The 6 options

Sand on the beach – What we do now 1

This is what we do today between Mablethorpe and Skegness to help manage coastal flood risk. We take sand from licensed offshore sites, to replace that lost through natural erosion and storms, and pump it onto the beaches every year. This reduces the risk of damage to the seawall foundations and the supporting clay layer underneath.

Considerations

- Costs of fuel, machinery, more sand needed
- Increasing amount of sand required but where do we get it from?
- It's tried and tested – we know it works!
- Environmental impacts (e.g. carbon footprint)
- This option provides an open beach – added benefits for tourism
- Sections of the beach need to be closed yearly for short periods when pumping takes place
- Seawall modifications – repair/improve/adapt as needed

Coarser sand, shingle or pebbles 2

At the moment we put a fine grade of sand on the beaches. This sand does offer good protection, however fine sand can be moved around easily by wind and wave action. This option looks at using a larger particle, which is much heavier.

Considerations

- Could alter beach profile
- The initial cost will be higher if material is located further away
- It's less likely to move, so won't need to replenish as often
- Movement of shingle/mixing with sand
- Impacts on landscape, recreation and tourism
- Sections of beach would be closed when shingle is being pumped
- Large amount of shingle required
- Environmental impacts (e.g. carbon footprint)
- Potential damage from stones (e.g. outfalls and seawall)
- Seawall modifications – repair/improve/adapt as needed

Rock groynes plus sand on the beach 3

Rock groynes help keep sand on the beach by limiting the movement of sand. A rock groyne is a line of large rocks stacked on top of each other that generally stretch from the seawall down to the shoreline. The angle heading out to sea and the spacing between structures varies depending on location but once in place can be adapted if needed.

Considerations

- Change of landscape/seascape
- Initial costs are much higher – approx., 3 x higher over 10 years but cheaper in the long run
- Less sand required
- Funding/affordability
- Natural movement of sand along the coast will change
- Structures can be modified
- Size and spacing of structures
- Public safety
- Opportunities with additional funding – e.g. marinas/lookout points
- Beach access
- Seawall modifications– repair/improve/adapt as needed

Huttoft with groynes

Rock groynes and fishtails plus sand on the beach 4

This option involves a combination of rock groynes and fishtails, plus putting sand on the beach. Fishtails are large structures that are used to segment a section of coast, forming large crescent bays along the coastline. They are very effective in reducing sand movement and coastal erosion.

Considerations

- Less sand required
- Change of landscape/seascape – especially the larger fishtails
- Initial costs are high – approx. 3 x higher over 10 years but cheaper in the long run
- Funding/affordability
- Natural movement of sand along the coast will change
- Beach access
- Structures can be modified
- Large structures would be spaced further apart
- Public safety
- Opportunities with additional funding – e.g. marinas/lookout points
- Seawall modifications – repair/improve/adapt as needed
- Variations of frequency and volumes of sand (options 5 & 6)

Huttoft with Fishtail

Rock groynes, fishtails with different **volumes** of sand 5

This is a variation of option 4 which still combines rock groynes, fishtails and sand. It considers placing different volumes of sand to provide varied standards of protection depending on location and funding.

Considerations

- Volume of sand may be different in certain areas
- Natural movement of sand along the coast may change
- Standard of protection my change depending on location and funding
- Beach access
- Less sand required
- Seawall modifications – repair/improve/adapt as needed
- Opportunities with additional funding – e.g. marinas/lookout points
- Changes to landscape/seascape – especially larger fishtails
- A localised approach could mean better use of funding

Rock groynes, fishtails with different **frequencies** of sand 6

This is a variation of option 4 which still combines rock groynes, fishtails and sand. It considers placing sand on the beach at different frequencies/intervals, providing varied standards of protection depending on location and funding.

Considerations

- Frequency of sand nourishment may be different in certain areas
- Natural movement of sand along the coast may change
- Standard of protection may change depending on location and funding
- A localised approach could mean better use of funding
- Changes to landscape/seascape – especially larger fishtails
- Seawall modifications – repair/improve/adapt as needed
- Opportunities with additional funding – e.g. marinas/lookout points
- Beach access
- Less sand required

Trusthorpe with groynes