly anxious about crossing the barriers, we have to wait a ridiculous amount of time for updates etc so yes a bridge would be an ideal solution only if we still had access to the barrier as it's such a huge part of orkney history. My 2nd recommendation is FLOOD LIGHTS!! One of the most unnerving thing about those barriers is the fact that in the early morning and then after what 3.30/4pm you cannot see the water so you are going across completely blind, unable to time the waves. Flood lights would be a great way to ensure folk can see, cross safely, and deem whether or not they want to go. Flood lights for me would not solve the problem but it would certainly help, so please consider this.		
21	11/03/2020 23:06 PM ID: 137484172	The pressure on council to act about this is coming from a community who have dealt with this problem for almost a hundred years. Environmentally and economically is it really cost effective to build a bridge, a cost benefit analysis of the loss every time the barriers shut could be a cheap way of highlighting it's not worthwhile implementing drastic changes.		
22	11/03/2020 23:19 PM ID: 137484374	Webcam (s) ? Special radio station frequency broadcasting states.		
23	11/03/2020 23:20 PM ID: 137484409	If the weather is that bad then maybe people hoping to travel on the boats should be considering how wise it is to travel anyway. For the people who chose to live across the barriers then they are fully aware of the potential risks associated and chose to do so knowing that for a very very short percentage of time they may not be able to use the barriers. They should appreciate the barriers are there and can be used more than 99% of the time.		
24	11/03/2020 23:21 PM ID: 137484412	If the weather is that bad then maybe people hoping to travel on the boats should be considering how wise it is to travel anyway.		

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			Response Percent	Response Total
		For the people who chose to live across the barriers then they are fully aware of the potential risks associated and chose to do so knowing that for a very very short percentage of time they may not be able to use the barriers. They should appreciate the barriers are there and can be used more than 99% of the time		
25	11/03/2020 23:23 PM ID: 137484400	A bridge could mean the return to something close to the original tidal streams in the east side of scapa flow. This could allow sea life to flourish once again in this part of the flow and might also help potential issues with the increased number of fish farms.		
26	12/03/2020 01:20 AM ID: 137485698	If bridges were proposed, it would be fascinating to see whether they could include tidal generators.		
27	12/03/2020 05:31 AM ID: 137486922	As others have mentioned on social media, there may be other options which have not been included in the list in question 1. In question 2, I've put the options in rank order but I'm uncomfortable with the categories especially the "not at all worthwhile" one. Shouldn't the categories have been most to least worthwhile?		
28	12/03/2020 09:32 AM ID: 137494969	Should not have to use up my annual leave on days when I would not want to risk going over the barriers but they are not actually closed. If they are closed by the council then I can't get in and presumably would not lose wages or a day's leave. If I am too scared to cross but they are open I would probably lose wages or a days leave. I work for the council and this could be resolved with a policy change.		
29	12/03/2020 09:59 AM ID: 137496902	1) Lighting, as above. 2) Half-tube tunnel over northern end of barrier number 2, based on avalanche shelter technology, as above.		
30	12/03/2020 10:49 AM ID: 137500515	Please see my comment for section 1, I am happy to conduct a study on behalf of the council.		
31	12/03/2020 12:28 PM ID: 137507511	This ignores the option of sinking concrete filled large river Rhine type dumb barges which has been suggested by some people. These barges are cheap to buy second hand, have no engine or fuel and very little electrics so would be cheap to clean out prior to filling with concrete and sinking.		
32	12/03/2020 13:05 PM ID: 137510005	Bridge or tunnel. This is done in many other countries to link islands - Norway for eg. And even a bridge linking Skye to the Scottish Mainland. We need to progress and move forward. This will in turn be a great benefit to the local economy. More people will consider moving to Burray and South Ronaldsay if there is better road networks with better improved 'connections'. The system at the moment is out dated and behind the times. Not something that should be happening in 2020 in the UK. It proves that the Council do not care about residents of the linked South Isles. We are treated like 2nd class citizens. The stress it causes parents working in town, and their children are at school in Burray or the Hope is crazy. Not being able to get home at night. Having your car damaged by the waves water just going to work and back is outrageous. Hundreds of pounds we have to pay on car repairs - just to get to work and home again. Having to make the decision if it's safe to cross (even when the police deem it is safe) It scares the *** out of you. PLEASE MAKE A SENSIBLE AND RESPONSIBLE DECISION AND INVEST IN THE FUTURE OF THE LINKED ISLES. Thank you.		
33	12/03/2020 14:37 PM ID: 137516541	See comment after first question. I don't know enough about the sea to comment on such things.		

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			Response Percent	Response Total
34	12/03/2020 16:43 PM ID: 137528337	breakwater using lambs quarry stone and the old breakwater blocks at Burwick/etc Stop closing the barriers for nothing people using common sense and are used to crossing the barriers are able to cross no problem/ granted there are people not so sure about crossing in weather so have the warning lights saying it's not advisable to cross so they organise work etc that they can't cross if they are not confident to do so. Plenty of decontaminated vessels that could be scuttled to create a break water and also a marine habitat and dive site.		
35	12/03/2020 17:27 PM ID: 137531085	1. The Barriers are 75 years old this year, and between now and their centenary will require major maintenance works in any event. It is common sense to include 'fixes' as part of the planned maintenance. 2. Consideration should also be given to the removal of the concrete 'wave wall' on Barrier 2 especially given the build up of sand close to the area. The danger caused by the weight of descending water caused by the wall may now be greater than horizontal waves coming across from the east. Visibility has also been seriously compromised by the construction of this wall.		
36	12/03/2020 18:57 PM ID: 137535096	Really why not consider encasing the whole barrier in a tunnel structure to prevent water on the road surface. Like snow tunnels elsewhere for rock falls etc Have ferry provision from Hope to Houton when barrier will be closed for prolonged periods. Don't you have a spare ferry currently running to Shapinsay?		
37	12/03/2020 20:36 PM ID: 137538507	For all that the barriers is closed, it's certainly isn't worth investing millions in a solution. The people of South Ronaldsay and Burray are fortunate already to have fixed links. The money proposed would be far better invested in upgrading the outer islands ferry routes, as these communities are far more fragile and susceptible to extinction.		
38	12/03/2020 20:42 PM ID: 137539333	Nil		
39	13/03/2020 02:31 AM ID: 137545200	Use an aggregate dredger to build a sand bar or rock berm out to the east of the barrier to act as a breakwater.		
40	13/03/2020 12:40 PM ID: 137564559	Just maintain the road surfaces. This is a non-issue.		
41	13/03/2020 14:11 PM ID: 137570441	Build a breakwater on the east side and the problem is solved. There is no problem when the wind is westerly unless it is hurricane conditions and surely people have enough wit not to cross when these type of conditions are ongoing.		
42	13/03/2020 16:09 PM ID: 137578579	It has already been suggested to the OIC by South Ronaldsay and Burray community council that there are better and cheaper methods. Sinking large dumb barges full of concrete or stone would be one way and fairly cheap. It would also be possible to sing shipping containers full of concrete to form a breakwater in front of the barriers. Used containers are cheap. the cost of the concrete would be the main expense. It would cost about £300,000 for enough concrete filled containers to stretch right across the length of No2 barrier. It may take 5 or 6 rows of containers stacked up to do the job but this would still be relatively cheap. I do not know how much it would cost to get them put in place but it would still be considerably less than the proposals put forward by the council. Even if shipping containers were thought not to be suitable then large heavy duty steel vessels could be built relatively cheaply.		
43	13/03/2020 17:53 PM ID: 137583774	See response to q1. It is tiresome to be told that the only solutions are multi million pound solutions, I don't believe it and neither, I suspect, do many other residents of Burray and South Ronaldsay.		

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			Response Percent	Response Total
44	13/03/2020 17:54 PM ID: 137583808	1. Tunnel 2. A barrier further out to stop the waves from reaching main barrier. 3. Regular checks of the condition on the barriers by OIC and police Scotland. 4. Proper notifications of their closure.		
45	13/03/2020 21:03 PM ID: 137589404	Make traffic one way at high tide/ poor conditions. Cars sometimes speed up panicking whited out by a wave with no visibility of oncoming traffic. This would reduce risk of collision and allow better traffic positioning in centre of barrier to avoid highest impact of waves at no cost. Simple sign at barrier to say give way to traffic in the barrier?		
46	14/03/2020 00:32 AM ID: 137592134	Could we not put a glass tunnel all over the 2sd barriers? The waves would go over the glass tunnel but the barriers could stay opened and will still see the view of Scapa Flow.		
47	14/03/2020 10:50 AM ID: 137599945	I think the council should stop wasting tax payers money on complicated and difficult engineering projects that usually fail. In the 1940s they could build the barriers successfully without any hi-tech computer modelling/analysing and it's stood the test of time. My idea is that the council use the wave blocks at burwick and in walliwall quarry to construct a breakwater far out on the east side.		
48	14/03/2020 11:29 AM ID: 137600890	As above. Thousands of tonnes of large rock armour - create a new shore. The waves will then break out there and not over the barrier.		
49	14/03/2020 11:46 AM ID: 137601282	I have a choice in living on S. Ronaldsay and with that the interruptions on the barriers. No different to the ferry not running to mainland Scotland. In the St. Margaret's Hope public meeting many years ago, the point of using old oil and gas facilities to mitigate was made and also seems to have been dropped. As the pace of decommissioning the facilities accelerates, there must be opportunity to place old structures to help with the situation. This should be part of the study scope.		
50	14/03/2020 12:46 PM ID: 137602625	Yes, maybe ask Planning to ask applicants building houses down in South Ronaldsay to clearly acknowledge that there may be a Barrier closure issue a few time a year and that they are happy with it. Don't waste our money on expensive solutions for a few moaners who made a mistake moving here.		
51	14/03/2020 14:56 PM ID: 137605867	Has a tunnel been looked at? The Faroese and Norwegians have built plenty. What about a curved cover being placed over the barrier, tall enough to take the lorries and deflect waves?		
52	14/03/2020 15:31 PM ID: 137606552	Without knowing where any of your options would be implemented, I have long wondered about the merit and cost of putting in a completely new route from St. Mary's to Glimp's Holm. This would require passage for small vessels, but would take two of the barriers out of the equation and the new solution would be engineered to deal with current and future predicted sea conditions. In addition, since the barriers were originally intended to be only a wartime measure, they have already outlived their expected lifespan. The U.K. government should be approached with a view to securing funding to assist with creating a viable long term solution to meet the needs of Orkney, it's inhabitants, visitors and businesses as well as providing money to maintain the two barriers as tourist attractions and in recognition of the role they played in history. A visitor centre should be built somewhere around the second barrier to provide the full story/history of the barriers, Scapa Flow etc. If something is going to be done then a more wide ranging and comprehensive approach should be adopted to maximise the benefits for Orcadians and create additional interest and understanding for visitors.		
53	14/03/2020 16:33 PM ID: 137608160	Redesign barrier and include turbines in it to generate electricity, which over time could pay for the costs involved.		
54	14/03/2020 19:38 PM ID: 137611719	Provide a breakwater barrier from the point of the quarry to the beach at the southern end of the existing barrier.		

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			Response Percent	Response Total
		Do not waste any more money on surveys The OIC appears to think that commissioning survey after survey will solve the problem, it will not.		
55	14/03/2020 19:59 PM ID: 137612125	If 'beach recharge' (above) means sinking additional large rocks either side of No.2 Barrier then that would certainly help. If rocks were extended outwards by around another 20-30 feet then waves would be unable to reach the roadway, it would only be the spray which would get that far. Surely something along these lines would be a much cheaper and practical solution than the various 'high-tec' ideas suggested above.		
56	15/03/2020 11:50 AM ID: 137621503	Sink some more ships to break waves before they hit Barrier, which will also create more diving for tourists.		
57	15/03/2020 16:03 PM ID: 137628660	I would suggest that during the winter there should be a traffic light, to be remotely activated in bad weather, which would make the Barriers one-way. I have been recommended by local people to wait until any traffic coming in the opposite direction has passed before starting across in bad weather. However, it is clear that many drivers, presumably from outwith Orkney, have not heard of this. Perhaps also a sign recommending people to leave plenty of distance between themselves and the car in front. It is difficult to avoid braking or swerving instinctively when temporarily blinded, if you are not used to it, and cars can be moved sideways by larger waves. I think it might be good to construct a rough breakwater some distance back from the east side so that waves break and much of the energy is dissipated before they get to the barrier itself. In my opinion it would be highly dangerous to remove the wave wall. From what I have observed from buses and cars I do not think it is possibly to reliably judge which waves are going to be 'safe' anymore, possibly due to global warming.		
58	15/03/2020 17:34 PM ID: 137633528	xxxx presently send text messages to users when there is ferry disruption. That technology is available today. It is surprising it is not mentioned.		
59	17/03/2020 11:05 AM ID: 137730918	The bridge could be from Glimps Holm to Holm/Cleat with a raised section to let small vessels through.		
60	17/03/2020 11:52 AM ID: 137735370	The solution to the problem is to reduce the wave energy which has a clear 'run in' when the wind is coming from an ESE / SE direction worsened by a rising or high tide. If the reader cares to have a look at a marine chart for the area, it can be seen that the problem is exacerbated by a channel, 'Skerry Sound', which concentrates the wave energy. To reduce the incoming energy, it must be 'broken up' to disturb the unity of force. A caisson is most definitely not the solution - it simply re-directs the energy and is not at all effective in this particular case. The Islands Council actually has the perfect solution to hand - the 'hollow dice' used as breakwaters on the Ayre Road are an ideal solution. If a number of these are randomly strewn on the sea bed (roughly in the area where 'Skerry Sound' is printed on the marine chart) this will cause the wave energy / direction of force to be randomised and broken up. Of course one block would have very little effect but a number of blocks will completely randomise the direction of the energy reducing the unity of force and greatly reduce even nullify the power and effect of any waves that might be produced. The question then arises of how many blocks. We are dealing with nature here so there is no obvious answer at this early stage. However, an initial 200 - 300 blocks could be put dropped in the suggested area (where the sea bed starts to rise i.e. where the energy compression begins) and the result monitored. It may be an idea to consult with creel boat operators in the area for their knowledge - this could help to localize the 'ideal' drop spot. I doubt that the initial quantity		

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			Response Percent	Response Total
		suggested would completely solve the problem - it may, in fact, require upwards of 1,000 blocks. However, the cost of the proposed solution is absolutely minimal in comparison to some of the current mad proposals - a bridge at 23 million !!!!! Please do not waste any more hard-earned taxpayers money on yet another survey - get the blocks fished out of Walliwall quarry and get them on the sea bed at the suggested spot. You could have this completed by early summer and start making some serious progress in getting some relief for the folks in Burray / South Ronaldsay.		
61	17/03/2020 21:34 PM ID: 137769506	Use the 'honeycombs' in Walliwall quarry, at present doing nothing, plus the surplus ones at Burwick, to push the sea eastwards out from Barrier 2, back filling with stone from xxxx quarry, which couldn't be nearer to hand - and which has been offered to the Council free of charge. This would only solve the overtopping on the east side of the Barrier, but at minimal cost		
62	18/03/2020 13:41 PM ID: 137805678	Give the councillors decision making training and get on with solving the problem.		
63	18/03/2020 14:23 PM ID: 137808238	Rather than trying to 'reinvent the wheel' look at what other councils have achieved such as in Scarborough in Yorkshire around the Marine Drive and the harbour and Staithes in Cleveland with their harbour walls. These are somewhat similar to the Kirkwall Ayre Road scheme.		
64	18/03/2020 23:38 PM ID: 137826022	Why not:- Bulldoze stone from the quarry on Lamb Holm then charter a boat to take loads of Rock armouring across from Norway and place on the outside of the stone. A temporary pier could be constructed on the east side of Lamb Holm for the boat to use (xxxx did this when they constructed the Rapness pier) or here's a small pier on the West side of Lamb Holm the boat could possibly use at high tide or the Holm pier, to save hauling the rocks from Kirkwall. Gotta be cheaper than 13 million. or Buy redundant concrete Floating Drydocks (like xxxx did) and sink them next the barrier, or further out the bay. There's no scrap value in concrete so they are fairly cheap. There may be issues with SEPA etc but we do have historic precedence i.e, boats were sunk there before.		
65	20/03/2020 23:08 PM ID: 137912048	I do not think any of the above ideas would be cost effective as a permanent solution to wave OVER TOPPING. Why not consider constructing a box culvert on top of the existing road at barrier no 2. A box culvert 6 metres x 4.8 metres high could incorporate a single lane road with traffic light control say 3.6metres wide x4.8metres high and a separate box constructed within the structure 1metre wide x 4.8metre high as a pedestrian / cycle lane. A further roadway could be constructed on top of the box culvert to carry any abnormal /large structures across the barrier, this would allow access for delivery of any large structures to the south isles future development.		
66	21/03/2020 18:27 PM ID: 137928616	Make the Barriers higher.		
67	24/03/2020 07:54 AM ID: 138005100	It is either a bridge or a massive heightening of the barrier. It is definitely getting worse and splashes badly now even on a fairly good day. We went over yesterday and the sea was not rough like that, but got drenched.		
68	30/03/2020 19:05 PM ID: 138365570	Have you ever put out public information regarding the best way to cross the barriers when they are just splashy eg slowing down and crossing one car at a time. Though I understand this might be tricky in case people think you are encouraging them to cross in bad weather.		

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			Response Percent	Response Total
69	31/03/2020 08:47 AM ID: 138377491	<p>The Coplands Dock Pier in Stromness should have been built coming out of Lambsholm, in effect creating a break-water before the sea gets to Barrier 2. Coplands Dock has been a waste of money, only used by the odd fisherman. That millions could have been spent building a similar concrete pier as a protection barrier to Barrier 2.</p> <p>There is no point wasting money on consultants to look at a renewables/wave power scheme as part of the Barrier works, that is not the priority. Just get a breakwater installed (and not a tiny joke caisson like already in place). No more surveys/consultants needed, OIC's xxxx are not busy currently, use their expertise to build a pier type structure to stem the water before it gets to Barrier 2.</p> <p>Cart that eye-sore concrete blocks from Burwick pier and pile them in the sea alongside the barrier. Yes they may break up, but does that matter? It is still a mass of concrete, which will obviously slow the waves down on route to the barrier.</p> <p>Had this been in Stromness, xxxx would have had something done about it years ago. Somebody will be seriously hurt before OIC act on this one.</p>		
70	31/03/2020 09:41 AM ID: 138380452	A breakwater on the east side a good distance out from the point where the sunken dry-dock is to the shallow bit in the middle of the bay is with the wrecks on it. Something like the breakwater xxxx has done at Gills.		
71	04/04/2020 11:00 AM ID: 138593003	To me the answer is block ships, as well as protecting the barriers. The barrier needs to be protected as well as the people who use them, also they could be a asset to marine life. Not a eyesore Coach drivers are always being asked to pull in at end of the barriers for a photo stop of barriers and ships. We are always told far to expensive cost millions to decontaminate but surely they must thinking of big ships full of electronics and all sorts of gadgets, where they should be looking for ships with big cargo holds, or better still old dry docks or barges, little or no cleaning just fill with big rocks and concrete, Local ferry companies and also pier trustees seem to be able to pick these things up quite easily, why not our council. If over topping on the east side could be controlled that would be a great help, West does not have the same weight of water coming over, except in exceptional high winds or tides.		
72	08/04/2020 20:10 PM ID: 138762468	Has the option of establishing a breakwater east of the second barrier to take the weight of the waves before they reach the barrier been explored?		
73	09/04/2020 00:00 AM ID: 138781718	A Tunnel!		
74	09/04/2020 17:06 PM ID: 138816365	One of the main dangers during adverse weather conditions is the risk of a head-on collision due to a wave causing a vehicle to move sideways into the path of an oncoming vehicle. The barriers could remain open for longer if traffic was limited to one way at a time by traffic signals. This would mean that drivers only had to concentrate on the frequency of the waves and not on oncoming traffic on such narrow lanes.		
75	09/04/2020 18:35 PM ID: 138821749	Why not put boats back where the old ones have rotted away from. Bit o common sense, you should have work this oot many years ago if you had listened to the public then instead of spending money on wave walls that made it worse and studys that are useless.		
76	09/04/2020 18:50 PM ID: 138822443	How about just getting the hell on with it? The years of dithering and messing about on this issue is just incomprehensible. As mentioned in the comments on 1 above, just dump thousands of tonnes of rock in there and face it up with barrier blocks. The barriers themselves have stood the test of time, no further consultations needed! The xxxx or yyyy would have had it done in a couple of months.		

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			Response Percent	Response Total
77	09/04/2020 18:51 PM ID: 138822461	I found the Twitter page very useful for work when travelling back and forth to work in the hope. I do feel this could be improved though with some of the above options.		
78	09/04/2020 19:23 PM ID: 138823587	Please see previous page		
79	09/04/2020 19:55 PM ID: 138825634	xxxx provided a solution years ago that would work !		
80	09/04/2020 20:13 PM ID: 138826306	Use the hundreds of blocks at Burwick and move them to barrier number 2, either to bolster the sea wall side or to make the west side wider to move the road further from the East side.		
81	09/04/2020 20:24 PM ID: 138826788	Remove the 2nd barrier altogether and replace with a bridge, then the sand would be able to return to Scapa and would be safer to cross. Eventually remove all the barriers and replace with bridges leaving a few blocks at either end to show the tourist what they looked like.		
82	09/04/2020 20:37 PM ID: 138827467	I think your second set of suggestions are really helpful and provide some prevention which covers your back. Do other places have similar problems in the UK or abroad? How do they put in solutions? Wondering if some companies in Orkney could help provide some creative solutions? Some great engineers in renewables here.		
83	09/04/2020 20:48 PM ID: 138828003	Acrylic sides that bolt down. Like the stuff they make shark tanks out off and that's bulletproof. Metal frames that bolt down to the sides of the road to hold the acrylic. And have it made with a outward curve to deflect the power of the wave.		
84	09/04/2020 21:22 PM ID: 138829370	OIC have hundreds of those square blocks with holes in them lying at Burwick and Walliwall Quarry, why don't you use these as a breakwater? There are also thousands of old concrete slats lying around on farms in Orkney which could also be used for a breakwater. I feel this would a very cost effective solution to the over topping, and would also tidy up the farms and builders yards.		
85	10/04/2020 08:10 AM ID: 138836230	Other engineering solutions are obviously possible. Have these been considered and discarded?		
86	10/04/2020 08:21 AM ID: 138836435	I own xxxx, my father in law owns yyyy island and zzzz, between the two of us we would offer to build a big breakwater clad with stone armour sufficient to protect the road from any weather from the east side. We would do this by utilising rock from the quarry as a shore defence mechanism. We have already discussed with marine engineers who specialise in shore defence and they are happy to approve our plans to be capable of withstanding the 200 year storm conditions. We estimate the cost to the council would be £6.5 million including the engineering fees. This is subject to approval of using the stone from lambholm quarry and being a shore defence scheme which did not require aggregate tax being paid. Happy to discuss further.		
87	10/04/2020 09:14 AM ID: 138837514	Due to the dynamics of the barriers makeup and the outlying shoreline often wave action, height and speed is increased and not being dissipated. More needs to be done to reduce incoming wave energy and the use of return of energy to take the force of following waves. Again I ask let me talk to your projects manager.		

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			Response Percent	Response Total
88	10/04/2020 10:56 AM ID: 138841608	Traffic lights. At each end of the barriers this would mean that drivers can go down the middle without the worry on oncoming traffic.		
89	10/04/2020 11:54 AM ID: 138844503	Only three things are needed to sort this problem: 1. The know how, materials and machinery which are all here ready to go (see comments in question 1 above). 2. The money to do it (Not an issue as we are one of the wealthiest councils in Scotland). 3. The will to get the job done. This is the stumbling block and always will be. Conspiracy theorists air various views such as an Anti xxxx agenda, pro Stromness views etc but this is all pie in the sky. The reality is no one wants to step up and put their head above the parapet, take responsibility and sort this problem. Consultant after consultant gets called in and nothing progresses. The engineering solution is already there on front of our eyes. The barriers have lasted 80 years so far and are still going strong. Surely constructing an area say 50-80 metres square, comprising the same construction as the barriers are, in that east side problem area would hold the sea at bay? The breaking sea would then happen away out there instead of on top of the barrier.		
90	10/04/2020 12:58 PM ID: 138850102	Why is the use of block ships an option. They would help to break the incoming waves better than anything else		
91	10/04/2020 14:04 PM ID: 138853987	Build a bridge from St Mary's headland to Burray, leaving barriers 1 and 2 for access to Italian chapel and beaches only. This is the only way to guarantee the supply route for food deliveries. They manage this sort of thing in the western isles, so why not here?		
92	10/04/2020 14:27 PM ID: 138855029	Please see my suggestion re the old dry docks, and discuss with Mr Banks Good luck with this vital project		
93	10/04/2020 14:55 PM ID: 138856518	Stop discussing and spending capital on the barriers.		
94	10/04/2020 15:30 PM ID: 138858240	Backfill east side of barrier for approx. one third of its length		
95	10/04/2020 16:12 PM ID: 138860285	BUY new ferries and run a decent timetable as shetland do !!		
96	10/04/2020 20:30 PM ID: 138867948	I have worked in middle east for the last 8 years involved with building artificial island where they have some very good ideas, it would be a very easy fix, to build a bund wall with rock armour out along east side of barrier approx. 20m out running parallel, then back fill with stone, rubble, or dredge sand that could be pumped in from dredging ship, preferred method we used in Abu Dhabi, I really think we are making this project over difficult, if the OIC took control and appointed a project engineer to take this forward and not hide behind the problem it would be and easy fix.		
97	10/04/2020 22:56 PM ID: 138870750	Part of the appeal of the southern end of Orkney is the journey down the barriers and the gradual entry into the rural parts of Burray and South Ronaldsay. Big technical engineering projects will ruin that rural feel and the peace that goes with the slightly remote feeling. Please don't over egg anything.		
98	11/04/2020 13:40 PM ID: 138881793	3 years ago, we offered the Council the opportunity to do this on our 5G trials and testbed. No one replied. There is more technology in use today which does not involve mass costs.		

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		<p>Systems are able to use low power battery technologies to monitor the environment (already in place in Orkney)</p> <p>So for example compliment the SEPA flood warning system with tidal monitoring, weather station, and incorporate this into digital systems to then use for posting onto a digital sign. there also could be then system analysis to determine if there will be trends and make proactive and informed decision making to predicting the trends. for example windspeed (f8+ from west, high tides = equals overtopping.</p> <p>this solution can then be turned into an active alert, and when developed using the facebook/twitter app etc. this can then be used to provide information, and trigger gate closure or flashing beacons warning overtopping. especially overnight and early mornings etc.</p>		
99	12/04/2020 22:55 PM ID: 138938734	Please put lights on this very dangerous stretch of road.		
100	13/04/2020 14:45 PM ID: 138957931	<p>We in the South Isles would love to have uninterrupted travel but at a time of great financial difficulty within the country which will inevitably follow this Covid-19 pandemic, we think the local authority should look to use what funds it has, and can raise nationally, to best purpose.</p> <p>Is there a case for consideration of the hundreds of blocks laying idle at Burwick and those in the quarry alongside Barrier 2? The hollow concrete blocks, we understand were surveyed in the past, and reportedly found to be brittle. This may be hearsay, but if it is not then to the naked eye, they seem in quite reasonable condition considering the harsh weather they have survived over the many years, showing less signs of degradation than that of the wave wall, which is now showing rust leaking from what must be low grade steel reinforcing, poorly positioned and covered in concrete.</p> <p>It is our suggestion that these blocks be reconstituted and placed in front of the wave wall and down into the water as a lower cost option instead of costing for new blocks or an unnecessary bridge, especially in such unsure financial times. It would also seem most sensible of all to utilize the extensive knowledge of the local men and women who know the movements of these waters here far better than any out of county firm or surveyor.</p>		
101	13/04/2020 22:24 PM ID: 138970028	Without doubt, any remedial work is not going to be cheap. However, please remember that this is one of the major routes into Orkney for ferry passengers and freight.		
102	14/04/2020 10:47 AM ID: 138981601	The same as I mentioned in question 1, the creation of a beach on the edge of Barrier 2 using the sand from Barrier 5 to cut down costs.		
103	14/04/2020 11:18 AM ID: 138983910	<p>TIME FOR A NEW COUNCIL THAT KNOWS HOW TO RUN A PROPER INFRASTRUCTURE PROJECT AND CAN SECURE FUNDING INSTEAD OF ALIENATING ALL THEY MEET.</p> <p>ITS NOT AS IF YOU CAN'T AFFORD IT, CLOWNS.</p> <p>COUNCILLORS WHO SAY ""I'M JUST A FARMER"" IS ALSO AN EXCUSE THAT HAS WORN THIN YEARS AGO.</p>		
104	14/04/2020 12:35 PM ID: 138988068	As stated a bridge is very much the way to go for Safety, disruption to travel and Environment.		
105	14/04/2020 12:35 PM ID: 138988095	As stated a bridge is very much the way to go for Safety, disruption to travel and Environment.		
106	14/04/2020 12:35 PM ID: 138988108	As stated a bridge is very much the way to go for Safety, disruption to travel and Environment.		

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			Response Percent	Response Total
107	14/04/2020 12:37 PM ID: 138988223	Bridge in my opinion is the only way to go for safety, travel and the environment		
108	14/04/2020 17:04 PM ID: 139002949	A mandatory one vehicle only at a time on each barrier, or one way traffic, in bad weather would be helpful. Haulage lorries passing buses on the barriers in bad weather - or any other vehicle - is very stressful. The lorry drivers must be told to respect others driving on the barriers and not to rely on their size making them the most important road user. That could be linked to electronic signage if that was used.		
109	14/04/2020 17:14 PM ID: 139003508	See my notes in your first and second comment boxes. Let physics and nature do the job - sand build-up. Of course, as a dog walker, I'd love another sandy beach to walk on, like on Barrier 4 and developing around Barrier 3! However, I understand the OIC spending millions just to keep my Retriever happy isn't really an option.		
110	14/04/2020 18:59 PM ID: 139008180	A lot of freight and tourism comes to Orkney from South Ronaldsay. Many South Ronaldsay and Burray residents work on Mainland Orkney and shop within Kirkwall therefore it would be in EVERYBODY'S interest to fix this problem. It is getting to a stage where local people no longer want to live in South Ronaldsay or Burray (or people may not want to move there) if they work on Mainland Orkney as they know getting to school/work during winter is scary and stressful. This affects Orkney's economy as a whole.		
111	15/04/2020 14:55 PM ID: 139046187	As a resident of South Ronaldsay for over 70 years I would like to see a breakwater to the east. Possibly using stone from the quarry in Lamb Holm or using the blocks currently at Burwick. Speed restrictions while driving on the barrier could possibly be introduced. Has a proper survey been carried out on each barrier recently?		
112	15/04/2020 15:39 PM ID: 139050723	As above.		
113	15/04/2020 18:33 PM ID: 139062845	Please see submission above		
114	15/04/2020 18:47 PM ID: 139063608	Build a breakwater from the quarry towards the wrecks. Thus breaking the water before it hits the barrier. This need not be hugely expensive compared to e.g. a bridge. Perhaps some of the wave breaking blocks at Burwick could be recycled. Perhaps use same principles as used at Ayre Road in Kirkwall.		
115	16/04/2020 13:08 PM ID: 139096948	Use of fixed traffic lights to allow single file traffic only when sea is over topping		
116	18/04/2020 00:09 AM ID: 139177003	Automatic gates would work perfectly. Road sign not required. An automated phone message that people can call to find out barrier status. Announcements on ferries and on ferry websites about barrier closures for visitors		
117	19/04/2020 08:45 AM ID: 139198917	Can you not take up xxxx offer to build out from the second barrier with material from the quarry on Lambs Holm.		
118	19/04/2020 11:55 AM ID: 139202971	A breakwater made from the big blocks that are ready made sitting at burwick and rubble, probably be the cheapest long term option with being the most effective.		
119	19/04/2020 13:55 PM ID: 139205619	Buy new ferries and better timetables, stop spending money on the barriers !!!		
120	20/04/2020 08:40 AM ID: 139219098	All options are complex and expensive. Encouraging formation of a beach, much like No.4 barrier seems like the only viable option to me. Perhaps by reshaping Lambs Holm to angle south easterly with protrusion, starting at the fishery. This		

3. If you have any ideas that have not already been mentioned above the Council would welcome them in this section of the questionnaire.

			Response Percent	Response Total
		could be done from the shore by rubble-drops, and would break wave-power much further out, away from the barrier.		
121	21/04/2020 08:45 AM ID: 139268475	<p>Safety and inconvenience should be viewed as separate issues. The barriers themselves are not dangerous. The danger is the pressure people feel to cross when under normal circumstances their own common sense and judgement would tell them that it is unsafe. If there are any doubts about safety then the barriers should be closed and this should be posted immediately on a dedicated website.</p> <p>Any money available on a yearly basis should be spent on mitigating the level of inconvenience experienced as a result of the necessary closure so it ceases to be a serious problem. Examples could be: Vouchers for hotel accommodation in town or Holm for those who have been unable to return from work; provision for emergency childminding/pet care/livestock care for those separated from their children/pets/livestock; help to employers to facilitate work from home when people can't get to work; requirement that teachers provide online work for KGS pupils when they can't get to school.</p>		
122	21/04/2020 10:35 AM ID: 139274391	Ask local people. Don't rely on a survey written in a way that you get the answers you want and at the same time you can say how clever you have been asking us locals.		
123	21/04/2020 11:43 AM ID: 139279937	App designed for anyone to download that offers updates.		
124	21/04/2020 13:11 PM ID: 139286502	Build a new crossing with provision for future or concurrent power generation that will provide energy to the county and income		
125	21/04/2020 17:24 PM ID: 139305659	It would help the flooding problem in St Margaret's if you demolished the barrier and re-instated the ferry as the storm surges that build up in the flow would have a way to escape. Also would prevent the flooding in Stromness. Before the barriers were built flooding was unknown in these locations.		
126	25/04/2020 11:56 AM ID: 139480475	Accept there are time's when it is not possible to cross and plan / inform accordingly.		
127	11/05/2020 16:51 PM ID: 140776305	During rough conditions on the barriers not all drivers wait until the oncoming car leaves the barrier before they begin to drive onto the barrier and this can increase risk of a collision should the sea be coming over. Traffic lights would reduce this risk.		
128	13/10/2020 12:13 PM ID: 150043669	Maintain the road surfaces and do no more		
129	15/10/2020 11:50 AM ID: 150200740	<p>The council don't listen to locals anyway or the problem would have been sorted 20 years ago. Locals have given numerous suggestions on ideas how to resolve the issue. The OIC simply won't spend the money on sorting the issue and just continue to waste money and time on pointless expensive surveys which could be carried out a lot cheaper.</p> <p>If this was an issue in Kirkwall or Stromness the problem would have been sorted long long ago. The council simply do not care about residents in the linked isles and it is quite sad.</p>		
130	23/10/2020 01:18 AM ID: 150820343	<p>I would like to ask what happened to the survey on Barrier 1 that was carried out at great expense but no one to my knowledge has heard the results of. It seems to me that this council cannot stick to one idea and follow it through in a professional and competent manner. One has to question since the councillors are elected by their constituents if the constituents are getting value for money or is the only money left being spent in inappropriate ways.</p> <p>This survey is again written in such a way that the answers have already been preordained and has only been sent to businesses and not to the users of the south isles so it can say it has done a survey but not what one would call a very thorough one!!!</p>		

3. If you have any ideas that have not already been mentioned above the Council would welcome them in this section of the questionnaire.





			Response Percent	Response Total
		I'm afraid that our councillors are letting us down again so hopefully the next elections will see a round of more genuine folk taking part.		
131	22/12/2020 10:35 AM ID: 155174994	Construct an additional 2nd barrier to run parallel with the present barrier. It would make use of the Glimps Holm Skerry. The pair of barriers would operate thus: (1) In normal weather conditions each barrier would run traffic in one direction only, using twin lanes (western barrier northbound traffic, eastern barrier, the new one, southbound traffic. (2) In severe westerly cross wind conditions only the eastern barrier would be used, bi-directionally. (3) In severe easterly cross wind conditions only the western barrier would be used, likewise. Cost - To defray costs there are alternative green energy options which could be installed to provide continuing income into the future from the sale of electricity (1) Each of the two parallel barriers to be provided with tidal sluices generating electricity. (2) The space between the barriers could be a wind farm providing additional revenue streams. (3) Both (1) and (2) above could be operated simultaneously to maximise income. Additional Advantage - With a pair of parallel barriers the problems attendant upon running repairs (either to the roadways or the barrier itself) are solved as one barrier can be completely closed to traffic, the other barrier then being used for both directions of travel.		
132	22/12/2020 10:47 AM ID: 155175821	Breakwater further out to the east of the barrier No. 2 to prevent so much overtopping from a south easterly. Less expensive. Having further estimates and surveys are wasting OIC money since previously this has not resulted in no definite decision.		
133	22/12/2020 11:03 AM ID: 155176843	Regarding the project to re-face eastside of Barrier No. 2. It would be much better to erect a breakwater opposite entrance to quarry at eastside of wrecks. To reface eastside of barrier would still allow sea to reach the roadway.		
134	22/12/2020 11:07 AM ID: 155177162	Better to build a breakwater from quarry entrance like job done at front of Ayre Hotel, Kirkwall, so that it will keep the sea away from the barrier. Breakwater should be built at eastside of ships.		
135	22/12/2020 11:10 AM ID: 155177347	The only way is a bridge as the sea is rising all over the country and lots of large vehicles. Anything else is false economy. This problem has been ongoing for 26 years plus.		
136	22/12/2020 11:21 AM ID: 155178021	Having been at the official opening ceremony of the barriers and in the photo to prove it and I have used these going to school when there were closures so that we had to walk across, no crash barriers, no cats' eyes and no signs to say whether one should cross or not. Later when social events and courting demanded quite regular use, followed by years working in Kirkwall and then quite a lengthy period driving a school bus, I feel that I have seen many changes during my lifetime. Yet, when making any suggestions on how the situation of over-topping might be lessened these were totally ignored. Therefore I will reiterate what I feel is pertinent to an economic solution in what is likely to be much more stringent times, my suggestion is that the blocks on the east side of No. 4 barrier, now no longer serving a purpose, should be lifted and used at the problem areas on No. 2. My initial suggestion of this was met with the comment that these could not be lifted because the metal loops were too rushed. Now a grab could deal with that effortlessly. Another thing that I feel would help, but do not know how feasible it is, the caisson should be repositioned to be much nearer the Barrier. What I would like to see - a bridge, thus helping to save high tide flooding in the Hope. Holm and Stromness and leading to cleaner, more environmentally friendly waters in Scapa Flow, good for marine creatures as well as the burgeoning fish farm industry. Of course if one was to look at the situation in a far sighted manner, one would think that turbines would provide the solution both for making Orkney self-sufficient in energy and have a roadway that would see the end to over-topping and perhaps require little further upkeep for a century or more to come.		

3. If you have any ideas that have not already been mentioned above the Council would welcome them in this section of the questionnaire.

			Response Percent	Response Total
137	22/12/2020 11:33 AM ID: 155178868	The online form that you have put out does not function correctly. First, I do not think this needs to be categorised as a highly challenging engineering problem. I have been resident across the barriers for over 35 years. Long before, the problem was met by the placing of a salvaged block ship. This worked well, and very cheaply, for a very long time. Then a wave wall, badly designed, was added at very considerable expense. Little effect except it also blocked a driver's view of wave build-up. Now is the time to replace the block ship. Such vessels are plentiful and comparatively cheap. A similar approach could be used on the west side. Removing the wave wall would probably be helpful. This is the cheapest way forward, and likely the most effective.		
			answered	137
			skipped	218

2. Contact details

4. Please select your area of residence from the list below.

			Response Percent	Response Total
1	Burray and South Ronaldsay		54.05%	187
2	Orkney Mainland		40.17%	139
3	Non Linked Orkney Islands		3.18%	11
4	Outwith Orkney		2.60%	9
			answered	346
			skipped	9

Comments: (100)

1	11/03/2020 17:40 PM ID: 137470267	I live on the East Mainland, and very regularly make use of the main lifeline ferry service out of St Margaret's Hope. Often, several times a week. In 20 odd years, I have only had barrier disruption twice - Once each way. It's such a minor inconvenience, it's not worth spending much money on.
2	11/03/2020 17:59 PM ID: 137471385	The xxxx camera is the best idea but sadly crashes when too many people go on it perhaps spend money on cameras we can log onto to see the wave wall. Save money keep our scenery looking good.
3	11/03/2020 18:02 PM ID: 137471593	Lived in South Ronaldsay for 21 years, it annoys me when folk blame others for bad choices.
5	11/03/2020 18:15 PM ID: 137472303	I would have selected 'not worthwhile at all' to all questions on the section regarding digital road signs if the survey allowed it.
6	11/03/2020 19:19 PM ID: 137475838	Hopefully moving to South Ronaldsay from Kirkwall and work in Kirkwall with no option of working from home in bad weather.
8	11/03/2020 19:56 PM ID: 137477667	Directly affected by barrier closures and it impacts my employers. This also is having a detrimental effect on property prices and is preventing families moving to

4. Please select your area of residence from the list below.

			Response Percent	Response Total
		this area as they are concerned about getting kids home or getting home to their kids		
12	11/03/2020 22:27 PM ID: 137483270	If this survey has cost a lot to set up the person responsible should be sacked. It is so biased that it is laughable.		
13	11/03/2020 22:31 PM ID: 137483323	I have lived in Burray for over 10 years. There needs to be a proper public consultation process without a council driven pre-set agenda, who knows there may be some folk who have some really good ideas that have not been yet considered.		
15	11/03/2020 23:23 PM ID: 137484400	I live in Tankerness and travel over the barriers for - and also oftentimes during - my working day.		
19	12/03/2020 10:28 AM ID: 137498918	I work in St Margaret's hope so it does affect me, but not so much that it needs resolved.		
20	12/03/2020 12:28 PM ID: 137507511	Part time in South Ronaldsay and Burray. The rest of the time I'm west of Finstown. The consultation should really be far wider as many West Mainlanders use Pentland Ferries and are seriously inconvenienced when the Barriers are being overtopped.		
22	12/03/2020 15:55 PM ID: 137524430	I dread the day when xxxx service to Gills Bay is our only link with Mainland Scotland. And the Barriers are closed.		
23	12/03/2020 18:02 PM ID: 137532662	Live in Kirkwall now but lived in South Ron for 18 years, drove across barriers twice a Day for years. Family still in Burray so always need to cross barriers in any weather.		
24	12/03/2020 20:36 PM ID: 137538507	I grew up in Kirkwall and have worked in Orkney as an adult. I still visit about 4/5 times a year. I have been involved in closing the barriers previously in my job as a police officer. I appreciate the public become tidal experts when the barriers are closed and the council/police do a wonderful job managing this, particularly as there is no set criteria for doing. It's always a difficult call to close the barriers and the public can be, understandably, unhappy and frustrated. But I genuinely believe that the money would be better spent in the North isles ferry connections. The impact of the barriers being closed is minimal. Probably in the region of 24-48 hours a year in total, with some of these closures happening during the night. The North isles ferries are in dire need of upgrading.		
25	12/03/2020 20:42 PM ID: 137539333	Hopefully this relatively simple project is not over engineered.		
26	13/03/2020 08:15 AM ID: 137548752	Previous Burray resident, now outwith orkney.		
33	14/03/2020 12:46 PM ID: 137602625	It's an area way over developed, too many houses being built for money/profit and not enough houses for folk who really want to stay here because they love it. Council/Ohal houses encourages many folk for cheap rents, but they really wanted to stay in Kirkwall. This only increases the number of complaints on Overtopping and flooding. Spend the millions on real people who need it.		
36	15/03/2020 16:03 PM ID: 137628660	I understand that it is a difficult problem. I think xxxx would be a good person to consult. Good luck.		
37	15/03/2020 17:34 PM ID: 137633528	Whilst I note the intention to exclude residents who do not live in the linked South Isles this is a matter of great importance to other members of the Orkney public and businesses. I trust that the answers will be treated as valid.		

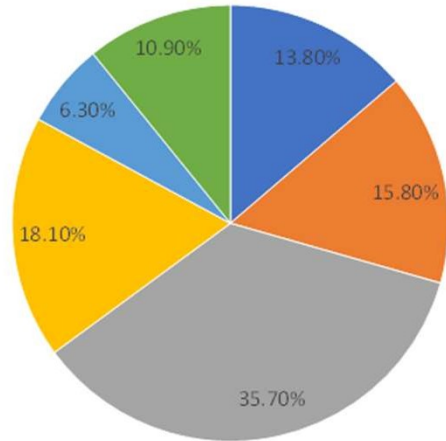
4. Please select your area of residence from the list below.

			Response Percent	Response Total
38	17/03/2020 11:05 AM ID: 137730918	I feel that there have been times when the barrier had been open and should have been shut, in other words the text of the report understates the potential safety issue. Furthermore the report does'nt allow for the potential busy periods relating to MV Alfred.		
44	19/03/2020 19:05 PM ID: 137862071	Having lived here almost 20 years, I am not bothered by barrier 2.		
49	30/03/2020 19:05 PM ID: 138365570	Thanks for asking.		
50	31/03/2020 08:47 AM ID: 138377491	Born and raised in South Ronaldsay, high time the South Isles got some priority over Stromness and Kirkwall, before somebody is seriously hurt or worse.		
55	09/04/2020 18:58 PM ID: 138822850	I live in Deerness but I travel the barriers daily and several times a day for work.		
56	09/04/2020 19:23 PM ID: 138823587	Just construct a simple breakwater as described previously, using imported stone and this would only cost around £3-4 million, the figures that have been quoted are inflated to scare the public as they are for schemes that are obviously, over engineered. A simple hydrographic survey has to be completed and you must forget the idea of installing tidal turbines as it's a none starter.		
58	09/04/2020 20:13 PM ID: 138826306	I grew up on South Ron.		
59	09/04/2020 20:28 PM ID: 138826868	Orcadian born. Lastly, I think a bridge complementing the history of the Churchill Barriers is the only way forward. Yes, expensive at the onset- but in this day and age, it a solution that will last a lifetime.		
61	10/04/2020 08:10 AM ID: 138836230	Frequent visitor generally using xxxx when driving up.		
64	10/04/2020 10:56 AM ID: 138841608	I am born and bred orcadian. I'm from Burray my folks still live there before I moved on to the Scottish 'mainland' I drove over them everyday. My dad taught me how to drive on the barriers I think you may have taken the 'bad weather closures' to far if everyone knew how to cross safely this would cut down on costs and police/coastguard time. As I mentioned I think a traffic light system along with the warning lights before you hit them would be the best action.		
66	10/04/2020 11:39 AM ID: 138844168	I cannot believe how much money in Surveys has been done and why haven't the company who did them told hey got it wrong and get money back		
68	10/04/2020 14:55 PM ID: 138856518	If you continue to centralize services the OIC shall be amalgamated into the Highlands and Islands Council. Buy some proper boats and run a decent timetable.		
69	10/04/2020 16:12 PM ID: 138860285	Stop wasting time on the barriers.		
70	10/04/2020 20:30 PM ID: 138867948	Take control, no more surveys.		
71	11/04/2020 07:29 AM ID: 138873613	This affects all Orkney residents given that the barriers are the only access to the principal ferry route South.		
72	11/04/2020 13:40 PM ID: 138881793	xxxx Orkney Islands Council are partners working with DCMS on the next 5G network being developed in Orkney (starting (May 2020) to provide better communications, more enhanced communications. I would suggest speaking to us to work out how we can integrate this into our trials to better provide communications with the public and transport.		
78	15/04/2020 08:18 AM ID: 139018347	Spent 3 years travelling to SMH for work in late 70s never missed a day, travelled early on about 2 occasions to avoid High Water. Situation has deteriorated		

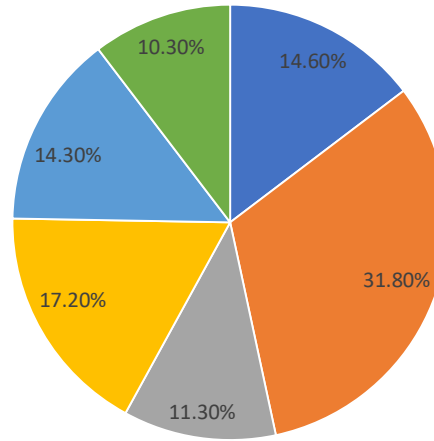
4. Please select your area of residence from the list below.

			Response Percent	Response Total
		considerably since then. Anecdotally long time S Ron and Burray folk I am acquainted with mostly maintain the current ""Wave Wall"" was a backward step.		
83	17/04/2020 11:46 AM ID: 139141745	<p>Current OIC employee, former Community Councillor, family going back hundreds of years in both communities, daily barrier traveller and much much more.</p> <p>Please listen and take advice from the people who have crossed the barriers for a long long time...not just folk who have moved in over the last 10 or 20 years who suddenly know everything there is to know about road travel in Orkney. If the OIC wants to shell out multi thousands of ££££ to experts pay the people who know the barriers, who drove across them before there were sides on them (me included!!!), who knows and understand the beaches and tides around the offending barrier, use our LOCAL experts!!!</p> <p>Thank you!!!</p>		
84	18/04/2020 00:09 AM ID: 139177003	From Orkney but return multiple times a year.		
85	19/04/2020 08:45 AM ID: 139198917	We see the constant use of consultations to delay spending money of the reserves to address the issues of the inter island ferries. The same is true with the barriers, but each time a decision is fudged the costs of a solution goes up.		
86	19/04/2020 13:55 PM ID: 139205619	You should be embarrassed at the thought of this !!		
89	21/04/2020 10:35 AM ID: 139274391	<p>Accidents, bad accidents, have been happening for over the past 25 years. Someone or a group will be killed as nothing has been done to improve the dangers. How much do you value Peoples lives? How much was the cost of solving the problem of overtopping on the Ayre Road and Kirkwall seafront? Does it not justify spending money on the barriers when they connect, more than likely, the main lifeline sea link into Orkney.</p> <p>This survey is a farce! Not worth commenting on.</p>		
90	21/04/2020 12:00 PM ID: 139279570	I have been stuck down that end due to working while barriers get closed it is frustrating to say the least and needs addressing, I previously worked as an engineer in the merchant navy being involved in building piers, pipelines, breakwaters and various different projects all over the uk and Europe, this problem from my experience has the potential to take maybe 2 or 3 months working to resolve if it is planned and executed correctly, breakwaters being a simple construction and could be constructed with a 360° tracked digger and some tippers working from the shore it would keep the cost minimal as well as be a permanent solution. It is very easy to see where the swell is building out from the barrier and the effects of the back wash, you have knowledgeable skippers within the marine department north isles ferries and the tug crews, even some of the people in the office at Scapa would give good advice maybe. Engineers making models and doing wave tests in a office is not always the best they can miss things that nature throws up, experience is key here.		
91	21/04/2020 13:11 PM ID: 139286502	Under normal circumstances I drive to Burray for family reasons.		
92	21/04/2020 17:24 PM ID: 139305659	This is a non issue. People who choose to live across a causeway must accept that it cannot always be crossed - look at Lindesfarne in Northumberland - the road is under the sea at high tides!		

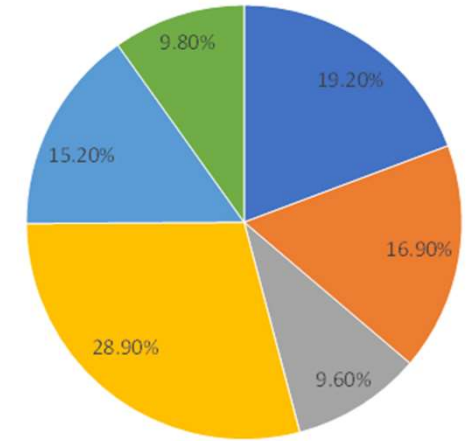
First preference based on response total for each option,
Pie represents 100.6% (due to different totals for each option)



Second preference based on response total for each option,
Pie represents 99.5% (due to different totals for each option)

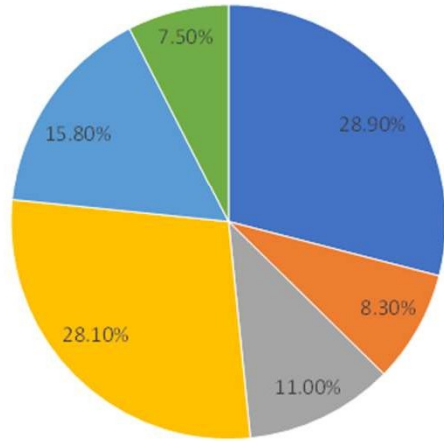


Third preference based on response total for each option,
Pie represents 99.6% (due to different totals for each option)

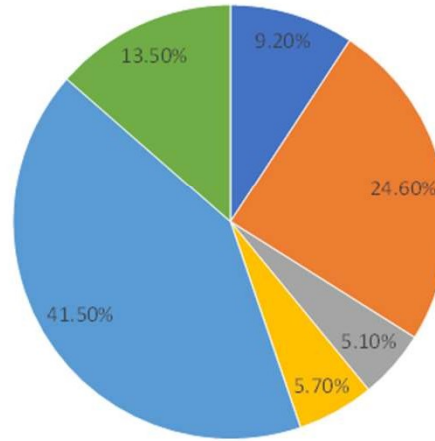


- Progress a study, at an estimated cost of £60,000, to further assess the viability of beach recharge.
- Develop a project to reface the east side of Barrier Number 2, at an estimated cost of £13.5 million, through the Capital Project Appraisal process. When complete this would reduce closures of the Barriers by around 60%.
- Develop a project to progress with a bridge to replace Barrier Number 2, at an estimated cost of up to £23 million, through the Capital Project Appraisal process. When complete this would eliminate closure in all but the most extreme conditions.
- Improvements to communication regarding closures, through improved electronic signage, linking information in respect of tides and weather.
- Remove the caisson and take no further action in relation to a project to prevent overtopping at Barrier Number 2.
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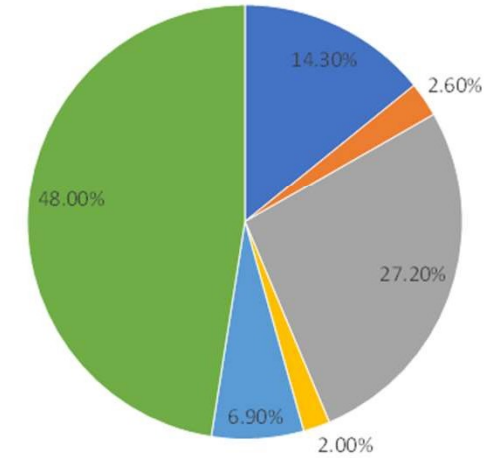
Fourth preference based on response total for each option, Pie represents 99.6% (due to different totals for each option)



Fifth preference based on response total for each option, Pie represents 99.6% (due to different totals for each option)

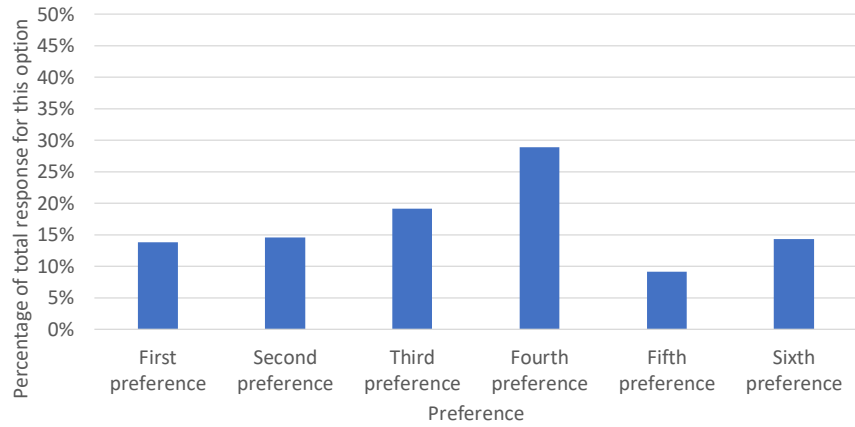


Sixth preference based on response total for each option, Pie represents 101.0% (due to different totals for each option)

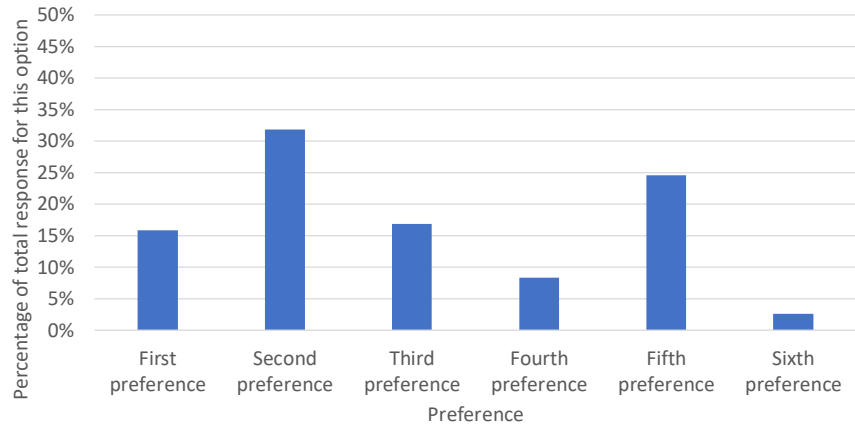


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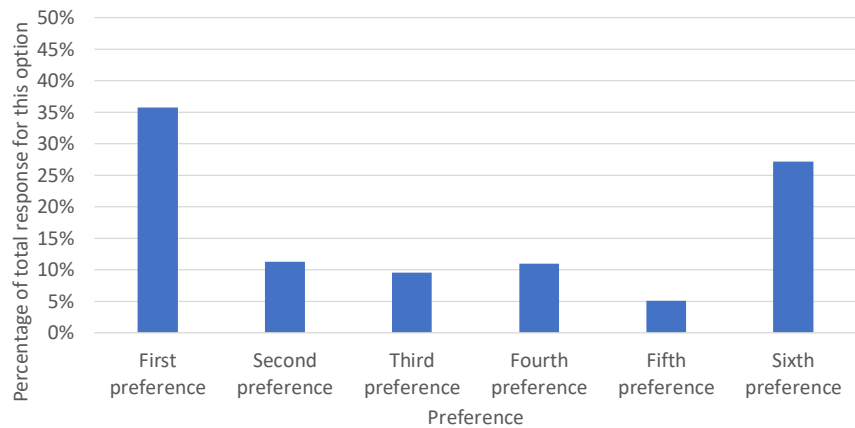
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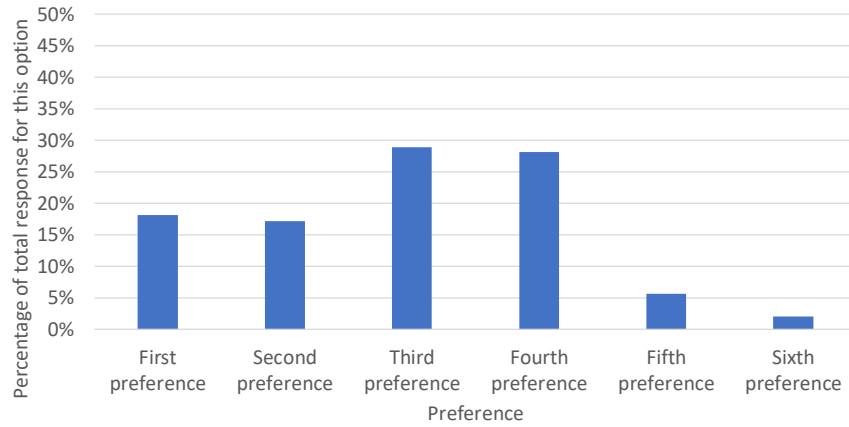
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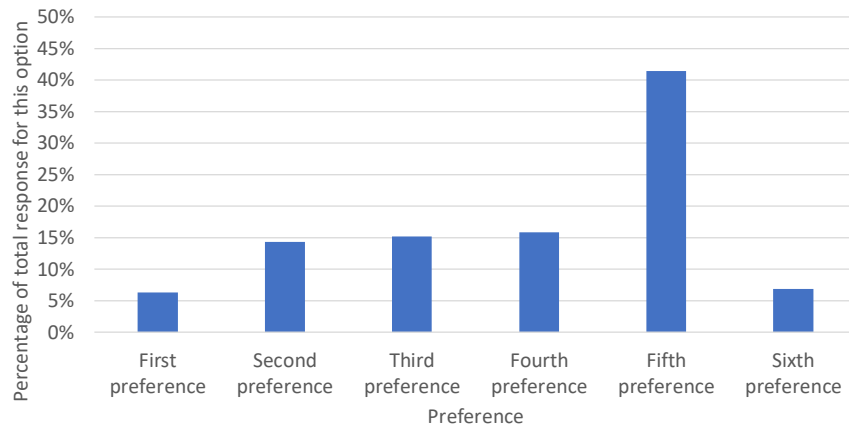
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Remove the caisson and take no further action in relation to a project to prevent overtopping at Barrier Number 2.



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