INTRODUCTION

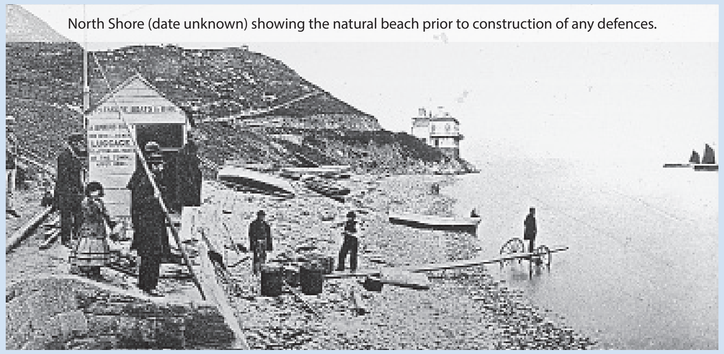
To provide forward looking planning and management of the beaches of Llandudno, Conwy County Borough Council (CCBC) working in partnership with the Llandudno Coastal Forum (LCF) has commissioned AECOM to prepare an Outline Business Case (OBC) to cover both the North Shore and West Shore beach areas in Llandudno. This Public Display is intended to provide an update on the progress being made by CCBC/LCF and to identify the next steps towards achieving the goal of sustainable management of safe beaches for all.

PROGRESS TO DATE

- AECOM was appointed in October 2016 to provide a Beach Management Plan for the beaches of Llandudno and to revise and update the Conwy Tidal Flood Risk Assessment for Llandudno.
- Information and beach management options from public consultation events in Feb 2015 and July 2016 have been considered.
- During 2017 the flood risk to Llandudno was estimated in line with Welsh Government guidelines using state-of-the-art computer models. The resulting flood risk maps are shown on Poster 2 for present day and future, 100 years from now, scenarios, incorporating the effects of climate change.
- Following the completion of the Beach Management Plan and the Conwy Tidal Flood Risk Assessment, AECOM were appointed to undertake preparation of an Outline Business Case, in accordance with Welsh Government requirements for both North Shore and the West Shore.
- AECOM, Conwy Council and the Llandudno Coastal Forum have undertaken a number of engagement activities to ensure understanding of the key issues and collaboration in the development of the options. We have also developed a Tourism Strategy for Llandudno which will feed into the OBC.
- The Beach Management Plan identified a range of potential management options for the North and West Shores and these options have been developed into a short list for public consideration and more detailed appraisal, as presented here.
- Hydraulic Modelling of the Short List Options is currently progressing which will highlight the benefits and residual flood and erosion risk to both the North and West Shores.
- Once the modelling has been completed, formal Appraisal of these options, in accordance with Welsh Government business case guidance will be undertaken and a preferred option for the North and West shores will be identified.
- Funding for the next stage in the process, the development of an Outline Business Case, has been obtained from the Welsh Government.

1. AECOM provides engineering, construction and technical services for public agencies and private sector companies around the world. Our dedicated team of coastal engineers, managers and modellers have a strong track record of delivering coastal flood and erosion protection projects from inception, through planning, design and construction.

North Shore (date unknown) showing the natural beach prior to construction of any defences.

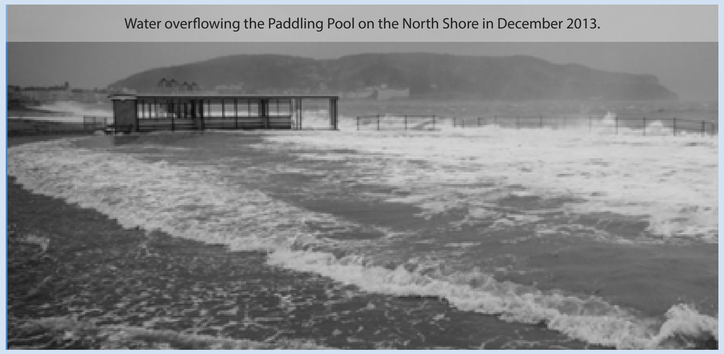


North Shore beach 1930's showing narrow shingle beach with sea wall.

Hot summers day on North Shore beach in the 1950's.

Children's Corner in 1987 showing mixed sand/stone beach (foreground) cobbles/sand (background).

Water overflowing the Paddling Pool on the North Shore in December 2013.

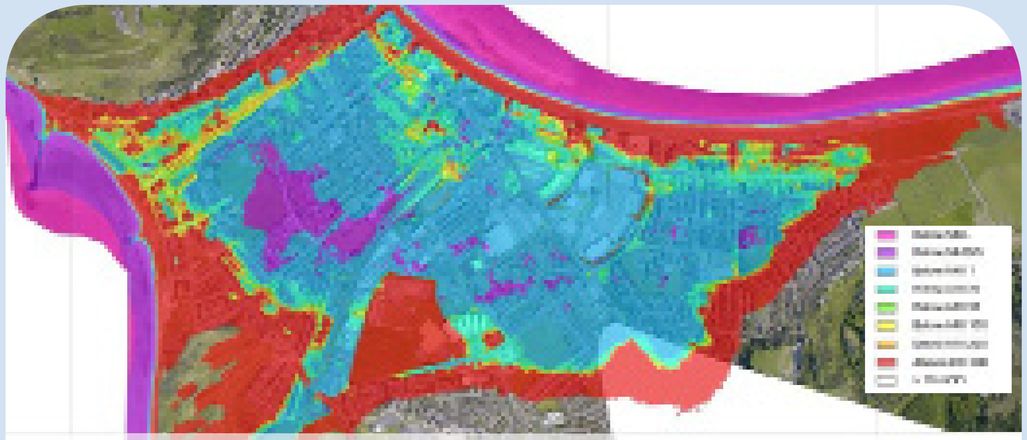


View along the North Shore (facing west) following 2013/14 storm events.

LLANDUDNO COASTAL FORUM
FFORWM ARFORDIROL LLANDUDNO
CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL
AECOM

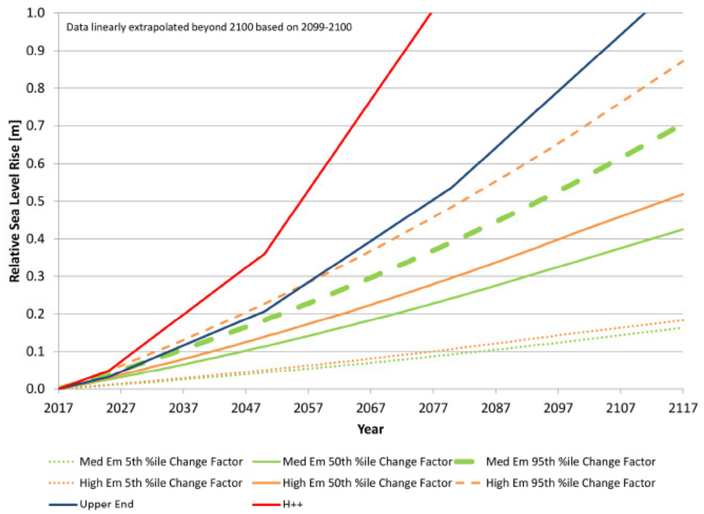
FLOOD RISK

The Present Day risk is such that small areas of Llandudno have a 1 in 1000 chance of flooding in any one year; however in 2117 there will be a 1 in 30 chance of widespread flooding in any one year. It is clear that something will need to change to provide continued flood protection to the town of Llandudno.



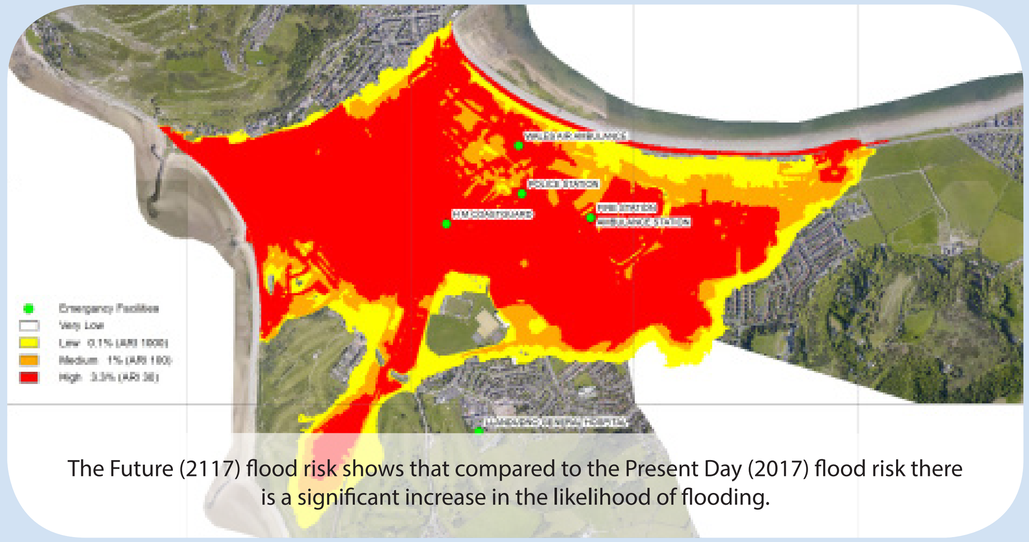
Llandudno is effectively a bowl with the existing sea defences acting as the rim; this means that if water does pass over the defences (due to wave overtopping or high water levels) or through the defences (due to a breach) the water will flow into the town.

The Present Day (2017) flood risk includes the risk of flooding from high still water levels, wave overtopping and breaches of the defences.



Sea levels are predicted to rise over the next 100 years due to climate change and this will increase the likelihood of flooding.

Source: DEFRA



The Future (2117) flood risk shows that compared to the Present Day (2017) flood risk there is a significant increase in the likelihood of flooding.

LLANDUDNO COASTAL FORUM
FFORWM ARFORDIROL LLANDUDNO
CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL
AECOM

NORTH SHORE

The North Shore has been divided into six sections called Management Units (MUN). Each one has been considered separately and in-combination with the other Management Units.

MUN1: Point of headland to the Pier Wall

Description
The near vertical wall that leads to the pier is privately owned and therefore not the responsibility of CCBC. The maintenance of the beach in front of this wall (and the wall in MUN2) is the responsibility of CCBC. The MU only includes the parts that are owned and managed by CCBC.

Issues and Objectives
The sea wall was not surveyed by JBA in the National Survey of Assets, but in previous surveys by CEUK the risk of failure was considered to be Medium due to the condition rating of 3.

Constraints
Any changes to this wall are considered beyond the scope of this BMP; however given the importance of the wall as the boundary to the beach area and also as a support for the Pavilion site and the lack of its inclusion in the recent JBA inspection, the sea wall should be assessed again.

Options
No options are presented for this MU; however action on the sea wall could affect the options for MU2.

MUN2: Children's Corner from the Pier Wall to Trevor Street slipway

Description
This area consists of a sandy beach which is backed by a stepped concrete revetment with a wide promenade. The northern limit is bounded by the sea wall that leads to the pier and the southern limit by the Trevor Street slipway. The area has traditionally been popular with visitors to the area due to the sandy beach present.

Issues and Objectives
This MU is identified by LCF as being in the 'Beach Zone' and it is anticipated that the actual beach area will be used (rather than the just the water or promenade). The sandy nature of the beach and proximity to the town centre mean that this is a tourist destination.

This section was not modified as part of the previous beach recharge works undertaken in 1996-2000. The beach was not recharged in 2014.

Cobble and shingle material that has been moved westerly across the slipway has been separated out and recycled to the east of the slipway.

The area is considered to be the only area along the North Shore where there is an immediate and future flood risk due to still water levels and during storm events waves may overtop the beach, particularly at the top of the Trevor Street Slipway. The objective for this MU is to maintain the beach area as an amenity whilst ensuring adequate flood protection is achieved.

Constraints
The area is exposed to less wave energy than the MUs to the east.

Beach levels must be maintained to prevent wave overtopping and scour of the toe of the sheet pile wall at the bottom of the steps.

Options
The frontage wide options of breakwaters, groynes and beach nourishment will affect this management unit (Options NS1-4). Additionally the Option NS5 will specifically address the beach levels within this MU.

MUN3: Trevor Street slipway to Tudor Road

Description
This unit consists of a steep upper shingle beach and a flatter, lower sand beach. The beach is backed by a stepped concrete revetment and wide promenade. The northern limit is bounded by the Trevor Street slipway and the southern limit by the boundary between the beach zone and the boating zone at Tudor Road.

The beach was recharged with shingle material in 2014 following the storm events.

Issues and Objectives
The low tide platform is a sandy beach area that may be utilised only during low tides. The shingle beach is steep and limits access to the low tide platform except via the Trevor Street Slipway. The shingle beach crest can be raised during storms and spill onto the promenade.

The objective for this MU is to continue to provide flood protection and retain access to the beach.

Constraints
The management unit is more exposed to wave energy than those to the west. Beach levels must be maintained to prevent wave overtopping and scour of the toe of the sheet pile wall at the bottom of the steps.

The damage to the bandstand is as a consequence of beach lowering and attrition by shingle.

Options
The frontage wide options of breakwaters, groynes and beach nourishment will affect this management unit (Options NS1-4).

MUN4: Tudor Road to the west edge of the Craig-y-Don paddling pool

Description
This unit consists of a steep upper shingle beach and a flatter, lower sand beach. The beach is backed by a stepped concrete revetment and wide promenade. The northern limit is bounded by the border between the beach zone and the boating zone at Tudor Road and the southern limit by the western edge of the paddling pool.

The beach was recharged with shingle material in 2014 following the storm events.

Issues and Objectives
The low tide platform area is not easily accessible and the shingle beach crest can be raised during storms and spill onto the promenade.

The objective for this MU is to continue to provide flood protection and maintain access to the beach.

Constraints
This management unit is significantly exposed to wave energy and is highly dynamic.

Beach levels must be maintained to prevent wave overtopping and scour of the toe of the sheet pile wall at the bottom of the steps.

Options
The frontage wide options of breakwaters, groynes and beach nourishment will affect this management unit (Options NS1-4).

MUN5: Craig-y-Don paddling pool

Description
The paddling pool consists of a sloping stone wall on the seaward side with a dwarf crest wall and a rear promenade. The limits of this management unit are bounded by the extents of the paddling pool.

Issues and Objectives
The sloping front wall allows waves to run up the face and overtop into the paddling pool. This results in significant overtopping by waves and large amounts of shingle being thrown onto the pool and surroundings. Damage from the stones is possible and the mix of water and stones overtopping in a storm event could present a risk to life.

The objective for this MU is to maintain the paddling pool as an amenity and provide adequate flood protection.

Constraints
This management unit is significantly exposed to wave energy.

The pool is a popular destination for tourists and a valuable amenity to the North Shore. The extension of the paddling pool out across the beach results in a narrower beach allowing higher waves to reach the pool wall.

Beach levels must be maintained to prevent wave overtopping and scour of the toe of the sheet pile wall at the bottom of the revetment.

Options
The frontage wide options of breakwaters and groynes will affect this management unit (Options NS1-4).

Option NS6 will specifically address wave overtopping within this MU.

MUN6: East edge of the Craig-y-Don paddling pool to the start of the Fishing Zone at Colwyn Road

Description
This unit consists of a steep upper shingle beach and a flatter, lower sand beach. The beach is backed by a vertical wall. The western limit is bounded by the eastern limit of the paddling pool and the eastern limit by the boundary between the boating and fishing zone at Colwyn Road.

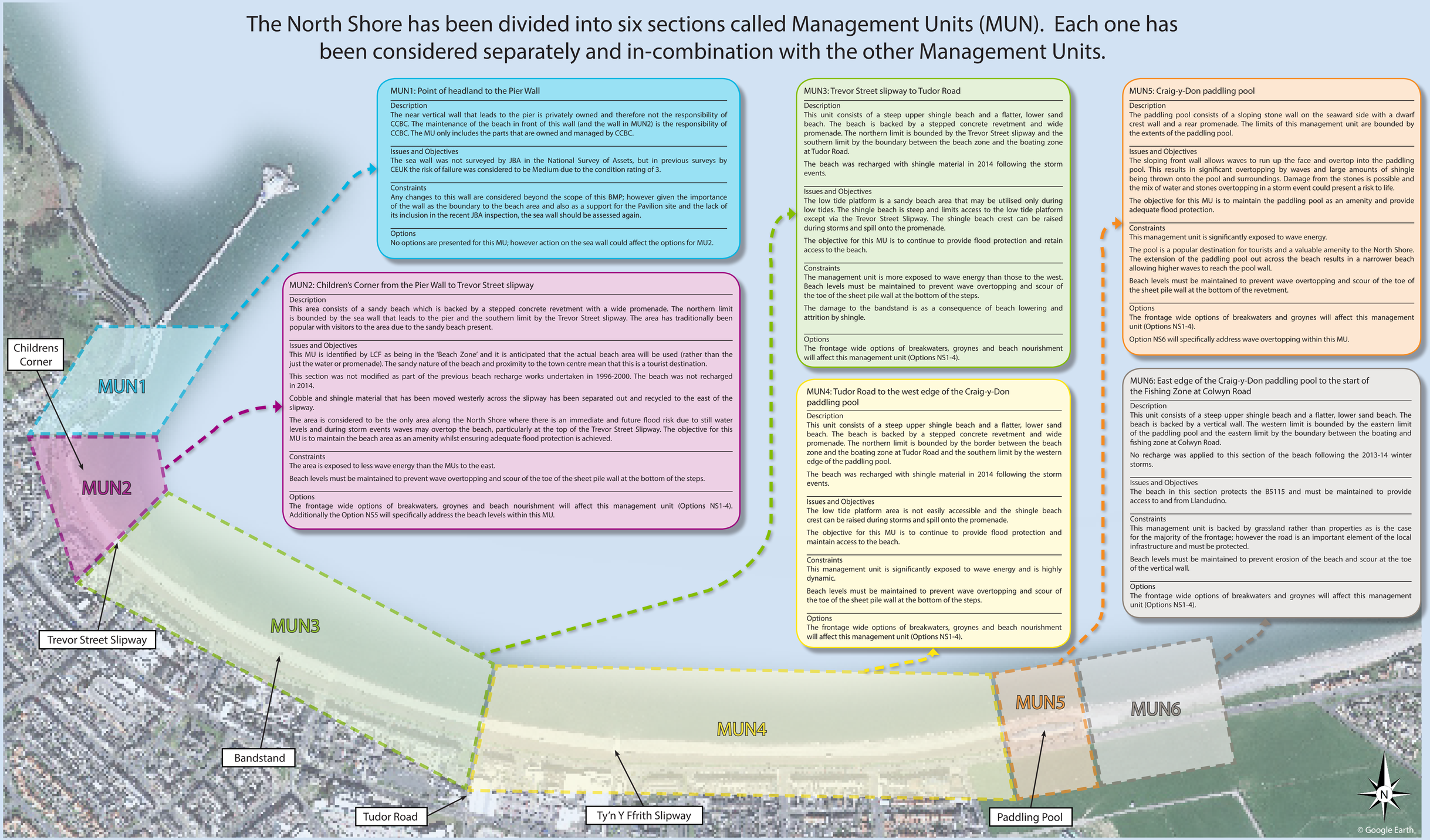
No recharge was applied to this section of the beach following the 2013-14 winter storms.

Issues and Objectives
The beach in this section protects the B5115 and must be maintained to provide access to and from Llandudno.

Constraints
This management unit is backed by grassland rather than properties as is the case for the majority of the frontage; however the road is an important element of the local infrastructure and must be protected.

Beach levels must be maintained to prevent erosion of the beach and scour at the toe of the vertical wall.

Options
The frontage wide options of breakwaters and groynes will affect this management unit (Options NS1-4).



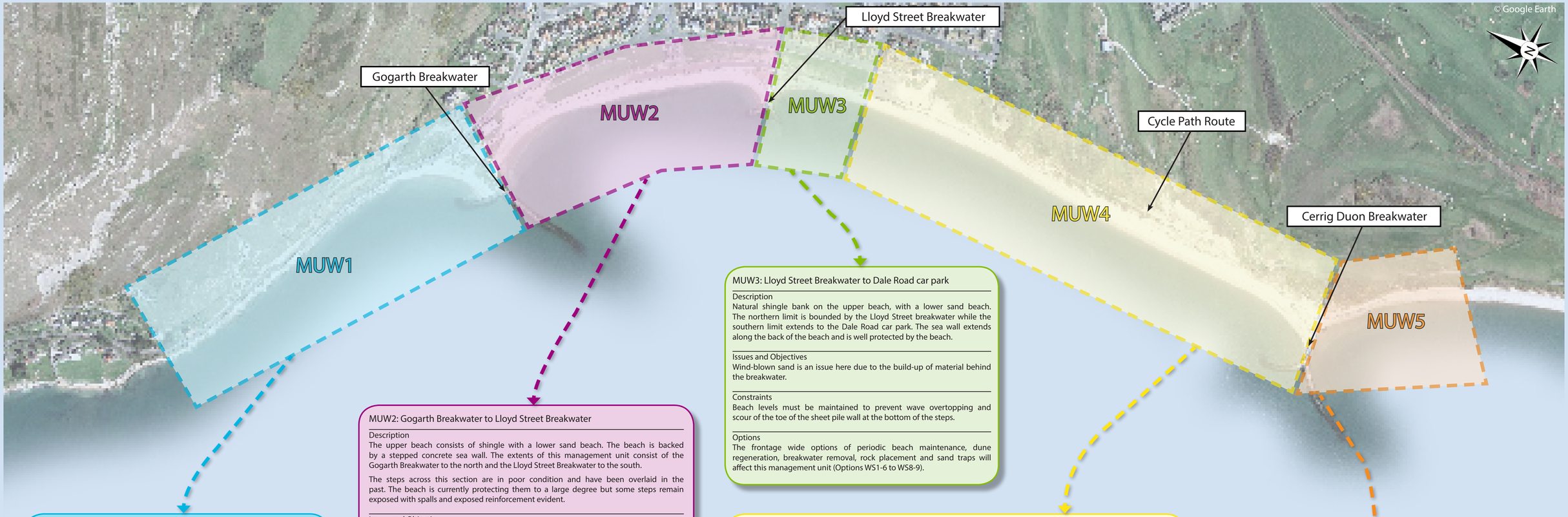
LLANDUDNO BEACH MANAGEMENT

LLANDUDNO COASTAL FORUM
FFORWM ARFORDIROL LLANDUDNO
CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL
AECOM

WEST SHORE

4

The West Shore has been divided into five sections called Management Units (MUW). Each one has been considered separately and in-combination with the other Management Units.



MUW1: Frontage along Marine Drive to Gogarth Breakwater

Description

The relatively narrow beach in this area consists of a sand and shingle upper beach with a lower sand beach. This beach is backed by a stepped concrete sea wall with a rear vertical wall. The northern limit extends towards Marine Drive while the southern limit is bounded by the breakwater itself.

The steps across this section are in poor condition and have been overlaid in the past. The beach is currently protecting them to a varying degree.

Issues and Objectives

This management unit is not affected by wind-blown sand as it is backed by a vertical wall.

Sand has accumulated on the north side of the Gogarth Breakwater and appears to be holding sufficient sand to protect the sea walls.

Constraints

This section is backed by a vertical wall which protects the adjacent roadway. Beach levels must be maintained to prevent wave overtopping and scour of the toe of the sheet pile wall at the bottom of the steps.

Options

The frontage wide options of periodic beach maintenance will affect this management unit (Option WS1-6).

MUW2: Gogarth Breakwater to Lloyd Street Breakwater

Description

The upper beach consists of shingle with a lower sand beach. The beach is backed by a stepped concrete sea wall. The extents of this management unit consist of the Gogarth Breakwater to the north and the Lloyd Street Breakwater to the south.

The steps across this section are in poor condition and have been overlaid in the past. The beach is currently protecting them to a large degree but some steps remain exposed with spalls and exposed reinforcement evident.

Issues and Objectives

The Gogarth Breakwater has been successful in protecting the beach in this MU. The area immediately behind the breakwater has a relatively high beach level and dunes have formed at the root of the breakwater.

Wind-blown sand is however an issue here due to the increased beach level relative to the sea wall crest elevation.

The relatively high beach levels in the lee of the Gogarth Breakwater are an indication of the success of the breakwater in protecting the beach.

The condition of the sea wall is considered by JBA (2015) to be fair. MUW2 is the area of the West Shore considered to be most at risk of being overtopped in the future due to extreme still water levels (without waves) and therefore the wall will to need to be improved in the future.

Constraints

Beach levels must be maintained to prevent wave overtopping and scour of the toe of the sheet pile wall at the bottom of the steps.

The houses immediately behind the sea wall and grassed areas are lower than the sea wall. Increases in the sea wall height or provision of dune management measures in the hinterland may reduce wind-blown sand, will reduce the flood risk but also obstruct the view of the sea.

Options

The frontage wide options of periodic beach maintenance, dune regeneration, breakwater removal, rock placement and sand traps will affect this management unit (Options WS1-6 and WS8-9).

MUW3: Lloyd Street Breakwater to Dale Road car park

Description

Natural shingle bank on the upper beach, with a lower sand beach. The northern limit is bounded by the Lloyd Street breakwater while the southern limit extends to the Dale Road car park. The sea wall extends along the back of the beach and is well protected by the beach.

Issues and Objectives

Wind-blown sand is an issue here due to the build-up of material behind the breakwater.

Constraints

Beach levels must be maintained to prevent wave overtopping and scour of the toe of the sheet pile wall at the bottom of the steps.

Options

The frontage wide options of periodic beach maintenance, dune regeneration, breakwater removal, rock placement and sand traps will affect this management unit (Options WS1-6 to WS8-9).

MUW4: Dale Road car park to Cerrig Duon Breakwater

Description

MU4 extends from the end of the sea wall in MU3 to the Cerrig Duon breakwater. The car park is at the back of the beach and is slightly higher than the land to the north. The dunes rise up from the southern end of the car park and provide a clear demarcation of the back of the beach. The cycle path that was built at the foot of the dunes has been eroded in some places by wave action and buried by sand in others. There is evidence of foredunes forming with some being vegetated. There is clearly a fine balance between the wave action and the supply of sand to this part of the beach.

Behind the dunes is a privately owned golf course.

Issues and Objectives

Wind-blown sand is an issue here, particularly along the cycle path, due to the build-up of material behind the breakwater.

The cycle path is considered to be an important asset and therefore should, if possible be protected.

Dunes are naturally formed by wind-blown sand. The action that is considered to be a problem elsewhere on the West Shore is to the benefit of the dunes.

The shingle bank between the south end of the sea wall and the elevated dunes of the golf club provides the lowest crest elevation across the West Shore frontage and is considered to be a section at risk of flooding in the future.

Constraints

The frontage is less well protected than the MUs to the north. Wave energy may reach the site directly with less protection from the Great Orme and no local breakwaters.

The dunes are an important habitat and need to be protected if possible.

Options

The frontage wide options of periodic beach maintenance and wall construction, dune regeneration, breakwater removal, rock placement and sand traps will affect this management unit (Options WS1-7, 9).

MUW5: Immediately South of Cerrig Duon Breakwater

Description

The Cerrig Duon breakwater is the northern boundary of this management unit and it extends approximately 300m to the south of this breakwater. The beach is backed by the southern end of the dunes and the upper beach is well protected by the breakwater. The upper beach is sand and shingle however the area immediately behind the breakwater is very fine soft sand.

Issues and Objectives

Wind-blown sand is an issue here, particularly along the cycle path.

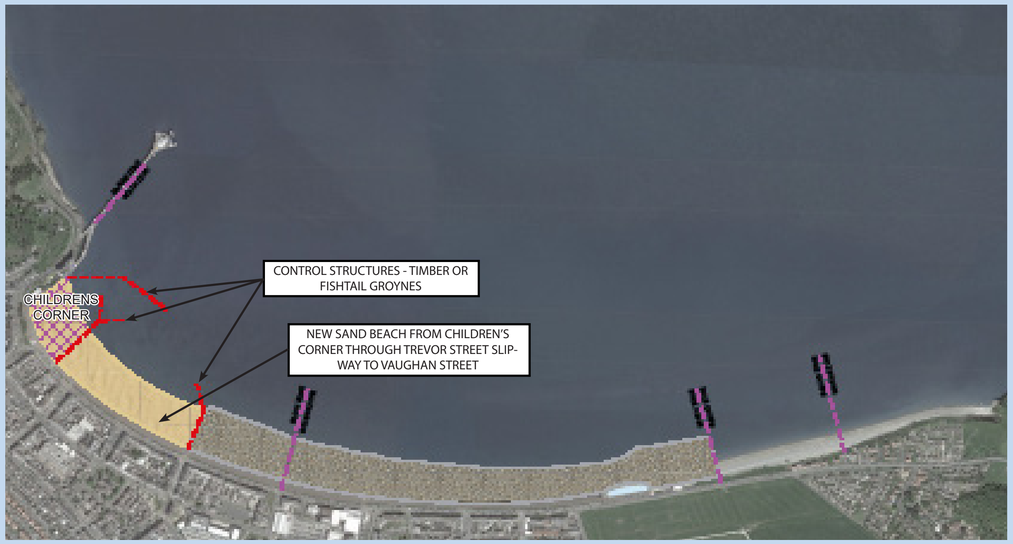
Constraints

The protection of the breakwater means that the area experiences very low wave energy and will therefore fill with fine sediments. If wave action is extremely low then the area may become muddy if the fine sediment is in the water column.

Options

The frontage wide options of periodic beach maintenance, dune regeneration, breakwater removal, rock placement and sand traps will affect this management unit (Options WS1-7 and 9).

Option A: Beach Nourishment & Control Structures



Description

Beach nourishment with shore connected control structures. Rock or timber groynes to be used as the control structures. This would replace the cobbles from Trevor St slipway/Children's Corner to approximately Vaughan Street with sand. The exact location of the change in material and the structures would need to be determined. Raising of the rear promenade wall would take place before year 50 to account for rising sea levels and the associated increase in flood risk.

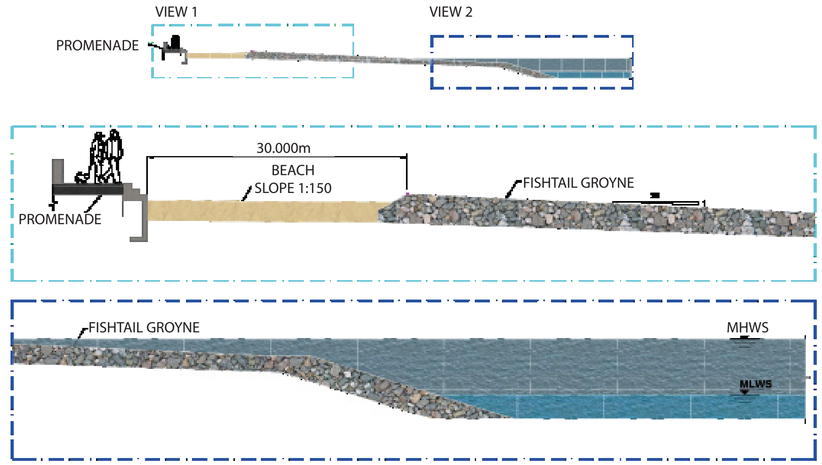
Advantages

- Control structures will assist with accretion of sediment and assist with controlling longshore sediment transport.
- Control structures provide shelter, attenuating wave conditions at the shoreline and reducing energy acting on the beach.
- Stable pocket beaches will be created on the lee side -of rock groynes.
- Rock structures have potential for incorporating amenity.

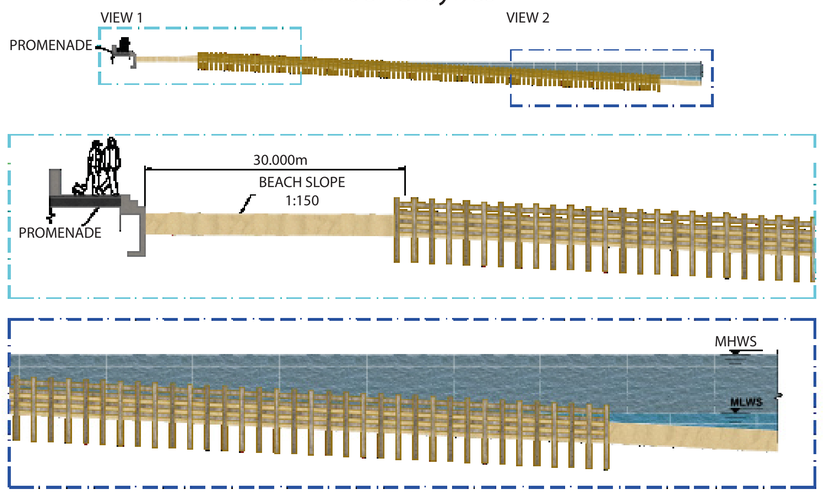
Disadvantages

- Significant amount of expensive armour/timber material required.
- Higher capital construction cost than uncontrolled environment.
- Significant visual impact.
- Control structures can restrict existing uninhibited access along the beach.
- High sand beach has associated wind blown sand issues, which could affect nearby property and infrastructure.
- Timber structures less resilient to abrasive forces from sediment movement – increased maintenance required.
- Sediment movement requires on-going management and topping up.
- Long term increase in wall elevation may impact visibility of the sea and beach.
- Requires longer term re-construction of promenade accesses, inclusion of gates/stop logs etc.

Rock Groynes



Timber Groynes

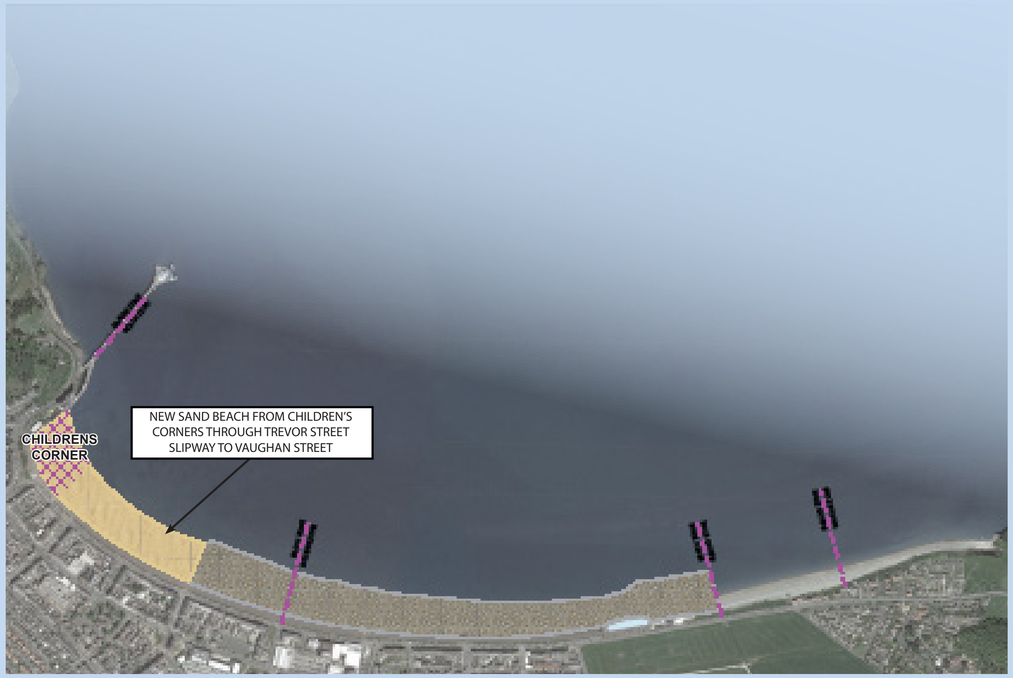


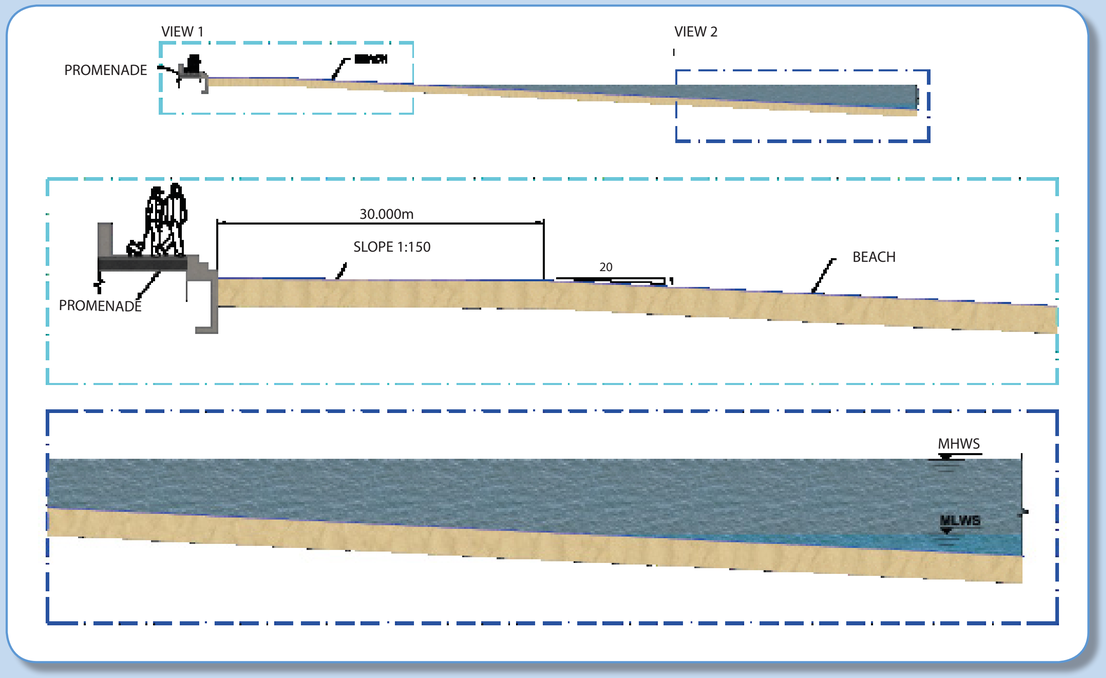
LLANDUDNO COASTAL FORUM
FFORWM ARFORDIROL LLANDUDNO
CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL
AECOM

NORTH SHORE OPTIONS

6a

Option B: Beach Nourishment





Description

Beach nourishment only. This would replace the cobble from Trevor St slipway/Children's Corner to approximately Vaughan Street with sand however no control structures would be put in place. Raising of the rear promenade wall would take place before year 50 to account for rising sea levels and the associated increase in flood risk.

Advantages

- Flexible coastal management solution i.e. option is reversible and scalable.
- Positive impact on adjacent areas through the maintenance of natural sediment transport processes.
- Attract more people to the frontage.

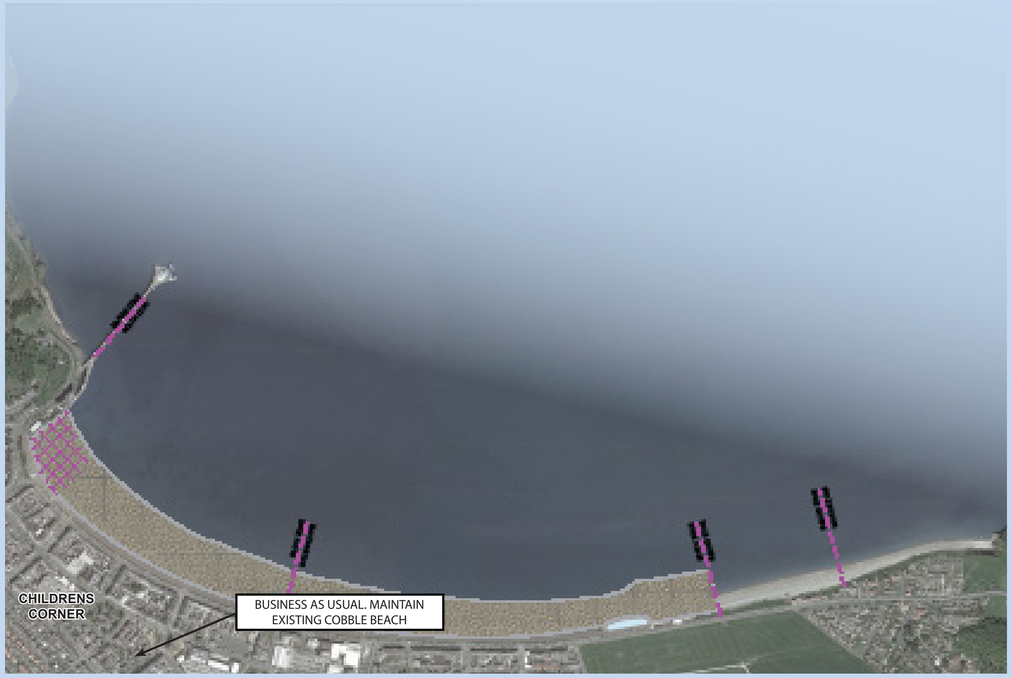
Disadvantages

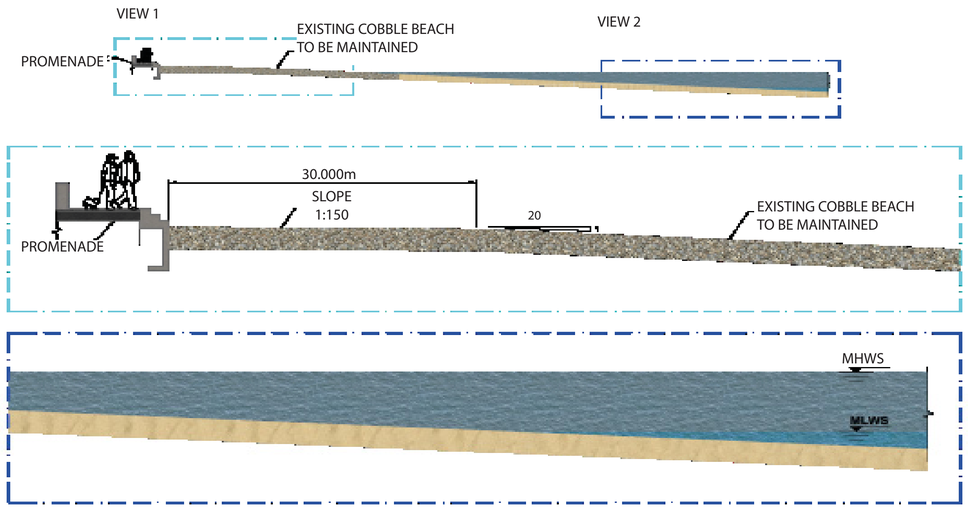
- Variable standard of protection provided as beach sediment moves alongshore and down the profile.
- There is high uncertainty associated with estimating the rate of beach movement and losses and there is a high risk of higher (or lower) recharge amounts required resulting in higher (or lower) than expected maintenance costs.
- Requires more frequent monitoring and management (all options require some monitoring and management).
- Will require frequent topping up therefore it can be expensive option over the short and long term.
- High sand beach has associated wind blown sand issues, which could affect nearby property and infrastructure.
- Long term increase in wall elevation may impact visibility of the sea and beach.
- Requires longer term re-construction of promenade accesses, inclusion of gates/stop logs etc.

Proposed height for rear promenade wall:

LLANDUDNO COASTAL FORUM
FFORWM ARFORDIROL LLANDUDNO
CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL
AECOM

Option C: Business as Usual





Description

Maintenance of the existing cobble beach from Trevor St slipway to Craig-Y-Don. Raising of the rear promenade wall would take place before year 50 to account for rising sea levels and the associated increase in flood risk.

Advantages

- Low capital investment in short term.
- Overall, cost efficient and reconstruction of wall long term will be an effective method of maintaining the standard of protection.
- Utilises the existing promenade and rear wall to limit the risk of overtopping waters from causing flooding to property and infrastructure.

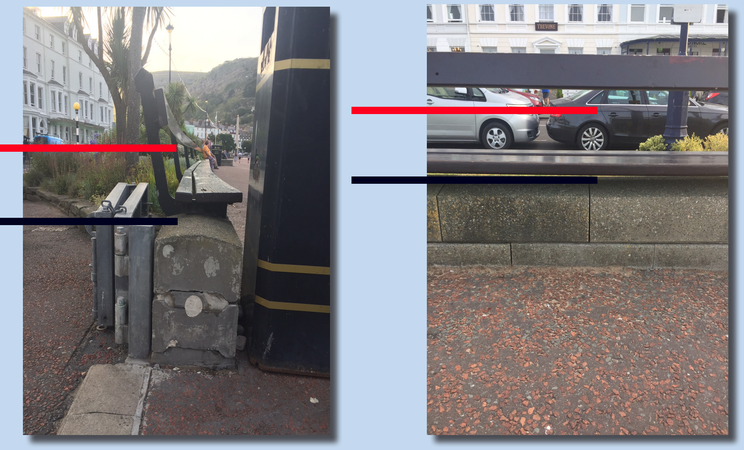
Disadvantages

- Requires topping up of beach to maintain standard of protection over time (but at lesser frequency than sand).
- Long term increase in wall elevation may impact visibility of the sea and beach.
- Requires longer term re-construction of promenade accesses, inclusion of gates/stop logs etc.
- Concrete would be susceptible to surface abrasion due to movement of shingle during storms.

Proposed height for rear promenade wall:

Proposed wall: 750mm

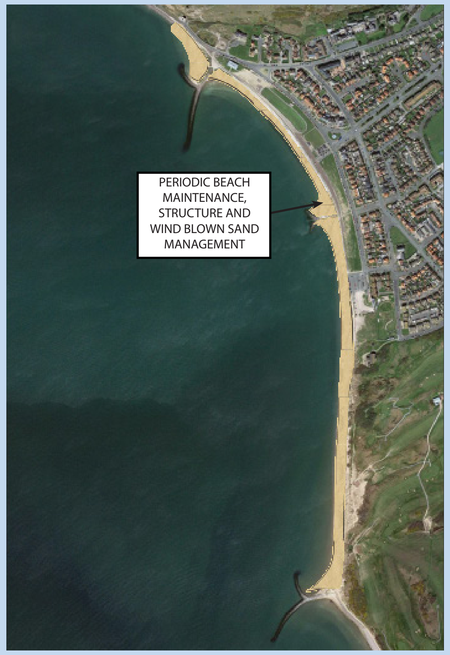
Existing wall: 300-400mm



WEST SHORE OPTIONS

7

Option A: Maintenance & Beach Management



Description

Periodic beach maintenance – will include for the topping up of additional shingle as well as the business as usual maintenance works – windblown sand clearance, concrete repairs etc.

Advantages

- Low impact on the environment.
- Surplus material can be re-used in other areas e.g. recycled to North Shore.

Disadvantages

- Variable standard of protection provided as beach moves.
- Losses occur in places (requires periodic re-nourishment).
- Requires on-going management.
- Flood risk between end of existing concrete defences and North Wales Golf Club remains.
- Reactive rather than proactive management of windblown sand issues.

Option B: Extension of Flood Defences

Description

Extension to the existing defences from end of existing concrete defences to the sand dunes.

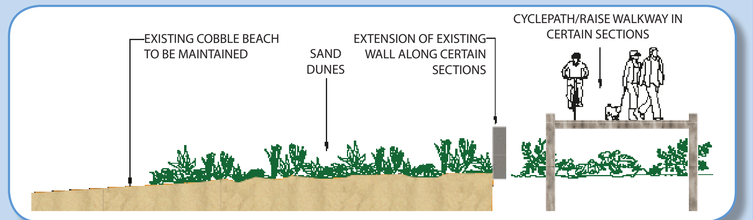
Advantages

- Minimal impact on the environment.
- Increased flood protection along the frontage.

Disadvantages

- Higher initial capital investment.

Option C: Combined Scheme



Description

Combined scheme – maintaining and topping up beach conditions as necessary, extension of secondary defences between the existing wall and sand dunes, provision of windblown sand control measures, and provision of a raised walkway across the southern half of the frontage.

Advantages

- Advantages as (b) plus;
- Will improve the flood defence and amenity standard along the frontage.
- Will provide a continuous usable path along the shoreline from the car park to Cerrig Duon Breakwater.
- Provides proactive measures to reduce impacts of windblown sand.

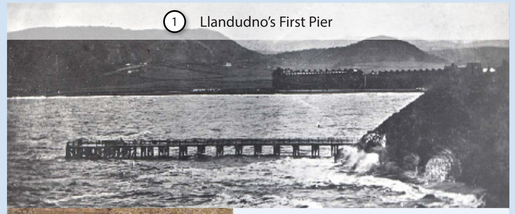
Disadvantages

- Unlikely to completely eradicate the windblown issue – material may continue to blow over the top of the wall/cycle path.
- Timing of remedial works to the existing wall is dependent on the residual life of the existing structure and climate change considerations.
- Sustainability of cycleway option depends on the material used and route adopted.

LLANDUDNO COASTAL FORUM
FFORWM ARFORDIROL LLANDUDNO
CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL
AECOM

NORTH SHORE HERITAGE

1 Llandudno's First Pier



- Construction began 1858
- Badly damaged in the storm of 26th October 1859.
- Repaired and reused to bring timbers to build Llandudno
- Eventually sold at auction and dismantled.
- Resurveyed 2012
- Identified 55 posts some single and some double
- Length 242ft

2 Shipwreck Remains

Five pieces all found in the same area - 2/3 of the way down the length of the pier opposite the lifeboat slipway and the short jetty. Could they be the remains of the Archiduco Palatino, wrecked in this area of Llandudno Bay in Spring 1847? She grounded on the southern end of the old weir just opposite the St George's Hotel. More work is needed. Pieces only accessible on an extremely low tide.

3 Old Breakwaters

4 Pier Bracing

5 Coping Stone

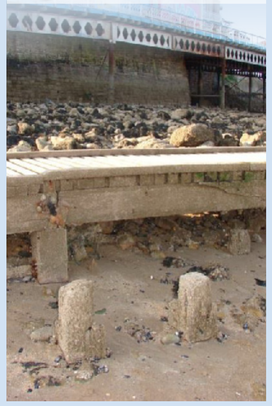
6 Brookes Jetty

J. Roberts, Llandudno Advertiser, 1909.

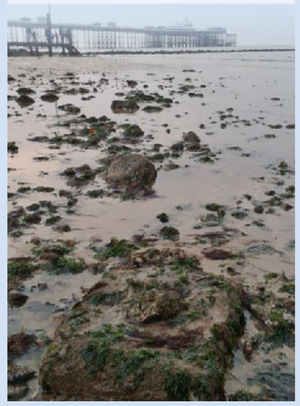
'Two extensive quarries existed one on each side of the Happy Valley'

'Another stage for the same purpose (of removing stone) was situated on the site of the Grand Hotel extending on to the plot of sand just in front. This was constructed by the late Mr George Brookes, Snr, Victoria Inn. Mr Brookes also made a road to connect this stage with the quarry which is on the left side of the Happy Valley. Many hundred tons of limestone was shipped from these stages.' Is this stone feature Brookes Stage? – more investigation is required.

7 Wooden Bases near Jetty



8 Mooring Stone with Ring



9 Concrete Base for Lifeboat Haul off Warp

10 Wooden Posts

11 Diving Board Remains

Credit for heritage research and photographs: ***Debbie Wareham, Ships' Timbers***

LLANDUDNO BEACH MANAGEMENT

LLANDUDNO COASTAL FORUM
FFORWM ARFORDIROL LLANDUDNO
CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL
AECOM

PREVIOUS STEPS

9

The following timeline is presented to show the key stages in the development and history of this scheme.

December 2013
Significant storm impacting North Shore Llandudno reducing existing coastal protection to stepped revetment.

March 2014
CCBC carry out significant shingle replenishment works at North Shore with public dissatisfaction over consultation.

August 2014
First meeting of LCF and Terms of reference agreed.

November 2015
CCBC apply to Welsh Government for funding through Coastal Risk Management Programme(CRMP) for a Beach Management Plan (BMP).

June 2016
AECOM starts to develop a Beach Management Plan (BMP) to revise the Conwy Tidal Flood Risk Assessment (CTFRA).

June 2017
AECOM completes the BMP and CTFRA.

July 2017
AECOM and Conwy Borough Council (CCBC) present the BMP to the Llandudno Coastal Forum.

August 2017
BMP presented to LCF.

September 2017
The Welsh Government commits to funding for the Outline Business Case.

October 2017
CCBC approves the BMP.

2013 | 2014 | 2015 | 2016 | 2017

Flood Damage

Pre-Outline Business Case

March 2014
Public meeting at Venue Cymru with over 700 in attendance.

March 2015
North Shore consultation on future defence and amenity ideas.

April 2016
CCBC sucessful in securing funding from WG for (BMP) for Llandudno.

July 2016
West Shore consultation on future defence and amenity ideas.

March 2017
Future flood visualisations prepared for Llandudno.

November 2017
BPM drop in held in Victoria Centre.

LLANDUDNO COASTAL FORUM
FFORWM ARFORDIROL LLANDUDNO
CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL
AECOM

NEXT STEPS

The following timeline is presented as indicative to show the key stages in the development of this scheme.

Note that if the development of flood protection is to be tied in with other redevelopment of Llandudno then this programme may be altered by the application process for grants to support that redevelopment.

January 2018
Funding secured from WG for Outline Business Case.

March 2018
AECOM appointed to carry out OBC.

April 2019
Short list of options agreed and approved by CCBC and LCF.

May 2019
Coastal Defence improvement options presented to Scrutiny.

June 2019
Llandudno Tourism Vision published.

July 2019
Drop in session outlining OBC options.

2020-2021

If the Outline Business Case determines that a scheme is economically viable and that construction is required in less than 7-10 years then it is likely the project will proceed to Full Business Case.

The Full Business Case / Detailed Design will:

- Undertake the necessary environmental surveys as defined in the Outline Business Case.
- Complete the detailed design of the preferred scheme(s).
- Undertake Public Consultation on the detailed design of the preferred option.
- Obtain the necessary Consents.

2018 | **2019** | **2020** | **2021** | **Construction**

Outline Business Case

Full Business Case / Detailed Design

March 2018

AECOM appointed to carry out Outline Business Case which will:

- Investigate the flood risk in more detail to determine dates at which the flood risk becomes 'unacceptable'.
- Complete the necessary environmental studies (for example Water Framework Directive, Habitats Directive, Environmental Impact Assessment, Heritage searches etc).
- Develop Outline Designs for short-listed options.
- Public consultation on the short-listed options.
- Carry out a Cost Benefit Anlysis on the short listed options.
- Select a preferred options.
- Draw together all evidence to justify that a scheme will be required and is economically viable and that the project should progress to Full Business Case.
- Submit to Welsh Government.

September 2019

Submission of OBC to LCF and then Cabinet.

Submission of OBC to WG

October - December 2019

Consideration of OBC by WG.

2021 Onwards

Commence Construction in accordance with funding arrangements.

LLANDUDNO COASTAL FORUM | FFORWM ARFORDIROL LLANDUDNO | CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL | AECOM

TOURISM IN LLANDUDNO

11

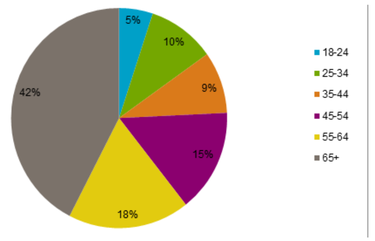
Llandudno is a key UK tourism centre with a range of attractions and events, Victorian heritage, accessibility and high quality natural environment. The tourism sector in Llandudno has performed strongly over recent years and is a key strategic focus for both Welsh Government and Conwy County Borough Council.

KEY TOURISM FACTS:

Llandudno as an International Destination

Llandudno is 1hr 20 mins from both Liverpool and Manchester airports, meaning it is accessible from international destinations.

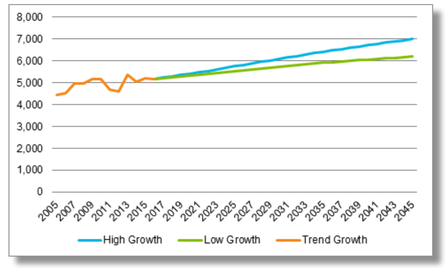
Llandudno Visitor Age Profile



Visitors are mostly from the older generation:

- 60% of visitors aged 55 or above
- 10% are families with children

Tourism Employment in Llandudno

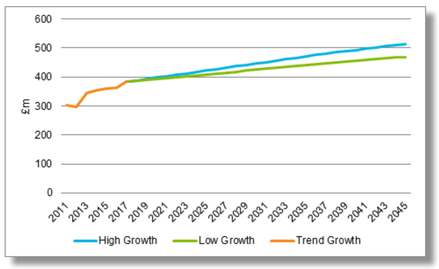


Tourism employment has risen from 4,606 in 2012 to 5,328 in 2017 (including indirect employment).

Accessible from Key Cities

Other key cities, including Chester, Stoke-on-Trent, Leeds and Birmingham are within a 2.5hr drive time.

Economic Impact of Tourism in Llandudno



The total economic impact of tourism in Llandudno was £384 million in 2017, up from £296m in 2012.

Llandudno's Beaches Attract Tourists

Llandudno's beaches are a key part of the town's tourism offer. A recent tourism study showed that 28% of visitors were attracted by the town's beaches.

If Llandudno adapts to changing market conditions and invests accordingly, a high growth scenario suggests that the economic impact of tourism will rise from £388.8 million to £513.6 million by 2045.

LLANDUDNO BEACH MANAGEMENT

LLANDUDNO COASTAL FORUM
FFORWM ARFORDIROL LLANDUDNO
CONWY CYNGOR BWRDEISTREF SIROL COUNTY BOROUGH COUNCIL
AECOM