

Project Definition Document V3

for

The Madeira Terrace, Brighton

November 2017



The Madeira Terrace

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The Madeira Terrace

1.0 The Project

Our vision is:-

“To transform the Madeira Terrace into a world class, must-visit heritage destination on the South Coast, offering a unique insight into its place in history combined with shopping, eating and drinking together with workspaces for creative businesses to flourish, all forming a grandstand to an open public events area.”



The objectives are:

- To deliver the refurbishment of Madeira Terrace bringing it back into use with a mixture of leisure, retail and community uses
- To stimulate new private sector investment to support growth sectors in the local economy
- To protect and enhance a key heritage and visitor asset as part of Brighton & Hove’s overall £1bn seafront investment plan

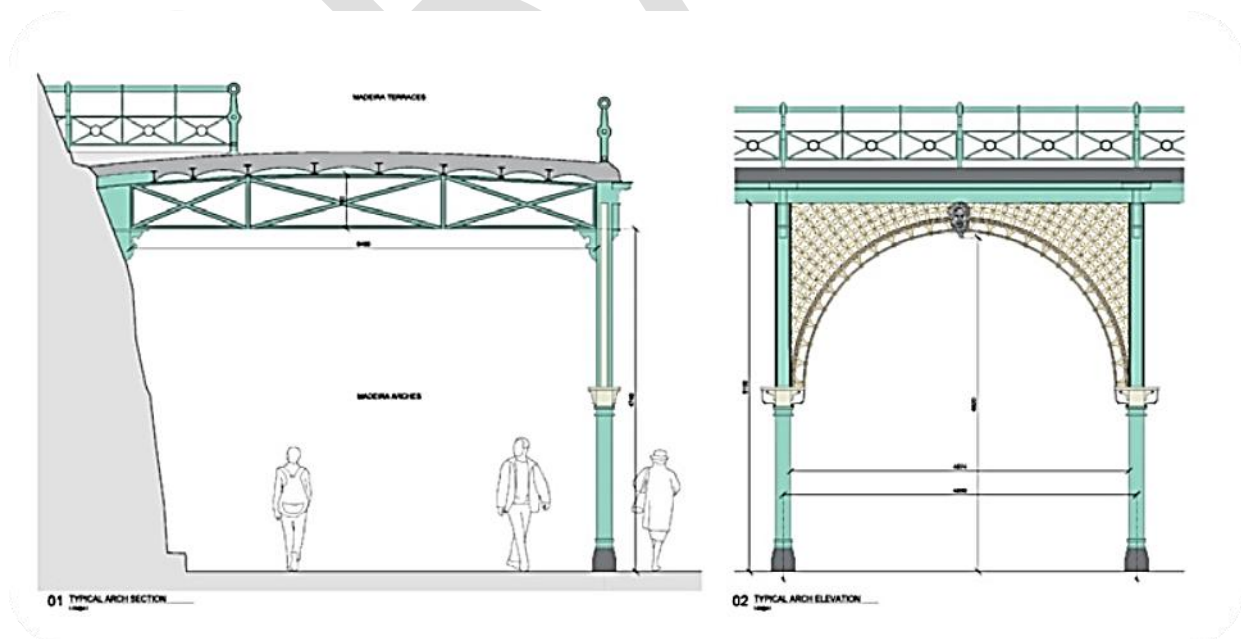


The Madeira Terrace

This project is currently being led by Brighton and Hove Council as the owners of the Madeira Terrace. However, it is the aim of the Council, in due course, to form a suitable vehicle to manage the operation of the restored Terrace in a sustainable manner.

The issues that need to be addressed are:-

- The structure is heavily corroded, most severely in the steel I-beams and bolted connections.
- The concrete jack arch deck is insufficient to prevent water penetration through the structure. It is also experiencing cracking and spalling in most bays.
- A small number of the cast iron lattice beams appear to have fractures that are considered to be severe. Additionally, a few of the cast iron edge beams appear to have various cracks and fractures.
- The cast iron spandrels appear to have a few fractures and are seen to be separating at the edge plates along the sides against the column and along the top against the edge beam bottom flanges. There are also missing decorative mask elements from the spandrels.
- Most other cast iron elements exhibit corrosion, rust staining and bulging to various degrees.
- The drainage system is generally blocked with sections missing, broken and/or misaligned, preventing water runoff from off the structure.
- The masonry piers feature a number of cracks to both the brickwork and mortar which have become covered in moss and vegetation. There are also several displacements of brick courses that have led to loose bricks that pose risk of falling.



- The green wall is overgrown and rooting into the cracks of the retaining wall.

The Madeira Terrace

- Currently, there are a number of barriers which limit access and which dissuade residents and visitors alike from engaging with the area.
- There are currently two rows of car parking that visually separate the terraces from the beach implying that the public realm is a vehicle priority.

Brighton and Hove Council have produced 'The Madeira Drive Regeneration Strategy' which has found:

- Madeira Drive is cut off from much of the city by the change in levels between it and Marine Gardens which requires a significant effort for pedestrians and cyclists, especially when travelling from the north.
- Access to the Madeira Lift is not ideal. It is only partially visible to the public and not open all the year round.
- There is room for improvement in the access to Madeira Drive by public transport. There are no bus services along the road itself and while there is some stair access from Marine Parade, many of these remain closed. The public realm along Madeira Drive has a tired and inconsistent look. There is minimal street furniture, shelter from the elements or appropriate facilities to encourage the use of Madeira Drive.
- The future vision is a 'seafront for all' that features diverse and engaging attractions that entice and excite both residents and visitors.

It is important to provide an attraction which is used throughout the year developed in keeping with the area's heritage, culture and environment but also acknowledging the commercial drivers that are needed to turn the vision into reality.



Improved accessibility to and along the seafront has been a recurring theme throughout this investment plan.

There are a number of key projects which rely on transport solutions in order to unlock development. To optimise success, improvements to seafront accessibility require a comprehensive approach which considers each transport mode, as well as various demands from different users of the space along the seafront.

Accessibility along the length of the seafront is not currently optimised. An integrated seafront transport solution is required to realise the full benefits of the assets of the seafront. The Council has plans to progress with this scheme as included in the approved City Plan Part 1. Going forward, it has been recognised that the Strategic Development Board should undertake a holistic approach to transport infrastructure to ensure these assets are fully aligned and optimised.

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The redevelopment of Madeira Terrace is expected to bring significant economic benefit to Brighton & Hove, supporting the City's strengths in the visitor economy, arts and cultural sectors and the digital economy. Overall, the Lockwood Project is expected to contribute around £5 million to the local economy (in gross value-added terms) and create around 100 new net jobs. The project has substantial stakeholder support including from the local community, local political leaders and heritage officials. This project is an important element of the strategic skills agenda as it sits within Kemptown and Whitehawk which are the most deprived areas of the town in terms of access to the seafront.



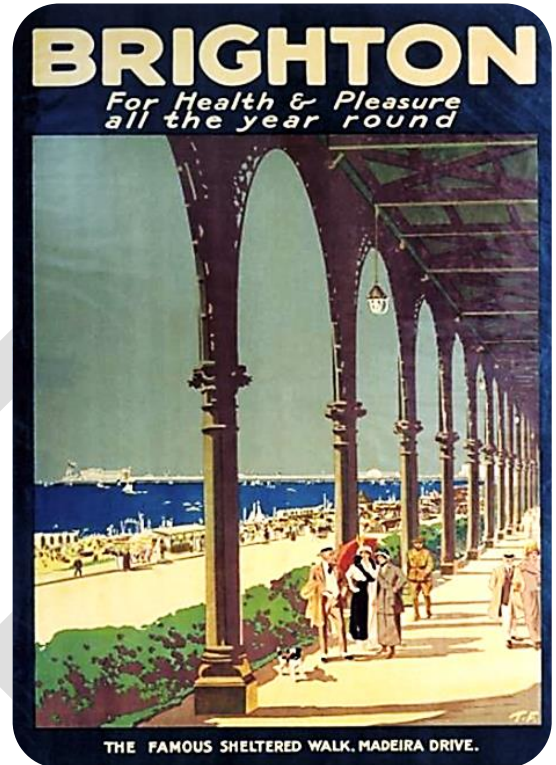
The Madeira Terrace

2.0 The Heritage

The Madeira Terrace is believed to be the longest cast iron structure in the world. At 2.5km it is a unique part of Brighton and Hove's seafront.

The Terrace came about as a result of the arrival of early visitors on the back of Dr Russell's book on the benefits of seawater, which led to visits by the Prince Regent and his fashionable entourage. This was followed by the arrival of the railway and the development of Victorian piers, hotels, theatres and attractions and ultimately to the development of the Brighton Centre 30 years ago.

The Madeira Terrace was constructed as a Victorian seaside covered arcade built between 1890 and 1900 under the charge of the borough surveyor, Phillip C Lockwood to attract tourists from London using the new railway connection. Besides being Grade 2 Listed, they also sit within the East Cliff Conservation Area (*the Listing description is included in Appendix A*) and are of significance because:-



Evidential Value

Whilst it is not known who was the actual designer of the terraces, it is known that they were commissioned by Philip Lockwood, the Borough Surveyor. It is thought to have been an 'in house' design.

The green wall which sits behind the Terrace, is celebrated on a plaque 'established by the Victorians, this is one of the oldest, longest and most important green walls in the country - a place for wildlife and people to enjoy.'

Social Value

The Madeira Terrace was conceived as a communal facility, a space to promote public interaction, promote Brighton as Britain's number one coastal destination, the ideal of wellbeing and to celebrate the city and its emerging Regency commerce and residential developments.

The Madeira Terrace



The kilometre straight 'drag' of Madeira Drive has history and association through the regular events staged around it from the National Speed Trials, the London to Brighton cycle ride and the veteran car run which is the world's longest running motoring celebration. Modern history is steeped in the Mods and Rockers and several films including Brighton Rock and Quadrophenia.

Community Value

The Madeira Terrace is highly valued by many sectors of the community. A recent crowd funding campaign has the financial backing of some 1500 supporters with individual contributions of up to £25,000. The target of £425,000 will be used to restore at least three arches. It will also help the community to reimagine how all 151 could be used, unlocking £1m from the council, and proving a strong public mandate for future funding applications.

The Madeira Terrace forms a natural viewing platform for events. Such events include: -

- Children's Parade
- Brighton Marathon
- Burning the Clocks
- Brighton & Hove Half Marathon
- Brightona
- National Speed Trials
- Classic Car Run
- Veteran Car Run
- Historic Commercial Vehicle Run
- Brighton Breeze
- Land Rover Run
- Ace Café Reunion
- Do It for Charity Bike Ride
- BHF London to Brighton Bike Ride
- Mini Run
- InCarNation
- Brighton's Big Screen



The Madeira Terrace

Risk Status

Whilst the Madeira Terrace is not currently on the 'at risk' register, unless remedial action is taken, the Terrace may well become 'at risk' and the Victorian Society considers the Madeira Terrace to be one of the Top Ten Most Endangered Victorian and Edwardian Buildings in England and Wales.



The Madeira Terrace

2.1 What Our Project Will Do

2.1.1 Proposed Uses

The proposal is to create a new destination for Brighton which will:-

- Make a new home for the creative industries for which Brighton is well known
- Create restaurants and bars
- Provide an improved public realm space for events
- Create a heritage interpretation and learning facility with stories to a wide audience and that will relate to the National Curriculum



The Madeira Terrace

2.1.2 The Creative Industries of Brighton

A recent study by the University of Sussex and the University of Brighton estimated that the digital and creative sector contributes £1bn a year to the local economy.

Brighton & Hove is recognised as the creative hub on the south coast, a city that hosts the largest cluster of creative industries and organisations in the south east outside London. It is recognised in the Regional Economic Strategy as a 'Diamond for Growth' and seen as a catalyst for regeneration and prosperity on the wider south coast.

A much higher proportion of Brighton & Hove's GVA comes from art and cultural services than in the rest of the UK. Around 1.4 per cent of GVA in the city (£76 million) comes from these services, compared to 0.4 per cent nationally. The city has a much higher than average concentration of employment in cultural services sectors. This contributes significantly to the clustering of skilled workers over time, driving productivity benefits in other areas of the economy.

The creative industries cluster in Brighton & Hove provides nearly 16,000 jobs and 10.7% of employment in the economy. Approximately 1500 businesses are in the creative industries sector, a third of which are in the new media and digital sub-sector.

Almost one-third of all creative businesses in the city currently occupy residential accommodation, usually their own. The development of live/work schemes, particularly in the social rented sector, offers significant potential to secure workspaces long-term.



Given this economic context, Brighton & Hove is in a good position to capitalise on its strengths and support the regeneration of its seafront, including through the redevelopment of the currently under-utilised, but strategically located Madeira Terrace and associated facilities.

2.1.3 Restaurants and Bars

There is a good fit between the Creative Industries and restaurants and bars. A recent survey conducted by Greggs and the University of Stirling into the coffee culture in Brighton revealed that Brightonians are the "biggest coffee drinkers in the UK", describing the use of cafés in Brighton as temporary workspaces due to access to free Wi-Fi.

What Brighton freelancers frequently use cafés for is meetings, especially with clients. This is regarded as a key passage point in securing work "you can be emailing back and forth for ever, but if you don't have the coffee with the client to talk about the project it's not going to happen" one freelancer advised.

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2.1.4 Improved Public Realm

The proposed improvements to the public realm of Madeira Drive and the attractions that run along it are intended to compliment the area's ongoing role as Brighton and Hove's premier events space. These investments would improve access to these events, offer more reason to congregate along Madeira Drive and provide a reason for visitors to dwell in the area for longer.

The redeveloped Madeira Terrace would once more offer an unmatched grandstand facility for major events.

It is intended to use some of the Terrace for Heritage Interpretation and Learning which will attract as wide an audience as possible. Such a facility could also provide an orientation centre for the Brighton Seafront. Brighton and Hove's Seafront plays a key role as a flagship destination offering over 13km of entertainment and activities. The nearby Brighton Palace Pier is one of the primary attractions along the seafront attracting over six million visitors a year.

There are a variety of themes that could be explored, which will be subject to an activity planning exercise.



2.1.5 The Need and Opportunity that Our Project will address

The project is currently managed by Brighton and Hove Council but it is intended that on completion, it will be put into a separate not for profit organisation.

Madeira Terrace is a key priority of the Brighton and Hove Seafront Investment Plan 2016-2021.

Brighton & Hove's seafront is the face of the city and central to its economy. Brighton & Hove's unique character combines heritage Victorian infrastructure (over 476 Grade I and II Listed buildings) and a varied and vibrant range of businesses (over 100 housed within the seafront arches alone). The city plays host to over 300 outdoor events each year with many of them hosted on the seafront's Madeira Drive, such as the Brighton Marathon, veteran car runs and London to Brighton bike rides.

The seafront plays a key role as a flagship destination for the city, attracting visitors and investment alike.

The adopted City Plan was published in early 2016. Within this the seafront is recognised as the 'shop window'

For the city and is covered by Special Area Policy 1 (SA1)32.

The city plan set out that the Council will work in partnership to ensure the on-going regeneration and maintenance of the seafront in an integrated and coordinated manner.



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Proposals should support the year-round sport, leisure and cultural role of the seafront for residents and visitors whilst complementing its outstanding historic setting and natural landscape value.

The priorities for the whole seafront (in addition to some site-specific seafront priorities) are to:

- Enhance and improve the public realm and create a seafront for all; to ensure the seafront is accessible to everyone.
- Promote high quality architecture, urban design and public art which compliments the Natural heritage of the seafront.
- Secure improvements to sustainable transport infrastructure along the A259.
- Monitor, conserve and expand designated coastal habitats.
- Work in partnership with the Department for Environment, Food and Rural Affairs, the Environment Agency, Natural England and Southern Water.
- Encourage consideration of low and zero carbon decentralised energy.

There are several key seafront projects which are already underway or remain Council priorities for development, and will bring the amount of potential investment along the seafront to over £1 billion in future years.

The projects are wide-ranging. Collectively they will enhance the heritage offer (e.g. the regeneration of the Volk's Electric Railway), provide improved recreational facilities (e.g. redevelopment of the King Alfred Leisure Centre and the restoration of the Saltdean Lido), improve pedestrian and cycle infrastructure (e.g. the West Street Shelter Hall works) and add to Brighton & Hove's visitor attractions (e.g. the British Airways i360).

All of these projects share some common "success factors" including:-

- A strong business case setting out the project's strategic merit and its economic benefit to the seafront and wider city.
- An appreciation of the seafront's unique heritage.
- A robust financial and commercial strategy capable of attracting external investment.

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The detail of the associated projects is included in Appendix C.

However, they include:

1. Shoreham Harbour
2. King Alfred Leisure Centre
3. British Airways i360
4. Waterfront Central
5. The former West Street Shelter Hall
6. Brighton Zip
7. Volk's Electric Railway
8. Former Peter Pan Leisure Site
9. Waterfront East (Black Rock Development)
10. Brighton Marina
11. Saltdean Lido



Why is it essential for the project to go ahead now?

The repair and creative reuse of the Madeira Terrace needs to go ahead now because:-

- From a practical point of view, the Terrace is classed as an unsafe structure
- The timing fits in well with the seafront regeneration strategy.



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- Any further delay will lead to greater cost as a result of further deterioration of the structure.
- It will complement the other strategic projects.
- It will provide a much needed destination for the creative industries.
- The crowdfunding campaign and community support is gathering momentum. In May 2017 The Council approved the Madeira Drive Regeneration Framework.

A 4 point plan was approved by the Council with four fund raising action points, including:

- (1) Crowd Funding
- (2) Further bids for Government or Lottery funding
- (3) Harnessing local talent
- (4) Exploring uses for the area now

The Crowd Funding Campaign was launched on 26 July 2017 with the support of the Tourism Alliance and fronted by VisitBrighton (VB). Spacehive, specialists in Crowd Funding Campaigns, were brought on board to assist VB and work on the campaign.

Spacehive have commented that “The Save Madeira Terrace campaign is the most ambitious crowdfunding campaign to be run on Spacehive's platform. It has been fantastic to see so many people from Brighton rally behind the campaign by pledging. The campaign currently holds the record for the biggest number of individual pledges to a campaign”

Over the period of the campaign, the numbers of backers and public support has been unprecedented. The level of the average pledge at £39.00 in itself has demonstrated just how much importance is attached to Madeira Terrace by the public and many pledges from individuals have been far in excess of this amount.

Local business support also built up as the project received more publicity towards the end of the campaign. Generous and notable donations were received from a range of local businesses, up to £25,000, and some charity and local amenity organisations, and these helped to raise the profile in the press locally, generating a greater response in the closing weeks of the campaign.

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The Crowd Funded project to restore the first three arches will greatly assist in delivery of the longer term project in a number of ways:

(i) It will act as a show case for the remaining Terraces by providing a physical and strong visual reminder of how impressive the final Terraces will look once restored.

(ii) It will act as a test of the assumed costs for the remaining terraces, also providing an important opportunity to test technical solutions which combine conservation of the Terrace with the ability to incorporate future freestanding commercial “pods”.



In light of the above, it will provide an important basis for a more robust business case for future investment decisions.

Finally, the presence of the newly restored arches will help to maintain the profile of the wider campaign. The intention is to provide a brand new space for a changing and diverse range of occupants to occupy. This will help to re-energise the area and to show case the variety and interest that might be achieved once the remaining 148 arches are restored.

Once fully restored, the newly conserved arches will be a permanent testament to the crowd funding campaign itself and the more than 1500 supporters who have generously dug into their own pockets to show how much they want to see a solution found for Madeira Terrace. This in itself will be hugely beneficial in helping to demonstrate to Government, Heritage and other bodies and individuals how much importance is attached to this historic structure by the people of Brighton and Hove.



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Why do we need lottery funding?

At this early stage in the Project we see that the first step is to test the appetite for the Madeira Terrace with the HLF. A list of other projects that HLF are involved with in the area is included in Appendix D.

An HLF major grant is core to the proposals and securing this funding is the key driver for the project at this stage of its development.

The funding strategy structure and that of the business case must be interrelated and the business needs should inform and drive the funding strategy. The governance strategy will influence some grant prospects

Strategic Context

The significant heritage merit of the Madeira Terrace and the proposals currently being firmed up for the much-improved public offer in terms of access, participation and learning, mean that it is possible for a high quality scheme that the HLF may support.

It is proposed to investigate the following funding sources:-

Fundraising: Trusts, Foundations, Corporate and Benefactors

It is intended to employ a professional fundraiser to propose a fundraising. There are a number of high profile bodies that support events around the Terrace and we intend to approach them all.

Brighton and Hove Council

Brighton and Hove Council will need to underwrite the shortfall and make an appropriate contribution. The Council will need to review the match funding needs for the project and will consider its contribution through various mechanisms such as an increased capital contribution, prudential borrowing and the use of section 106 monies.

Commercial Funding

There are a number of high profile property developers and funds who have invested in Brighton and who would benefit from the restoration of the Madeira Terrace. We intend to raise awareness of this project to this audience. In addition, there are a considerable number of sponsors who contribute to events around the Madeira Terrace.

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LEP

A structured approach will be made to Coast and Capital, the Local Enterprise Partnership.

3.0 Next Steps

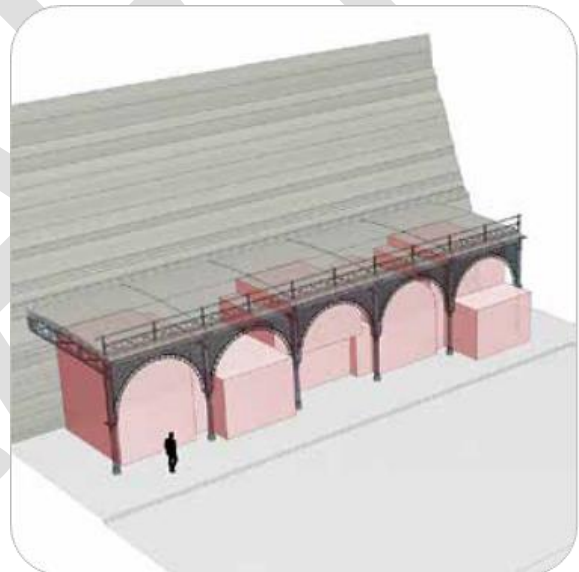
3.1 What work and/or consultation have we undertaken to prepare for this project?

Three options have been considered in terms of the repair of the Terrace.

Option 1 - A full restoration of the Arches

This would permit access through and over the arch components. This would involve both repair work and replacement work to the component pieces to restore them fully to their original built design. Replacement may be the only option for structural components that have completely failed.

We would propose that the steel deck beams and concrete jack arches are completely replaced, given they are largely concealed by the wearing course that is laid over the top. We do not believe it would be economically viable to restore the entire extents of Madeira Terrace and this would very much be a phased plan of works.



Option 2 - A Propped Structure

This proposal would introduce secondary means of support to the replacement jack arches and steel deck beams, taking the loading off the edge beams, columns and array of bolted connections.

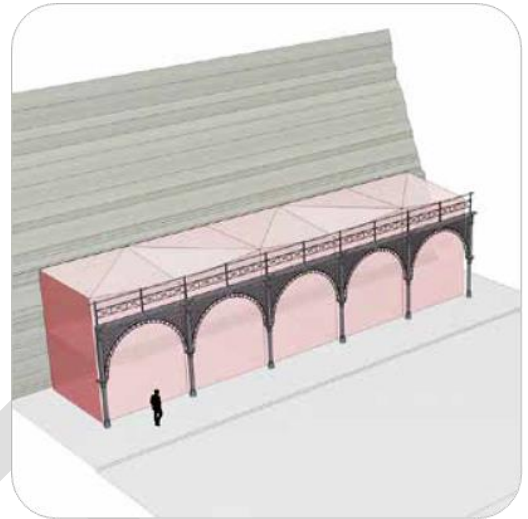
It may be possible to integrate the secondary support structure with the 'pod' structures to be introduced into the arches. The propping augments with the existing.

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Option 3 - Restoration and retention of the screen only

This option proposes that the deck structure and components are not retained, repaired or replaced but removed and that only the façade of the arches are kept – the spandrels, columns and lattice beams.

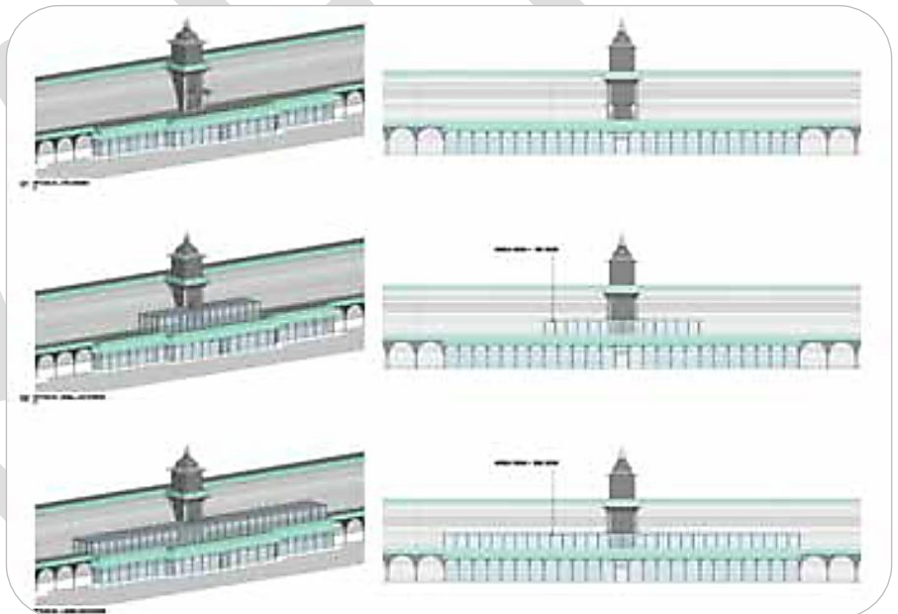
This naturally assumes that there would be no high-level route maintained. The lattice beams could also be retained in this diagram.



3.2 Madeira Drive Shelter Hall

We recognise that the Madeira Drive Shelter Hall footprint offers an opportunity to establish a significant business anchor within Madeira Terrace. This is quite possibly the most important catalyst that will stimulate the organic growth of uses within the Terrace and then become the ‘staging post’ to the new arena and conference centre at Black Rock & the marina.

We believe there is the opportunity for a successful intervention at first floor level, expanding the footprint of this build form and augmenting the accommodation at ground floor, also activating the raised walkway to the east and west.



We propose to construct a series of free-standing Pods within the Terrace to accommodate a range of potential end users. These elements could be constructed in-situ or prefabricated. They would not impose any load on the terrace and would not project beyond the column line.

These units could be single height or accommodate mezzanine structures.

3.3 What consultation has been carried out and how has this shaped our proposals?

The consultation process is ongoing and we shall produce a stakeholder analysis for the Round One bid. The following organisations are being consulted:-

The Madeira Terrace

- Regency Society
- Sea Life Centre
- Standard Life Investments
- Tourism Alliance
- Victorian Society
- Volks Electric Railway Association
- Yellow Wave
- The Princes Trust
- Various investors in the town

**3.4 Project Outcomes**

The following broad project outcomes are predicted:-

- The restoration will result in a sustainable management and maintenance plan
- The creative reuse of the historic asset.
- The proposals will provide a heritage and interpretation facility which will have various themes which will be developed as a part of the project development.
- The Madeira Terrace will have a signing strategy to raise awareness of their location and the experience available.
- The aim of the project is for the reuse of the Madeira Terrace as a much-needed hub for the creative industries of Brighton.
- It is intended to team up with FE and HE institutions to develop skills varying from building restoration, enterprise, business management and travel and tourism.
- The project will provide volunteering opportunities in terms of heritage interpretation and learning.
- The reuse of heritage assets reduces environmental impacts.
- The Madeira Terrace will be a part of a more sustainable travel plan
- The restoration and creative reuse of the Madeira Terrace will form a new destination
- The project will provide opportunities for volunteers in the Heritage interpretation and learning facility.



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- The heritage interpretation and learning centre will provide learning themes for as wide an audience as possible including themes from the National Curriculum
- The Madeira Terrace will provide a new destination for people to visit, enjoy, work, create, learn and socialise.
- The restored Madeira Terrace will provide a complimentary visitor attraction to the existing Brighton offer.

3.5 The Financial Overview

Following the production of an initial cost plan and rental figures as advised by Brighton and Hove Council, we have carried out the following appraisal. We have considered phasing the project but in order to have the impact that the heritage deserves, we would prefer to develop the scheme in one phase, subject to funding being available.

3.6 Viability Calculation

	Section 1	Section2	Section3	Total
Repair Costs				
Enabling	49,000	49,000	45,250	143,250
Restoration of terrace structure	1,253,048	1,253,048	1,140,514	3,646,610
Replacement of deck	1,121,949	1,121,949	1,037,091	3,280,989
Abnormals	0	0	0	0
Contingency and inflation	1,393,919	1,687,628	2,309,158	5,390,705
Totals	3,817,916	4,111,625	4,532,013	12,461,554
Conversion costs				
Construction-Pod Installation	2,101,743	2,586,430	2,327,376	7,015,549
Concorde 2 refurbishment	1,058,000			1,058,000
Totals	3,159,743	2,586,430	2,327,376	8,073,549
Total Cost:	6,977,659	6,698,055	6,859,389	20,535,103
Area sq m	1,170	1,560	1,410	4,140
Mezzanine	702	936	846	2,484
Total floor area sq m				6,624
Total floor area sq ft				71,302
Rental income				
Ground floor @25 per sq ft				1,114,101
Mezzanine @ £8 per sq ft				213,907
Total Income				1,328,009
Capital value @12% yield				11,066,738

3.7 Conservation Deficit Calculation

We have considered the conservation deficit based on a starting value of zero. The shows a conservation deficit in the order of £14m which is the reason why external funding is needed to carry out the project.

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Conservation Deficit Calculation	Values
Starting value of property	0
Costs	
Repair	12,461,554
Conversion	8,073,549
Total	20,535,103
Finance @6.5%	1,334,782
Subtotal	21,869,885
Fees @15%	3,080,265
Subtotal (capital costs)	24,950,150
Final value of property	11,066,738
Increase in Value	11,066,738
Conservation deficit (total capital costs-increase in value)	13,883,412

3.8 Programme

The target key dates are:-

- **HLF Round One Submission:** March 2018
- **HLF Round Two Submission:** March 2019
- **Start on Site:** January 2020
- **Completion:** October 2021

3.9 Key Next Steps

- Assess feedback from the Project Enquiry
- Procure consultant team for the Round One Submission
- Examine other sources of funding
- Assess market demand
- Establish Communications strategy
- Set up internal decision-making structure
- Carry out stakeholder analysis
- Develop detailed programme.

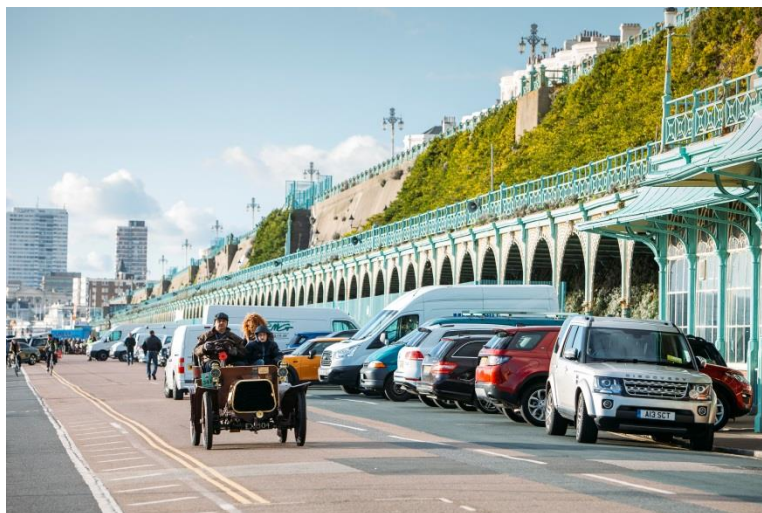
Appendix A
Listing Description

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The Madeira Terrace

The Listing description states:-

“Arcade with raised walkway, associated buildings and lift tower. Built between 1890 and 1897 by the borough surveyor, Philip C Lockwood. Cast-iron and brick in English bond. PLAN: complex is 2,837 feet long, from the Colonnade, Madeira Drive (qv) to Duke's Mound; 25 feet wide for most of its length; at a point south of Marine Square, the terrace is interrupted by a single-storey structure with a 25-window range, designed as a cafe and waiting room, from the centre of which rises the 3-stage lift tower to Marine Parade. EXTERIOR: each bay of the entirely cast-iron arcade has an identical elevation: round arches carried on single columns of a fanciful marine order; scalloped-arch intrados; spandrels formed by concentric rings of quatrefoils, forming a pierced sun screen; keystone cast to resemble either a female or a bearded male deity, perhaps



Venus and Neptune; orthostats support entablature topped by balustrade which encloses the raised terrace walk; the latter supported by cast-iron trusses fixed to sea wall facing of East Cliff; shallow, segmental vaults span trusses. The single-storey structure at the centre of the arcade has an 11-window range centre bay which projects forward one bay in depth. All window range elevations of this structure identical: columns on panelled socle chamfer to bell capital, from which rises a bracket support for concave metal roof; lower spandrel of each window of brick in English bond; one round-arched window with original glazing bars forming a pattern in the head; window spandrels of cast-iron tracery to match roof brackets. Lift entered from this structure; the tower emerges on the terrace above and rises in 3 stages to Marine Parade. Exit on the terrace stage, not in use at time of writing, faces south; upper level exit faces north. The tower shaft is square in plan, brick in English bond, with octagonal corner pilasters. The lower, south-facing exit (not in use at the time of writing) is set under a porch supported on cast-iron Composite columns; pierced cast-iron bracket to each column supports shallow concave metal roof which in turn supports a light register roof, also of metal. One slender, round-arched window in each tower return. The entablature of the lower brick stages supports a square platform with railed walkway on 3 sides; these railings are extensions of the railings along Marine Parade (qv). The Marine Parade stage of the lift tower is square in plan, with octagonal corner piers, strutting out from each of which are pairs of thin colonnettes and a concave metal roof with broad eaves; the lower roof is topped by a convex mansard covered in metal, fish scale tiles; at each corner of the lower roof is a dragon; the cap of the structure is highly ornamented and supports a weather vane consisting of a globe by dolphins. The infill walls of this structure and roof soffits are of wood and glazed; the armature and detailing are all of metal, much of it cast-iron. Throughout the complex stairs along the sea wall connect the terrace and covered walkway; there are stairs between the terrace level and Marine Parade and linking the structure

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with the Colonnade to the west. At the west end of the long complex, the arcading is filled in with brick in English bond relieved by blue brick diapering; the spaces enclosed form storage areas and public conveniences. At either end of the terrace are long, arcaded ramps. HISTORICAL NOTE: the complex was added under the terms of the Brighton Improvement Act of 1884; the terrace was open to the east of the Royal Crescent (qv) by 1890, when controversy prevented its completion to the west. In 1927-29 it was extended to the east by the Colonnade, Madeira Drive (qv) which linked the original terrace with the Aquarium Sun Terrace just then completed.”

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Appendix B
Condition Survey

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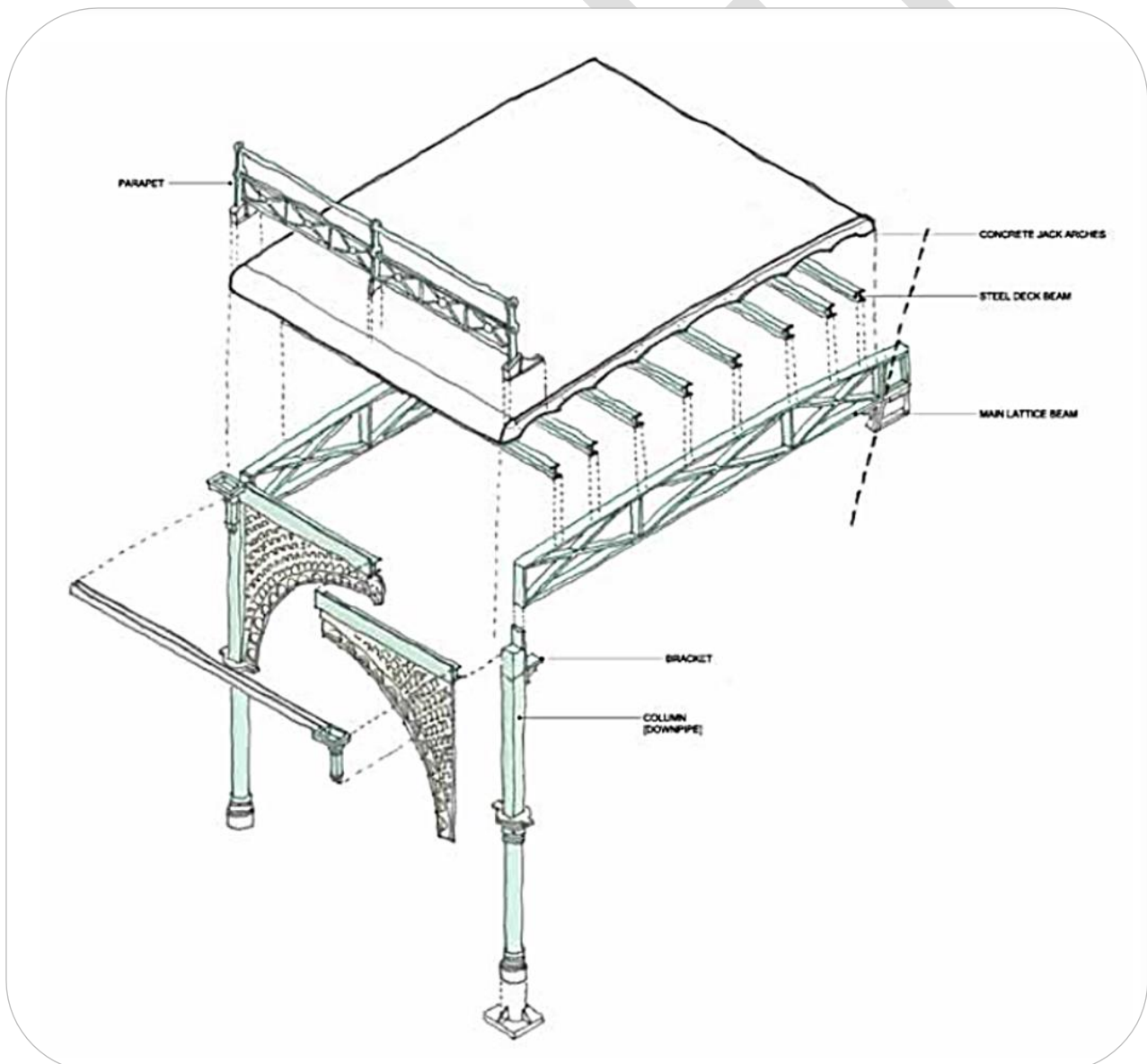
The Madeira Terrace

Arcade

The arcade is the cast iron fabric of the colonnade, the array of semi-circular panels with quatrefoil pattern connected to a single line of columns which are tied back to the cliff retention structures by a repeating grid of lattice beams. All these components are cast iron, bolted together.

The post and beam design is not considered of particular engineering ingenuity and there is no written evidence to support any veneration of the design. However, the balance and rhythm of the pure straight line, combined with the ornate and fun detailing throughout (the rainwater discharge/outlets at the foot of the column are dolphin mouths) and sheer scale make this array unique; the longest arcade in the UK, if not the world.

The closest parallels in design are probably the Victorian Piers themselves. The loss of the West Pier places a greater reverence on Madeira Terrace.



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Deck

The deck comprises a precast concrete plank spanning between the cast iron framework substructure. Over the top is a ‘wearing’ coarse that drains to both front and back.

To the outer edge is a cast iron balustrade and handrail. Photographic evidence shows that this was both a slightly processional route (looking down on the subjects below/ being looked at) and also as an excellent promontory for the events on the ‘race track’ below.

This uncovered route is continuous end to end, unlike the covered arcade.

Jack Arches

The jack arches are the coffered concrete planks that span the 5 metres from column to column. Pre-cast concrete as a construction method would have been relatively new; it is not known at this stage where this installation sits in the time line of this technology and how ‘ground breaking’ it was.

Various options have been considered, but the preferred solution is the complete repair and creative re use of the structure.

The problems which need resolving are:-

Concrete Jack Arches

- There are areas of spalling to the soffit of deck that should be cut back to sound concrete.
- Repairs need to be made with suitable materials to prevent falling debris.



cracks in concrete jack arch



spalling, decaying jack arch



extensive weathering, cracking and spalling



jack arch to lattice beam connection

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- Cracks need to be repaired with an epoxy resin injection system and monitored.

The quality of concrete varies significantly across the bays:-

- Removal of small areas of concrete for repair may lead to larger areas requiring repairs

Steel Deck Beams



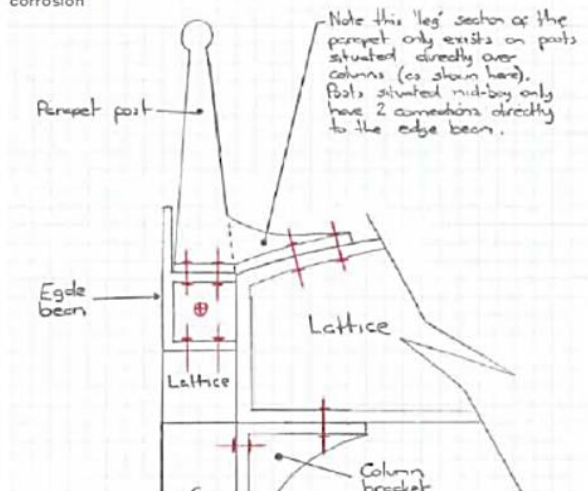
steel deck beams to jack arches



corrosion



bolted connections failed



extent of bolted connections

These are the beams, spanning between the lattice beams that support the concrete deck.

These are severely corroded beams and represent a significant risk:-

- Loss of section = loss of capacity
- Continued hidden deterioration could result in sudden collapse
- At least 10% of all beams show a severe loss of section in some areas, it may be more economical to replace the whole deck structure of jack arches and steel deck beams.

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Bolted Connections

The entire assembly of cast iron components are bolted together. There is significant, and potentially catastrophic, corrosion to these elements. The replacement of bolts is a high priority:-

- Up to 24% have failed or are not present
- They are badly corroded
- Not capable of transferring loads
- Potential for progressive collapse if not replaced

The replacement of bolts will likely require concrete breakout and removal of edge beam panels

Parapet and Parapet conditions

The parapet is the upstand to the terrace roof that provides safety to pedestrians above – the combination of uprights and balustrading. Separation has occurred between the parapet base plate and lattice beams in 30% of the bays. The parapet posts in the centre of bays are of particular concern:-

- No “L”-shaped leg like those above lattice beams
- Connected to top of edge beam only
- Bolts work harder to resist movement

The parapet posts need to be replaced/repared where any base plates are fractured.



edge balustrade



edge beam condition

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The existing parapet panels would be subject to testing to demonstrate they comply with Building Regulations. It is not believed that the current installation complies with the minimum height of handrails required, they do not comply with current regulations intended to prevent people climbing over them nor do they comply with the minimum size aperture allowed. It is not considered that they have the capacity to meet current requirements to crowd loading.

Either a replacement handrail would need to be designed and procured to address these legislation issues, or a new in-board handrail would need to be adopted, or a position agreed with the District Surveyor that accepts the current configuration with local strengthening works.

Lattice Beams

The lattice beams are the main beams at 5 metre centres that tie the columns to the cliff retention structure.

A small number bear evidence of fractures in the top chord that are most likely due to casting defects/inherent brittleness and can be repaired using bridging materials.

These members are in compression so not of immediate concern. Cracks are present in the bottom, tensile chord in locations and previous bridging repairs are badly corroded and not appropriate. These will require either a full replacement or permanent propping.



lattice beam failure



typical bottom chord



edge drainage gutters



collapsed rainwater downpipe

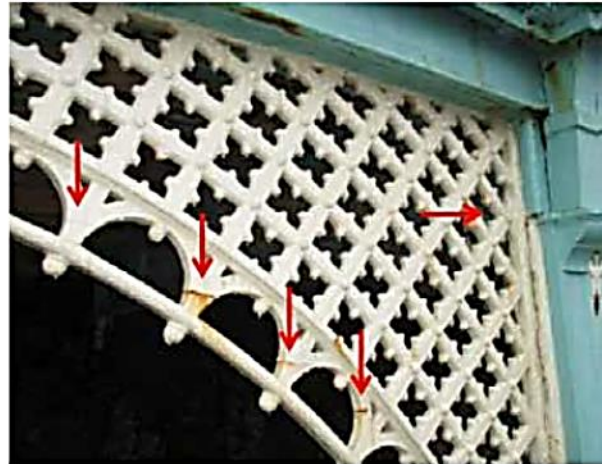
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Edge Beams

The edge beams are generally in a satisfactory condition when considering their strength capacity. Localised repairs of small number of fractures in bottom flanges will be required.



fracture in brick support structure



stresses through spandrels resulted in fractures



drainage failure



evidence of water ingress to jack arches

Columns

The main columns are showing section loss that will require immediate repair or replacement. Their deterioration is exacerbated by the fact that the columns also act as the rainwater downpipes, so are also corroding from the inside out.

Repair work is likely to be preferable due to the large scale temporary works that would be required for a replacement strategy.

Spandrels

The spandrels are the series of ornate concentric rings to the face of the arches, capped by marine figures. Replacement or repair of deteriorated panels will be difficult due to the complex nature of this element.

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Brickwork

There is an extensive range of brickwork to the springing points of the staircases that connect Marine Parade to Madeira Drive. Cracks need to be stitch repaired and replacement brickwork needs to be keyed into the existing to ensure adequate load transfer.

Anchoring of the brick piers to the retaining wall should be considered to limit further movements.

Waterproofing/Drainage

Waterproofing of the deck, whether reconditioned or replaced, will be required. Water ingress occurs throughout the decks construction joints.

Water run-off will need to be appraised, adequate falls/ drainage considered, possibly replacing the existing Drainage system at the rear of the deck to the retaining wall (instead of draining through the cast iron columns).

Painting

The arches have gone through a cycle of paint repairs/re-coats. These works are not suitable for a marina environment and the existing paint system will need to be removed. The previous poor application of additional layers is also concealing corrosion. The new coatings are necessary to validate the new life expectancy of the refurbishment works.



corrosion through paintwork



corrosion through paintwork

Vehicular Collision Protection

At present there is no collision protection to the Arches and any collision (most likely to be low speed from parking vehicles) will potentially cause movement in the columns and, at worst, could even lead to progressive collapse.



proximity of vehicles to columns



relationship between column and kerb

Provision of protective barriers will need to be considered and this will form part of our wider streetscape strategies. Particular focus needs to be given where large vehicle movements (e.g. coaches) are expected to traffic/park.

Appendix C
Associated Projects

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The Madeira Terrace

King Alfred Leisure Centre Site

Project Lead: Brighton & Hove City Council

Brief Summary: The ageing King Alfred Leisure Centre is a sport and leisure facility (including a 25m swimming pool, fitness gym and sports halls). It is expensive to run and does not meet modern expectations. Redevelopment of the venue, including the additional provision of housing at the site, is a priority for the Council.



Current Status: On 21st January 2016, the Council's Policy and Resources Committee appointed Crest Nicholson in partnership with the Starr Trust as the preferred developer partner to take forward the development of King Alfred Leisure Centre.

Project Cost: £40 million for the sports centre only.

Additional Economic Value: High level Mott MacDonald economic impact assessment estimates forecast as many as 133 net jobs could be facilitated at the King Alfred site as well as indirectly via the supply chain and other locally impacted firms. This is estimated to translate to roughly £6.6m gross added value per annum under these new plans.

Project Timeline

- A planning application is expected to be submitted in 2018.
- An indicative timescale for completion is 2021.

Brighton Waterfront Central and Waterfront East

Project Lead: Brighton & Hove City Council / Standard Life Aberdeen Investments

Brief Summary: The objective of this project is to deliver a major new multi-use event and conferencing venue on the currently vacant Black Rock site next to the Brighton Marina. This would be funded in part through the sale of the Brighton Centre site (the city's current conference centre situated in between the two piers) to Standard Life Investments, who would use this site to extend the existing Churchill Square shopping centre so that it faces directly onto the seafront.

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To date there has been some delay due to the need to ensure transport and access for visitors from the city centre to the site at Black Rock. Standard Life and the Council are now undertaking a master planning exercise on the Black Rock site to understand how this transport accessibility issue can be overcome.

Current Status:

Standard Life Aberdeen Investments and the Council will be agreeing a conditional land acquisition agreement which will allow for development work to proceed to design and construct a new venue at Blackrock and extend and upgrade the existing Churchill Square shopping centre to become a regional shopping destination.

Project cost: The total project value is £540 million.

Additional Economic Value: The Council anticipates 2000 net additional jobs will be facilitated by this development. Approximately £150m per annum of net additional expenditure is expected in the city, with an additional £4.6m per annum to the Council through the conference facility.

Timeline for Development

- Signing of conditional Development Agreement in December 2017.
- Completion of Waterfront East site (at the Black Rock site) anticipated summer 2025.
- Completion of Waterfront Central site (at the current Brighton Centre site) anticipated for summer 2026.

Seafront Landscaping of the land either side of The British Airways i360

Project Lead: Brighton & Hove City Council

Brief Summary: Following completion of the British Airways i360 the Council is undertaking a complimentary landscaping project, covering the land owned by the Council adjacent to the tower. To the west of the British Airways i360 the urban realm will accommodate new seating and a



The Madeira Terrace

flexible event space. To the east there will be a piazza with a focus on heritage and the West Pier.

Project Cost: £1.99m from the British Airways i360 revenues.

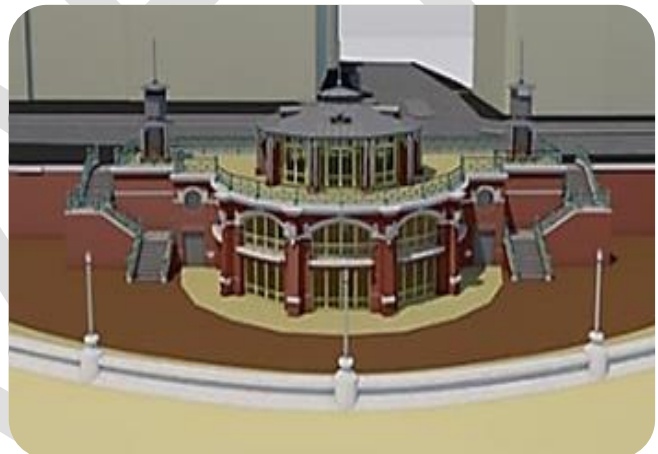
Additional Economic Value: Value to be obtained from event space unknown to date.

Timeline for development

- Completed Spring 2017.
- Construction commenced in 2015.

The Shelter Hall

Project Lead: Brighton & Hove City Council



Brief Summary: The Shelter Hall is the third phase of a programme to strengthen, re-build and stabilise the seafront highway structures that support the A259 and upper promenade along Kings Road.

The project involves the rebuilding of the highway structure which supports the primary A259 corridor and the strategically important West Street junction. This area also serves as the main pedestrian link from Brighton's main railway station to the seafront. The scheme will provide a new highway structure that can accommodate modern highway loadings with a minimum design life of 120 years. It will also provide a remodelled and safer junction at the West Street / A259 intersection point and deliver modern commercial business premises.

The project will afford better and safer transport and pedestrian movements, a structure that is fit for purpose and safe for use and the regeneration of this area of seafront.

Current Status: Under construction.

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Project Cost: £9m investment award from the DfT's Highways Maintenance Challenge Fund (*with a remaining £1.5m coming from the Council*).

Additional Economic Value: Given the site size and assuming commercial land use, minimal wider economic impacts in terms of employment and GVA is estimated.

Timeline for Development

- Construction commenced in October 2015.
- Completion anticipated in 2018.

Volk's Electric Railway

Project Lead: Brighton & Hove City Council

Brief Summary: Volk's Electric Railway is the world's oldest working electric railway. A scheme was developed to conserve the original Victorian carriages, develop a new station and a new visitor centre to attract more visitors, as well as a new conservation workshop.

Project Cost: £1.65m from the Heritage Lottery Fund.



Additional Economic Value: Redevelopment plans will not create additional space for jobs, so there would be minimal economic impact in terms of net additional jobs and contribution to GVA. The development would, however, help to safeguard the number of visitors to the attraction.

Timeline for Development

- Construction on site commenced October 2016.
- Works completed October 2017



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Non-Council Led Pipeline Projects

British Airways i360

Project Lead: West Pier Trust/Marks Barfield Architects

Brief Summary: The British Airways i360 is a 170m high observation tower constructed on the West Pier site in Brighton.



Project Cost: £46.2m (BHCC senior loan £36.2m / Equity Investors £6m / Coast to Capital Local Enterprise Partnership (LEP) Junior Loan £4m).

- Construction commenced in 2014
- Opened August 2016

Saltdean Lido

Project Lead: Community Interest Company

Brief Summary: In 2013 the Saltdean Lido Community Interest Company (SLCIC) was appointed as preferred leaseholder to restore the Lido. The SLCIC have completed a Stage 2 Heritage Lottery Fund application to seek grant funding of over £4m to include:-



- A scheme to restore the main building sensitive to the Grade II Listing of the Lido.
- A business case with income generating uses which would fund the sustainable operation of the facility.

The Madeira Terrace

- Improvements in environmental sustainability of the facility

Current Status: Works to restore the external main pool, children’s pool and provide a new pool plant room are complete. These works were funded primarily by a Coastal Communities Fund grant and due to be completed for Spring 2017. The Lido Pools reopened to the public in June 2017.



Project Cost: The restoration of the external pool works was primarily being funded by a grant of over £2m from the CCF. Further grants of over £4m (HLF) and over £3.5m (CCF) are being sought to fund the restoration of the main Lido building.

Additional Economic Value: Given the nominal employment space created at this site, there would be minimal economic impact in terms of net additional jobs and contribution to GVA.

Timeline for Development

- External works completed June 2017
- Timescale for restoration of main Lido building dependant on outcome of grant applications.

‘Sea Lanes’ Open Water Swimming Facility

Project Lead: Private Developer

Brief Summary: The now vacant leisure site east of the Brighton Palace Pier was re-marketed in summer 2014.

The Sea Lanes proposal, which includes an open water swimming facility and associated leisure retail units, was chosen by the Policy & Resources Committee as the preferred development in 2015.

Current Status: Landlord’s consent has now been approved and Heads of Terms for a 150-year lease agreement agreed.



Project Cost: Approximately £4.5m privately funded by the developer.

Additional Economic Value: It is difficult to assess the economic impact as the scheme is not yet finalised.

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Other Key Non-Council Led Projects

Shoreham Harbour



A harbour-wide JAAP is currently being prepared and will include:-

- Designations for new areas of housing
- Mixed-use schemes and employment space
- Protecting and enhancing the role of the port in its function as a key local industrial hub
- Regionally important site for the landing and handling and processing of waste and minerals
- A transport strategy to promote a package of integrated sustainable transport measures

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- Clear guidance for developers prepared in liaison with the Environment Agency to ensure new developments are resilient to future flood risk
- Improving the waterfront and visitor experience enhancing the area's historic, environmental and leisure assets.

This project seeks to address the coastal defence challenges highlighted in the introductory section of this document.

Brighton Marina

This is also the focus of investment and regeneration in a phased programme of works including considerable residential and commercial development.



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Appendix D
HLF Funded Projects

The Madeira Terrace

<i>Programme</i>	<i>Project</i>	<i>£</i>	<i>timescale</i>
Stanmer Park restoration	Restore entrance and parkland	3,786,400	2018-20
	Restore walled garden, nursery and depot		
Royal Pavilion Estate Phase 1	Phase 1: Dome works	4,900,000	current
	Phase 2: Royal Pavilion works	tbc	2018 to
Saltdean Lido	Stage 1	576,000	complete
	Stage 2	4,200,000	bid to be revised
	Volks Railway	1,650,000	Completion due December 2017
	The Level redevelopment	2,236,258	Final award December 2011; work started October 2012; opened July 2013; project closedown October 2017
	Brighton Museum & Art Gallery	7,562,000	complete