

## 4 Assessment of Alternative Options

### 4.1 Responding to the Requirements of the SEA Directive

4.1.1 The SEA Directive requires that the Environmental Report should consider:

*'Reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme' and give 'an outline of the reasons for selecting the alternatives dealt with' (Article 5.1 and Annex I (h)).*

4.1.2 Following the conclusion of the scoping stage, the SEA team contributed to the evaluation stages of the PFI procurement procedure (at Refined Solutions and Call for Final Tender). Although this did not influence the ranking of bidders' proposals, it helped ensure Council decision-makers were fully apprised of the environmental performance of bidders' proposed solutions for the red risk sites.

4.1.3 In parallel with contributions to the Refined Solutions and Call for Final Tender evaluations, the SEA team conducted three rounds of assessment of alternative options:

- ▶ High Level Assessment of the entire programme of services to be transferred to the Highways PFI operator (Table 1.1) – this is described in **section 4.2** below;
- ▶ High Level Assessment of all options considered for the 18 red risk sites by the two final bidders – this is described in **Chapter 5**;
- ▶ Detailed Assessment Matrices for any option selected for final tender by either bidder, where that option was considered likely to lead to significant environmental effects – this is described in **Chapter 6**.

4.1.4 Three bidders were originally shortlisted as potential Service Providers. Following evaluation of the Refined Solutions one bidder was deselected. The assessments described in relation to bullets two and three above were undertaken for the proposals put forward by the two remaining bidders only. Following the Call for Final Tender stage, Vinci Ringway was selected as the preferred Service Provider. Due to continuing commercial confidentiality requirements, this Environmental Report presents the assessments for Vinci Ringway's proposals only.

### 4.2 High Level Assessment of PFI Activities Programme

4.2.1 The SEA High Level Assessment (HLA) matrix for the entire Highways PFI programme of services to be transferred is presented in **Appendix V**. The following sections describe how the PFI service areas were judged to affect each SEA Objective. These assessment findings were fed back to the Council via an internal report, and subsequently discussed with Natural England and the Environment Agency at meeting held on 7<sup>th</sup> March 2012.

### **SEA1 Cultural heritage assets**

- 4.2.2 The capital schemes will require reconstruction of parts of the highway network in order to ensure long-term stability and safety in those locations identified by the Council as red risk sites. None of these sites is so close to a listed building or Scheduled Ancient Monument that reconstruction is likely to damage these assets, however a number are within or adjacent to a Conservation Area (including sites at Ventnor, Military Road, Duver Road and Undercliff Road (Tennyson Heritage Coast)). This implies that the potential to damage the character of the Conservation Area (either from views into or out of the area) may be high, and raises the possibility of negative effects, although the nature of these is uncertain. More detailed assessment is required.
- 4.2.3 All other Highways PFI services were considered to be neutral in relation to potential impacts to cultural heritage assets.

### **SEA2 Landscape character**

- 4.2.4 New or replacement structures as part of the capital scheme solutions could negatively affect landscape character if poorly planned or implemented. Many of the red risk sites are within or close to Areas of Outstanding Natural Beauty (AONB), including sites at Lower Road, Blackgang, Military Road, Ventnor, Undercliff Drive, and Bouldnor Road. Depending on the nature of proposed engineering solutions, and the materials used, long-term effects on landscape character are possible.
- 4.2.5 There is also a risk that replacement road signs could negatively affect landscape/townscape character through inappropriate selection of design. However, the effect of this is uncertain (as it entirely depends on implementation) and the Highways PFI contains specific requirements for the design of street furniture within AONBs and Conservation Areas (see Output Specification).
- 4.2.6 All other PFI service areas were considered to be neutral in relation to potential impacts to landscape character.

### **SEA3 Biodiversity and geodiversity**

- 4.2.7 The capital schemes will lead to reconstruction of some parts of the highway network. Most of the red sites are within, adjacent or close to at least one locally-designated Site of Importance to Nature Conservation (SINC), and all but two (Lower Road, Adgestone and Gills Cliff Road, Lowtherville) are within 200m of at least one European site or Site of Special Scientific Interest (SSSI). Furthermore, all south coast sites are close to or within the Tennyson Heritage Coastline, a rich fossil bearing geological formation that includes the dinosaur footprints at Brook Bay. Construction and operational impacts to biodiversity and geodiversity are possible as a result of the location and land-take of proposed works, piling, drilling and drainage. More detailed assessment is required.
- 4.2.8 Replacement streetlights could potentially adversely affect certain species groups (e.g. bats, birds and invertebrates). However, the Highways PFI is restricted to a one-for-one replacement programme, meaning that impacts beyond the current baseline are unlikely. Additionally, it specifies that energy efficiency improvements are made (for example, through the use of LED

lighting), that no greater amount of light is emitted than is currently the case in any location, and that 'dark skies' improvements are made.

- 4.2.9 Weed control and ditch clearance could potentially affect habitats and species, but these are cyclical operations already carried out by the Council, and effects are not considered to be strategically significant<sup>9</sup>. All other Highways PFI services were considered to be neutral in relation to potential impacts to biodiversity and geodiversity.

#### **SEA4 Water quality**

- 4.2.10 The water quality impacts of proposed development are normally well regulated by the proponent through incorporation of best practice measures, or Environment Agency through conditions imposed on drainage or discharge consents. However, there remains the risk of potential impacts via the drainage schemes associated with the PFI's capital schemes at Duver Road, Lower Road, Undercliff Drive, Military Road and Bouldnor Road. These schemes require additional assessment.
- 4.2.11 The structural maintenance services (highway drainage) to be provided under the Highways PFI provide a theoretical impact pathway for impacts to the aquatic environment, but it is considered unlikely to be strategically significant. All other PFI service areas were considered to be neutral in relation to potential impacts to water quality.

#### **SEA5 Natural resources**

- 4.2.12 The use of natural resources (water, energy and construction materials) in construction of the capital schemes could lead to significant environmental effects, depending on the design and specification of the scheme, and materials required. Further assessment is needed.
- 4.2.13 It should be noted that the Highways PFI requires the successful Service Provider to account for its carbon and water footprint through all operations over the lifetime of the programme. Forecasts of water use and carbon emissions associated with both capital and operational activities have been developed, and the Service Provider will be obliged to monitor its actual carbon and water footprints as the programme moves forward. To encourage improvements in carbon and water footprint forecasts, financial penalties exist within the contract if the carbon and water footprints are greater than forecast.
- 4.2.14 Replacement and maintenance of structures under the Highways PFI provide a theoretical impact pathway for impacts to the sustainable uses of natural resources, but it is considered unlikely to be strategically significant particularly in the context of water and carbon footprint restrictions. All other Highways PFI services were considered to be neutral in relation to potential impacts to natural resources.

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<sup>9</sup> Any provision to improve or ease maintenance by changes to ditch management (e.g. routing, enlarging etc.) may require consent as a possible damaging operation and advice should be sought from Natural England.

### **SEA6 Soil**

- 4.2.15 Temporary or permanent loss of soil is possible as a result of the capital schemes, depending on the design and location of a scheme. Further assessment is required. Quartering (removal of materials accumulated at the highway's edge) may also lead to minor losses of soil, but this is not considered to be strategically significant. All other Highways PFI services were considered to be neutral in relation to potential impacts to soils.

### **SEA7 Air quality**

- 4.2.16 The capital schemes, including their associated drainage schemes, will require reconstruction of some parts of the highway network. Temporary significant impacts to human health and biodiversity during construction are possible, although long-term or permanent effects are unlikely. More detailed assessment is necessary.
- 4.2.17 Parts of the PFI which contribute towards encouraging more sustainable modes of transport (i.e. cycleway renewals) or provide natural vegetation which helps to reduce air pollution (tree replacements) are expected to have positive effects on air quality, but do not require additional assessment. All other Highways PFI services were considered to be neutral in relation to potential impacts to air quality.

### **SEA8 Climate change contributions**

- 4.2.18 Notwithstanding the carbon footprint built into the Highways PFI (see **SEA5 Natural resources**, above), the PFI capital schemes, including their associated drainage schemes, will carry both embedded carbon (within materials) and expend carbon during construction and installation. Drainage schemes for the capital schemes may also have an operational carbon cost if pumping is required. These proposals require more detailed assessment.
- 4.2.19 Renewal of the streetlighting network is anticipated to improve the overall energy efficiency of street lamps, leading to a reduction in carbon emissions from this source. Parts of the Highways PFI which contribute towards encouraging more sustainable modes of transport (i.e. cycleway renewals) are expected to have positive effects on carbon emissions, but do not require additional assessment. All other Highways PFI services were considered to be neutral in relation to potential impacts to carbon emissions.

### **SEA9 Climate change adaptation**

- 4.2.20 Effects associated with adaptation to climate change are unclear. The Highways PFI requires maintenance of the highway network within its current footprint; in general terms, this would neither promote nor detract from adaptation to climate change. It is anticipated that new capital schemes will be designed to be resilient to the predicted impacts of climate change (e.g. increasing average temperatures and rainfall, and greater risk of flooding). But, in certain coastal locations such as Military Road, maintenance of the highway within its current footprint may interfere with natural coastal erosion processes, in contradiction with ecological protections and shoreline management policy. This depends upon the means of implementation and further detailed assessment is required.

- 4.2.21 All other Highways PFI services were considered to be neutral in relation to potential impacts to climate change adaptation.

**SEA10 Poverty and social exclusion**

- 4.2.22 Positive effects are expected as a result of the upgrading and maintaining of the highway network provided by the Highways PFI project. No further assessment is required.

**SEA11 Community health, safety and well being**

- 4.2.23 Positive effects are expected as a result of structural maintenance and capital works for carriageways, footways and cycleways, while streetlighting, safety cameras, CCTV and the remote operation control room will help to promote community safety. No further assessment is required.

**Summary**

- 4.2.24 Due to potentially negative or uncertain effects on a range of SEA Objectives, the capital schemes – in particular those listed below – require additional assessment, including a comparative assessment of options, and detailed assessments for any selected option considered likely to lead to significant environmental effects. For all other aspects of the Highways PFI programme, effects are either expected to be positive, or are assessed as unlikely to lead to strategically significant environmental effects.

- ▶ Duver Road, St Helens;
- ▶ Lower Road, Adgestone;
- ▶ Westhill Lane, Yarmouth;
- ▶ Newport Road – Upper Ventnor “Graben”;
- ▶ Undercliff Drive (all four sites);
- ▶ Military Road – Brook Chine and Shippards Chine; and
- ▶ Bouldnor Road, Yarmouth.

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