

Engagement summary report (Part A)

Adelaide Beach Management Review –
Shortlist Engagement

Engagement summary report (Part A)

28 November 2023

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URPS Ref	231128_v4_Shortlist_Engagement Summary Report_Part A

This report has been prepared on behalf of and for the exclusive use of the Adelaide Beach Management Review Independent Advisory Panel (IAP), in accordance with an agreement between the Department for Environment and Water (DEW) and URPS.

Document history and status

Revision	Date	Author	Reviewed	Details
V1	30.10.23	Z. Hambour	N. Halsey	Preliminary draft for DEW review
V2	14.11.23	Z. Hambour	E. Mansfield	DEW edits and finalisation of first draft
V3	20.11.23	Z. Hambour	E. Mansfield	Updated after IAP review
V4	28.11.23	Z. Hambour	E. Mansfield	Updated after final IAP meeting

We acknowledge the Kaurna People as the Traditional Custodians of the land on which we work and pay respect to their Elders past, present and emerging.

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Snapshot

What is the Adelaide Beach Management Review?

The Adelaide Beach Management Review (the review) is a 12-month project, overseen by an Independent Advisory Panel (IAP) appointed by the Attorney General and facilitated by the Department for Environment and Water (DEW). The review involves an independent scientific review of coastal (sand) management approaches to determine advice on feasible approaches for managing Adelaide's metropolitan beaches.

The goals of the review are to identify how to manage sand on Adelaide's beaches in a way that:

- Minimises disruption for communities
- Avoids environmental harm, and
- Maximises sand staying on beaches.

Shortlisted options engagement and previous engagement

Between 18 September and 15 October 2023, the review engaged with community and stakeholders to understand their level of support for seven shortlisted sand management options identified to keep our beaches between Glenelg North and North Haven sandy into the future.

These shortlisted options had been identified from a long list of sand management approaches through a scientific review. The scientific review was in part informed by input from community and stakeholder engagement undertaken in May and June 2023. That engagement presented a draft long list of sand management approaches and called for other approaches that could be added to the long list. It also sought to understand community and stakeholder values about how sand could be managed in relation to the goals of the review.

How were the shortlisted sand management options identified?

The shortlisted options were identified through a scientific review by Bluecoast Consulting Engineers that considered:

- How to manage sand on Adelaide's beaches to minimise disruption for all communities, avoid environmental harm and maximise sand staying on beaches.
- The Adelaide community's views on sand management options and on the impact of the current sand management approaches, including trucking and pipelines.
- Lessons from international and interstate examples of sand management on metropolitan beaches.
- What can be learned from the most up to date analysis of climate science about future management of Adelaide's beaches.

What were the shortlisted options?

- Option 1.1 – Dredge existing sand near the shore
- Option 1.2 – Dredge using large offshore sand deposits
- Option 1.3 – Combination of dredging offshore deposits and trucking quarry sand
- Option 2.1 – Pipeline using tractors/trucks on beaches
- Option 2.2 – Pipeline using dredge pump systems on jetties
- Option 2.3 – Pipeline using a temporary dredge
- Option 3 – Trucking sand from beaches and quarries

A description of each of these options is provided in Part B, Appendix A.

How did we engage?



706 online survey responses
and fact sheets at
yoursay.sa.gov.au/abmr-shortlist



39 written submissions
from individuals, groups
and organisations



48 participants at
stakeholder workshop



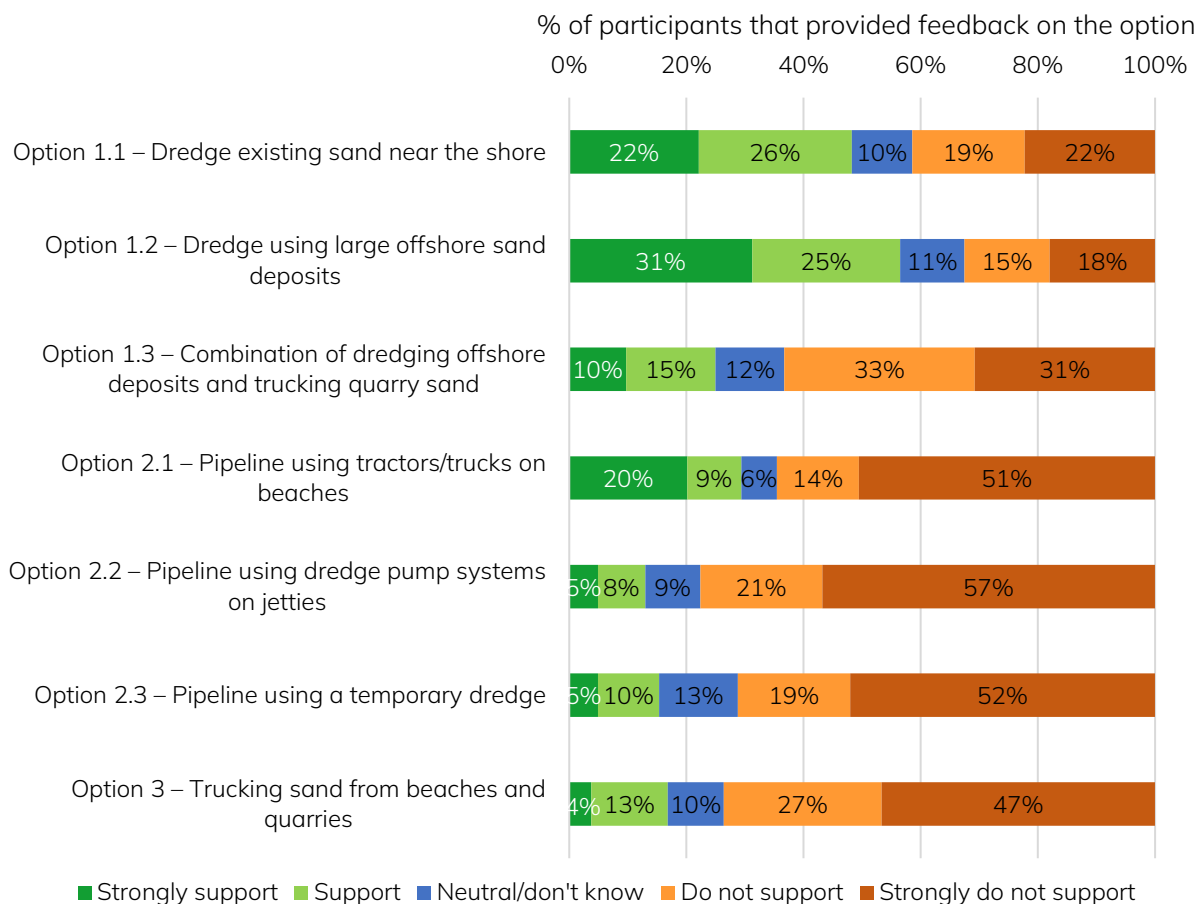
Social media advertising,
emails, e-newsletters

The engagement was a consultation exercise in which people could choose to participate. It was not a representative sample of South Australian residents. However, the survey attracted 706 responses. The majority of survey participants were over 55 years in age and lived in one of the 24 metropolitan coastal suburbs.

What was the level of support for the shortlisted options?

The following are quantitative results from the online survey. Results of written submissions and the stakeholder workshop are provided in sections 5 and 6.

Figure 1 Survey participant level of support for each shortlisted sand management option



Most supported options (strongly support and support combined)

- Option 1.2 – Dredge using large offshore sand deposits was supported by 56% of participants.
- Option 1.1 – Dredge existing sand near the shore was supported by 48% of participants.
- 41% and 33% of participants strongly did not support or did not support options 1.1 and 1.2 respectively. 10 to 11% were neutral or didn't know about these options.

Most not supported options (strongly do not support and do not support combined)

- Option 2.2 – Pipeline using dredge pump systems on jetties was not supported by 78% of participants.
- Option 3 – Trucking sand from beaches and quarries was not supported by 74% of participants.

How did support differ based on the beach survey participants most visited?

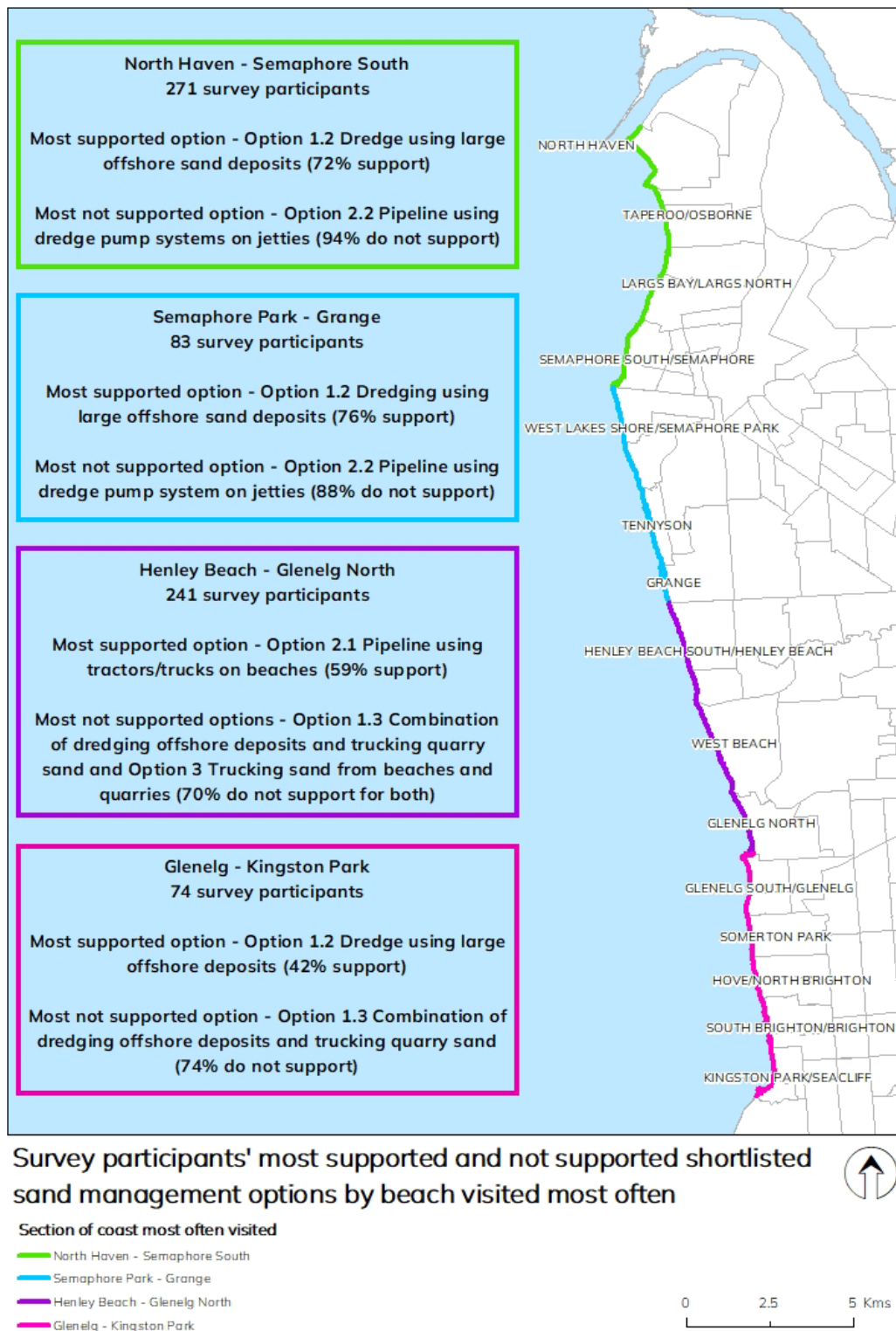


Figure 2 Survey participants' most supported and not supported shortlisted sand management options by beach visited most often

How did support differ for coastal resident survey participants?

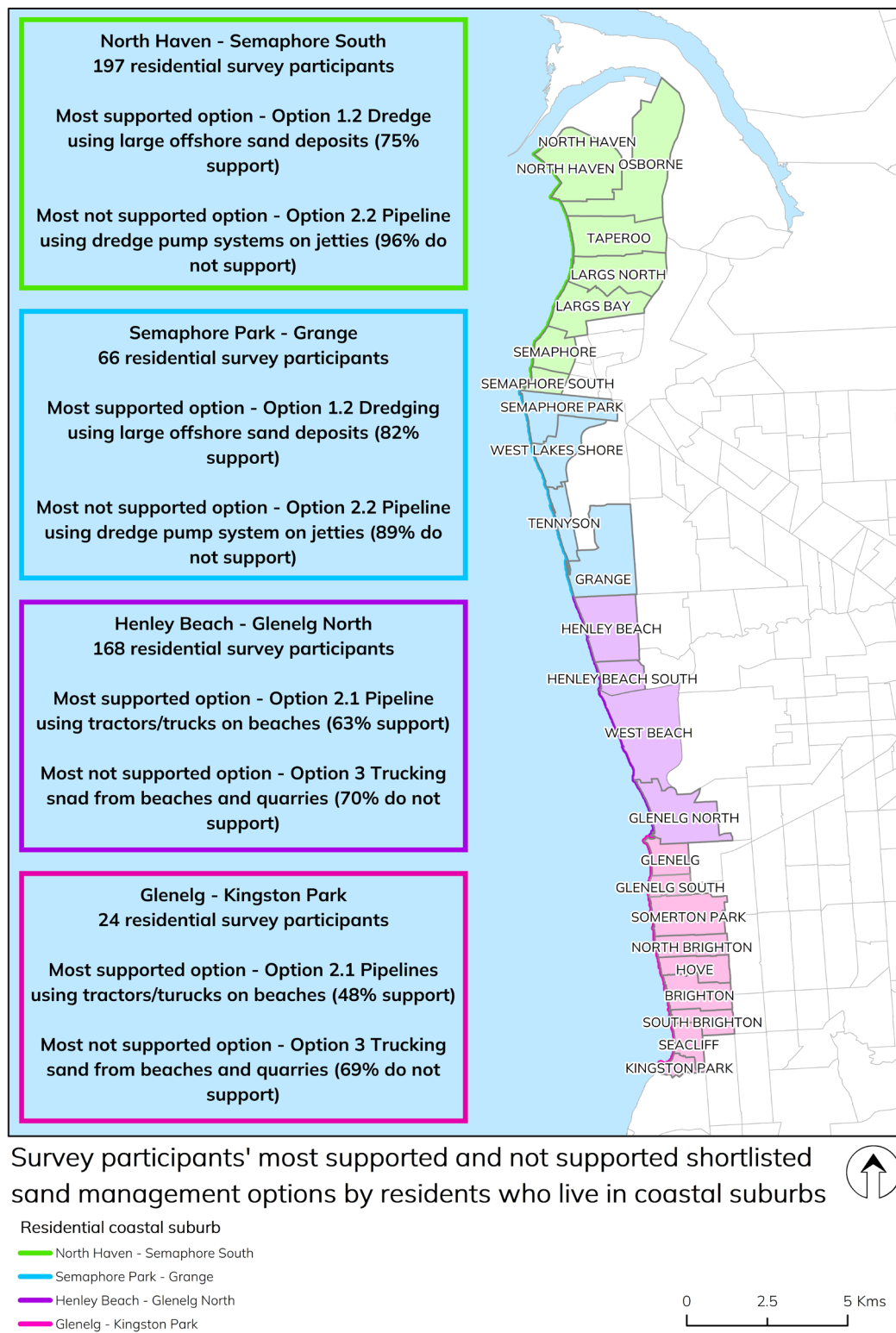


Figure 3 Survey participants' most supported and not supported shortlisted sand management options by residents who live in coastal suburbs

1. Why we engaged

Adelaide's coast is a much loved and visited part of our city and holds significant community, environmental and economic values. These values are at risk however from coastal erosion and without active management we will see the build-up of sand in some areas, and the loss of sandy beaches in other areas.

1.1 What is the Adelaide Beach Management Review?

The Adelaide Beach Management Review (the review) is a 12-month project, , overseen by an Independent Advisory Panel (IAP) appointed by the Attorney General and facilitated by the Department for Environment and Water (DEW). The review involves an independent scientific review of coastal (sand) management approaches to determine advice on feasible approaches for managing Adelaide's metropolitan beaches.

The review has been initiated in accordance with the South Australian Government's commitment to undertake a review of coastal sand management approaches for Adelaide's managed metropolitan beaches. The aim of the review is to explore all approaches for sand management which includes community input and transparency of process, and consideration of climate change impact.

In accordance with the State government's commitment, the review:

- Aims to assess sand management approaches and identify how to manage sand on Adelaide's beaches in a way that minimises disruption for communities, avoids environmental harm, and maximises sand staying on beaches. These are the goals of the review.
- Includes community engagement to ensure a clear understanding of the Adelaide community's views about sand management approaches, and about the impact of the current sand management approaches including trucking and pipelines.
- Will consider lessons from international examples of sand management of metropolitan beaches, and what can be learned from the most up to date analysis of climate science about future management of Adelaide's beaches.

1.2 Why is the review needed?

Sand naturally moves northwards along Adelaide's beaches due to prevailing wind and waves in a process called littoral drift. Sand builds up at beaches where structures interrupt the natural movement of sand northwards, including Largs Bay, Semaphore Park, the West Beach boat harbour, and Glenelg.

The natural movement of sand northwards results in several erosion hotspots along the Adelaide coastline including Semaphore South, Semaphore Park, Henley Beach, Henley Beach South, West Beach and Kingston Park/Seacliff. These areas require replenishment to ensure adequate sand buffers are maintained to protect coastal development and public infrastructure from storm damage. Maintaining Adelaide's sandy beaches currently involves active management to move sand and bring in sand from external sources. However, recent years have seen more storm events and increased erosion of beaches.

At West Beach, access and amenity has been impacted. Without intervention, these impacts will only increase with climate change.

Construction of a pipeline to move sand from Semaphore South to West Beach was previously proposed as a long-term response for sand management. This initiative was halted in line with the State government's commitment to undertake a review to explore all approaches for sand management. Externally sourced sand will continue to be brought into West Beach while the review is completed.

1.3 How is the review being undertaken?

The review process is shown in Figure 4.

The review involves an independent scientific review supported by community and stakeholder engagement. These processes are iterative, informing each other to support the identification of sand management approaches that are feasible and best meet environmental needs while acknowledging community expectations.

At time of finalising this report the engagement and scientific review aspects of the Adelaide Beach Management Review had concluded. Engagement was led by URPS (urps.com.au) and the scientific review was led by Bluecoast Consulting Engineers (bluecoastconsulting.com.au).

The review is being overseen by the Adelaide Beach Management Review Independent Advisory Panel (IAP), which informed the review approach and examined the outcomes of each stage of the review.

The IAP attended stakeholder workshops to observe input from stakeholders early in the review at Step 2 and during consultation on the shortlist (Step 5 – this report). Community and stakeholders also had the opportunity to attend a meeting of the IAP to speak in support of their submissions made to the review on the shortlisted approaches. Presentations made by participants at the IAP meeting do not form part of this report.

Independent Advisory Panel members are:

- Mr Mark Searle, former Chief Executive Officer for the City of Marion (2000-2015)
- Mr Les Wanganeen and Ms Sarah Smith, Kaurua representatives
- Professor Beverley Clarke, social science expert from Flinders University
- Professor Emeritus Nicholas Harvey, coastal science expert from the University of Adelaide
- Professor Emeritus Michael Young, environmental science expert from the University of Adelaide.

1.4 Shortlisted options engagement and previous engagement

Between 18 September and 15 October 2023, the review engaged with community and stakeholders to understand their level of support for seven shortlisted sand management options identified to keep our beaches between Glenelg North and North Haven sandy into the future (Step 5).

These shortlisted options had been identified from a long list of sand management approaches through a scientific review (Step 3). The scientific review was in part informed by input from community and

stakeholder engagement undertaken in May and June 2023 (Step 1). That engagement presented a draft long list of sand management approaches and called for other approaches that could be added to the long list. It also sought to understand community and stakeholder values about how sand could be managed in relation to the goals of the review.

1.5 This report

This report summarises the results of Step 5 community and stakeholder consultation on shortlisted sand management approaches.

The report has been reviewed by the IAP (Step 6).

Appendices are compiled in a separate document – Engagement Summary Report Part B.

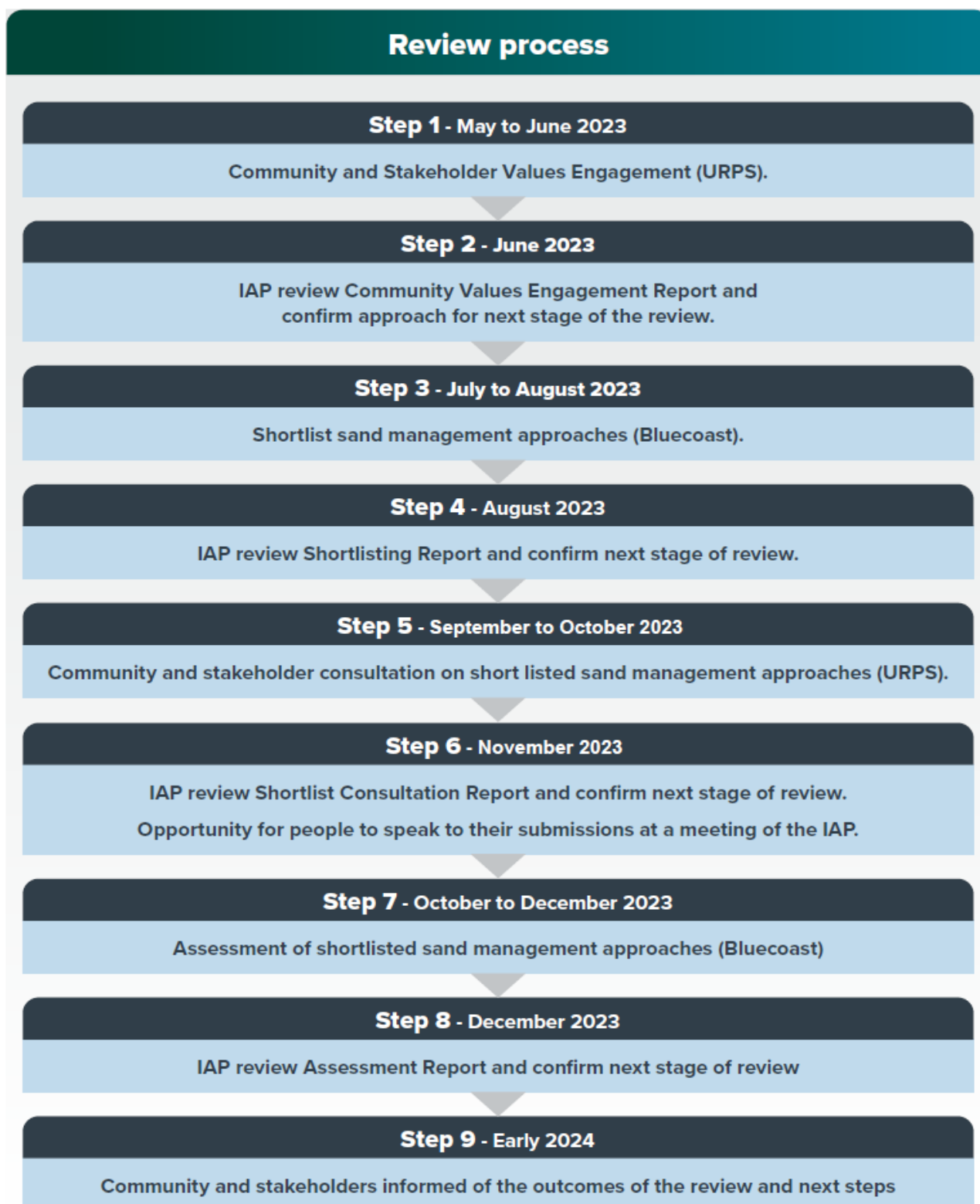


Figure 4 Review process

2. What we wanted to know

This consultation sought to understand the level of community and stakeholder support for seven shortlisted sand management options. The options were divided into three categories: Dredging, Pipeline and Carting and are described in the table below.

Table 1 Shortlisted sand management categories and options

Dredging Dredging would involve sand being collected from the seabed using a dredging vessel and being delivered to West Beach or other beaches in need of sand. This could include taking sand from deposits offshore of Largs Bay, Outer Harbor and/or Port Stanvac.	OPTION 1.1 Dredge existing sand near the shore OPTION 1.2 Dredge using large offshore sand deposits OPTION 1.3 Combination of dredging offshore deposits and trucking quarry sand
Pipeline Sand pumping uses underground pipelines to transfer sand and seawater from beaches where sand is building up to beaches in need of sand. Operating the pipeline would involve collecting sand from the beach or nearshore for 4 months at a time. Quarry sand would be delivered annually over the first 5-year period to restore West Beach.	OPTION 2.1 Pipeline using tractors/trucks on beaches OPTION 2.2 Pipeline using dredge pump system on jetties OPTION 2.3 Pipeline using a temporary dredge
Carting Maintain current arrangement: Moving sand using trucks and machinery and external quarry sand.	OPTION 3 Trucking sand from beaches and quarries

The shortlisted options were identified through a scientific review that considered:

- How to manage sand on Adelaide's beaches to minimise disruption for all communities, avoid environmental harm and maximise sand staying on beaches.
- The Adelaide community's views on sand management options and on the impact of the current sand management approaches, including trucking and pipelines.
- Lessons from international and interstate examples of sand management on metropolitan beaches.
- What can be learned from the most up to date analysis of climate science about future management of Adelaide's beaches.

The options were shortlisted from a long list of sand management approaches that had been contributed to by community and stakeholders as part of Step 1 of the review. Step 1 also sought to understand what values are important to community and stakeholders about how sand on beaches could be managed.

3. How we engaged

The engagement was undertaken from 18 September to 15 October 2023. The activities undertaken are shown in the table below.

The engagement was a consultation exercise in which people could choose to participate. It was not a representative sample of South Australian residents.

Table 2 Engagement Activities

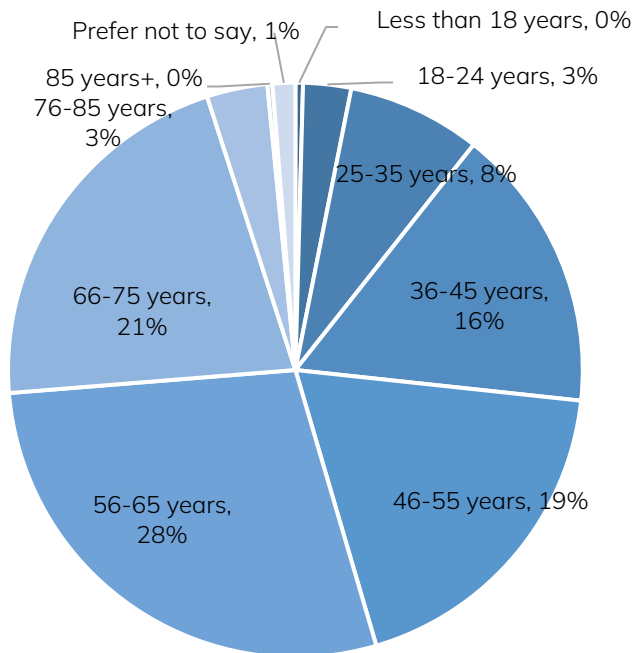
Activity	Description
Your Say webpage	A project webpage was established on the State Government consultation YourSAY website (yoursay.sa.gov.au/abmr-shortlist). The page provided information about the review process, the shortlisted options how to have a say and a link to the online survey.
Information documents	Two information documents were available for download on the project webpage. One presented information about the shortlisting process and options. The other was a preliminary draft technical information on the shortlisted options extracted from the Bluecoast review report. (Part B Appendix A)
Facebook advertising	Paid Facebook promotion was undertaken, featuring a short video encouraging community members to visit the YourSAY website to learn more and provide feedback on the shortlisted sand management options,
Email	An email was sent through the YourSAY newsletter on 18 September 2023 and DEW Coast Protection Board' e-newsletter on 6 October 2023. The email directed people to the project webpage to learn more and have their say.
Survey	An online survey (Part B Appendix B) was established on the project YourSAY webpage for people to provide their feedback on the shortlisted options. The survey was completed by 706 people.
Stakeholder workshop	A workshop was held with representatives of Councils, dune and community groups, resident and business associations, peak bodies and Kauria. The workshop was held from 6-9pm on Wednesday 27 September 2023 at Club West Lakes. The workshop was facilitated by URPS and included activities to gather input as well as presentations from review staff and Bluecoast.
Submissions	People were able to email written submissions to mail@urps.com.au in addition to (or instead) of completing the survey.
Speak to submissions	People were invited to register to speak to their survey or written submission at a special meeting of the IAP. A registration form was established on the YourSAY website.

4. What we heard - Online survey

4.1 Survey participants

The survey was consultation exercise in which people could choose to participate. It was not a representative sample of South Australian residents. However, it attracted 706 responses. The majority of survey participants were over 55 years in age and lived in one of the 24 metropolitan coastal suburbs.

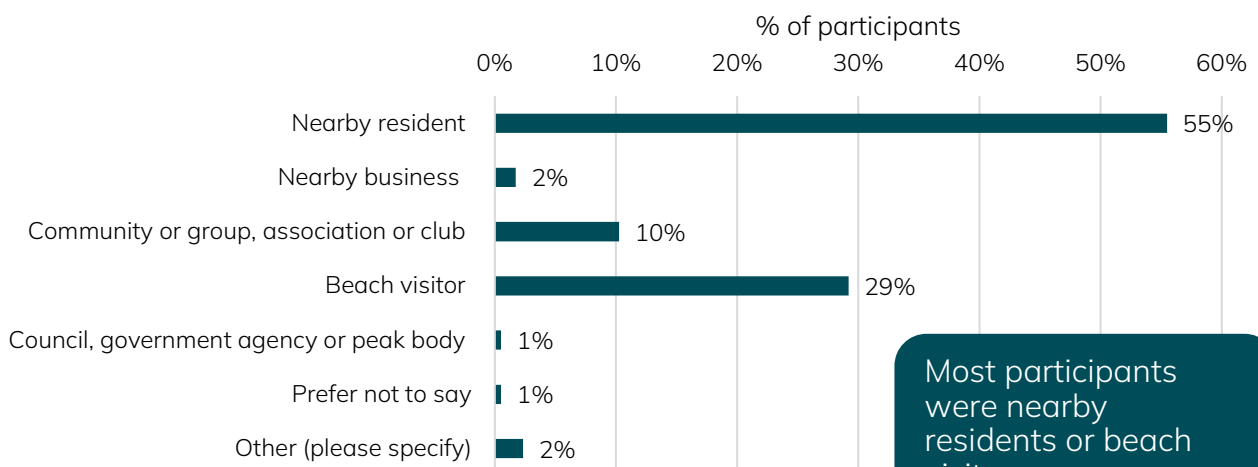
Figure 5 What is your age?



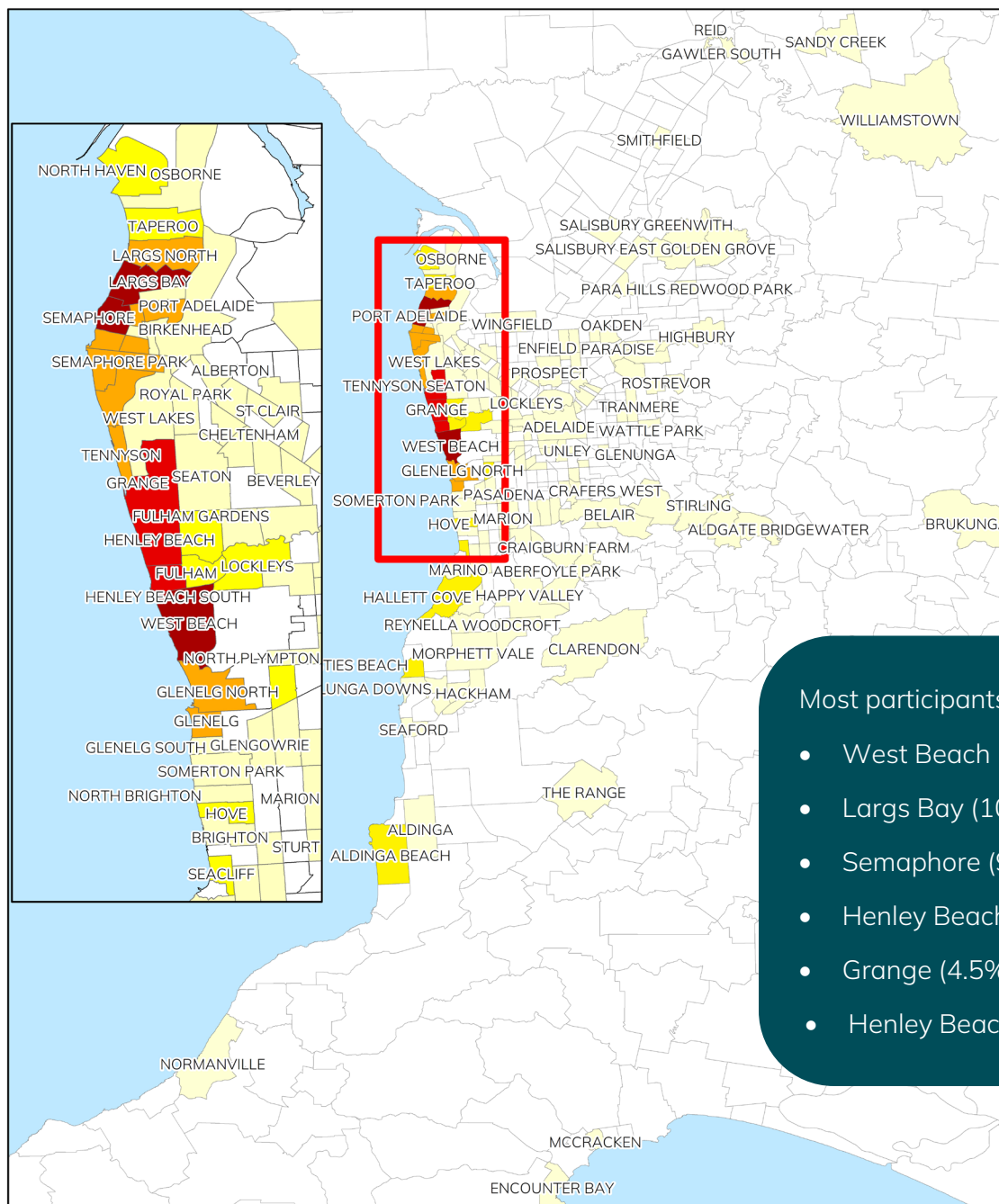
706 participants completed the survey

Almost half the participants were aged between 56 and 75 years

Figure 6 What is your relationship to this section of the coast?

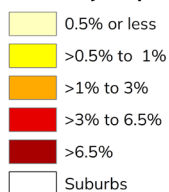


Most participants were nearby residents or beach visitors



Adelaide Beach Management Review - Residential Location of Survey Respondents

% Survey respondents



The following suburbs are not shown on the above map extent:

Ceduna (0.1%)
 Cowell (0.1%)
 Koolunga (0.1%)
 Marion Bay (0.1%)
 Renmark (0.1%)



0 5 10 Kms

Figure 7 Residential Location of Survey Participants

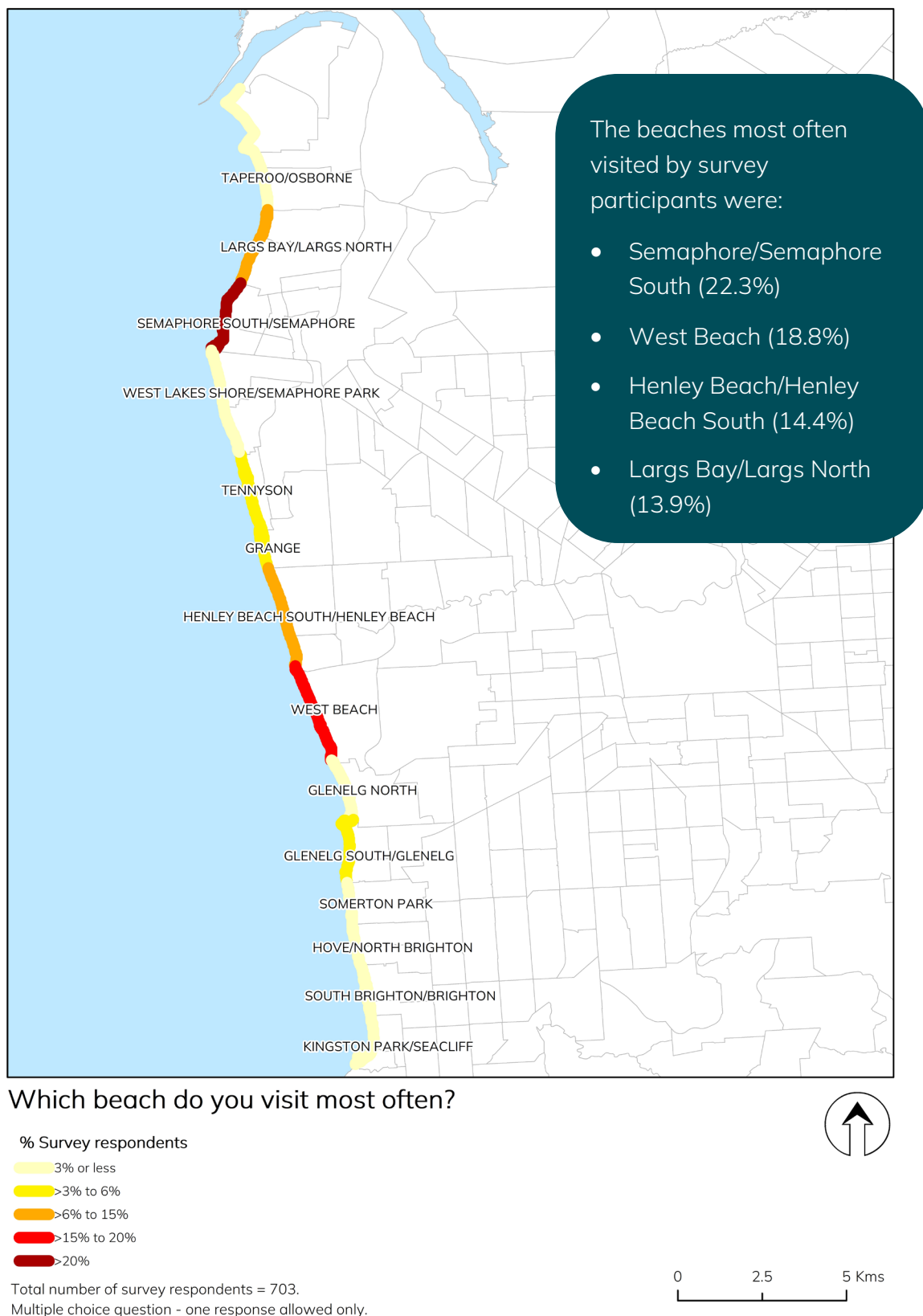


Figure 8 Beach visited most often by each survey participant

4.2 Survey participant level of support for the shortlisted options and why

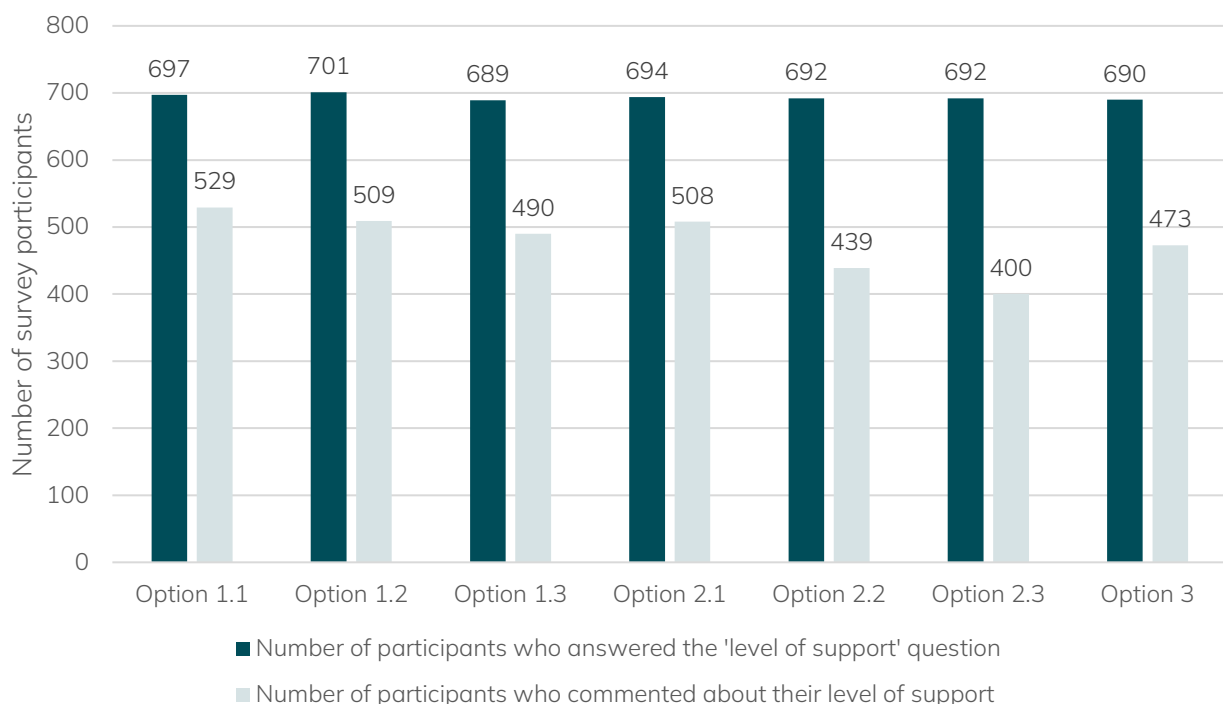
4.2.1 How many survey participants provided feedback on each of the shortlisted options?

Participants could choose which of the shortlisted sand management options they wanted to provide feedback on.

For each option participants were asked two questions. Both questions were optional:

1. What is your level of support for the option? (Participants ticked their level of support on a scale)
2. Tell us why you answered this way? (Participants provided written/typed comments).

Figure 9 Number of survey participants who provided feedback on each shortlisted sand management option



Extent of participants answering their level of support for options

More than 98% survey participants (690 of 706) ticked their level of support on all options.

Extent of participants providing comments on options

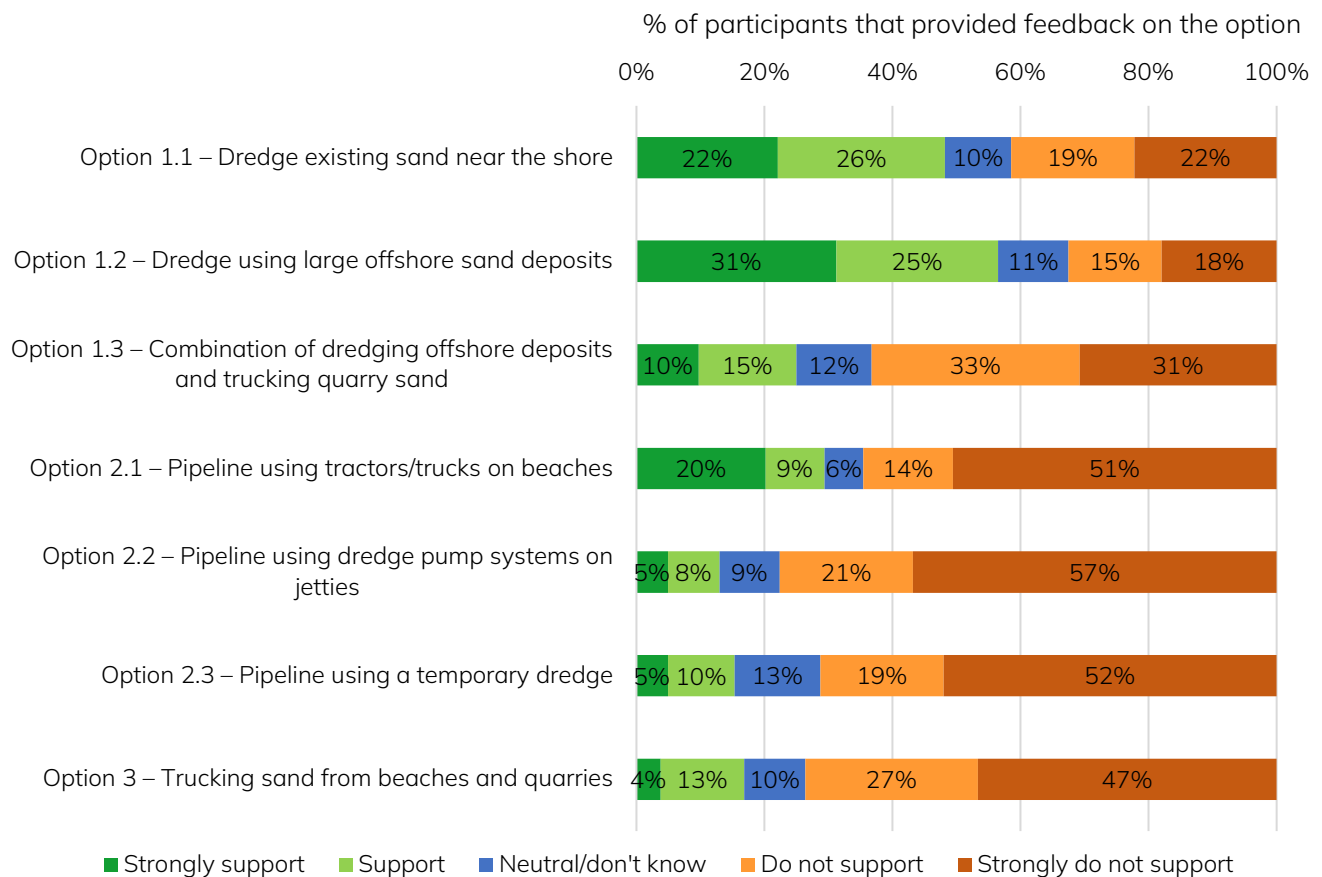
Option 1.1 -Dredge existing sand near the shore received the highest number of comments.

Option 2.3 Combination of dredging offshore

4.2.2 Survey participant level of support for the shortlisted options

Survey participants were asked to indicate their level of support for each of the shortlisted sand management options on a scale of strongly support to strongly do not support. They could choose to provide feedback on as many or few of the options as they liked (the number of participants that answered each option is shown in 4.2.1)

Figure 10 Survey participant level of support for each shortlisted sand management option



Most supported options (strongly support and support combined)

- Option 1.2 – Dredge using large offshore sand deposits was supported by 56% of participants.
- Option 1.1 – Dredge existing sand near the shore was supported by 48% of participants.
- 41% and 33% of participants strongly did not support or did not support options 1.1 and 1.2 respectively. 10 to 11% were neutral or didn't know about these options.

Most not supported options (strongly do not support and do not support combined)

- Option 2.2 – Pipeline using dredge pump systems on jetties was not supported by 78% of participants.
- Option 3 - Trucking sand from beaches and quarries was not supported by 74% of participants

4.2.3 Survey participant reasons for level of support

Survey participants were invited to provide comments about why they answered with the level of support that they did for each option. Section 4.2.1 provides details on the number of survey participants who chose to write comments on each of the options.

To summarise comments for this report, the comments of survey participants who either strongly supported or supported a given option were combined to identify common reasons for support of that option. Similarly, the comments of survey participants who either strongly did not support or did not support a given option were combined to identify common reasons for not supporting that option.

The following tables present the common reasons provided for supporting or not supporting each option. Verbatim feedback from the survey can be found in Part B Appendix C.

Table 3 Survey participant reasons for supporting and/or not supporting Option 1.1

Option 1.1 – Dredge existing sand near the shore	
Survey participant common reasons for support	Survey participant common reasons for not support
• Lowest cost option. • Sand collection and delivery is fast and infrequent which minimises impacts. • Less destructive to beaches where sand would otherwise be taken from and given to (impacts to beach use, access, amenity, safety, beach/dune environment, residents, beachgoers, fumes, noise, tourism economy). • Does not take from one beach to give to another. • Least invasive option. • Can be implemented quickly. • Less impact on traffic/local roads. • More sustainable than quarry sand as takes sand from areas where it accumulates. • Has been proven successful in other countries. • More effective as places sand in the nearshore zone rather than on the beach where it washes away quickly. • Flexible option, as it can take and place sand from/to a variety of locations. • Less microplastic impacts than a pipeline.	• High level of impact to the marine environment including seagrasses and other marine life. • Unsure if there is sufficient (volume) or suitable (grain size, quality/contamination, odour) sand in the near shore zone to meet demand in the short- or long-term. • Impact on water quality for marine life and people. • Dredging is proposed too close to the shore. • Does not fix the issue of sand build up at the northern beaches. • Short term, non-permanent solution which is vulnerable to defunding. • Will increase the area of impact for more environments and communities. • Many technical and environmental unknowns. • High level of carbon emissions. • The EPA may not grant a dredge licence/approval. • Procuring specialist dredge is dependent on global availability. • Dredging is weather dependent.

Option 1.1 – Dredge existing sand near the shore

- | | |
|--|--|
| <ul style="list-style-type: none"> • No machinery/infrastructure on beaches. • Environmental studies will be undertaken to assess, monitor and minimise environmental impact (many participants noted that their support is dependent on the EIS). • Many participants noted that their support is dependent on the dredging being at least 2km from shoreline. | <ul style="list-style-type: none"> • Visual impact of dredgers and turbidity. • Taking away nearshore sandbars may increase storm/wave damage to beaches. • Dredging creates depressions in the seabed which fill with dead drift seagrass, causing issues for future dredging campaigns. • Would prefer no management at all, or other erosion control strategies (e.g. seagrass restoration, groynes). |
|--|--|

Table 4 Survey participant reasons for supporting and/or not supporting Option 1.2

Option 1.2 – Dredge using large offshore sand deposits

Survey participant common reasons for support	Survey participant common reasons for not support
• Dredging is further offshore than Option 1.1. • Larger volumes of sand available offshore, as well as sand of a larger grain size. • Taking sand from numerous areas is better than taking from one area. • Less destructive to beaches where sand would otherwise be taken from and given to (impacts to beach use, access, amenity, safety, beach/dune environment, residents, beachgoers, fumes, noise, tourism economy). • Avoids disrupting seabeds close to shore. • Minimal disruption over the 20-year period as no additional top ups required, which results in less impact to the environment and community. • Low-cost option. • Can be implemented quickly. • Doesn't take from one beach to give to another. • Least invasive option. • Less impact on traffic/local roads. • Less visual impact as further offshore.	• High level of impact to the marine environment including seagrasses, and other marine life. • Higher cost than option 1.1. • May not be enough sand – previous studies have indicated that none of the three identified deposits are suitable. • Turbidity and other water quality impacts, especially from clays at Port Stanvac and impacts to southern reefs and northern seagrasses/mangroves. • Sand may be contaminated especially near the Port River, including POMS at Section Bank. • Higher emissions due to increased travel distances. • May impact on sailing, recreational and commercial fishing/fisheries, commercial boats etc. • Likely to need to do more than one mass fill in 20-years. • Dredging is weather dependent. • Longer pipeline has more risks.

Option 1.2 – Dredge using large offshore sand deposits

- | | |
|--|--|
| <ul style="list-style-type: none"> • More sustainable than quarry sand as takes sand from areas where it accumulates. • Has been proven successful in other countries. • More effective as places sand in the nearshore zone rather than on the beach where it washes away quickly. • Flexible option, as it can take and place sand from/to a variety of locations. • Less microplastic impacts than a pipeline. • Does not require machinery/infrastructure on beaches. • Environmental studies will be undertaken to assess, monitor and minimise environmental impact (many participants noted that their support is dependent on the EIS). • Many participants noted that their support is dependent on the dredging being at least 2km from shoreline. | <ul style="list-style-type: none"> • Does not fix the issue of sand build up at the northern beaches. • Not a permanent solution and therefore is vulnerable to defunding. • Will increase the area of impact for more environments and communities. • Many technical and environmental unknowns. • The EPA may not grant a dredge licence/approval. • Procuring specialist dredge is dependent on global availability. • Dredging creates depressions in the seabed which fill with dead drift seagrass, causing issues for future dredging campaigns. • Would prefer no management at all, or other erosion control strategies (e.g. seagrass restoration, groynes.) |
|--|--|

Table 5 Option 1.3 Survey participant reasons for supporting and/or not supporting Option 1.3

Option 1.3 – Combination of dredging offshore deposits and trucking quarry sand

- | Survey participant common reasons for support | Survey participant common reasons for not support |
|---|--|
| <ul style="list-style-type: none"> • Preference for this dredging option compared to Option 1.1 as dredging is further offshore. • Large volumes of sand available offshore, as well as sand of a larger grain size. • Taking sand from numerous areas is better than one area. • Avoids disrupting seabeds close to shore. • Less destructive to beaches where sand would otherwise be taken from and given to (impacts to beach use, access, amenity, safety, beach/dune environment, residents, beachgoers, fumes, noise, tourism economy). | <ul style="list-style-type: none"> • High level of impact to the marine environment including seagrasses, and other marine life. • Higher cost than option 1.1 and 1.2. • May not be enough sand for dredging – previous studies have indicated that none of the three identified deposits are suitable. • Turbidity and other water quality impacts from dredging, especially from clays at Port Stanvac and impacts to southern reefs and northern seagrasses/mangroves. • Sand may be contaminated especially near the Port River, including POMS at Section Bank. |

Option 1.3 – Combination of dredging offshore deposits and trucking quarry sand

- | | |
|--|--|
| <ul style="list-style-type: none"> • Relatively low-cost option. • Can be implemented quickly. • Doesn't take from one beach to give to another. • Has been proven successful in other countries. • Dredging element is effective as places sand in the nearshore zone rather than on the beach where it washes away quickly. • Flexible option, as it can take and place sand from/to a variety of locations. • Less microplastic impacts than a pipeline. • Environmental studies will be undertaken to assess, monitor and minimise environmental impact of dredging (many participants noted that their support is dependent on the EIS). • Many participants noted that their support is dependent on the dredging being at least 2km from shoreline. • Support use of quarry sand. • Use of quarry sand helps to supplement the volume of sand required which may not be present within the existing coastal system. • Use of quarry sand provides more flexibility to top up quickly when required. • Quarry sand is coarser and therefore likely to stay on beaches for longer. • Use of quarry sand reduces the need for large scale dredging and associated environmental impacts. • Use of quarry sand has minimal environmental impact. • High availability of quarry sand. • Quarry sand only requires limited use of machinery on beaches and no need for permanent infrastructure. | <ul style="list-style-type: none"> • Offshore dredging may impact on sailing, recreational and commercial fishing/fisheries, commercial boats etc. • Higher emissions due to increased travel distances of the dredge in addition to the quarry sand trucks. • Longer pipeline has more risks. • Dredging is weather dependent. • Does not fix the issue of sand build up at the northern beaches. • Not a permanent solution and therefore is vulnerable to defunding. • Will increase the area of impact for more environments and communities. • Many technical and environmental unknowns • The EPA may not grant a dredge licence/approval. • Dredging creates depressions in the seabed which fill with dead drift seagrass, causing issues for future dredging campaigns. • Do not support quarry sand element. • Use of quarry sand requires trucks on beaches with associated impacts on beach use, access, amenity, wildlife, dunes, compaction of sand, safety, noise, fumes and visual impact. • Use of quarry sand increases costs. • Introducing quarry sand into the system may lead to more accumulation of sand on the northern beaches. • Lack of certainty about where the quarry sand would be sourced from and where it would be placed (i.e. on beach or offshore). • Environmental and social impact at quarry extraction site. |
|--|--|

Option 1.3 – Combination of dredging offshore deposits and trucking quarry sand

- | | |
|--|--|
| <ul style="list-style-type: none"> Many participants noted that they support this option as long as the quarry trucks have minimal incursions on the beach. | <ul style="list-style-type: none"> Quarry sand is not natural to the beach environment, may not be suitable for marine life, and may be contaminated. Land based sources of sand are limited, may not be sustainable in the long term, and may increase in price in the future. Not logical to implement two methods of sand management (i.e. quarry sand trucking and dredging). Would prefer no management at all, or other erosion control strategies (e.g. seagrass restoration, groynes etc.) |
|--|--|

Table 6 Survey participant reasons for supporting and/or not supporting Option 2.1

Option 2.1 – Pipeline using tractors/trucks on beaches

Survey participant common reasons for support	Survey participant common reasons for not support
- Pipeline works well between Glenelg and Kingston Park. - Returns the same sand that has drifted north, maintaining equilibrium and reducing accumulation of sand on northern beaches. - Permanent, long-term solution with no risk of defunding. - Lower running costs. - Less ongoing impacts on residents and beachgoers. - Less damage to ecosystems. - Minimises trucks on beaches and roads and associated impacts, especially at West Beach. - A proven and scientifically researched method with known processes/outcomes – not just a 'desktop review' like the other options. - Already has approval, which means it can be implemented right away and there is no uncertainty.	- More expensive than dredging. - Impact of trucks on the beach (e.g. impacts on use, noise, pollution, safety, accessibility, amenity, environment, visual amenity, tourism etc.) and on local roads. - Impact of digging up beach/dunes for pipeline (e.g. loss of dunes, vegetation, erosion). - Impact on northern beaches, residents and beachgoers and environment when they do not benefit from the management. - Northern beaches are already starting to erode, therefore cannot afford to lose their sand and be more exposed to sea level rise and storm surge. - Sand sourced from northern beaches is not of a suitable grain size. - Low level of flexibility to place source/place sand in different locations, in different amounts or adjust as sea levels rise. - High emissions and carbon intensive.

Option 2.1 – Pipeline using tractors/trucks on beaches

• Flexibility in where sand can be delivered. • Trucks used in winter only. • Low visual impact. • Pipeline uses electricity, therefore has lower carbon emissions. • Does not take from offshore deposits which has both known and unknown impacts. • Use of quarry sand helps to supplement the volume of sand required which may not be present within the existing coastal system. • Quarry sand is coarser and therefore likely to stay on beaches for longer.	• High amount of ongoing impact with works over four months every year. • Introduces micro-plastics to the environment. • Requires complex infrastructure which is subject to failure and requires ongoing maintenance. • Places sand on the beach where it is swept away quickly. • Do not support quarry sand element. • Quarry sand is not natural to the beach environment and may impact detrimentally on environmental values. • Use of quarry sand increases cost. • Would prefer no management at all, or other nature-based erosion control strategies.
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Table 7 Survey participant reasons for supporting and/or not supporting Option 2.2

Option 2.2 – Pipeline using dredge pump systems on jetties

Survey participant common reasons for support	Survey participant common reasons for not support
• Minimises trucks on beaches and associated impacts. • Permanent infrastructure provides long-term certainty and no risk of defunding. • Returns the same sand that has drifted north, maintaining equilibrium and reducing accumulation of sand on northern beaches. • Captures nearshore drifted sand that doesn't make its way to the beach. • Lower use of fossil fuels. • Pipeline has been proven successful elsewhere. • Only impacts the jetty beaches and leaves the other northern beaches untouched. • Will provide additional motivation to maintain jetty condition.	• Closes iconic jetties for use which will have major recreational, social and tourism impacts. • Expensive option. • Impact on water turbidity in the nearshore zone, with associated impacts for swimming, visual amenity, seagrasses, fish and other marine life. • Not enough sand available at the end of jetties to meet demand. • Could undermine the jetties. • Would not address the build-up of sand on northern beaches. • Will remove the seabed, seagrasses and other benthic species around the jetties. • Visual impact of dredgers on the jetty. • Noise impacts from the dredge and pipeline. • Would take a long time to install.

Option 2.2 – Pipeline using dredge pump systems on jetties

- Support use of quarry sand, especially in the short term to build up the beaches again.
- Would create a hazard in the water from the dredge head.
- Results in the harmful impacts of both dredging and a pipeline, rather than just one of these options.
- Does not include a mass fill component.
- Sand is placed on the beach rather than the nearshore zone, which is ineffective and not safe.
- Ineffective/inefficient way to collect sand.
- High emissions and carbon intensive.
- Northern beaches are already starting to erode, therefore cannot afford to lose their sand and be more exposed to sea level rise and storm surge.
- Sand sourced from northern beaches is not of a suitable grain size and will wash away quickly.
- Seagrass detritus would present a barrier to sand collection and would collect in the depressions at the end of jetties from previous dredging.
- Desktop review only and does not have guaranteed licences/approval.
- Long period of impact each year, and needs to be repeated each year.
- Hard infrastructure (dredge and pipeline) requires ongoing maintenance and has a low level of flexibility to source/place sand in different locations, in different amounts or adjust as sea levels rise.
- High level of impact on northern beaches to benefit southern beaches.
- Pipeline introduces microplastics to the environment.
- Impact of digging up beach/dunes for pipeline (e.g. loss of dunes, vegetation, erosion).
- Do not support quarry sand element.

Option 2.2 – Pipeline using dredge pump systems on jetties

- Use of quarry sand requires trucks on beaches.
- Quarry sand is not natural to the beach environment and may harm the beach environment.
- Land based sources of sand may not be sustainable in the long term.
- Quarry sand is more expensive.
- Would prefer no management at all, or other nature-based erosion control strategies.

Table 8 Survey participant reasons for supporting and/or not supporting Option 2.3

Option 2.3 – Pipeline using a temporary dredge

Survey participant common reasons for support

- Less use of trucks on beaches.
- Returns sand that has drifted due to northern drift and reduces sand build up on northern beaches.
- Provides greater flexibility in where sand is harvested from.
- Greater amount of sand can be harvested.
- Sand is not taken from northern beaches therefore less impact to northern beach users.
- Pipeline has been proven effective elsewhere.
- Pipeline is permanent and long term, no risk of defunding.
- Lower visual impact than truck sand scraping or a jetty dredge.
- Support use of quarry sand.

Survey participant common reasons for not support

- Expensive.
- Large amount of infrastructure required.
- Uses two options where just one could be used.
- Significant damage to both the beach/dunes due to the pipeline and the marine environment through dredging.
- Ongoing carbon emissions from both the dredge and pipeline.
- Distance of dredging from shore not specified.
- Dredge is a temporary option that could be defunded.
- No guarantee in receiving EPA licence/approval.
- Visual and noise impacts.
- Takes sand from northern beaches which are already receding.
- Impact on water quality in nearshore environment.
- Pipeline introduces microplastics to the environment.

Option 2.3 – Pipeline using a temporary dredge

- Pipeline requires ongoing maintenance and has a low level of flexibility to source/place sand in different locations, in different amounts or adjust as sea levels rise.
- Dredging creates depressions in the seabed which fill with dead drift seagrass, causing issues for future dredging campaigns.
- Unsure if there is sufficient (volume) or suitable (grain size, quality/contamination, odour) sand in the near shore zone to meet demand.
- Does not fix the issue of sand build up at the northern beaches.
- Do not support use of quarry sand.
- Quarry sand is not natural to the beach environment and may cause harm to the beach environment.
- Use of quarry sand increases costs.
- Land based sources of sand are finite and may not be sustainable in the long term.
- Introduction of quarry sand requires trucks on beaches.
- Would prefer no management at all.

Table 9 Survey participant reasons for supporting and/or not supporting Option 3

Option 3 – Trucking sand from beaches and quarries

Survey participant common reasons for support	Survey participant common reasons for not support
• Does not involve dredging or a pipeline and associated social and environmental impacts. • Creates jobs and supports a local workforce. • Has been working to date for West Beach. • Minimal environmental impacts. • Impacts are mostly human rather than environmental – the price to pay for moving sand to protect our own infrastructure and human use of southern beaches.	• High level of trucks on the beach and associated issues (noise, fumes, amenity, safety, use, impact on environment, impact on residents and beachgoers, visual impact, sand compaction). • High level of environmental and social impacts from sand mining of beaches (e.g. use, access, safety, visual impact, erosion of dunes, harm to wildlife). • Impacts of trucks on local roads and traffic

Option 3 – Trucking sand from beaches and quarries

- Counteracts northern littoral drift, keeping sand in the system and reducing build up of sand on northern beaches.
- Can be implemented quickly.
- Has a high degree of flexibility.
- Simple and effective
- Occurs in winter when impacts on beach users is minimal.
- No permanent infrastructure required.
- Could be used a temporary option until a pipeline/dredge is put in place.
- Cheaper than pipeline options.
- Many participants support this option if it uses quarry sand only, with no sand taken from beaches.
- Many participants support this option only as a last resort.
- Sand carting is currently not working to protect West Beach.
- Not a long term, sustainable option especially as sea levels rise.
- Causes a high level of impacts to both ends of the coastline.
- Slow and causes impact across much of the year.
- Expensive.
- Delivers sand to the beach where it is washed away quickly, rather than the nearshore zone.
- Takes sand from northern beaches which are already receding and do not benefit from the sand mining.
- Irresponsible truck drivers often cause damage to the dunes.
- Sand from northern beaches is too fine to be effective and is washed away quickly.
- High level of emissions.
- High level of existing community opposition.
- Do not support use of quarry sand.
- Quarry sand is not natural to the beach environment and may cause harm.
- Land based sources of sand may not be sustainable in the long term.
- Use of quarry sand is expensive and likely to increase in price in the future.
- Environmental impact at quarry extraction site.
- Would prefer no management at all or more nature-based erosion control options.

4.2.4 Survey participant level of support for each shortlisted option by beach most often visited

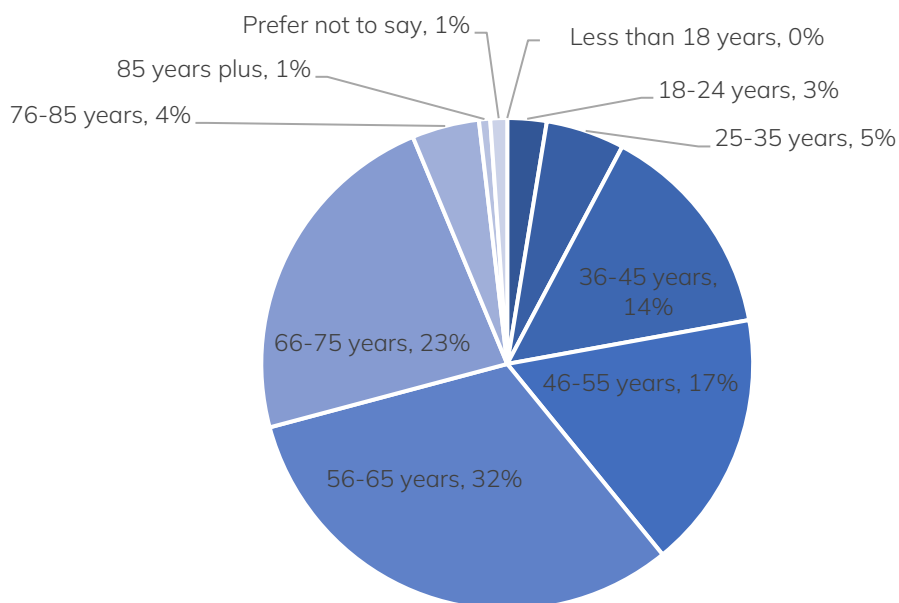
Survey participant support for each shortlisted sand management option was analysed by the beach which each participant indicated they visit most often, consolidated into three sections of coast¹:

- North Haven to Semaphore South (271 participants)
- Semaphore Park to Grange (83 participants)
- Glenelg North to Henley Beach (241 participants)
- Glenelg to Kingston Park (74 survey participants)

The shortlisted options most supported and most not supported by survey participants who most frequently visit beaches in each section of coast are summarised in the map and graphs on the following pages.

The age of survey participants who most commonly visit each section of coast has also been analysed. This is also displayed in the graphs on the following pages.

Figure 11 Age of survey participants who most commonly visit beaches between North Haven and Semaphore South (271 participants)



¹ Feedback from those who did not attribute themselves to a particular beach (e.g. answered that they visit an 'other' beach or 'prefer not to say') have not been included in the analysis in section 4.2.4 but were included in the overall analysis in sections 4.2.1-4.2.3.

Figure 12 Age of survey participants who most commonly visit beaches between Semaphore Park and Grange (83 participants)

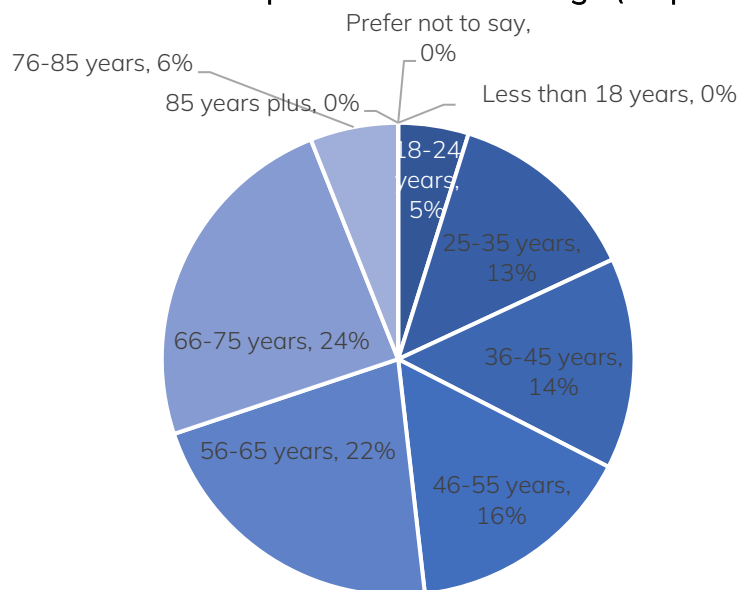


Figure 13 Age of survey participants who most commonly visit beaches between Henley Beach and Glenelg North (168 participants)

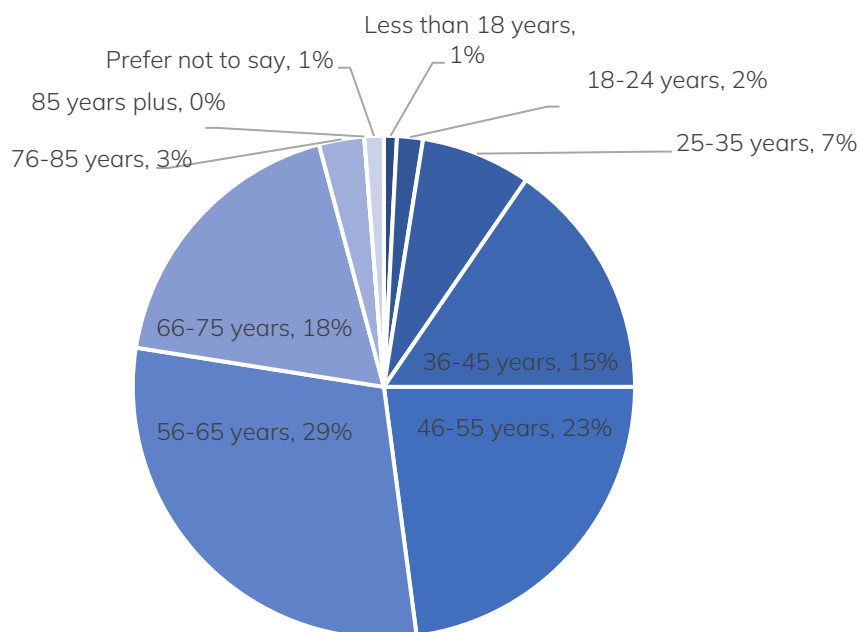
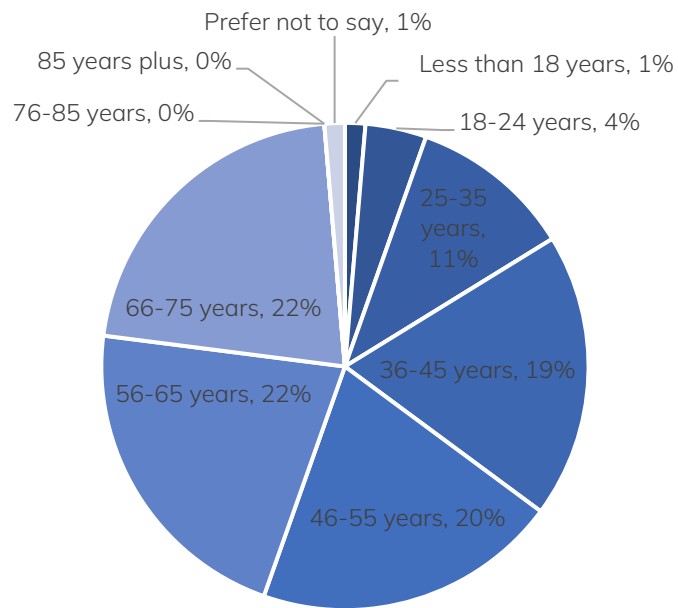


Figure 14 Age of survey participants who most commonly visit beaches between Glenelg and Kingston Park (74 participants)



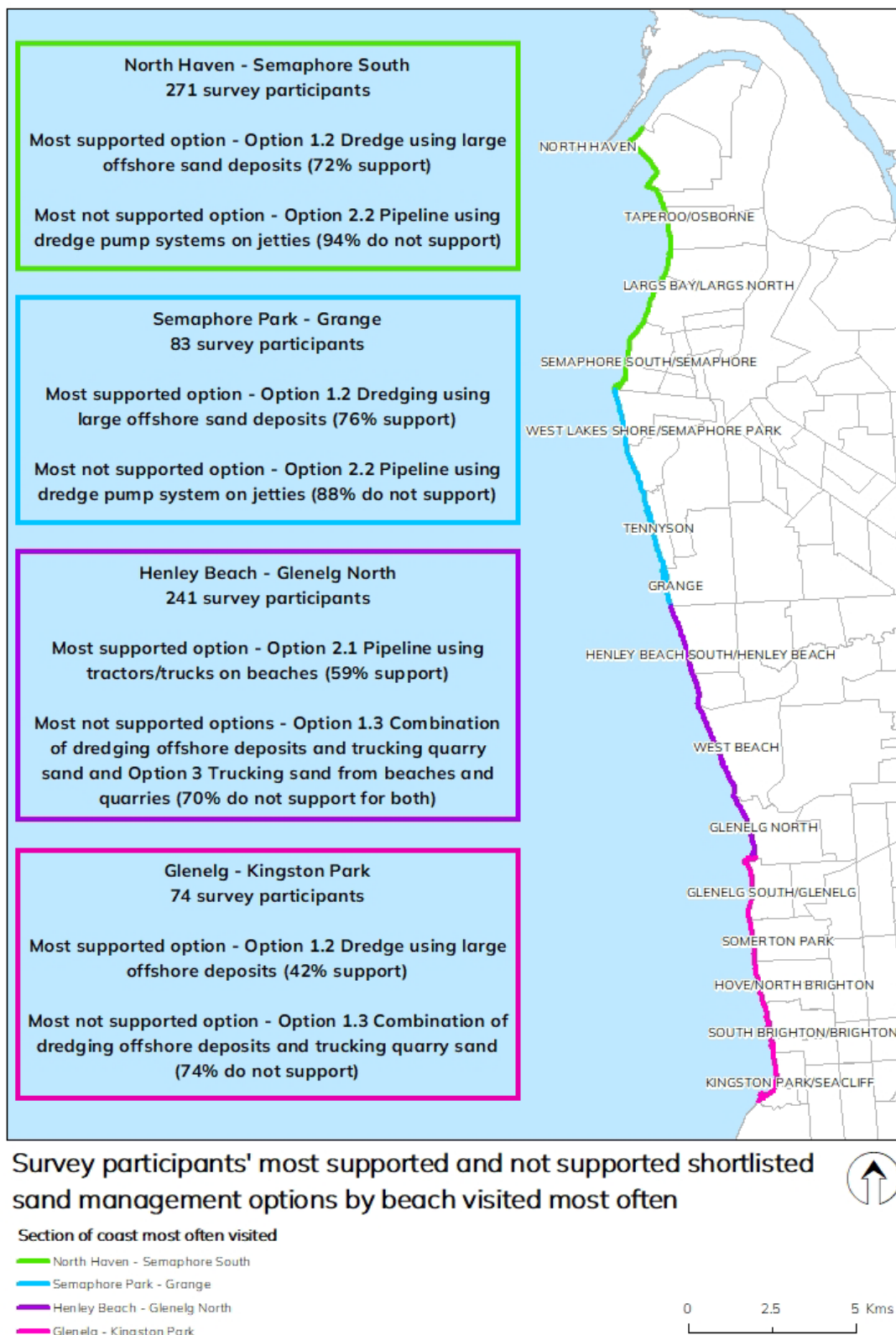


Figure 15 Survey participants' most supported and not supported shortlisted sand management options by beach visited most often.

Figure 16 Survey participant level of support for each shortlisted sand management option by those who most commonly visit beaches between North Haven and Semaphore South (271 participants)

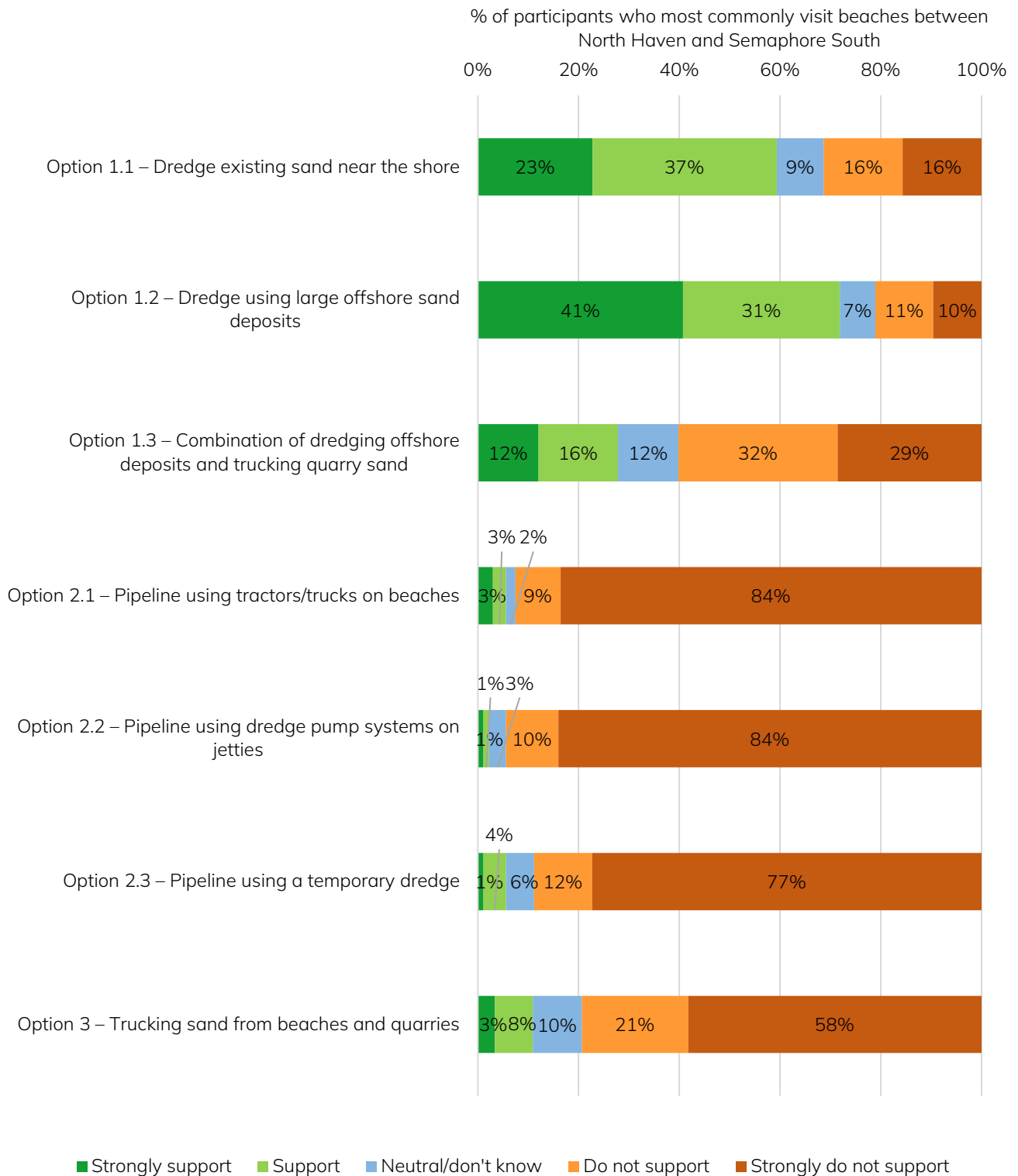


Figure 17 Survey participant level of support for each shortlisted sand management option by those who most commonly visit beaches between Semaphore Park and Grange (83 respondents)

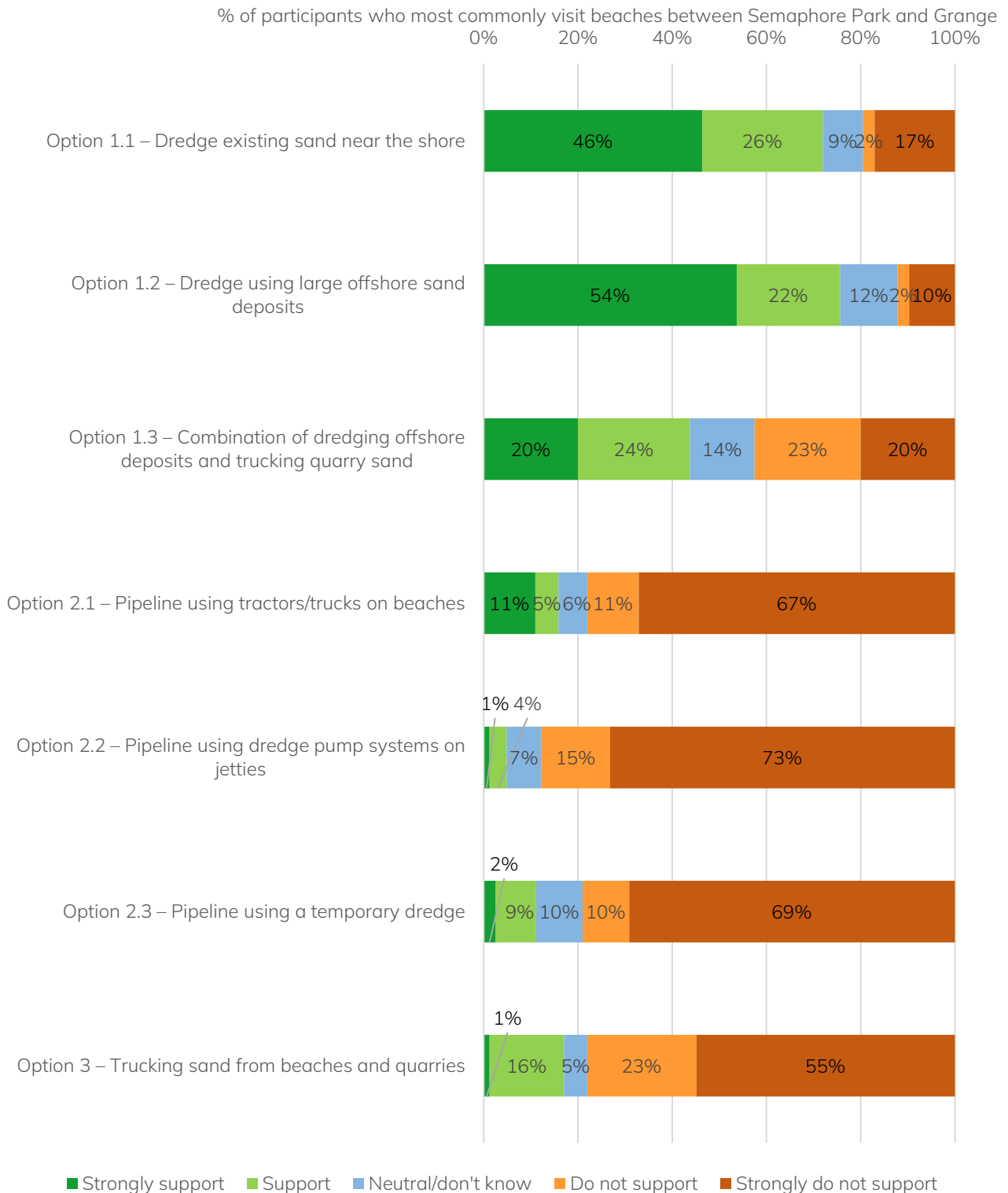


Figure 18 Survey participant level of support for each shortlisted sand management option by those who most commonly visit beaches between Henley Beach and Glenelg North (241 respondents)

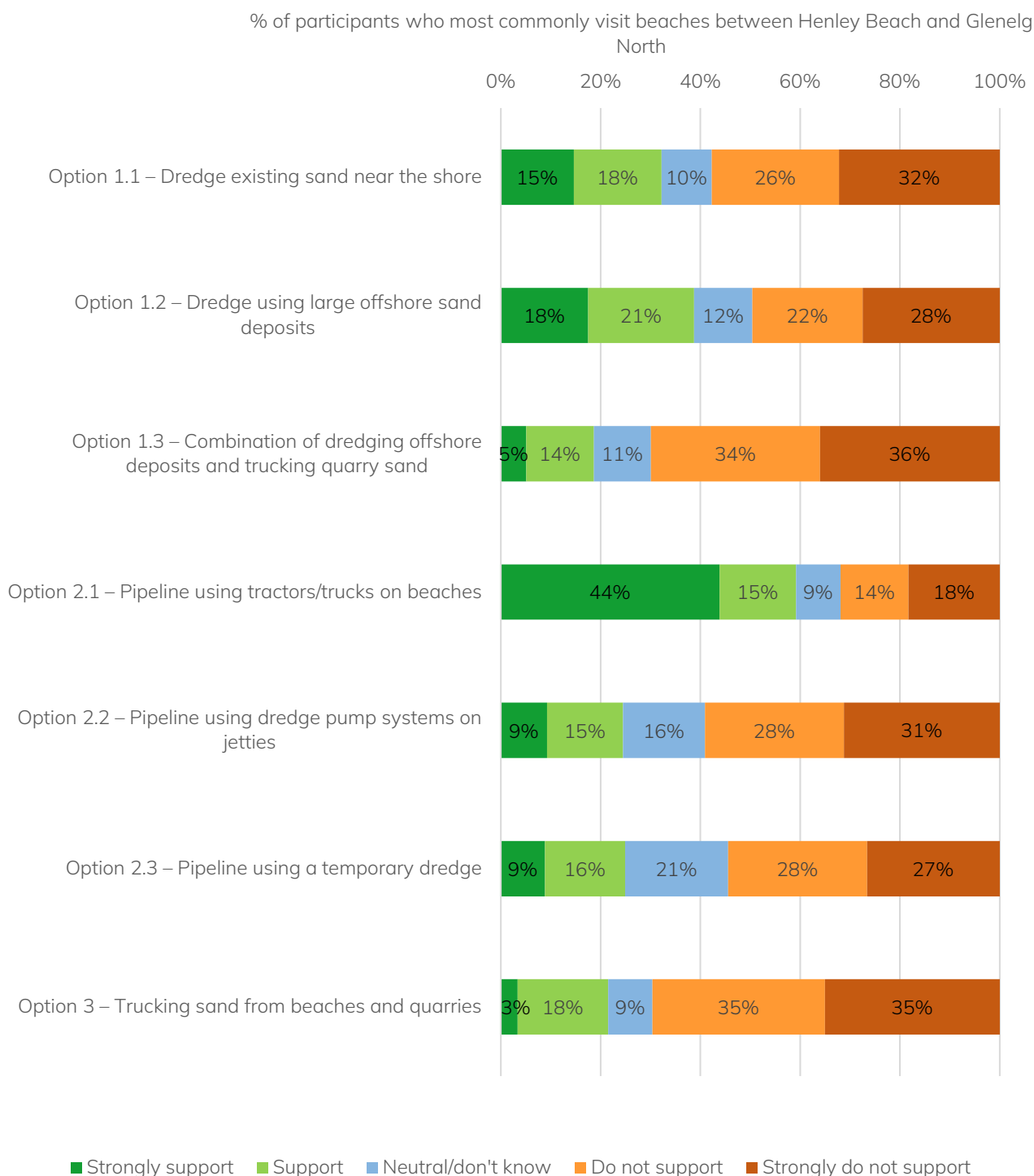
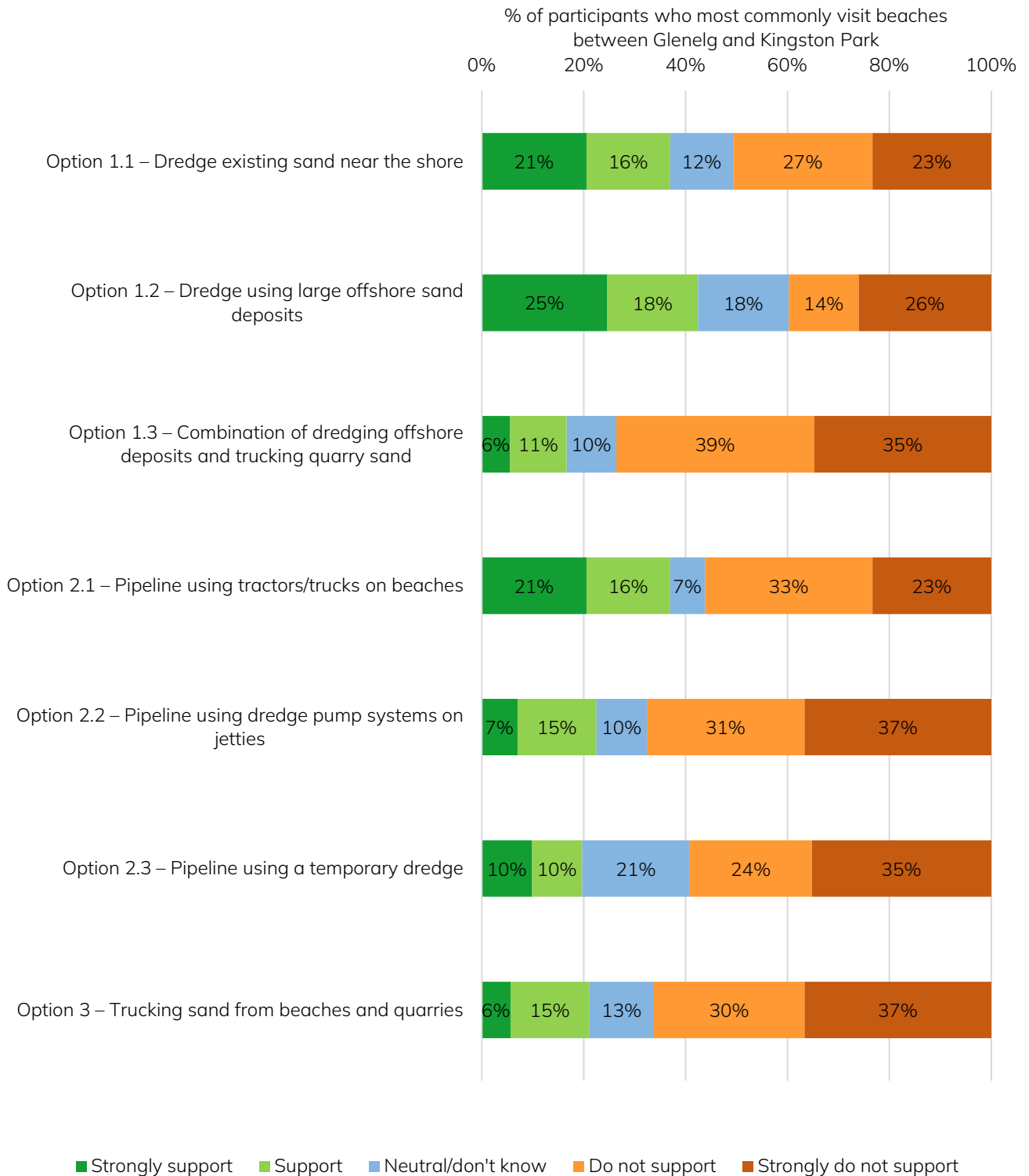


Figure 19 Survey participant level of support for each shortlisted sand management option by those who most commonly visit beaches between Glenelg and Kingston Park (74 participants)



4.2.5 Survey participant level of support for each shortlisted option by coastal residents

The level of support of survey participants who live in a coastal suburb² between Kingston Park and North Haven for each shortlisted sand management option was analysed. Coastal suburbs were aligned to the four sections of coast assessed in section 4.2.4.

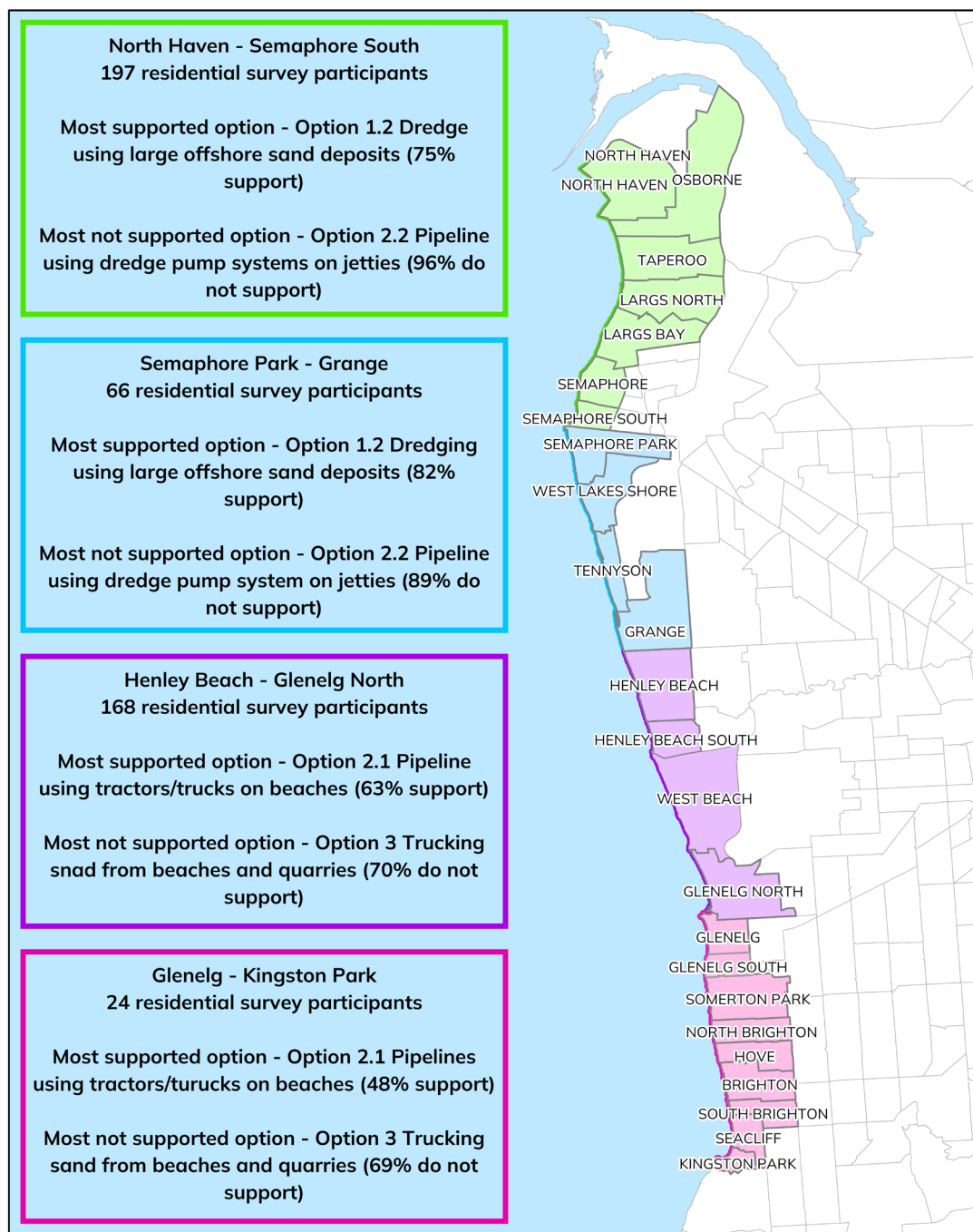
- Coastal suburbs between North Haven and Semaphore South (197 participants)
 - North Haven, Osborne, Taperoo, Largs North, Largs Bay, Semaphore, Semaphore South
- Coastal suburbs between Semaphore Park and Grange (66 participants)
 - Semaphore Park, West Lakes Shore, Tennyson, Grange
- Coastal suburbs between Henley Beach and Glenelg North (168 participants)
 - Henley Beach, Henley Beach South, West Beach, Glenelg North
- Glenelg to Kingston Park (24 survey participants)
 - Glenelg, Glenelg South, Somerton Park, North Brighton, Hove, Brighton, South Brighton, Seacliff, Kingston Park

The shortlisted options most supported and most not supported by survey participants who reside in the coastal suburbs in each of the above sections of coast are summarised in the map and graphs on the following pages.

The options with the most support were the same between survey participants who live in a section coastal suburbs and those who most commonly visit each of that section of the coast³, except for residents who live in coastal suburbs between Glenelg and Kingston Park. These residents showed most support for Option 2.1 - Pipeline using tractors/trucks on beaches (followed by Option 1.1 Dredge existing sand near the shore and 1.2 Dredge using large offshore sand deposits). In contrast, those who frequently visit this section of coast most supported Option 1.2 Dredge using large offshore sand deposits (followed by Option 1.1 – Dredge existing sand near the shore and Option 2.1 – Pipeline using tractors/trucks on beaches).

² Residential suburb was taken from the YourSay registration demographic data for each participant rather than the survey question about residential suburb.

³ It can be assumed that the pool of participants who most commonly visit a stretch of coast would most likely include those who reside in coastal suburbs within that section of coast plus those who live in suburbs outside that section of coast.



Survey participants' most supported and not supported shortlisted sand management options by residents who live in coastal suburbs



Residential coastal suburb

- North Haven - Semaphore South
- Semaphore Park - Grange
- Henley Beach - Glenelg North
- Glenelg - Kingston Park

0 2.5 5 Kms

Figure 20 Survey participants' most supported and not supported shortlisted sand management options by residents who live in coastal suburbs

Figure 21 Survey participant level of support for each shortlisted sand management option by those who live in the coastal suburbs between North Haven and Semaphore South (197 participants)

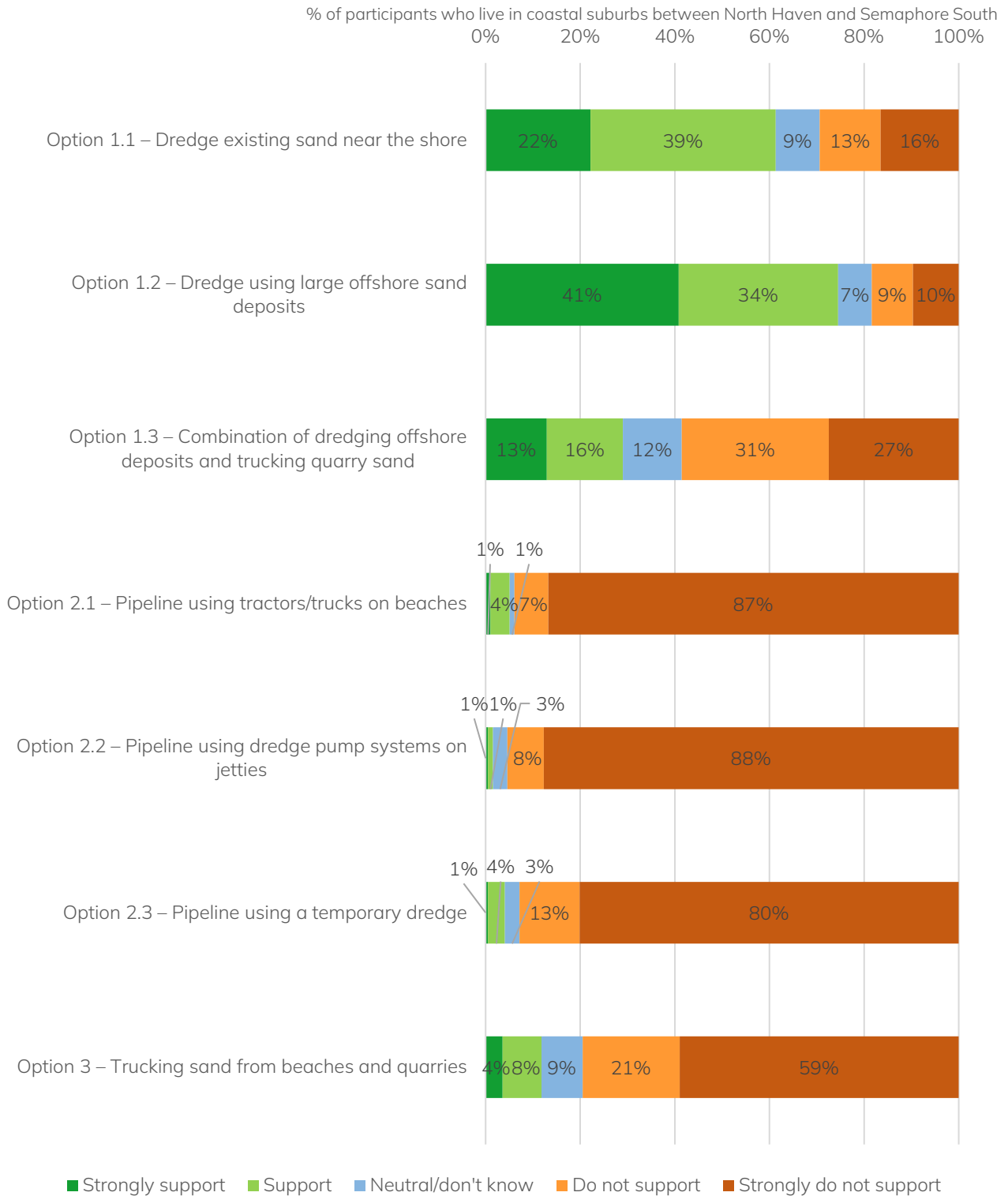


Figure 22 Survey participant level of support for each shortlisted sand management option by those who live in the coastal suburbs between Semaphore Park and Grange (66 participants)

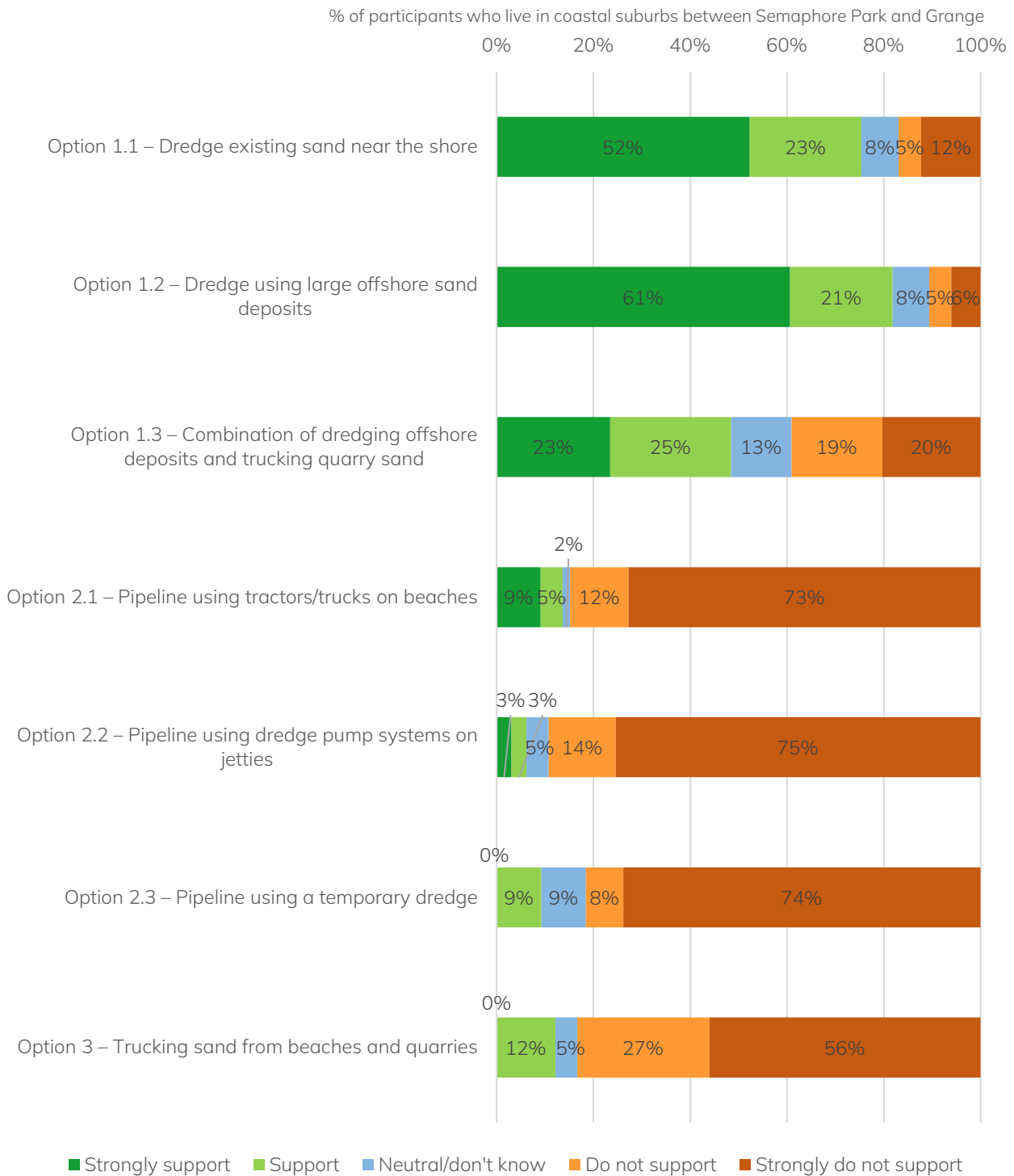


Figure 23 Survey participant level of support for each shortlisted sand management option by those who live in the coastal suburbs between Henley Beach and Glenelg North (168 participants)

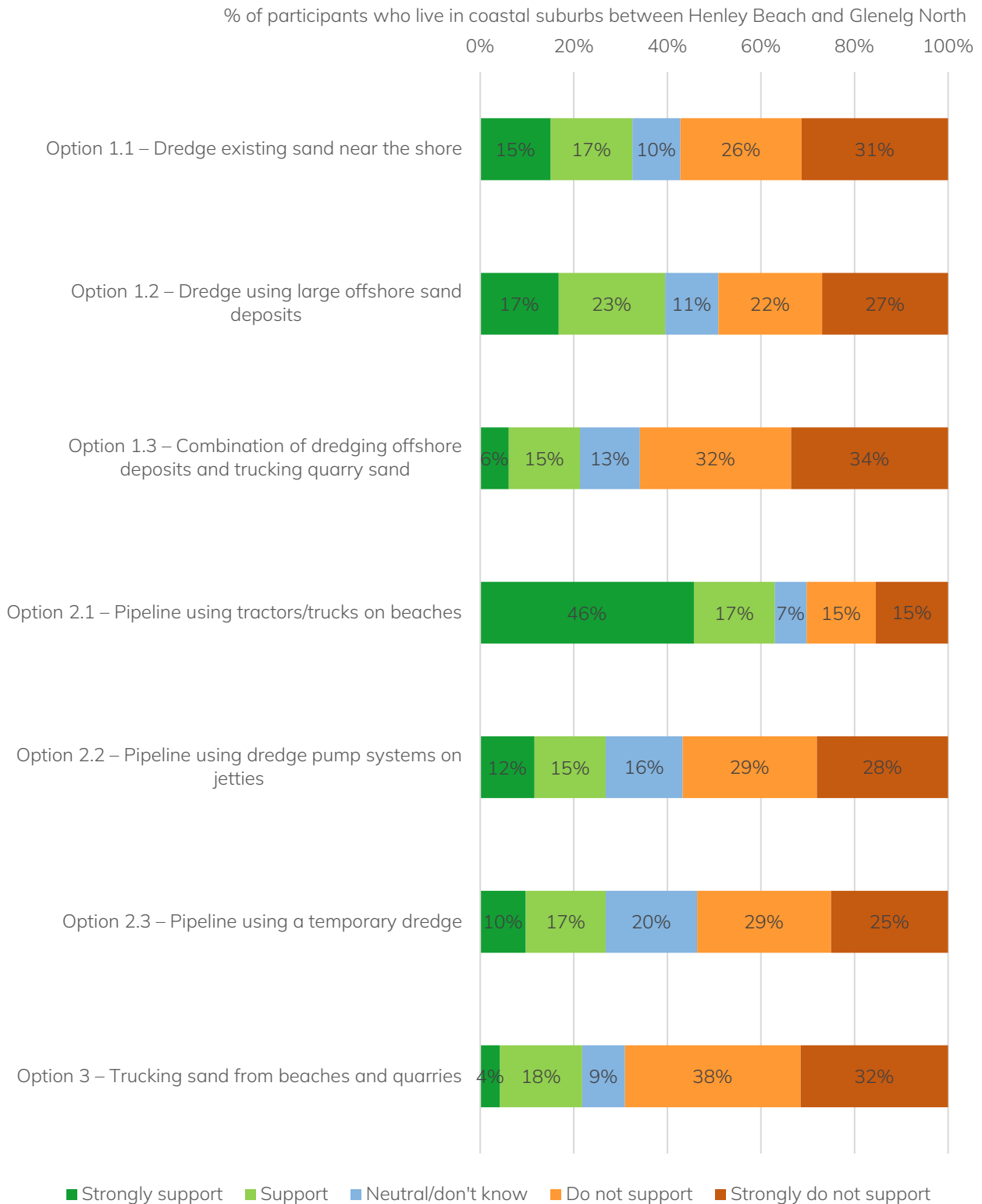
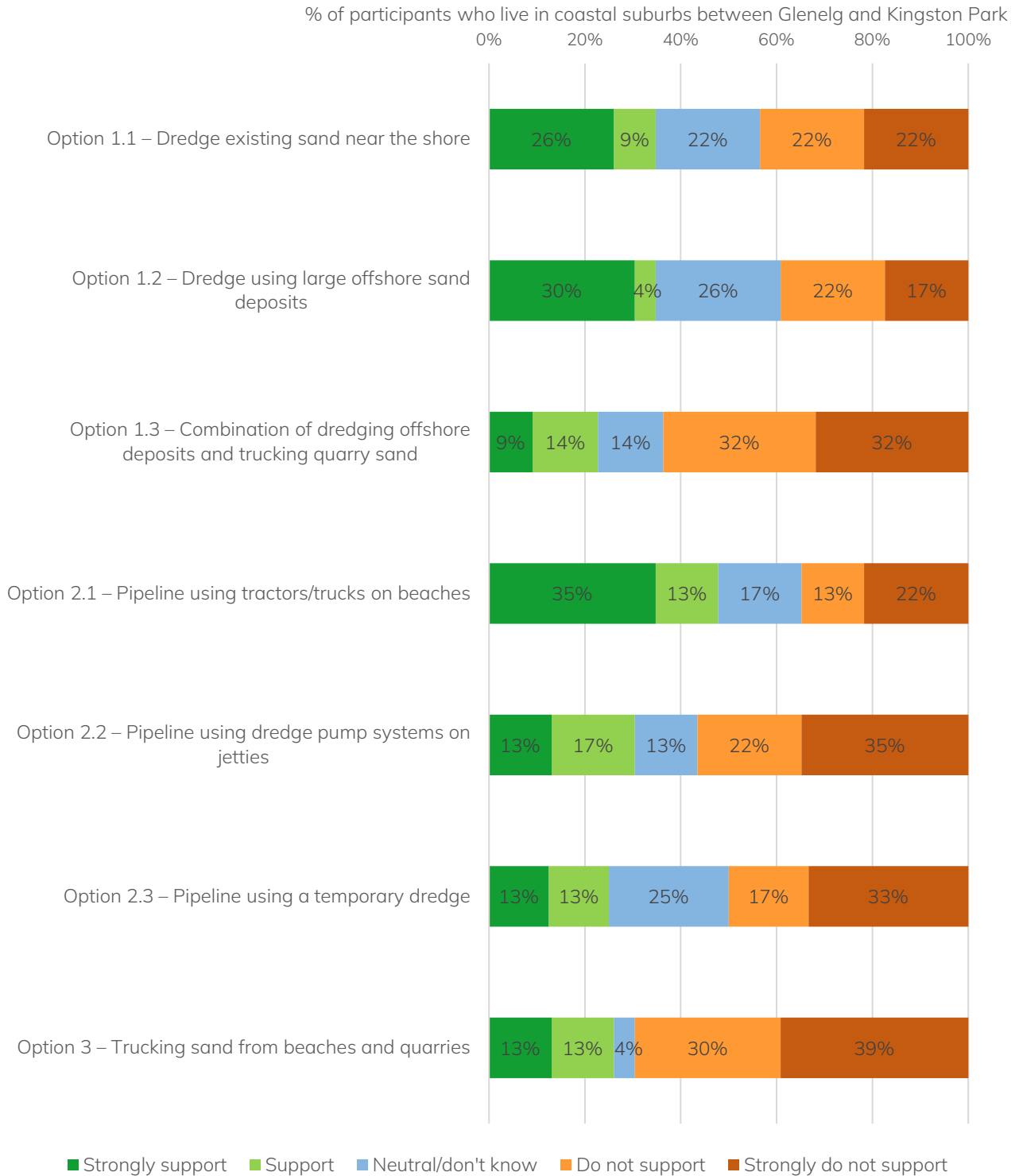


Figure 24 Survey participant level of support for each shortlisted sand management option by those who live in the coastal suburbs between Glenelg and Kingston Park (24 participants)



4.3 Other feedback

Participants were invited to provide any other feedback. Key themes of responses are identified in the following table.

Table 10 Key themes of other survey participant feedback

Theme of feedback	Summary of feedback
Reiterated reasons for support or not supporting an option	• Reiteration of feedback for each of the seven short-listed sand management options. This is summarised in the tables in section 4.2.3.
Impacts	• Preference for a sand management option to be selected which has the least impact on both people and the environment.
Preference to implement alternative sand management measures not included in shortlist	• Preference for nature-based erosion mitigation options including seagrass restoration, dune planting, sand dune fencing and artificial reefs. • Preference for artificial erosion mitigation options including groynes, breakwaters, artificial islands, rock walls and floating jetties. • Support for reducing pollutants/stormwater entering the ocean to support seagrass growth. • Suggestions to remove existing breakwaters, and in particular the marina at Glenelg. • Suggestions for managed retreat of development and rebuilding the natural dune system. • Preference for a 'do nothing' approach which causes no further interference on nature. • Suggestions to make new sand out of recycled materials.
The need for a sand management approach backed by rigorous science rather than politics, economics or 'noisy' community members	• Support for implementing the option which is most supported by scientific analysis. • Suggestions to engage with other regions which have successfully managed their sand to learn from others and implement world-leading practise. • Concern that the decision will be made based on politics, economics or 'noisy' parts of the community as opposed to the best long-term option for the environment and wider community.
Cost	• Desire to minimise costs to tax-payers, especially for those who are not impacted by sand management on beaches. • Desire for ongoing costs of each option to be considered, and not just short-term costs.

Theme of feedback	Summary of feedback
	• Desire for money to be spent right the first time for long term benefit. • Desire for a cost-benefit analysis to be undertaken for each option.
Concern about impacts on northern ⁴ beaches	• Concern about sand being taken away from northern beaches and impacts on residents/beach users/environment. • Concern that northern beaches are eroding and cannot lose more sand. • Concern that some beaches will be harmed to help another. • Concern that northern sand drift needs to be managed to reduce sand accumulation at the northern beaches and prevent them from becoming 'landlocked'. • Concern that sand from northern beaches is too fine to be of use.
A decision needs to be made quickly	• Emphasis regarding the importance of deciding on and implementing a solution quickly to prevent further loss of beaches – this process has taken a long time already. • Preference to implement any option as long as it is done quickly.
Lack of information	• Concern about the lack of information in the issues paper to make an informed decision. • Concern about the lack of environmental impact statements or carbon emissions for each option, and concern that environmental impacts are not a top priority as a result. • Concern that there was no explanation about what would happen if a 'do nothing' approach was taken. • Desire for a transparent decision-making process. • Concern that some information has been hidden, for example that the offshore deposits of sand have already been determined to not be suitable for use.
Concern about lack of consideration about the impact of sea level rise	• Suggestion to consider whether these options are sustainable as sea levels rise. • Concern that the root cause of climate change mitigation should be addressed to prevent further erosion. • Suggestion to select options with minimal carbon emissions.

⁴ We have considered references to northern beaches by survey participants to be related to the semaphore beach area and combined semaphore beach and northern beach comments accordingly.

Theme of feedback	Summary of feedback
	• Concern about lack of consideration about climate change in modelling of sand movement and management options.
Feedback about the engagement process	• Support for the better format of the survey compared to the previous survey. • Expression of gratitude for the widespread community consultation. • Concern that survey was only accessible online and promoted online. • Concern that the consultation period was not long enough or promoted widely enough. • Concern that communities have been engaging about this for years and are experiencing consultation fatigue, concerned about lack of transparency, just want a decision to be made. • Concern about misalignment of the issues paper, survey and technical paper. • Support for the overall review of sand management. • Desire to understand how the survey will influence the decision making process.
Concern about loss of sand at other beaches	• Concern the approaches are not going to address Henley Beach. • Concern about loss of sand at other beaches including Hallett Cove, Moana, Sellicks Beach.

5. What we heard - Submissions

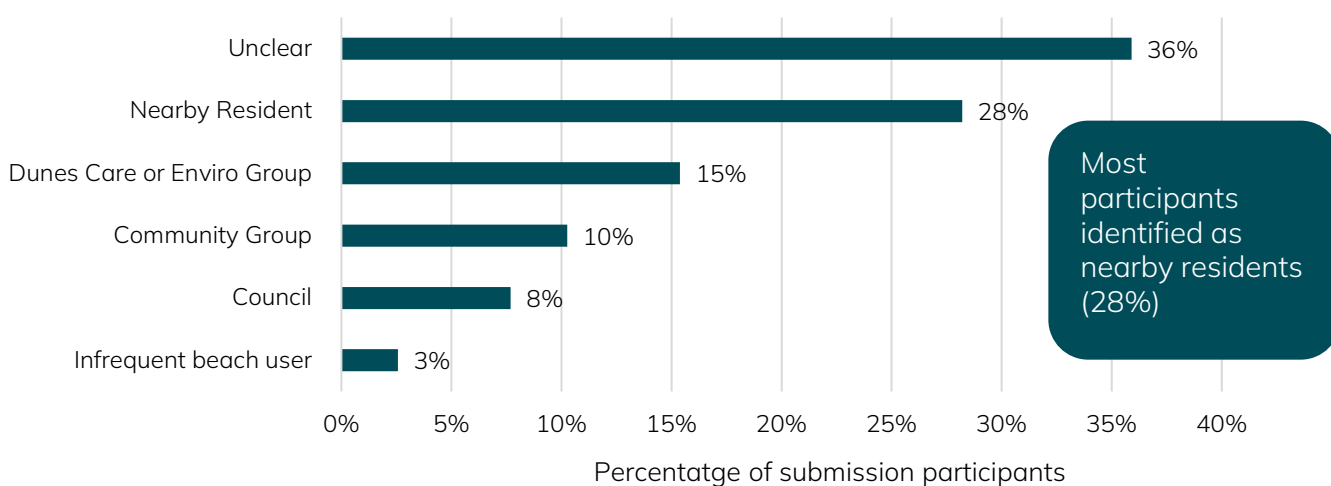
This section summarises submissions made via mail@urps.com.au. A summary of submissions table and verbatim submissions are provided in Part B Appendix D and E.

5.1 Submission participants

39 submissions were received. These were a combination of short emails and longer documents. 26 were from individuals and 13 were from groups or organisations.

Based on the information provided by participants, 28% were nearby residents, either foreshore or esplanade residents, or people from surrounding suburbs.

Figure 25 Type of submission participants (39 submissions)



Groups and organisations that made submissions were:

- Save West Beach Sand
- The City of Charles Sturt
- Sandpiper Dune Care Group
- City of West Torrens
- The City of Port Adelaide Enfield
- Semaphore Largs Dunes Group
- Henley Dunes Care Group
- Adelaide Coastal Community Alliance
- Western Adelaide Coastal Residents' Association
- Taperoo Dunes Group
- The Henley Beach Business Association Incorporated
- Henley Coastal Voice
- Port Adelaide Resident's Environment Protection Group

5.2 Submission feedback on the shortlisted options

Participants could choose to write a submission providing feedback on anything to do with this stage of the review. Some chose to comment on the specific shortlisted options (including citing option numbers). Others indicated views more generally relating to the proposed sand management approaches or other solutions (not on the shortlist), or they commented on the review process overall. As such, it is not possible to quantify the number of submissions that supported each specific option without the risk of drawing conclusions that participants did not intend.

Submissions were reviewed to identify key themes of feedback. These are provided below and are similar to the feedback received through the survey. A summary of submissions table and verbatim submissions are provided in Part B Appendix D and E.

Table 11 Key themes of feedback in submissions

key themes of feedback in submissions (in no particular order)
• Impacts to marine, dune, beach and quarry environments. • Types, duration and frequency of impacts on beach/ocean/jetty users, local residents, local businesses and local community groups (including impacts to beach/jetty use, access, amenity, safety, environment, air quality, noise levels, views and tourism economy). • Cost. • Greenhouse gas emissions. • Viability of an option, including availability of data, information, or referencing examples of where an option has been successful. • Whether EPA approval is guaranteed or not. • Presence or lack of an Environmental Impact Statement or similar comprehensive understanding of anticipated environmental impacts. • Whether proposed sources of sand contain sufficient volumes and quality (including grain size, contamination). • Frequency, duration and impact of closure of access to beaches, jetties and marine areas. • Harm caused to the northern beaches to benefit southern beaches, which pits two communities against each other. • Flexibility of options, including to source and place sand in different locations and in different amounts, and adapt as sea levels rise. • Permanency of infrastructure. • Efficacy in building up West Beach and Henley Beaches.

key themes of feedback in submissions (in no particular order)

- Location where sand is placed i.e. on the beach or in the nearshore zone.
- Speed in which a solution could be implemented (including approvals).
- Maintenance of beach equilibrium and recycling of sand within the system, reducing sand build up on the northern beaches, or introduction of new sand from outside the system.
- Impacts of trucks on local roads and traffic.
- Ongoing maintenance requirements.
- Introduction of microplastics.
- Potential to increase the rate of erosion at some beaches.
- Whether the solution is a short-term or long-term solution.
- Lack of information provided to the community about each option.
- Causes of erosion, including from development on the dunes, groynes, boat ramps, sewerage and stormwater.
- Preference for alternative solutions that were not included in the short list options including groynes, breakwaters, wave energy converters, seagrass regeneration and artificial reefs.
- Need for climate change to be considered in projections and modelling of options.
- Need for decisions to be made based on science and minimal environmental damage as opposed to money and votes.

6. What we heard – Stakeholder workshop

A workshop was held with 48 representatives of Councils, dune and community groups, resident and business associations, peak bodies and Kaurua. The workshop was held from 6-9pm on Wednesday 27 September 2023 at Club West Lakes.

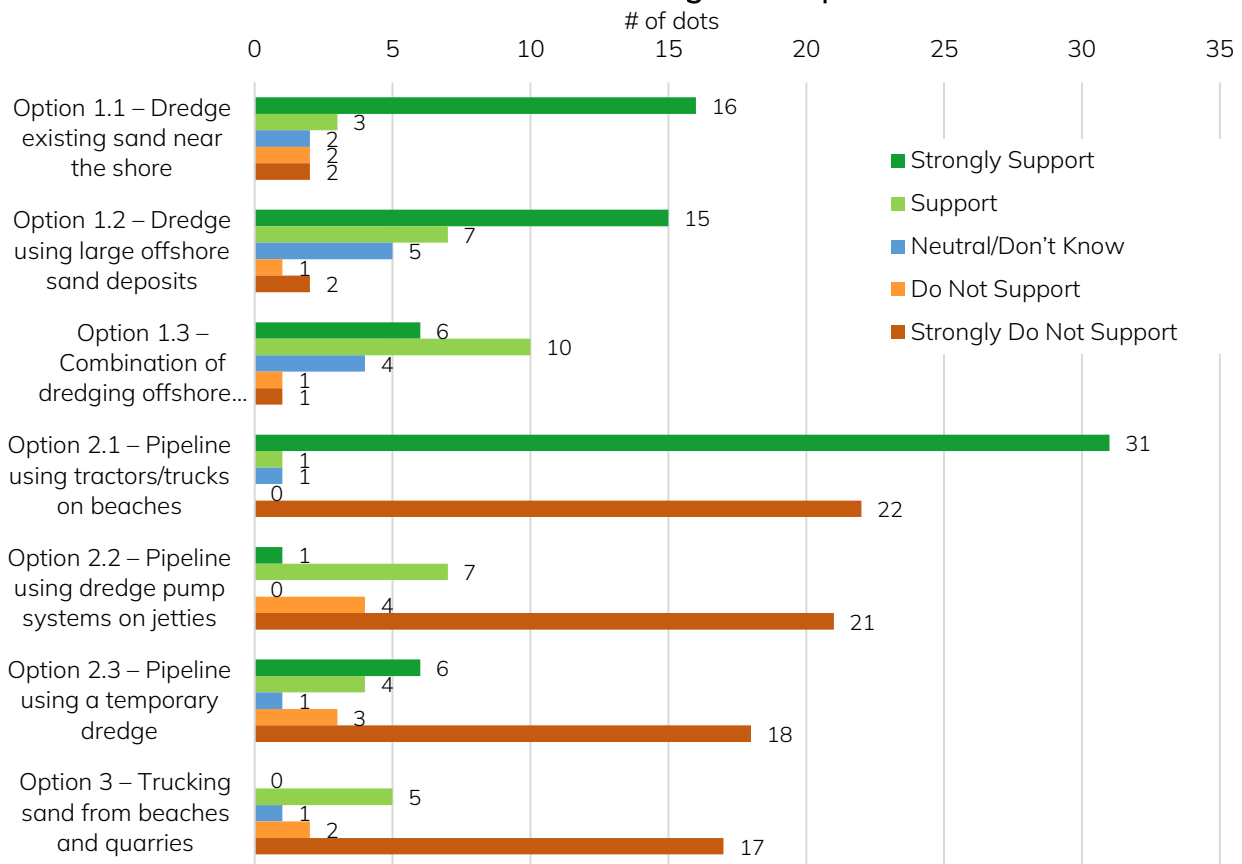
The workshop was facilitated by URPS and included activities to gather input as well as presentations from Department for Environment and Water review staff and Bluecoast. Verbatim feedback gathered through workshop activities are provided in Part B Appendix F.

6.1 Level of support for shortlisted sand management options

Workshop attendees indicated their level of support for each of the shortlisted sand management options using sticky dots on posters. Participants were instructed to place only one dot per option poster.

The results illustrated below do not necessarily represent a view of all workshop participants because participants could choose whether to participate and which options they placed a dot on. Some placed a dot on all options. Some placed a dot on one or a few options. Some placed no dots. And some may have placed more than one dot on a given option (even though instructed not to). As such the results should be interpreted with care and only as an indication of level of support.

Figure 26 Stakeholder workshop participant level of support for each shortlisted sand management option



- Option 2.1 – Pipeline using tractors/trucks on beaches received the most dots of support. However, it also received many “strongly do not/not support” dots.
- All other pipeline options (2.2 and 2.3) and Option 3 - trucking sand from beaches and quarries received more “strongly do not/not support” dots than “strongly support/support” dots.
- Dredging options received more “strongly support/support” than “strongly not/not support” dots.

6.2 What do you like and dislike about each shortlisted option?

Workshop attendees were invited to provide written feedback on the workshop posters about what they liked and disliked about each shortlisted sand management option, as well as any other feedback they might have. Feedback is summarised in the tables below.

Table 12 What workshop attendees like and do not like about Option 1.1

Option 1.1 Dredge existing sand near the shore	
What do you like about this option?	What do you not like about this option?
• Flexibility (as climate changes, where sand is sourced and deposited, and as new technology emerges). • Limited impacts on dunes. • Limited disruption to beach, beach users and residents. • Lower cost. • No need for trucks on beaches. • Sand is deposited in the nearshore zone rather than the beach where it is quickly washed away. • Provides sand for West Beach and Henley.	• Limited data about its viability/impacts/effectiveness. • Environmental impacts (seagrass, fisheries, crabs, water quality). • Sand sources are unviable, e.g. POMS in Section Bank. • Sand deposited in the nearshore zone may not be effective in building up the beach. • Limited supply of sand. • EPA licence has not been confirmed.

Other feedback provided about Option 1.1 included the need for an Environmental Impact Statement (EIS) be prepared to have a better understanding of the likely environmental impacts.

Table 13 What workshop attendees like and do not like about Option 1.2

Option 1.2 Dredge using large offshore sand deposits	
What do you like about this option?	What do you not like about this option?
• Flexibility in where sand is deposited. • No trucks or machinery on beaches. • Limited community impact.	• Limited data about viability/impacts/effectiveness in building up the beach. • Sand is too silty.

Option 1.2 Dredge using large offshore sand deposits

- | | |
|--|---|
| <ul style="list-style-type: none"> • More effective in keeping sand on beaches. • Less environmental harm than a pipeline. • Provides sand for West Beach and Henley. | <ul style="list-style-type: none"> • Environmental impacts to coastal habitats and animals. • Does not have 'social licence'. |
|--|---|

Other feedback provided about Option 1.2 included the need to deliver sand behind the Semaphore breakwater, concern that the process of finding suitable offshore sand deposits will be costly, and the need for understanding and communicating the environmental impacts before proceeding.

Table 14 What workshop attendees like and do not like about Option 1.3

Option 1.3 Combination of dredging offshore deposits and trucking quarry sand

What do you like about this option?	What do you not like about this option?
• Delivers sand to the nearshore zone which is likely to be more effective than placing sand on the beach. • Provides sand for West Beach and Henley.	• Limited data. • Sand sources likely to be unviable/contaminated by clay. • EPA licence has not been confirmed. • No EIS undertaken. • Environmental impacts to seagrass. • Distance off the shore is not stated. • May not be achievable.

Other feedback provided about Option 1.3 included the need to an EIS to be undertaken.

Table 15 What workshop attendees like and do not like about Option 2.1

Option 2.1 Pipeline using tractors/trucks on beaches

What do you like about this option?	What do you not like about this option?
• Effective, proven approach which works well between Glenelg and Kingston Park/Seacliff. • Minimal visual impact. • Shares impact across all stakeholders. • Cost effective in the long term. • Flexible. • Less impact as sand carting. • Keeps sand in the system and maintains equilibrium.	• Use of quarry sand. • Impact across a large part of the year. • Not flexible as sea levels rise or to adjust to address emerging erosion hotspots. • Impact on beach users, local residents and local businesses. • Introduces microplastics into the environment. • Impacts on beach and dune environment and birds. • Expensive.

Option 2.1 Pipeline using tractors/trucks on beaches	
• Permanent infrastructure means no risk from political instability. • Costs are well understood. • Provides sand for West Beach and Henley.	• Visual impact. • High level of impacts for northern beaches. • Sand placed on beach not nearshore zone. • Not enough sand to meet demand.

Other feedback provided about Option 2.1 included queries about how the use of quarry sand impacted total costs, a preference for removing West Beach Harbour and queries about how this proposed pipeline compares in size to the Glenelg pipeline.

Table 16 What workshop attendees like and do not like about Option 2.2

Option 2.2 Pipeline using dredge pump system on jetties	
What do you like about this option?	What do you not like about this option?
• Better than sand collection on the beach. • Provides entertainment for onlookers. • Provides sand for West Beach and Henley.	• Impact on structural integrity of jetty. • Social and recreational impacts of closing the jetty for four months every year. • Expensive. • Jetty may not be strong enough to hold the dredge. • No EPA license. • Impact on marine environment including pipefish and the dune environment. • Not flexible as sea levels rise or to adjust to address emerging erosion hotspots.

Other feedback provided about Option 2.2 included a query about how many people use the Semaphore Jetty and hence will be impacted by this option.

Table 17 What workshop attendees like and do not like about Option 2.3

Option 2.3 Pipeline using temporary dredge	
What do you like about this option?	What do you not like about this option?
• Provides sand for West Beach and Henley.	• Expensive. • Not flexible to adjust to address emerging erosion hotspots. • Dredge may not be able to operate during winter weather.

Option 2.3 Pipeline using temporary dredge	
	• Lowers beach level leaving dunes open to erosion with increased storm events and climate change. • Impact on dune environment. • Introduces microplastics into the environment.

Table 18 What workshop attendees like and do not like about Option 3

Option 3 – Trucking sand from beaches and quarries	
What do you like about this option?	What do you not like about this option?
• Flexible. • Provides sand for West Beach and Henley.	• Puts sand on the beach rather than in the nearshore zone. • No mass reinstatement of sand. • Erodes the northern beaches and makes them more vulnerable to sea level rise. • Unsustainable. • High level of community impact. • Environmental impact to dunes and beach.

Other comments made about Option 3 included that some participants would support this option if it used only quarry sand, and that quarry sand is likely to increase in cost over time.

6.3 Other comments

Other comments made on an any other feedback poster at the workshop included:

- Need a permanent option that cannot be defunded with future changes in government.
- Concerns about the lack/inconsistency of information provided.
- Need for the survey to be widely promoted.

Appendices list

Due to the length of appendices, they are provided in a separate document - Engagement summary report Part B.

The appendices are:

Appendix A – Information documents

Appendix B – Online survey questions

Appendix C – Survey verbatim comments

Appendix D – Summary of submissions tables

Appendix E – Written submissions

Appendix F – Stakeholder workshop verbatim activity results.

