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Severn Estuary Recreation Mitigation Strategy 2024-2029

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Summary

This strategy sets out the mitigation requirements relating to impacts from recreation (associated with new housing and tourism development) on the Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site, The Severn Estuary is of exceptional nature conservation importance, and the strategy ensures the relevant local authorities (Forest of Dean, Gloucester City, Tewkesbury and Stroud) meet legislative requirements and adequately protect the sites when permitting development.

This strategy is an update to the existing strategy (established for Stroud District only in in 2017) and extends the approach to cover a wider area. This strategy covers the period 2024-2041, however it will be subject to review on at least a five yearly basis.

Mitigation measures comprise:

- SAMMS (Strategic Access Management and Monitoring); and
- Off-site infrastructure (including SANGs – 'Suitable Alternative Natural Greenspace').

By addressing risks up front, the strategy provides a proactive, cross-boundary solution that ensures cumulative impacts of growth are taken into account. The strategy ensures necessary resources and costs are identified and provides clarity for developers when bringing forward sites for development.

Contents

Acknowledgements

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A workshop was held on the 2nd October 2023 to help identify potential mitigation measures and a number of people also fed in ideas and suggestions outside that workshop. Thanks to the following for useful discussion and input: Cathy Beeching, Rebecca Charley (Stroud District Council), Ruth Clare (Environment Agency), Esther Collis (Stroud District Council), Luke Etheridge (Stroud District Council), Celia Fallon (Natural England), Jane Hennell (Canal and Rivers Trust), Katie Havard-Smith (Severn Estuary Partnership and Association of Severn Estuary Relevant Authorities 'ASERA'), Cllr Haydn Jones (Stroud District Council), Emma Hutchins (Gloucestershire Wildlife Trust), Juliet Hynes (Gloucestershire Wildlife Trust), David Ingleby (Gloucester City Council), Ellie Jones (Wildfowl and Wetlands Trust), Grace Lewis (Network Rail), Caroline Lidgett (Forest of Dean District Council), Sarah Macaulay-Lowe (Gloucestershire County Council), Conrad Moore (Stroud District Council), Eric Palmer, Liam Reynolds(Severn Rivers Trust), James Rowlinson (Environment Agency), Mike Smart, Orlando Venn (Wildfowl and Wetlands Trust), Sarah Wells (FWAG), Jeff Wheeler (Gloucestershire County Council), Rob Willcocks (Severn Rivers Trust) and Robert Williams (Canal and Rivers Trust).

1. Introduction & purpose of this strategy

Overview

1.1 This strategy relates to housing and tourism development around the Severn Estuary, within the local planning authority areas of Forest of Dean District Council, Gloucester City Council, Stroud District Council and Tewkesbury Borough Council. Cheltenham Borough Council Cotswold District Council were also involved in the original commission and initial evidence gathering (visitor surveys) that that inform the strategy.

1.2 The strategy sets out the mitigation requirements relating to the nature conservation impacts of new development on the Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site and provides measures for the authorities to implement, to give them certainty that they are adequately protecting the wildlife site from the impacts of residential and tourism growth.

The Severn Estuary SAC/SPA/Ramsar

1.3 The Severn Estuary is one of the largest estuaries in Europe and is internationally important for the habitat and species the estuary supports. Saltmarsh fringes the coast backed by grazing marsh with freshwater ditches and occasional brackish ditches. The subtidal seabed is rock and gravel with subtidal sandbanks. The site also supports reefs of the tube forming worm *Sabellaria alveolata*.

1.4 The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have one of the highest tidal ranges in the world. A consequence of the large tidal range is an extensive intertidal zone, one of the largest in the UK.

1.5 The site qualifies as a Special Area of Conservation (SAC) for a range of coastal habitats and for three fish species. The Severn Estuary Special Protection Area (SPA) is classified for its waterbird assemblage and for a range of species that occur on passage/over winter including a range of both wildfowl and wader species. The Ramsar interest overlaps with the SAC and SPA features and includes the bird interest. Further details of the conservation importance and qualifying features for the Estuary are summarised in Appendix 1.

1.6 The bird populations associated with the estuary move widely and make use of a range of sites away from the estuary during the course of the winter. Waterbodies, wetlands and low-lying farmland can provide important feeding and roost sites which may vary in importance within a season and across years, depending on water-levels, food availability and a range of other factors. While such sites lie outside the SPA they are functionally linked in that they play a role in supporting the relevant bird interest (see Chapman and Tyldesley, 2016 for further definitions, background and context). Key locations within the Severn Vale are described by Palmer and Smart (2021) who identified 21 sites that held more than the equivalent of 1% of the SPA population of one or more species for 50% or more of months within one or more of three WeBS counting seasons.

1.7 The SAC, SPA and Ramsar designations mean the Severn Estuary is among the top tier of nature conservation sites in the UK and comprises part of the 'National Site Network'. These Habitats Sites or European Sites are afforded the strict protection through the Habitats Regulations 2017 (as amended).

Legislative context

1.8 Under the Habitat Regulations, a competent authority should only give effect to a plan or authorise/undertake a project after having ascertained that it will not adversely affect the integrity of the European site, either as a result of the plan/project alone or in-combination with other plans/projects. This means that in the absence of certainty, the plan or project should not normally proceed (subject to the further exceptional tests set out within the legislation). The definition of a plan or project is broad (see Tyldesley and Chapman, 2021) and extends to local plans produced by local planning authorities.

1.9 Mitigation measures are counteracting measures that serve to avoid, cancel or reduce harmful effects. Guidance (Tyldesley & Chapman, 2021) is clear that, to be taken into account, at the appropriate stages, all 'mitigation measures' should be effective, reliable, timely, guaranteed to be delivered and as long-term as they need to be to achieve their objectives.

Impacts of recreation

1.10 Potential impacts of recreation to the Estuary relate to the following broad pathways:

- Damage (e.g. direct harm to vulnerable features from wear and footfall, e.g. trampling of saltmarsh vegetation)
- Contamination (potentially quite limited impacts given the qualifying features, however could include eutrophication through dog faeces/urine, water quality as a result of dogs entering water bodies)
- Fire (e.g. from barbeques, campfires etc and potentially a risk to habitats such as reedbeds)
- Disturbance (e.g. impacts to birds from the presence of people, dogs, craft etc.)
- Other (public opposition to management, difficulty in grazing etc.)

1.11 Disturbance to the wintering and passage bird interest is the principle concern, and is relevant to the SPA and Ramsar features. Disturbance to wintering and passage waterfowl can result in:

- A reduction in the time spent feeding due to repeated flushing/increased vigilance (Fitzpatrick and Bouchez, 1998; Stillman and Goss-Custard, 2002; Bright *et al.*, 2003; Thomas, Kvitek and Bretz, 2003; Yasué, 2005)
- Increased energetic costs (Stock and Hofeditz, 1997; Nolet *et al.*, 2002)
- Avoidance of areas of otherwise suitable habitat, potentially using poorer quality feeding/roosting sites instead (Cryer *et al.*, 1987; Gill, 1996; Burton *et al.*, 2002; Burton, Rehfisch and Clark, 2002)
- Increased stress (Regel and Putz, 1997; Weimerskirch *et al.*, 2002; Walker, Dee Boersma and Wingfield, 2006; Thiel *et al.*, 2011).

1.12 Issues are associated with a range of activities including those on the shore (walking, dog walking etc.), on the water (such as jet skis, kayaks and paddleboards) and in the air (drones, paragliders and other airborne craft). The issues are long standing. For example, Habitats Regulations Assessment (HRA) work that accompanied the Stroud Local Plan around 2016 recognised that while baseline levels of recreational pressure on the Estuary were relatively low, disturbance could still have a high impact and recreational use was likely to increase as new housing, employment and tourism development comes forward. A likely significant effect on the conservation status of the site's qualifying features could not be ruled out and Stroud District Council therefore established a mitigation strategy (Stroud District Council, 2017). Around 2016, Forest of Dean District Council also commissioned dedicated work on recreation and disturbance around Lydney to mitigate the effects of housing growth around the town.

1.13 Recreation use of the Estuary has been summarised by McNutt (2023) and visitor surveys (Southgate and Colebourn, 2016; Liley, Panter and Hoskin, 2017; Caals and Liley, 2022) provide further background and context on recreation use, the draw of sites and provide information on the activities undertaken. Clubb and Phillips (2023) give results from an online survey investigating attitudes and awareness of visitors to the Severn Estuary in order to help identify key drivers of recreational behaviour.

1.14 Changing recreation patterns, such as the increasing popularity of paddleboarding and an increase in dog ownership (e.g. Morgan *et al.*, 2020), mean predicting future impacts can be challenging. Furthermore, impacts around recreation use have in recent years been exacerbated by climate change (effecting the species distributions, habitats, access patterns etc.) and the Covid pandemic which resulted in an increase in recreation use of local greenspaces and an increase in awareness of the importance of access for well-being and general health (Randler *et al.*, 2020; Natural England and Kantar Public, 2021; Poortinga *et al.*, 2021). Bird flu is also a current concern for a range of waterbirds and has impacted a range of species.

1.15 Further background and evidence on recreation impacts for the Severn Estuary can be found in a range of studies. Natural England's site improvement plan[1] for the Severn Estuary SAC/SPA/Ramsar identifies public access/disturbance as a current pressure and a threat and prioritises it above all other pressures or threats identified. The plan states: "*Public access and recreation (including third party activities) may have an impact on bird species sensitive to disturbance, causing displacement from feeding, roosting and moulting areas, and if severe could affect long term survival and population numbers and distributions within the Estuary. There are a wide range of recreational activities within the site (walking, dog walking, horse riding, biking, beach activities, angling, wildfowling, other shooting (eg clay pigeon)) that may cause damage to habitats where pressure is high*."

1.16 The marine conservation advice package produced by Natural England and CCW[2] highlights that bird communities are highly mobile and the activity of different species relates to the tide and a range of other factors, which vary

[1] See the Natural England website: https://publications.naturalengland.org.uk/publication/4590676519944192

[2] Available from the Natural England website: https://publications.naturalengland.org.uk/publication/3184206?category=3212324

between species. One important factor is the level of disturbance which needs to be maintained at or below levels necessary to provide favourable conditions for birds' feeding and roosting areas. The package goes on to state that management should aim to avoid both damage to the supporting habitats and disturbance to the birds.

1.17 Sites that are functionally-linked to the SPA/Ramsar may also be potentially vulnerable to disturbance. Such sites may become more important in the long-term as a result of climate change, sea level rise and increased storminess.

1.18 There is also a range of more general literature on recreation and impacts of people and their dogs that provides background and context (Liddle, 1997; Saunders *et al.*, 2000; Lowen *et al.*, 2008; e.g. Harris, 2023).

Need for a strategy

1.19 Local Plans set the levels of housing growth and allocate land for development. The cumulative effects of growth around the Severn Estuary pose clear risks for the European site and these are best addressed strategically. By working together, the relevant Local Planning Authorities can ensure the in-combination effects are resolved and the strategy is therefore a solution to the legislative duties placed on the relevant authorities as competent authorities. It unblocks potential HRA issues at the individual development project level where recreation pressure is difficult to mitigate on a piecemeal basis because it relies on a suite of integrated activities.

1.20 In addition, the strategy provides a positive response to the challenge of balancing countryside access and nature conservation. There is a legal right of access to much of the shoreline of the Severn Estuary and surrounding countryside, for example through a network of Public Rights of Way. Access to the countryside is crucial to the long-term success of nature conservation projects, for example through enforcing pro-environmental behaviours and inculcating a greater respect for the world around us (Richardson *et al.*, 2016). Access also brings wider benefits to society that include benefits to mental/physical health (Lee and Maheswaran, 2011; Keniger *et al.*, 2013; Olafsdottir *et al.*, 2020) and economic benefits (Sandbrook, 2010; ICF GHK, 2013; Keniger *et al.*, 2013; Stebbings *et al.*, 2020). As such the provision and enhancement of access to the Estuary is important, yet must be balanced with the need to provide the adequate protection for the nature conservation interest.

1.21 The strategy will work alongside, and build on, existing work undertaken by a range of organisations around the Estuary. The Severn Estuary Partnership forms the existing Coastal Partnership and the Association of Severn Estuary Relevant Authorities (ASERA)[3] has a Management Scheme for the Estuary, conducts awareness raising communications for the site and has Good Practice Guidelines to tackle disturbance. Organisations such as the Wildfowl and Wetlands Trust manage reserves where people can see birds and other wildlife without disturbing them.

[3] https://asera.org.uk/about-asera/

2. Mitigation measures

2.1 The aim of the mitigation is to provide sufficient certainty for the Local Planning Authorities that they have met their duties under the Habitats Regulations and addressed impacts from the additional recreation (associated with new housing) to the Severn Estuary SAC/SPA/Ramsar.

2.2 As such the mitigation is not intended to address all recreational impacts (for example relating to existing recreational use). While success would ideally result in thriving bird populations and other qualifying features, it is recognised that other factors (such as climate change) may also be affecting populations (regardless of any recreation impacts). As such successful mitigation will mean a reduction in damaging behaviours (such as dogs off leads disturbing birds) at sensitive locations and a greater awareness among visitors of the nature conservation importance of the site and the impacts associated with their behaviours.

2.3 A suite of mitigation measures will provide the most confidence that that adverse effects arising from recreation have been prevented. This is because a combination of measures working together reduces risk and builds in contingency for amending the strategy if some measures do not perform as well as envisaged, once implemented. Other measures can still be functioning in the short term whilst some are revised. An integrated suite of measures delivered together also improves efficiency, which in turn adds to effectiveness with improved value for money.

2.4 Mitigation comprises Strategic Access Management and Monitoring (SAMM) and alternative green infrastructure away from the Estuary. These are summarised in Figure 1, which also shows the different elements of SAMM.

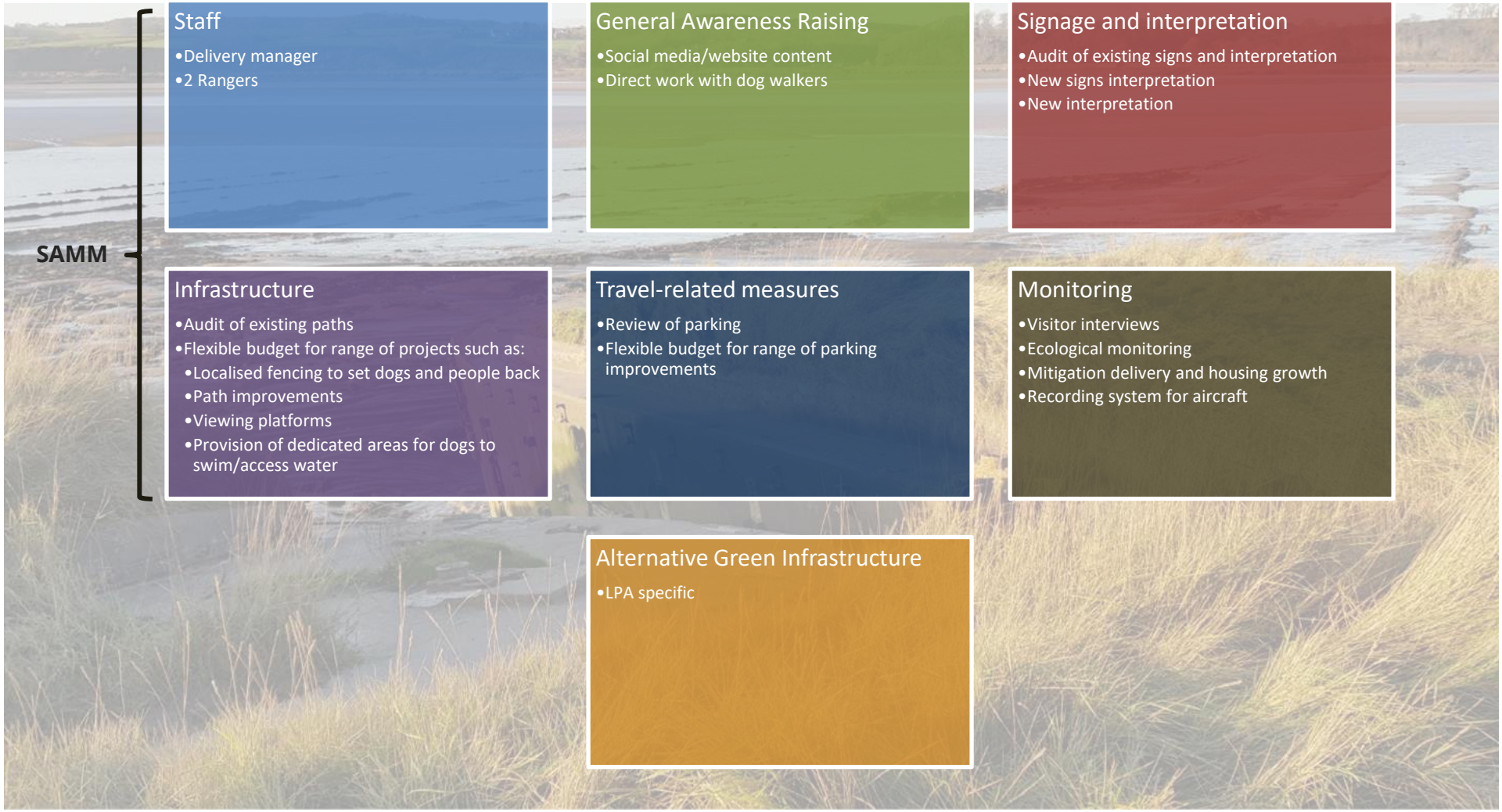


Figure 1: Overview of mitigation strategy components

Strategic Access Management and Monitoring (SAMM)

2.5 SAMM include a delivery manager whose role will be to coordinate mitigation, working with partner organisations to ensure effective, joined-up mitigation around the coast, coordinating budgets and reporting. The Delivery Manager will work closely with the ranger team with the scope to manage the rangers and provide some cover (e.g. leave periods, busy days).

2.6 A key component of SAMM is face-to-face ranger provision. A mobile ranger team is a key component of other mitigation schemes such as those on the Solent, the South-Devon sites, the Thames Basin Heaths and the Dorset Heaths, where the rangers form a mobile team that spend the majority of their time outside, talking to visitors, influencing how visitors behave and showing people wildlife.

2.7 There is a clear role for increased ranger provision around the Estuary and the roles will primarily involve engagement with visitors:

- Reinforce good/responsible behaviour;
- Explain issues around dogs out of control and target talking to those whose dogs are not under control;
- Target certain other activities/behaviours including where visitors are flying drones, accessing the water for watersports and locations used by dog walkers;
- Show people wildlife, highlight the importance of the coast for wildlife and celebrate that richness;
- Some basic monitoring and recording (e.g. of incidents).

2.8 The role of the rangers will also extend beyond face-to-face engagement to work with partners and stakeholders including:

- Working with local cafes, food outlets and other business that may be able to play a role in promoting key messages and raising awareness;
- Work with local access providers and community groups as relevant;
- Co-ordination with landowners and organisations working around the coast to ensure consistent messaging and targeting of mitigation delivery;
- Liaison within the relevant councils (e.g. ensuring joined-up approach re dogs, parking, beach cleaning etc)

2.9 The focus for the rangers are likely to change with time, for example extreme weather events and issues relating to access and bird flu require different messaging, communication and have different implications. Ranger

provision will therefore need to be flexible and adjusted to reflect types of development and the mitigation priorities coming forward.

2.10 Ranger provision is likely to work best where delivered by a single discrete body where the sole purpose is mitigation delivery. Bird Aware Solent provides a good model in this respect. The team have branding that sets them apart from other council staff/NGOs and as the role is solely around mitigation delivery, staff cannot be diverted towards other duties (such as routine management, maintenance, membership recruitment or other such tasks). One of the advantages of such an approach is that the ranger effort is deployed strategically, ensuring seamless delivery across the coast and also consistent messaging, communication and information. There are cost savings from working at the regional scale. There is scope too to learn and adopt practices from other mitigation schemes, with those on the Solent, South-East Devon, the Dorset Heaths and the Thames Basin Heaths among the longest running.

2.11 The strategy includes provision for 2 rangers. The SPA shoreline from the South Gloucestershire boundary near Berkeley to the northern tip near Frampton on Severn and then along to the Severn Bridge in the south-east corner of Forest of Dean is around 56km. Clearly the remit of the rangers will need to extend beyond this in order to extend into South Gloucestershire and also to cover functionally-linked land. The level of ranger provision proposed is therefore more than 26km per ranger. This level of provision accords with other strategies and ensures the potential for on-site coverage at weekends and different times of day (including early morning). Data from the Solent (where a mitigation ranger team has been long established) indicates rangers can speak to around 5-7 groups per hour on-site, depending on how busy the location is (Liley *et al.*, 2023). The ranger team has included around 7 staff over the winter (covering some 250km of coast, i.e. 36km per ranger) and the level of annual growth (around 3400 dwellings), equates to around 30 minutes ranger time per new dwelling per winter. A recent review has flagged the level of provision is low (Liley *et al.*, 2023). The Northumberland Coast mitigation involves 3 rangers for around 110km of coast (37km per ranger) and a relatively low level of housing growth (750 dwellings over the plan period within the zone of influence).

2.12 Ranger provision should be reviewed over time and may need to be increased. The 2 posts included in the strategy would be full time (passage/wintering birds are present from the end of July – May) and as the

team is reviewed/grows there could be scope to supplement with seasonal coverage.

2.13 The ranger provision is essential and provides a foundation to the strategy. Alongside the ranger team (and dovetailing with their work), the SAMM includes a review of signage and interpretation, new signs and interpretation, social media work and funding for a range of infrastructure projects including paths, boardwalks, fencing and parking related measures etc. These measures all complement the ranger provision by extending the messages, influencing behaviour and directing visitor flows (e.g. away from sensitive areas). The SAMM includes an overall budget that can be directed towards different projects and it will be the role of the delivery manager to work with landowners, rangers and site managers to identify suitable projects and direct funds accordingly. Preliminary discussions have identified opportunities for extending the board walk at Saul Warth and a range of projects at and around Slimbridge.

2.14 Other SAMM components include monitoring that extends to visitor surveys and bird surveys alongside WeBS data.

2.15 SAMM measures are summarised further in Table 1 and detailed costs and measures are set out in Appendix 2.

Table 1: Detail of SAMM measures. These are also set out in Appendix 2 which gives a breakdown of costs for each measure. Rows could be colour coded to match figure

Type of measure	Mitigation measure	Description	Justification	Notes
Staff	Delivery manager	Full time post with duties covering community liaison, funding, implementation of projects, coordination of measures, reporting to executive group, supporting rangers etc.	Necessary to oversee delivery and coordinate	Project manager post necessary in-perpetuity; initially full-time post and major focus on infrastructure works, in longer term could shift to a part time post with more admin/oversight role
Staff	Ranger time	2 full time posts with duties covering face to face engagement and intercepting visitors where particular issues/impacts (e.g. drones, dogs chasing birds, fires etc.).	Face-face engagement to influence behaviour and raise awareness, can be targeted to specific times, locations etc.	Flexible deployment to cover locations, times of year and times of day where issues
Staff	Ranger resources (vehicles)	2 Vehicles for rangers	Vehicles provide clear visible presence and essential to access areas	Vehicle costs may need to change with time
Signage & Interpretation	Audit of current provision	Undertaken by the delivery officer/rangers with some external support, identifying existing locations, condition, key messages	Audit necessary to identify priority locations and phased plan for new signs and interpretation	
Signage & Interpretation	Graphic design for new interpretation and signs	Commissioned external provider	Good quality graphic design to ensure consistent messaging key	
Signage & Interpretation	New interpretation boards	Production and installation	Interpretation ensures key messages can be communicated on site	Good quality interpretation will help ensure understanding of place, issues, where to go, contacts in emergencies etc. Economies of scale but needs to also be place specific

Type of measure	Mitigation measure	Description	Justification	Notes
Signage & Interpretation	New Signs, waymarking etc.	Production and installation	Signage on the ground important to direct people and communicate when/where particular behaviour relevant	
General Awareness Raising	Social media and website	Creation of website/web content for information on mitigation package work of rangers, monitoring results etc. Links to relevant organisations and feeds.	Web and social media are first places visitors will look for information about where to go and any current news/issues relevant to their visit	Content needs to work across different devices. Material needs to extend reach of rangers and provide guidance for those visiting
General Awareness Raising	Direct work with dog walkers	Suite of work directly with dog walkers, including gazeteer on web of where to walk and a series of events, potentially posters etc in vets and other targeted venues	Budget covers external support and specialists (e.g. dog trainers) for events	
Infrastructure on site or near estuary	Audit of existing paths, including unofficial/informal routes	Audit using visitor survey data, focal groups and site visits to identify routes and identify options to rationalise/improve, directing visitor flows etc.		Will require support and input from rangers \nd delivery manager. Visitor survey data provides good basis to identify areas to focus. Will also require specialist input as to potential options and indicative costs. Works will be sensitive
Infrastructure on site or near estuary	Path improvements, fencing and other infrastructure projects	Flexible budget to cover boardwalks, new surfacing, waymarking, fencing, viewing platforms and other measures to redistribute access as identified in audit	Quality of paths and how they are maintained will influence where people go and how they move through sites. Fences effective barriers at specific locations to protect senstive features	
Monitoring	Visitor interviews	Interviews with random sample of visitors, to check on distances travelled, engagement/awareness with mitigation project, routes etc.	Provides data that can then feed into mitigation delivery	

Type of measure	Mitigation measure	Description	Justification	Notes
Monitoring	Ecological	Budget to contribute/fill gaps in existing monitoring, potentially relating to birds (if gaps in WeBS) and functionally linked land	Ecological monitoring important to ensure accurate and upto date communication/engagement material and help to target mitigation	
Monitoring	Online hub for reporting problem behaviour by light aircraft	Creation and promotion of an online hub for the public/site managers to log problem behaviour by aircraft, with data monitored by Delivery Manager/Rangers and used to directly approach relevant flying clubs, airfields etc if and when problems emerge	Disturbance impacts to qualifying bird species/assemblages from light aircraft identified by a range of stakeholders at an issue widely around the Estuary	Aim to achieve a simple system that can document any incidents (ideally with photographs) and allow them to be followed up. Could be extended to other types of recreation as appropriate/necessary
Travel	Review of parking	Review to audit all parking locations on and around the estuary, including functionally-linked land, considering potential for charging to be adjusted (i.e. more expensive at sensitive locations), plus potential for improvements to focus use and activity. Potential to close some parking locations.		
Travel	Parking improvements/modifications	Changes potentially including improvements, resurfacing, rationalising, changes to charging		

Alternative green infrastructure

2.16 Off-site infrastructure will provide access or enhance existing countryside away from the Estuary, with the aim of drawing some visitors and recreation use to alternative destinations. Three different approaches (see Figure 2) are possible and relevant to different types of development or locations.

Developer led SANG (greenfield)	Strategic SANG	Rolling list of LPA projects
• Developments in the region of 75 or more dwellings in greenfield locations expected to provide their own SANG • SANGs assessed as part of HRA and agreed with Natural England • Guidelines set out in Appendix 3 and planning application principles in Appendix 4	• Major projects delivered by LPAs to provide mitigation for multiple developments over a wide area • Guidelines set out in Appendix 3	• Discrete, scattered projects enhancing access provision in wider area • Tailored to local needs and specific circumstance • Guidelines in Appendix 5

Figure 2: Different off-site infrastructure

2.17 Developer-led SANGs will be delivered directly by developers through on-site provision. Other types of infrastructure will be led by the local planning authority and funded from contributions.

2.18 For large sites coming forward in greenfield locations, provision of SANGs should form part of the overall infrastructure provision of that site. These developer led SANG will be incorporated into the site design from the outset. SANGs provision should be delivered in advance of occupation of dwellings, however for larger proposals mitigation may be structured so as to tie in with development phasing.

2.19 Small sites and brownfield sites within existing built-up areas are unlikely to be able to accommodate the scale of space required for a SANG and would therefore make a contribution through either s106 or CIL towards strategic SANG or, if there is no strategic SANG available at a suitable distance, contribution towards a range of discrete projects enhancing existing access.

2.20 Strategic SANG will provide larger destination sites and are likely to be the most effective in drawing alternative recreation use[4]. Such LPA led sites are likely to be better quality greenspaces and provide a different visitor experience to most developer-led greenspace which will be typically be local to large developments.

2.21 The rolling list of projects will be produced by each authority, tailored to fit with the local needs for access and demand in the local area, and will fill any remaining mitigation need (alongside Developer-led SANG and Strategic SANG). The rolling list of projects could include measures relating to existing greenspaces and include new footpath links between spaces, improved parking, fenced dog exercise/training areas, improved path infrastructure, better access (road crossings or bridges) etc. Some such projects would be appropriate in the more urban areas where the recreational behaviour of urban residents may differ to those outside the city and there is limited opportunity to create new greenspace. Such projects will also be more appropriate in more rural areas where small levels of growth and windfall come forward in locations where there is no strategic SANG.

2.22 Each authority will ensure a list of projects that is agreed with Natural England and updated as needed. The list may well overlap with green infrastructure strategies but will be separate and clearly identified as mitigation. Costs and relevant levels of contribution will be determined by each authority.

2.23 These different options provide a tiered approach to off-site infrastructure and over time will ensure robust mitigation by increasing the quality and availability of accessible natural greenspace outside European sites. The different options will mean a range of infrastructure is available to local residents, including destination sites with car parks and a range of facilities to more local and small-scale provision. The aim should be to deliver a network of inspiring greenspace that delivers the necessary mitigation and as appropriate fulfils a range of other functions such as climate change resilience, reduced need for car travel, nature recovery and health benefits.

[4] Examples from other parts of the country that demonstrate the success of SANG in deflecting access away from estuary/coastal sites include Dawlish Countryside Park; see Caals et al. (2022) for details.

3. Strategy implementation

Overview

3.1 This section sets out the details of the strategy in terms of the geographic scope, types of development, costs and governance.

Zone of Influence

3.2 Home postcodes of interviewees from the visitor survey (Caals and Liley, 2022) are shown in Map 1 – these postcodes are for those people interviewed at the estuary survey points only (see Caals & Liley 2022 for background and discussion). The zone of influence drawn from these data is also shown. It broadly reflects a distance of 12.6km from the SPA/SAC/Ramsar boundary, and this distance reflects the 75th percentile of the distances from home postcode to interview location (just for those interviewed at the estuary survey points). The use of the 75th percentile has become the standard and reflects the approach used in other mitigation strategies around the country (see Liley, Panter and Chapman, 2021)[5]. The use of the 75th percentile ensures a zone that encompasses the area where most visitors originate yet excludes some of the areas where people travel large distances and are visiting only very occasionally.

3.3 In the case of the Severn Estuary, the 12.6km has been clipped slightly to exclude the very small area of Cotswold District that lies within 12km; this is for practical reasons as the area concerned is so small and is rural, meaning very little (if any) housing growth is likely. As such the strategy solely applies to the following local planning authorities:

- Forest of Dean District Council
- Gloucester City Council
- Stroud District
- Tewkesbury Borough Council

3.4 Contribution to the strategic mitigation scheme from development proposals within the zone of influence should enable applicants to secure the

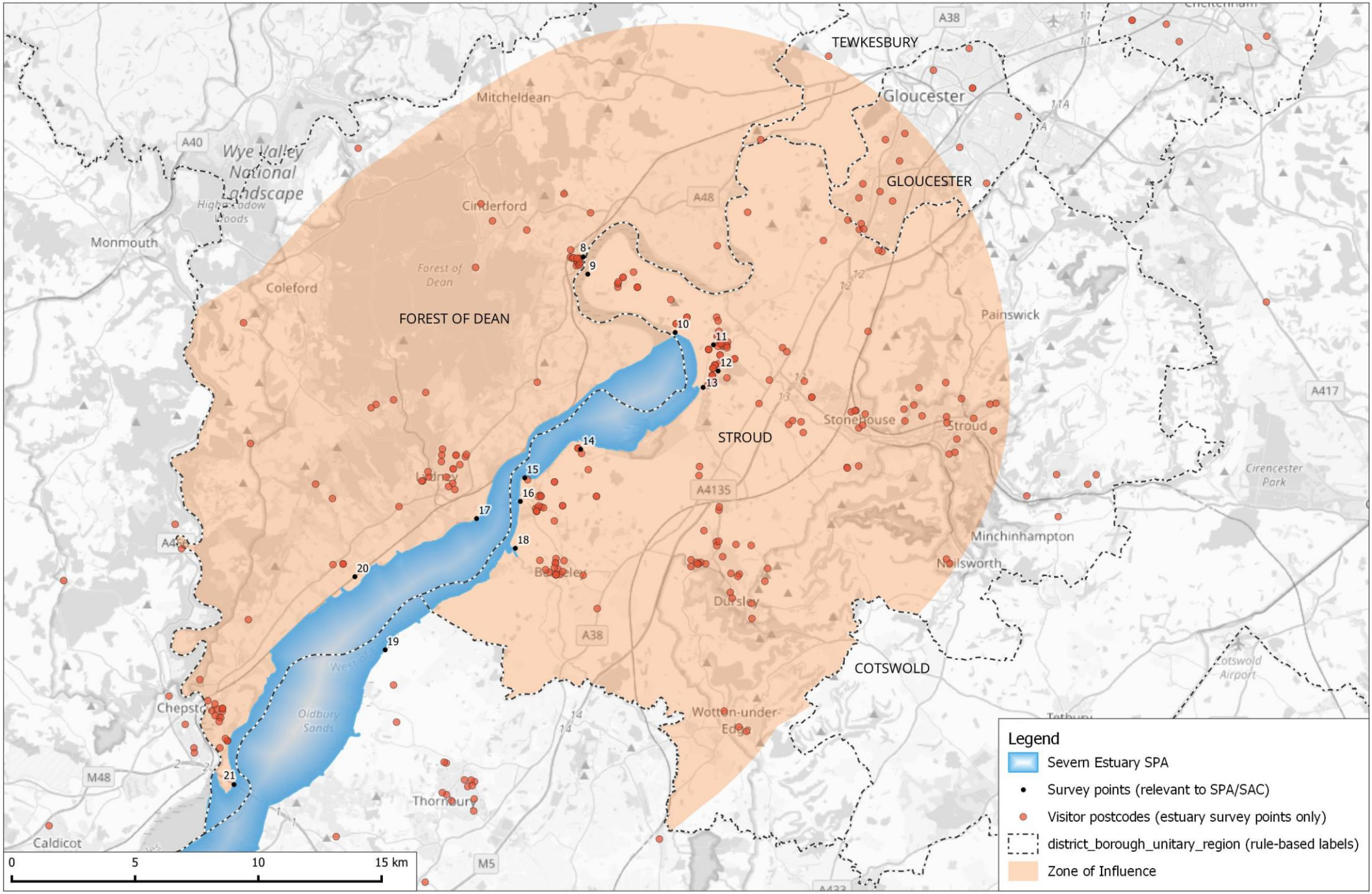
[5] See also appeal decision APP/X0415/W/22/3308630, Millen Homes Ltd against Buckinghamshire Council, published October 2023. https://acp.planninginspectorate.gov.uk/ViewDocument.aspx?fileid=54374907

appropriate avoidance or mitigation measures and enable the relevant Council to conclude, through appropriate assessment, that there is no adverse effect on the integrity on the Severn Estuary SAC/SPA/Ramsar from recreation. It should however be noted that the zone of influence has been drawn to the SPA/SAC/Ramsar boundary and has not been extended to further buffer functionally-linked land. SAMM mitigation measures will extend to include functionally-linked land and SANG will work to deflect access away from any sensitive site, including any functionally-linked land. However, where development may result in additional increase in recreation use to functionally-linked land, particularly if the development location is very close or large, there may need to be additional consideration or checks to ensure risks are adequately addressed, and these checks may still be necessary beyond the zone of influence.

3.5 Where an application site spans the zone of influence then all units that fall partly or wholly within the relevant zone will need to secure mitigation.

3.6 For large development just outside the outer zone, it will not necessarily be the case that likely significant effects from recreation and the Sefton Coast can be ruled out. For these sites there is scope to contribute towards the strategic mitigation and this will need to be assessed on a case-by-case basis.

Map 1: Zone of influence and visitor survey postcodes



Types of development

3.7 The strategy relates to residential development (including affordable housing) and some other types of use including some tourist-related development, as summarised in Table 2 and that come forward within the zone of influence.

Table 2: Types of development relevant to the strategy

Use Type/Class	Likely Significant Effect	Mitigation requirements
Dwelling houses (C3) Any net increase	Yes	Per dwelling contribution
Dwelling houses (C3) Extension or 'Granny 'Annexe	Possibly, case-by-case decision and depends on whether functions as a separate unit	Per dwelling contribution if necessary
Dwelling houses (C3) Replacement dwelling	No	
Residential Institutions (C2/C2A) Accommodation and care to people in need of care including nursing homes, hospitals and secure institutions	Possibly, case-by-case decision and depends on the type of scheme and level of mobility of residents	Per unit contribution if necessary
Residential Institutions (C2/C2A) School, college or training centre	No	
Hotel (C1) Including boarding houses and guest houses	Possibly, case-by-case decision depending on potential to rule out tourists visiting the coast	Per unit contribution if necessary
Houses in Multiple Occupation (C4/Sui Generis) Including managed student accommodation	Yes	Per dwelling contribution
Holiday Dwellings (Sui Generis)	Possibly, case-by-case decision depending on potential to rule out tourists visiting the coast	Per unit contribution if necessary
Gypsy and Traveller Pitches and residential moorings for barges or boats (Sui Generis) Net new pitches/moorings that are either temporary or permanent	Yes	Per dwelling contribution
Café, food outlet or visitor attraction	Possibly, case-by-case decision based on application, location and links to coast	Contribution decided on a case-by-case basis as relevant

Tourist development

3.8 Holiday dwellings and other tourist accommodation are included in Table 2. Visitor survey data (Caals and Liley, 2022) shows that holiday-makers make

up a relatively small proportion of the overall levels of use. Holiday makers accounted for 5% of those interviewed, with a further 1% of interviewees comprising those staying away from home with friends or family.

3.9 Clearly some tourism related development will be closely linked to the estuary, for example sites with direct shoreline access, watersports facilities etc. Other tourism related development will be focussed around culture and heritage and have no impacts on the Severn Estuary SAC/SPA/Ramsar, while some development may relate to a mix of uses. Assessment can only be undertaken on a case-by-case basis with the option to contribute towards the strategic mitigation as necessary. Any contribution should be on a per unit basis, with the option (if suitable data are available) to adjust based on occupancy rates.

Growth to be mitigated

3.10 Levels of housing growth requiring mitigation and over the period 2024-2041 are approximately 16,488, based on information provided by the relevant planning authorities. The figures are estimates only:

- Gloucester City:1364;
- Forest of Dean: 3730;
- Stroud:11000 (this includes 3000 dwellings at Whaddon relating to the unmet housing need in Gloucester);
- Tewkesbury: 394.

Costs per dwelling

3.11 SAMM costs total £8,605,850 (see Appendix 2), this includes a 10% contingency sum to allow for uncertainty around housing numbers and variability in the costs of measures included within the SAMM. The per dwelling contribution is therefore: £521.95.

3.12 The costs may be further adjusted to reflect any underspend from previous years/carry-over from the previous strategy and also to allow for administration costs. Costs will be adjusted on an annual basis to reflect inflation.

3.13 SANG costs will be additional to the SAMM and some development will not need to make a SANG contribution as the developer will provide the SANG provision. Costs for SANG (where required) will be specified by the relevant local authority.

Legal mechanism to secure developer contributions

3.14 Measures are set out within this strategy and established strategically to ensure they can be delivered and are effective. The option remains for individual developers to provide suitable mitigation through a different approach. Any such cases will need to provide detailed evidence (through a shadow HRA, agreed with Natural England) to support any different measures proposed and rule out adverse effects on the integrity of the Cotswold Beechwoods SAC.

3.15 Developer contributions will be secured within the S106 legal agreement or unilateral undertaking accompanying the planning permission. The legal requirement will be for the payment of the required funds on commencement of development. Providing the funds on the commencement of development ensures that the funding is aligned with mitigation delivery.

Overlaps with other strategic mitigation schemes

3.16 There are strategic mitigation schemes in place or being developed for other European sites and in some areas the zones of influence will overlap. Of particular relevance are:

- Rodborough Common SAC: updated strategy (2022) includes a 3.9km zone of influence;
- North Meadow and Clattinger Farm SAC: interim strategy has a zone of 8km;
- Cotswold Beechwoods SAC: 15.4km zone of influence.

3.17 Where zones for other strategies overlap with the Severn Estuary zone, it will be necessary to ensure mitigation for all relevant European sites and SAMM contributions will therefore be necessary for each European site. Depending on the SANG requirements in each strategy, multiple SANG payments may not be necessary. As such, contributions towards SANG or the provision of SANG at the standard rate (8ha per 1000 new residents, see Appendix 3) will work as mitigation for multiple European sites. There is synergy in particular with the Cotswold Beechwoods Strategy and SANG contributions should be standardised across for both strategies.

Governance

3.18 There is uncertainty as to how mitigation priorities might need to change in the future, and such uncertainty can only be addressed through good monitoring, adaptive mitigation and regular review. It will be important that there is flexibility as to how money is spent and when so that mitigation delivery reflects housing growth coming forward and the priorities at the time.

3.19 Certain elements within the mitigation package have the scope to adapt and flex as conditions and priorities change, for example ranger time. There is a flexible budget within the SAMM to fund infrastructure projects and it will be possible for organisations to approach the delivery manager directly to develop projects and request funds. Furthermore, it is possible that additional opportunities may arise, for example as a result of changing land ownership. It is important therefore that the governance is flexible and responsive enough to enable developer contributions to be shifted to different components of the strategy easily. Annual reviews of budgets and the ability to adjust finances as appropriate (with rapid approval) will be key.

3.20 This will work through the Delivery Manager who will oversee the budget, undertake reviews and work closely with partners around the estuary. The Delivery Manager will need to liaise with planners and existing bodies such as the Severn Estuary Partnership and ASERA as well as al local conservation bodies and land managers/owners.

3.21 As Figure 3 shows, the Delivery Manager will report to the Oversight Group who will sign off budgets, authorise spend and have a strategic overview. This will ensure the Delivery Manager can then work directly with partners to deliver projects on the ground. The Oversight Group will comprise representatives from each authority, as well as the Combined Authority and Natural England and will meet quarterly.

3.22 The Working Group will be a more informal group that includes delivery partners. The role of this group will be to come together to support the Delivery Manager and provide the opportunity where practical issues around mitigation delivery can be resolved. Issues such as enforcement, deflection of issues from one location to another, anti-social behaviour, promotion of sites and changes in management at specific locations will all be relevant to this group. If rangers are hosted by different organisations, this group will ensure consistency of approach, for example that there are no spatial gaps

in coverage and messages are consistent. Survey data and monitoring results can be shared and used to refine approaches.

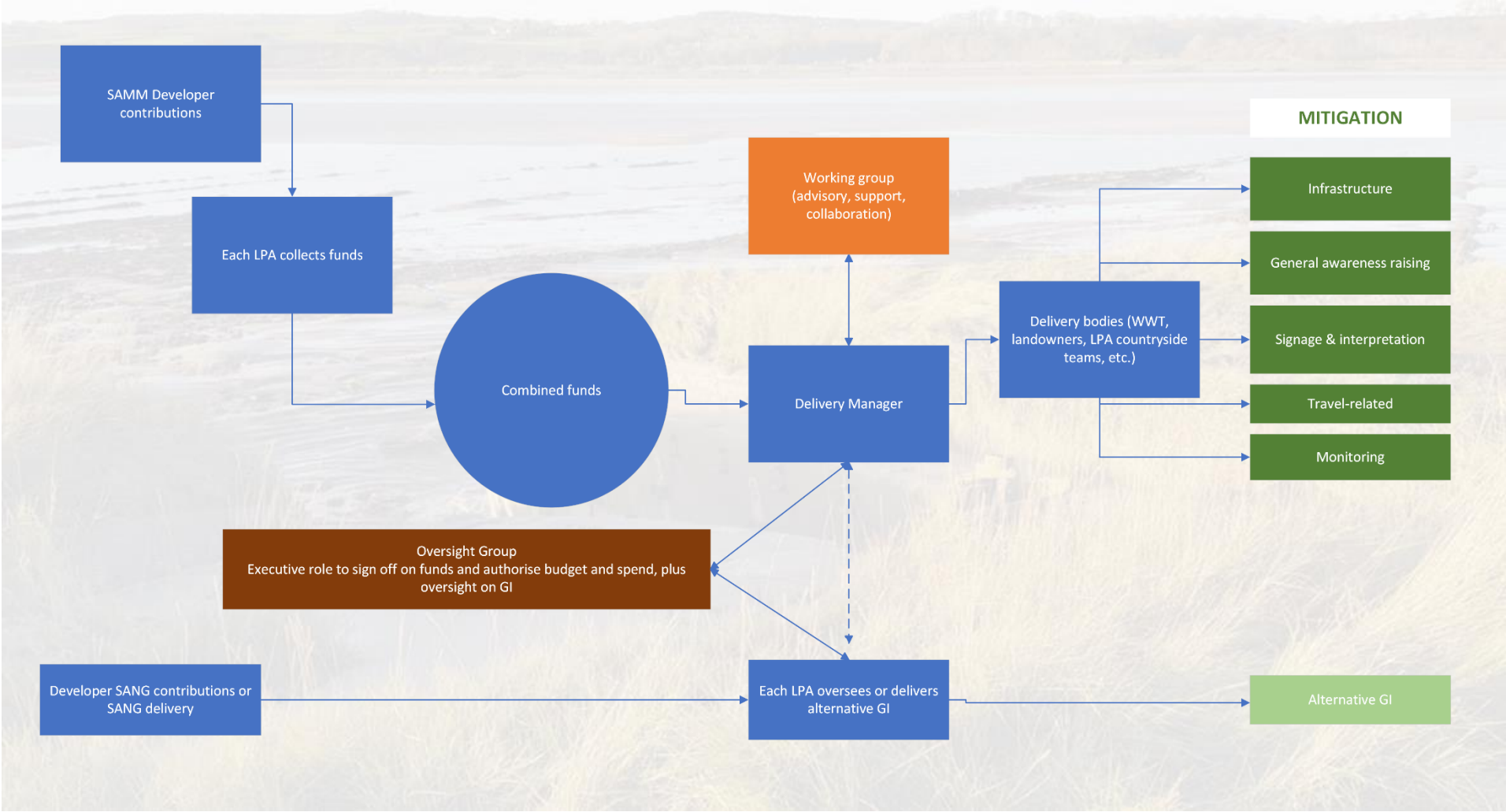


Figure 3: Governance structure

Review and phasing of measures

3.23 This strategy covers the period through until 2041 in terms of how the level of contributions have been set. The strategy should be reviewed and updated on at least a 5-year basis (alongside annual reviews of budget and measures to be funded).

3.24 Mitigation needs to be effective in the long-term, lasting as long as necessary to address any impacts. It is however difficult to predict how access patterns will change in the long-term, and issues and priorities for mitigation may change. Costs have been derived assuming that mitigation will be delivered in-perpetuity[6]. Implementation of measures will be phased with housing growth, ensuring sufficient mitigation is in place before new housing is occupied. This means not all measures will be instigated at once. Some measures will be one-off or short-term in nature.

3.25 Authorising budgets will be a critical role for the oversight group, as there will need to be decisions relating to setting aside money to fund long-term mitigation as opposed to implementing mitigation in the short term and priorities for delivery. The oversight group and ability for delivery bodies to bid for money will ensure funds are directed as required to ensure mitigation is effective and a 10% contingency is included, to allow for unforeseen changes to costings and provide flexibility in the funds available and how money is prioritised.

[6] In line with other mitigation strategies this assumed to be 80 years.

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Appendix 1: Background to SAC,SPA and Ramsar features

The table below summarises the relevant European sites included in this strategy. Links in the first column are to the Natural England website and the relevant conservation objectives (SPAs and SACs) and for Ramsar, the Ramsar citation. # indicates species/habitats where the UK has a special responsibility. Descriptive text is largely drawn from Natural England's relevant site improvement plan and from the supplementary conservation advice on the Natural England website.

European site	Qualifying Features	Description
Severn Estuary SAC	H1170 Reefs H1130 Estuaries H1140 Mudflats and sandflats not covered by seawater at low tide H1110 Sandbanks which are slightly covered by sea water all the time S1099 *Lampetra fluviatilis*: River Lamprey S1095 *Petromyzon marinus*: Sea Lamprey S1103 *Alosa fallax*: Twaite Shad H1330 Atlantic salt meadows (*Glauco-Puccinellietalia* maritimae)	The Severn Estuary is located between Wales and England in south-west Britain. It is a large estuary with extensive intertidal mud-flats and sand-flats, rocky platforms and islands. Saltmarsh fringes the coast backed by grazing marsh with freshwater ditches and occasional brackish ditches. The subtidal seabed is rock and gravel with subtidal sandbanks. The site also supports reefs of the tube forming worm *Sabellaria alveolata*. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have one of the highest tidal ranges in the world. A consequence of the large tidal range is an extensive intertidal zone, one of the largest in the UK. The tidal regime results in plant and animal communities typical of the extreme physical conditions of liquid mud and tide-swept sand and rock. The species-poor intertidal invertebrate community includes high densities of ragworms, lugworms and other invertebrates forming an important food source for passage and wintering waders and fish. The site is of importance during the spring and autumn migration periods for waders, as well as in winter for large numbers of waterbirds, especially swans, ducks and waders.
Severn Estuary SPA	Waterbird assemblage A394(NB) *Anser albifrons albifrons*: Greater White-fronted Goose A037(NB) *Cygnus columbianus bewickii*: Bewick Swan A048(NB) *Tadorna tadorna*: Common Shelduck	As above

	A051(NB) *Anas strepera*: Gadwall A149(NB) *Calidris alpina alpina*: Dunlin A162(NB) *Tringa totanus*: Common Redshank	
Severn Estuary Ramsar	The Ramsar listing is for a number of criteria relating to estuarine habitat communities and migratory fish (Salmon *Salmo salar*, Sea Trout *S. trutta*, Sea Lamprey *Petromyzon marinus*, River Lamprey *Lampetra fluviatilis*, Allis Shad *Alosa alosa*, Twaite Shad *A. fallax*, and Eel *Anguilla anguilla*) in addition to the extensive waterfowl assemblage.	As above

Appendix 2: SAMM mitigation costs

The table below matches the structure in Table 1 in the main body of the strategy (which see for detailed descriptions of the measures) and here the broad costs for each are set out. Costs are calculated to cover costs in the long term, with some measures involving implementation over many years (up to 80 years in total). In the timing column 1=initial priority, 2=medium term or measures that could be phased. The total cost of the measures in the table is £7,823,500. With a 10% contingency this gives a total of £8,605,650.

Type of measure	Mitigation measure	Timing	One-off/Capital cost	Rolling cost	Multiplier for rolling cost	Total cost	Notes on how cost calculated
Staff	Delivery manager	1		£63,700	25	£1,592,500	£42,000 annual salary, plus 35% (to cover NI, superannuation, etc.) and £7000 per annum support costs. Costed for 25 years to cover plan period and beyond.
Staff	Ranger time	1		£82,900	50	£4,145,000	2 fte equivalent posts with costs extended to cover 50 years. £27,000 annual salary, plus 35% (to cover NI, superannuation, etc.) and £5000 per annum support costs. Some ranger provision potentially required in-perpetuity however team can shrink over time as SANGs and infrastructure changes become relevant. 50 years for 2 posts gives potential for regular review and potential for it to shrink or expand (in short term) as priorities require and ensure in perpetuity coverage.
Staff	Ranger resources (vehicles)	1		£9,950	50	£497,500	£32,000 EV purchase, replaced every 10 years, £1500 for livery, £2000 p.a. insurance, 5000 miles p.a. at 0.25p per mile electricity. Assumed to be rolling

Type of measure	Mitigation measure	Timing	One-off/Capital cost	Rolling cost	Multiplier for rolling cost	Total cost	Notes on how cost calculated
							annual cost for 2 vehicles. Timed to match ranger coverage.
Signage & Interpretation	Audit of current provision	1	£1,000			£1,000	Small budget for expenses, resources if needed etc.
Signage & Interpretation	Graphic design for new interpretation and signs	2	£15,000			£15,000	£15,000 for design of new interpretation with different designs; may need to allow for refresh/update of design.
Signage & Interpretation	New interpretation boards	2	£75,000			£75,000	£2,500 per board for production of timber frame and graphic panel, delivery and installation. Estimate of 15 boards. Costs allowed for 1 X replacement therefore 30 total
Signage & Interpretation	New Signs, waymarking etc.	2	£72,500			£72,500	Cost based on 100 posts at £350 per post to cover production, delivery and installation. Treated softwood marker posts, 1.6m high with slanting top and coloured band or marking incorporated. Costs allowed for 1 X replacement within plan period, therefore 200 total. Additional £2500 for waymarking discs or signs made of glass reinforced plastic for longevity (£2000 allows for 2 sets of discs - 2 designs, 500 of each).
General Awareness Raising	Social media and website	2	£20,000	£2,500	80	£220,000	Budget cover initial website production and hosting fee/updates in-perpetuity, including some costs for support/help with social media content

Type of measure	Mitigation measure	Timing	One-off/Capital cost	Rolling cost	Multiplier for rolling cost	Total cost	Notes on how cost calculated
General Awareness Raising	Direct work with dog walkers	2	£15,000	£2,500	20	£65,000	Budget flexible, but assumes around £15k for website and content creation. Remaining sums spread over different years providing money for events, specialist consultancy support (e.g. running dog training sessions) etc as required. 20 years to cover plan period and beyond. Not required in perpetuity as assumption that once marked shift in behaviour achieved, this is then sustainable in the long term.
Infrastructure on site or near estuary	Audit of existing paths, including unofficial/informal routes	1	£20,000			£20,000	Budget to allow external commission.
Infrastructure on site or near estuary	Path improvements, fencing and other infrastructure projects	2		£20,000	20	£400,000	Flexible budget to allow infrastructure to be updated/enhanced etc. Dependent on path audit results and costs to be reviewed once audit complete. 20 year time period allows for renewal and changes over extended period. Need for in-perpetuity costs to be checked as part of audit
Monitoring	Visitor interviews	2		£25,000	3	£75,000	Budget allows for 3 surveys at £25,000 each. Surveys to be timed as relevant to inform updates to strategy/plan review etc
Monitoring	Ecological	1		£10,000	20	£200,000	Flexible budget, spread over extended period and providing funds for ecological survey work as required
Monitoring	#REF!	2	£5,000	£1,000	15	£20,000	Estimated cost to establish and run some kind of reporting system

Type of measure	Mitigation measure	Timing	One-off/Capital cost	Rolling cost	Multiplier for rolling cost	Total cost	Notes on how cost calculated
Travel	Review of parking	1	£25,000			£25,000	One-off cost for consultancy report, all car-parks visited, mapped and assessed and strategic review to consider potential changes
Travel	Parking improvements/modifications	2	£400,000			£400,000	Flexible budget to deliver measures identified in parking audit (and at this stage indicative costs to be updated following audit), with potential for costs to be used in conjunction with revenue collected for parking charges. Costs could be targeted towards small number of parking locations or be spread for smaller changes across more car-parks.

Appendix 3: Suitable Accessible Natural Greenspace (SANGs) guidelines

The role of SANGs is to provide an alternative destination to those visitors who would otherwise visit the Severn Estuary. SANGs provision will be tailored to each authority and the geographic area, reflecting the variation across the different authorities. SANGs will be most effective if targeted to those visitors who have a big impact, such as dog walkers.

The effectiveness of SANGs will also depend very much on the design and location, these need to work such that the SANGs has a draw equal or greater than the European sites. In these guidelines we set out design and selection criteria for SANGs, drawing on that produced for other areas such as the Dorset Heaths (Dorset Council and BCP Council, 2020) or the Thames Basin Heaths (anon, 2021). The guidelines do not address or preclude other functions of green space, such as biodiversity net gain. Other functions may be provided within SANGs as long as these do not conflict with the specific function of mitigation.

SANGs may be created from:

- Existing open space of suitable size and quality, with no existing or limited public access. Such sites would be 'opened' for public access and promoted as such.
- Land in other uses, such as golf courses, which could be converted into SANGs.

Access on the relevant European Sites

Visitor surveys on the Severn Estuary have involved interviews with a random sample of visitors (Caals and Liley, 2022) and provide context for SANGs design. Dog walking is clearly a target group to focus on (dog walking was the main activity for 49% of those interviewed). Visits are typically short (64% of interviewees were visiting for less than an hour) and interviewees tended to visit frequently (half of interviewees visited at least once a week). The majority of interviewees (63%) travelled by car and the key factor influencing their choice of location was the proximity to home (36%). Median route length (i.e. length of walk/cycle/jog, all activities combined) was 2.3km. Home postcode data showed a median distance (postcode to survey point) of 4.1km with and three-quarters lived within 11.3km. Taking the estuary survey points only, three-quarters lived within 12.6km.

Attributes of SANGs

In order to have confidence that greenspace is of a suitable size and quality the following attributes will need to be met:

- SANG should be provided at a target rate of 8ha per 1000 new residents; this per ha standard is equivalent to 0.0192ha per dwelling (assuming an occupancy rate of 2.4 people per dwelling) and it is a widely used standard, originally applied on the Thames Basin Heaths (Burley, 2007) and used by Natural England and a suite of local authorities across the country.
- Sites with sports grounds, playing fields or children's play areas are unlikely to meet the criteria for SANG or if such features are present they should not be counted towards the per ha standard.
- Where sites have existing visitor use, this existing use will need to be taken into account when applying the per ha standard. This will require visitor survey data to be available. Sites are likely to have additional capacity where average visitor use is less than 1 person per ha per hour[7]. Where existing sites are already well used, there will be a need to demonstrate that the measures will be effective, and this may require some delivery upfront.
- SANGs should be established and accessible ahead of occupancy of the development they are supposed to mitigate. On large sites phasing of SANG delivery alongside housing may be possible, but this should be carefully planned to ensure the SANGs can function effectively from the outset.
- The focus for the SANGs should be large sites of at least 40ha (which will accommodate suitably long routes), however smaller sites may work, depending on the location and quality.
- SANGs should provide parking that is free or significantly cheaper than parking at the European sites.
- A guide to parking provision should be in the region of 1.5-2 spaces provided per ha of SANG[8].
- SANG should have a sense of space, openness and provide viable alternatives to the European sites.
- They should contain a variety of habitats and be scenic, ideally with views.
- They should provide attractive, informal areas for dog walking: a range of walk lengths on relatively dry terrain, including some of at least 3km where dogs can be safely off the lead during the walk.
- They should provide routes that attract walkers, potentially including families. Walks are likely to need to be circuits with some interest (such as viewpoints, heritage features etc.).

[7] This provides a guide or approximate benchmark, typically busier than the relevant European sites but less than an urban park (see Liley, Panter and Rawlings, 2015). Sites will need to be considered on a case-case basis.

[8] This figure will depend on how close the SANG is to housing and the proportion of visitors that might arrive on foot or by bicycle and is intended as a guide only

- The site(s) should provide access all year round, without paths becoming waterlogged or inaccessible due to wet or muddy terrain.
- They should provide routes that work for cycling, potentially accommodating family cycling groups and mountain bikes as a low-key destination.
- Access points to the SANG(s) should be primarily within a 5km radius or 10 minute drive and easily accessible by road from the development. Some direct foot access and good access routes for cyclists would be ideal. Direct access on foot would mean some SANG provision within around 500m radius of proposed housing locations.
- New SANGs should be recognisable as a 'destination' such that sporadic visitors are drawn from a wide area and such that the site also attracts more regular (at least weekly) visitors. As such they will need to be positively promoted and welcoming.
- On-site infrastructure can include the following as appropriate:

    - Small scale visitor centre/shelter (not necessarily staffed);
    - Interpretation (providing information about the area);
    - Wayfinding infrastructure to direct people around the site;
    - Some surfaced paths/boardwalks;
    - Wildlife viewing facilities (such as screens);
    - Range of paths (some waymarked) that provide a range of different routes and circuits, potentially including some longer routes for cycling (perhaps family groups and relatively low-key mountain bike circuits) but not such that other access (e.g. appeal to dog walkers) is compromised;
    - Access to water for dogs to drink, bathe and splash in;
    - Benches/informal seating;
    - Viewpoints;
    - Natural Play (particularly for larger, strategic SANG);
    - Catering facilities (particularly for larger, strategic SANG).

- SANGs will need to be promoted through a range of different ways, including signage, so that they are easy to find and local residents (both new and existing) are well aware of the site.
- SANGs will need to provide access in perpetuity, and therefore require some legal mechanism to ensure this.
- Sites with significant nature conservation interest (SSSI) or particualrly vulnerable species present are unlikely to be suitable as SANG.

Appendix 4: SANGs planning application principles (where SANG delivery is developer-led)

The following principles are adapted from the advice issued in Dorset (Dorset Council and BCP Council, 2020), with changes to reflect the local circumstance. The principles summarise the details that will be required by Natural England and the Local Planning Authority (LPA) at the time at which a proposal is considered, this may be either at outline or a full application where outline has not been submitted. Natural England will need to advise the authority that full details of the mitigation proposed are considered and secured:

1) SANG maintenance and function should be secured and demonstrated to be in place for perpetuity (effectively the development needs to maintain a level of mitigation for the duration of any impact, extending to at least 80 years).
2) Applications for developments requiring a SANG are likely to require a Change of Use application for the SANG itself. This may be done through a separate planning application.
3) When the Local Authority considers the application for the development that the SANG is designed to mitigate, it will need to be certain that the SANG:

    - meets the SANG criteria;
    - is deliverable, i.e. ownership and appropriate management is secured;
    - can be managed in a suitable condition in perpetuity;
    - will be monitored for the first 5 years.

    This typically involves a draft Section 106 agreement, an implementation plan, long-term management plan and monitoring arrangements being submitted for agreement with Natural England and the LPA.

4) Where the application for development is at an outline stage the applicant will need to provide sufficient information on the SANG to allow the SANG proposal to be considered.
5) The SANG land will have been assessed for its biodiversity features and the applicant will have confirmed that the proposal will not in principle lead to net harm to biodiversity. Where harm to biodiversity features is predicted then the capacity of the SANG will need to be adjusted.
6) A full SANG Management Plan will be required as part of a reserved matters application if not previously provided at outline stage. This will set out the implementation and maintenance of the SANG – it will record initial infrastructure (photographically) and management objectives by compartment. This will allow for future evolution of the SANG within the broad SANG criteria rather than a rigid approach.

7) If part or all of the SANG is already accessible to the public a visitor survey will need to be submitted as part of the application (outline or full where no-outline is submitted), and the SANG capacity discounted if necessary
8) Where a SANG is not co-located with a proposal Natural England will provide advice to the applicant concerning the SANG capacity/catchment on a case by case basis. Guidance is available from the Thames Basin Heaths mitigation approach.

Natural England will provide written confirmation to the relevant authority that the proposed measures (SANG, SAMM) are appropriate to secure the necessary avoidance and mitigation measures and have been secured for a duration proportionate to the timescale of the development's effects.

SANG Visitor Monitoring

Large developments may come forward in phases, monitoring should commence prior to first occupation where there is existing SANG use. It need not be when the land has no existing public access. Monitoring should be phased at two/three years after each substantive phase and also at five years after the development is completed. It may be the case that monitoring will need to include nearby European sites. The primary aims of visitor monitoring are to inform the SANG delivery and allow for adjustments as well as demonstrating the SANGs functionality and use by existing local residents. Effective monitoring will provide a robust baseline which can be observed in future strategic monitoring events.

From 5 years after the final phase of a development future SANG monitoring can be incorporated into the ongoing SAMM programme on a strategic basis. SANG monitoring methodology may include visitor questionnaires, remote sensors and observational studies.

Strategic Access Management and Monitoring (SAMM)

SANGs are not intended to avoid all new residents accessing the protected sites, rather to enable a neutral level of visitor pressure with an equal proportion of existing European site visitors users being diverted. It is therefore necessary, as established in the Thames Basin Heaths area and Dorset, for applicants to secure SAMM relative to the level of residential development. As for SANGs, the mitigation needs to be secured in perpetuity.

Appendix 5: Guidance for other off-site infrastructure projects

For small developments where there are no options for strategic SANG (and developments in more urban areas where there is limited space and opportunities for new SANG) other infrastructure projects will be delivered by the LPA. These could include (but are not limited to):

- New footpath links, potentially joining up areas of existing space to make longer routes possible;
- Increases to the parking capacity or improvements to parking at existing sites;
- Dedicated facilities for dogs, such as fenced exercise areas, dog training areas etc;
- Improved access within greenspace sites – such as boardwalks, better paths, improved drainage etc to open up areas previously under-used or inaccessible;
- Better access to sites, such as road crossings, bridges, access routes etc.;
- Better promotion of existing sites, highlighting where new works or facilities have been undertaken (e.g. through events, gazetteers, road signs etc.);
- Making sites feel more safe and welcoming, for example by addressing anti-social behaviour, litter, dog mess or other issues.

Each LPA will maintain a rolling list of projects that will provide sufficient mitigation for the growth coming forward. Projects that are included on the list will need to have sufficient housing growth within a suitable catchment to ensure they can be funded and delivery may need to be phased to ensure mitigation in line with local housing growth. The list could include projects within a green infrastructure strategy and ideas for projects could be generated from parish councils, community groups, NGOs and other suitable delivery bodies.

Each project will have an estimated uplift in terms of increased recreational use it will achieve, expressed as additional person visits per day. This uplift can then be used to determine the number of houses it might mitigate or the equivalent area of SANG (as per Table 3).

Table 3: Potential mitigation provided by different levels of uplift.

Uplift categories	Approx target value for additional person visits per day	Houses worth of mitigation*	SANG equivalent (ha)**
Negligible uplift	1	4.3	0.1
Low uplift	2.5	10.9	0.2
Moderate uplift	12.5	54.3	1

High uplift	50	218	4.2

* Calculated on the basis that of 8ha SANG would provide for 1000 new residents (416.7 dwellings at 2.4 occupancy). A typical, fairly well used SANG might provide access at a level of 1 person per ha per hour (before it became too crowded) and therefore 1ha would provide mitigation for 96 person visits per day (8 person visits per ha per hour over a 12 hour day). A visit rate of 0.23 people per day could therefore be anticipated as a level of mitigation equivalent to a single dwelling. A visit rate of 0.23 people per day could therefore be anticipated as a level of mitigation equivalent to a single dwelling.
** Based on the figure in the previous column and 8ha per 1000 residents (or 416.7 dwellings at 2.4 occupancy).

Each project will also need to have a clearly defined catchment, which could be defined by visitor data for the site (if available/relevant) or the following general guidelines:

- 400m catchment: projects that deliver access on sites with very limited or no parking, typically very small sites (<5ha) and where there is little or no promotion;
- 2.5km catchment: projects on sites with limited parking provision (i.e. no formal car park), typically relatively small sites (<10ha) with little or no promotion;
- 5km catchment: larger sites able to provide for longer visits, with formal car parks and some promotion (e.g. web presence, road signage etc).

SANGs delivery within the built-up and more urban areas poses a particular challenge and some of the best options for projects are likely to be improvements to existing sites that are known to already be busy or, conversely, where there is currently a low level of use.

Where there is uncertainty about the level of uplift, it would be possible for measures such as new parking, better linkages between sites, separation of commuters from other users and better promotion to be established prior to new housing growth. Monitoring data could then be used to identify the additional capacity created and visitor survey data could show visitor origins (postcodes) and visitor numbers clearly to justify measures as mitigation and the relevant uplift. This would be a means to ensure compliance with the regulations while maximising the SANG capacity of these existing sites.