



SHOREHAM HARBOUR

CAPACITY AND VIABILITY STUDY

Final report

March 2011

AECOM

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Executive summary

The Shoreham Harbour Partnership, which consists of Adur District Council (ADC), Brighton & Hove City Council (BHCC), West Sussex County Council (WSCC), Shoreham Port Authority (SPA), South East England Development Agency (SEEDA) and the Homes and Communities Agency (HCA), commissioned a team led by AECOM to undertake an assessment of development capacity and viability for the Shoreham Harbour regeneration area.

Shoreham Harbour was designated as a Strategic Development Area (SDA) in the South East Plan with an interim figure of 10,000 homes up to 2026 subject to further studies being undertaken. This study seeks to test the capacity and viability of development at Shoreham Harbour, inform the emerging Core Strategy for Adur District Council and provide evidence to support the Core Strategy for Brighton & Hove City Council. It should also serve to inform further discussions about the proposed Joint Area Action Plan for Shoreham Harbour (JAAP). This study considers existing land within and around the draft JAAP boundary and considers two options in relation to land use, approach to sustainability and scale of development, to provide a 'bottom up' assessment of capacity and viability.

The study defines a number of key parameters for development based on an understanding of the current plans by the Shoreham Port Authority, the range of sites and occupiers in the area, the social and strategic infrastructure in the immediate and wider area, ground conditions and flood risk and the resident communities of Shoreham-by-Sea, Southwick, Portslade and Fishergate.

One key parameter assessment, worked through with key stakeholders in workshops, is the rationalisation of the development opportunity sites to be considered by the capacity and development appraisals. The study applies the agreed approach to the analysis of development opportunities, with a focus on those sites with a spatial relationship to the harbour, that are over a certain size and critically have the ability to come forward as development sites that would contribute to the sustainable development

of Shoreham Harbour. The study seeks to address issues of place making through proposed land uses and relationships to the Port and wider community. In location terms the study considers the sites around the harbour's western arm and the fringe of Shoreham town centre, South Portslade and Aldrington Basin. Mixed use development at varying levels is promoted across the sites considered.

The testing of capacity has also sought to identify opportunities for reconfiguration within the reduced boundaries of the study area. Thus the practicalities and opportunities presented by the partial realignment of the A259 have been considered within the western arm of the Harbour to provide for a more substantial development footprint.

For the capacity and viability exercise two headline options for development have been considered. One is based on strong sustainability principles (Eco) and one based on a standard development scenario (Quantum). Key assumptions have been agreed with stakeholders throughout the course of the study in relation to:

- Housing and employment
- Transportation
- Energy, water and green space
- Flooding
- Land contamination
- Utilities

These include:

- Housing/apartment typologies, mix, floorspace per unit and a range of densities per hectare;
- Employment policies and future demand;
- Flood defence provision and set back required within development parcels;
- Highways improvements within and outside the Shoreham Harbour area that development would require;

- Sustainable solutions to energy provision;
- Healthcare and education associated with the new development together with other community facilities;
- Green space standards within Shoreham Harbour.

The level of development that is proposed within this study, taking into account both physical criteria and ability to deliver in the light of difficult market conditions and ever limited funding opportunities is considered realistic. This is not a masterplan or detailed development framework for Shoreham Harbour but is founded on sound principles ascribed to the selected development parcels.

The residential capacity resulting from the assumptions within the Shoreham Harbour area is within a range from 1150 to 1965 dwellings. The higher number represents the quantum associated with a realigned A259 and the lower number the most sustainable 'eco' option. The dwellings comprise of apartments but include three to four bed family homes where they adjoin lower density residential communities. Between 2600 and 3400 net additional jobs are estimated to be derived from new employment floorspace for the harbour across a range of office, industrial, warehousing and retail uses considered appropriate here.

The viability assessment has been informed by cost information in relation to wider social and strategic infrastructure costs including: remediation; flood defence provision; the uplift attributed to sustainable solutions; land assembly together with community infrastructure costs. The option with the lowest infrastructure costs is the Quantum option where the total costs are in the order of £46M. Costs increase by between £10M-£20M by including a range of additional sustainability measures. The estimated receipts from the development appraisal modelling total approximately £26M. Such significant upfront infrastructure costs are not unusual in a development scheme of this size and the cost of flood defence is significant here, allied to other required infrastructure improvements. A comprehensive land assembly route is likely to be too costly to pursue, but public sector intervention is critical in terms of funding and delivery.

Prioritisation of such infrastructure and the phasing of development will be key to delivery as will the funding sources sought to assist delivery. These are likely to range from European and regional funding sources to new financial models that seek to assist in the provision of funds for such infrastructure such as the Community Infrastructure Levy and the potential of any further government initiatives to promote such regeneration zones. In terms of both social and strategic infrastructure, the Quantum Option Retained A259 Scenario is closest to viability in the absence of funding favouring the alternatives.

The continuation of the Shoreham Harbour Partnership in promoting a joined up public sector approach will be beneficial to strategy development in terms of interventions taken to promote development and through these actions the market view of the significance of the potential of Shoreham Harbour in the local and regional context.

The next steps towards delivery include a review of technical work that is both underway and being considered together with policy and planning progress in establishing collective foundations that will shape future development at Shoreham Harbour. The technical understanding will include the implications of the soon to be completed Design and Flood Risk Study and a more in depth contaminated land review. The planning policy position from both authorities needs to be established to provide a consistent platform through which to deliver sustainable development across the Harbour in order that it benefits immediate neighbours and the wider community.

Local residents and businesses will play a critical role in the next stage of the development of proposals for Shoreham Harbour. Key to this discussion will be community benefits from growth including: employment opportunities; town centre opportunities, new and improved open spaces; improved transport infrastructure and improved pedestrian and cycle access arrangements.

The place making objectives for Shoreham Harbour should be further established through the development of a masterplan or development framework that is anchored around the town centres of Shoreham and Portslade; achieves exemplar levels of sustainable development allied to local conditions; drives economic change in the area; involves the local neighbourhoods and assists in the facilitation of the creation of a clear and coherent vision for the area that ensures coordinated and beneficial development activity within the Harbour and the wider area.

01

Introduction

1.1 The Shoreham Harbour Partnership, which consists of Adur District Council (ADC), Brighton & Hove City Council (BHCC), West Sussex County Council (WSCC), Shoreham Port Authority (SPA), South East England Development Agency (SEEDA) and the Homes and Communities Agency (HCA), commissioned a team led by AECOM to undertake an assessment of development capacity and viability for the Shoreham Harbour regeneration area. The study looks to inform the emerging Core Strategy for Adur District Council and provide evidence to support the Core Strategy for Brighton & Hove City Council. It could also inform a Joint Area Action Plan for Shoreham Harbour (JAAP), which is currently under consideration by Adur District Council, Brighton & Hove City Council and West Sussex County Council.

1.2 The Partnership's stated regeneration objectives for the harbour provide for the creation of a high quality mixed-use development and sustainable community around a consolidated and modernised port with the capacity to deliver the following key outputs and outcomes:

- The provision of a significant number of new homes with a mixture of tenure and housing types
- The provision of a significant number of new jobs, many of which will be in high-value sectors
- New retail and leisure facilities and a high quality green infrastructure network across the area
- New community facilities including health, education and training and skills
- Regeneration of the existing adjacent communities and town/district centres
- Renewable energy and zero-carbon development
- A network of high quality public transport improvements
- Consolidation of port activity
- Improved flood defences and flood risk mitigation measures

THE BACKGROUND

1.3 Shoreham Harbour was designated as a Strategic Development Area (SDA) in the South East Plan with an interim figure of 10,000 homes up to 2026 subject to further studies being undertaken.

1.4 However, the Government has recently indicated that it intends to revoke all Regional Spatial Strategies through legislation, which would remove the policy imperative for this level of homes.

1.5 In response, both Adur District Council and Brighton & Hove City Council are currently undertaking local housing needs assessments to respectively replace and amend their Strategic Housing Land Availability Assessments.

1.6 Previous studies indicate that land reclamation, focused on the eastern part of the Port would be required to achieve 10,000 homes (or close to it), but without significant public subsidy the projected land values from development would not support such an approach.

1.7 This public subsidy now appears unlikely and as such, our study discounts land reclamation.

1.8 The Port Masterplan, which looks to consolidate port activities and free up non port related development opportunities, is currently not compatible with land reclamation.

1.9 To this end, the study considers existing land within and around the draft JAAP boundary and considers two options in relation to land use, approach to sustainability and scale of development, to provide a 'bottom up' assessment of capacity and viability.

1.10 There are pockets of deprivation within South Portslade, Fishersgate and Southlands, with issues of low skills and high unemployment. The acknowledged need for improvements in these areas and across the study area is a key driving force behind the regeneration aims.

THE TWO OPTIONS

1.11 This study builds on the baseline findings set out in the Stage 1 Report and has been informed by two partnership workshops. This study sets out two options for development at the Shoreham Harbour regeneration area, which are known as the 'Quantum' options and 'Eco' option. The key assumptions taken for each include:

Quantum-scenario

- 10% of the total development area will be publically accessible open space
- No net loss of employment floorspace
- A 'business as usual' approach to transport, waste and social infrastructure

Eco-scenario

- Based on Eco-town provision set out in PPS1 Supplement
- 25% of the total development area will be publically accessible open space
- 15% of building footprints will include Green Roofs
- Provision of 1 job for each net additional home
- A highly-sustainable approach to transport, waste and social infrastructure

APPROACH TO WORK

Stage 1

1.12 The study commenced with a baseline review of existing evidence, which was set out in the Stage 1 Report 'Document review, issues and choices'. This report identified the findings that would influence the study, as well as the issues and choices they presented in terms of creating an eco-town. A summary of this information is set out in the following chapter.

1.13 The Stage 1 report concluded with an analysis of the Strengths, Weaknesses, Opportunities and Threats (SWOT) to development in accordance with the eco-town criteria. This provided a framework to ensure that the issues could be tested based on a thorough understanding of the regeneration area.

1.14 As part of this initial stage of the project, the team analysed the Shoreham Harbour Strategic Housing Land Availability Assessment (SHLAA), which identified a number of potential housing sites. Further information on this is shown below. A spatial character analysis was then undertaken to illustrate the opportunities and challenges in each area. This included a review of the current urban form and areas for improvement to help regenerate the area.

Partnership Workshop 1

1.15 This workshop focused on the previous evidence base for 10,000 homes, including an in depth analysis of the SHLAA. The outcome was a client led review of the proposed sites, which resulted in the removal of a number of sites from consideration for development and a repositioning of other sites to retain them as employment uses.

Stage 2

1.16 The consultant team then took the revised sites and developed 2 options quantum and eco led approaches to test the capacity of the remaining sites. This was informed by previous work on character areas across the study area. As well as physical capacity, sustainable technologies were also factored in.

Stage 2 Workshop

1.17 At this session, the consultant team presented the overall spatial strategy and approach to the capacity study, including the assumptions that supported the emerging development quantum.

Stage 3

1.18 The capacity options were revised to include feedback from the Stage 2 workshop and then costed. High level development appraisals were then run, along with land acquisition work to assess estimated costs of purchasing sites. The recommendations were then discussed with the client group and refined accordingly. The findings are set out in the delivery strategy chapter of this report.

THE STRUCTURE OF THIS REPORT

- 1.19 The remainder of this report is structured as follows:
- **Chapter 2** sets out the headline findings from the baseline analysis
 - **Chapter 3** defines the study area and explains its evolution from the project outset
 - **Chapter 4** tests the spatial assumptions
 - **Chapter 5** describes the principles and assumptions of design that have been applied to the study area
 - **Chapter 6** explains the preferred viability and capacity model. It also notes the headline parameters for delivery and provides a commentary on individual sites
 - **Chapter 7** explains the key recommendations of the study

1.20 A summary of the capacity assessment against eco-town criteria (PPS1 Supplement) is set out in Appendix 2.

1.21 Detailed transport movement and parking demand calculations are set out in Appendix 2 and Appendix 3.

1.22 Further information on the likely costs of land parcels and infrastructure is set out in Appendix 4.

02

Headline findings from baseline analysis

HOUSING

2.1 The Shoreham Harbour Strategic Housing Land Availability Assessment (SHLAA, 2009) identifies the potential capacity for homes in the study area, based on the assumption that land reclamation is possible and in the absence of the Shoreham Port Masterplan. Once the Port Masterplan proposals are taken into account, the remaining sites were noted as having potential for between approximately 1,500, 4,500 or 6,000 homes depending on the approach taken. This showed that a non-interventionist approach to business relocation and land assembly would yield a lower quantum of development than an interventionist approach or a theoretical unconstrained assessment of housing potential. Our character analysis later showed that the SHLAA had used densities that were too high to suit the local context in some cases and that it had also not factored in the space required for strategic and social infrastructure.

2.2 The Coastal West Sussex Strategic Housing Market Area Assessment (May 2009) highlights the importance of Shoreham Harbour in bringing a more diverse mix of housing to the Coastal West Sussex area (including larger family homes), which will help to balance the high proportion of higher-density flatted schemes expected to be brought forward in Brighton & Hove.

2.3 Adur Council Core Strategy Stakeholder Liaison Exercise (June 2010) explains the SHMA recommends that Adur's affordable housing target could increase to 35% in the short term (as the housing market recovers) and could adopt a target of 40% in due course; and that 40% should become a consistent target across the four local planning authorities within the Coastal West Sussex Strategic Housing Market. A local assessment of affordable housing need is currently underway in Adur Council, which should be taken into account once it is finalised.

EMPLOYMENT

2.4 The Shoreham Economic Development Strategy Stage 1 and 2 Reports (SEDS, 2009) identifies that there is likely to be capacity to accommodate over 6,000 on-site jobs in the period to 2026 and a total of 8,000 jobs in the period beyond. The strategy also predicts that the proposals could potentially have a transformative impact across the sub-region as a whole. However these findings were based on the assumption that land reclamation is possible and capacity exists for approximately 8,700 new homes. The strategy promotes the following growth sectors for Shoreham: marine industries; Shoreham Airport; business and financial services; manufacturing; cultural and creative industries; the visitor economy, education; retail, public and service industries.

2.5 Policy DA7 'Shoreham Harbour Area' of the Brighton & Hove City Council Core Strategy (Proposed Submission, February 2010) sets out the Council's aspirations for the area. While both housing and employment feature strongly, there appears to be an emphasis towards maximising employment opportunities within their part of the study area. This interpretation has been supported through meetings with the Council's officers.

2.6 There are a number of successful businesses operating across the study area and the potential need to relocate some of these to maximise development opportunities is likely to have an economic development impact, as well as a viability implication in relation to site assembly.

RETAIL

2.7 The Shoreham Harbour Regeneration – Retail Capacity and Impact Implications Study (2009) provides an indication of the scale of retail based on 10,000 new homes. The study notes that existing centres (Shoreham Town Centre, Southwick Town Centre and Boundary Road/Portslade District Centre) considered in the study should benefit from the harbour's regeneration if transport linkages are improved. The study includes a review of other similar developments to ascertain, in broad terms, the scale and type of retail development suitable for this area:

- A strong provision of convenience goods (i.e. food stores) to encourage residents to shop locally;
- The proximity to Brighton and Worthing limits the potential for significant comparison goods shopping and should instead aim to support provision in the existing centres to the north;
- Retail should be spread through the site where possible to support individual areas

TRANSPORT

2.8 The local highway network is very busy and at times close to or over capacity (Shoreham Harbour Transport Strategy, July 2009). There is a need to address the current poor road access from the A259 and A27 in order to improve the interconnectivity between the main areas of employment, increase the use of public transport, improve the environment along the A259 corridor and help in the overall regeneration of the area (Adur District Council, Slim Line Core Strategy, June 2010 / Provisional West Sussex Transport Plan 2011-2026).

2.9 It is anticipated that the Coastal Transit System (CTS) could assist in reducing the effects of increased car trips from new development, which should be linked to an integrated and comprehensive network of high quality foot / cycle paths and on-road cycle provision with improvements to the strategic cycle network.

2.10 There are designated Air Quality Management Areas (AQMA) on A259 at Shoreham High Street and further afield at Upper Shoreham Road (A270). Shoreham High Street AQMA is adjacent to proposed development in this report and the Upper Shoreham Road AQMA is part of a key route from the study area to the westbound A27 trunk road. Much of southern central Brighton and Hove is also an AQMA, bounded to the south by the seafront and to the west by the boundary with Adur District Council.

LOW AND ZERO CARBON ENERGY

2.11 The policy for Shoreham Harbour in the Draft Brighton & Hove Core Strategy requires that the potential for large-scale zero and low-carbon energy technologies to serve the new development and wider city be examined, particularly those that take advantage of the harbour's coastal location and existing power station and grid connectivity.

2.12 The Energy Strategy (2009) for Shoreham Harbour also highlights that district heating is likely to be an attractive option for the area due to the density of development proposed and its mixed use nature. Without public funding though, district heating is unlikely to represent attractive investment opportunities to the private sector.

2.13 The existing power station is ideally placed to feed a network. Local consumers would benefit from competitively priced heat and the power station operators would benefit from the sale of heat. The strategy concludes that a Combined Heat and Power system (CHP) and a district heating system would be an ideal solution for the site to achieve high carbon reductions. Should a waste handling facility at Shoreham Harbour be delivered, consideration should be given to an Energy from Waste facility to provide district heating via CHP. As an alternative, building-by-building technologies could be delivered, but at a substantially higher cost.

2.14 The study also considers possibilities for large scale wind energy, which would require extensive consultation with authorities to determine whether it would interfere with airport flight paths and port radar systems. There also may be issues related to ecological impact due to the proximity of the Adur Estuary and the birdlife that live there. A Shoreham Port wind turbine and solar panel feasibility study is being progressed and should be considered when available.

COMMUNITY INFRASTRUCTURE

2.15 The Shoreham Community Infrastructure Study (2009) assesses the potential future demand for community infrastructure in the study area based on development between approximately 5,500 and 10,000 dwellings. The recommendations included 2 2FE (Form of Entry) extended primary schools (with capacity to expand), a 6 Form of Entry secondary school and leisure hub, two community centres, two Primary Care Centres, a library and adult education facilities.

2.16 The Assessment of Open Space and Recreation (2009) set out the requirement for a total of 57.8 hectares of land (based on approximately 5,500 dwellings), including outdoor sports, allotments, natural/ semi-natural greenspace, etc.

2.17 Subsequent analysis showed later in this report sets out that a reduced delivery of housing will substantially reduce the requirements for community infrastructure.

2.18 However, WSCC Education Department has given an initial view that they may seek to secure a site suitable for a 1 or 2 Form of Entry (FE) Primary School as part of regeneration of this scale. A full review of school places in the locality would be undertaken as the development progresses and other options would also be considered. One of these options may be to extend an existing school close to the development area.

2.19 WSCC has also indicated that they would seek financial contributions towards additional secondary and Post 16 places as they are predicted to have some level of shortfall based on the original AECOM housing projections.

2.20 The major pockets of deprivation in the area are located in South Portslade, Fishersgate and Southlands. This includes low skills and high unemployment.

GREEN INFRASTRUCTURE & BIODIVERSITY

2.21 The Green Infrastructure Wildlife Corridors Study (December 2009) highlights a range of key green infrastructure initiatives that could come forward in the harbour area, such as: the provision of missing green links from the Downs to the sea; green roofs; improved pedestrian and cycle facilities, and the potential for pedestrian/cycle links over the harbour to also become a wildlife link.

2.22 Shoreham Harbour is in close proximity to Adur Estuary Site of Special Scientific Interest (SSSI) containing important intertidal mudflats, saltmarsh, reedbeds and embankments supporting lizards. The Estuary is home to a variety of bird species. The study identifies 168 species of birds in the Shoreham Harbour area, of these 11 species were of high conservation concern (RSPB red list) and 87 of medium conservation concern. The Environment Agency also identified an area east of Lady Bee Marina and the Texaco Wharf as an important fish spawning area. The harbour was also identified as having areas of vegetated shingle with high ecological value. Development throughout the area would therefore require mitigation measures to be applied.

WATER

2.23 The Water Cycle Strategy - Outline Report (June 2009) for Shoreham Harbour identified no ultimate constraints to growth in the Shoreham Harbour area. Southern Water has advised that they should have sufficient spare capacity in the area to supply the planned development. Southern Water's draft Water Resources Management Plan predicts that the amount of additional water needed to supply new developments in the area, including Shoreham Harbour, will be more than compensated by a fall in overall water demand in the area, mainly resulting from the introduction on universal metering by 2015.

2.24 The emerging Core Strategy policies for both local planning authorities governing Shoreham Harbour require strict water use policies which are in-line with eco-town aspirations. The Water Cycle Strategy - Outline Report advises that water neutrality will be very difficult to achieve. To get close to water neutrality, it will be necessary to insist on the inclusion of a wide range of water saving measures in all new developments, while also taking active measures to reduce water demand from existing properties in the area.

2.25 Shoreham Harbour Wastewater Treatment Works (WwTW) is nearing capacity and there is limited space for physical expansion of the existing site. However, due to changes in European Directives on water quality, improvements will need to be made to the treatment plant irrespective of growth to add further treatment processes. ADC and BHCC are working with Southern Water to understand the requirements for this facility in relation to extension to its capacity given planned housing growth at Shoreham Harbour, but also beyond into both areas. This is critical to both development at the harbour and achieving wider growth targets for both authorities.

WASTE AND MINERALS

2.26 The need to minimise and reuse waste locally has been gaining recognition as a key component of any sustainable development. The Draft Adur District Council Core Strategy notes that due to the lack of available aggregates on land in Brighton & Hove and East Sussex, the use of marine dredged aggregates from Shoreham Port is a priority. The same is true of West Sussex and crushed rock imports are also a priority. Shoreham Harbour has been listed as a potential site for a waste facility in the West Sussex Minerals and Waste Development Framework dependent on the regeneration of Shoreham Harbour.

2.27 The planning policy framework for waste and minerals across the harbour area is as follows:

Existing plans:

- West Sussex Minerals Local Plan (2003)
- East Sussex and Brighton & Hove Minerals Local Plan (1999)
- West Sussex Waste Local Plan Revised Deposit Draft (2004)
- East Sussex County Council and Brighton & Hove City Council Waste Local Plan (2006)

Emerging plans:

- Emerging Waste and Minerals Core Strategy for East Sussex and Brighton & Hove
- Emerging Waste and Minerals Core Strategy for West Sussex

2.28 The East Sussex and Brighton & Hove Waste and Minerals Preferred Strategy (Oct 09) sets out the Councils' over-arching strategic and broad spatial planning policies concerning waste management and minerals production in East Sussex and Brighton & Hove to 2026. Policy CS10b of states that the Councils will safeguard the wharf facilities set out below in order to contribute towards meeting the regional apportionment set out within the South East Plan and to support modal shift in the transport of minerals. Capacity for landing and processing of minerals at these wharves will be safeguarded unless alternative provision is made elsewhere within that port such that there is no net loss of capacity for handling minerals:

- Halls Aggregate Wharf
- Britannia Wharf
- Ferry Wharf

2.29 Saved Policy 40 from the West Sussex Minerals Local Plan aims to safeguard and improve wharves with current or potential mineral use in West Sussex from inappropriate development. The Policy specifically safeguards five areas within Shoreham Harbour as minerals wharves:

- Free Wharf
- Kingston Wharf
- Turberville Wharf
- Brighton Power Station 'A' Wharf
- Halls Aggregate Wharf (crosses Plan boundary so also appears above)

2.30 'Background Paper 4: Transportation of Minerals and Waste' (West Sussex Minerals and Waste Development Framework, 2008) states that an Area Action Plan would need to address the safeguarding of wharves in the Harbour for the movement of minerals and waste material. The AAP would need to conform to the emerging Minerals and Waste Core Strategy in particular with the need to safeguard sufficient capacity at the harbour. The paper notes that the harbour has no rail access and poor road access. It is also unable to take vessels larger than 7,000 tonnes and is therefore unlikely to become important for the transshipment of materials within the county or be in a position to handle significant quantities of material to take on a more strategic role.

FLOOD RESILIENCE

2.31 The proposed regeneration of Shoreham Harbour is covered in the Strategic Flood Risk Assessment (SFRA) for Worthing Borough Council and Adur District Council (January 2008), prepared by Capita Symonds, as well as the SFRA prepared by Peter Brett Associates for the neighbouring Brighton & Hove City Council (March 2008).

2.31 Shoreham Harbour is identified as being at risk of flooding from the sea, ie. tidal flooding. Existing tidal flood defences extend around the harbour and it is estimated that the harbour is protected in some areas for a 1 in 50 year flooding event. The SFRA's conclude that the potential development areas within Shoreham Harbour lie across Flood Zones 1, 2 and 3a. The non-waterfront sites, such as Fishersgate and Portslade East are in Flood Zone 1, while the waterfront locations extend across all three Flood Zones. Based on the guidance in Planning Policy Statement 25 – Development and Flood Risk (PPS25), a large proportion of the regeneration area would be suitable for only water compatible uses eg. marinas, water and sewage transmission infrastructure, navigation facilities and amenity open space.

2.32 The Water Cycle Study – Outline Report goes on to consider potential strategic options for managing flood risk. On the eastern arm of the Harbour, land raising and flood defences across the Lock are considered the preferred options at this stage. However, the flood defences across the Lock has subsequently been discounted as the Environment Agency do not regard this as a feasible option (the lock gates are for keeping water in the canal and open up at extreme tides to let more water in). For the western arm, land raising, raising the walls and setting back the defences are considered to be the preferred options.

2.33 The Shoreham Harbour Regeneration: Design and Flood Risk Study is nearing completion, which will supersede the findings from the above SFRA's. The emerging results of the modelling indicate that whilst Shoreham is indeed susceptible to significant flood risk, the proposed development areas do not provide significant storage or conveyance potential which materially impacts flood risk elsewhere, based on an event with an AEP (Annual Exceedance Probability) of 5% or greater (i.e. a 20 year return period event).

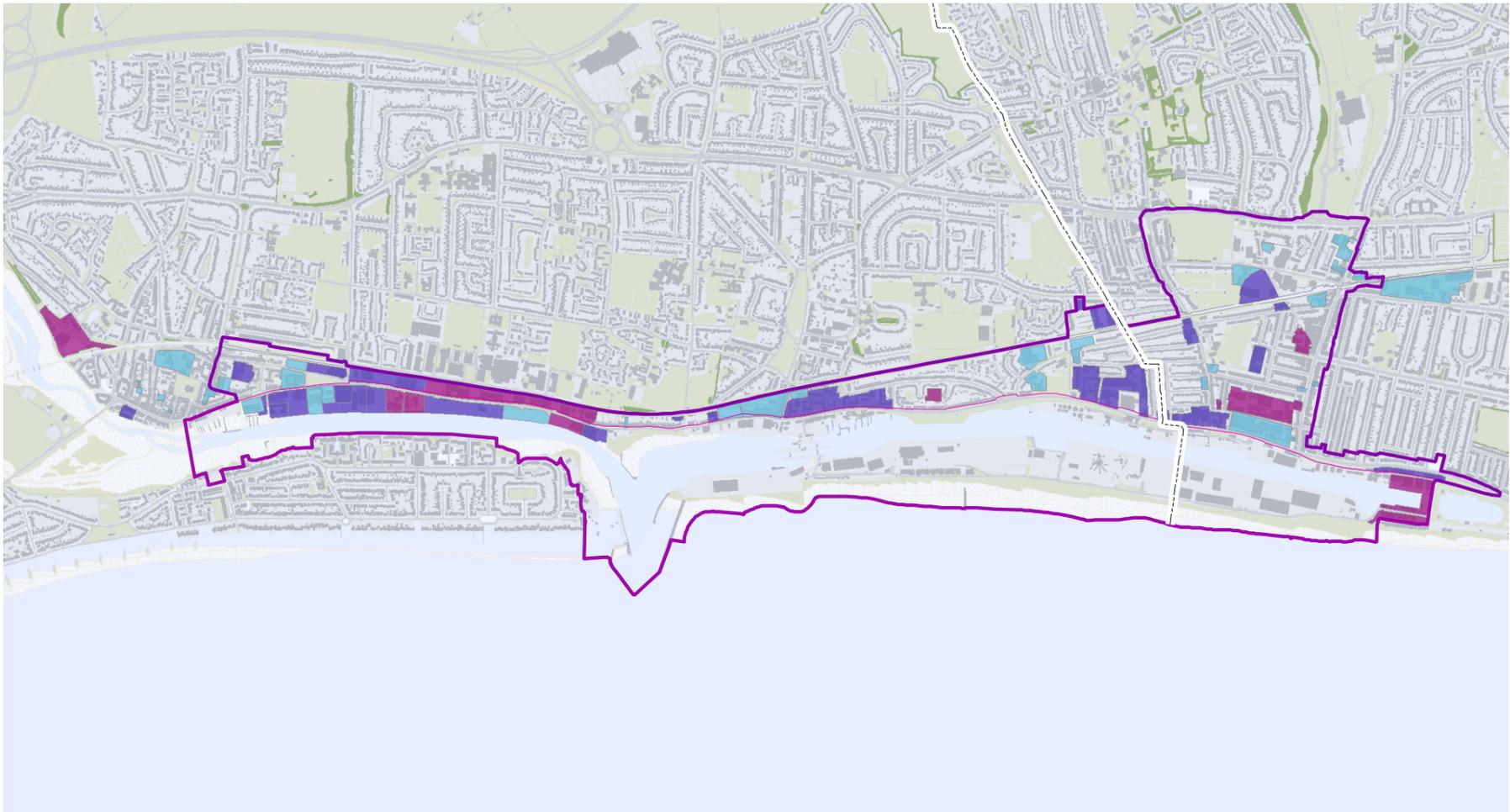
2.34 In considering development opportunities, the Environment Agency will expect the sequential test to be adhered to. The implications of this would be that areas of lower risk would need to be considered for development before higher risk areas. The EA would need to be satisfied that there are no reasonably available sites in areas with a lower probability of flooding appropriate to the type of development or land use proposed. The proposed new employment uses on existing employment land may not need flood defence measures as they are deemed a less vulnerable use, however, as the employment density is increasing this will need further consideration. A sequential approach would need to be undertaken assessing housing land availability within ADC and BHCC boundaries. We understand that this capacity and viability study is based on premise that there is an undersupply of housing land across the authorities over the respective Core Strategy plan periods and that therefore development in Flood Zone 3a will be possible, providing adequate flood defences are in place. The work currently underway to update the SHLAA in BHCC and to develop a locally based assessment of housing need for ADC should further inform work in this area.

03

Definition of the area of study



3.2 The Shoreham Harbour Strategic Housing Land Availability Assessment (SHLAA) has been used to understand the available development opportunities within the study area. This document was also the basis against which the 10,000 homes (approx) capacity for the area was last tested. This was against three different approaches, relating to scale and to identified development risk (approach 1 with the least identified risk). The sites identified in the SHLAA, are shown in Figure 3.2. It should be noted that areas shown in the SHLAA for land reclamation or which now form part of the SPA Port Masterplan are not shown as these are excluded from consideration in the capacity study.



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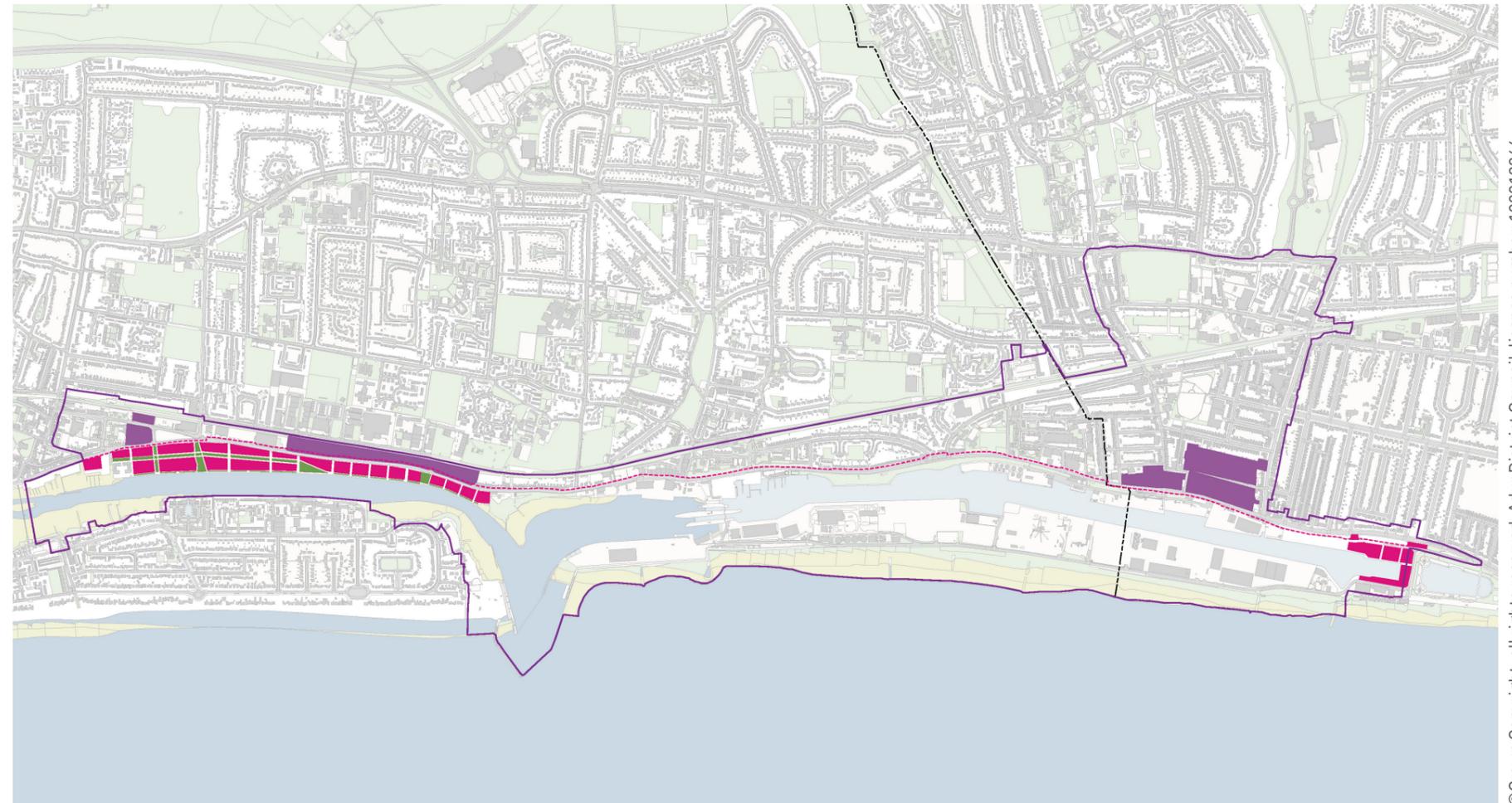
Figure 3.2: Shoreham Harbour SHLAA sites (excluding land reclamation and areas identified in SPA masterplan for consolidated Port uses)

- Administrative boundary
- Shoreham port boundary
- Shareham harbour japp
- Approach 1
- Approach 2
- Approach 3

3.3 Following Partnership Workshop 1 and a subsequent client group review involving officers from both ADC and BHCC a number of other sites were removed. These were regarded as unsuitable for development if the site:

- Is smaller than 0.5 hectares
- Comprises existing social housing
- Has a limited spatial relationship with Shoreham Harbour
- Is not a strategic opportunity to support Shoreham Harbour Partnership's regeneration objectives
- Is within a Health and Safety Executive (HSE) consultation zone, relating to Port related or industrial activity likely to be retained
- Has been developed already

3.4 Figure 3.3 sets out the revised site area after this review. The pink denotes land with the SPA masterplan area that could be considered for non-port related redevelopment, while the purple highlights the remaining areas with the draft JAAP boundary, which were taken forward. As such, it sets out the consolidated sites to be considered through the capacity study.



Figures 3.3: Final development opportunity sites for assessment

- Sites within wider study area
- Sites within SPA boundary

04

Spatial assumptions tested



RATIONALE FOR OPTIONS

4.1 In order to test the capacity of the revised study area 2 different options were developed. The first looks at taking forward a standard development approach in terms of scale and type of provision, while the second looks at how the site could bring forward eco-town principles. These have been respectively called quantum and eco options.

4.2 It should be underlined that this work is a capacity and viability study and not a masterplan. As such, while high level design considerations, such as density, adjacency of uses, access arrangement and environmental constraints have all informed the development of the options, they do not include block layouts and associated design details. Both options are also set within the context of the Shoreham Port Authority masterplan, which promotes the consolidation of port use. This work has informed the spatial distribution of land uses within the capacity study.

4.3 These options have been developed to allow the Shoreham Harbour Regeneration Partnership to get a better understanding of the capacity of the area to deliver homes and jobs, as well as social, strategic and green infrastructure. Option 2 allows for an assessment of the opportunities and implications of adopting eco-town principles, wherever practicable. The purpose is to provide an evidenced based assessment of the pros and cons of both options, supported by estimated costs and viability work.

4.4 Within each option alternative scenarios at the Western Arm are considered. Scenario 1 focuses on the potential opportunity to realign the A259 so that it runs along the south side of the railway track, creating a larger development footprint. Scenario 2 focuses on a scheme that does not require the A259 to be realigned. These scenarios have been respectively called 'realigned' and 'retained'.

4.5 While housing is a priority for Shoreham Harbour, job creation is also a key driver of development. BHCC in particular support an employment-led approach to regeneration on sites within their administrative boundary, while noting the likely requirement for residential development to support viability and place making principles. ADC officers have also underlined the importance of employment, but are keen for additional housing to balance the opportunities.

4.6 A summary description of the options is set out below. The following chapter sets out more detailed assumptions that have been used to inform the capacity study.

DESCRIPTION OF OPTIONS

4.7 The overall aim is to change the nature of Shoreham Harbour as a place and in doing so the nature of the property market. As such, the capacity study and the detailed design work that should follow will need to focus on qualities of place.

Shoreham Harbour – site capacity

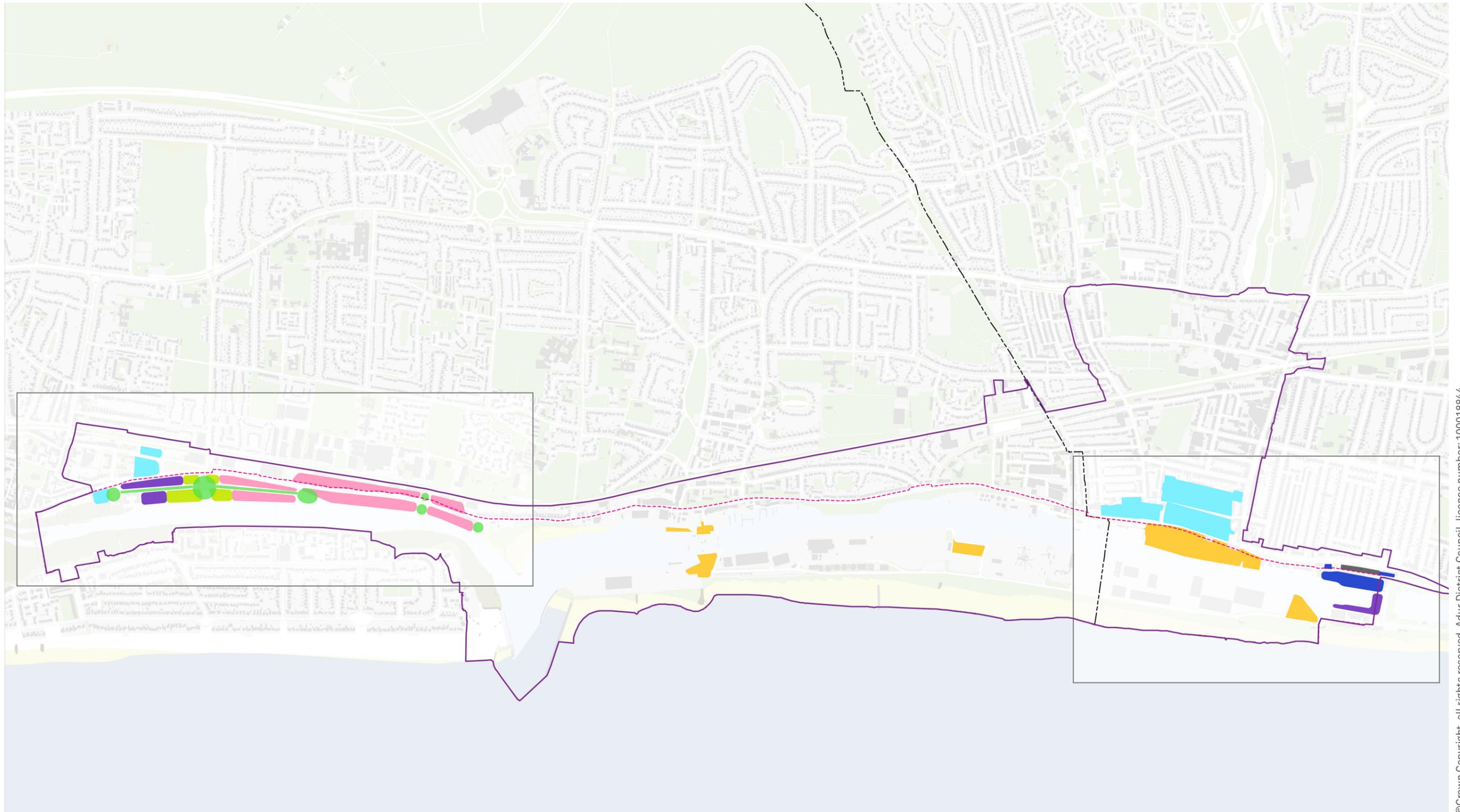
4.8 The site wide capacity (Figure 4.1) shows the overall scale of proposed development across the agreed study area. It shows 3 distinct sub areas across Shoreham Harbour. The Western Arm and Aldrington Basin/South Portslade are the two areas of focus for this capacity study, while the third area, the consolidated port area, is dealt with in detail within SPA's own masterplan. Taken together they represent a significant uplift in the area's offer, creating a highly significant regeneration opportunity that should deliver much needed new jobs and homes.

The Western Arm

4.9 This area presents a significant place making opportunity through the creation of an edge of town centre mixed use development. The scale and waterside location of the Western Arm area mean that development here would change the nature of the eastern part of Shoreham-by-Sea, with the potential to provide new office, retail and residential uses, along with access to the waterfront and the rest of the harbour from the town centre.

Aldrington Basin/South Portslade

4.10 The opportunity here is for an employment – led redevelopment of existing lower grade employment areas. Residential development is also proposed to provide a more balanced environment where appropriate, linking in the sites to other existing or proposed adjacent residential development. Development of residential uses will need to come forward in locations where the noise and air quality impact from adjacent Port uses will be minimised. Boundary Road / Station Road represent a particularly important route for improvements to strengthen the link between Portslade Station and the Harbour. The lessened flood risk in South Portslade also assists the case for redevelopment at this location.



- Residential (G.F. Car parking/other use)
 - Employment
 - Employment with residential above
- Eco employment
 - Mixed use
- Potential open space
 - Proposed new port related uses

Figure 4.1: Site wide capacity

The consolidated port area

4.11 This area is dealt with in the SPA Port Masterplan. The overarching principle is the consolidation of port uses into the eastern arm of Shoreham Harbour, with a relocation of non-port related uses and an intensification of employment uses. Improved access arrangements onto the A259 are also proposed. The delivery of the Port Masterplan is vital to the success of the remaining development within the area as the latter relies on the consolidation of port uses into the eastern part of the port. Furthermore, the activities of the port represent a key economic driver for the area, with opportunities for direct and indirect economic benefits from its planned development.

4.12 The West Sussex County Council and Brighton & Hove City Council Waste and Minerals Core Strategy and the West Sussex Minerals and Waste Development Framework, seek to safeguard a number of quays for minerals. These include the 4 main active mineral sites in the port. These are operated by the Dudman Group, Minelco, Solent Aggregates (owned by Tarmac), which are in West Sussex part of the port and Cemex which is partly in West Sussex and partly in Brighton & Hove.

4.13 They also seek to safeguard the following wharfs:

- Halls Aggregate Wharf
- Ferry Wharf
- Britannia Wharf

4.14 The Shoreham Port Authority however would prefer to have the flexibility to use these wharves to enable economic diversification, while safeguarding the currently level of capacity in a consolidated area. A fundamental requirement to redevelopment at the Western Arm is a resolution to this matter in favour of the Shoreham Port Authority.

Other JAAP areas not identified for potential development

4.15 Sites within the neighbourhoods of Fishersgate, Portslade and Southwick are not included within this study because there are no sites regarded as suitable for development at this level of analysis. The few available sites within these areas were assessed at the outset of this project and have subsequently been excluded for the following reasons:

- Social housing is currently subject to separate investment
- Sites fall within a HSE consultation zone;
- Site area is too small for inclusion (less than 0.5ha);
- Contains a functioning employment site;
- Is adjacent to a retained port use, which would not be attractive to developers or potential occupants.

4.16 However, evidence from both the Index of Multiple Deprivation and other JAAP evidence base studies show that unemployment, poor levels of education and skills and general deprivation are all features of the areas around South Portslade, Fishersgate and Southlands. As such these **residents require better access to training, skills and employment. Regeneration at Shoreham Harbour should seek to provide these opportunities to local deprived communities.** Therefore, whilst no development is proposed in these areas further work is required to help ensure that development at the Western Arm, South Portslade and Aldrington Basin can contribute to social regeneration in the deprived areas.

4.17 The entire A259 is noted as a particularly important route for visual and amenity improvements, better linking Shoreham, Southwick, Fishersgate and Portslade, making these areas more pedestrian and cycle friendly.

Quantum option (Option 1)

4.18 The quantum option provides capacity for provision of 10% open space (assumption based on initial design study of a typical parameter block layout) and for the purposes of the cost model assumes development will be built to conform to 2013 building regulations. It assumes there would be no net loss of employment in the area. In ADC, this is expressed in terms of jobs as there is no current policy and this approach seeks to ensure the area retains a significant employment function. However, in BHCC it is expressed as employment space due to current policy designed to protect the loss of allocated employment land. Overall, this approach provides the maximum amount of available employment land, with suitable space then given to housing within the current policy framework. The quantum options are set out in Figures 4.2 and 4.4. Figures 4.6 and 4.7 relate to both options.

Eco option (Option 2)

4.19 This option seeks, wherever possible to conform to eco-town principles. This includes provision of capacity for 40% open space (25% on the ground and 15% as private or semi-private roof gardens). Similarly, it goes beyond 2013 building regulations to achieve Code for Sustainable Homes Level 6. Furthermore, it seeks to provide both no net loss of employment jobs, but also to provide an additional 1 job per new home (referred to as 'eco jobs'). The eco options are set out in Figures 4.3 and 4.5. Figure 4.6 relates to both options.

Realigned A259 (Scenario 1)

4.20 As noted above, this option, which relates specifically to the Western Arm element of the capacity study, reroutes the A259 along the southern side of the railway line, creating a larger development footprint for the capacity study. This provides a much better platform to establish a residential neighbourhood in the area as it would shift the A259 from running through the centre of the study area and in doing so, consolidate the road and railway into one barrier to movement.. This should allow for two perimeter block layouts. The actual road alignment of the A259 would be retained through the study area, but in this scenario the road would be downgraded to a residential spine road and public transport route.

4.21 If this option were taken forward, careful consideration about the edge condition of the development at the northern edge of the study area, alongside the realigned A259, would be needed to mitigate noise and air pollution and visual amenity. The realigned A259 scenarios are set out in Figures 4.2 and 4.3.

4.22 Furthermore it is recognised that a major land owner may be looking to relocate their services in the near future.

Retained A259 (Scenario 2)

4.23 This scenario shows the type of development that could be possible if the A259 was retained through the Western Arm part of the study area. This would mean that the site is split either side of the road, which creates narrower development footprints. For the purposes of the capacity study it has been assumed that development to the north of the A259 would need to come forward as B2 (general industrial) or B8 uses (storage & distribution). This is because an initial assessment indicated that the site is too narrow to provide significant residential development and appropriate internal vehicular movement to allow for limited access points onto the A259. This is a key consideration as the A259 would not be able to cope with additional access points and where possible, development should seek to reduce them in number to improve traffic flows.

4.24 It may be possible through more detailed design to establish residential development on both sides. However, this would need to mitigate the noise, air and visual constraints on both sides of the road. It is likely that this could lead to reduced densities across the site. The retained A259 scenarios are set out in Figures 4.4 and 4.5.



- Residential (G.F. Car parking/other use)
- Mixed use
- Employment
- Potential open space

Figure 4.2: Western Arm - quantum option, realigned A259 scenario (Option 1, Scenario 1)



- Residential (G.F. Car parking/other use)
- Mixed use
- Employment
- Potential open space
- Eco employment

Figure 4.3: Western Arm - eco option, realigned A259 scenario (Option 2, Scenario 1)

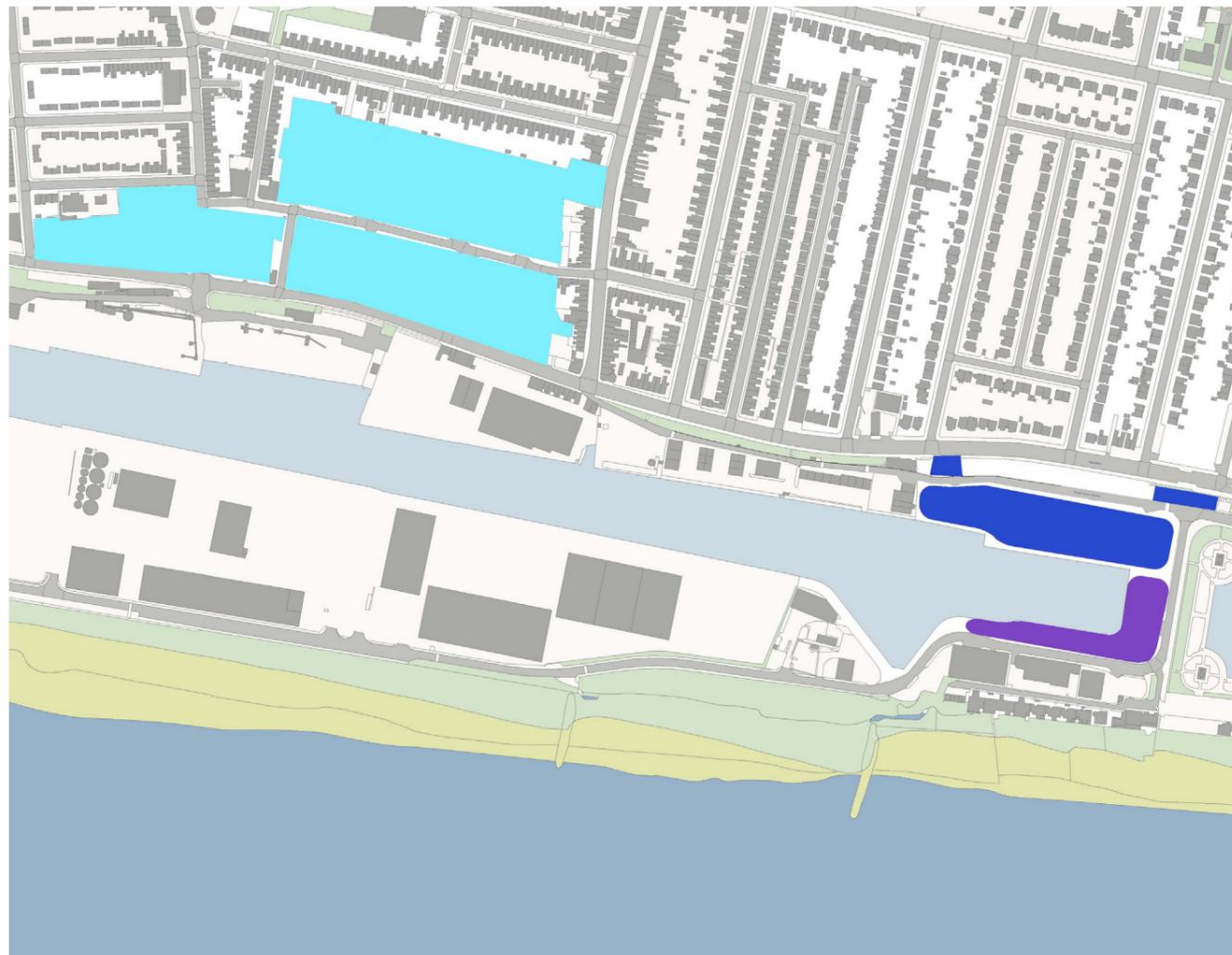


- Residential (G.F. Car parking/other use)
- Mixed use
- Employment
- Potential open space

Figure 4.4: Western Arm - quantum option, retained A259 scenario (Option 1, Scenario 2)



Figure 4.5: Western Arm - eco option, retained A259 scenario (Option 2, Scenario 2)



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- Employment
- Employment with residential above
- Mixed use



Figure 4.6: Aldrington Basin and South Portslade



05

Design assumptions and principles



HOUSING AND EMPLOYMENT

Character analysis

5.1 There are two key areas for development in the study area, Aldrington Basin and the Western Arm. An understanding of the existing context in these areas helps to define the appropriate type and quantum of development.

Western Arm

5.2 The Western arm area is dominated by Brighton Road (A259), which acts as a major barrier to pedestrian movement and is currently a dominant feature. The area is also heavily industrialised, which makes it feel less safe and more isolated compared with the surrounding area. The high number of HGV movements along the entire stretch of the A259 associated with the B2 and B8 uses add to the noise, dust and air pollution already experienced in the area. Towards the east of the Western Arm there are some terraced houses that add to the local sense of place.

5.3 Shoreham town centre is located to the west of the Western Arm, which is mostly characterised by a fine grain of streets with 2-3 storey terraced buildings. Along the High Street and river edge, buildings rise to 4-storeys. Ropetackle is a recent development of apartments to the west of the area, which varies between 4 and 5 storeys. Some development opposite the Western Arm on Shoreham Beach is 5 storeys. Development behind Sussex Wharf is detached housing.



Aldrington Basin

5.4 Like all neighbourhoods along with A259, the Kingsway section suffers from congestion, with a significant volume of HGV traffic travelling to and from the Port. Two - four storey semi-detached houses, in good condition, are located along part of the north side of Kingsway, adding to the character of the area. The south side of Kingsway is less appealing though, with industrial sheds creating a negative impact on the townscape. There is also a level difference between Basin Road North and Kingsway that would need to be factored into any new development.



South Portslade

5.5 The area currently occupied by Portslade Industrial Estate, sits alongside and to the north of Kingsway. The Portslade area predominantly comprises linear residential streets of South Portslade. There is a range of light industrial uses north of Wellington Road between Brambledean Road and Boundary/Station Road. North of this area there is 2-3 storey terraced housing along St Andrew's Road and beyond to Portslade Station. Connections to the station are currently poor west of Boundary and Station Roads because of the industry and road layout. The quality of the local streets, particularly in terms of paving and lighting, is also fairly poor in this area and would benefit from improvement. The main shopping street also lacks character and definition.



HOUSING

5.6 Based on the character across the study area and assumed variations in flood risk, the following high level urban design principles are put forward for future development. It should be noted that this is a capacity and viability study and as such does not consider site specific block layouts, rather it is based on parcels of land within the site. Standard apartment and residential typologies have been developed to inform the capacity work and test the opportunity within these parcels. An average dwelling size based on a set of assumptions in terms of dwelling types and space standards has been used. Block layouts and dwelling types will need to be explored through more detailed design studies in response to this study.

Apartment typologies

5.7 Two apartment typologies have been developed to provide an indication of potential development along the waterfront. These are shown in Figures 5.1 and 5.2 below:

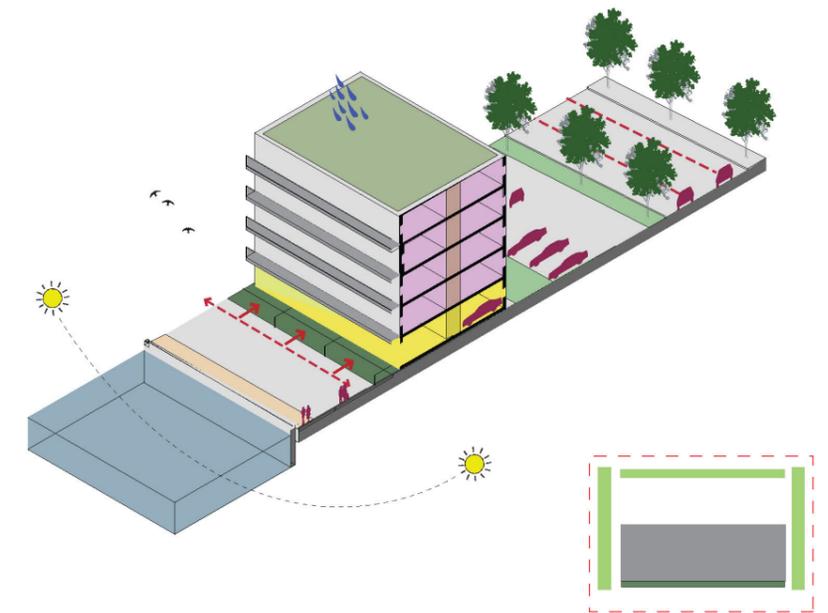
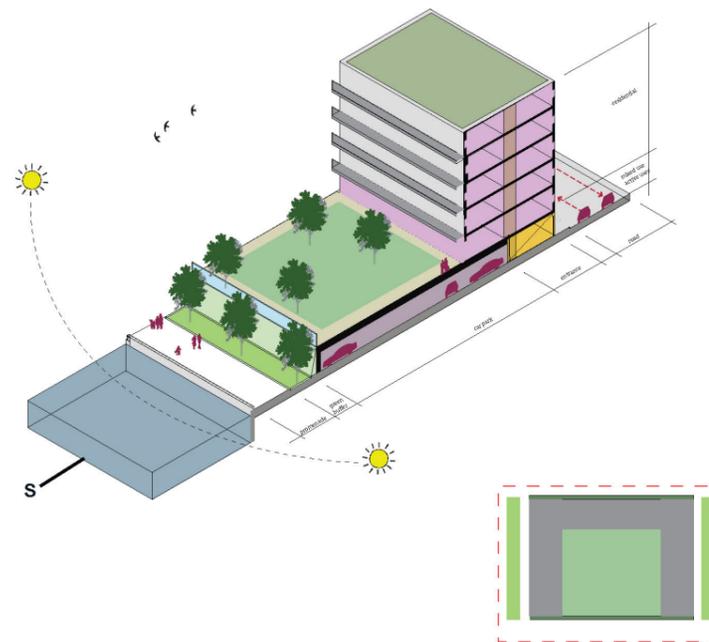
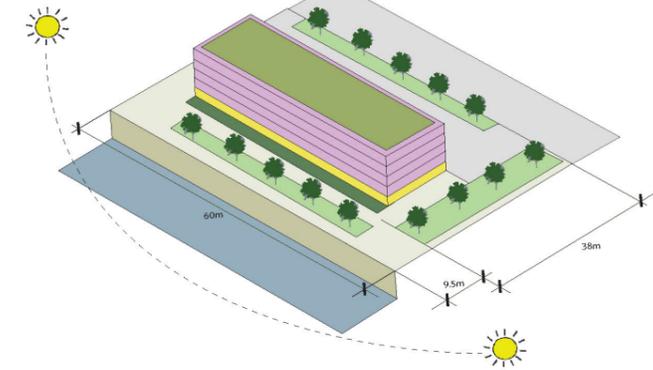
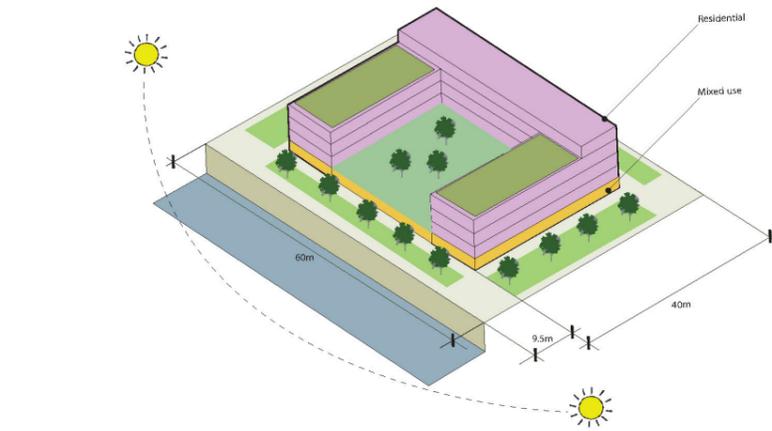


Figure 5.1: Apartment typology – wide plot

Figure 5.2: Apartment typology – narrow plot

- Housing density across the Western Arm (south side of A259) and at Aldrington Basin could range from 80 dwellings per hectare to 150 dwellings per hectare as appropriate based on the local context. This range is based on a review of the current local character (ADC Character Study - Tibbalds, June 2009) and AECOM's assessment of the appropriate building heights (Figure 5.3) required to both achieve the vision and compliment existing development.
- At the Western Arm key principles that have informed this work include: maximising height along the waterfront to maximise views and respond to development opposite at Shoreham Beach; the opportunity for taller buildings closer to Shoreham town centre; a scaling down in height along the A259 to ensure development relates to the street and the potential development site to the north of the A259. This potential site could be existing or new employment, or new family housing depending on the scenario. Family housing is not considered appropriate in this location due to: the size of the site to the south of the A259, the need to focus density close to town centres and transport nodes, and the opportunity to maximise value from the waterfront location.
- At the Western Arm, where the site is wider (western part of the Western Arm) the typology allows for large areas of open space (Figure 5.1). Where the site is narrow (eastern part of the Western Arm and Aldrington Basin) a more compact typology could come forward (Figure 5.2). To manage the level change from the south to the north of the site (waterside to the A259), development could be constructed on a podium, with open space above and car parking below.
- As both the Western Arm and Aldrington Basin are within Flood Zone 3, buildings could provide non-residential uses on ground floors. This is assumed to be undercroft parking in the capacity study to support parking needs. As part of a detailed design process, retail or employment uses could also be considered as part of a mixed-use development, wrapping parking with other uses around the outside, if necessary. Buildings adjacent to the water should be set back 9.5 metres to provide sufficient space for flood defences, pedestrian access and vehicles to access flood defences that may be put in place.
- At Aldrington Basin, height around the waterfront is also suggested to act as a landmark development opportunity, help establish a clear identity for the site and the locality and maximise values. Furthermore, the level change between the site and the A259 allows additional height to be accommodated.
- At Aldrington Basin, the conflict between residential uses and the current or future port uses should be managed through the use of employment space as a buffer, along with other design measures, such as landscape planting.

- Development could take the form of a perimeter block with undercroft parking or a linear block with parking to the rear, as shown in Figures 5.1 and 5.2.
- Development could be south-facing to maximise the potential for passive solar gain as the path of the sun passes from east to west.
- Balconies should be provided with upper floor residential units to provide outdoor private space.
- Where the density of units is higher, the building footprint is unlikely to yield sufficient undercroft parking spaces for all dwellings. Therefore surface parking spaces to the rear of the development could be provided and shielded from street-view.
- Where development plots allow for larger perimeter blocks to be constructed, development on the north face could be 1 storey taller to provide improved views and private access to a south-facing green roof garden.

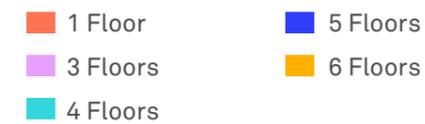


Figure 5.3b: Indicative building heights – Aldrington Basin & South Portslade

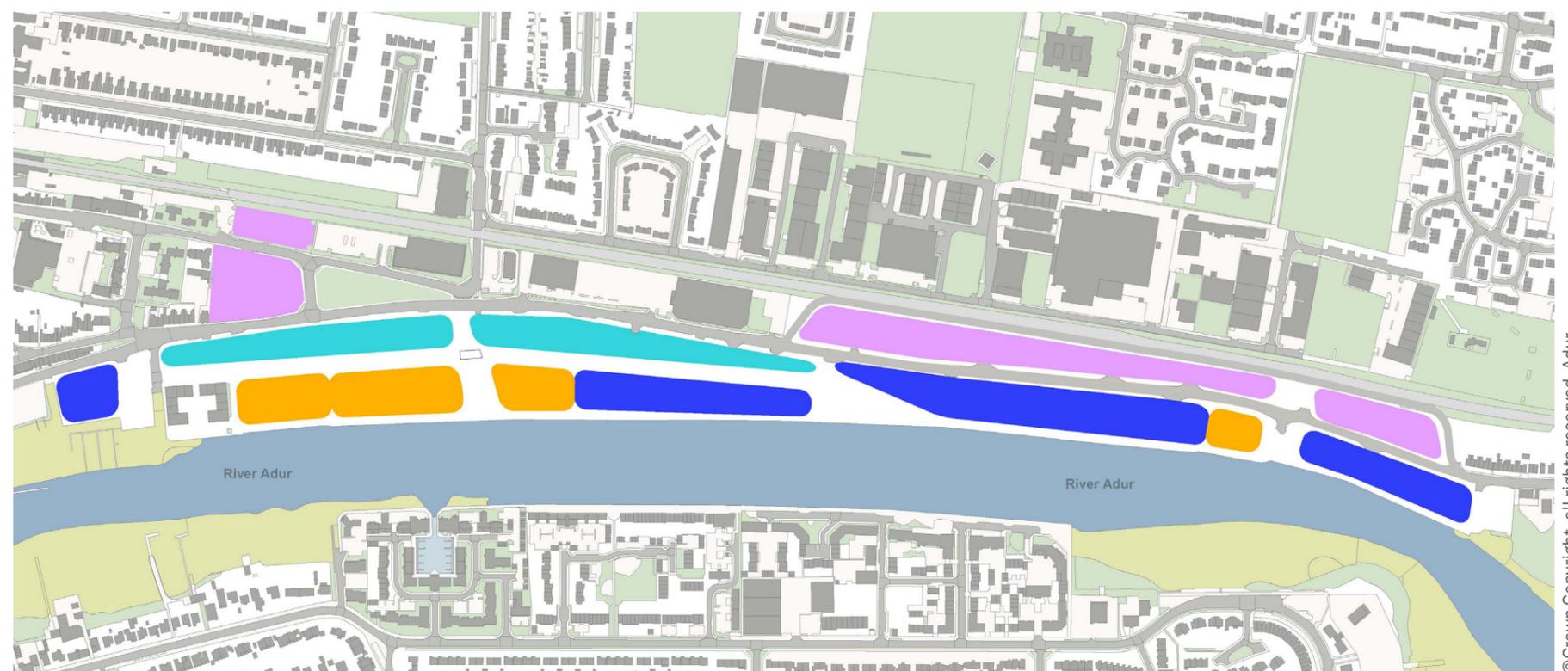


Figure 5.3a: Indicative building heights - Western Gateway

Housing typologies

5.8 Two housing typologies have been developed to provide an indication of the potential for family homes. This type of development is suggested for 3 and 4 bed homes, which could potentially be located on the South Portslade site and as part of the realigned A259 option on the northern part of the Western Arm.

- Densities in this area could be around 40 dwellings per hectare to accommodate family size units.
- Where development sites are adjacent to existing linear residential streets, development could adopt a similar urban form to complement the area and ensure that existing communities are enhanced by any development.
- Small front gardens to terraced houses and flats could provide both a strong frontage to the street and some 'defensible space' to allow a degree of separation between the street and private homes.

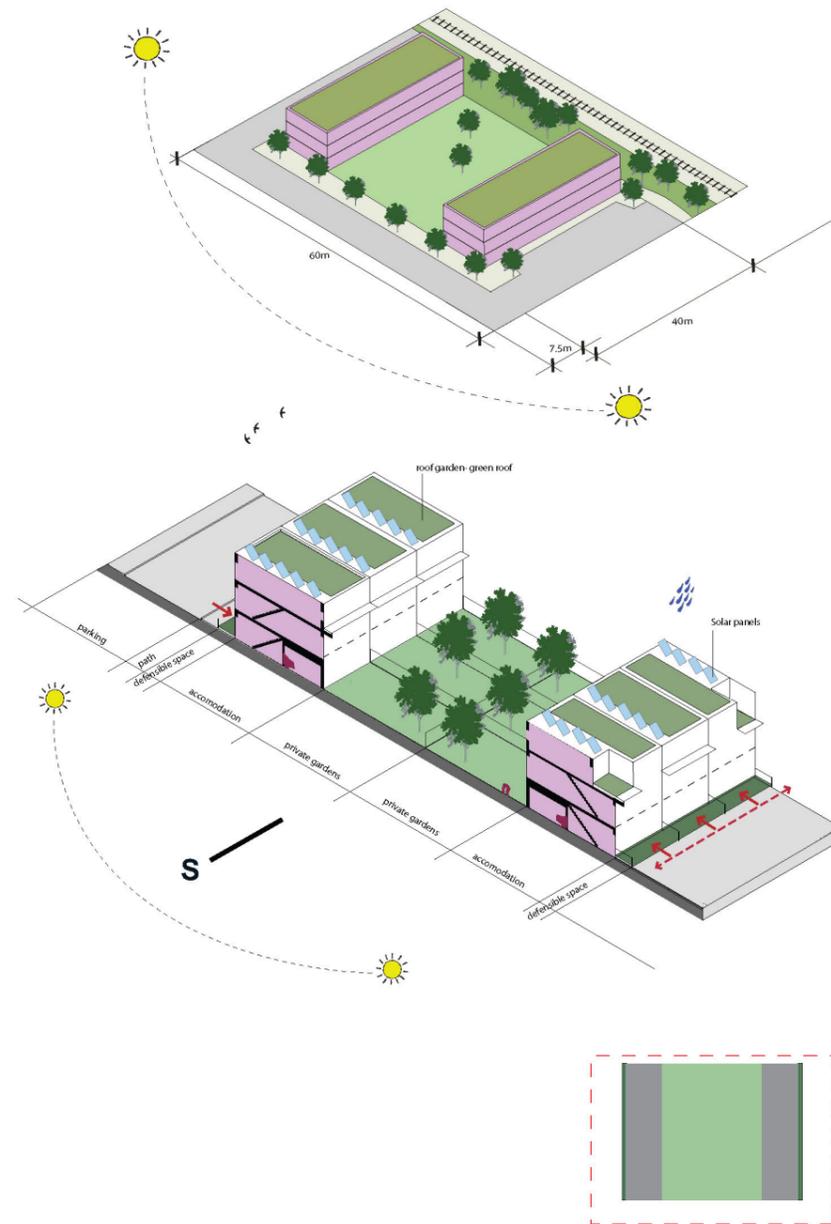


Figure 5.4: Housing typology – constrained by infrastructure

Residential development assumptions

5.9 Policy SCT5 (Housing Distribution) of the South East Plan (May 2009) quotes an interim figure of 10,000 new dwellings between 2002-2026 that will be 'subject to detailed studies (including an SFRA) and assistance from the agencies as part of the strategic regeneration of the port'. It is likely that legislation will be passed to abolish Regional Spatial Strategies and in doing so this policy. However, the capacity study has sought to identify, through the quantum option, a housing led assessment of Shoreham Harbour's capacity.

5.10 ADC is in the process of producing a Locally Generated Housing Needs Study. This will set out the district-wide level of housing, both in terms of an overall number and the tenure and typology split. This will feed into their emerging Core Strategy. Brighton & Hove City Council are currently reviewing their SHLAA to inform their target as part of their Core Strategy review. This capacity study will inform the numbers for the Shoreham Harbour area within the respective Core Strategies. It has been assumed that the level of housing need will result in as many homes as possible being required at Shoreham Harbour, but this will need to be reviewed once the studies have been concluded.

5.11 A key point to note is that Shoreham Harbour cannot accommodate the full range of housing types needed across ADC and BHCC. Because of the nature of the edge of centre, waterfront location and relatively narrow sites, the capacity study assumes that the majority of homes that will come forward at Shoreham Harbour will be apartments. As such, for the purpose of the capacity study a split of 10% 1 bed at 55sq.m, 45% 2 beds at 65 sq. m, 30% 3 beds at 88sq. m and 15% 4 beds at 100sq. m has been used. The type split is based on the recent Elmcroft Scheme in Southwick, which is included in Stage 1 market report, with an amount of 4 bed homes increased after discussion with the steering group (based on the Adur Strategic Housing Market Assessment - 1 beds reduced by 10% and 2 beds by 5%). It is assumed the 4 bed houses would come forward on the Western Arm (north of the A259) if the A259 were realigned and at South Portslade. The size of units was taken from the Shoreham Harbour JAAP Urban Design Study (Options reconciliation April 09 Capacity studies) work undertaken by Tibbalds. This leads to a weighted average dwelling size of 77sq. m net, which has been applied across the capacity study.

Sustainable residential development

5.12 Local planning policies for both Brighton & Hove and Adur Councils encourage a high standard of sustainable design and construction in new development. Simultaneously, expectations of development standards are increasing, and being reinforced by evolving Building Regulations. The Eco-Towns PPS requires that all homes are built to Code for Sustainable Homes level 4 standards, and in addition specific requirements are made around energy, water and green space and other sustainability initiatives.

5.13 As Code for Sustainable Homes levels increase, the costs to developers also increase significantly. The graph below demonstrates how costs currently vary according to Code level. Considering the variation in costs, it is expected that Code Level 4 is a reasonable objective for development in the Shoreham Harbour area, but that higher levels of the Code may not be able to be achieved across the area without significantly impacting viability. It may be possible to achieve higher code levels in individual buildings and smaller developments depending on market demand and other infrastructural and physical constraints.

5.14 For the purposes of this assessment, the achievement of Code for Sustainable Homes Level 4 has been assumed and incorporated into the costing for both the quantum and eco options tested.

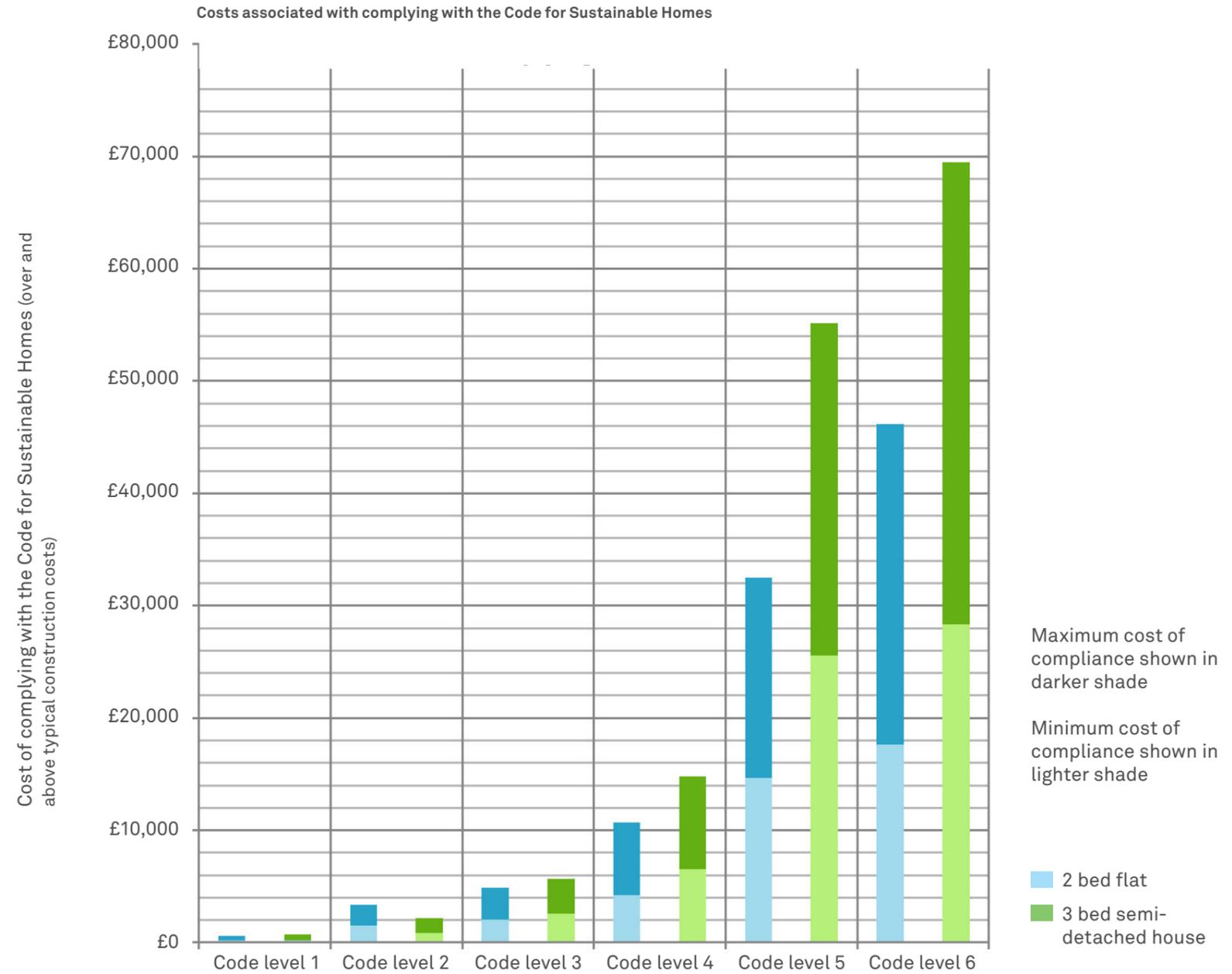


Figure 5.5: Comparison of Costs associated with meeting different levels of Code for Sustainable Homes
Source: AECOM, based on 'Code for Sustainable Homes: A Cost Review' (March 2010)

EMPLOYMENT

5.15 Shoreham Harbour is currently an area with significant levels of employment and commercial activity. The general perception of the area at present does not currently attract a significant amount of B1 office uses and therefore an important part of the regeneration would be a clear marketing and visioning strategy.

5.16 Much of the strategy to release the land will be to relocate existing employment uses either into the consolidated port area in the eastern arm, or elsewhere within the local area. The capacity study has assumed as a first principle that there should be no net loss of employment from redevelopment. In ADC this has been assumed to be no net loss of jobs, whereas in BHCC, based on planning policies DA7 and CP16, it is assumed to be no net loss of employment space (i.e. in ADC at the very least the same number of jobs should be re-provided as are lost through development, whereas in BHCC the same amount of space should be re-provided).

5.17 As such the quantum option seeks to re-provide employment within each site boundary. The eco option takes this further, seeking to provide an additional 1 job per new home as per the eco-town principles. In reality as many of the existing businesses would be relocated within the wider area and the employees therefore likely to follow, the re-provided employment would represent new opportunities for residents in and around the study area. Furthermore, the additional 1 jobs per home (referred to as eco jobs) would be unlikely to exclusively go to residents of the new scheme, such is the connectivity both in and out of the site. As such, these jobs would also provide opportunities for existing Adur and Brighton & Hove residents.

5.18 It should be noted that the BHCC policy framework for Shoreham Harbour in the submitted Core Strategy (set out in policies DA7 and CP16) identifies Shoreham Harbour as an opportunity to create new employment space for the city. Moreover, policy CP16 part 5 seeks to secure new business space and high tech employment floorspace in the Shoreham Harbour Area to provide additional jobs within the proposed Shoreham Harbour Growth Point Area.

5.19 The rationale is that given the physical and environmental constraints in the city most employment land will have to be found by recycling existing industrial and other redundant sites. The supply of industrial land will be maintained by clearance and redevelopment, or by refurbishment and modernisation of existing buildings and industrial areas. Therefore any proposed redevelopment which firstly proposes a

loss of a site or premises or part of site or premises would be contrary to the Local Plan. The 2006 Employment Land Study also acknowledged the constrained supply of sites and concluded that no existing employment sites should be de-designated. The Core Strategy does acknowledge that in order to enable investment in sites a more flexible approach is needed to enable refurbishment and re-investment in employment sites and this is set out in CP16 where the principle of enabling development (where no net loss of floorspace) and an introduction of allowing employment-led mixed use developments on site to be identified are outlined.

5.20 As such, where commercial values are particularly low and where housing is plausible, a mixed use development is proposed to boost viability. In BHCC this would require the level of employment floorspace to be retained. In ADC, it may be possible to consider a replacement of a similar level of jobs, but not necessarily floorspace.

5.21 According to economic development officers, there is high demand and growth locally in the digital media sector, which could be a particular opportunity at Aldrington Basin. As an example, it is recognised that companies are already moving to Worthing as they have recognised the benefits of cheaper rents but still remaining close to Brighton & London.

5.22 Another key consideration is the job density in the area (i.e. the amount of employment space provided in relation to the number of jobs). The type of activity across Shoreham Harbour is typically a mix of B2 (general industry) and B8 (storage and distribution). These uses have lower densities than B1 uses (offices and light industrial). As such, there is an opportunity, depending on the market, to provide less B1 floorspace, but achieve a similar number of jobs, or in the case of BHCC, provide the same amount of floorspace, but increase the number of jobs, by bringing it forward as B1.

5.23 To understand the level of employment (jobs and space) in those areas identified for redevelopment, each existing building footprint was measured and an assumption about number of floors included. In ADC we used work undertaken for English Partnerships (now part of the HCA) on employment densities 'Employment Densities: A Full Guide' (Arup 2001), which provides different employment densities for different uses. In agreement with the client group, we have assumed 50% B2 and 50% B8 uses across the site at an average density of 57sq.m per job. Replacement B1 uses is assumed to be 20 sq.m per job.

5.24 Demand for B2 and B8 uses is currently fairly strong at Shoreham Harbour and this study aims to balance the current areas of demand with the future vision for the area as an attractive, commercial and liveable place.

5.25 The capacity study options have sought to include the broad levels of employment space in each area as indicated in the 3rd column of Table 5.1. The eco option then adds an additional level of jobs to achieve the 1 job per home target.

	Estimated displaced B2/ B8 (assumed) space (sq. m)	Estimated jobs from displaced space at 57 sq. m per job	Amount of B1 space needed to provide the estimated existing jobs at 20sq. m
Western Arm (realigned A259)	72,916	1,279	25,585
Western Arm (Quantum + Retained A259) Based on re-provision of B2/ B8 on site north of A259	53,005	930	18,598
Western Arm (Eco + Retained A259) Based on re-provision of B2/ B8 on site north of A259	55,603	975	19,510
Aldrington Basin	22,280	391	7,820*
South Portslade	41,507	728	14,560*

Table 5.1: Estimated existing and proposed employment space assumptions

*In BHCC the policy is to re-provide the same amount of employment floorspace so the capacity study for sites at Aldrington Basin and South Portslade seeks to do this, rather than calculating the B1 space using the estimated jobs formula.

Generating demand for office space

5.26 It is recognised that there is very limited demand for office (Class B1) space in the study area at present. However, a major aim of redevelopment is to change the nature of the area, which should catalyse demand for higher value office space. The following changes are likely to assist this shift:

- A critical mass of development that would enable a step-change in character;
- One or more major pre-lets that would boost employer confidence in the area as a location to do business;
- Access to a high quality local labour pool;
- Good access to public and private transport;
- Local amenities within reach of the workplace.

5.27 In addition the public sector could directly contribute via the following means:

- A strong marketing strategy;
- A high-level of joined up policy & vision from the local authorities;
- Potential incentives including funding or levy charges set at zero for commercial uses. If Community Infrastructure Levy, for example, is implemented district-wide, it will be possible to set the levy by 'zones' or 'use'. A zero charge in this area should assist with viability by reducing requirements on prospective developers.

5.28 Aldrington Basin is the area where adjacent port use have the greatest potential for conflict with proposed office development. The nature of the place will need to be established through detailed design to establish the type of office development and business that would be attracted to the area. Development could seek to maximise development or amenity depending on user requirements.

Shoreham Port Masterplan

5.29 The port site is a significant employer in the local area, providing approximately 1,400 jobs across 100 employers at present. Of these, 85 are direct employees of the Shoreham Port Authority. Employers range from large national firms (e.g. Texaco; Travis Perkins); to small and medium size firms, dealing with a wide range of activities (including: cabinet makers; motorbike repairs; cheese suppliers, etc).

5.30 The Shoreham Port Masterplan (Final Report, October 2010) states that their proposals could provide approximately 500 additional port related jobs. They also predict an increase in indirect and construction jobs, benefitting the local economies of Shoreham, Southwick, Portslade, Hove and Brighton. One of the Masterplan aims is to provide "a greater emphasis on processing of imported / exported material that adds value and jobs".

Sustainable commercial development

5.31 BREEAM is the measurement of sustainable design and construction used in the UK for non-residential buildings. While standards for homes are comparable and widely adopted (as reinforced by Building Regulations changes to energy efficiency), standards for non-residential buildings vary greatly due to the differences in design of types of buildings and resultant complexities in assuming a site-wide standard. For the purposes of this study, we have assumed that BREEAM requirements are not applied across the area. However, wider sustainability initiatives tested in the eco option regarding site design, zero-carbon energy and water use reduction are applied to non-residential buildings as well.

Housing and employment options – capacity

5.32 We have applied the above assumptions to the areas of potential development indicated through the capacity diagrams set out in Chapter 4; it is possible to establish an estimated development capacity for each of the Scenarios and Options for Shoreham Harbour.

5.33 Employment shown below in sq m includes B1, B2, B8 and A1 retail use. A 3,750 sq m foodstore (c. 40,000 sq ft gross) has been assumed within the Western Arm area, with associated car parking.

	Western Arm	Aldrington Basin	South Portslade	Total
Quantum (Option 1) Housing Units	1,597	181	186	1,965
Quantum (Option 1) Employment(sq m)	26,146	25,517	45,780	97,444
Eco (Option 2) Housing Units	1,088	158	162	1,408
Eco (Option 2) Employment (sq m)	51,689	22,189	39,809	113,687

Table 5.2: Realigned A259 (Scenario 1) estimated capacity

	Western Arm	Aldrington Basin	South Portslade	Total
Quantum (Option 1) Housing Units	1,254	181	186	1,621
Quantum (Option 1) Employment(sq m)	39,339	25,517	45,780	110,636
Eco (Option 2) Housing Units	831	158	162	1,150
Eco (Option 2) Employment (sq m)	59,163	22,189	39,809	121,161

Table 5.3: Retained A259 (Scenario 2) estimated capacity

Jobs (estimated)	Quantum (Option 1)	Eco (Option 2)
Western Arm		
Total current jobs	1,279	1,279
New office/ light industrial (Class B1)	1,307	2,584
New retail jobs (A1)	138	138
New general industrial / storage and distribution (Class B2/B8)	0	0
Total new jobs	1,445	2,723
Total net additional jobs	166	1,443
Aldrington Basin		
Total current jobs	391	391
New office/ light industrial (Class B1)	1,276	1,109
New general industrial / storage and distribution (Class B2/B8)	0	0
Total new jobs	1,276	1,109
Total net additional jobs	885	719
South Portslade		
Total current jobs	728	728
New office/ light industrial (Class B1)	2,289	1,990
New general industrial / storage and distribution (Class B2/B8)	0	0
Total new jobs	2,289	1,990
Total net additional jobs	1,561	1,262
Total		
Total current jobs	2,398	2,398
New office/ light industrial (Class B1)	4,872	5,684
New retail jobs	138	138
New general industrial / storage and distribution (Class B2/B8)	0	0
Total new jobs	5,010	5,823
Total net additional jobs	2,612	3,424

Table 5.4: Estimated job creation - Realigned A259 (Scenario 1)

Jobs (estimated)	Quantum (Option 1)	Eco (Option 2)
Western Arm		
Total current jobs	1,279	1,279
New office/ light industrial (Class B1)	971	2,092
New retail jobs (A1)	138	138
New general industrial / storage and distribution (Class B2/B8)	349	304
Total new jobs	1,459	2,534
Total net additional jobs	180	1,255
Aldrington Basin		
Total current jobs	391	391
New office/ light industrial (Class B1)	1,276	1,109
New general industrial / storage and distribution (Class B2/B8)	0	0
Total new jobs	1,276	1,109
Total net additional jobs	885	719
South Portslade		
Total current jobs	728	728
New office/ light industrial (Class B1)	2,289	1,990
New general industrial / storage and distribution (Class B2/B8)	0	0
Total new jobs	2,289	1,990
Total net additional jobs	1,561	1,262
Total		
Total current jobs	2,398	2,398
New office/ light industrial (Class B1)	4,536	5,192
New retail jobs	138	138
New general industrial / storage and distribution (Class B2/B8)	349	304
Total new jobs	5,024	5,634
Total net additional jobs	2,645	3,236

Table 5.5: Estimated job creation - Retained A259 (Scenario 2)

Employment floorspace (estimated)	Quantum (Option 1)	Eco (Option 2)
Western Arm		
Existing estimated floorspace	72,916	72,916
Proposed floorspace	26,146	51,689
Total net additional	-46,770	-21,227
Aldrington Basin		
Existing estimated floorspace	22,280	22,280
Proposed floorspace	25,517	22,189
Total net additional	3,237	0*
South Portslade		
Existing estimated floorspace	41,507	41,507
Proposed floorspace	45,780	39,809
Total net additional	4,274	0*

Table 5.6: Estimated gross and net employment floorspace (sqm) - Realigned A259 (Scenario 1)

Employment floorspace (estimated)	Quantum (Option 1)	Eco (Option 2)
Western Arm		
Existing estimated floorspace	72,916	72,916
Proposed floorspace	39,339	59,163
Total net additional	-33,577	-13,753
Aldrington Basin		
Existing estimated floorspace	22,280	22,280
Proposed floorspace	25,517	22,189
Total net additional	3,237	0*
South Portslade		
Existing estimated floorspace	41,507	41,507
Proposed floorspace	45,780	39,809
Total net additional	4,274	0*

Table 5.7: Estimated gross and net employment floorspace (sqm) - Retained A259 (Scenario 2)

* Figures have been rounded to zero to reflect Brighton & Hove planning policy. It is important to note that, as a capacity study, all forecasted figures are indicative only and subject to more detailed analysis.

Jobs (estimated)	Port Masterplan area
Total current jobs	1,400 (85 directly employed)
Total new jobs	1,900
Total net additional jobs	500

Table 5.8: Estimated job creation – Shoreham Port Masterplan

Source: Shoreham Port Masterplan – Final Report, October 2010

TRANSPORT

5.34 The local highway network is very busy and at times close to or over capacity. A number of junctions along the A259 through the JAAP area in Adur and Hove have recently been implemented under the Community Infrastructure Funding (CIF) programme with improvements to capacity, increased bus priority and improved pedestrian crossing facilities, in order to help prepare for development.

5.35 However, there is still a need to improve certain key elements of the road network and its junctions including the A259 / A283 Shoreham High Street / Old Shoreham Road / Norfolk Bridge roundabout, in order to improve the interconnectivity between the main areas of employment, increase the use of public transport, improve the local environment and help in the overall regeneration of the area.

5.36 In addition, there are designated Air Quality Management Areas (AQMA) on the A259 at Shoreham High Street, on the A270 at Upper Shoreham Road and. Much of southern central Brighton and Hove is also an AQMA, bounded to the south by the seafront and to the west by the boundary with Adur District Council. These are a key constraint on the acceptability of additional vehicle trip generation in the area as a result of new development, as there is a duty to mitigate the air quality issues within these zones. Therefore minimising the volume of traffic associated with new development in Shoreham Harbour and the routing of vehicle trips through these areas will be a key priority.

5.37 Closely linked to Planning Policy Statement 1 Eco-Towns supplement and Shoreham Port Masterplan, the transport assumptions within the capacity study support the following parameters:

- Access to the sites and through them gives priority to sustainable options.
- 10 minutes walk to frequent public transport and neighbourhood services, including nearest school for children aged under 11.
- Rationalise and improve quality of access to the port area for all modes.
- Ensure enhanced public transport routes and services penetrate new port development and are well connected to existing areas.
- Minimise additional car trips on the network.
- Provide appropriate levels of parking for the site accessibility and socio-economic characteristics.

5.38 The key transport principles for the area are summarised below:

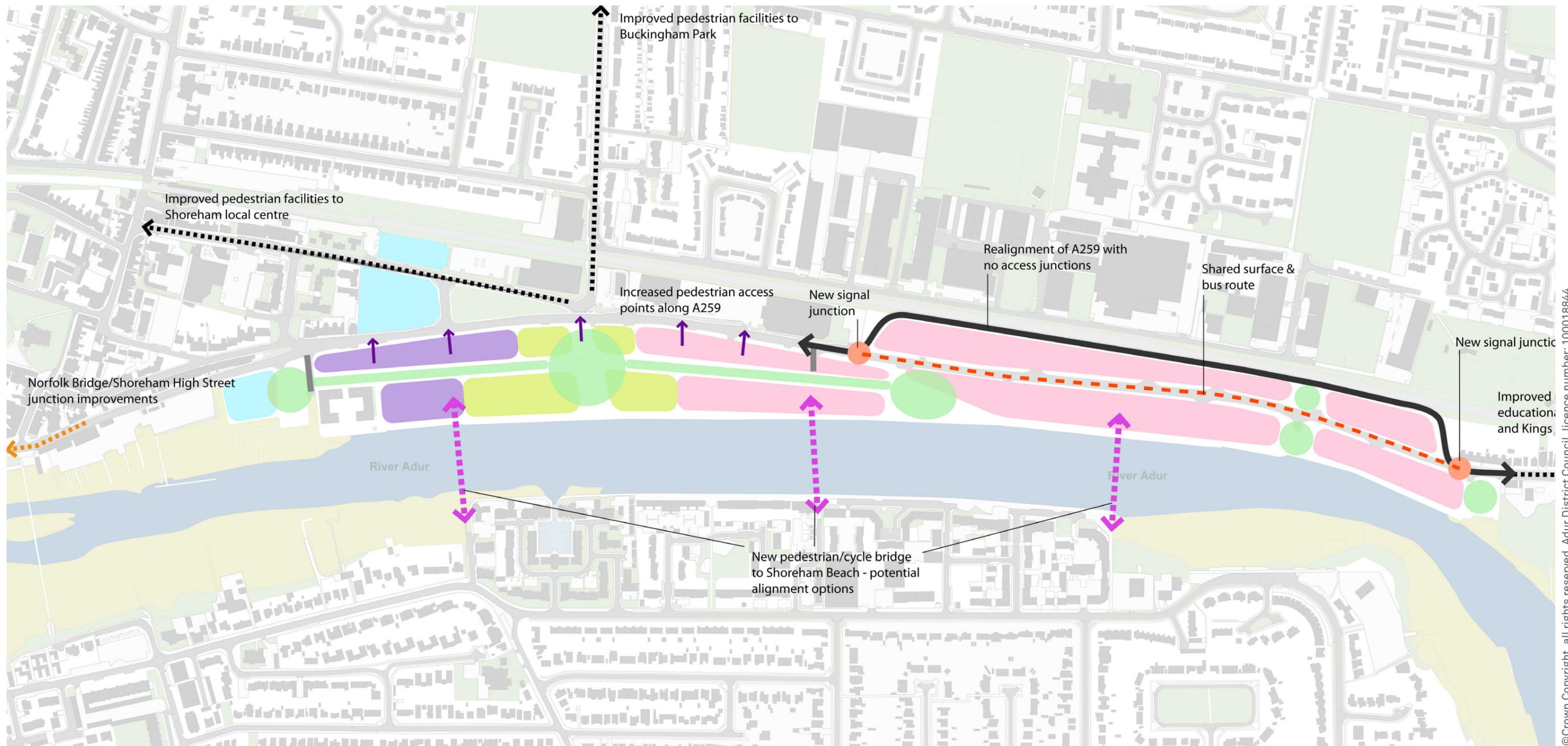
Western Arm - Quantum and Eco options Realigned A259 scenario

5.39 The proposal to realign the A259 so that it runs adjacent to the railway line provides the following benefits:

- Through traffic using the A259 would not be routing through the site.
- There would be the potential opportunity to downgrade the existing A259 alignment.
- The internal non-car environment would be enhanced.
- Potential for higher density development.
- An east-west shared surface route through part of the site along the old alignment of the A259.
- Two principal access junctions at either end of the realigned A259, and a secondary access junction at the western end of the site.
- In terms of public transport accessibility this scenario provides flexibility for bus routing options. Services could run on the existing A259 alignment through the centre of the site to maximise the benefits of visibility, penetration and segregation from through traffic. Alternatively, buses could run along the realigned A259 to reduce intrusion and internal conflicts with pedestrian movement, and with regular pedestrian connections into the site bus services would still be within easy walking distance.

Western Arm - Quantum and Eco options Retained A259

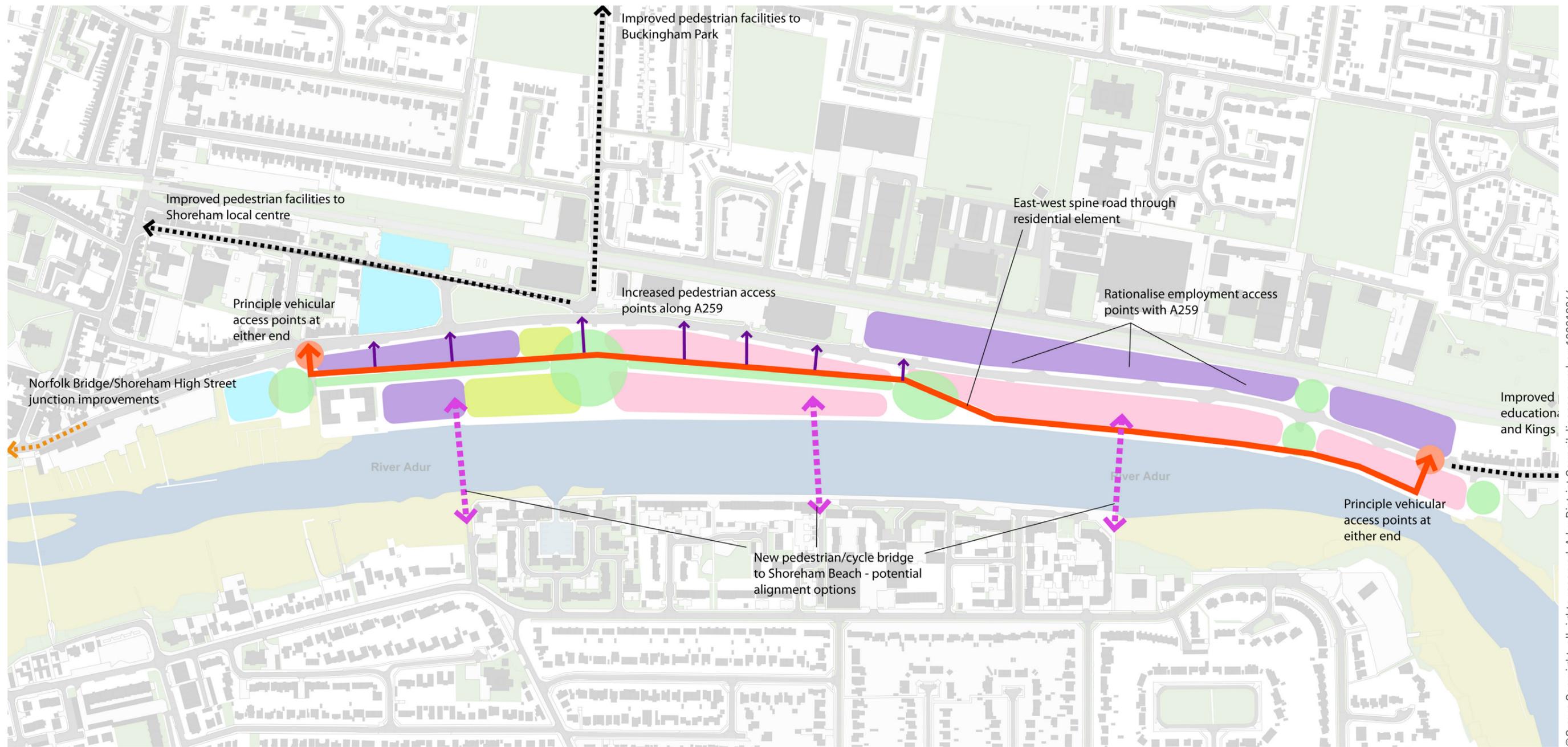
- Full internal east-west spine road through the residential site (south of the A259).
- Two principal residential access junctions with the A259 at either end of the internal spine road.
- Shared access junctions to employment plots north of the A259.



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- Residential (G.F. Car parking/other use)
- Mixed use
- Employment
- Potential open space
- Eco employment

Figure 5.6: Western Arm - Quantum and Eco options Realigned A259 scenario - Transport



- Residential (G.F. Car parking/other use)
- Employment
- Eco employment
- Mixed use
- Potential open space

Figure 5.7: Western Arm - Quantum and Eco options Retained A259 - Transport

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5.40 The principles common in both scenarios are:

- Increasing pedestrian permeability with more access points and crossings along the A259.
- New pedestrian-cycle bridge to Shoreham Beach.

South Portslade

5.41 The change of employment use from industrial to office uses in Portslade will lead to a significant increase in vehicle trips on the network given the higher trip generating characteristics associated with office use, and the new residential development will add further trips.

5.42 The transport principles include:

- Improvements to North Street.
- Two principal access junctions at either end of North Street.
- Wider sustainable access improvements along B2184 Boundary and Station Road to strengthen the link between Portslade Station and the Harbour.

Aldrington Basin

- Maintain existing access arrangements and improve Wharf Road / A259 junction for all road users.
- Improvements to Basin Road North.
- Pedestrian-cycle route around the waterside and up to the A259.
- A scheme to improve the environment for vulnerable road users on Basin Road South and Wharf Road.
- Increasing pedestrian permeability with better access from the A259.

5.43 The transport strategies for the Western Arm and Aldrington Basin sites should all include an appropriate package of public transport, and off-site highway and sustainable improvements for the transport network to mitigate the impact of the development proposals. An indication of this is set out later in the section.

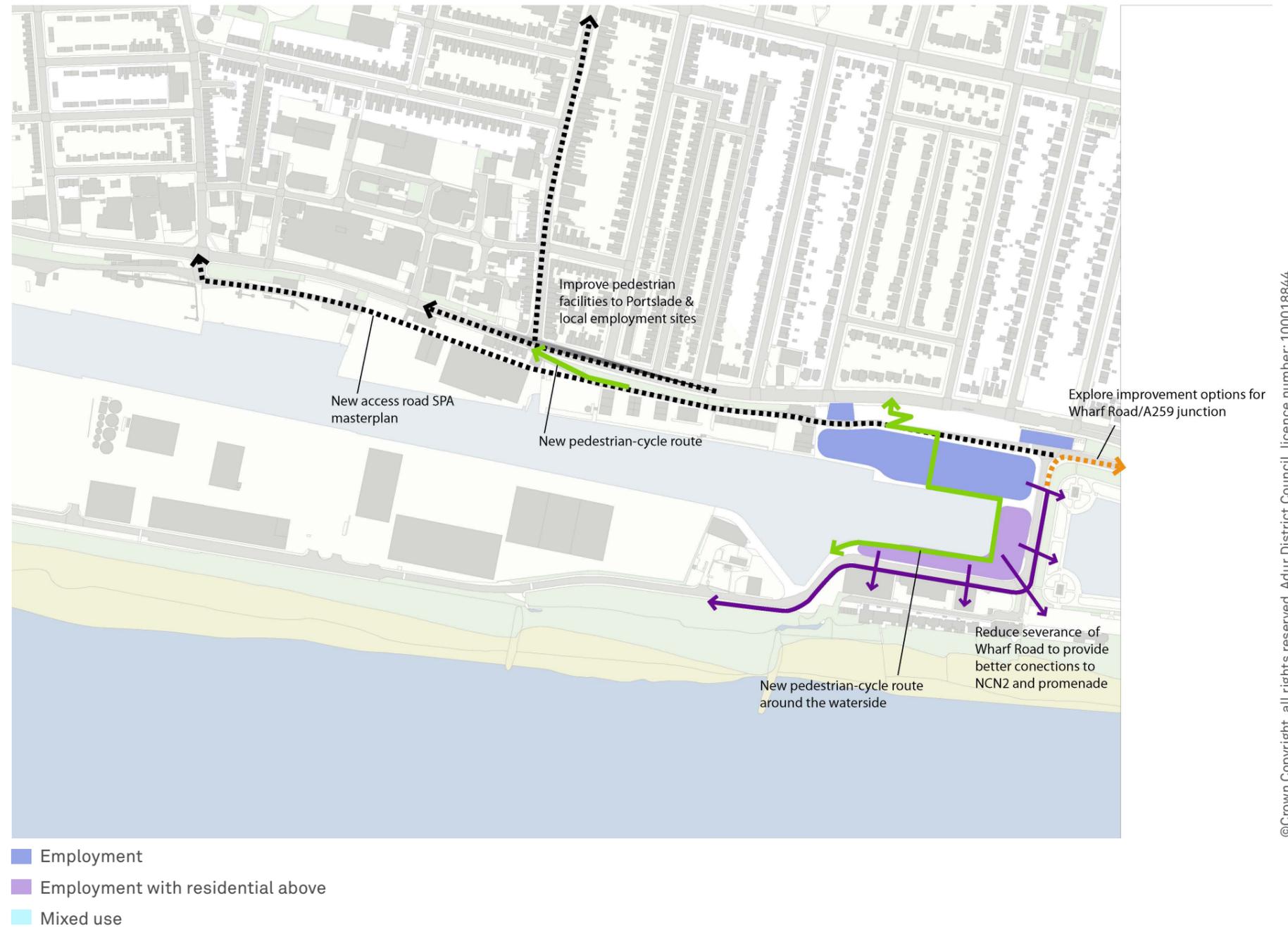


Figure 5.8: South Portslade and Aldrington Basin - Transport

Site Access Proposals – Transport Interventions and Indicative Costs

5.44 This section itemises an indicative schedule of transport interventions for the area and associated cost estimates. The schedules are not informed by any detailed testing and would require further consideration beyond this study.

Western Arm – Option 1 Realigned A259

- 1 x footbridge, 4m wide structure designed for use by both pedestrians and cyclists (mounted) similar to the proposals for the replacement Shoreham Footbridge
- 2 x 3-arm signal junction
- 1 x 4-arm signal junction refurbishment i.e. no road changes required
- 1 x 3-arm signal junction refurbishment i.e. no road changes required
- 2 x controlled crossing – single stage = approximately
- Realign section of A259, new urban road 7.3m carriageway – approximately £2,200 per linear metre at second quarter 2010 prices = 850m approximate distance of new road.

Western Arm – Option 2 Retained A259

- 1 x footbridge, 4m wide structure designed for use by both pedestrians and cyclists (mounted) similar to the proposals for the replacement Shoreham Footbridge
- 1 x 3-arm signal junction
- 1 x 4-arm signal junction refurbishment i.e. no road changes required
- 1 x 3-arm signal junction refurbishment i.e. no road changes required
- 4 x controlled crossing – single stage

South Portslade

- 1 x 4-arm signal junction at B2194 / North Street
- 1 x 3-arm signal junction at B2193 / North Street.

5.45 These are likely to be at the upper end of junction improvement schemes required, however this would allow for some improvements to North Street. Given the proximity of North Street to the A259 signal junctions, any change of junction control at the above locations would require detailed capacity to demonstrate that the proposals would not have a detrimental impact on the operation of the local highway network. This assessment would need to be undertaken as part of a separate study.

Aldrington Basin

- 1 x 4-arm signal junction refurbishment i.e. no road changes required
- 1 x controlled crossing – single stage = approximately

5.46 The level and effect of on-site transport infrastructure associated with future development / planning applications at Shoreham Harbour would need to be agreed with the Local Highway Authorities.

5.47 The Shoreham Port Masterplan (October 2010) proposes a new road on the north side of the Canal from the existing Wharf Road / Basin Road North mini roundabout, linking to the A259 at the Church Road junction. This new road would be two way, partly on an improved existing road until the incline to the A259 / Boundary Road junction. It would then be a new route through Ferry Wharf (Shoreham Port Authority owned) and the Baltic Wharf (owned by Travis Perkins).

5.48 The existing junction of Wharf Road / A259 would remain open with full turning movements possible – but the new Basin Road North would reduce the number of heavy goods vehicles using the junction, given the new road into the North Quayside area from the A259 / B2194 Church Road junction would be two way and provide an alternative route into the North Quayside area for heavy goods vehicles. The current one way vehicular outbound access from Basin Road North to the Boundary Road / A259 junction could become a two way route exclusively for cyclists and pedestrians, providing access to Aldrington Basin and North Quayside.

5.49 Based on this initial study, it is considered that the Aldrington Basin development is not reliant on the Shoreham Port Masterplan access proposals, and the existing access arrangements with improvements to the Wharf Road / A259 junction and on Basin Road North could serve some new development in the area. This position would need to be agreed with the Local Highway Authority. Also, this approach would not conflict with the Shoreham Port Masterplan access proposals. Both access junctions into Aldrington Basin are not ideal, and significant funding would be required to provide a favourable access solution, which is unlikely to come from the Aldrington Basin development proposals alone.

Off-Site Works

5.50 In November 2003, WSCC adopted Supplementary Planning Guidance (SPG) that set out parking standards for development in West Sussex. In September 2010, a new approach to parking in residential developments was adopted. Changes to the SPG which are affected by the September 2010 changes include revised guidance for parking in residential developments that are calculated on a site-specific basis using a Car Parking Demand Calculator, and a contributions methodology to be applied to commercial and residential development.

5.51 The Revised West Sussex County Council Parking Standards and Transport Contributions Methodology sets out a methodology which relates contributions to 'Total Access Demand' (TAD) to calculate transport contributions. TAD is based on the principle of securing improved accessibility by all modes and mitigating the impact of those accessing developments by car. The methodology considers the total number of people accessing a site and the number of those accessing a site provided with a parking space.

5.52 This approach has been applied to this study to cover the proposals relating to commercial uses (B1, B2 and B8) and residential development, to provide an indication of the appropriate sustainable access (public transport, walking and cycling) and infrastructure (off-site road improvements) contributions required for each option. It should be noted that WSCC is not the Highway Authority for the whole study area, as the South Portslade and Aldrington Basin areas are in Hove and will be subject to refer to the relevant Brighton & Hove City Council policies, but the contributions methodology has been applied across all development to provide an illustration of the scale of potential overall requirement.

5.53 The total potential TAD contributions associated with the four development scenarios is summarised in Table 5.7 and the full TAD methodology approach is set out in Appendix 2 of this report.

5.54 It should be noted that this contribution has not been included within the viability assessment, as such the viability assessment excludes off site transport contributions. The level of transport contributions associated with future development / planning applications at Shoreham Harbour and the application of the TAD contribution methodology would need to be agreed with the Planning and Highway Authorities.

Option	Commercial Contribution (£)	Residential Contribution (£)	Total Contribution (£)
Option 1 – Eco-town	1,052,796	1,400,097	2,452,893
Option 1 – Quantum	658,325	1,954,141	2,612,466
Option 2 – Eco-town	1,278,977	1,143,981	2,422,958
Option 2 – Quantum	992,758	1,612,108	2,604,866

Table 5.8: Total Sustainable Access and Infrastructure TAD Contributions

5.55 Preliminary consideration has been given to appropriate transport contributions towards off-site transport improvements in accordance with relevant guidance. Further consideration will be needed to refine the level of contributions, and to address any apparent disparities in funding / viability issues that will be prohibitive to development. This will involve factoring in site specific factors like:

- The strong potential for residents to live and work on-site;
- The good existing accessibility to public transport, with the 700 bus route providing a 10-12 minute peak hour frequency between Brighton and Portsmouth along the A259, and four train stations all within easy walking distance of the three development areas with services to Worthing, Hove, Brighton and London.

Car Parking

Brighton & Hove City Council (BHCC) Parking Standards

5.56 BHCC parking standards are set out in the Supplementary Planning Document 4 – Parking Standards (adopted 1997 and reconfirmed in September 2000) and this represents the maximum levels of parking provision at the South Portslade and Aldrington Basin sites that would be permissible. The assumed standards are as follows:

- B1 office – 1 space per 30sq.m floor area.
- B1 industry – 1 space per 50sq.m floor area.
- B2 industrial – 1 space per 50sq.m floor area.
- B8 warehousing – 1 space per 50sq.m floor area.
- Houses / Flats – 1.5 spaces per dwelling.

Based on the commercial land breakdown set out earlier in this report, the parking standards have been applied based on the following mix of B1 at the two sites:

- 50% B1 office.
- 50% B1 Industry.

West Sussex County Council Car Parking

5.57 AECOM have used the WSCC residential parking demand calculator to provide an indication of spatial implications associated with car parking on the Western Arm site, and WSCC's parking standards for commercial uses that were adopted in November 2003. WSCC do not have parking standards for residential uses and the parking demand calculator is there as a tool for developers to test likely parking demand.

5.58 Given the eco-town drivers associated with the regeneration of Shoreham Harbour in terms of transport and priority for sustainable modes, the assumed allocation of 1 space per flat and 2 spaces per house is considered a robust resident provision.

5.59 Based on the residential composition set out earlier in this report, the parking demand calculator has been applied using the following mix:

- 10% 1 bed flat
- 45% 2 bed flat
- 25% 3 bed flat
- 5% 3 bed house
- 15% 4 bed house

5.60 Based on the above assumed parking allocation and the calculated unallocated visitor parking demand of approximately 0.2 spaces per dwelling this equates to the following parking ratios per dwelling type:

- 1 bed flat – 1.20 spaces per flat.
- 2 bed flat – 1.20 spaces per flat.
- 3 bed flat – 1.20 spaces per flat.
- 3 bed house – 2.20 spaces per house.
- 4 bed house – 2.20 spaces per house.

5.61 In terms of commercial uses, car parking should aim for WSCC's maximum standards as follows:

- B1 office – 1 space per 30sq.m floor area.
- B2 industrial – 1 space per 40sq.m floor area.
- B8 warehousing – 1 space per 100sq.m floor area.

Car Parking Capacity Assessment

5.62 The car parking demand for the Western Arm, South Portslade and Aldrington Basin have been assessed against the available capacity at each site. An area of 25sq.m per ground floor parking space has been assumed.

5.63 On the Western Arm (south of the A25) and Aldrington Basin, parking is assumed to be undercroft within development parcels. At South Portslade and the Western Arm (north of the A259) capacity is assumed to be for surface parking.

5.64 A summary of the car parking capacity assessment associated with the four development scenarios is provided in Table 5.9 and the full assessment is set out in Appendix 3 of this report.

5.65 As can be seen from the above table, initial testing of the four options has shown that the spatial implications associated with providing car parking in accordance with standards is not feasible.

5.66 The capacity shortfall is particularly evident in the eco-town options where the level of additional commercial floor space (B1) required to meet the 1 additional job per home creates significant demand for parking.

Area	Car Parking Requirement	Car Parking Capacity	Difference
Eco-town – Realigned A259			
Western Arm	3,148	1,956	-1,193
South Portslade	1,305	307	-997
Aldrington Basin	828	292	-536
Total			-2,726
Quantum – Realigned A259			
Western Arm	2,995	2,219	-776
South Portslade	1,500	307	-1,193
Aldrington Basin	952	335	-617
Total			-2,586
Eco-town – Retained A259			
Western Arm	2,763	1,956	-807
South Portslade	1,305	307	-997
Aldrington Basin	828	292	-536
Total			-2,340
Quantum – Retained A259			
Western Arm	2,638	2,219	-419
South Portslade	1,500	307	-1,193
Aldrington Basin	952	335	-617
Total			-2,229

Table 5.9: Car Parking Requirements and Capacity

5.67 Furthermore, the BHCC employment Core Strategy policy requiring the replacement of employment space creates problems if this space is converted from B2/B8 to B1 as the parking requirement for what is essentially the same size site, increases significantly. The site where the parking shortfall is greatest is South Portslade (but also at Aldrington Basin), which is due to the quantity of B1 space proposed. A reduction in B1 floorspace on this site would allow for both increased levels of parking and a reduced requirement, but would not conform to BHCC employment land use policies. There is clearly a tension here between policies that will need to be resolved to allow development on these sites in the format tested. The provision of employment space without levels of parking required by B1 occupiers would reduce the attractiveness of the space to the market.

5.68 The Western Arm parking shortfall is less in the quantum options due to the reduced B1 provision compared to the eco-town options. It is likely that the outstanding amount could be met through surface parking.

5.69 The policy approach set out in the BHCC’s Core Strategy policy DA7 part A.5 calls for innovative measures to increase use of non car modes of transport. Further work with stakeholders through a masterplanning process should look to agree how interventions could reduce parking requirements across the study area.

Cycle Parking

5.70 Detailed design would need to consider appropriate levels of cycle parking. All cycle parking should be sheltered and secure and in accordance with local guidance or best practice design, with flexibility and innovation encouraged. Cycle parking will need to be considered carefully within the design of new development. WSCC and BHCC cycle parking standards are provided in ‘SPG Revised County Parking Standards and Transport Contributions Methodology, September 2010’, and ‘SPG4 Parking Standards, September 2000’ respectively.

Adur Core Strategy & Shoreham Harbour Transport Study

5.71 The Stage 1 Report details the findings of the modelling work undertaken on behalf of ADC for proposed Local Development Framework (LDF) and Shoreham Harbour development scenarios.

5.72 The findings of the study indicate that the best performing scenario in relation to Shoreham Harbour was the 2026 test which included 2,000 houses and 1,800 jobs in the area. This had the lowest trip generation and the impacts of the proposals are potentially supportable

by the road network with the junction mitigation measures tested generally alleviating the impacts of development scenarios on selected junctions.

5.73 The junction mitigation measures have been proposed in relation to Adur Core Strategy housing / employment sites along with Shoreham Harbour Regeneration, and the cost of junction improvements to be apportioned to Shoreham Harbour are likely to include, but are not limited to:

- North Lancing Roundabout (A27 / A2025).
- A27 / A2038 Hove Dumbbell junction.
- A259 / A2025 South Street junction.
- A259 / A283 Shoreham High Street / Old Shoreham Road / Norfolk Bridge roundabout. It should be noted that effective physical improvements to this junction are unlikely to be possible within the existing highway land due to the tight physical constraints of the buildings around the junction, and initial testing of improvement options indicate that traffic signals is likely to be a less efficient scheme in terms of capacity and bus passage at the junction. Given these constraints, it is considered that transport mitigation strategies should concentrate on how to minimise vehicle demand through this junction.

5.74 To date the transport study has taken the housing and employment distribution from the Tibbalds report ‘Shoreham Harbour JAAP Urban Design Study’ April 2009, and this is at variance with the options proposed by AECOM, with a much greater proportion of housing and employment in Shoreham. The levels of employment proposed (ranging between 2474 and 3,286) are higher than the 1,800 jobs tested in the transport study, and these differences are gaps in the Core Strategy transport evidence base. It is considered that further transport modelling work will need to be undertaken post the AECOM study to capture these issues, when the Shoreham Harbour proposals have been better defined. The employment and housing options will have different impacts on the transport network given the variations in development distribution and quantum, and therefore new junctions may require mitigation and the current improvement measures proposed will also need to be reviewed.

5.75 Off-site transport priorities for the sustainable access TAD contributions will need to be agreed with the Local Highway Authority so the impacts of these improvements can be incorporated into the modelling and tested and the on-site transport intervention options will need to be considered further at the end of the project.

ENERGY, WATER AND GREEN SPACE

Energy

5.76 The Eco-Towns PPS sets out a requirement for zero-carbon development, defined as ‘over a year, net carbon dioxide emissions from all energy use within the buildings on the eco-town development as a whole, are zero or below’.

5.77 The Eco-Town standards do not require zero carbon to be delivered within the site bounds, but contributing renewable and low carbon development should at least be ‘near-site’ and ‘directly delivered by the development’. Hence, renewable energy opportunities in the Port area or in other locations nearby could be driven and funded by the developments in Shoreham Harbour, crediting the development as zero-carbon.

5.78 Carbon reduction and the use of zero and low carbon technologies are encouraged through the policy context at both a local and national level. The government currently proposes to make incremental change to Building Regulations, increasing carbon reduction requirements towards a zero carbon standard by 2016. These proposals are still subject to consultation and viability analysis. It is not expected that all carbon reductions will be achieved on-site under Building Regulations, but instead that a certain level of carbon reduction will need to be achieved through energy efficiency measures and on-site low carbon technologies. The remainder of the carbon reduction will be off-set elsewhere, using contributions from developers called ‘allowable solutions’. The diagram below demonstrates the zero carbon concept for Building Regulations currently proposed by the Government.

5.79 In 2013, Building Regulations are expected to change to require a 44% reduction in carbon emissions in new development (compared to a 2006 Building Regulation baseline). This carbon reduction is equivalent to the carbon reduction required under Code for Sustainable Homes Level 4. For the purposes of this study, we have assumed that the proposed 2013 Building Regulations come into place before Shoreham Harbour is developed. However, we have not accounted for the proposed 2016 Building Regulations changes which would require ‘zero carbon’ as proposals concerning the feasibility and costs are not yet clear and exact requirements have not been defined by Government.

5.80 The quantum option has been tested assuming the equivalent 2013 Building Regulations (Code Level 4 equivalent), while the eco option includes costs relating to the achievement of ‘zero carbon’ as defined by the Eco-Towns PPS.

5.81 From the baseline analysis, several options have been identified for on-site or near-site use of low or zero carbon technologies:

- Combined Heat and Power Plants feeding a District Heating network
- Biomass Boilers feeding a District Heating network
- Medium to Large Scale Wind Turbines (at Port)
- Bio-Electricity Plant (proposed at Port)

On-site micro-generation

5.82 Utilising our AECOM model of the carbon reductions achievable with various technology combinations due to the site density, size and constraints, we have analysed the costs associated with each low carbon technology / energy efficiency strategy combination. These costs are sourced by direct quotes from providers across the country, and from industry experience. The costs are not specific quotes for the Shoreham Harbour site but they do provide a clear indication of the likely scale of cost expected, and the likely strategy a developer would prefer to deliver the carbon reductions required.

5.83 The relative carbon reductions and an estimate of the capital cost associated with those reductions are shown for each of the site areas in the graphs on the following pages.

Government approach to zero carbon new developments

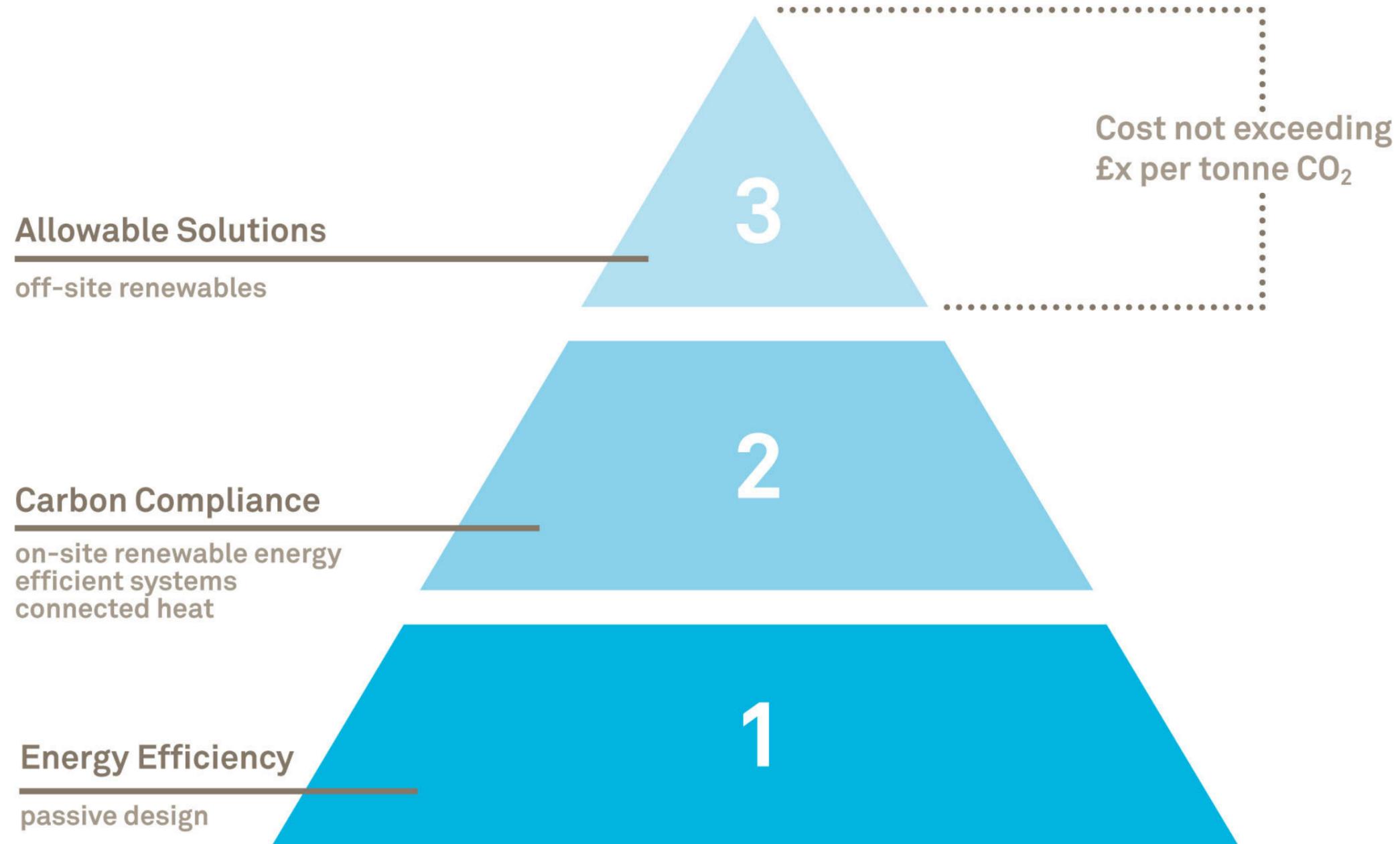


Figure 5.9: Carbon reduction approach for new developments

Construction Cost Uplift

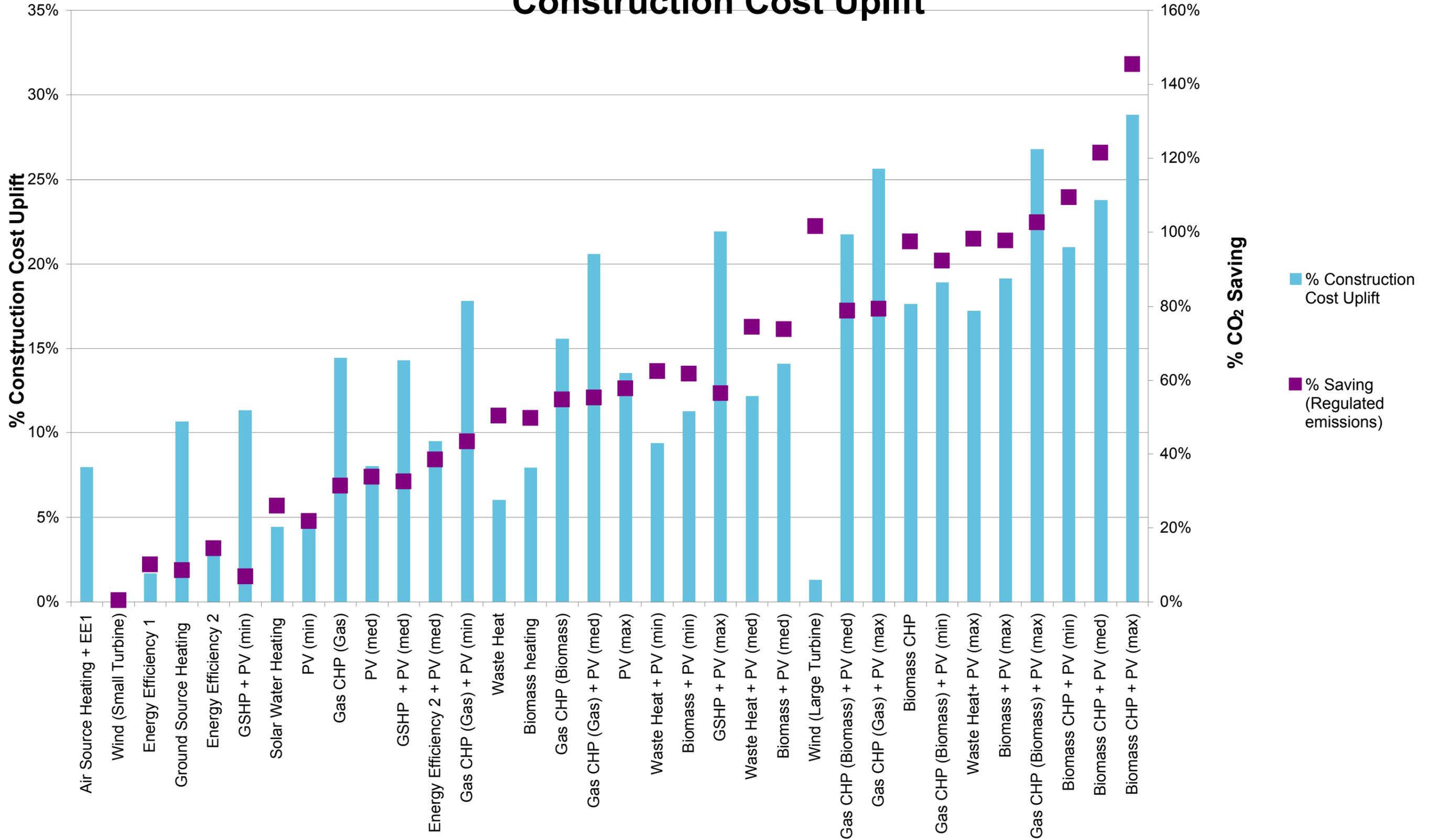


Figure 5.10: Comparison of low carbon energy technologies and relative cost uplift for Western Arm
Source: AECOM 2010

Construction Cost Uplift

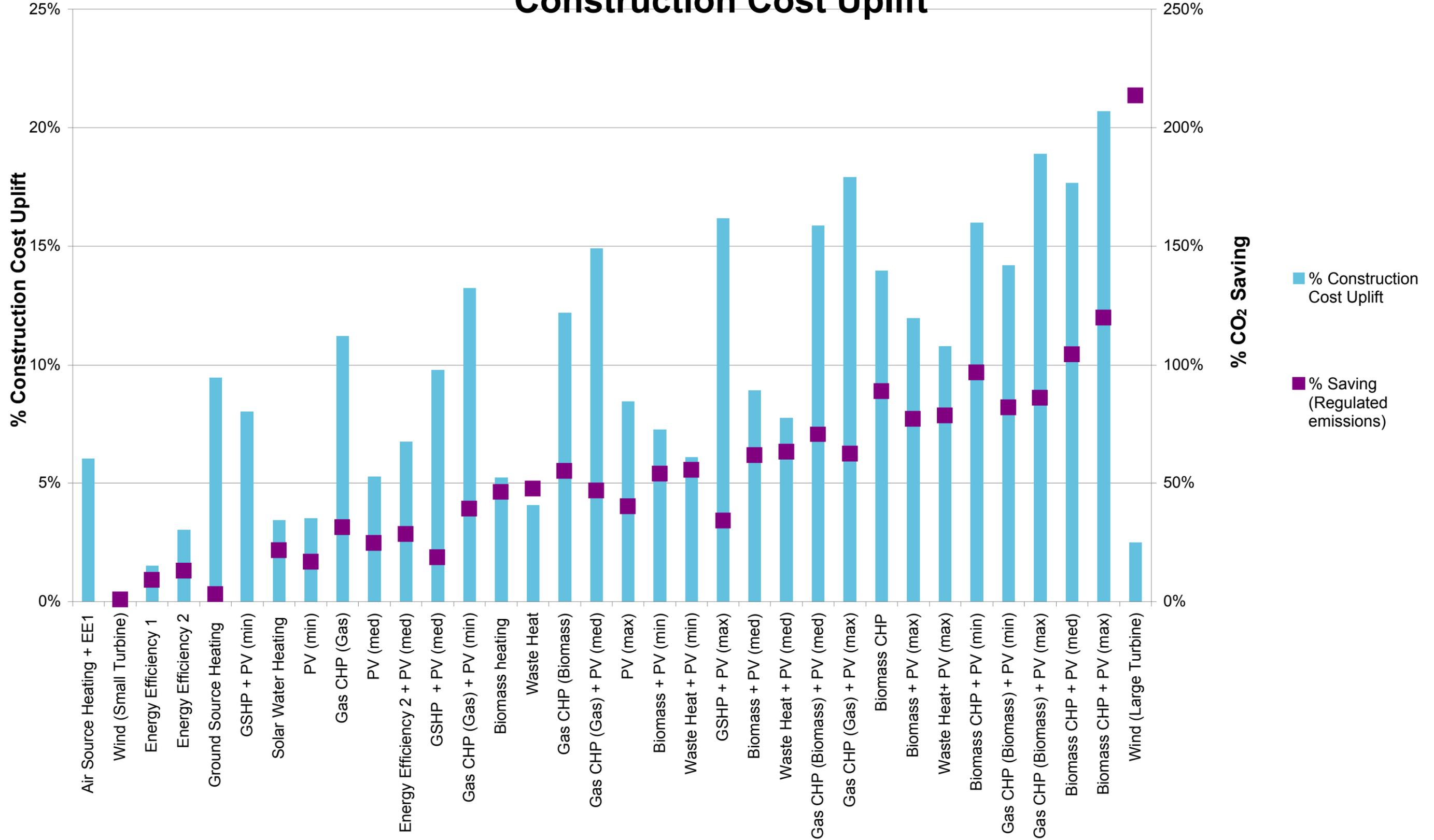


Figure 5.12: Comparison of low carbon energy technologies and relative cost uplift for South Portslade
 Source: AECOM 2010

Construction Cost Uplift

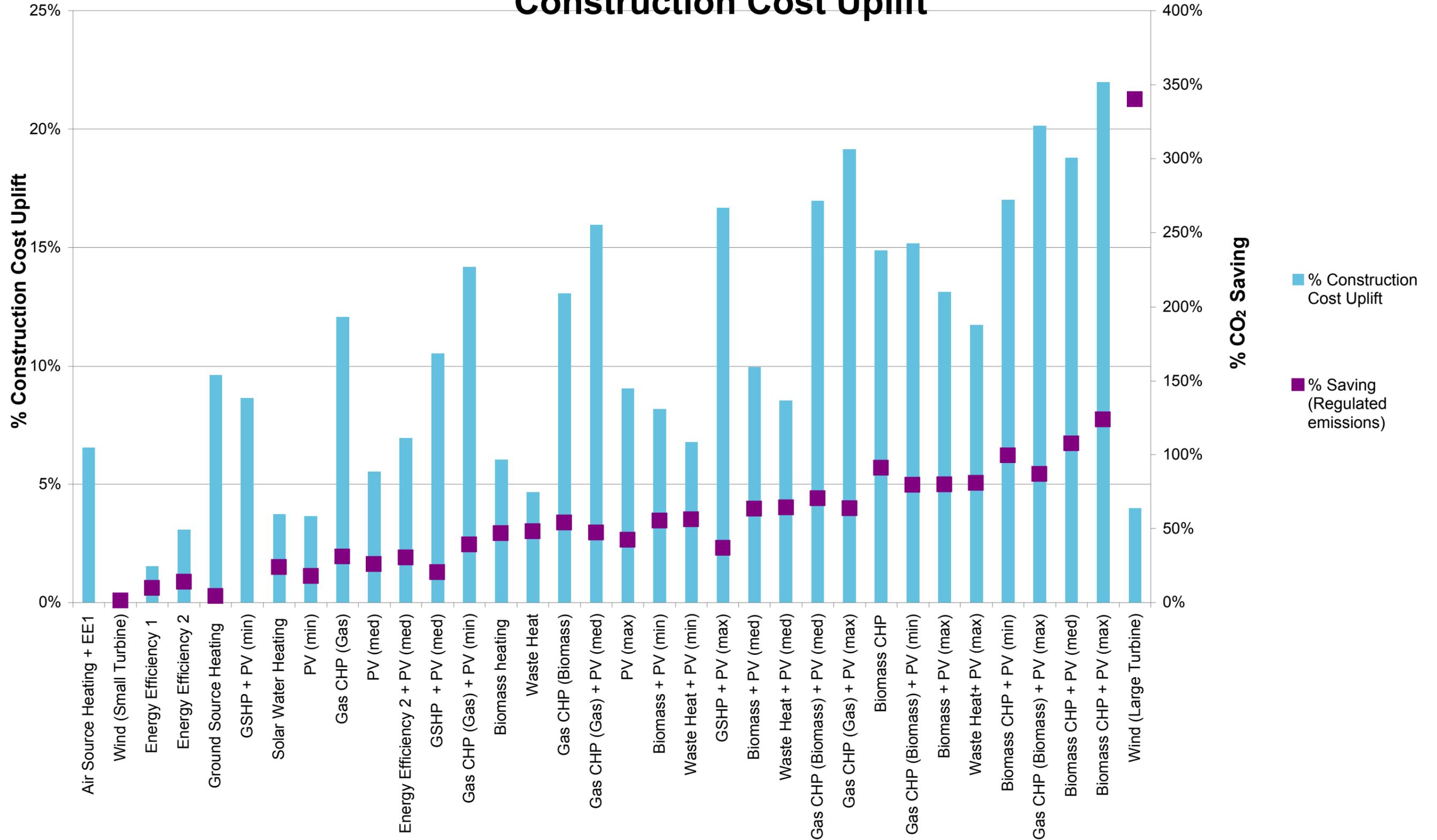


Figure 5.11: Comparison of low carbon energy technologies and relative cost uplift for Aldrington Basin
Source: AECOM 2010



5.84 Based on the analysis, it is assumed that all areas would choose to include solar water heating and basic energy efficiency measures to achieve the 44% carbon reduction required by the proposed 2013 Building Regulations (or Code Level 4).

5.85 To reach ‘zero carbon’ within the eco option we have tested two possible strategies:

- The deployment of large scale wind turbines in the port area or another nearby area.
- The inclusion of a CHP network in the new developments, fuelled by biomass, with some photovoltaics to reach the required carbon reductions.

5.86 As shown by the graphs above, the wind turbines present a very cost effective option in terms of the carbon reductions offered. Two large scale wind turbines would be needed to achieve zero carbon across the whole Shoreham Harbour development tested. However, the inclusion of large scale wind may not be feasible, and would depend on analysis regarding ecological impact, noise issues and airport radar interference. There would also be political and local resident sensitivities to such proposals. Alternatively, biomass CHP systems could be included in the developments. These have a comparably high capital cost, though it may be able to deliver a 20-25% reduction on these costs through involvement of an Energy Services Company (ESCO) who will then manage the plant and sell energy to customers on-site. Currently, based on experience and general conversations with ESCOs it is most likely that an ESCo would be interested in building and operating a CHP system on a larger mixed use site of the scale of the Western Arm out of any developments in the area. The phasing of development will need to be carefully planned alongside the energy strategy to ensure communal energy infrastructure is deliverable. For the purposes of this analysis, we have allowed for the inclusion of an interim energy centre (160m2 footprint) in the first phase of development in the Western Arm, and a full energy centre (500m2 footprint) to be built in subsequent stages to feed the entire development and link to the town centre as far as possible to balance energy loads.

5.87 The cost assumptions for wind development and biomass-fuelled CHP have been drawn from industry quotes and from ‘The Code for Sustainable Homes Cost Review 2010’ (DCLG). The additional cost associated with reaching zero carbon has been added to the eco option, assuming that the quantum option delivers a Building Regulation and Code Level 4 compliant energy solution (cost based on energy efficiency measures and installation of solar water heating in this analysis).

Water

5.88 Eco-town standards require that significant reductions are made in water use. In water scarce areas, such as Adur and Brighton, developments should seek to reach water neutrality. Water neutrality requires that no additional demands are placed on water supply. This can be achieved by firstly ensuring that new development is water efficient, and then achieving other water reductions in existing areas through retrofitting and water management measures.

5.89 For the quantum option, we have assumed the only water efficiency measures delivered are those required to meet a water use target of 105 litres/person/day as required to meet Code Level 4 standard. For the eco option, we have tested three options that work towards or achieve water neutrality:

5.90 Retrofit focus: Assuming that the entire water demand of the Code Level 4 development (105l/p/d) would be ‘offset’ through retrofit of other homes in the Shoreham area, replacing fixtures and fittings at a cost of £232 to achieve a reduction equivalent to 39 litres/person/day. Costs assume replacement of basic water fixtures and fittings and are drawn from the ‘Towards Water Neutrality in the Thames Gateway’ study by the Environment Agency. For each new home built, this option would require 3-8 homes to be retrofitted depending on the savings incurred in each home. This option would achieve water neutrality.

5.91 Water recycling: This option looks at the inclusion of more progressive water efficient measures within the new development, through the deployment of communal greywater or rainwater recycling on-site. While this can be a costly measure in individual buildings, the apartments and higher density development suitable in the Shoreham Harbour area could support communal water recycling. Costs for a communal system are based on the ‘Towards Water Neutrality in the Thames Gateway’ study by the Environment Agency. A communal system is assumed to cost £680 per household, and will reduce potable water demand beyond Code Level 5/6 water levels to an estimated 62l/p/day. This option would not achieve water neutrality but would substantially reduce potable water use of new development (50% compared to standard build) and would deliver progressive water management systems, demonstrating innovation.

5.92 Water recycling + top-up retrofit: The third option combines the two above, implementing water recycling systems, and also retrofitting a lesser amount of existing homes to reach water neutrality overall. This option would meet water neutrality.

5.93 The cost implications of option a) and b) are similar, while option c) is approximately 40% more due to the combination of approaches. When considering whether to implement retrofitting of existing homes or water recycling in new development, there are several advantages and disadvantages to consider, as shown in the table below.

	Retrofit Approach	Water Recycling Approach
Advantages	Benefits existing areas and could bring together Shoreham as one eco-area Achieves water neutrality	Advances new technologies in new development. Could have an educational / demonstrational benefit
Disadvantages	Difficult to deliver Can't ensure water savings (as owners may choose to re-replace fixtures)	Public health concerns surrounding potential mis-management of recycled water. Need to actively operate and control water recycling systems locally, and a management body would need to be identified.

Table 5.10: Advantages and disadvantages of sustainability approaches

Green Space Standards

5.94 Eco-town standards require that 40% green space is achieved on-site, to provide for recreation needs, embed ecological value and help to instil natural systems in urban areas which can assist in alleviating the effects of climate change. A split of 20% public green space and 20% private green space is allowed. Shoreham Harbour is a very constrained urban site, and hence we have assumed it will be difficult to deliver a viable development with 40% of the developable area used as ground-level green space. The density of development suitable for the area is unlikely to include large private gardens. Instead we have tested two options:

- The quantum option assumes that 10% of the developable area is used as ground-level green space. This is comparable with current ‘business as usual’ development.
- The eco option assumes 25% of the developable area is used as ground-level green space, and the equivalent of 15% of the developed area is included with green roofs or roof gardens, providing private green space for residents.

5.95 The ground-level green spaces delivered in the development should be strategically placed to link green corridors and to provide adaptable space that can be utilised for flood storage and sustainable drainage systems.

5.96 The differences for ground-level green space have been accounted for in the development projections for the quantum and eco options. In addition, the eco option includes costs associated with the delivery of 7,219m² of green roofs. These costs are based on a cost of £140/m² based on the guidance supplied in ‘Living Roofs and Walls, Design for London 2008’.

5.97 As demonstrated above, there is some variability associated with the costs of sustainability initiatives depending on what types of solution are deliverable. Local partners and physical conditions will determine which options are possible. The graph below demonstrates the difference in costs for a ‘low cost eco’ and a ‘high eco’ scenario. The table summarises the assumed green roof, energy and water strategies for the low and high cost eco options.

Quantum option	Eco option
Code for Sustainable Homes Level 4 No sustainability standard applied to non-residential buildings 10% green space at ground level	Code for Sustainable Homes Level 4 Zero Carbon achieved across the entire site (including residential and non-residential new development) Water neutrality or significant advances in water recycling 40% green space (made up of 25% green space at ground level and 15% as roof gardens/green roofs)

Table 5.11: Summary of Energy, Water and Green Space assumptions

Lower Cost Eco Options	Higher Cost Eco Options
Green roofs included to reach 40% open space* Two large wind turbines delivered at the port Existing homes retrofitted to reduce water use in the area	Green roofs included to reach 40% open space* Biomass CHP installed in western arm, and one large wind turbine is delivered at the port Communal water recycling in new development and retrofitting of some existing homes

Table 5.12: Sustainability features included in cost estimates
* Green roofs are included in both cost options as they are deemed fundamental to reach 40% open space.

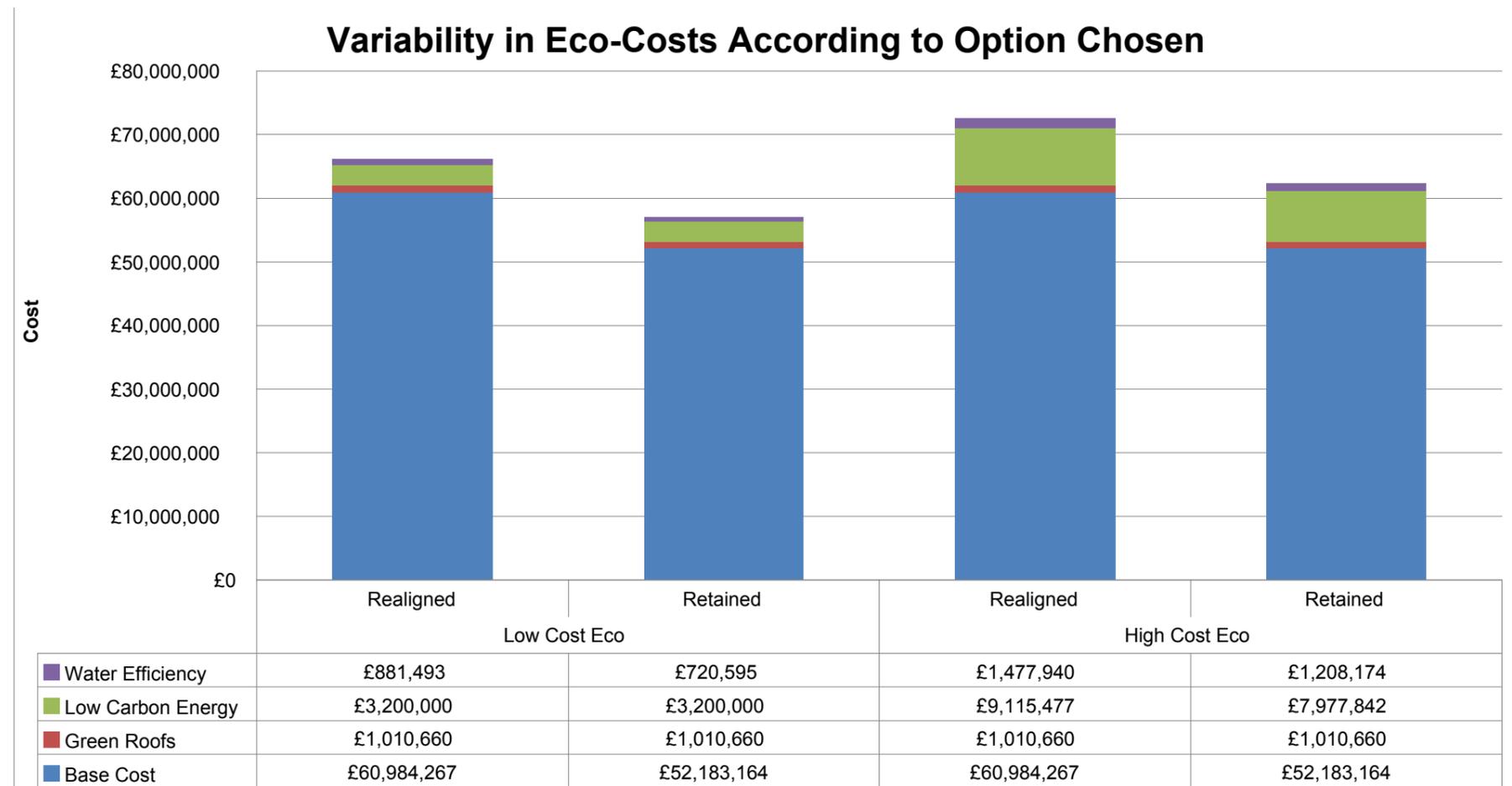


Figure 5.13: Variability in Eco-costs according to option chosen

SOCIAL INFRASTRUCTURE

5.98 Housing growth and regeneration within the study area will place significant pressure on existing infrastructure in terms of social and community resources. It will also provide important opportunities to provide additional facilities or replace current facilities where necessary. One way of ensuring that development delivers a healthy and sustainable community is to make sure that the right level and type of social infrastructure is planned and any existing deficits are addressed where possible. AECOM has assessed the potential future demand for local infrastructure in the study area based on an assumption of 1,800 – 2,000 homes.

Education

5.99 Early years facilities are generally provided locally and are an important part of a sustainable community. Based on an AECOM assumption that 10% of 3-4 year old children will not require an Early Years place, it is predicted that there will be demand for 2 facilities. These could be spread across the development area, with one sited in the Western Arm and the other at Aldrington Basin.

5.100 WSCC Education Department has given an initial view that they may seek to secure a site suitable for a 1 or 2 Form of Entry (FE) Primary School as part of regeneration of this scale. However, a full review of school places in the locality would be undertaken as the development progresses and other options would also be considered. One of these options may be to extend an existing school close to the development area.

5.101 WSCC has also indicated that they would seek financial contributions towards additional secondary and Post 16 places as they are predicted to have some level of shortfall based on the original AECOM housing projections.

Healthcare

5.102 Healthcare facilities can play a central role in creating social and economic regeneration – building healthy cohesive communities of the future and linking existing residents with new arrivals. It is the responsibility of local authorities to ensure that adequate land is safeguarded for the provision of health and social care with the local healthcare authorities and Primary Care Trusts (PCTs) being responsible for bringing these sites into active use.

5.103 Nationally the delivery of NHS care is shifting towards a more personalised, easy to access and community based approach which makes use of wider resources within the community. The exact demand for healthcare facilities will vary according to a range of local factors, including the age and overall health of the local population. However, it is possible to use national averages to estimate the potential demand for healthcare facilities associated with a given level of housing growth. On this basis we have assumed 1,800 people per new GP. Based on this approach and the quantum of development proposed in this study, it is recommended that space is provided for a new combined GP and dental surgery with capacity for 2 GPs and up to 2 dentists.

Other community facilities

5.104 The need to ensure that development promotes community cohesion and safe neighbourhoods is a central consideration. To contribute towards this it is recommended that 1 Safer Neighbourhood Team is created to cover the new development area.

5.105 A key part of any significant development should be the provision of sustainable, quality community facilities. A new small local community facility (250sq.m – 275sq.m) is recommended, which should encourage a sense of local identity and participation in community life. Community facilities can include a wide range of facilities and spaces which the public can use including youth facilities, adult learning, performance and creative spaces. Given the skills shortage across the Fishersgate and Portslade area, development could be well placed in this area even if it is not the area of highest housing growth.

Skills centre

5.106 Discussions with the steering group have highlighted the need to address skills and training, especially in the South Portslade and Fishersgate neighbourhoods. Initial work through the capacity study has failed to identify a suitable site that could come forward quickly within the study area. The employment-led mixed use development at South Portslade could be a good location, but is unlikely to come forward in the short to medium term. Discussions with providers, including the University of Brighton, the University of Sussex, Portslade Community College and Northbrook College will need to continue to understand the nature of the need whether it can best be served through a facility within the area.

Social infrastructure requirements
2 Early Years Facilities (26 places)
1 FE expansion to an existing primary school
2GP and 1-2 dentist facility (extension of existing)
New small community centre (250 – 275 sq.m)

Table 5.13: Summary of infrastructure recommendations

FLOODING

5.107 In considering development opportunities, the Environment Agency will expect the sequential test to be adhered to. The implications of this would be that areas of lower risk would need to be considered for development before higher risk areas. The EA would need to be satisfied that there are no reasonably available sites in areas with a lower probability of flooding appropriate to the type of development or land use proposed. The proposed new employment uses on existing employment land may not need flood defence measures as they are deemed a less vulnerable use, however, as the employment density is increasing this will need further consideration. Moreover, without detailed design it is not yet clear if any area within Flood Zone 3 will be solely for employment use. A sequential approach would need to be undertaken assessing housing land availability within ADC and BHCC boundaries. This capacity and viability study is based on the premise that there is an undersupply of housing land across the authorities over the respective Core Strategy plan periods and that therefore development in Flood Zone 3a will be possible, providing adequate flood defences are in place. The work currently underway to update the SHLAA in BHCC and to develop a locally based assessment of housing need for ADC should further inform work in this area. If development does take place in Flood Zone 3a, the development will require a Flood Defence Consent.

5.108 Adur District Council and the Environment Agency has commissioned JBA to undertake a Design and Flood Risk study to model flooding across the draft JAAP area. This study will conclude in January 2011. Whilst the modelling is based on erecting new flood walls, it will also effectively represent a situation in which the same Standards of Protection are achieved using ground raising. However, this work will not provide an understanding on the most integrated design solutions for flood defences, nor associated costs, except for the coastal frontage. This will need to be part of the next stage of work. As such, assumptions have been made, based on conversations with the Flood Risk sub group and JBA consultants and a review of previous cost assumptions for Shoreham Harbour for SEEDA (2008).

5.109 It is assumed that a case can be made to reassess areas of flood risk currently indicated to be Flood Zone 3b for the appropriateness of the designation 'functional floodplain', to enable better decisions for local flood risk management and regeneration to be made. Without knowledge of the most appropriate design solutions the development parcels allow for space to bring forward a range of flood defence measures. To this end, a 9.5m set back along the edge of proposed development sites is assumed (this should allow for a wall, access to the wall and 2.5 metres landscape strip for SUDs and open space and access maintenance to the wall. It also allows flexibility for terracing or 'bunding' as design solutions during the masterplanning phase of the work. While a 9.5m buffer has been agreed with the client group, as a working assumption for this capacity study, it should be noted that the EA, under their flood defence byelaws, have powers to control anything within 15m landward of the tidal defences. Further detailed design work will need to be undertaken to ascertain the most appropriate type of defence for each area of the harbour. This work should inform the next stage of the wider scheme design.

5.110 To provide a cost assumption, flood defence to the water frontage consist of 15m deep steel sheet piling and 400mm thick x 2m high concrete wall. At the Western Gateway this includes 4 lengths between the waterfront and the A259 to allow for incremental development over three phases. Without more detailed work, no reliance can be made on the existing flood defences and therefore all new flood defences will be required to the full frontage. Due to the nature of the flood defences costed, no land raising has been included in the cost assumptions for this capacity study. Our costs also exclude other potential design solutions at this stage. All these solutions will need to be considered as part of any masterplanning that may take place on this site. The design of flood defences will be important to ensure they contribute to a positive sense of place.

5.111 The capacity study assumes no ground floor residential development in either the Western Arm or Aldrington Basin (which include areas in Flood Zone 3). In these areas residential development will be a full storey above ground floor level to allow commercial or car park uses to be constructed. It is assumed that alternative access north can be achieved from residential development.

LAND CONTAMINATION

5.112 The allowances made for contamination are based on the details in the WSP report ‘Desk Study Review’ (March 2009). The study assumes that no encapsulation of the sites will be required albeit it is recognised that there is therefore a risk of migration of the contamination. It also assumes that there will not be a removal of all contaminated material from the sites and instead the extent of removal will be minimised through the use of separation layers across the sites. It also assumes that only 50% of any excavated material will be removed from site and of this only 50% will be classed as hazardous.

5.113 To inform the cost work, sites have been separated between ‘Contaminated’ and ‘Non Contaminated’ areas. This is based on the details in WSP’s report which states that the Western Arm and Aldrington Basin sites have a “high potential/risk of contamination” whereas the Portslade sites (e.g. Wellington Road as Section 2.4 of their report) should not need any remediation for continued commercial/industrial land use. It is noted though that there are residential uses proposed for the Portslade site, but for the purpose of the cost estimate it is assumed that no remediation will be required.

5.114 The WSP report notes that there are significant risks of pollutant linkages that have been identified across the site. Furthermore, that with the limited intrusive information available, it recommends that an exploratory intrusive investigation is recommended and that this is phased. This phased approach follows current guidelines and is recommended to limit and spread costs. The future remediation strategy for Shoreham Harbour will be determined by the results from the intrusive investigation.

UTILITIES

- 5.115 AECOM has been liaising with utilities providers to:
- Determine availability of supply to meet the total and phased demand of the developments
 - Establish spare capacities within the respective networks for potential early phase supply without the need to reinforce or divert existing services
 - Determine potential connection points
 - Establish locations routes and capacities of existing services within close proximity of the sites
 - Identify easements and other service constraints
 - Identify requirements for on and off-site infrastructure necessary to support the development of the sites, delivery programme for planned improvements and indicative capital costs

Load Assessment Criteria

5.116 Table 5.14 identifies the standard gas, electric and potable water usage rates used in our assessment of potential load on the networks.

Development Type	Average Provision Standard		
	Gas	Electricity	Water
Residential	0.81 m3 per hour per dwelling	1.6 kVA per dwelling	148 l/day per resident
Commercial: Offices	0.001 m3 per hour per sq.m	0.08 kVA per sq.m	74 l/day per employee
Commercial: Industrial & Warehousing	0.05 m3 per hour per sq.m	0.04 kVA per sq.m	
Commercial: Retail & Leisure	0.01 m3 per hour per sq.m	0.12 kVA per Sq.m	

Table 5.14: Utility Provision Standards

Gas and Electricity

5.117 It should be noted that the assessment for gas and electric, presented in terms of cubic metres (m3) of gas and kilovolt-amperes (kVA) of electricity, relates to the potential capacity of the network at any one time and is relevant to the consideration of the impacts of new dwellings and commercial activities on local networks.

5.118 The assessment for residential units utilises a simple approach which generally only distinguishes between electrically heated units and non-electrically heated units. Commercial units are broadly broken down into floor space and general use type. For gas, there is a difference in approach although the systems are broadly similar. For residential gas computations, the energy will broadly be designed on a consumption rate of 1m3 of gas per dwelling. Commercial requirements vary greatly as the application of energy is so diverse. For example an office facility, if using gas as opposed to air conditioning, will have a completely different footprint to that, say, of a swimming pool whilst the floor area may well be identical.

5.119 A series of caveats should be noted with regard to these standards:

- Outturn figures will be only broadly indicative of engineering requirements as, until a formal design is completed against a set of network criteria, the utility system, given its dynamic nature, is always subject to change and re-configuration.
- There are generalisations within use classes – for example an office will attract an energy profile different to that, say, of a small shop. Utilisation rates by industrial processes will vary greatly depending upon the exact nature of the activity.
- The likely impact of the Code for Sustainable Homes and the increased desire for decentralised energy, which may well utilise gas as the primary energy source and reduce electricity consumption, are at this stage largely unknown.

Potable Water

5.120 Over the whole of its supply area, Southern Water estimate that each resident uses on average 148 litres (l) of water per day. For commercial floor space a figure of 74 litres per employee per day represents a broad guide.

5.121 It should be noted that until a formal design is completed against set network criteria, the water system, given its dynamic nature, is always subject to change and re-configuration. At formal design stage, conventional computations utilise figures for specific and known quantities. The utility industry applies diversity factors to those figures and these changes are somewhat dependent upon the strategic level.

Foul Water

5.122 It is assumed that, accepting network losses, the foul water discharge from sites is approximately equivalent to the potable water supply.

Surface Water

5.123 The gross volume of surface water run-off has been notionally based on a 50 mm/hr rainfall event with 80% of the site being impermeable. This does not take into account the use of sustainable drainage systems and recycling, which will decrease the run-off volume.

Telecommunications

5.124 Allowance has been made for each residential unit to have a private telephone link with commercial, retail and office accommodation being provided with one private line for every 500 m² of floor space.

5.125 AECOM has prepared a Preliminary Area Schedule that identified a proposal for land uses in terms of residential unit numbers and areas of employment, office and mixed-use development for each site. The Preliminary Area Schedule allowed estimation of demands for water, gas, electricity, foul water, surface water and telecommunications to be calculated for all proposed development scenarios based on a residential build-out rate at a maximum of 100 per year and assumed relative employment, office and mixed-use development over a maximum 20-year construction programme (2013 – 2032). In order not to over-complicate service provision issues, a table showing a phased annual load assessment for the highest growth scenario (Quantum Option with the Realigned A259) as shown in Appendix 6. Electricity Supply.

5.126 EDF Energy Networks, through UK Power Networks (UKPN), has provided the following preliminary information on the electricity supply to the three sites.

5.127 The estimated maximum electricity supply requirement for each of the development areas is:

- Western Gateway – 4,647 kVA
- Aldrington Basin – 2,331 kVA
- Portslade – 3,960 kVA

5.128 The Portslade and Aldrington Basin sites are located approximately 500m from the existing Portslade 11kV Primary supply and approximately 1km from the existing Southwick 11kV Primary supply. The Western Gateway site is located approximately 5km from the existing Southwick 11kV Primary supply and approximately 2.6km from the existing Portslade 11kV Primary supply.

5.129 The existing areas of Western Gateway, Portslade and Aldrington Basin are fed from both the Portslade and Southwick 11kV Primary supply, which has a current capacity of 14.5MW.

5.130 UKPN estimate that the maximum load required in 2032 is approximately 16.5MW, based on 2000 residential units and 125,000 m² commercial, retail and office space. In the short term, UKPN estimate that it may be possible to provide a small connection load, of approximately 200kW, from the network to each site. This supply would be sufficient to service 100 residential units or 2,000 m² of commercial, retail and office space on each site. They estimate a high level indicative cost for this would be circa £50k per site with the new supply available in 3-6 months from receipt of an order. At this stage, it will be necessary to establish a new totally enclosed substation on each site, in locations where a standard GRP substation can be used, an area of land of at least 4m x 4m will be required, or 5m x 5m if the substation is a brick structure. Planning permission, to be gained by the developer, will be required for a brick substation but not for a GRP structure.

5.131 Further development, over the 100 residential units or 2,000 m² of commercial, retail and office space level, requires more detailed partially phase works. UKPN has indicated the following works and costs may be appropriate.

5.132 **Western Gateway:** The provision of a suitable number of 230 volt connections from the high voltage (HV) network in Brighton Road, laying a new 11kV feed to either the Portslade or Southwick Primary, the

construction of up to 12 on-site sub-stations and laying a low voltage (LV) cable to each building intake position. The budget estimate for this work is estimated at £1m and would take between 12-18 months to deliver. This is based on the method of heating to be gas and additional costs may be levied once the type and number of commercial, retail and office units is established.

5.133 **Portslade:** The provision of a suitable number of 230 volt connections from the HV network in Station Road and Wellington Road, laying a new 11kV feed to either the Portslade or Southwick Primary, the construction of up to 6 on-site sub-stations and laying a LV cable to each building intake position. The budget estimate for this work is estimated at £650k and would take between 12-18 months to deliver. This is based on the method of heating to be gas and additional costs may be levied once the type and number of commercial, retail and office units is established.

5.134 **Aldrington Basin:** The provision of a suitable number of 230 volt connections from the HV network in Kingsway, laying a new 11kV feed to either the Portslade or Southwick Primary, the construction of up to 6 on-site sub-stations and laying a LV cable to each building intake position. The budget estimate for this work is estimated at £600k and would take between 12-18 months to deliver. This is based on the method of heating to be gas and additional costs may be levied once the type and number of commercial, retail and office units is established.

5.135 Dependent upon more detailed load calculations at a more advanced stage of the Masterplan may establish a need for a high load capacity (in excess of 16.5MW) to be provided to serve all sites. This scenario would necessitate the construction of a new Primary Substation on one of the sites, which may have a capacity of 24MW. A very high level estimate for this installation would be in the order of £6.75m, which would take between 18-24 months to deliver. The plot required for a new Primary Substation would be approximately 40m x 40m.

5.136 The above budget estimates assume the following:

- Locating the most appropriate Point of Connection (POC) to the HV supply network
- Determining a viable cable or overhead line route between the POC and the site
- Easements provided in perpetuity
- On-site civil works, including substation bases and buildings as appropriate and excavation/ reinstatement of cable trenches, to be undertaken by the developer
- Continuous programme of work

5.137 The number of sub stations has been estimated by UK Power Networks for each site. While the number may not be unreasonable at this time, it should reduce as the land-use and development layouts become more defined and the opportunity to discuss the provision of their services in more detail becomes available. UKPN has provided plans showing the record of their existing services in the vicinity of the development sites.

Gas Supply

5.138 The distribution of gas in the Shoreham Harbour area is undertaken by Southern Gas Networks (SGN), which is owned by Scotia Gas Networks. Southern Gas is currently considering the development loadings for each site and a reply is anticipated in January 2011.

5.139 The estimated maximum gas supply requirement for each of the development areas is:

- Western Gateway – 1,555 m³/hour
- Aldrington Basin – 402 m³/hour
- Portslade – 608 m³/hour

5.140 AECOM has previously reviewed the “Long Term Development Statement” (LTDS) of Southern Gas Networks, which sets out their 10-year forecast of the distribution system’s usage and the likely reinforcement projects and investment plans. Regionally, gas demand is predicted to rise by 4.2% to 2018 and there are no planned or proposed major network reinforcement works (>£0.5m) in the Shoreham Harbour area in this period. Scotia Gas Networks has confirmed that gas can be supplied to the sites without any reinforcement of the existing network.

Water Supply

5.141 Southern Water is responsible for supplying potable water to the Shoreham Harbour area and the wider Adur District. Southern Water is currently completing their Water Resource Management Plan (WRMP) for the period 2010 to 2035, which covers the proposed development time-line for Shoreham Harbour. A technical review of the WRMP should be carried out to establish significant constraints to the development of Shoreham Harbour.

5.142 Domestic water demand in the area is relatively high by national and international standards and Southern Water acknowledges that an opportunity exists to reduce this through water efficiency methods.

5.143 The estimated maximum potable water supply requirement for each of the development areas is:

- Western Gateway – 609 m³/day
- Aldrington Basin – 136 m³/day
- Portslade – 197 m³/day

5.144 Southern Water has previously indicated that, based upon a potential for 10,000 new homes to be constructed in Shoreham Harbour, there should be sufficient spare capacity in the network to meet this demand. This is based on the prediction that overall water demand will fall as a result of the introduction of universal metering, the requirement of the Code for Sustainable Homes, promotion of water saving devices, and the introduction of greywater re-use and rainwater harvesting in final design.

5.145 As more detailed designs emerge, Southern Water proposes that a Level 2 Capacity Check for each site will be necessary, for which a charge would be levied. The Level 2 Check will identify the preferred solution for servicing the site, e.g. undertake detailed investigations to determine whether any upgrading works will allow local connection rather than extensive off-site infrastructure. Level 2 will also identify preferred solutions for surface and waste water.

Wastewater

5.146 Southern Water is responsible for conveyance and treatment of wastewater in the Shoreham Harbour area and the wider Adur District.

5.147 The estimated maximum wastewater discharge from each of the development areas is:

- Western Gateway – 609 m³/day
- Aldrington Basin – 136 m³/day
- Portslade – 197 m³/day

5.148 The majority of the Shoreham Harbour Regeneration area drains to Shoreham Wastewater Treatment Works (WwTW), but the eastern section of Portslade drains to Portobello WwTW, which is currently being upgraded. Southern Water has confirmed that there will be a need to increase treatment capacity at Shoreham WwTW to cater for the planned growth in the area, but that the cost of this will not need to be met by the development.

5.149 Southern Water advise that there are no foul sewer flooding issues. Southern Water advise that depending on the distribution of new development some new sewers, pumping stations and pumping mains may be required and it is likely that would seek a contribution from developers for this work. However, as the sites have been previously developed and connect to the public sewer system a right to discharge is non-contestable and all costs should be met by Southern Water.

5.150 As with potable water, Southern Water proposes that, a Level 2 Capacity Check for each site will be necessary at a more detailed stage, for which a charge would be levied. The Level 2 Check will identify the preferred solution for servicing the site.

Flood Risk and Drainage

5.151 The WCS considers the options for surface water drainage in Shoreham Harbour. The existing public sewers are both surface water and combined sewers. While some of the surface water sewers outfall directly to the northern side of the harbour, some outfall to the combined system. Where surface water discharges directly to the impounded eastern end of the harbour, this can have a negative impact on water quality.

5.152 Southern Water has advised that there are no significant flooding issues in the catchment for their design standard of 1 in 50 years plus 20% climate change allowance for internal flooding, and 1 in 30 years plus 20% for external flooding.

5.153 The estimated surface water discharge from each of the development areas is:

- Western Gateway – 1,753 l/s
- Aldrington Basin – 435 l/s
- Portslade – 731 l/s

5.154 No significant issues are expected with regard to surface water drainage. All new drainage systems should be designed to current standards, and providing that the development areas are at a sufficient elevation above the watercourse/sea, gravity drainage should be possible.

5.155 As with potable water and wastewater, Southern Water has proposed that a Level 2 Capacity Check for each site is necessary for which a charge would be levied. The Level 2 Check will identify the preferred solution for servicing the site.

5.156 The use of SUDS in Shoreham Harbour is considered in the WCS but it is concluded that the development sites are so close to the surface

water outfall (river or harbour) that the use of attenuation features would have limited benefit. That said, the use of good practice in the designing of the surface water drainage systems is essential in minimising the volume of runoff entering the drainage system and improving the quality of the water that does discharge to the river or sea.

5.157 One potential issue with surface water that has been identified as part of the WCS is the long term backing up of the sewers as the sea level rises due to climate change. The use of more elevated sites would reduce this potential impact as gravity drainage would still be viable, but lower lying sites could require the surface water to be pumped, a practice not favoured by the Environment Agency.

5.158 Shoreham Harbour Wastewater Treatment Works (WwTW) is nearing capacity and there is limited space for physical expansion of the existing site. However, due to changes in European Directives on water quality, improvements will need to be made to the treatment plant irrespective of growth to add further treatment processes. ADC and BHCC are working with Southern Water to understand the requirements for this facility in relation to extension to its capacity given planned housing growth at Shoreham Harbour, but also beyond into both areas. This is critical to both development at the harbour and achieving wider growth targets for both authorities.

Telecommunications

5.159 BT Openreach owns telecommunications infrastructure in the area. There are BT services to the sites and in the surrounding areas serving residential and business premises, as shown on the utility record drawings. An allowance of 2,159 voice service extensions is made in discussing future demand capacity with BT, broken down below.

- Western Gateway – 1,649 lines
- Aldrington Basin – 232 lines
- Portslade – 278 lines

5.160 BT Openreach has verbally confirmed that the existing local network will be able to serve this demand and that they would have to provide new lines to any new buildings.

5.161 A number of assumptions have been fed into the Davis Langdon costs to inform current viability assessments in this report:

- **Electricity:** Traditional solution to meet the power demand of the scheme. Electrical costs include electrical plant based on the total demand for each option, an offsite connection to the primary substation, electrical distribution along primary, secondary and tertiary roads up to the edge of each plot. We also assumed that a new primary substation would not be required. The range of costs are therefore potentially higher than the total £2.25 million total of the substation noted in this chapter.
- Where wind energy is supplied on site, this will be directly connected to the grid.
- **Heating:** Base costs assume heating to residential will be provided by a conventional gas fired boiler system and we have therefore allowed for reinforcement to the gas network off-site. This is notwithstanding the solar water heating both the eco-option residential heating and hot water, as this will still require a conventional system. For the commercial, we will assume that this is all electric heating and therefore our allowances for electricity accommodate this. If district heating is installed, this may utilise gas at a central CHP plant, and will replace in-house boilers. Traditional gas heating costs have been subtracted from district heating costs to ensure a true cost comparison.
- **Potable and Non-Potable Water:** This will be provided from a new connection and it is assumed that this is available without any reinforcement of the network
- **Surface Water Drainage:** This will be dealt with in part by SUDS measures but excess will be discharged by the most appropriate means in line with regulations and best practice guidance. Surface water drainage is covered as a mandatory element of the Code for Sustainable Homes and will soon be subject to new national standards for adoption.
- **Foul Water Drainage:** This assumes an extension to the Shoreham Wastewater Treatment Works. Southern Water has confirmed to ADC officers that they would put forward a bid for this cost to OffWat as part of their periodic review process; no developer contributions would be sought. However, in terms of connections to transport the waste to the WWTW, developer contributions would be required.
- **Communications:** Telecommunications costs are for ducts only.

EXISTING COMMUNITIES

5.162 Existing communities would positively benefit from the proposals put forward in this strategy. The scheme increases the amount of affordable housing in the area and also provides new opportunities for market housing. This allows more local people to access the housing market via a variety of means.

5.163 Physical connections through the area will be enhanced, providing existing communities with better linkages to Shoreham Beach and improved transport infrastructure. The proposed development of significant employment prospects provides opportunities to improve skills and education levels within the existing community due to its physical proximity and the potential for partnership working with providers.

5.164 High quality detailed designs for Shoreham Harbour and the establishment of robust planning guidance will ensure that development has a strong positive impact on existing communities.

06

Scheme viability and delivery approaches



6.1 Given the issues described throughout this report, it is obvious that achieving a viable project at Shoreham Harbour is going to be challenging. This section describes the viability challenges and the steps that the Shoreham Harbour Partnership need to take to move forward. It starts by looking at the potential values and costs of development.

Viability Appraisals

6.2 A number of viability appraisals have been undertaken as part of this work. The appraisals take into account the various land uses and mix of density proposed in the options. The overall methodology is that of a typical development appraisal, i.e. total value from the completed scheme, less total build cost (including developer's profit), equals residual receipt. Wider infrastructure costs such as the realigned A259, additional sustainability requirements such as green roofs, community facilities and on-site highway improvements are costed separately and are excluded from the site-specific viability appraisals. These costs are set out in Table 6.2.

6.3 The appraisal outcome indicates the potential figure available for site acquisition. If the appraisal outcome is sufficiently positive or greater than a landowner requires, it would also be realistic to expect developers to contribute towards the wider infrastructure requirements. A negative residual receipt denotes an unviable development which is not likely to come forward without public sector intervention. Davis Langdon have provided cost information in relation to site-specific appraisals, and separately, wider infrastructure costs, and community infrastructure costs, detailed later on.

6.4 It should be noted that costs for off-site highway improvements have not been included within the viability assessment, pending further discussion/steer from the client group.

6.5 The appraisal outcomes for both the Quantum and Eco Options are set out below. The outcome of the viability assessments has yielded residential receipts of between £865,000 - £1.8 million per ha, employment and mixed employment and residential at £600,000 - £1.2 million per ha, and retail at £3.7 million per ha.

Block Name	Preferred Proposed Land Use	Site Area	Appraisal outcome	
			Quantum	Eco
Blocks RA 3-14 + ADC Offices	Residential + B1 & Retail Employment Quarter	5.75 ha	£11,610,000	£10,953,000
Blocks WA 1-10	Residential (4 storeys)	2.31 ha	£4,531,000	£4,275,000
Blocks N 1-7	Residential (3 storeys)	2.51 ha	£3,288,000	£3,102,000
Blocks PS 1-5	Mixed Employment + Residential	5.60 ha	£4,316,000	£4,072,000
Blocks AB 3-8	Mixed Employment + Residential	1.94 ha	£2,541,000	£2,397,000
Total		18.13 ha	£26,200,000	£24,800,000

Table 6.1: Appraisal Outcomes

6.6 Due to the lower density, the Eco Option produces redevelopment figures between 4-6% lower than the Quantum Option.

Key Issues

6.7 The appraisal outcome takes into account the costs of on-site demolition and remediation and the figures are therefore reduced to reflect these costs. Demolition and remediation costs have been provided by Davis Langdon. Remediation costs are based on WSP's report of March 2009.

6.8 The appraisal outcome does not take into account some fundamental costs which would be required to unlock the sites for residential development. It is important to note that if the cost of 'readying the site' for development is higher than the appraisal outcome, this effectively means that development is unviable without subsidy (either public or private).

6.9 The sites are currently in multiple ownership, with only a very small number of sites within public sector ownership. The implications of this are that the residual receipts of £24 - £26 million will not be payable to the public sector, except where the public sector is the landowner.

6.10 The figures shown are expressed in the current time. In reality, these residual receipts would be received over time and as such, a discount rate would be applied to the figures not received 'today' to reflect the time value of money.

Infrastructure Costs

6.11 Infrastructure costs have been provided by Davis Langdon and are set out in Appendix 4, Parcel and Infrastructure Costs. A summary of the headline costs are as follows:

Details	Total			
	Quantum		Eco	
	Retain Road	Realign Road	Retain Road	Realign Road
Flood Defences	£11,321,530	£11,321,530	£11,321,530	£11,321,530
On Site Highways and Other Transport (incl. footbridge)	£8,252,569	£11,592,759	£8,252,569	£11,592,759
On Site Utilities (incl. Low Carbon Wind and Low Water Contribution for Eco Options)	£8,611,479	£10,313,744	£12,832,074	£14,795,237
On Site Drainage (Foul & Surface)	£702,386	£1,167,071	£702,386	£1,167,071
Green Infrastructure (Landscaping / Green Roofs)	£767,000	£651,500	£3,537,710	£3,537,710
Community Investment (Schools, Healthcare, Community Centres etc)	£2,500,000	£2,500,000	£2,430,000	£2,430,000
S38 20%	£724,114	£1,351,352	£724,114	£1,351,352
Professional Fees 10%	£4,090,815	£4,731,874	£4,812,057	£5,492,509
Phasing and Temporary Works 5%	£2,249,948	£2,602,530	£2,646,631	£3,020,880
Design Development and Construction Contingency 15%	£7,087,336	£8,197,971	£8,336,889	£9,515,771
Total	£46,500,000	£54,600,000	£55,600,000	£64,300,000

Table 6.2: Summary of headline infrastructure costs

6.12 From the above table, it is clear that the option with the least infrastructure cost is the Quantum Option which retains the A259. Given the other options are within £10m of this, it is not inconceivable that as part of a value engineering exercise, some of these costs could become more aligned.

6.13 It is important to note that whilst some of these costs could be classed as desirable, others will be critical as part of any redevelopment of the harbour. The overlay of these costs will naturally further reduce the appraisal outcomes illustrated earlier.

Land Assembly Costs

6.14 With so much land in private ownership, and taking into account the variety of existing number of active and viable businesses, it is unlikely that any kind of public delivery body would seek to acquire land, in its totality here. However, as part of the due diligence for this work, a high-level Property Cost Estimate (PCE) has been prepared for the sites that have been assumed for development within the options. The PCE gives an estimate of compensation which would be payable by the public sector if compulsory purchase powers were exercised to acquire the third party interests within the proposed areas. A headline assessment of land assembly costs equates to approximately £100 million in total compensation. This includes approximately £60 million of existing use value and £40 million of disturbance, relocation, loss payments and fees.

6.15 This demonstrates that the way forward here is a partnership with the private sector rather than a Compulsory Purchase route for all of the land holdings. The Shoreham Harbour Partnership will need to work closely to relocate occupiers with complex requirements. One possible solution may be to consider whether other public sector owned assets away from Shoreham Harbour could be considered for relocation purposes as part of a land swap mechanism, therefore increasing public sector ownership at Shoreham Harbour and providing accommodation to enable businesses to continue to operate.

Funding Gap

6.16 The funding gap can be explained using two hypothetical scenarios. For the purpose of providing an indication of the total gap, finance costs, phasing of costs, and any discounting of values over time have been ignored.

Scenario 1 – Some Public Sector Funding but rely on Market Forces to Deliver Redevelopment.

6.17 The total wider infrastructure costs have been identified as **£46.5 million** in the Quantum, Retain Road Option. It is clear that this cost is unlikely to be paid by the private sector because any value achieved will be outstripped by this wider cost. Should the public sector choose to foot this bill, it may be possible to claw some of the costs back through s106 or a TIF model, for example. The risks of this option relate to the ability to re-coup investment, and there is also no guarantee that market forces will deliver redevelopment, even with key elements of infrastructure in place. However, the public sector in other areas of the UK have raised finance of this level to assist redevelopment, an example of which is the Edinburgh Waterfront TIF.

Scenario 2 – Full Public Sector Funding and Full Control.

6.18 The second option would involve significantly more public sector funding, but more control, particularly over the pace and type of redevelopment. The land assembly cost has been identified as £97.5 million + £46.5 million wider infrastructure costs less potential return from redevelopment value of £26.2 million = **£117.8 million**.

Phasing

6.19 The rate at which development is brought forward in the area will depend heavily on the level of investment in the area in the early years and the potential to ‘create a new place’ with its own identity. There is likely to be some lag in the initial years as a location is established and opportunities come to the fore. The level of development will be based on various factors, including the market and also investment from the public sector; this is likely to act as a strong incentive for the private sector’s confidence and appetite for redevelopment in the area.

6.20 Agents in other coastal locations such as Bournemouth, report that a rate of 100 units per annum could be achievable but this covers a wider area, therefore Shoreham Harbour will need to be the main focus of housing allocation as the level of completions here will be dependent on what is happening elsewhere in the District. 100 units per annum is at the upper end of completions, i.e. it may be possible to achieve this in some years but it is unlikely to occur every year. This level of growth would have to include different types and quality of units in different areas of the Harbour, to ensure the market is not saturated with the same type of product which would adversely affect take-up.

6.21 Development taking place in the early years 0-2, will depend on the level of demand for sites such as Parcel Force, the Civic Centre and sites within SPA’s control. The early years may achieve 50 units per annum, rising to 100 per annum, thereafter there may be potential to improve on completions based on the focus for growth and public sector support and investment. There is likely to be a need to achieve or exceed this rate of completions for a series of years in order to reach a critical mass, which in turn, could begin to change the nature of Shoreham Harbour and perception of the area in the market. With the right investment, funding, public sector intervention and market conditions, the area could begin to deliver positive housing growth over the plan period.

An approach to delivery

Planning Policy

6.22 It is apparent from the viability assessments that the appraisal outcome, taking into account demolition and remediation costs (based on limited information), is lower than £1.8 million per ha on average across the area.

6.23 Shoreham Harbour is an expensive site for redevelopment, with significant constraints. If the local authorities decide that they wish to see housing growth delivered here, especially based upon eco-town criteria, there will need to be a flexible approach to affordable housing requirements and restrictive employment policies. Other contributions will not be a priority. Maintaining flexibility will assist with overall financial viability.

Prioritising Infrastructure

6.24 A significant amount of upfront infrastructure cost is not unusual in a development scheme of this size and due to the cost of flood defence and other required infrastructure improvements, the proportion of infrastructure cost in relation to the viability assessments is significant as described above. Phasing of infrastructure will need to be considered at the detailed design stage to distinguish which elements of infrastructure are critical to unlocking development at the Harbour and which can be phased over time.

Direct Funding

6.25 To better improve viability, directly funding wider infrastructure costs, (in particular flood defences), would assist with unlocking development. Clearly this will require significant amounts of public subsidy. Some sources of funding which should be explored further are set out below:

- European Regional Development Fund
- Regional Growth Fund
- Regional Infrastructure Fund
- Local Transport Plan / Local Sustainable Transport Fund

6.26 The LSTF, for example, is detailed further in the Local Transport White Paper which sets out the Government’s vision for a sustainable local transport system that supports the economy and reduces carbon emissions. The White Paper also underlines Central Government’s direct support to local authorities, including through the Local Sustainable Transport Fund.

6.27 In addition, there are other sources of finance which could provide a mechanism for raising finance. It may be possible to borrow against these future income streams, or directly use these mechanisms to fund infrastructure costs.

These sources include:

- Community Infrastructure Levy
- Tax Increment Financing
- New Homes Bonus

6.28 One of the key barriers to redevelopment at the Shoreham Harbour is the cost implications of putting in place flood defences. In addition, the responsibility for upkeep of river walls lies with the landowners rather than the Port Authority, and so in order to implement a flood defence solution, the public sector would either need to be in control of land, reach an agreement with the existing land owners for putting in place a mitigation strategy, or investigate putting in place a fund to provide appropriate funding to developers across the developable area.

Delivery Options

6.29 A key decision that the public sector will need to make regarding Shoreham Harbour is the type of approach they wish to see, and above all, where the project lies in terms of priorities. Before decisions can be made about appropriate delivery options, it will be important to understand the local authorities' attitudes to risk and the level of capital they are able to invest. Once these priorities have been clarified, it will then be possible to:

- Align capital investment with Shoreham Harbour
- Provide a mechanism to prioritise projects at Shoreham Harbour
- Identify the resources available for investment and allocate these funds according to their priority and a risk assessment.

6.30 Only once these strategic decisions are made, can it then be possible to innovatively use capital resources and / or public sector assets as a driver or mechanism to fund or lever in investment for Shoreham Harbour. Focussing all capital resources or assets into a single project may not be the preferred public sector approach, in which case, alternative delivery routes could be explored. It is important to note that this project is large in scale and not without significant challenges; it would be overly simplistic to assume a single delivery option provides the solution.

6.31 Some of the delivery options available to the public sector are set out below. Other authorities across the country are also considering innovative ways to deliver development, e.g. Edinburgh Waterfront TIF or Portsmouth City Council who, along with submitting a bid for Regional Growth Fund monies, are considering a TIF model for major investment in infrastructure for the City Centre as well as the Tipner Regeneration Area. At Portsmouth, this single TIF model is intended to capture the uplift in business rates in the City Centre to cross-fund the interest from

prudential borrowing used to kickstart the Tipner Regeneration project. Such cross-funding solutions may be appropriate at Shoreham Harbour, but would need to be reviewed in light of the mix and amount of commercial floorspace projected and other projects across both authority boundaries.

6.32 Access to funding alone is unlikely to drive forward significant change in the area. A key element to achieving the vision for Shoreham Harbour will be for the Local Authorities to decide on the level of intervention they wish to take:

- **Minimum Intervention:** reliance on Planning Policy to guide development.
- **Public Partnership:** to seek funding, manage access to funds and collection of funds, land assembly, putting in place key infrastructure, readying sites for development, acting as Master Developer.
- **Public Private Partnerships:** (e.g. Joint Ventures, SPVs, Local Asset Backed Vehicles), or straightforward disposal of sites. Roles of the private sector could include: seeking planning permission, raising finance, delivering on-site redevelopment.
- **Direct Development:** where the Public Sector takes direct control of development. This would be considered a high risk strategy.

6.33 In the short-term, the continuation of the current Shoreham Harbour Partnership will be beneficial in providing a joined-up proposition that clearly demonstrates how all public sector agencies are focussed on delivering a common set of objectives. If the Partnership goes on to be formally constituted, acceptable governance and decision making arrangements must be in place that strike a suitable balance between probity, suitable commercial flexibility and delegation of roles.

6.34 A credible investment prospectus for a regeneration vision is also essential for the growth of an area – particularly for localities such as Shoreham Harbour where there is a less robust market view. The phasing plan for delivering regeneration projects must also be realistic and acceptable from the market's perspective.

6.35 In the medium to long term, the Council will need to consider the level of intervention they wish to make and the level of investment they wish to contribute. An Asset Backed Vehicle, for example, could provide value from the public sector's estate (e.g. Adur District Council, Brighton & Hove City Council and Shoreham Port Authority's assets) to lever in finance to fund the project, however, Shoreham Harbour would need to be a priority for the Council prior to this option being considered. By the same token, recycling funds from the sale of sites such as the Council Offices or SPA's land could provide subsidy for investment in Shoreham Harbour.

Summary

6.36 A comprehensive land assembly route is likely to be too costly for the public sector to pursue. As such, the funding gap has been identified as £46.5 million, assuming the Quantum, Retain Road Option is preferred. This allows for some private sector initiative, whilst also assisting with the delivery of some of the wider infrastructure demands. Flood defences are critical for change of use to residential; the cost of building a flood wall is equivalent to approximately £1.3 million per hectare when applied to all sites south of the A259 at the Western Arm and Aldrington Basin. Further work will need to be carried out to understand whether other flood solutions could be appropriate.

6.37 The site specific viability appraisals provide an appraisal outcome less than £1.8 million per hectare, taking into account site clearance and remediation costs. This is not a high figure and the Council will need to consider whether reduced affordable housing provision and reduced sustainability requirements, could assist in improving the site specific viability to attract developers to the area. If the cost of flood defence of £1.3 million per hectare were overlaid, this leaves only £500,000 per hectare that a developer can afford to pay the landowner for their site.

6.38 Landowners with successful businesses on site, will not be willing to sell for reduced values – knowing that their site in its existing use may be more valuable. As such public sector intervention will be important.

6.39 It will not be practical or feasible to acquire the whole of the area in its existing use, particularly where there are successful businesses. Further discussions with landowners as to their intentions long-term will be required and proactive relocation to other public-sector owned sites will be important to release vacant sites for acquisition.

6.40 The public sector will need to identify whether any secured sources of funding could be utilised at Shoreham Harbour to drive redevelopment and further investigate sources of funding described above, including CIL and TIF in the future. Alternative regeneration models, such as ability to use assets, cash reserves, or prudential borrowing will need to be considered.

6.41 Access to funding will not directly mean the project is deliverable. The public sector will need to decide what kind of role to take in delivery – will this be a priority for the local authorities or the Coast to Capital LEP or could another delivery vehicle be set up to deliver the vision for Shoreham Harbour.

6.42 A clear marketing strategy and vision for Shoreham is important communicating the intentions for the project, making the link as a priority for the Coast to Capital LEP and maximising other marketing routes.

07 Recommendations



DEFINING THE REMAINING PARAMETERS OF DEVELOPMENT

7.1 This capacity and viability study has been able to help define a number of key parameters of development based upon a robust understanding of the baseline conditions in Shoreham. A realistic level of development has been proposed within this study, taking into account both physical criteria and ability to deliver in the light of difficult market conditions and ever limited funding opportunities. However, this is not a masterplan; the amount of design development that has been possible within the study has been limited to high level principles. However, within this context, a number of critical areas have been identified where further work is either planned, or should be planned to enable a better understanding of the opportunities and constraints associated with development at Shoreham Harbour.

7.2 **Flood issues:** The Shoreham Harbour Design and Flood Risk Study will soon report. This work is planned to inform further work to understand the design and cost options for flood defences in the area. This further work is critical to understand the viability of proposed development and the impact on the creation of place. Key issues are: the nature of flood defences; the detailed design of those defences; and therefore an understanding of phasing and implementation of flood defences.

7.3 **Land contamination:** A contaminated land review is planned for the area. This is currently a significant unknown in terms of extent and nature of contamination, which may be extensive and high risk given the history of industrial and port related uses within the area. Once this is understood, it will be possible to consider the cost of remediation and the impact on viability. Further knowledge of contamination will help to de-risk site.

7.4 **Transport:** The Adur Core Strategy & Shoreham Harbour Transport Study has recently reported. This considered options relating to previous urban design and capacity work, which, based on the findings of this study, no longer reflect the nature of the opportunity and spatial distribution possible at Shoreham Harbour. Whilst estimates of transport infrastructure have been made, the current locations and levels of development have not been subject to a detailed transport assessment. It is now necessary to re-run the transport model to confirm the nature of the transport infrastructure necessary to support development.

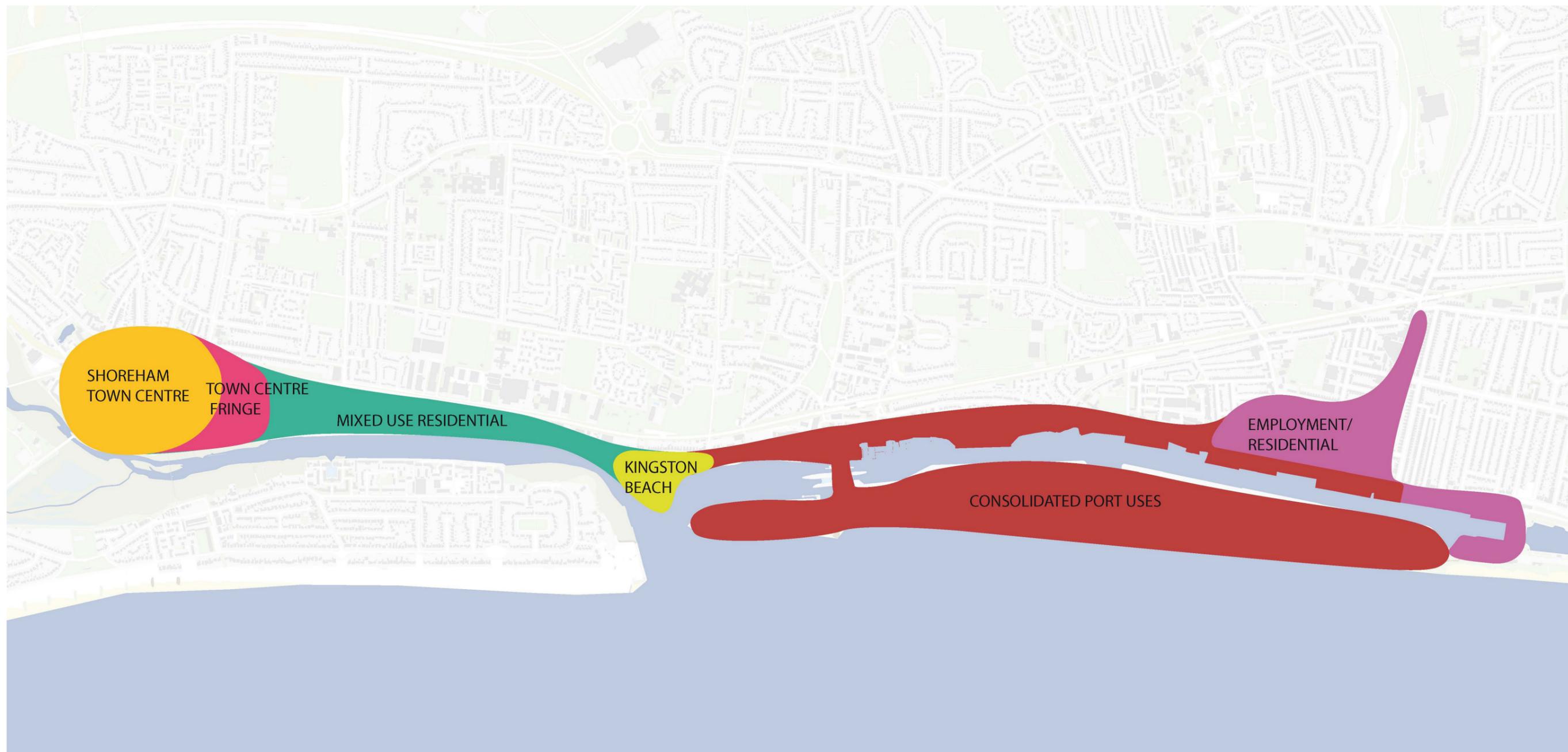
Recommendation

7.5 Future masterplanning work should be allied to ongoing and prospective technical studies addressing flooding, contamination and transport in greater detail. These studies are critical to defining the parameters for development that will be integral to the preparation of a masterplan.

Establish a shared vision for Shoreham Harbour

7.6 As planned, Shoreham Harbour Partnership should take the findings of this report and establish a clear and coherent vision for the area. The recommendation of this report is that this vision be based around a spatial strategy shown in Figure 6.1 that is anchored around the town centres of Shoreham and Portslade, with the Shoreham Port at the heart of plans to drive economic change in the area. This vision should address key linkages with surrounding neighbourhoods to advance socio-economic as well as physical regeneration objectives. Further design work and consultation should serve to augment the spatial strategy set out in this study.

7.7 The emerging spatial strategy provides a framework through which to develop a shared vision, identifying opportunities to meet stakeholder and resident aspirations. This current strategy has the employment focus within the study area close to the two anchor centres of Shoreham-by-Sea and Portslade, linked to good transport networks and amenities. In relation to Shoreham this could come forward along with other edge of centre uses, such as a food store. A cluster of B1 office space is assumed in this town centre fringe location, providing a link between the town centre in the west and a new waterside residential neighbourhood to the east. Kingston Beach is seen as a vital piece of open space and a key buffer between the residential area and the start of the new consolidated port area, which sits at the heart of the regeneration of the area. Moving further east into Aldrington Basin, the employment focus here provides for some residential opportunities and the potential for B1 office and light industrial uses.



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Figure 6.1: Shoreham Harbour spatial strategy

Defining the remaining parameters of development

7.8 A key part of this vision must be the level and commitment to sustainability, driven by the findings of this report. A more detailed recommendation in relation to this is set out later in this section.

7.9 Clearly the abolition of the South East England Development Agency and the emergence of the Coast to Capital LEP also need to be considered to ensure that emerging strategic economic development priorities tie in with proposals for Shoreham Harbour. This will be vital in terms of drawing down funding, including the Regional Growth Fund.

7.10 The vision must be able to engage with the local community, investors and land owners. It must also set out what the role of the Shoreham Harbour Partnership and/or its constituent members will be. This will in turn drive confidence in respect of the local community, investors and land owners. Again, further recommendations are set out later on in this section.

Recommendations

7.11 The proposed masterplan should test the spatial strategy set out in this document and in doing so be seen as the process, or method, through which to develop the shared vision for Shoreham Harbour in the context of the local area through consultation and collaboration with partners and stakeholders (including local businesses).

Eco-town principles and creating sustainable communities

7.12 This study has developed options that seek to meet as many of the eco-town principles (as defined in the Eco-towns PPS1 supplement). It is not clear if the PPS1 supplement will remain as part of the reforms to the planning system and there are clearly areas where Shoreham Harbour, a complex brownfield site within an existing urban context, is not able to meet principles envisioned for the creation of new settlements, typically on greenfield sites.

7.13 There are a number of tensions existing within extant policies that could be resolved through the emerging Local Development Framework process to provide a consistent platform through which to deliver sustainable development.

Housing

7.14 Eco-town principles refer to the need to create at least 5000 new homes. This clearly related to the assumption that these would be stand alone settlements that required a critical mass of people to deliver the necessary community and strategic infrastructure. Within the constrained context of Shoreham Harbour this study concludes that it is not possible to deliver this number of homes at an acceptable density. As such, it recommends that pursuit of this principle should not be taken further. While the eco-town criteria set out a requirement for at least 30% affordable homes as part of development, it is clear that if this level were reduced it could be one of the levers used to help bridge the emerging viability gap. At present ADC (30% affordable) and BHCC (40% affordable) have different requirements for affordable housing on their major schemes. If Shoreham Harbour is to be seen as one viable development, harmonisation of policies for the specific area should be considered.

Employment

7.15 Eco-town principles suggest one new job should be provided per household. This is to encourage economic development and reduce travel. However, this study shows that this leads to a potentially unrealistic level of employment that is required to be brought forward. When the one job per home is added to the replacement of existing employment, it creates a commercial floorspace requirement that is optimistic in terms of the market (B1 offices) or land hungry (B2 industry or B8 wholesale and logistics). Furthermore, separate from the eco-town principle issue, the BHCC policy position to only redevelop employment land at the same level of employment space lost causes similar problems. If it is assumed that any incentive to develop such sites stems from the ability to include higher value residential and complementary B1 uses as part of the mix, then this policy has a similar inflationary effect on floorspace

requirements. Previous aspirations to attract 'headquarters' style offices and occupiers here have been shown to be over ambitious and highly unlikely in the foreseeable future. As well as some concerns about the market's ability to accommodate such development, these approaches have a significant effect on car parking requirements (discussed below). The conclusion from this report is that, based on the existing commercial nature of the site, replacing both existing jobs and then net additional jobs equal to the level of housing is not possible. Furthermore, if redevelopment of existing employment uses within BHCC is to take place through mixed use and higher end employment schemes, then adapting existing land use policy to relate to a requirement to replace the number of jobs, not space, should be considered. It should be noted here that consideration was given to the ability of development at Shoreham Airport to deliver some of the additional job requirement. However, there are significant access issues into the site that would prevent it being regarded as easily accessible via sustainable means, as set out in the eco-town criteria.

Car parking

7.16 Related with the employment section above, providing for the replacement of existing lower employment density (B2/B8 uses) uses with higher density B1 uses provides a considerable strain on site capacity for car parking, based on current local standards. In ADC where it is assumed that the same level of jobs (not space) will be re-provided this looks workable within standards. In BHCC, where the same amount of space is provided (but at a higher employment density) this looks less realistic against current standards. If this is then allied to the provision of additional parking spaces to support employment requirements (one job per new home), this then leads to further capacity issues.

7.17 The conclusion is that the Shoreham Harbour Partnership should no longer pursue the 'one new job per new home' principle, or consider dramatically reducing the car parking standards to allow for more sustainable modes of travel (including use of the four local train stations, good bus connections and potential for working on-site).

Energy

7.18 A key difference between achieving eco-town status and delivering against 2013 Building Regulations (the quantum option) is the need to move from Code for Sustainable Homes Level 4 requirements for homes to achieving 'zero carbon' for both residential and other uses. These additions are shown through this study and add significant costs to a scheme which is already indicating a viability gap. However, Shoreham Harbour does have some unique and very promising opportunities for low

carbon energy delivery. There are some considerations that could be taken forward including linking in with the Port's plans for wind and solar energy. To reach zero carbon overall, the development could support the delivery of two large wind turbines (or equivalent) at the Port. Large scale wind turbines (2 – 3MW rating) typically have a 80m high shaft, with a blade length of around 40m. Turbines of this size would be larger but comparable to the chimney height of the power station on Shoreham Harbour. Low Carbon or Renewable Energy schemes at the port may need to be directly supported by grant funding, thus ensuring that real change happens in the area, achieving some very progressive carbon reduction targets and lending a strong sustainability reputation to the area. Larger parcels of land at Shoreham Harbour, particularly the Western Arm, if it can come forward as a coordinated development, present opportunities for District Heating and Combined Heat and Power (CHP). There will be significant costs associated with the installation of such systems, but these costs may be reduced through the involvement of an independent delivery body or ESCo. Depending on upcoming changes to Building Regulations, on-site low carbon energy may become a requirement rather than a desirable element of new development. Therefore, the viability context may shift to favour such communal energy systems to help individual buildings meet carbon reduction requirements. Renewable energy options both on-site and at the Port should be considered as part of wider engagement with the public and key delivery partners.

Water Neutrality

7.19 As Shoreham Harbour sits within an area deemed to suffer from water scarcity, achieving water neutrality is shown through this study to hold significant cost but may be possible if retrofitting of existing homes can be delivered in the area. The most cost-effective method of reaching water neutrality is likely to be through the replacement of fixtures and fittings in existing homes, which could benefit the wider population and create a broader sustainable vision for the area. For a similar cost, communal water recycling systems (recycling either rainwater or greywater) could be installed in the new development area. These technologies are still developing, but it would be a progressive step to take towards water neutrality in the area. On-site water recycling should remain part of on-going considerations in relation to the expansion requirements of the Shoreham WwTW. Should the evidence of technology reliability improve and models for management emerge, this option could present a real solution to challenges posed by difficulties in expanding traditional infrastructure.

Open space

7.20 It is important that any new development is accompanied by good quality open space, and this objective should not be compromised. There are strong needs in the area to support local biodiversity and link green corridors in the Harbour area. However, eco-town criteria requires open space to be equivalent to 40% of development floorspace. It is considered that the opportunity cost of giving up this much land for open space, rather than development, is too great given the local circumstances. Due to the need for green space and recreational corridors in the area, the eco option with 25% green space should be favoured. The additional 15% of green space delivered through green roofs does add significant costs to development and should be assessed on a plot by plot basis as to whether roof-top green space is deliverable.

Estimated additional costs

7.21 A table of estimated costs for various elements of sustainable infrastructure is set out below. This has informed the cost estimates.

Cost/m ²	m ² required across site	Total Cost	Costing Source
140	7219	£1,010,660	Living Roofs and Walls, Design for London 2008

Green Roofs

Site	Cost/Site	Assumed Technology	Costing Source
Western Arm - realignment	£1,600,000	1 large wind turbine	AECOM costing of large wind energy based on industry quotes
Western Arm - retaining	£1,600,000	1 large wind turbine	
Aldrington Basin	£800,000	half share in large wind turbine	
Portslade	£800,000	half share in large wind turbine	

Option A: Large scale wind energy at port

Site	Cost/Site	Assumed Technology	Costing Source
Western Arm - realignment	£14,121,080	Biomass CHP	Code for Sustainable Homes Cost Review 2010
Western Arm - retaining	£15,211,292	Biomass CHP	
Aldrington Basin	n/a	assumed not viable	
Portslade	n/a	assumed not viable	

Option B: Biomass CHP on site (assuming large plant (800kWe) and district heating at density of 80dw/ha)

Site	Cost/Site	Assumed Technology	Costing Source
Western Arm - realignment	£771,932	Retrofit fixtures	Towards Water Neutrality in the Thames Gateway, Environment Agency
Western Arm - retaining	£593,505	Retrofit fixtures	
Aldrington Basin	£135,229	Retrofit fixtures	
Portslade	£282,979	Retrofit fixtures	

Option A: Retrofitting Existing Homes

Site	Cost/Site	Assumed Technology	Costing Source
Western Arm - realignment	£838,440	Communal apartment greywater recycling	Towards Water Neutrality in the Thames Gateway, Environment Agency
Western Arm - retaining	£644,640	Communal apartment greywater recycling	
Aldrington Basin	£146,880	Communal apartment greywater recycling	
Portslade	£307,360	Communal apartment greywater recycling	

Option B: On-site Water Recycling

Site	Cost/Site	Assumed Technology	Costing Source
Western Arm - realignment	£1,294,248	Communal recycling + retrofit fixtures	Towards Water Neutrality in the Thames Gateway, Environment Agency
Western Arm - retaining	£995,091	Communal recycling + retrofit fixtures	
Aldrington Basin	£226,729	Communal recycling + retrofit fixtures	
Portslade	£474,452	Communal recycling + retrofit fixtures	

Option C: On-site Water Recycling + Retrofitting

Conclusions

7.22 The overall message from this study is that with all options, as tested, there is a viability gap. Moreover, this gap is bigger when eco-town principles are factored in. Ultimately then, the conclusion must be that seeking to adopt a wholesale approach to the inclusion of all feasible eco-town principles is not financially viable.

7.23 However, this should not mean that principles which contribute to the creation of a sustainable place, but do not necessarily meet the PPS1 supplement criteria, should be set aside. If this place is to be successful (and an exemplar) then sustainable development principles need to be a key part of this story. The critical element is that the sustainability principles must focus on what is achievable drawing upon local strengths, but overcoming concerns stated in the development and viability study.

Recommendations

7.24 Due to the complex urban nature of the site, the eco-town principles (as a collective whole) as set out in the PPS1 supplement should not be used to guide development at Shoreham Harbour. However, the following sustainable development opportunities should continue to be considered: reduce travel; promote on-site and at home working; provide cost efficient on-site energy production and water recycling; support a reasonable amount of on-site open space/green infrastructure in tandem with better links to off-site provision. The masterplan and associated strategies should seek to define these and inform emerging planning policy/guidance.

7.25 As such, the Quantum Option emerges as the more viable approach, with the need to refine site specific sustainability opportunities in consultation with stakeholders and through more detailed design and viability assessment.

7.26 It is noted that further identified work upon the completion of this study include: renewable energy and energy efficiency assessment; green infrastructure study; a surface water management plan; smart travel study. This work should all inform site specific sustainability criteria, based on viability, to inform future development.

Planning Policy

7.27 Planning policy is a key tool through which ADC, BHCC and WSCC can affect change. Clearly, the proposed Joint Area Action Plan has been the focus for a number of years. However, as the scale and nature of the scheme has evolved the benefits of this approach have also changed. An alternative is to carefully consider the creation of more detailed Core Strategy policies and interrelated Supplementary Planning Documents. The ability of both authorities to ring fence the housing and employment levels at Shoreham Harbour, so that they do not form part of the Core Strategy targets will inform any decision. It is unclear whether such an approach will soon be possible given the Coalition Government's indication that they will seek to abolish Regional Spatial Strategies.

7.28 The JAAP does provide a framework for engagement between the three authorities and enables regeneration benefits to be considered across a wider area than the specific sites identified within this study. However, both these considerations could be achieved through other forms of working that would not bring with it a significant amount of regulations and procedure. Indeed, the scale of development and viability findings suggested in this study do not appear to support the level of infrastructure and wider community benefits that a JAAP would look to enshrine through policy.

7.29 The provision of a JAAP at Shoreham Harbour would provide an effective vehicle for the planning authorities to add to their wider Core Strategy policies to respond to the specific conditions found at Shoreham Harbour. If agreement could be reached on a shared vision, and simultaneously the compromises and ramifications of achieving such a vision, then it may be possible for the JAAP to bring forward site specific policies that consolidate and harmonise approaches to affordable housing, replacement of employment land, car parking and levels of sustainability, as discussed above. However, if this is not possible, it may be more difficult to justify the need for a JAAP. As such, if existing policies are to be retained, then it may be more appropriate to develop an SPD (or SPDs) for Shoreham Harbour that elaborate on existing policy.

7.30 The impact of Neighbourhood Plans proposed in the Decentralisation and Localism Bill will also need close consideration. It may be expedient to understand if local neighbourhoods will want to develop such a plan (again, either with separate Councils, or together) instead of an SPD (as both will need to conform to their Core Strategy). This would need to be community-led, but supported with Council resources. Doing so sooner rather than later would allow the Council to inform, rather than react to community opinion and activity in the area.

7.31 Regardless of the form of policy taken forward, it will also be important to understand the policies in the Waste and Minerals Local Plans and any potential requirements for joint policies across the area, especially safeguarding of wharves.

Recommendations

7.32 Shoreham Partnership, WSCC, ADC and BHCC planning teams should have discussions about the pros and cons, including political appetite, for adapting and harmonising key policies to relate to the context of Shoreham Harbour.

7.33 If this is not possible, then it is recommended that a JAAP is not pursued at this stage. Rather Core Strategy policies are prepared (ADC and WSCC) or adapted (BHCC) to provide parameters for development in the relevant areas, to allow for SPDs or Neighbourhood Plans to come forward as planning guidance. As sites are already becoming available, Interim Planning Guidance for Shoreham Harbour will be necessary to provide a framework for change, whilst the formal policy position is established. This should discuss appropriate uses, necessary supporting infrastructure and address 'meanwhile' uses in advance of any significant redevelopment proposals.

Social and strategic infrastructure

7.34 This study has highlighted there will be an impact on social infrastructure from the scale of development suggested. Development closer to 2,000 new units could well trigger a requirement for a new 2 form entry primary school. It is difficult to see where this could come forward within the areas considered through this study, without increasing densities or reducing housing. Finding an appropriate site within those defined in the capacity and viability study would also be challenging. Moreover, the cost would be significantly different to the 1 form entry extension of an existing off-site facility assumed in this study, further affecting viability. The initial assessment of other social infrastructure required suggests the proposed levels of development could be accommodated with both off and on site provision. Liaison with providers moving forward will be key.

7.35 In terms of strategic infrastructure, the proposed realignment of the A259 around the northern edge of the A259 affects the viability of this scenario, despite being potentially of great benefit to the establishment of a new residential-led mixed use neighbourhood. While this option should be retained for further testing at a more detailed design stage, this study suggests it may not be viable. This position would be further advanced if, at a more detailed design stage, it could be shown that residential development on the land north of the A259 could come forward without realigning the road. This would require the provision of an internal access route to allow for minimal access onto the A259 itself.

7.36 Furthermore, the study considers a new pedestrian footbridge, linking the Western Arm to Shoreham Beach. This would bring significant benefit to any development. However, it could become a desirable, not an essential part of any development moving forward, informed by more detailed design and consultation. In the absence of this additional work it has been included in the costings as an important outcome of development at Shoreham Harbour.

Recommendations

7.37 In terms of both social and strategic infrastructure, the Quantum Option Retained A259 Scenario is the most viable in the absence of funding favouring the alternatives.

Collaboration with stakeholders

7.38 There is a clear need to build up/continue good working relationships with stakeholders. Land owners are an important part of this. Firstly, managing expectations will be important, due to the nature of the constraints highlighted through this study, including flood defence and potential contamination. These costs will have a direct impact on land values, which will need to be a key message coming out of this and further studies.

7.39 Linked to this is the development of a strategy for the relocation of businesses. This study has shown that the disturbance and relocation costs associated with land acquisition are high and indicates that such an approach would further increase the size of the viability gap. Identifying those businesses that are keen to relocate or reshape their business, along with strategies to consolidate port related uses to the eastern part of the Harbour will be particularly key in informing phasing assumptions. This study has necessarily used assumptions to draw conclusions, what is needed now is business specific strategies to inform further detailed work.

7.40 Dialogue with Shoreham Port Authority (part of the Shoreham Harbour Partnership) will be fundamental moving forward. Their plans to consolidate are fundamental to the release of land along the Western Arm and proposed mix of uses at Aldrington Basin. Understanding when opportunities arise for consolidation, as well as the costs vs. benefit of this in achieving a viable development platform elsewhere, will be important to help identify catalytic sites to kick start regeneration. The Environment Agency, who works closely with Shoreham Harbour Partnership already, will need to play a key role in understanding and realising flood defence measures at Shoreham Harbour. As mentioned above, social infrastructure providers should play a key role to help ensure development becomes more integrated and accessible, as well as higher quality, in South Portslade, Fishersgate and the surrounding area.

7.41 Local residents and businesses will play a critical role in the next stage of the development of proposals for Shoreham Harbour. This is especially the case if the Decentralisation and Localism Bill becomes legislation. Key to this discussion will be community benefits from growth including: employment opportunities; town centre opportunities, new and improved open spaces; improved transport infrastructure; better pedestrian and cycle access arrangements.

Recommendations

7.42 A communication strategy is developed, linked in with the emerging planning policy and relocation/acquisition work.

7.43 Thematic working parties, evolved from the existing Shoreham Harbour Sub-Partnerships, should establish business plans to take forward viable interventions that respond to the key challenges of the site. Working parties should be formed as part of the masterplan process and then work towards delivering the masterplan.

Approach to delivery

7.44 The opportunities presented in terms of the level of intervention possible for Shoreham Harbour will vary throughout the lifetime of the project. Currently, costs associated with infrastructure and land assembly mean that there should be a focus on interventions by creating planning policy that helps to create conditions for individual site development. These policies should sit within the Harbour's longer term vision. This does not negate the need to realise the longer term vision now, but underlines the fact that the vision may only be achievable incrementally in the short-medium term.

7.45 Prior to the emergence of Core Strategy policy, planning decisions relating to early opportunities for development, as well as the use of public sector land at the town centre fringe and Aldrington Basin, will be key. These decisions have the capacity, in tandem with a vision for the Harbour, to create momentum at the Harbour and establish important key linkages to Shoreham and Portslade town centres. They have a particular effect on the market perception of the area and the uses that will come forward on sites both within and adjacent to the Harbour area.

7.46 With limited public money available to invest in any emerging development scheme, careful use of public sector assets in and around the site will be required. A clear commitment to ring fence existing assets within the study area to help bring about the regeneration of Shoreham Harbour should be investigated and made. This may include opportunities to land swap with existing business on Shoreham Harbour elsewhere within ADC and BHCC, or indeed consider SEEDA's land holdings, which are now owned by CLG and managed by the HCA. The viability part of this study has considered the cost of land acquisition and relocation costs based on assumptions. This provides the basis for more detail work including engagement with local business to identify needs and aspirations, which should then lead to specific searches for suitable relocation sites, where required. Furthermore, work will need to be undertaken to assess the potential of existing facilities around the site, to understand their potential for co-location of services.

Recommendations	
Project Investigation	<p>Further investigation of flood defence solutions and contamination</p> <p>Further prioritisation of infrastructure requirements</p> <p>Value engineering of costs at the detailed design stage to test whether quantum and eco options could become more aligned</p>
Strategic site sales and acquisitions	<p>Work closely with public sector partners to relocate existing businesses at the Western Arm wherever possible</p> <p>Interact with occupiers to understand their requirements and future plans</p> <p>Prepare a detailed Property Cost Estimate to support strategic site acquisitions (where appropriate)</p> <p>Resolution that any public sector assets are ring fenced towards Shoreham Harbour to subsidise the costs of infrastructure</p>
Funding Sources	Review availability of finance for the project
Funding Opportunities	<p>Consider cross-border implementation of Community Infrastructure Levy</p> <p>Following a more detailed masterplan, consider the business case for Tax Incremental Financing</p>
Delivering the Vision	<p>Consider the most appropriate mechanism for delivery in order to drive forward the overall project</p> <p>Integrate the Coast to Capital Local Enterprise Partnership agenda</p> <p>Align the public sector's vision and support for the area</p> <p>Prepare a Masterplan to support the vision</p> <p>Continue the Shoreham Harbour Partnership</p>
The possibilities and implications of using existing public sector assets should be fully explored by all members of the Shoreham Harbour Partnership to help facilitate/kick start regeneration in the area.	

