

A27

Arundel Bypass

Report on public consultation

Spring 2018
Appendix A – Consultation brochure

A27 Arundel Bypass

Public consultation

Have your say



22 August to 16 October 2017

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Introduction

About us

Highways England is the Government company responsible for operating, maintaining and improving England's major A roads and motorways, which includes the A27 at Arundel in West Sussex.

Have your say

We are consulting on options to improve the A27 at Arundel, by replacing the existing single carriageway road with a new dual carriageway, linking together the 2 existing dual carriageway sections either side of the town.

We are at an early stage in the development of the scheme and want your views to help inform its future direction.

Inside this brochure you will find details of the 3 improvement options for the A27 at Arundel. This brochure also provides an explanation of how we have developed the options and why. To help you consider your response, the key benefits and impacts of each of the options are set out in a series of tables starting on page 26.

How to find out more

You can also find out more about the scheme at our public exhibitions. We have arranged these in your area so that you can talk to members of the project team. See page 32 for dates and venues.

There are more scheme details in our technical reports on our website:

www.highways.gov.uk/a27arundel

How to give us your views

This consultation is an opportunity for you to comment on the future direction of the scheme, as we will review and consider all comments received before a preferred option is selected. Please tell us what you think by filling in the questionnaire.

Your views will help us to decide on a preferred option. Once it has been selected, the preferred option will then be designed in more detail and we will undertake further consultation.

You can use the following methods to respond to the public consultation:

- Complete the questionnaire and send it to us at:
FREEPOST A27 ARUNDEL
- Visit our website and complete the questionnaire online at:
www.highways.gov.uk/a27arundel
- Come to one of our public consultation events where you can return your completed questionnaire.
- Or if you have any questions, or would like the information in a different format, please contact us by:
- Email:
A27ArundelBypass@highwaysengland.co.uk
- Telephone: 0300 123 5000 (24 hours)

The consultation closes **11:59pm** on **16 October 2017**.

About the A27 Arundel Bypass

The A27 Arundel Bypass scheme is identified within the Government's 2015-2020 Road Investment Strategy which states that England's strategic road network requires upgrading and improving to ensure it can deliver the performance needed to support the nation in the 21st century.

A budget of between £100-£250 million has been allocated to the scheme. It is part of a package of investments along the A27 corridor to increase its capacity and condition which includes schemes at Worthing and Lancing and East of Lewes.

The scope of the A27 Arundel Bypass scheme described in the Road Investment Strategy is:

"The replacement of the existing single carriageway road with a dual carriageway bypass, linking together the two existing dual carriageway sections of the road."

This corresponds to the 6 kilometre section of the A27 from the A284 Crossbush junction (east of Arundel) to the west of Yapton Lane (west of Arundel). The A27 currently goes through the South Downs National Park and the town of Arundel passing over the River Arun and crossing the railway line as shown in Figure 1.

Other A27 schemes in the Road Investment Strategy

Although the A27 Arundel Bypass scheme is part of a wider programme of investment, it is considered a standalone scheme and of significant benefit to traffic, capable of being implemented independently. The current position of the other A27 schemes is as follows:

- **Chichester Bypass:** Options to improve conditions at Chichester were consulted on last year (July to September 2016). The support and funding contribution from local councils was vital to this scheme. The withdrawal of support from local councils for the options put forward in the public consultation has contributed to a critical lack of consensus. As such the scheme is no longer able to proceed. More details are provided at:

www.highways.gov.uk/a27chichester

- **A27 East of Lewes:** Options for the A27 East of Lewes scheme underwent public consultation from October to December 2016. More information can be found at:

www.highways.gov.uk/A27EastofLewes

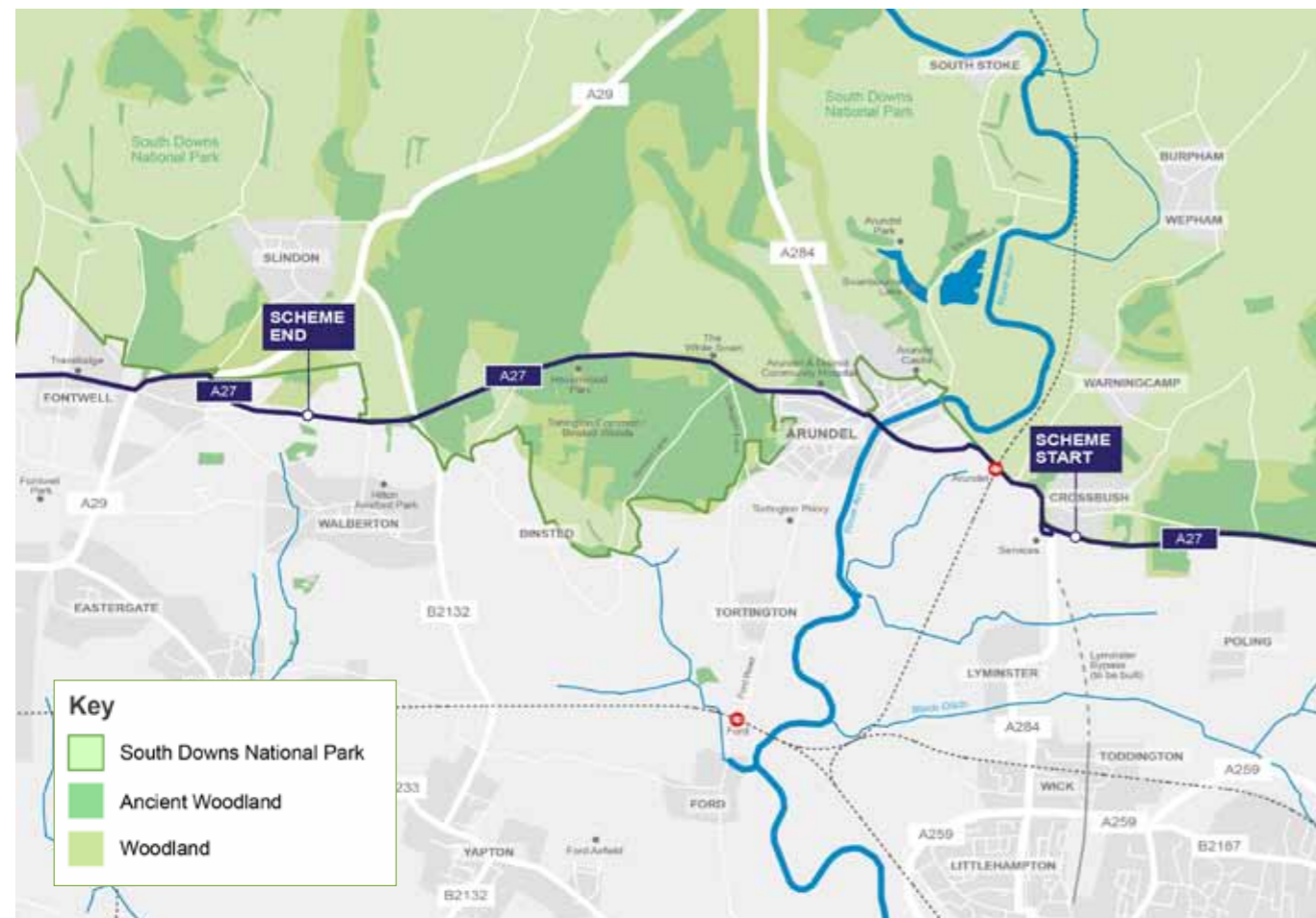
- **A27 Worthing-Lancing improvements:** Consultation for this scheme is being undertaken this summer. More information can be found at:

www.highways.gov.uk/a27Worthing-and-Lancing

A27 Corridor Feasibility Study found that, at Arundel, the A27 is already operating at 100%-150% capacity. Due to population growth and increased economic activity in the region there will be more traffic using the A27 through Arundel in the future.

3. On either side of Arundel, the A27 is a dual-carriageway which has the capacity to carry existing traffic flows and is more able to cope with future traffic growth. However, the single carriageway section and junctions through Arundel do not cope with existing traffic. This often results in long queues of traffic approaching Arundel.
4. Due to congestion, some longer distance traffic subsequently diverts away from the A27 to alternative routes which are less suited to high volumes of traffic. To the north, this includes the B2139 through the South Downs National Park and local villages and towns (Houghton, Amberley and Storrington). The traffic disrupts the otherwise tranquil nature of the South Downs National Park and affects the quality of life for those living alongside the route. The main alternative route to the south is via the B2233, passing through the villages of Eastergate, Barnham, Yapton and Climping, which adversely affects people living alongside this route and for those walking, cycling and horse riding. These local roads are not suited to large volumes of traffic so their safety is compromised.
5. There are an above average number of accidents on the A27³ From 1 June 2010 to 31 May 2015, there were 68 collisions with casualties recorded between Yapton Lane in the west to Crossbush junction in the east.

Figure 1: Scope of scheme



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Why we need this scheme

1. The A27 is the only east-west trunk road south of the M25, and provides access to a number of coastal communities between Portsmouth and Pevensey. It serves a population of over 750,000 people, and a large number of businesses in major towns and cities including Portsmouth, Havant, Chichester, Arundel, Worthing, Brighton and Hove and Eastbourne. West Sussex also attracts, on average, 17 million visitor days per year, worth approximately £508 million to the local economy¹.
2. The A27 is used by both through-traffic and local traffic: two-thirds (67%) of the traffic that currently uses the A27 between Crossbush roundabout and Causeway roundabout is through-traffic while the remaining third (33%) is local². The 2015

Without improvement, the congestion and delay on the A27 through Arundel will increase in the future.

Even if greater reliance on public transport, walking and cycling could reduce some of the future demand for car travel, this is unlikely to solve the problems of queueing and congestion on the A27 through Arundel.

¹The GB Day Visitor Statistics 2015, Visit Britain

²Local traffic has an origin or a destination in Arundel. Through-traffic has an origin and a destination outside Arundel. Based on 2015 data.

³Based on the national average for rural A roads, from Reported Road Casualties for Great Britain (RRCGB).

How people travel in the Arundel area

The car is an important means of transport in the area:

- 71% of those Arun District residents who are currently in employment, drive (or are driven) to work by car/van
- 10% walk
- 5% travel by train
- 4% cycle
- 2% travel by bus, minibus or coach
- 1% travel by motorcycle⁴.

Plans for improving alternative transport options

Bus

There are no significant plans for bus improvements in the area.

Walking and cycling

We intend to maintain current walking and cycling routes and where possible incorporate better walking, cycling and horse riding access in our design to encourage greater use of sustainable transport for local journeys.

We welcome your thoughts on any potential improvements to the current facilities. Detailed proposals will be discussed with the relevant authorities and cycling, walking and equestrian groups.

Rail

There have been 2 studies looking at rail infrastructure investments in the South Coast Corridor⁵. One looked at infrastructure investment priorities for the railways from London to South Coast and the other explored opportunities to improve the Coastway rail service. Neither study recommended improvements in the area as a priority nor found that the improvements would offer good value for money.

Therefore we have no evidence to suggest that there will be any significant switch from road to rail along the A27 corridor between Chichester and Brighton that would meet the overall future demand for travel.

Improving the A27 at Arundel would:

- Considerably reduce the existing queues and delays
- Improve journey times, air quality and road safety
- Remove traffic from less suitable routes within the South Downs National Park
- Help businesses to reduce their costs, support expansion and provide new employment opportunities
- Support the growth of tourism.

Scheme objectives

The high-level objectives have been developed while working with the local authorities, the South Downs National Park Authority, other environmental bodies and the emergency services over the last 2 years:

- Improve capacity of the A27 whilst supporting local planning authorities to manage the impact of planned economic growth.
- Reduce congestion, reduce travel time and improve journey time reliability along the A27.
- Improve the safety of travellers along the A27 and consequently the wider local road network.
- Improve accessibility for all users to local services and facilities.

- Deliver a scheme that minimises environmental impact and seeks to protect and enhance the quality of the surrounding environment through its high quality design.
- Respect the South Downs National Park and its special qualities in our decision-making.

Recognising the special nature of Arundel & the South Downs National Park

Our licence sets out our commitment to minimising the environmental impact of our road network and to protecting and enhancing the quality of the surrounding environment. This is a unique challenge within the Arundel area.

When considering what we might be able to do at Arundel, we have carefully considered a wide range of significant environmental challenges and these are shown in [Figure 2](#).

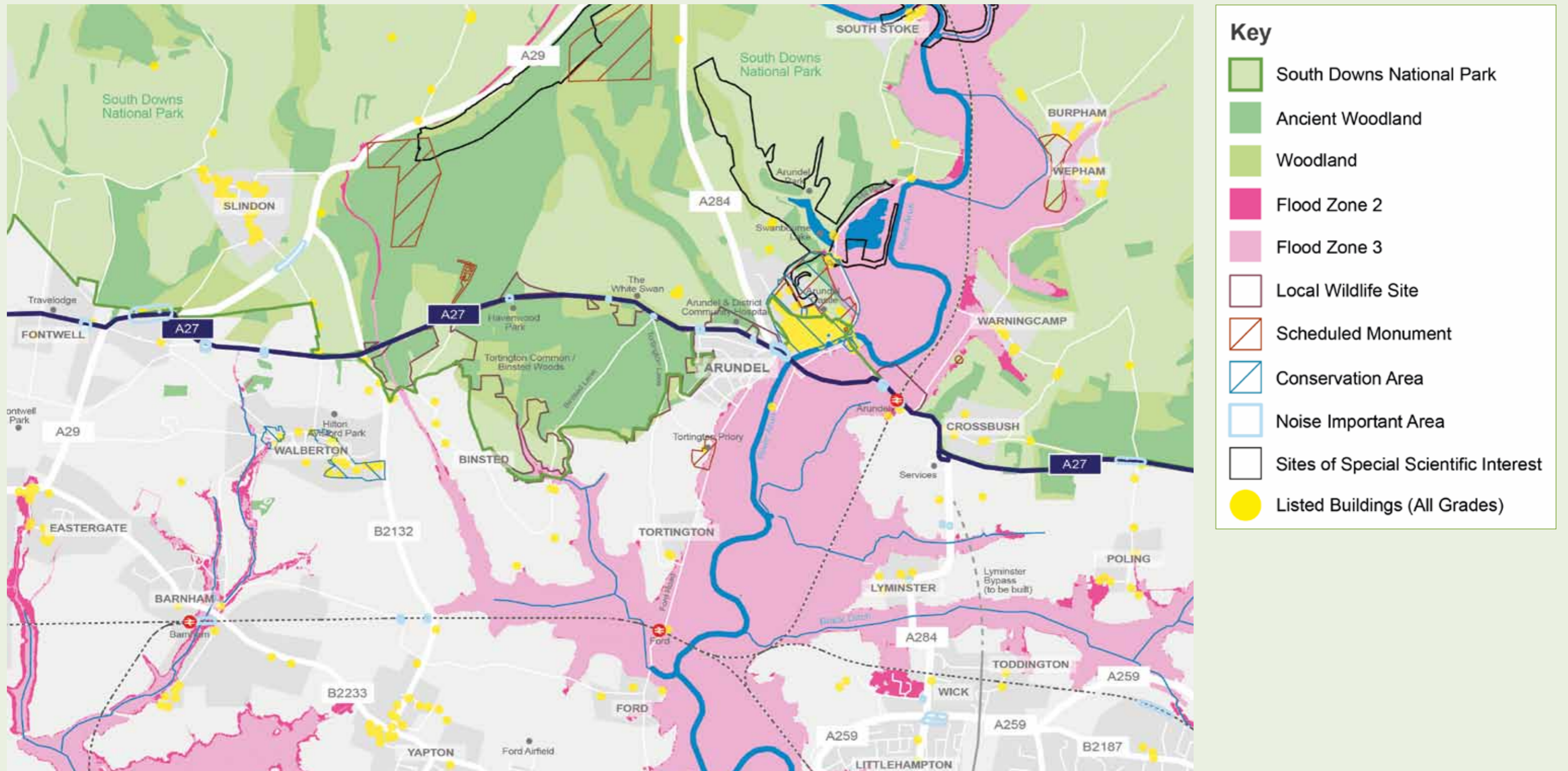
- **National Park:** The South Downs National Park is a nationally designated landscape. We have a legal duty to have regard to the twin purposes of the National Park:
 - To conserve and enhance the natural beauty, wildlife and cultural heritage of the National Park
 - To promote opportunities for the understanding and enjoyment of its special qualities.

Reducing congestion on the A27 and the use of other, less suitable routes through the South Downs National Park may provide benefits to communities in the Park, however, the scheme could also have impacts on landscape, tranquillity, dark night skies, biodiversity, recreation and heritage. The South Downs National Park Authority is a key consultee and we will seek to design a scheme that is as sensitive as possible to the area.

- **Ancient Woodland and Veteran Trees:** Tortington Common / Binsted Woods is a woodland area that has existed since at least 1600 AD. The soil has been relatively undisturbed and this produces communities of plants and animals that depend on the stable and rare conditions that an ancient woodland provides. Ancient woodland and veteran trees are protected by national planning policy.
- **Scheduled Monuments and Heritage Assets:** including Arundel Castle, Tortington Priory and the remains of a Roman Road found near Havenwood Park (not yet designated).
- **Floodplain:** both coastal and river flooding are possible in the Arundel area, covered by 2 different flood zones:
 - Flood Zone 2: land having between a 1 in 100 and 1 in 1000 annual probability of river flooding; or between a 1 in 200 and 1 in 1000 annual probability of sea flooding.
 - Flood Zone 3: land having a 1 in 100 or greater annual probability of river flooding; or a 1 in 200 or greater annual probability of sea flooding. The Environment Agency requires us to mitigate any risk that we might worsen the flood risk for Arundel and the area south of Arundel. We will ensure that the standard of protection served by the existing flood defence is not compromised and that there is not an adverse impact on flood risk.

⁴Method of travel to work: 2011 Census NOMIS
⁵London and South Coast Rail Corridor Study, Department for Transport (March 2017) and Sussex Area Route Study (September 2015)

Figure 2: Environmental constraints



South Downs National Park	National Parks are areas of relatively undeveloped and scenic landscape that are designated under the National Parks and Access to the Countryside Act 1949. The South Downs National Park was designated in 2010 covering 1600km ² from Winchester (in the west) to Eastbourne (in the east).
Ancient Woodland	Woodland that has existed since at least 1600 AD. It is given national level of protection.
Flood Zones	Flood Zone 2: land having between a 1 in 100 and 1 in 1000 annual probability of river flooding; or between a 1 in 200 and 1 in 1000 annual probability of sea flooding. Flood Zone 3: land having a 1 in 100 or greater annual probability of river flooding; or a 1 in 200 or greater annual probability of sea flooding.
Local Wildlife Site	Area of land that has been identified and selected locally, using robust, scientifically-determined criteria and detailed ecological surveys for its nature conservation importance.
Scheduled Monument	A historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Culture, Media and Sport.
Conservation Area	Area designated by Local Planning Authority that is of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance.
Noise Important Area	Noise Action Planning Important Areas for roads and railways provide a framework for the local management of the important areas.
Site of Special Scientific Interest	Providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. These sites are also used to underpin other national and international nature conservation designations.
Grade Listed Building	Listing marking a building's special architectural and historic interest, and also brings it under the consideration of the planning system, so it can be protected for future generations. There are 3 gradings in order of the level of interest: Grade I, Grade II* and Grade II.

The options for the A27 Arundel Bypass

We have undertaken traffic and environmental surveys and assessments between 2015 and 2017 (some of which are still ongoing) and have explored a number of bypass options.

We have worked collaboratively with local highway and planning authorities to understand constraints and opportunities, so that we can develop options that we hope will secure public support, whilst minimising the impacts as much as possible.

For an option to be taken forward to public consultation, it must be broadly affordable against the available budget, offer value for money and help to achieve our project objectives.

Our technical work has concluded that, of all the options considered, there are **3 options** that meet these criteria: **Options 1, 3 and 5A**. These are described below and shown in [Figure 3](#) on page 12.

In summary:

- All of our options would support the local housing and employment growth strategies of the local authorities and cater for traffic growth until at least 2041.
- There are significant environmental constraints and national planning policy risks that affect all 3 options.

As this consultation is taking place at an early stage of scheme development, the level of detail we are able to set out and the plans we can put forward to reduce the likely impacts of the scheme are limited. As our technical work progresses, we will develop more detailed proposals for the option that is progressed following the Preferred Route Announcement.

As part of this study, 5 other options have been investigated but not put forward for public consultation as they do not deliver against the scheme objectives or are not affordable. These are described later in the Annex on page 36.

Junction designs

Figures 4–7 show what is proposed at the key junctions and how the bypass would tie in with the existing A27. Designs for local access points, including access to Havenwood Park, are currently being considered.

Walking, cycling and horse riding

All 3 options have the potential to maintain or improve the connectivity for walkers, cyclists and horse riders. More details on these facilities can be viewed in our *A27 Arundel Bypass: facilities for walkers, cyclists and horse riders [non-motorised users (NMUs)] summary* available online and at the public exhibitions.

Option	Description
Option 1	<ul style="list-style-type: none"> ■ Improvements at Crossbush junction. ■ A new dual carriageway from Crossbush junction, passing to the south-west of Arundel railway station, joining the A27 east of Ford Road. ■ New bridges over the railway line and over the River Arun⁶. ■ From Ford Road roundabout (to be traffic signal controlled to reduce congestion) the existing A27 toward Chichester would be widened to dual carriageway. ■ East of Ford Road roundabout, the existing bridge over the River Arun will be retained as the new eastbound carriageway of Option 1. The existing A27 between the River Arun to Causeway roundabout will become a one-way off-slip to enable access to Arundel Railway Station from the west. To return, traffic will use the existing A27 road to access Crossbush junction or via the town centre towards Ford Road roundabout. ■ New pedestrian / cycle path from Crossbush junction, using the existing section of the A27. Continuity would be provided with a pedestrian / cycle path incorporated alongside the widened A27 as far as the Binsted Lane junction where it connects to existing Public Rights of Way and footpaths.
Option 3	<ul style="list-style-type: none"> ■ Improvements at Crossbush junction. ■ New dual carriageway from Crossbush junction south of the current A27. ■ New bridges over the railway line and River Arun. ■ From Ford Road the route continues north through Tortington Common and the South Downs National Park. ■ Re-joins the existing A27 at a new junction near Havenwood Park. ■ This is the same as the Pink / Blue Route which was previously announced as the preferred route in 1993. ■ There would be a continuous pedestrian / cycle path between Crossbush junction and Yapton Lane along the existing A27.
Option 5A	<ul style="list-style-type: none"> ■ Improvements at Crossbush junction. ■ Follows the same alignment as Option 3 between Crossbush junction and Ford Road. ■ From Ford Road the route continues west, before going north through the South Downs National Park and at Binsted Woods. ■ Re-joins the existing A27 at a new junction near Yapton Lane. ■ There would be a continuous pedestrian / cycle path between Crossbush junction and Yapton Lane along the existing A27.

⁶The existing railway bridge is in poor condition and it will need to be replaced in the near future.

Figure 3: A27 Arundel Bypass options

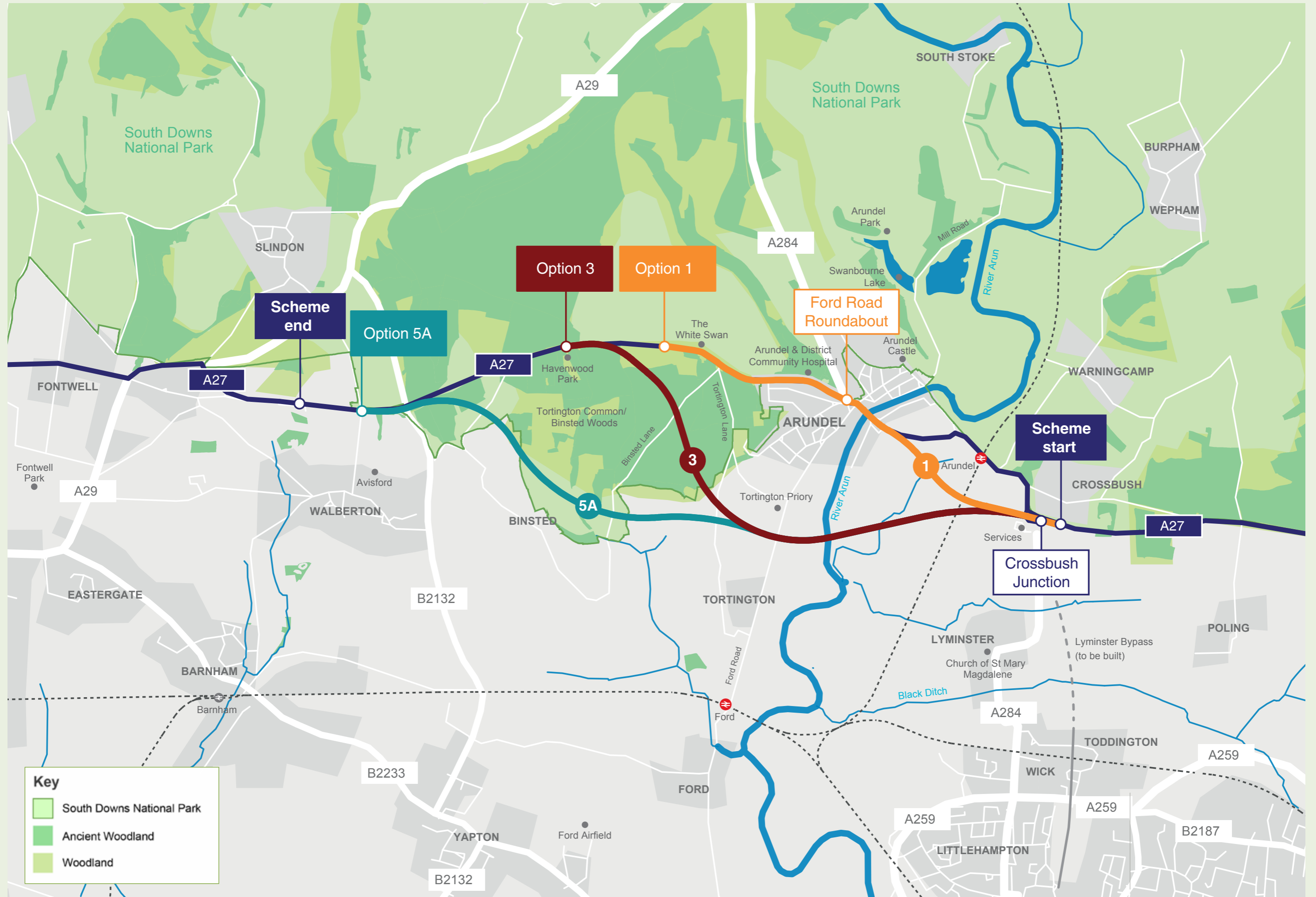


Figure 4: Crossbush junction: All options.

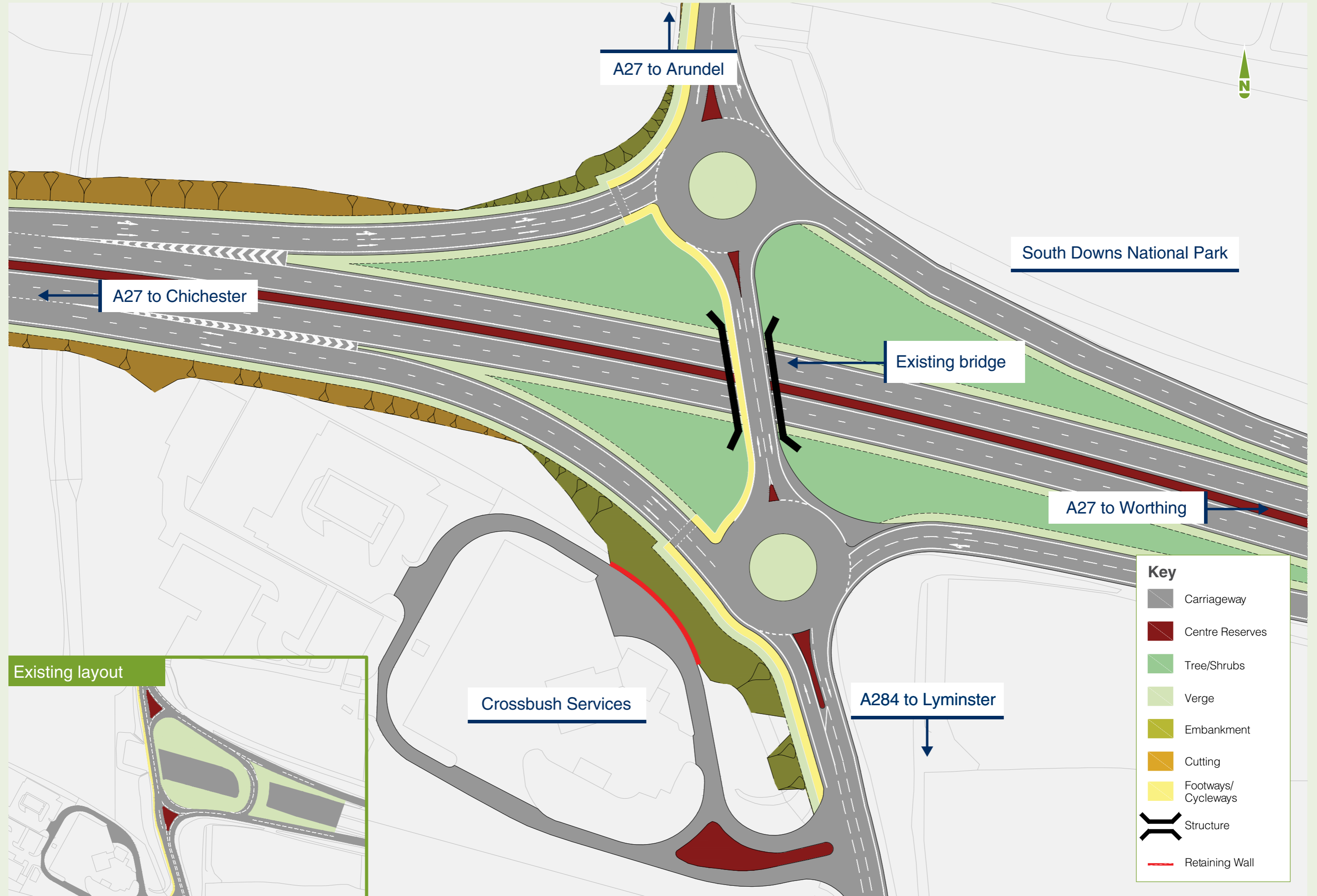


Figure 5: Option 1 – Ford Road roundabout design

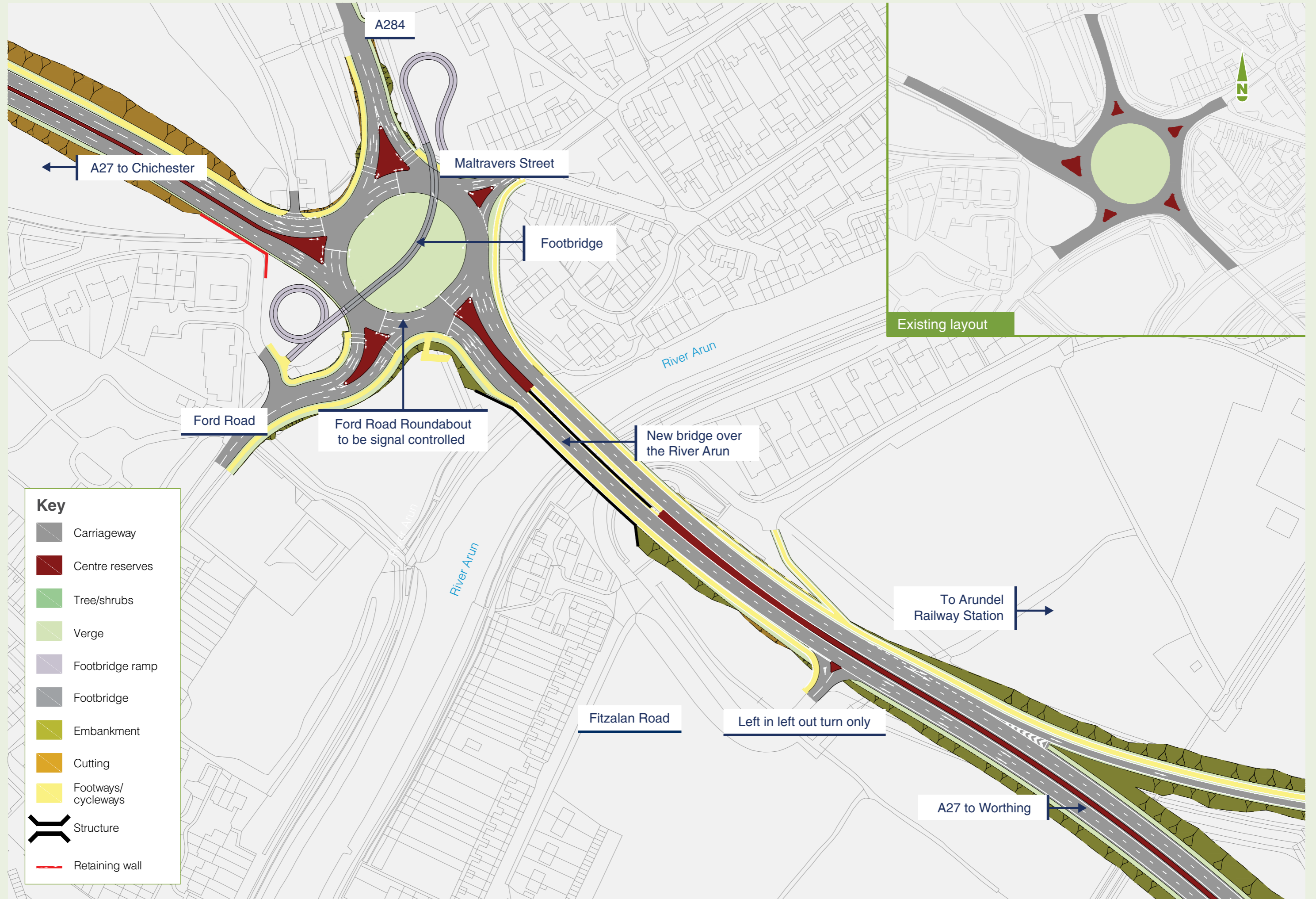


Figure 6: Option 3 – New junction design at Havenwood Park

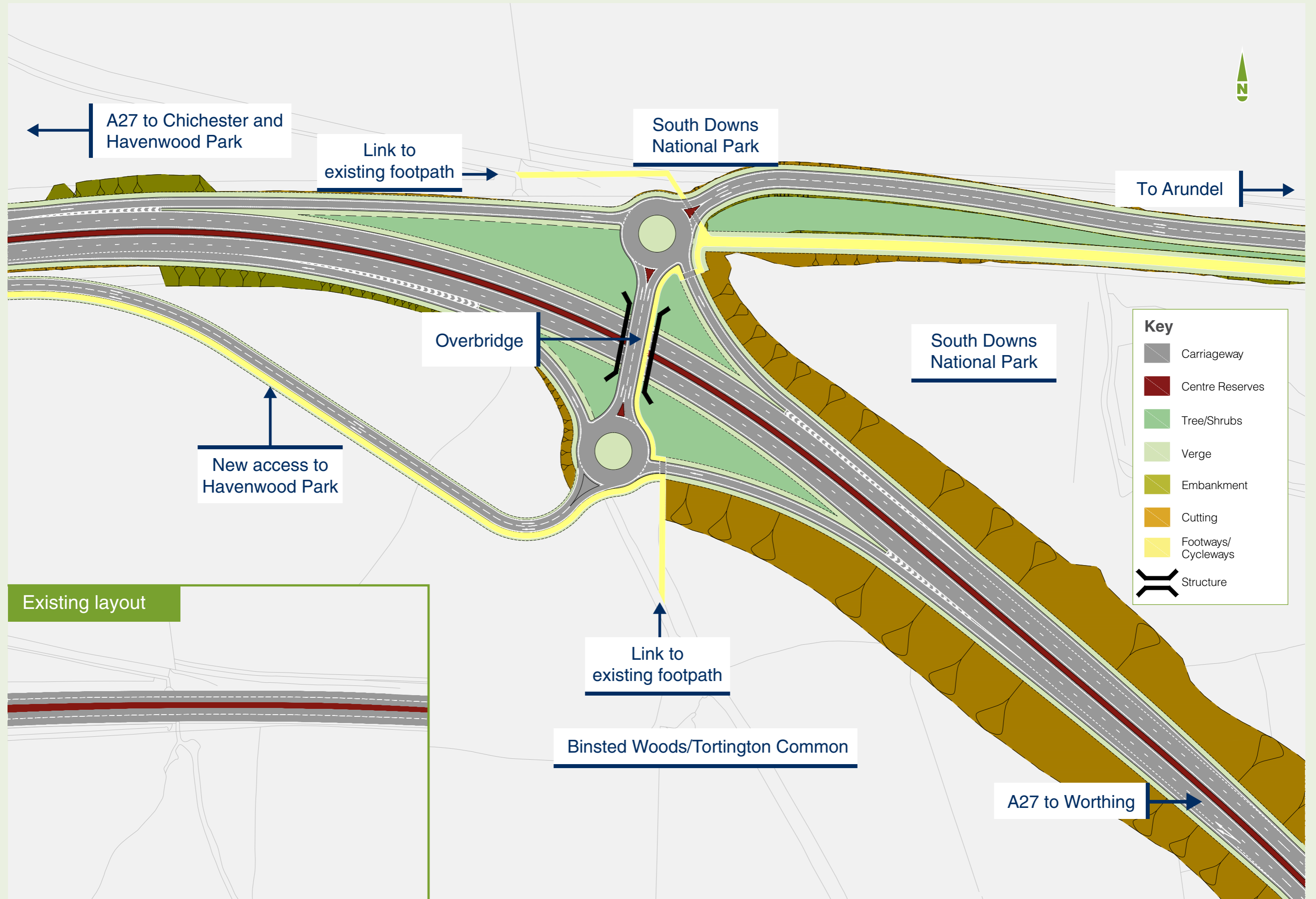
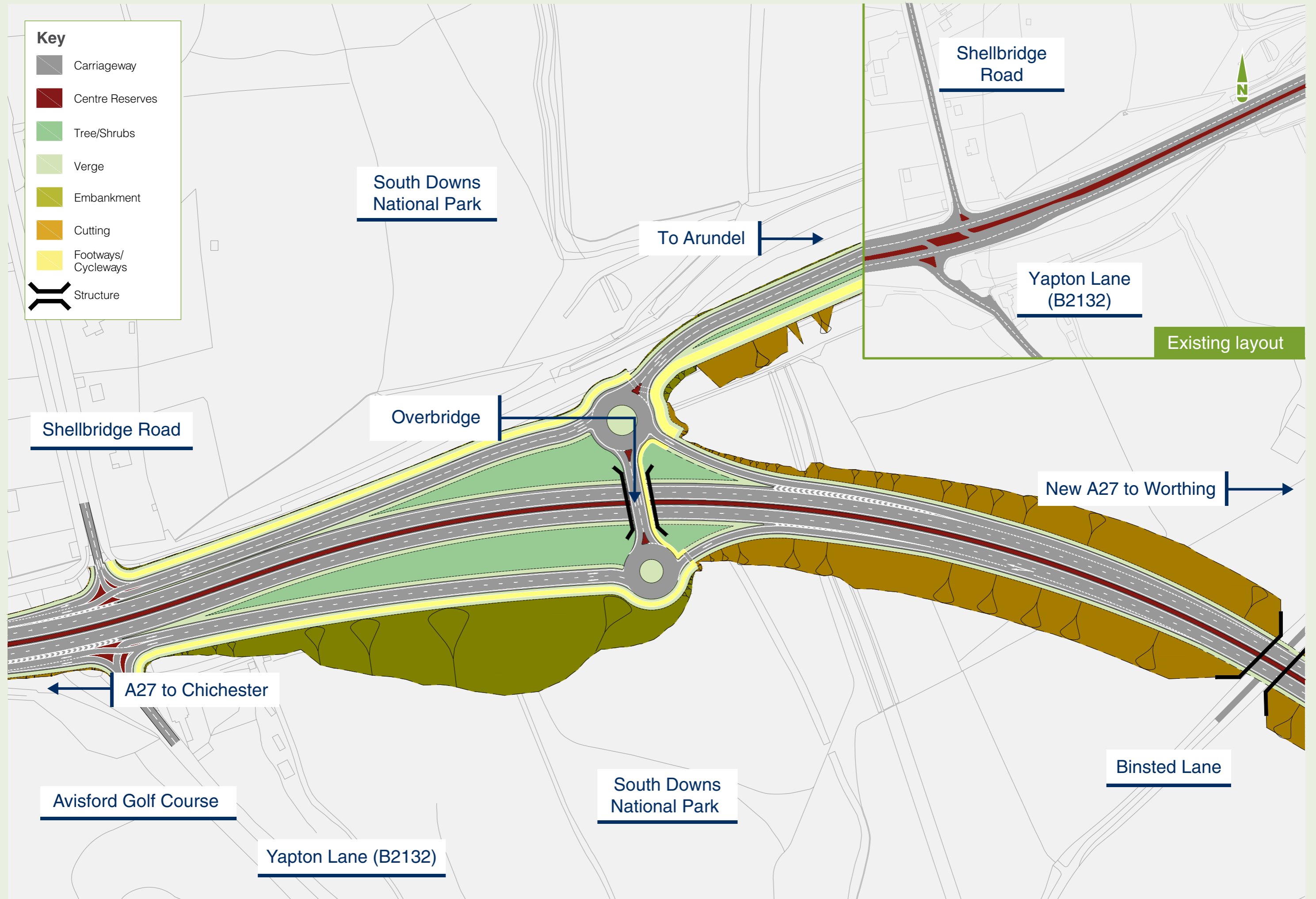


Figure 7: Option 5A – New junction design at Yapton Lane



How the options compare: traffic

All of our options have been tested to see how they will perform in the future. They are tested in the same way so that their performance can be compared. We compare how well they cope with the expected traffic levels in 2041.

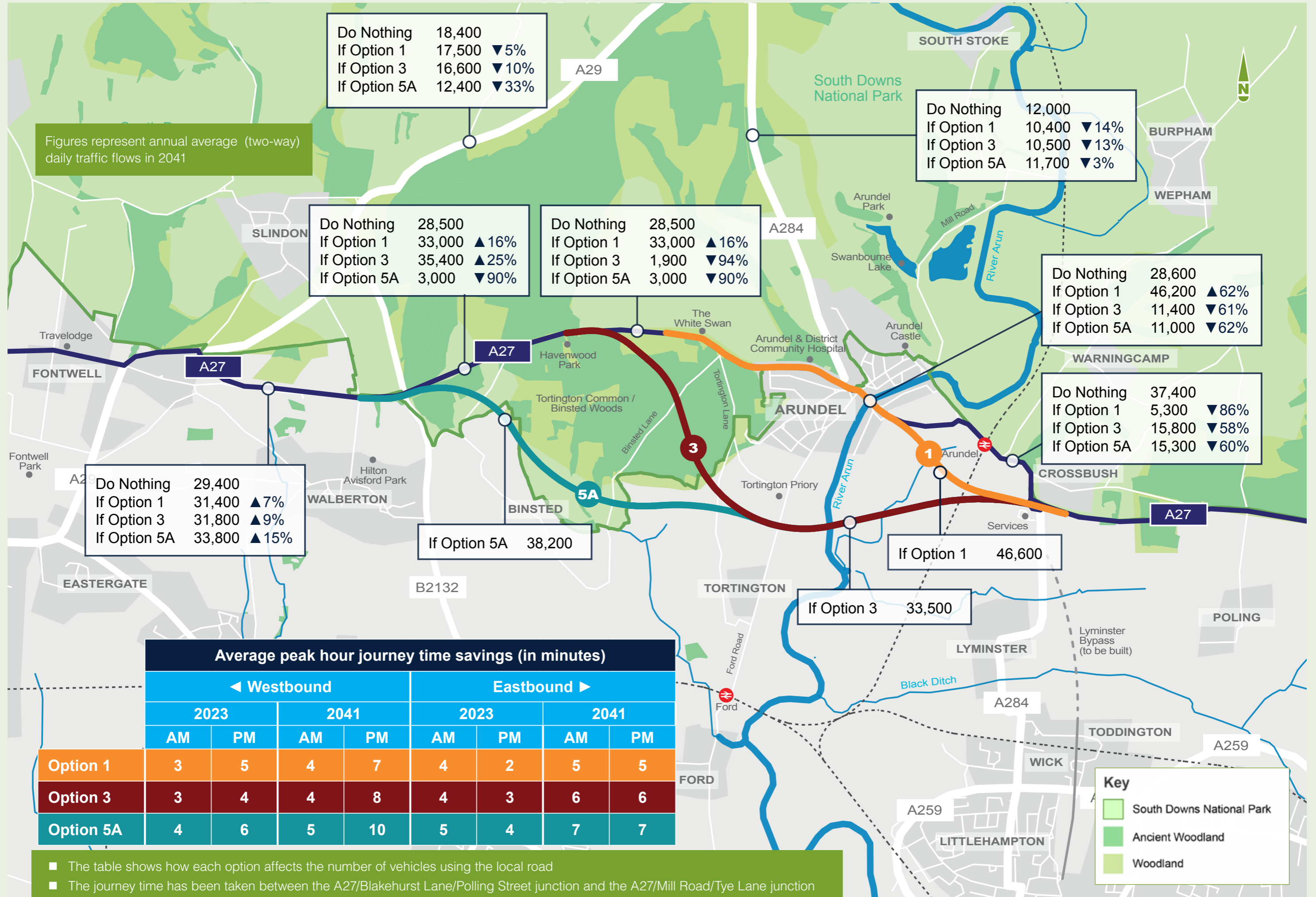
Figure 8 on page 24 shows how each of the options would affect the number of vehicles using the local road network in 2041. It shows that a high proportion of traffic would use a new bypass in preference to the existing route and other routes to the north and south of Arundel. The traffic flows are measured as Annual Average Daily Totals (AADT) – the daily total flow of vehicles (in both directions) averaged across the year, but we do also test how they cope in the peak hours.

We also tested a 'do nothing' situation which shows that if we do not improve the existing A27 at Arundel, traffic growth would be more limited and the traffic that currently diverts away from the A27 to use alternative local roads would continue to do so.

- **Option 1:** This option would draw traffic away from local roads like the A29 (5% reduction) and the A284 (13% reduction). It would also increase traffic flows on new sections of the A27 through Arundel (up by 62%). At the western end of the scheme (west of Walberton) there would be an additional 7% of traffic on the A27 compared to the 'Do nothing' situation.
- **Option 3:** This bypass option would draw through-traffic away from Arundel (60% reduction compared to the 'Do nothing' situation). It would reduce traffic using other routes through the South Downs National Park (A29 – 10% reduction; A284 – 13% reduction). Local traffic and traffic accessing Arundel would continue to use the local road network. There would be increased traffic flows after the western tie-in with the existing A27 near Havenwood Park (up by 24%) and at the western end of the scheme (up by 8%).
- **Option 5A:** This bypass option would also draw through-traffic away from Arundel (down by 62% compared to the 'do nothing' situation). It would also reduce traffic using other routes through the South Downs National Park (A29 – down by 33%). Local traffic and traffic accessing Arundel would continue to use the local road network. There would be increased traffic flows at the western end of the scheme (up by 15%).



Figure 8: Traffic flows: table shows how each option affects the number of vehicles on local roads in 2041



■ The table shows how each option affects the number of vehicles using the local road
 ■ The journey time has been taken between the A27/Blakehurst Lane/Poling Street junction and the A27/Mill Road/Tye Lane junction

How the options compare: benefits and impacts

Our view of the benefits and impacts for the 3 options is set out below. If you have different views or local information we should be aware of, please tell us in the questionnaire.

Objectives assessment

	Major Benefit	Moderate - Slight Benefit	Neutral	Slight - Moderate Adverse	Major Adverse
Objective	Option 1	Option 3	Option 5A		
Improve capacity whilst supporting local planning authorities to manage the impact of planned growth.	Journey time savings would reduce business costs, save time and provide business and employment opportunities throughout the wider area.	As per Option 1, however these options will provide additional journey time improvements that aid business efficiency and cost.			
Reduce congestion, reduce travel time and improve journey time reliability.	Overall reduction in congestion. Allows for greater flow of traffic and would cater for future traffic demand.	Greater overall reduction in congestion than in Option 1 due to longer sections of dual carriageway and the route avoiding junctions through Arundel. Allows for greater flow of traffic and would cater for future traffic demand.			
	Journey time savings: 3-7 minutes average/vehicle (during peak hours, 2041)	Journey time savings: 4-8 minutes average/vehicle (during peak hours, 2041).	Journey time savings: 5-8 minutes average/vehicle (during peak hours, 2041).		
	Note: The journey time variation is due to direction of travel and time of day. Journey time variability will be reduced compared to present traffic conditions.				
To improve the safety of travellers and consequently the wider local road network.	Some safety benefits as traffic which currently uses local roads to avoid congestion would use the improved A27 instead, though the impact is significantly less than for Options 3 and 5A. Safety benefits for pedestrians by upgrading traffic signals in Arundel to have dedicated pedestrian facilities.	Significant safety benefits over time as a proportion of traffic which currently uses local roads to avoid congestion at Arundel would use the improved A27. There would be a reduction in accidents along the A27 and across the wider network. Option 5A has a slightly greater benefit than Option 3 and both options perform significantly better than Option 1.			
Improve accessibility for all users to local services and facilities.	The A27 would continue to divide the town of Arundel, and a dual carriageway may increase the feeling of separation. Improvements to walking and cycling facilities and upgrades to traffic signals in Arundel would improve local access and movement.	By downgrading the existing A27 (subject to further design) and removing traffic from the centre of Arundel, the town would feel less separated. However new areas would experience severance and separation. Details of how existing roads and public rights of way would be treated between Arundel, Tortington and Binsted have yet to be designed but alternatives would be provided. Plans will be on display at the public exhibitions.			
Deliver a scheme that minimises environmental impact and seeks to protect and enhance the quality of the surrounding environment through its high quality design.	All 3 options have significant environmental impacts with the potential to adversely impact nature conservation, heritage features, landscape, soils, noise and hydrology (see the Environmental appraisal table). Some impacts can be mitigated and compensated through design. <i>The Environmental Impact Assessment (EIA)</i> is ongoing.				
Respect the South Downs National Park and its special qualities in our decision making.	Significant impact on the setting and views of the park, but less than Options 3 and 5A as less land take is required.	Significant impact on the South Downs National Park and its setting. Due to the introduction of the new bypass, there would be noticeable damage to the park.	Significant impact on the South Downs National Park and its setting. Due to the introduction of the new bypass, there would be noticeable damage to the park.		
	The design of the preferred option will incorporate best practice mitigation measures to minimise any potential impacts on the park.				

Environmental appraisal

Table represents environmental impacts before mitigation. For further information please refer to the relevant sections of the Environmental Study Report.

	Major Benefit	Moderate - Slight Benefit	Neutral	Slight - Moderate Adverse	Major Adverse
Objective	Option 1		Option 3		Option 5A
Air Quality	Expected to have neutral effect on air quality because the congestion benefits will be counteracted by increases in traffic growth in future years.		Expected to have moderate improvement to air quality as congestion at Crossbush junction and along the existing A27 would be removed. However, likely to be worsening in air quality at a small number of locations due to the introduction of a new bypass.		
Cultural Heritage	Slight to major adverse impact expected on the setting of certain nearby designated heritage assets (depending on sensitivity), and a moderate to large adverse effect on earthworks and below ground archaeology within 200m.		Slight to major adverse impacts expected on the setting of certain nearby designated heritage assets (depending on sensitivity), and a moderate to large adverse effect on earthworks and below ground archaeology within 200m. Impact on the setting of the Tortington Priory Scheduled Monument and, because these options have higher land take requirements, there is a higher risk of impacting previously unknown archaeology.		
Landscape	Expected to have slight adverse impact on landscape due to: (1) an increase in built form, (2) loss of mature woodland and hedgerows within the existing highway boundary, and (3) minor loss of ancient woodland (5.5 hectares) adjacent to the existing A27 within the South Downs National Park.		Expected to have moderate adverse impact on landscape due in part to the loss of 24 hectares of mature ancient woodland and a major adverse effect on the visual amenity of the surrounding area.		Would cause noticeable damage to existing unspoilt rural character, distinctive features and loss of tranquillity through the addition of the new road and associated infrastructure, which would comprise uncharacteristic features and elements including 6 hectares of ancient woodland.
Nature Conservation	Major adverse impact expected due to the potential loss of ancient woodland from Binsted Wood Complex Local Wildlife Site (LWS) and Rewell Wood Complex LWS. Some impacts fall within the National Park, which has statutory purposes that include nature conservation.		Major adverse impact expected due to the potential loss of ancient woodland from Binsted Wood Complex Local Wildlife Site (LWS). This loss is expected to compromise the ecological integrity of the LWS. Some impacts fall within the National Park, which has statutory purposes that include nature conservation.		Major adverse impact expected due to the potential loss of ancient woodland from Binsted Wood Complex Local Wildlife Site (LWS). Some impacts fall within the National Park, which has statutory purposes that include nature conservation .
Geology and Soils	Slight adverse impact on soils due to the minimal land take and requirements for earthworks.		Expected to have a major adverse impact due to major agricultural land take, topsoil stripping, earthworks and ground disturbance.		
Materials	Expected to have a moderate adverse effect on materials due to the use of raw materials and waste likely to be generated by the construction works.		Expected to have a major adverse effect on materials due to the use of raw materials and waste likely to be generated by the construction works.		
Noise and Vibration	Expected to have slight adverse impact on noise sensitive receptors and local Noise Important Areas (NIAs) in the longer term due to increased traffic flows. Properties in the Arundel railway station area are likely to be less affected.		Expected to have a neutral impact on noise receptors within Arundel.		
People and Communities	Has the potential to increase noise impacts, and subsequently impact upon the amenity, health and wellbeing of people and communities in Arundel.		Will have a permanent adverse effect on people, communities, farming and recreational businesses located south of Arundel.		
Road Drainage and the Water Environment	May have a slight adverse impact on ecological and chemical health of the River Arun and a slight adverse impact on flood risk to urban areas.		May have a moderate adverse impact on ecological chemical and hydromorphological health of the River Arun and a very large adverse impact on flood risk to urban areas due to loss of floodplain storage. The option will cross a number of watercourses and land drains within Fowler's Copse, Binsted Wood and Tortington Common increasing the potential for impact.		May have a moderate adverse impact on ecological chemical and hydromorphological health of the River Arun as well as a very large adverse impact on flood risk to urban areas due to loss of floodplain storage. This option will cross a number of watercourses and land drains increasing the potential for impact.

Environmental mitigation

We intend to mitigate adverse environmental impacts arising from the A27 Arundel Bypass scheme through our design as well as by introducing specific mitigation measures during construction and operation. We will also monitor and review the effectiveness of the mitigation.

At this stage, we are unable to provide detailed information about specific mitigation measures as this detail will be developed as we further design the preferred route. Best practice environmental mitigation is presented in the *Environmental Study Report (ESR)*, which is available to read on the website www.highways.gov.uk/a27arundel and will be available at our exhibitions.

Compensatory Woodland Planting

Options 1, 3 and 5A are all expected to impact on the ancient woodland. As this is against National Policy, Natural England has previously required other large infrastructure schemes to compensate for loss of ancient woodland. The scale of this compensation and the locality of the land that would be used is yet to be identified. We will set out details of the land we propose to compensate for the loss of ancient woodland at the statutory public consultation on the preferred route in spring 2018. More details are set out in our *A27 Arundel Bypass: Environmental Assessment Summary*.

Economic assessment

All of our road schemes have to demonstrate how the costs of construction compare to the benefits to users. This is known as the Benefit to Cost Ratio (BCR). Benefits and costs are made up principally of changes to time-savings to travellers, fuel use, accidents and maintenance and the construction costs, including the purchase of any land required. The values of the different benefit elements are set out by the Department for Transport (DfT) and the costs are estimates based on current construction and maintenance rates.

A Benefit to Cost Ratio (BCR) of 1 would denote that the sum of the benefits was equal to the sum of the costs but a BCR of 2 would indicate that the benefits are twice as much as the costs.

Any scheme with a BCR of 1.5 and above is considered 'medium' value for money, whilst a scheme with a BCR of above 2 is considered high value for money.

Costs and Benefits

	Option 1	Option 3	Option 5A
Most likely cost	£135m	£260m	£250m
BCR (Benefit to Cost ratio)	3.6	2.0	2.6
Value for money	High	High	High

Compliance with National Networks National Policy Statement (NNNPS)

The A27 Arundel Bypass is considered to be a *Nationally Significant Infrastructure Project (NSIP)* and as such it is required to be assessed against the *National Networks National Policy Statement (NNNPS)*. Our initial view is that there are several NNNPS policies that the A27 Arundel Bypass scheme options may engage or possibly conflict with including:

- **5.133: Heritage** – where the proposed development will lead to substantial harm to or total loss of significance of a design heritage asset, the Secretary of State should refuse consent unless it can be demonstrated that the substantial harm or loss is necessary.
- **5.32: Ancient Woodland** – requires the Secretary of State to 'not grant development consent for any developments that would result in the loss or deterioration of irreplaceable habitats including ancient woodland.' Policy 5.32 also requires that the 'need for and benefits of development in that location clearly outweigh the loss'.

- **5.150-5.151: National Park** – the Secretary of State should refuse development consent in these areas except in exceptional circumstances and where it can be demonstrated that it is in the public interest.

- **5.154-5.155: National Park** – the duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. The aim should be to avoid compromising the purposes of designation.

- **5.169: Minerals Safeguarding Area** – applicants should safeguard any material resources on the proposed site as far as possible.

Conflict with NNNPS policy carries a greater risk of being refused consent and therefore not being delivered. We will take the NNNPS into account in determining the option to take forward, and in further designing the scheme.



Public exhibitions

You can find out more about the options at our public consultation exhibitions where the project team will be on hand to answer your questions.

Date	Location	Time	Address
Tuesday 22 August	Arundel Town Hall	4pm to 8pm	Maltravers Street, Arundel, BN18 9AP
Thursday 31 August	Arundel Town Hall	2pm to 8pm	Maltravers Street, Arundel, BN18 9AP
Tuesday 5 September	Cathedral Centre	2pm to 8pm	London Road, Arundel, BN18 9AY
Saturday 9 September	The White Swan	10am to 2pm	16 Chichester Road, Arundel, BN18 0AD
Tuesday 19 September	Look & Sea Centre	2pm to 8pm	63-65 Surrey Street, Littlehampton, BN17 5AW
Wednesday 27 September	Littlehampton Town Council – Manor House	2pm to 8pm	Church Street, Littlehampton, BN17 5EW
Thursday 5 October	Fontwell Park Racecourse – Premier Grandstand	2pm to 8pm	Fontwell Avenue, Fontwell, Arundel, BN18 0SX
Saturday 14 October	Cathedral Centre	10am to 5pm	London Road, Arundel, BN18 9AY

Locations to collect consultation material

You can also find copies of the brochure and the questionnaire at the following locations throughout the consultation period (22 August to 16 October 2017) during their normal hours of opening:

Location	Address
Arundel Town Council	Arundel Town Hall, Maltravers Street, Arundel, BN18 9AP
Arundel Library	2 Surrey Wharf, Arundel, BN18 9DW
Littlehampton Library	Maltravers Road, Littlehampton, BN17 5NA
Angmering Library	Arundel Road, Angmering, Littlehampton, BN16 4JS
Rustington Library	Claigmar Road, Rustington, Littlehampton, BN16 2NL
East Preston Library	The Street, East Preston, Littlehampton, BN16 1JJ
Bognor Regis Library	69 London Road, Bognor Regis, PO21 1DE

You can also pick up a copy of the brochure and the questionnaire from West Sussex County Council's mobile library service at the following locations on the dates shown below:

Locations (Community Mobile 1 – Routes 3 and 4A)	Dates
West Worthing (Brooklyn Avenue), Findon (Village Green), Clapham (Church Close), Crossbush (Poor Clares Convent), Lyminster (Thornlea Park), Wick (Shopping Parade), Climping (Climping Park)	Wednesdays 30 August, 13 September, 27 September, 11 October
Fontwell (Shops), Slindon (Coronation Hall), Havenwood Park, Walberton (Village Hall), Barnham (Orchard Way), Eastergate (Village Hall), Westergate (Ivy Lane), Woodgate (Oak Tree Lane)	Thursdays 31 August, 14 September, 28 September, 12 October

For times, see: www.westsussex.gov.uk/libraries/using-library-services/mobile-libraries

Planning consent

The A27 Arundel Bypass scheme is defined as a *Nationally Significant Infrastructure Project (NSIP)* by the Planning Act 2008 due to the size of the project. To build an NSIP scheme we must obtain a *Development Consent Order (DCO)*. A DCO is a comprehensive type of planning permission, combined with powers necessary to develop complex infrastructure schemes, such as powers to buy land.

We will undertake a statutory public consultation then prepare and lodge the DCO application with the Planning Inspectorate, who will check and decide whether or not to accept the application. A pre-examination stage follows this, where the public will be able to register with the Planning Inspectorate and provide a written summary of their views on the application. The Planning Inspectorate then has 6 months to carry out the formal examination. During this stage, people who have registered will be invited to provide more detail of their views in writing.

The final decision on the scheme will be made by the Secretary of State for Transport, who will determine the DCO application with regard to:

- Any local impact reports submitted by the relevant local authority.
- How the application relates to planning policy eg policies contained in the *National Networks National Policy Statement (NNNPS)*. On page 31 we identified that each option is subject to a number of significant national planning policy challenges that could affect the likelihood of obtaining consent.
- Any other matters such as the impacts and benefits of the scheme, and any legal and international obligations.

If we do not obtain consent from the Secretary of State for Transport, then the scheme cannot be delivered.

More information is available via our *A27 Arundel Bypass: Planning Policy Summary* on our website (or available at our exhibition) or from the Planning Inspectorate website:

www.infrastructure.planninginspectorate.gov.uk

Your views are important

We would like to hear your views about the options presented based on your knowledge of the area. The consultation runs for 8 weeks from **22 August to 16 October 2017**.

How will we use the feedback?

Your response will help us to:

- Fully consider any potential impacts on the community and environment.
- Develop the options further before deciding on a final scheme design.
- Ensure the final Environmental Statement for the planning application considers impacts or mitigation measures that you have told us about, where appropriate.

What happens after the public consultation?

All responses and comments received during the public consultation will be considered and summarised in our Public Consultation Report, which will be submitted to the Department for Transport. We will also report on all the technical work done to date. Once the Secretary of State for Transport is convinced that there is a compelling case for the scheme and a suitable option, there will be a preferred route announcement (PRA).

Another opportunity to have your say

Following a preferred route announcement, we will develop detailed proposals. This will include further surveys and investigations to allow us to design the scheme in more detail.

There will be another opportunity to have your say during a statutory public consultation on the design of the preferred route.

Winter 2017/2018

Analysis of your feedback and that from our stakeholders and partners to produce a Public Consultation Report.

Winter 2017/2018

Publication of Public Consultation Report and preferred route announcement (PRA).

Spring 2018

Statement of Community Consultation (SoCC) will be published setting out the process for the statutory public consultation.

Spring 2018

Statutory public consultation on details of the preferred route.

2019

We will submit a Development Consent Order (DCO) planning application – required for all Nationally Significant Infrastructure Projects NSIPs.

2019 – 2020

The Planning Inspectorate will evaluate the scheme and Development Consent Order application.

2020

A recommendation will be given to the Government by the Planning Inspectorate. The Government will decide whether to give the scheme consent.

2020

Once planning consent is granted by the Government, construction will commence.

2023

New road will be fully open.

How to contact us:

You can use the following methods to respond to the consultation:

- Complete the questionnaire and send it to us at:
FREEPOST A27 ARUNDEL
- Complete the questionnaire online at:
www.highways.gov.uk/a27arundel

- Complete the questionnaire at a public consultation event.

If you have any questions, or would like the information in a different format, please contact us by:

- Email:
A27ArundelBypass@highwaysengland.co.uk
- Telephone: 0300 123 5000 (24 hours)



Annex A: Further information on history of A27 Arundel Bypass

Previous proposals to improve the A27 at Arundel have not been taken forward for financial and environmental reasons. The A27 Arundel Bypass has been included in the following studies:

Year	Report	Prepared for:
1985	Scheme Assessment Report	Department for Transport
2002	South Coast Multi-Modal Study (SoCoMMS)	Government Office for the South East
2013	A Route Strategy and Action Plan for the A27	West Sussex County Council
2015	A27 Corridor Feasibility Study	Department for Transport

Rejected options

The options that have been rejected, both historically and in our more recent work, are those that did not satisfactorily meet scheme objectives, would not be affordable or did not deliver any significant benefit for the cost. A series of maps⁷ illustrate the approximate routes of these previously rejected options.

Historic options 1985-2015

Three routes were outlined in the *Scheme Assessment Report* (1985) for public consultation in 1987 – the Purple, Red and Orange Routes (see [Figure 9](#)).

Description	Outcome
<p>Purple: This incorporated improvements to the existing A27 with a short diversion between Crossbush junction and Ford Road roundabout.</p> <p>Red: This option went from Crossbush junction west to Priory Lane before going north through Tortington Common/Binsted Woods to re-join the existing A27.</p> <p>Orange: This route ran directly from Crossbush junction west to join the existing A27 at Yapton Lane.</p>	<p>The Orange route gained the most support at consultation (followed by the Red route, with Purple gaining the least support), however none of the options were totally approved and modifications were suggested. In June 1989 the Orange route was announced as the preferred route by the Secretary of State for Transport.</p>

After the 1989 preferred route announcement there was still public demand for a modified Orange route and there was a public consultation in 1991 on the Modified Orange (Blue/Brown) amendments (see [Figure 10](#)).

Description	Outcome
<p>Blue: This route went further south than the Orange route before re-joining the Orange route south of Tortington Common.</p> <p>Brown: This directed further north from the edge of Binsted Woods and re-joined the existing A27 at the eastern end of Hundredhouse Copse.</p>	<p>During the public consultation, a more popular route emerged combining a 'modified Red route' from the 1987 consultation (known as the Pink Route) with the Blue Route to form the Pink/Blue Route. This is our Option 3.</p>

The Pink/Blue Route was subsequently announced as the preferred route in 1993 (see [Figure 11](#).)

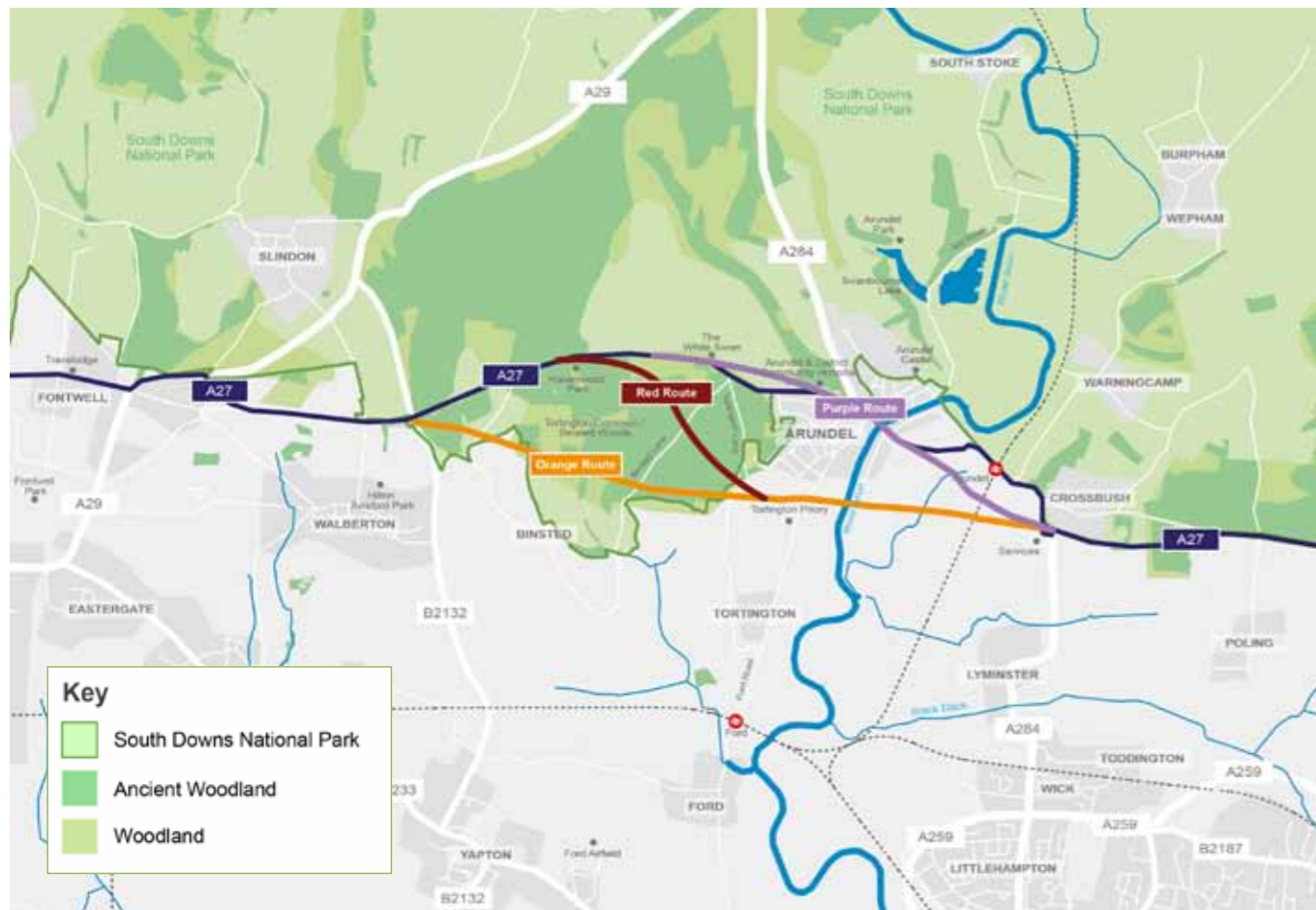
Description	Outcome
<p>Pink/Blue: From Crossbush junction, this would cross the railway and River Arun and pass over Ford Road at a new junction. The road curved westward before going north through Tortington Common/Binsted Woods then joining the existing A27 near Havenwood Park at a new flyover junction.</p>	<p>However, the Arundel Bypass Action Committee continued to oppose the Pink Route, which led to a range of Green route proposals.</p>
<p>Green (1): A further alternative to the Pink route. Included the provision of a fly-over roundabout junction on the existing A27 east of Hundredhouse Copse.</p>	<p>Rejected as the fly-over roundabout junction would not have been sufficient to meet the needs of long-term traffic demand.</p>
<p>Green (2): This route left the existing A27 at Hundredhouse Copse turning south-east and avoiding the main body of Binsted Woods/ Tortington Common.</p>	<p>Rejected on the grounds that it would encroach into Hundredhouse Copse, an area of high ecological and nature conservation importance.</p>
<p>Green (3): This route left the A27 at Hundredhouse Copse, passed through Furzefield Copse, and continued just inside the woodland edge to then go east to join the Blue route.</p>	<p>Rejected because it would pass close to an area of high nature conservation importance and require the demolition of dwellings.</p>
<p>Green (4): A modified version of Green (2) to avoid intrusion into Hundredhouse Copse.</p>	<p>Rejected due to having less support than the Pink/Blue route, as well as costing more, requiring more land and severing farmland north of Binsted.</p>

Following the *South Coast Multi-Modal Study (SoCoMMS)*, which recommended a new bypass be constructed around Arundel, in 2003 the Secretary of State for Transport cancelled the previous preferred route (Pink/Blue; our Option 3) and instructed that work on less environmentally damaging options should proceed. These other options together with the conclusions from the *Route Strategy and Action Plan* for the A27 have been considered as the starting point in developing our present options.

The *A27 Corridor Feasibility Study (2015)* reviewed the case for improvements on the A27 between Havant and Pevensey and assessed tunnelling as an option. The study confirmed that an improvement to the A27 at Arundel would provide significant congestion relief and economic benefit and should be re-examined.

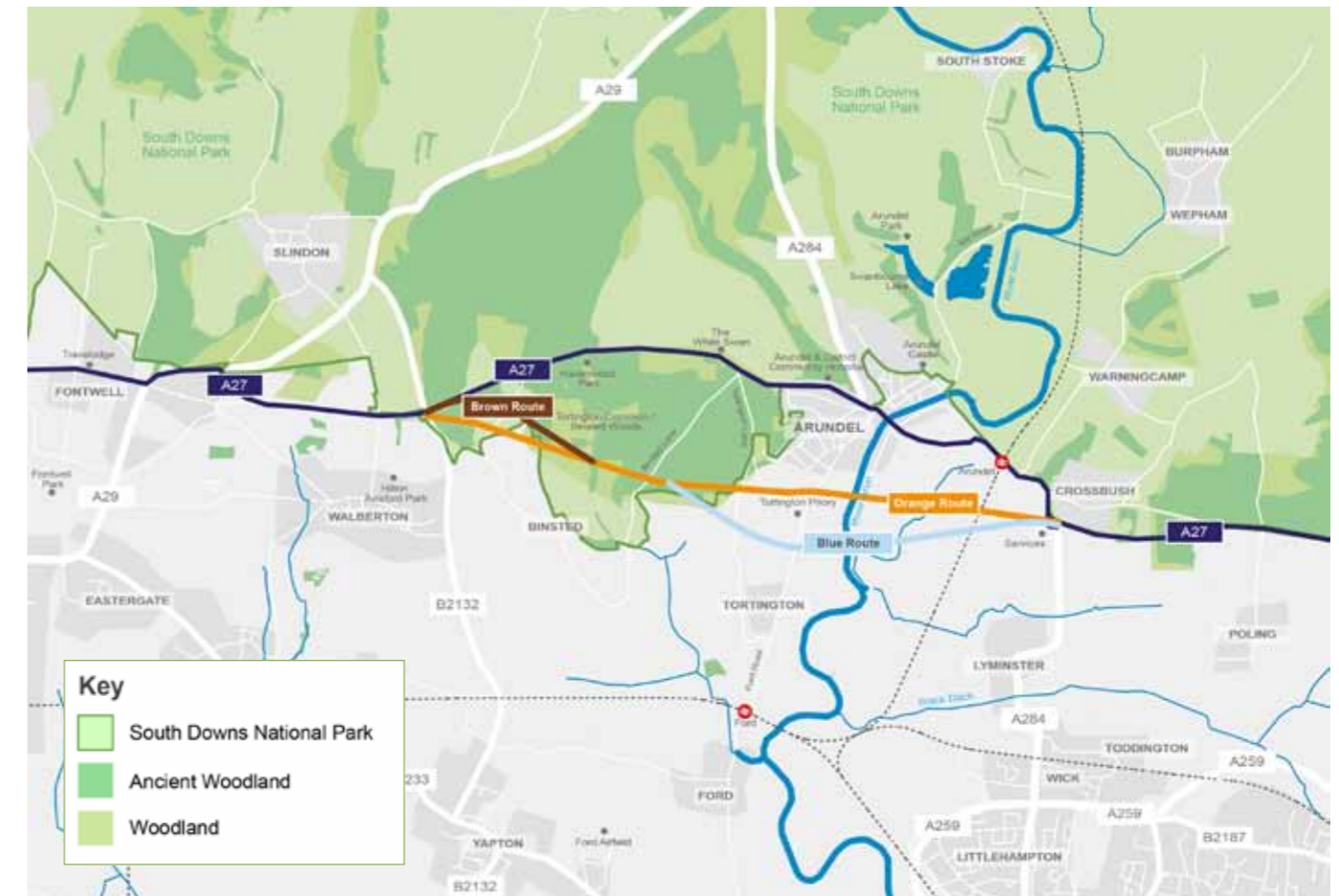
Description	Outcome
Tunnel on the existing A27 in place of a widened A27 on Hospital Hill (Chichester Road) in a cutting now proposed for our Option 1.	This was rejected due to cost estimate of £300-£350 million.

Figure 9: Scheme Assessment Report (1985) Orange, Red and Purple Routes



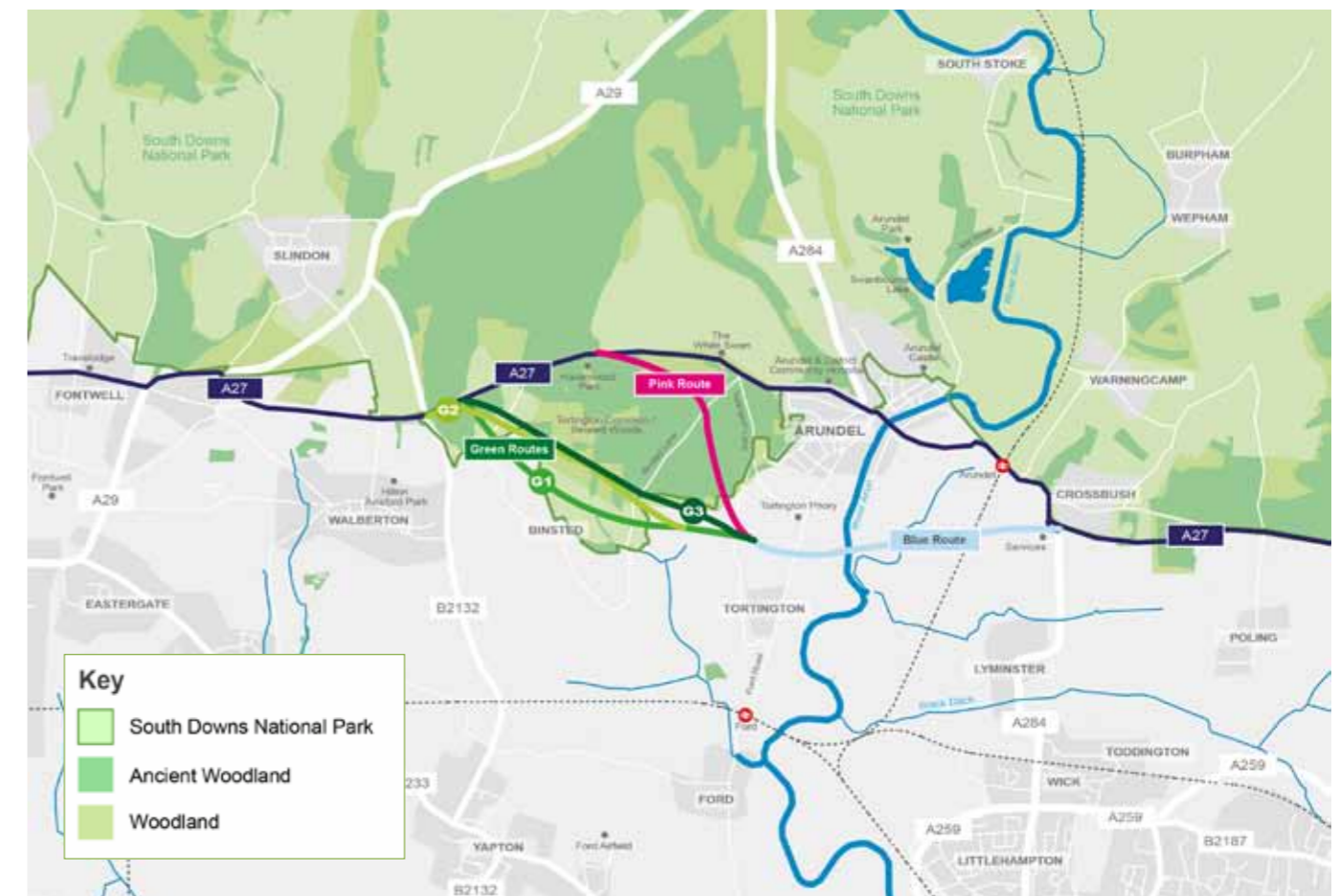
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Figure 10: 1991 consultation (amendments to Orange Route) Blue/Brown Routes



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Figure 11: 1993 preferred route (Pink/Blue Route) and discounted Green routes



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More recently discounted options 2015-2017

Our current study has investigated 5 options which have now been discounted (see Figure 12.)

Our early discarded options (2015-2016)

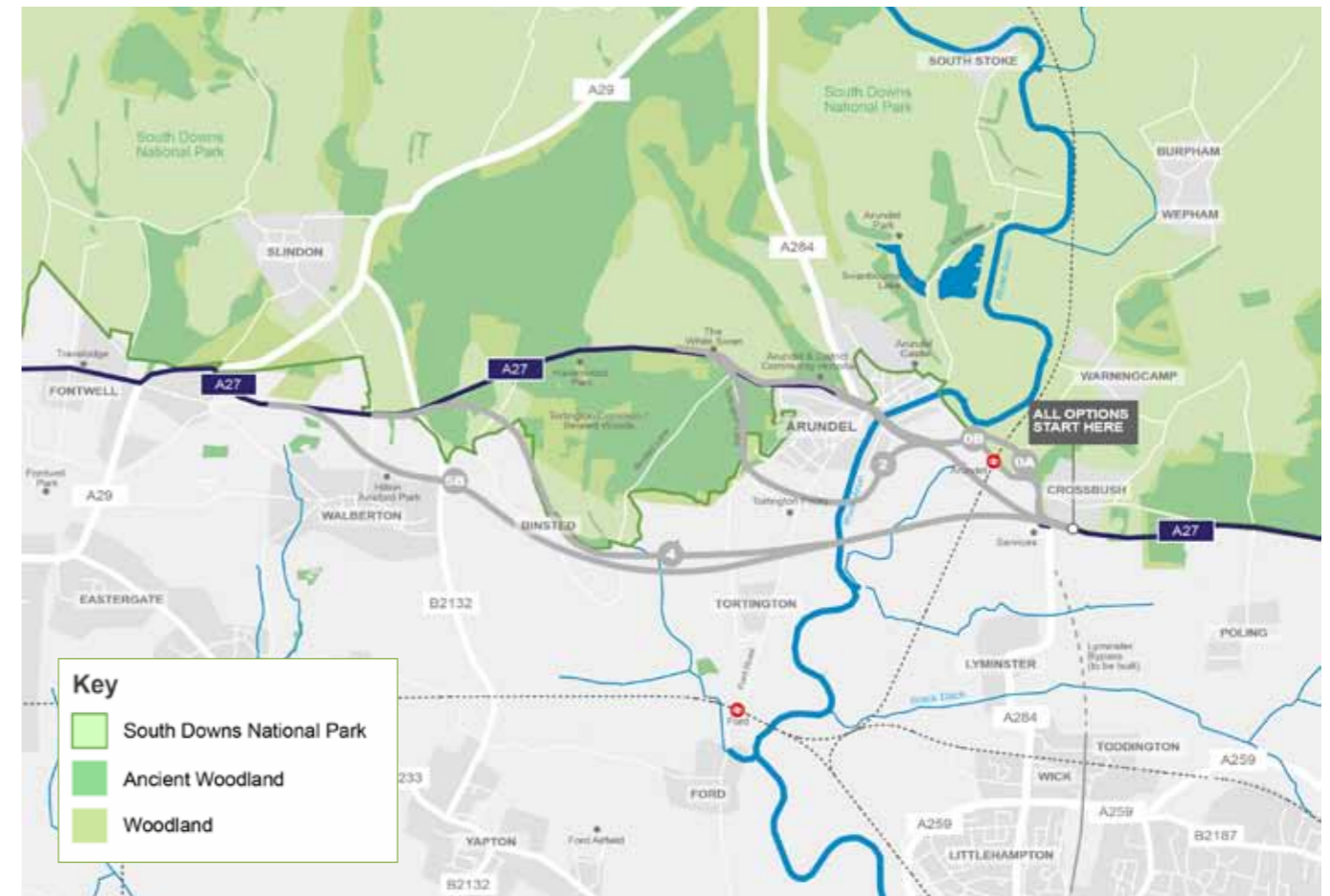
Description	Reason for rejection
Option 2: A bypass closer to the town of Arundel than Option 3.	Discounted because it would have come closer to the built up area of Arundel, creating noise and vibration impacts. The routing included sharp bends which would affect visibility, safety and journey times and extend the route length, subsequently not meeting the scheme objectives.
Option 4: Similar to Option 5A, but would be routed just outside the South Downs National Park boundary.	This option was discarded because it provided no additional benefit compared to more cost effective options that have been taken forward.

Our recently discarded options (2016-2017)

Description	Reason for rejection
Option 0A: Single carriageway road with improvements at Crossbush junction, Causeway roundabout and Ford Road roundabout.	Did not meet the scheme objectives (a dual carriageway is required to accommodate traffic now and in the future).
Option 0B: Upgrading the existing A27 to a narrow dual carriageway, while improving Crossbush junction, Causeway and Ford Road roundabouts.	The impact that widening would have (on properties and heritage sites).
Option 5B: Similar to Option 5A, but a longer route further south in order to avoid the South Downs National Park and Ancient Woodland completely.	Significantly exceeded the allocated budget, and provided less value for money than the options being consulted upon.

There has been some support locally for making the existing A27 a wide single lane carriageway; also known as the 'new Purple route'. We did not model this route because traffic flows in Arundel are too high for a single carriageway to be a viable long term solution.

Figure 12: More recently discounted options



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A27

Arundel Bypass

Report on public consultation

Spring 2018
Appendix B – Consultation banners

A27 Arundel Bypass Welcome



Welcome to the Highways England
A27 Arundel Bypass public consultation.

Thank you for coming.

Today we are showing you the early designs to improve the A27 at Arundel and we would like to hear your views on our options.

We hope that you will find this exhibition useful in providing information on the scheme and that it helps to inform your response. Please sign in if you have not done so already.

At this exhibition you will find:

- a series of displays describing the options
- early drawings of the options
- copies of the consultation brochure
- technical documents
- summary documents on a range of topics for those wanting more detail
- questionnaire for you to complete
- members of the project team on-hand to answer any questions.

Further information is available in the consultation brochure.

A27 Arundel Bypass

How can I have my say?



The consultation runs for 8 weeks, from
Tuesday 22 August – Monday 16 October.

Complete the questionnaire:

- at one of our events
- online: www.highways.gov.uk/a27arundel
- send it to us at: **FREEPOST A27 ARUNDEL**

If you have any queries, speak to one of the project team, or
contact us:

- email: A27ArundelBypass@highwaysengland.co.uk
- telephone: **0300 123 5000** (24 hours)

To find out more, visit: www.highways.gov.uk/a27arundel

A27 Arundel Bypass

What is the A27 Arundel Bypass scheme?

- The A27 Arundel Bypass scheme is identified within the Government's 2015 to 2020 Road Investment Strategy (RIS).
- It has a budget of £100 million to £250 million, and is part of a wider investment programme along the A27 corridor, including Worthing and Lancing and East of Lewes.
- The scope is a new dual carriageway bypass to link the two existing dual carriageway sections of the road.

What are our objectives for this scheme

- Improve capacity of the A27 whilst supporting local planning authorities to manage the impact of planned growth.
- Reduce congestion, travel time and improve journey time reliability along the A27 at Arundel.
- Improve the safety of travellers along the A27 and across the wider local road network.
- Improve accessibility to local services and facilities.
- Deliver a scheme that minimises environmental impact and seeks to protect and enhance the quality of the surrounding environment through its high quality design.
- Respect the South Downs National Park and its special qualities in our decision-making.

A27 Arundel Bypass

Why are improvements needed?

The A27 is the only east-west major route south of the M25:

Serves a population of over 750,000 and a large number of businesses.

The A27 is used by both local traffic and through traffic:

Population growth and economic activity will produce more traffic in the future.

The single carriageway road and junctions cannot cope with existing traffic flows:

During peak times this often results in long queues.

Due to congestion, some traffic diverts to use less suitable alternative routes:

North: B2139 through the South Downs National Park and local villages and towns (Houghton, Amberley, Storrington).

South: B2233 through Eastergate, Barnham, Yapton and Climping.

Above average accidents on the A27:

68 collisions with casualties in 5 years (2010-2015).

Drivers on the A27 have experienced congestion for many years and will continue to do so:

With the additional pressures from planned developments and traffic growth, congestion is expected to worsen in the future.

There are high levels of car use and there are no plans to significantly improve public transport.

As there is no evidence to suggest there will be any significant switch from road to other types of transport, there is an urgent need to improve the A27 at Arundel.

Without improvement, the congestion and delay on the A27 through Arundel will increase in the future.

A27 Arundel Bypass The options

Improving the A27 at Arundel would:

- considerably reduce queuing and delays
- improve journey times, air quality and road safety
- remove traffic from less suitable routes within the South Downs National Park
- help businesses to reduce their costs, support expansion and provide new employment opportunities
- support the growth of tourism.

There are 3 options:

Option	Description
Option 1	New dual carriageway from Crossbush junction south of current A27 to the south-west of Arundel railway station, joining the A27 east of Ford Road. New bridge over river Arun alongside the existing bridge. From Ford Road roundabout with traffic signals, the existing A27 would be widened to dual carriageway.
Option 3	New dual carriageway from Crossbush junction south of the current A27 over Ford Road, then going north through the South Downs National Park and Tortington Common/Binsted Woods, re-joining the existing A27 at a new junction near Havenwood Park.
Option 5A	New dual carriageway from Crossbush junction south of the current A27 over Ford Road and continuing west, before going north through the South Downs National Park and Binsted Woods, re-joining the existing A27 at a new junction near Yapton Lane.

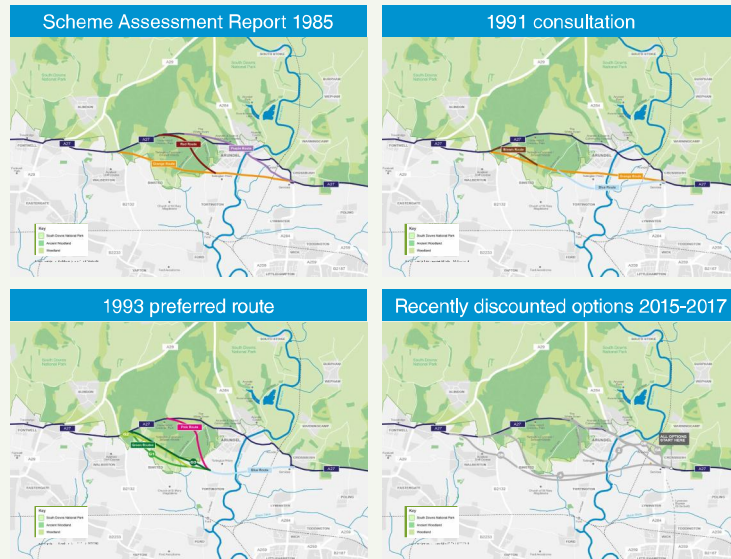
A27 Arundel Bypass

What are the environmental and design considerations?

We are committed to minimising the environmental impact of our road network and to protecting and enhancing the quality of the surrounding environment. In developing our options, we have considered a range of community and environmental issues including but not limited to:

Consideration	Description
National Park	The South Downs National Park (SDNP) is a nationally designated landscape and we will seek to design a scheme that is as sensitive as possible to the area.
Ancient woodland and veteran trees	Tortington Common/Binsted Woods is a woodland area, with relatively undisturbed soil that has existed since 1600 AD. It produces communities of plants and animals that depend on the stable and rare conditions. Ancient woodland and veteran trees are protected by national planning policy.
Scheduled monuments and Heritage assets	Arundel Castle, Tortington Priory and the remains of a Roman Road found near Havenwood Park (not yet designated).
Floodplain	Both coastal and river flooding are possible, with the area being covered by 2 different flood zones. We will design the scheme to ensure that there is no adverse impact on flood risk or reduced flood defence protection.

A27 Arundel Bypass Options not taken forward



Option	Reason for rejection
Early discarded options 2015-16	
Option 2	Would have come closer to the built up area of Arundel. Routing included sharp bends which would affect visibility, safety and journey times and extend the route length.
Option 4	Provided no additional benefit and not as cost effective.
Recently discarded options 2016-17	
Option 0A	Did not meet the scheme objectives (a dual carriageway is required to accommodate traffic now and in the future).
Option 0B	The impact on properties and heritage sites.
Option 5B	Significantly exceeded the allocated budget, and provided less value for money.

There has been some local interest in tunnelling and a wide single lane carriageway, known as the "new Purple Route", but these have also been discounted:

- Tunnelling - not affordable
- New Purple Route: traffic flows in Arundel are too high for a single carriageway to be a viable long term solution.

A27 Arundel Bypass

How will your response be used?

All views and comments will help us to:

- fully consider any potential impacts on the community and environment.
- develop the final scheme design incorporating your responses, where applicable.
- ensure the final Environmental Statement for the planning application considers impacts and mitigation you have told us about, where appropriate.

What happens next?

Season	Milestone
Winter 2017/18	We will produce a <i>Public Consultation Report</i> to document the feedback received.
Winter 2017/18	Preferred Route Announcement.
Spring 2018	We will publish a <i>Statement of Community Consultation</i> setting out the process for the statutory public consultation.
Spring 2018	Statutory public consultation on details of the preferred route.
2019	We will submit a Development Consent Order (DCO) planning application – required for all <i>Nationally Significant Infrastructure Projects</i> .
2019-20	The Planning Inspectorate will evaluate the scheme and DCO application.
2020	The Planning Inspectorate will give a recommendation to the Government. The Government will decide whether to give the scheme consent.
2020	If planning consent is granted by the Government, construction will commence.
2023	New road will open for traffic.

Opportunities to have your say 



A27 Arundel Bypass Thank you

Thank you for taking the time to visit this exhibition. Please fill in the questionnaire to tell us what you think.



At one of our events



Online: www.highways.gov.uk/a27arundel



Post: **FREEPOST A27 ARUNDEL**

If you have any queries, speak to one of the project team, or contact us:



Email: A27ArundelBypass@highwaysengland.co.uk



Call: **0300 123 5000***

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A27

Arundel Bypass

Report on public consultation

Spring 2018
Appendix C – Code frame and frequencies

Code	QA2	QA3	QB2				QB3				QB4			QB5	QB6				QB7	QC3	QC8
			Opt 1	Opt 3	Opt 5A	Other	Opt 1	Opt 3	Opt 5A	Other	Opt 1	Opt 3	Opt 5A		Opt 1	Opt 3	Opt 5A	Other			
<i>Congestion / Traffic</i>																					
Will alleviate / ease congestion	1	9	18	22	94	2	1	1	2	5	7	9	35	1	0	0	0	5	0	0	0
Improves capacity / journey time along the A27	1	6	16	12	58	3	0	0	0	0	8	5	17	0	0	0	0	0	1	0	0
Offers the greatest reduction in journey time	0	1	6	3	24	0	0	0	0	0	0	0	8	0	0	0	0	0	1	0	0
Will have the greatest impact on congestion (general)	0	3	37	58	159	3	2	0	1	0	12	7	16	1	0	0	0	1	3	0	2
Will have the greatest impact on congestion (peak periods)	0	0	3	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Will not separate local and through traffic	1	1	6	1	0	2	0	0	0	2	11	1	5	0	1	0	0	0	0	0	0
Congestion (Ford Road roundabout)	194	76	66	3	11	18	1	0	0	2	39	2	2	5	1	0	0	0	0	0	0
Congestion (Crossbush junction)	365	52	15	2	4	15	0	0	0	2	3	1	0	2	0	0	0	0	2	0	1
Congestion (Arundel)	104	112	7	0	1	15	0	0	0	3	20	1	3	1	1	1	0	2	11	0	1
Congestion (A27 forces traffic elsewhere i.e. local roads / villages (Storrington, Amberley, Pulborough etc.))	67	126	5	4	10	15	0	3	1	12	15	4	8	7	0	0	0	5	5	0	0
Congestion (events / holiday periods)	84	14	1	0	0	2	0	0	0	1	0	0	0	1	0	0	0	1	2	0	1
Congestion (delays either side of Arundel at Chichester / Worthing)	19	35	5	3	6	40	0	0	0	27	6	7	9	16	0	0	0	11	19	0	2
Congestion (peak periods)	307	24	2	0	0	6	1	0	0	3	6	0	1	0	0	0	0	0	2	0	1
Congestion (general)	932	126	26	1	6	31	1	1	1	7	34	5	6	7	3	0	0	7	14	0	3
Unreliable journey times	177	15	0	2	2	10	1	0	0	0	2	0	2	0	0	0	0	0	1	0	0
Congestion (school-related)	2	14	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Traffic is only an issue occasionally (i.e. weekends) and clears quickly	26	2	4	1	0	24	0	0	0	1	0	0	0	2	0	0	0	2	1	0	0
New roads create more traffic	12	30	1	4	5	47	0	0	0	15	5	0	5	8	0	1	1	4	20	0	3
Concerns about rat-running / using other unsuitable roads	161	184	3	2	19	20	1	1	1	10	27	9	9	5	2	2	2	5	6	0	4
Option 3 requires a larger tie-in junction to avoid congestion	0	1	0	1	2	0	0	1	0	1	0	1	1	2	0	1	1	0	0	0	0
Need to separate local and through traffic	21	99	1	0	1	1	0	0	0	4	4	0	8	10	0	1	1	5	0	0	0
Need for traffic calming measures e.g. reduced speed limit / no through road signs	19	29	0	0	0	0	0	0	0	14	12	2	5	34	11	8	9	12	6	0	0
Concerns that the problem will move further along the A27	13	14	3	2	3	13	1	0	0	4	3	5	7	8	0	0	0	0	27	0	3
Safety issues (dangerous, accidents & road layout)	138	72	11	5	12	28	0	0	1	15	31	9	16	15	1	2	3	5	14	0	2
Too many vehicles on the road	32	1	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	2	0	0	0
<i>Current road layout</i>																					
Single carriageway section around Arundel	476	5	0	0	0	1	0	0	0	1	3	3	1	0	1	1	1	0	0	0	0
The A27 is not suitable for the current volume of traffic	259	14	0	0	0	0	0	0	0	2	3	1	5	3	1	0	0	2	2	0	0
Traffic lights cause congestion / delays	96	23	7	0	0	5	0	0	0	2	16	0	1	11	1	1	1	0	3	0	0
Pedestrian crossings cause congestion / delays	109	9	0	0	0	8	0	0	0	1	1	0	0	7	0	0	0	0	2	0	0
Existing layout (poor junction design, road markings & signage)	130	21	6	1	3	11	0	0	0	0	4	1	3	4	3	1	1	0	0	0	0
Accesses onto / from the A27 (too many)	10	2	0	0	0	0	0	0	0	2	0	2	4	2	0	0	0	0	0	0	0
Accesses onto / from the A27 (unsafe)	22	5	0	0	0	5	0	0	0	4	2	2	0	2	0	0	0	0	0	0	0
A bypass is required	76	88	18	10	5	13	0	0	0	3	17	1	5	6	2	0	0	6	17	0	8
Roundabouts cause congestion / delays	128	11	28	1	3	13	0	1	0	1	17	1	2	9	2	0	0	1	0	0	0
Accesses onto / from the A27 (not enough)	2	26	0	1	0	5	0	0	0	4	2	3	3	4	0	0	0	3	0	0	0
The existing railway bridge is structurally unsafe	1	5	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0
<i>Environmental</i>																					
Less environmental impact (South Downs National Park)	1	7	39	12	85	1	1	1	0	1	15	11	19	3	0	0	0	1	3	0	0
Less environmental impact (biodiversity, habitats & animals etc.)	1	10	43	11	65	6	2	0	0	2	34	24	63	0	2	0	0	0	1	0	0
Less environmental impact (drainage & flooding)	0	2	10	0	4	1	0	1	1	1	2	0	3	1	0	0	0	0	1	0	0
Less environmental impact (archaeology & cultural heritage)	0	2	12	2	7	1	0	0	0	0	11	0	5	0	1	1	0	0	0	0	0

Code	QA2	QA3	QB2				QB3				QB4			QB5	QB6				QB7	QC3	QC8
			Opt 1	Opt 3	Opt 5A	Other	Opt 1	Opt 3	Opt 5A	Other	Opt 1	Opt 3	Opt 5A		Opt 1	Opt 3	Opt 5A	Other			
Less environmental impact (Binsted Woods)	0	4	69	33	128	8	0	0	0	1	0	6	4	2	2	1	0	0	1	0	0
Less environmental impact (Tortington Common)	0	3	19	3	20	4	0	0	0	0	1	4	0	0	1	0	1	0	0	0	0
Less environmental impact (Arun Valley)	0	2	11	0	2	0	0	0	0	0	2	0	0	0	0	0	0	1	2	0	0
Less environmental impact (noise)	1	1	7	11	31	0	1	0	0	2	2	12	5	1	2	0	0	1	1	0	2
Less environmental impact (air quality)	1	6	11	20	76	0	0	0	1	2	3	8	8	0	1	1	1	1	5	0	0
Less environmental impact (landscape - visual)	0	1	23	20	18	1	0	1	1	1	15	4	6	1	1	0	0	0	2	0	0
Less environmental impact (general)	0	24	265	50	156	7	5	1	3	1	85	16	46	10	1	0	0	4	10	0	1
The best long-term solution for the environment	0	3	7	2	11	14	1	0	1	0	5	0	3	6	0	0	0	2	6	0	1
Concerns about environmental impact (South Downs National Park)	5	119	4	38	26	21	0	1	1	6	10	77	73	11	1	2	3	5	11	0	0
Concerns about environmental impact (biodiversity, habitats & animals etc.)	10	465	4	37	30	37	3	4	7	31	36	411	257	18	8	45	46	35	34	0	5
Concerns about environmental impact (drainage and flooding)	1	67	0	3	5	3	0	0	0	17	6	39	29	4	0	0	0	2	6	0	0
Concerns about environmental impact (archaeology & cultural heritage)	2	36	6	3	6	9	0	0	0	1	10	12	23	5	0	0	1	8	4	0	1
Concerns about environmental impact (Binsted Woods)	5	169	2	50	44	24	0	4	3	2	0	102	55	2	0	5	9	5	5	0	3
Concerns about environmental impact (Tortington Common)	0	44	3	25	9	17	0	0	1	2	0	39	10	0	0	6	4	1	0	0	0
Concerns about environmental impact (Arun Valley)	0	34	1	4	4	6	0	0	0	4	3	21	14	0	0	0	0	4	2	0	0
Concerns about environmental impact (noise)	46	171	30	9	14	15	4	6	6	24	88	28	55	15	6	18	17	11	10	0	1
Concerns about environmental impact (air quality)	74	196	46	4	8	22	1	2	2	10	74	8	17	10	1	3	2	14	7	0	4
Concerns about environmental impact (landscape - visual)	4	107	5	11	17	6	0	7	6	16	22	65	69	10	7	11	13	11	14	0	5
Concerns about environmental impact (general)	201	300	12	94	99	100	0	4	6	32	53	166	142	28	4	9	13	35	86	1	18
A sensitively designed scheme would minimise the effect on the landscape	1	21	2	12	15	11	0	1	3	5	3	9	4	4	1	0	2	0	4	0	0
Create environmentally friendly areas (i.e. bat / nest boxes) where possible	0	1	0	2	6	1	0	1	0	5	0	1	2	7	0	1	1	0	5	0	0
Concerns about environmental impact (light)	0	26	0	1	2	1	0	1	1	4	3	7	33	1	0	1	1	4	3	0	0
Plant trees for mitigation	0	6	0	0	0	0	0	0	0	2	2	13	10	12	0	4	6	2	1	0	1
<i>Regional economy</i>																					
Will have a positive impact on the regional economy	3	8	13	8	25	2	1	1	0	1	1	5	12	0	0	0	0	1	7	0	0
Will have a negative impact on the regional economy	21	32	12	1	3	8	0	0	0	0	2	3	2	0	0	0	0	0	1	0	0
Needs of the regional economy	3	15	0	0	0	1	0	0	0	0	0	0	1	2	0	0	0	0	4	0	1
<i>Future development</i>																					
Best option for future growth / development / expansion	1	2	0	9	36	0	0	0	0	1	2	2	10	0	0	0	0	2	9	0	0
Does not sufficiently cater for future housing growth (will need more work in the future)	0	4	4	0	1	1	0	0	0	5	3	2	2	0	1	0	1	2	1	0	1
Need to accommodate new residential / commercial developments in the wider area	16	78	1	0	2	1	1	0	0	6	4	3	4	13	0	0	0	5	5	0	1
Impact of residential / commercial developments on traffic volume	72	61	3	2	5	8	0	0	0	2	11	8	6	8	1	1	1	2	9	0	3
Impact of infrastructure (e.g. Lyminster Bypass) on traffic volume	0	23	0	0	0	1	0	0	0	4	0	0	1	9	0	0	0	0	3	0	2
Concerns that the scheme will encourage too much future development	0	49	4	5	5	33	0	3	2	11	2	15	14	5	0	0	1	2	20	0	10
<i>Ford Road / Ford Road roundabout</i>																					
Opposed to proposed footbridge at Ford Road roundabout	0	7	19	0	0	2	0	0	0	3	59	1	1	1	19	1	2	1	1	0	0
Concerns about increasing number of HGVs on Ford Road	5	32	7	0	0	11	2	1	2	14	8	4	10	11	6	2	2	1	1	0	1
Concerns about increasing traffic on Ford Road (due to development)	0	11	10	0	0	1	3	1	1	5	11	2	3	2	0	1	1	0	0	0	0
Concerns about on-street parking on Ford Road	0	20	1	0	0	0	0	0	0	6	7	0	0	3	6	3	3	2	1	0	1
Concerns about proposed footbridge at Ford Road roundabout (wrong location, structure etc.)	0	4	5	0	1	1	0	0	0	3	16	1	0	2	16	1	1	1	0	0	0

Code	QA2	QA3	QB2				QB3				QB4			QB5	QB6				QB7	QC3	QC8
			Opt 1	Opt 3	Opt 5A	Other	Opt 1	Opt 3	Opt 5A	Other	Opt 1	Opt 3	Opt 5A		Opt 1	Opt 3	Opt 5A	Other			
Concerns that the proposed footbridge at Ford Road roundabout will not be used (too long, steep etc.)	0	6	2	0	1	0	0	0	0	1	34	0	0	1	9	0	1	0	0	0	0
Concerns that the proposed traffic signals on Ford Road roundabout will cause delay	0	7	60	0	1	10	2	0	0	4	103	0	1	4	1	0	0	0	2	0	1
Need a better solution for Ford Road roundabout	1	9	43	3	4	17	3	0	0	11	25	4	2	13	1	0	0	1	0	0	0
Concern about impact on housing near Ford Road roundabout (noise)	0	5	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Concern that congestion at Crossbush junction will shift to Ford Road	0	4	3	0	0	0	0	0	0	0	19	0	0	1	0	0	0	0	0	0	0
The proposed footbridge at Ford Road roundabout will not benefit equestrians	0	1	0	0	0	0	1	0	0	1	2	0	0	0	5	0	0	0	0	0	0
Need a long term solution for Ford Road roundabout (i.e. flyover / grade separated junction)	0	23	15	2	4	21	2	3	3	14	77	7	8	74	11	0	0	5	5	0	2
Concerns about lack of access at Ford Road / need a junction	0	29	1	2	3	1	0	3	5	15	3	15	10	27	0	4	4	2	4	0	0
There is a lack of cycle / foot paths along Ford Road	0	14	0	0	0	0	1	0	0	4	3	2	0	3	16	9	9	5	0	0	0
<i>Arundel</i>																					
Best option for the community / residents of Arundel	0	13	17	48	122	1	1	1	0	0	10	15	34	3	0	2	2	0	8	0	1
Will reduce traffic in Arundel	0	10	13	57	158	0	0	1	2	0	6	21	32	3	0	7	7	4	6	0	1
Will improve safety for pedestrians / cyclists	0	0	2	2	1	0	0	0	0	0	1	1	4	1	2	3	3	4	0	0	0
Meets the requirements for a dual carriageway bypass around Arundel	1	8	4	74	172	11	0	0	0	2	1	2	5	1	0	0	0	2	1	0	0
Need to improve access to Arundel town centre	9	52	2	0	0	4	1	0	0	0	1	3	1	0	3	0	0	0	1	0	0
Concerns about impact on Arundel (town centre & businesses)	4	50	12	0	2	4	0	2	0	1	11	3	3	0	0	1	0	0	1	0	2
Concerns about impact on Arundel (route is too close / brings traffic into Arundel)	4	45	61	2	2	5	1	0	0	1	111	19	9	4	5	2	1	3	1	0	1
Concerns about impact on Arundel (severance / splits Arundel)	26	178	71	3	1	6	3	1	1	2	152	3	10	3	7	0	0	0	1	0	0
Concerns about impact on Arundel (general)	15	90	40	1	1	15	2	1	1	2	59	8	4	1	3	0	1	6	9	0	2
Need to ensure there is appropriate access to Arundel Railway Station	0	7	1	0	0	1	0	0	0	1	4	1	1	3	0	1	1	0	1	0	0
<i>Binsted</i>																					
Best option for the community / residents on Binsted	0	3	14	36	5	2	1	0	0	0	5	5	3	0	0	0	0	0	0	0	0
Concerns about impact on Binsted	3	121	0	5	87	9	0	2	12	1	2	16	240	18	0	0	0	4	12	0	5
<i>Walberton</i>																					
Best option for the community / residents of Walberton	0	2	5	6	0	1	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
Concerns about impact on Walberton	1	20	0	2	14	0	0	1	0	0	0	2	35	1	0	0	0	0	1	0	2
<i>Impact on local communities</i>																					
Minimised the impact on the local villages	1	6	42	42	45	4	2	0	1	1	10	17	11	0	2	2	1	0	4	0	0
Concerns about access to Arundel Hospital	0	5	13	0	0	0	1	0	0	1	14	0	0	1	0	0	0	0	1	0	0
Concerns about increasing traffic flow through a residential area	0	26	2	0	0	0	0	0	0	1	13	10	7	0	1	1	1	1	1	0	0
Concerns about impact on emergency services response times	12	10	0	0	0	0	0	0	0	2	4	0	1	0	0	0	0	0	0	0	0
Concerns about access to Arundel Castle Cricket Ground	0	4	1	0	2	0	1	0	0	0	3	1	0	0	1	0	0	2	0	0	0
Concerns about impact on local villages	27	117	5	9	19	13	1	1	3	11	23	46	91	8	2	1	5	8	14	3	3
Concerns about the loss of property, lands & gardens	2	20	0	0	3	0	0	0	0	8	5	11	13	0	1	0	0	1	1	2	2
Concerns about the effect on property prices	0	7	0	0	0	0	0	0	0	1	5	2	4	0	0	0	0	1	1	2	1
<i>Impact on local businesses</i>																					
Concerns about access to the White Swan	0	6	4	0	1	0	1	0	0	2	7	0	0	0	0	0	0	2	1	0	0
Negative impact of A27 on businesses (disruption, deliveries, staff & business travel)	25	15	4	0	0	1	0	0	0	4	16	3	6	0	2	0	0	3	1	0	0
Concerns about impact on tourism in the local area	7	43	0	0	0	2	0	0	0	6	9	1	5	1	0	0	0	1	1	0	0

Code	QA2	QA3	QB2				QB3				QB4			QB5	QB6				QB7	QC3	QC8	
			Opt 1	Opt 3	Opt 5A	Other	Opt 1	Opt 3	Opt 5A	Other	Opt 1	Opt 3	Opt 5A		Opt 1	Opt 3	Opt 5A	Other				
Concerns about impact on local equestrian school	0	12	0	0	0	0	0	0	0	0	0	11	1	0	0	16	0	0	0	0	0	0
<i>Cost</i>																						
Offers the best value for money / most cost effective	2	14	206	12	79	2	4	0	0	0	105	4	39	7	2	1	0	3	11	0	1	
The money saved (compared with other options) could be used to repair roads / improve public transport	0	4	8	0	0	5	0	0	0	5	9	1	0	0	2	1	1	0	0	0	1	
The money should be spent on alternatives e.g. improving public transport	22	30	1	2	3	105	0	0	0	22	8	8	12	79	7	3	3	22	25	0	5	
Waste of time / money	6	15	14	13	18	15	0	0	0	6	50	11	18	7	0	1	1	7	37	2	15	
More expensive and does not provide extra benefits	1	2	0	12	16	3	0	0	0	2	2	35	46	2	0	1	4	7	6	1	0	
Offers poor value for money / least cost effective	1	8	5	3	2	7	0	4	3	5	22	52	33	1	0	1	1	0	9	0	0	
Concern that the funding will be withdrawn	0	0	1	2	1	1	0	0	1	5	0	0	1	1	1	1	1	0	13	0	6	
The money should be spent wisely (i.e. build the best, not the cheapest)	0	6	0	0	0	0	0	0	0	0	1	0	3	5	0	0	0	2	4	0	6	
<i>Resilience</i>																						
Offers the best long-term solution / future proof	0	14	2	20	137	3	1	0	1	0	2	9	42	5	0	0	1	5	5	0	2	
Does not offer a long-term solution / not sufficient for future demand / minimal improvement	7	15	65	7	4	19	1	0	0	11	152	18	4	4	3	1	1	3	14	0	4	
Would require further improvements & expenditure in the future	0	1	5	0	1	1	0	0	0	1	11	4	0	0	0	0	0	1	1	0	0	
Would be difficult to upgrade in the future	1	0	0	0	0	0	0	0	0	0	3	1	0	0	2	0	0	0	0	0	0	
Option will be outdated within 10 years / capacity likely to be exceeded	1	3	4	0	0	2	0	0	0	2	5	2	1	4	0	0	0	0	0	0	0	
<i>General</i>																						
Easiest option to gain acceptance for	0	3	2	6	8	0	0	0	0	1	1	3	3	1	0	0	0	0	0	0	0	
Something needs to be done / the sooner the better	12	31	5	5	8	22	0	0	1	37	3	13	34	35	0	2	2	77	185	2	45	
Improvements are long overdue (~30 year delay) & decisions need to be made	28	21	0	16	11	11	0	0	0	11	2	6	5	18	0	0	0	13	63	0	19	
Need to focus on link to Littlehampton	0	4	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	1	1	0	0	
Need to work with WSCC / other parties on the wider network (e.g. A259, Lyminster Bypass)	2	8	0	0	0	0	0	0	0	7	1	0	1	12	0	1	1	1	8	1	0	
Lack of bus services	80	37	1	0	0	29	0	0	0	2	1	0	2	9	1	2	1	2	1	0	0	
Poor rail connectivity	64	30	0	0	0	28	0	0	0	3	0	0	0	5	0	1	0	2	5	0	0	
Concerns the scheme will not go ahead (as previously) due to impacts	0	4	2	4	1	0	0	0	0	6	1	1	3	2	0	0	0	2	7	0	2	
Most weight should be given to the National Park Authorities and their views	0	3	1	0	0	4	0	0	0	1	0	1	1	1	0	0	0	0	1	0	1	
More information is required	2	5	5	0	1	19	0	0	0	9	16	6	5	18	4	3	3	3	34	58	43	
Do not support the A27 Arundel Bypass scheme	20	22	0	0	0	82	0	1	0	18	23	32	53	30	6	4	4	7	39	0	7	
Any structures need to be eye-catching / striking design / feature	0	0	0	0	0	2	0	0	0	1	2	0	5	10	0	0	0	1	3	0	0	
<i>Non-motorised users</i>																						
Easier for pedestrians / cyclists	0	1	4	1	2	0	0	0	0	0	1	2	1	0	3	9	9	2	0	0	0	
Only option that improves routes for all users	0	2	4	1	5	2	0	0	0	1	1	1	1	0	29	24	35	9	0	0	0	
Concerns about conflict between cyclists & pedestrians on shared paths	0	5	0	0	0	1	0	0	0	1	2	1	1	0	12	6	8	5	0	0	1	
Concerns for pedestrian / cyclist safety	18	79	10	0	2	9	1	0	0	4	14	3	6	2	73	34	46	26	3	0	0	
Cycle / foot paths & bridleways with suitable crossing points and required	21	52	2	1	1	22	0	0	0	17	8	3	8	41	301	246	278	86	3	0	3	
Non-motorised users should not use the A27 - alternative routes should be provided	0	2	0	0	0	1	0	0	0	0	1	2	1	1	47	49	57	17	1	0	0	
Need greater provision for crossing (underpasses / bridges)	7	27	8	0	0	9	1	0	0	7	10	0	3	12	173	143	148	25	0	0	2	
Need to improve the footpath along the River Arun	1	0	0	0	0	1	0	0	0	0	1	0	0	0	10	6	7	2	0	0	0	
Pedestrian crossing required on Ford Road (close to Ford Road roundabout)	0	1	0	0	0	0	0	0	0	1	1	0	0	5	43	23	24	7	0	0	0	

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.



A27

Arundel Bypass

Report on public consultation

Spring 2018
Appendix D1 – Stakeholder responses
Local Authorities



Councillor Mrs Gillian Brown
Leader of the Council



17 October 2017



Arun District Council's Response to the A27 Arundel Bypass Consultation

I am pleased to be able to give you our formal response to the A27 Arundel Bypass Consultation.

We have considered the consultation document and the interests of the Arun District very carefully. During the period of the consultation the Council has spoken with and been made aware of the views of key stakeholders. As you know we have also worked closely with yourselves to involve local businesses and support the provision of additional unmanned exhibitions to ensure that a many local people as possible had access to the consultation material.

It is essential to the overall economic, social and environmental well-being of the District for many years to come that a bypass is provided for Arundel. We accept that there are a number of challenges and constraints around each of the options put forward by Highways England, but strongly support option 5a as being the route which provides the most comprehensive and beneficial overall solution for the residents, businesses and visitors of and to the Arun District.

The Council's formal response is as follows:

1. The Council supports the principle of creating a bypass to dual carriageway standards for Arundel that links the A27 to the west of the White Swan Hotel with the Crossbush junction in order to improve the economic well-being of the Arundel and the region, and the social and environmental well-being of residents in Arundel and Walberton, Storrington and surrounding communities.

/Cont'd Over

17 October 2017

2. In pursuance of 1, above the Council supports Option 5a as set out in the Public Consultation document produced by Highways England.
3. The Council would urge Highways England to consider any potential revisions to the Option 5a route corridor to the North, which would further reduce the impact upon residents and the environment and continue to improve the National Strategic Road Network.
4. To improve accessibility to and from communities existing and proposed, south of the railway and the residential amenity of residents in Ford Road, Arundel, the Council would encourage Highways England to consider amending the preferred route to provide, ideally, a full junction between the A27 Bypass and Ford Road, or at least the minimum of a restricted access/egress junction.
5. The Council would encourage Highways England to construct any bypass and consequential bridges to the highest possible architectural standard and to take appropriate account of any potential flooding issues.
6. The Council would encourage Highways England to support, through their 'Designated Funds', the creation of a cycleway between the South Downs National Park via Arundel and the coast along the River Arun and Ford Road and provide improved parking for commuters, tourists and residents at Ford railway station.
7. The Council would encourage Highways England to consider using the port of Littlehampton and the River Arun to barge construction materials and aggregate to the construction site.
8. The Council supports the principle of working collaboratively with West Sussex County Council, Arundel Town Council, Walberton Parish Council and the South Downs National Park Authority to submit a single Local Impact Statement on behalf of all the named authorities.

/Cont'd Over

3

17 October 2017

We look forward to working with you in the future and will of course be happy to engage in any discussion should you need to understand more of the background to our response.

Yours sincerely



Councillor Mrs Gillian Brown
Leader of the Council



Arundel Town Council
Town Hall
Maltravers Street
Arundel
West Sussex
BN18 9AP

16 October 2017



The Highways England A27 Arundel Bypass Proposals - Arundel Town Council Response

We welcome the opportunity to respond to and comment on the Highways England public consultation document which sets out the options for improving the A27 at Arundel.

Arundel Town Council met on Thursday 12 October and voted to support Option 5a.

Option 1 does not achieve the objectives set out for the scheme, and the potential three year period of construction would be devastating for the Town and its economy.

We felt overall that Option 3 was undeliverable due (inter alia) to the establishment of the South Downs National Park Authority, its extension South of the A27 at Binsted Woods/Tortington Common and the designation of replanted woodland as Ancient Woodland.

Additionally our response includes several paragraphs outlining other points we feel relevant to the scheme.

We look forward to seeing the results of the consultation and the published preferred route in due course.



Arundel Town Council

Detailed Response to Highways England A27 Arundel Bypass Public Consultation:

- 1) Arundel Town Council supports Option 5A as set out in the Highways England Public Consultation document.
- 2) Whilst our preference is not for Option 3, Arundel Town Council encourages Highways England during next stage (Design of Chosen Route) to see if there was any scope for revising Option 5A to reduce as much as possible the impact on both communities and the environment.
- 3) Bearing in mind the planned increase in housing numbers at Ford, Arundel Town Council recommends careful consideration of a possible (limited and unlit) junction (e.g. onto A27 only from either direction) between the new A27 and Ford Road to avoid any increase in traffic along Ford Road into Arundel via the Ford Road roundabout.
- 4) Arundel and its surroundings are rural and agricultural with buildings of architectural significance which both residents and visitors come to enjoy. We would encourage Highways England to design and construct the scheme to the highest standards of design, use of materials and least impact during the construction stages (over and above those set out in the Design Manual for Roads and Bridges as appropriate for the setting).
- 5) Arundel Town Council supports the proposals set out in the "Facilities for Walking, Cycling and Horse Riding" document, as well as the way Highways England promote alternative active travel options. We encourage additional proposals to provide a footpath/cycleway from Arundel to Ford station and a footpath/cycleway joining the SDNP via Arundel to the South Coast Cycleway and the Coast along the river Arun.
- 6) Arundel Town Council looks forward to seeing the improved and more detailed Environmental Appraisal reports relating to in particular nature & wildlife, woodland mitigation, air quality, people and communities, health and wellbeing, flood risk and cultural heritage.

Highways Freepost A27 Arundel

If calling please ask for:



Our ref:

Your ref:

8th September 2017

Dear Sir/Madam

A27 Arundel Bypass improvement scheme consultation response

I am writing on behalf of Chichester District Council (CDC) to support the general principle, as detailed in HE's consultation documents, for capacity improvements to the A27 where it passes Arundel. For clarity CDC does not seek to favour any one of the consultation options but simply the principle of improving the A27 at this and other 'pinch-points' across the region including the section subject to consultation here and the section around Chichester.

CDC's current adopted Local Plan (2014 – 2029) provides for over 7,000 additional dwellings in Chichester District. Similarly other Plans across Sussex and the region plan for increases in housing numbers. The additional trips and economic development that this will bring requires urgent highway capacity improvements to the A27 to help facilitate this growth. Contributions to infrastructure that can be secured through development will not be sufficient to fund significant improvements that would overcome existing capacity constraints.

Improvements cannot be seen in geographic isolation but more as a regional approach to reducing journey times, journey reliability, safety, improving access, displacing rat-running through our historic cities and supporting and stimulating economic activity. The A27 is of great strategic importance in connecting the coastal cities and towns of the south coast and investment in its improvement is long-overdue.

Furthermore CDC's Local Plan contains a commitment to undertake a review within five years. The reviewed Plan will cover the period to 2034. Whilst it is too early in the process to provide a quantum for development proposed under the revised Plan it is very likely to increase when compared to the current Plan. Seen in the context of this 'increase' our comments above are only amplified.

Whilst CDC does not favour any one consultation option the Authority does strongly support design considerations that facilitate and encourage journeys by alternative (non-motorised) modes. This is especially the case where the impact will be to encourage local journeys by

such modes. Likewise CDC would favour those options with the best balance between increased highway capacity and minimised environmental impacts for each whole scheme including the repurposing of existing roads.. We include air quality, noise, landscape and ecology with regard to environmental considerations.

CDC is also determined to see vital capacity improvements to the A27 on the Chichester section of the road. The combined capacity impact of improvements at both the Chichester section and those proposed by the Arundel Bypass consultation will provide a much needed shot in the arm to the economy of both districts and the region more generally. We would welcome both.

I hope that these comments are helpful, naturally I am happy to discuss them should you wish for further clarification in this authority's position.

Yours faithfully





**Horsham
District
Council**

Email to:
A27ArundelBypass@highwaysengland.co.uk

Our ref: RD/CH/AD/A27AB

Your ref:

E-mail:

Direct
line:

Date: 13 October 2017

Dear Sir/Madam

A27 ARUNDEL BYPASS CONSULTATION RESPONSE FROM HORSHAM DISTRICT COUNCIL

Thank you for the opportunity to respond to the proposals to improve the A27 in respect of a new Arundel bypass. This is of huge interest and importance to this council not least because of the impact the proposals could have in the delivery of economic benefits and growth to both the south coast corridor along the A27 and to this district. I also highlight below the significant problem of many drivers wanting to travel between Fontwell and Shoreham (and in reverse) choosing a route that takes them via our district's southern villages of Amberley, Storrington and Pulborough to avoid inevitable delays and congestion on the A27. This 'rat running' is a significant contributor to poor air quality in Storrington where some 18,000 vehicles a day pass through the village High Street.

Background

The southern boundary of Horsham District is close to Arundel (4 miles) and there are a number of road connections with the A27, most notably the links via the A29 from Fontwell and the A284 from Arundel. These provide a route (via B2139//A283) passing through the villages of Amberley and Storrington, crossing the A24, continuing east to Steyning and eventually rejoining the A27 at Shoreham by Sea. While this route is a longer distance, it is for many drivers infinitely preferable to the delays and congestion they would face by remaining on the A27. In addition, it is also our experience that drivers choose other routes further north to avoid congestion on the south coast, and this contributes to congestion and air quality problems in villages such as Cowfold.

A consequence of the high levels of traffic and congestion, especially at peak travel times, passing through Storrington has been poor air quality. In 2010, Horsham District Council declared an Air Quality Management Area in Storrington on account of exceedances of the air quality objective level for nitrogen dioxide (NO₂). An action plan was prepared outlining a range of measures to tackle the poor air quality. Many of these are not measures that Horsham District Council, as a district authority, can bring about directly as they relate to highway improvements which are a matter for the highway authority (West Sussex County Council). A steering group was therefore established which drew together West Sussex County Council, the local Parish Council and members and officers from Horsham District Council to help bring forward the measures in the action plan. The one that has topped the list has been for improvements to the A27 as part of the main east/west trunk route in the region.

General comments

Horsham District Council is fully supportive of proposals to provide a bypass around Arundel. This will improve the economic well-being of Arun district and the wider region, and also the social and environmental well-being of residents in Arundel, Storrington and surrounding communities.

Horsham District Council considers that both Options 3 and 5a as set out in the Public Consultation document produced by Highways England will provide a beneficial outcome. This Council however strongly favours 5a. The reason for this is that the traffic modelling that has been undertaken shows that the decrease in traffic using the B2139 and the A283 will be significantly greater for option 5a than for option 3. With option 5a, the decrease in traffic during the morning peak is predicted to be a reduction of 29% on the B2139 and 24% on the A283. With option 3, the reduction in traffic is only 4% on the B2139 and 6% on the A283. The selection of option 5a will therefore be of greatest benefit in improving air quality in Storrington and reducing the volume of 'rat running' on the route through the Horsham district villages described above which lie between Fontwell and Shoreham.

This Council would encourage Highways England to construct any bypass and consequential bridges to the highest possible architectural standard and to take appropriate account of any potential flooding issues, given the sensitivity of the local environment.

As part of the scheme, we consider significant increases in provision for cycling could contribute to a reduction in the number of car journeys, and which in turn would reduce congestion and improve air quality. Within Horsham district, the lack of segregated cycling paths is the issue commonly raised as the reason why people feel reluctant to cycle for local journeys. We would therefore encourage Highways England to support through their 'Designated Funds' the creation of a cycle-way between the South Downs National Park via Arundel to the coast along the River Arun and improved parking for commuters, tourists and residents at Ford railway station. You may wish to refer to the West Sussex County Council Walking and Cycling Infrastructure Strategy as part of any further consideration of improvements to this route.

In addition to this consultation, Horsham District Council is aware of two other proposals to address wider issues of congestion along the A27. These are the proposals for enhancements around Chichester, and those to the A27 in Worthing and Lancing. Whilst the Council is supportive of these proposals in isolation, it is considered that it may be beneficial to examine whether it may be possible to achieve a comprehensive solution to ease congestion on this Lancing to Chichester section of the A27 as a whole. It is recognised that there are significant national budgetary constraints in relation to road schemes, but it may be that a single scheme, rather than the more 'piecemeal' solutions that have been proposed to date, would be more cost effective and successful than individual plans. Such a solution would be of huge economic benefit and could also help to take into account the step change in housing delivery which has been identified by the Government, and therefore ensure that any enhancements to the road are as future-proofed as possible.

Yours faithfully

Councillor Ray Dawe
Leader of the Council

LITTLEHAMPTON TOWN COUNCIL RESPONSE TO THE A27 ARUNDEL BYPASS IMPROVEMENT SCHEME CONSULTATION

STATEMENT OF SUPPORT

Littlehampton Town Council strongly supports the principle of creating a bypass for Arundel that links the A27 to the west of the White Swan Hotel with the Crossbush junction to provide the much-needed highways infrastructure to support the large developments in the area. The Town Council is sympathetic to the call for a full junction between the A27 Arundel Bypass and Ford Road. In view of the increased pressure on the local highways network generated by the occupation of the new developments at North Littlehampton and the planned construction of the Lyminster Bypass, continuity of the network at this point was also considered an important part of the final scheme. The Town Council also wishes to state its support for the position that has been adopted by Arun District Council.

A2. What would you say is the single biggest problem currently affecting the A27 at Arundel?

Congestion, air quality, diversion of traffic to less suitable routes, demonstrable impact on sustainable transport options i.e. bus services to Arundel downgraded as considered nonviable (thought to be due to unreliability because of congestion).

A3. What specific local issues do you feel we should be aware of, in developing our options for the A27 at Arundel?

The need to provide a solution to congestion at Crossbush to make sense of the investment in the wider network particularly in relation to the Lyminster Bypass which will be bridged over the railway joining a new link road into Littlehampton. This easier access will be key to attracting investment in our area which is vital to addressing areas of high deprivation in Littlehampton and connectivity to the new developments at North Littlehampton. We understand that the new bypass will connect to the existing Lyminster Road and it is that which will connect into to the new junction at Crossbush. Further consultation on the precise shape of the arrangements connecting the Lyminster Bypass, Lyminster Road and the new junction at Crossbush will therefore be required.

New housing and commercial developments at Ford, West Bank Littlehampton, Clymping and Angmering as outlined in the Arun Local Plan also need an effective A27 immediately and in the future, with proper access, to avoid massive pressure on the A259, which runs right through a residential area of Town, remains single carriageway in parts, with associated air quality and congestion issues. Improved walking, cycling and public

transport opportunities between Littlehampton and Arundel which are important to our visitor economy and connectivity with the new development at North Littlehampton.

A6. Do you agree or disagree that there is an overall need for a scheme to upgrade the A27 at Arundel to a dual carriageway?

Strongly agree.

B1. Do you believe the proposed options will meet the scheme objectives?

Option one does not deal with managing the impact of future growth, or improving accessibility for all users, local services and facilities. It is suggested that there may be scope for further work on options 3 and 5A to ensure that the very best route orientation and design is incorporated to minimise the impact on the rural environment and its inhabitants.

B2. Please tell us which option(s) you support for improving the A27 at Arundel and explain the reasons for your choice below.

Please tick the option(s) you support:

Option 5A ✓

B3. Thinking about your response to Question B2 only, please say if you have any outstanding concerns that are not sufficiently addressed in your preferred option for the A27 at Arundel.

It is necessary to provide a junction at Ford. The pinch point at the top of Ford Road is completely unsuited to today's conditions, let alone future traffic. It would seem to us that the most efficient way of delivering improvements at this point would be when the bypass is being constructed. Whilst it is thought that significant mitigation measures would be required to ensure that such an enhancement to the Scheme was included we believe that it is achievable. The District is faced with an unprecedented requirement to deliver huge numbers of new houses and an unsuitable road which already goes through the National Park. Its congested nature already encourages diversions though less suitable roads in the South Downs which could be alleviated by further by the addition of improvements at this point.

B4. Do you have any other comments on the options?

One aspect of mitigation could involve the setting up of a visitor centre to enhance access to the countryside.



**A27 Arundel Consultation
West Sussex County Council Consultation Response
16 October 2017**

Executive Summary

In August 2017, Highways England began consulting on three options to provide an A27 Arundel bypass. This is a summary of the County Council's consultation response.

The County Council's West Sussex Transport Plan 2011-26 identifies improvements to the A27 at Chichester, Arundel and Worthing as its highest priority as its poor performance causes disruption to businesses, residents and visitors to West Sussex on a daily basis. Traffic levels are forecast to grow in the future and there will be congestion on A27 at Arundel in the AM, Inter-Peak and PM peak periods. Without improvements to the A27 at Arundel, there will be greater rat-running and 'peak spreading', i.e. peak period conditions will extend into other parts of the day.

Although option 1 offers the best value for money, it is not preferred by the County Council because it provides the lowest traffic and economic benefits and the continued alignment of the A27 through Arundel will mean that existing severance and noise issues would be exacerbated.

The economic benefits of option 3 are better than option 1 but not as high as option 5A, and it has the lowest value for money score of the options presented. The adverse environmental impacts of this option are considered to be greater than option 5A due to the much larger amount of Ancient Woodland that would be lost. Although it is considered that this option is potentially deliverable (if sufficient environmental mitigation measures can be identified), it is not preferred by the County Council.

The County Council consider that option 5A will have the most beneficial impacts on traffic and the economy by having a transformational impact on the performance of the A27 route. This will be beneficial to areas where local roads, such as the B2139/A283 route through Storrington, are currently used as rat runs to avoid congestion on the A27 at Arundel. The impacts of option 5A on Arundel will be largely positive and will outweigh the negative impacts on other areas.

Although the adverse environmental impacts of option 5A are significantly less than option 3 due to the smaller loss of Ancient Woodland, they are greater than option 1. Therefore, a detailed and high quality package of environmental mitigation measures must be identified at the next stage of the project reflecting the quality of the habitat that will be negatively affected by the scheme.

Overall, it is considered that the environmental impacts of option 5A, if appropriately mitigated, are likely to be significantly outweighed by the substantial economic benefits of this option over the longer term. Therefore, provided that a detailed and high quality package of environmental mitigation measures is identified and delivered as part of the scheme, option 5A is the

County Council's preferred option for an Arundel Bypass because it represents the best fit with the strategic outcomes that the Authority is seeking for the A27.

Introduction

1. In March 2015, the Government published its first Roads Investment Strategy (RIS1) to cover the 2015-20 period, which included a commitment to improve the A27 at Arundel. In August 2017, Highways England began consulting on three options (options 1, 3, and 5A) to bypass Arundel by providing a dual carriageway between the existing dual carriageway sections. Each of the options would achieve the Government's ambition.

Role of the County Council

2. The A27 is managed by Highways England on behalf of the Secretary of State and decisions on the scheme, including selection of the 'Preferred Route' and awarding development consent, will be taken by the Secretary of State. The County Council is only a consultee in the decision-making process.
3. As local highway authority, the County Council, other local authorities and statutory bodies have worked with Highways England to support the technical assessment of the options. Although this technical work has informed the development of the options, decisions about design and the selection of the options for consultation have been taken by Highways England.

Preparing the Consultation Response

4. This Consultation Response has been prepared on behalf of West Sussex County Council and was scrutinised by the Environmental and Community Services Select Committee before being approved by the Cabinet Member for Highways and Infrastructure. In preparing the Consultation Response, it is understood that feedback from local stakeholders will inform decisions about how to proceed with the project. It is requested that due consideration be given to the contents of this Consultation Response before a Preferred Route is announced by the Secretary of State.
5. In preparing this technical response, County Council officers have assessed technical reports on the options, notably the Economic Assessment Report (EAR), Local Model Validation Report (LMVR), Traffic Forecasting Report (TFR), Environment Study Report (ESR), Technical Appraisal Report (TAR). The Consultation Response draws on evidence from these reports to inform the overall conclusions, which also make reference to Highways England's 'objectives' for the scheme which are to:
 - Improve capacity whilst supporting local planning authorities to manage the impact of planned growth:
 - Reduce congestion, reduce travel time and improve journey time reliability:

- To improve the safety of travellers and consequently the wider local road network;
 - Improve accessibility for all users to local services and facilities;
 - Deliver a scheme that minimises environmental impact and seeks to protect and enhance the quality of the surrounding environment through its high quality design; and
 - Respect the South Downs National Park and its special qualities in our decision making.
6. The following sections of the report address a range of transport, economy and environmental issues associated with the proposals. Comments on alternative options are included at the end of the response.

Transport

Summary of the County Council's response:

- the West Sussex County Transport Model (WSCTM) is an appropriate tool to use to assess the performance of the proposals at this stage of the project and takes account of planned development;
- there is a need for Highways England to work with the County Council to ensure that traffic modelling accurately represents traffic flows on local road at the next stage of the project;
- the journey time savings in each option are very beneficial as they are average savings per vehicle;
- all of the options will have a beneficial impact on traffic on the local road network and option 5A would have the most beneficial impact overall;
- some local roads, particularly on north-south routes that join A27, will carry higher traffic levels. Therefore, Highways England will need to fund measures identified by the County Council to mitigate impacts on amenity in these areas;
- option 5A is expected to have a significantly greater impact on the B2139/A283 route through Storrington than options 1 and 3;
- all of the options will have a beneficial impact on accidents and option 5A would have the most beneficial impact overall; and
- the efforts being made by Highways England to develop new facilities for Non-Motorised Users (NMUs) are welcomed and the County Council would like to see new connections to Ford, the proposed A284 Lyminster Bypass, and along the existing A27 to ensure the scheme benefits a wide range of users who use this area to make utility and leisure trips, notably including trips to and from the South Downs National Park.

7. Highways England have used the West Sussex County Transport Model (WSCTM) as the basis for the assessment of the traffic and economic performance of the options. The version of the WSCTM used for this study is based on traffic data collected in 2015 and assumptions about permitted and planned development, including sites allocated in the

emerging Adur Local Plan, the 2011 Worthing Core Strategy, and the emerging Arun Local Plan. Assumptions about development outside Adur, Worthing and Arun and beyond the period of current Local Plans are taken from the National Trip End Model (i.e. TEMPRO). The WSCTM includes AM (7-10), PM (16-19) and inter-peak (10-16) periods and, in addition to the 2015 base year, the assessment of options has considered the performance of the options in two forecast years; 2023 opening year and 2041 horizon year.

8. The WSCTM has been produced to comply with Department for Transport (DfT) guidance on transport scheme appraisal (i.e. webTAG) and details of the validation are set out in a LMVR, which shows that it performs to acceptable levels, focusing on the main routes. Although every local road is not represented in the model network, the most significant local roads in the immediate surrounding area that could be affected by the options are included. For these reasons, the County Council consider that, at this stage in the scheme development process, the WSCTM is an appropriate tool to use to assess the performance of the proposals, including impacts on the local highway network. There is a need to build confidence in the model outputs, particularly where they relate to local roads that are not the focus of the model validation. Therefore, Highways England should work with the County Council at the next stage of the project to ensure that local roads are adequately represented and also work with local stakeholders to ensure that the information is well understood.

Traffic impacts

9. The traffic impacts of the proposals are as expected because they will change travel times and vehicle operating costs; i.e. travel distance. The WSCTM has been used to predict the traffic impact of the options and how users of the transport network will respond; for example, by changing the route of their journey to minimise journey time. The outputs from WSCTM provide an indication of how traffic flows will increase or decrease on roads that are represented in the Model and also where this could lead to congestion on the network that may not already occur.
10. The traffic impacts are calculated by comparing the performance of the options against the 'Do Minimum' scenario in each of the future forecast years. The Do Minimum scenario assumes that improvements that are planned by the County Council and by developers are delivered. This includes small-scale improvements to A27 at various junctions in Chichester, Arun and Adur to make development acceptable in planning terms. Therefore, the performance of the proposals is shown through comparison between the proposals and the future network including developer funded improvements, rather than a comparison between the proposals and the existing network.
11. In the future, traffic growth is expected to continue and traffic modelling results indicate that in the 2023 Do Minimum scenario, there will be congestion on A27 at Arundel in the AM, Inter-Peak (IP) and PM peak periods. Although congestion already occurs in the AM and PM, the existence of congestion in the IP period suggests that the highway

network is now unable to cater for expected traffic flows leading to congestion through much of the day. This indicates a pressing need for highway improvements on the A27 at Arundel.

12. The County Council have assessed the information presented in the EAR, LMVR, TFR and TAR in addition to supplementary traffic modelling data provided by Highways England during the consultation.
13. The objectives that are relevant to this section are;
 - Reduce congestion, reduce travel time and improve journey time reliability;
 - To improve the safety of travellers and consequently the wider local road network; and
 - Improve accessibility for all users to local services and facilities.

Overall scheme performance

14. A summary of network performance of the proposals in 2023 is included in table 1. The network performance statistics are for the entire network that extends from Portsmouth to Brighton. This information helps to understand when the options are expected to be most beneficial and the impact they will have on the operation of the network overall.

Table 1. Network performance summary

Performance compared to 'Do Minimum'	Unit	2023								
		AM			IP			PM		
Option		1	3	5A	1	3	5A	1	3	5A
Total travel time	pcu hrs	-2%	-2%	-3%	-2%	-2%	-2%	-3%	-3%	-4%
Total delay	pcu hrs	-7%	-8%	-7%	-7%	-9%	-6%	-5%	-8%	-5%
Average speed	km/h	2.1%	3.5%	3.3%	1.5%	3.0%	3.0%	2.6%	4.2%	4.2%

15. When compared to the Do Minimum scenario, the largest decrease in total travel time across the network is expected to be achieved with option 5A. Option 3 is forecast to have the greatest overall positive impact on delay. Options 3 and 5A are forecast to have a similar positive impact on average speed. All options will have a significant positive impact at an area-wide level. Savings in travel time are expected to occur during peak periods when do-minimum conditions are the most congested, but also during the IP period, when significant delay savings are expected.
16. The overall performance of the options is very positive reflecting the transformational nature of the options. Although there are differences in performance between the options, these differences are relatively small at the area-wide level as it is likely that other sections of the highway network will constrain the performance of the improvements.

Table 2. Average peak hour journey time savings (in minutes)

Option	Westbound				Eastbound			
	2023		2041		2023		2041	
	AM	PM	AM	PM	AM	PM	AM	PM
1	3	5	4	7	4	2	5	5
3	3	4	4	8	4	3	6	6
5A	4	6	5	10	5	4	7	7

17. All of the options would have a positive impact on journey times as shown in table 2. These modelled journey time savings appear relatively modest when compared against the delay that can often be experienced at Arundel. This is because they are average journey time savings per vehicle during an average peak hour and, therefore, some journey time savings will be higher and others will be lower. The County Council consider the journey time savings in each option to be very beneficial when considered in this context. To address local stakeholder concerns that the scale of journey time benefits are relatively small, Highways England should consider presenting information at the next stage of consultation about the range of journey time savings that will be achieved by the scheme.

Traffic flow changes by route

18. Each of the options is expected to affect traffic flows as changes to journey times will cause traffic to choose different routes. Although the majority of routes have flow differences of under 20%, there are a number of significant exceptions where larger increases and decreases are experienced. The following sections explain the expected impact on routes in each option through comparison of the 2023 forecast against the Do Minimum scenario.
19. Each option is expected to attract more traffic to use the A27 in the AM, PM and IP periods. However, in each option the effects are expected to be greatest during AM and PM peak periods, as this is when congestion is most prevalent. Each option will have different impacts on local routes and information is provided below for a selection of these routes to illustrate the effects of each option.

Option 1

20. This option is expected to have the greatest impact on traffic flow on the existing A27 between Ford Road, Arundel and Crossbush. As this section is used by both A27 and A284 traffic and will be bypassed, a reduction in traffic flow of 86% to 93% is expected. These effects are positive and would have a transformative effect on the bypassed section of the existing A27.
21. As option 1 does not relieve the A27 west of Ford Road, AM peak flows between B2132 at Avisford and Arundel are expected to increase by 6%. In the PM peak, the traffic flow on this section of A27 is expected to increase by 16%. These effects are likely to increase the amenity impacts on local residents living close to A27 west of Ford Road.

22. The traffic benefits of option 1 on the local road network will be a reduction in traffic flow on A259, A280, B2139, A283, A2032, and B2132, as these routes are currently used by traffic seeking to avoid congestion on the A27 at Arundel. Some of these routes are residential and so this is likely to reduce amenity impacts on local residents. The expected reduction in traffic flow using the B2139/A283 route through SDNP and Storrington (-7% on B2139 and -10% on A283 in the AM peak, -21% on B2139 and -18% on A283 in PM peak) is welcome.
23. A negative impact on the local road network of attracting more traffic to use the A27 is an expected increase in traffic using north–south routes to access the A27. These include A29 Fontwell Avenue where traffic is expected to increase by 12% in the AM peak and 24% in the IP period. On A284 Lyminster Road, traffic is expected to increase by 35% in the AM peak, 22% in the IP, and 41% in the PM peak. If this option is taken forward, there will be a need to manage the potential adverse impacts on amenity on these routes through mitigation measures (e.g. junction improvements or traffic calming).

Option 3

24. Option 3 is expected to lead to a reduction in traffic flow of over -94% on the bypassed section of A27 west of Ford Road. Between Ford Road and Crossbush there is expected to be a reduction in traffic flow of -70% in the AM peak, -60% in the PM peak, and -67% in the IP period. These effects are positive and would have a transformative effect on the bypassed section of the existing A27 and reduce the amenity impacts of traffic on the residents of Arundel.
25. The traffic benefits of option 3 are expected to include a reduction in traffic flow on A259 between Climping and Worthing, B2139 and A283. The reduction in traffic flow using the B2139/A283 route through SDNP and Storrington is expected to be -4% on B2139 and -6% on A283 in the AM peak, -21% on B2139 and -19% on A283 in the PM peak. Although not quite as pronounced as in option 1, these effects are welcome.
26. A negative impact of attracting more traffic to use the A27 is an expected increase in traffic using north–south routes to access the A27. These include A29 Fontwell Avenue where traffic is expected to increase in the AM peak by 21%, and by 31% in the IP period and 11% in the PM peak. If this option is taken forward, there will be a need to manage the potential adverse impacts on the amenity of local residents on these routes through mitigation measures (e.g. junction improvements or traffic calming).

Option 5A

27. Option 5A is expected to lead to a reduction in traffic flow of -90% on the bypassed section of road west of Ford Road, with an expected reduction between Ford Road and Crossbush of -69% in the AM peak, -63% in the PM peak and -69% the IP period. These effects are positive and would

have a transformative effect on the bypassed section of the existing A27 and reduce the amenity impacts of traffic on the residents of Arundel.

28. The traffic benefits of option 5A will be a reduction in traffic flow on A259 between Clymping and Ferring, Ford Road between Arundel and Ford and B2132 between Yapton and A27. The reduction in traffic flow using the B2139/A283 route through SDNP and Storrington is expected to be -29% on B2139 and -24% on A283 in the AM peak, decreases of -28% on B2139 and -22% on A283 in the PM peak, with -40% and -35% in the IP period. This effect is substantial and is significantly greater than in options 1 or 3.
29. A negative impact of attracting more traffic to use the A27 is an expected increase in traffic using north–south routes to access the A27, including A29 Fontwell Avenue (where flows are expected to increase by 33% in the AM peak, 42% in the IP and 13% in the PM peak). If this option is taken forward, there will be a need to manage the potential adverse impacts on the amenity of local residents on these routes through mitigation measures (e.g. junction improvements or traffic calming).
30. Overall, each of the options is expected to provide welcome traffic benefits, including relief to the sections of the existing A27 that will be bypassed. Although the impacts on the local road network vary in each option, option 5A appears to provide the greatest benefits to traffic overall and is expected to have the greatest impact on the well-used B2139/A283 route through Storrington.
31. A limitation of the methodology for assessing the traffic impacts of the scheme is that not every local road in the study area is represented in the WSCTM. Therefore, there is potential for traffic flows on other routes not represented in the WSCTM to be negatively affected by the proposals. Highways England should carefully consider, in liaison with the County Council, whether there are other routes that are not represented in the model that may be negatively affected by any of the options.
32. The County Council consider that greater use of Intelligent Transport Systems could be made to help manage traffic on the A27 route, as a whole, and its impacts on local residents. It is noted that a range of options have been presented in the TAR ranging from basic to more technologically advanced solutions. It is considered that the final choices about which options to include should take into account how this technology will be integrated into route-wide traffic management system. Such a system could help to improve the management of seasonal traffic flows and the effects of local events (and would be welcomed by the County Council). As some of the measures such as gantry-mounted screens could be visually intrusive, in selecting the preferred options, there will be a need to select measures that will be sympathetic to the highly sensitive surrounding landscape and townscape.

Junction delays

33. The A27 scheme significantly reduces average peak period junction delays at the following locations for which information was available. Junction delays have been analysed for the 2023 AM and PM peak periods in each option. The following sections provide details of average delay changes across the whole junction, for a full hour, and will be lower than the maximum peak delays for individual turning movements.
34. All of the options are expected to result in a reduction in delay of greater than 30 seconds per vehicle at three locations:
 - A27/A29 Fontwell East Roundabout
 - A27/The Causeway at Arundel
 - A27/A284 Crossbush
35. The forecast reductions in delay at junctions on the network demonstrate that all of the options will be successful in achieving the objective; *"reduce congestion, reduce travel time and improve journey time reliability"* at the majority of junctions. These positive effects are slightly offset by a small number of increases in delay at junctions, but the overall effect of each option is expected to be a reduction in junction delay when compared to the Do Minimum scenario; therefore, these benefits are welcome.
36. Only limited information has been provided within the EAR about the impact of the proposals on delays on local roads that intersect with A27. Detailed junction modelling is required to ensure that the local highway network connections with the A27 junctions are not unfairly disadvantaged. There is likely to be a need for improvements to local roads and junctions to be funded by Highways England in order to manage changes in traffic flow as a result of this scheme. Therefore, before the next stage of consultation, Highways England must provide information about the impacts of the Preferred Route on the local road network to ensure that the location and feasibility of such measures can be identified by the County Council.

Road safety impacts

37. The objective that is relevant to this section is *"to improve the safety of travellers and consequently the wider local road network."* The South Coast Central Route Strategy (2014) identifies that the A27 in Arundel has a poor accident rate within the top 15% on the SRN.
38. The impacts of the options on accidents have been assessed using DfT's COSt Benefit Analysis – Light Touch (COBA-LT) programme. This uses the outputs from the WSCTM and assesses the impact on accidents based on empirical data about incidence of accidents on different types of road and junction. The impacts are based on comparisons between traffic forecasts and the Do Minimum scenario, with the outputs presented as a monetary value in the EAR. This approach is consistent with current DfT guidance on transport scheme appraisal and is sufficient to provide an understanding of the performance of the proposals; therefore, it is considered to be appropriate for the current stage of the project.

Table 3. Summary of accident savings (60 year appraisal period)

Option	Number of accidents saved	Value of accident savings (Net Present Value, 2010 prices)
1	467	£38.5m
3	1198	£63.72m
5A	1649	£76.41m

39. All of the options are expected to result in fewer accidents over the 60 year appraisal period as set out in table 3. As each of the options is expected to lead to a reduction in the number of accidents, the County Council consider that the road safety objective will be achieved by all of the options. However, the impacts of the options 3 and 5A are significantly greater than option 1 and the greatest positive impact on accidents is expected to be provided by option 5A.

Sustainable modes of transport

40. The objective of the scheme that is most relevant to this section is; *"improve accessibility for all users to local services and facilities."*
41. The A27 currently acts as a barrier between the northern and southern parts of Arundel. Although it is possible to cross the A27 via an underpass by the River Arun, this route is not on the desire line, which makes journeys on foot via the underpass less direct and less convenient. The County Council welcomes opportunities that address this long standing issue by reducing the flow of traffic on A27 in Arundel.
42. The Government's RIS1 states that *"we will also develop sustainable transport measures at Arundel, Worthing, Lancing and east of Lewes."* The designs do include some new facilities for Non-Motorised Users (NMUs) at junctions on the corridor. The County Council welcomes the efforts that Highways England is making to engage local stakeholders, including the County Council, in the development of facilities for NMUs in relation to this scheme.
43. Although there is also a need to improve rail services in this area, the County Council recognises that such improvements are a matter for the Department for Transport, Network Rail and the Train Operating Companies to deliver, rather than Highways England. The role of the A27 Arundel Bypass scheme should be to help deliver improvements for a wide range of road users (motorised and NMUs) that will enhance access to the rail network. Arundel Station provides good rail links to London but does not directly serve those travelling to destinations towards Brighton. Ford Station provides regular direct services toward Brighton but is not easily accessed from Arundel, as there are no convenient direct facilities for NMUs. The County Council consider that, whichever option is selected, provision of an off road cycle link between Ford Station and Arundel would enhance the distributional impacts of the scheme by giving excellent

access to the whole community and visitors alike both into and out of the SDNP and Arundel.

44. The County Council is preparing to deliver an A284 Lyminster Bypass, as part of its Capital Programme, to support strategic development north of Littlehampton. An off-road cycle track will be provided along one side of the new road that will terminate where it will join an existing Public Right of Way. As the proposals for Crossbush junction are expected to provide new facilities for NMUs in all options, the County Council consider that these facilities should be extended to join the off-road cycle track being delivered as part of the A284 Lyminster Bypass.
45. As the Arundel area is a significant destination for leisure purposes, a number of local stakeholders have expressed a desire for new facilities for cyclists to be incorporated into the design of the scheme. As this would enhance the distributional impacts of the scheme by ensuring a wide range of users benefit from it, the County Council would welcome the inclusion of a new cycle route alongside the River Arun in all options. This could be provided by upgrading the existing footpath to bridleway status.
46. Off-road users, largely though not exclusively for leisure purposes, have expressed a desire for convenient and safe access to and from the South Downs National Park using the existing and, ideally, an enhanced Public Rights of Way (PROW) network. Existing facilities for NMUs to cross the A27 between Walberton and Poling are limited and require use of at-grade crossing facilities. This endangers those NMUs who use the crossings and deters others. All options should seek to improve access for PROW users and reduce the severance that has resulted from the A27 alignment.
47. The following sections include considerations for NMU facilities in each of the options.

Option 1

48. Crossing the A27 at the Ford Road roundabout is a barrier to NMUs. The proposed footbridge at Ford Road roundabout would enable NMUs safer crossing without affecting traffic flow. This option would address many of the existing concerns and issues raised by local schools. However, the length of the bridge and the fact that it is not on the desire line may mean that some NMUs do not use it. Additionally, the proposed footbridge does not improve the crossing of Ford Road for NMUs.
49. Although the County Council appreciate that the design seeks to cater for NMUs and overcome the longstanding severance issues, it is considered that, as traffic flows will be increased on the A27 at Ford Road, the proposals in option 1 will be unlikely to address these issues to the satisfaction of the local community. On balance, it is considered that options 3 and 5A are more likely to be capable of meeting the needs of the local community.

Options 3 and 5A

50. Options 3 and 5A will significantly reduce the flow of traffic on the A27 in Arundel, including in the vicinity of Ford Road. These options are likely to create opportunities to provide new at-grade facilities for NMUs on the desire line. If option 3 or 5A is selected, the County Council consider that new at-grade crossing facilities on the bypassed section of A27 should be incorporated into the design of the scheme. As the traffic flow on the existing A27 will still be greater than 15,000 vehicles per day on some sections, the proposed off-road cycle track should extend from the new western junction along the existing A27 via Crossbush to the A284 Lyminster Bypass (to ensure that the facility is continuous).
51. A number of existing PROW currently terminate at the A27 between Arundel and Walberton. Options 3 and 5A both propose an underbridge south of Tortington Priory to provide for a footpath. Additionally, Option 5A proposes provision of a bridleway bridge crossing north of Binsted that would allow NMUs safe access over the A27. Both structures will help to mitigate these existing severance issues. Additional facilities, including provision of PROW improvements away from the A27, so as to best accommodate users' desire lines and enjoyment, could be developed; the County Council would wish to work with Highways England to ensure PROW users also benefit from the scheme.
52. The County Council consider that each of the options could be capable of having a positive effect on the objective to improve accessibility to services. However, it is considered that reducing traffic flow on the existing A27 is necessary to ensure the scheme meets local ambitions. Therefore, option 1 is unlikely to meet the needs of local stakeholders. Options 3 and 5A could both be capable of meeting these ambitions.

Economy

Summary of the County Council's response:

- there are substantial wider economic benefits to be gained from an A27 Arundel Bypass that are not currently reflected in the economic appraisal and should be included at the next stage (to ensure that the full benefits of the scheme are taken into account);
- the EAR indicates that the benefits of the proposals largely accrue from travel time savings, which will improve business productivity by reducing time lost due to delays;
- the option that is expected to have the most beneficial impact on the economy is option 5A;
- the proposals will help to ensure that the impacts of development on the A27 are mitigated and deliver a transformational impact on traffic conditions; this will help to address the reasons why planned development does not meet the objectively assessed need for housing across the sub-region.

53. The objective that is most relevant to this section is "*to manage the impact of planned growth and support the wider economy.*" The A27 is currently congested, which causes lost time for businesses affecting their productivity and limiting access to customers and employees. As current

traffic flow exceeds highway capacity on the A27, this makes it challenging to bring forward land for new housing and commercial development (due to difficulties mitigating impacts on these pre-existing issues). Improving economic output will help to address the underperformance of the West Sussex coastal economy compared to the regional average.

54. In the Future West Sussex Plan, the County Council have made "*championing the West Sussex economy*" one of its main objectives. The performance of the option in helping to achieve this objective is a key consideration for the County Council in assessing the options.
55. Highways England have set out the economic benefits of the options through an assessment of the monetised travel time and accident savings, change in vehicle operating costs, indirect taxation, air quality, noise, and delays due to construction and maintenance over a 60 year appraisal period. The approach is consistent with current DfT guidance on transport scheme appraisal.

Productivity and access to markets

56. Improvements in productivity will be achieved through travel time savings and improving journey time reliability, which improves economic output. Enhanced regional connectivity will enable local people to access higher paid employment, which in turn will boost the local economy and support additional jobs.
57. The EAR calculates the economic value of the benefits by calculating the monetary value of savings to travel time and distance, which are used to calculate the Present Value of Benefits (PVB) (see table 4). These benefits are welcome as they will improve business productivity and access to customers and employees to support business growth.

Table 4. Summary of Economic Benefits

	Option		
	1	3	5A
Present Value of Benefits from accident and travel time savings (PVB) (a)	£314m	£336m	£422m
Cost (most likely)	£135m	£260m	£249m
Present value of cost (PVC) (b)	£87m	£167m	£162m
Benefit to Cost Ratio (BCR) (c=a/b)	3.6	2.01	2.6

58. The option that is expected to provide the greatest value of benefits, and hence the most beneficial impact on the economy, is option 5A. The

option that is expected to provide the least benefits, and hence the least impact on the economy, is option 1.

59. Value for money is typically judged through a cost benefit analysis resulting in a Benefit Cost Ratio (BCR). The BCR for each option is shown in table 4. Although all options are expected to provide good value for money (judged as $BCR > 2$), option 1 is likely to provide the most benefits relative to the cost of the scheme. This is because the cost of option 1 is significantly lower than options 3 and 5A.
60. There is a need for a wider economic impacts assessment to quantify the impact that the benefits will have on the economy. In 2013, the County Council, Arun District Council and Horsham District Council commissioned a study into the wider economic impacts of an A27 Arundel bypass¹. Although the Study was only a preliminary assessment, a business survey was undertaken. The Study indicated that an A27 Arundel bypass would be likely to have a range of direct benefits related to economic activity, employment, tourism, land use and development. The Study estimated that an A27 Arundel bypass would result in an additional £493m being added to total West Sussex GVA. As the Study did not present different options for providing an A27 Arundel bypass, it is not possible to distinguish whether these wider economic impacts are likely to vary depending on the option that is taken forward. Therefore, the County Council consider that, at this stage, the wider economic impacts of each option are likely to be similar and should be investigated at the next stage of the project.

Supply of housing and employment floorspace

61. Local plans prepared by the Local Planning Authorities set out plans to deliver new homes and allocate sites for development that will come forward over the plan period. Future housing delivery is planned to increase by 48% in the coastal West Sussex area compared to past housing completions². Although the local plans are not dependent upon any of the options being delivered, they would all help to ensure the impacts of development on the A27 are successfully mitigated.
62. The Coastal West Sussex & Greater Brighton Strategic Planning Board³ have prepared a Local Strategic Statement that focuses on strategic issues across the sub-region, including housing and infrastructure delivery. The LSS 2016 sets out that opportunities for growth are constrained by an infrastructure deficit as infrastructure investment has not kept pace with economic growth in the sub-region. One of the

¹ A27 Arundel Bypass Wider Economic Impact Study – Stage 1 Report
<http://www.arun.gov.uk/download.cfm?doc=docm93jjm4n4751.pdf&ver=4442>

² Coastal West Sussex & Greater Brighton (2015) Background Paper: Housing Market

³ In 2016 when the Local Strategic Statement was prepared, the Strategic Planning Board comprised of Chichester District Council, Arun District Council, Worthing Borough Council, Adur District Council, Brighton & Hove City Council, Lewes District Council and West Sussex County Council. The Board has subsequently been expanded to involve Mid Sussex District Council, Horsham District Council and is also observed by Crawley Borough Council.

Strategic Objectives set out in the LSS is meeting strategic housing needs by narrowing the gap between the planned housing provision of 4,000 new homes per annum to the objectively assessed housing need of 5,700 per annum within the sub-region (as this leads to house price inflation and affordability pressures).

63. As the options are forecast to have a transformational impact on performance of the A27 by providing significant additional highway capacity to cater for development other than that which is already planned, they are likely to assist in narrowing the gap between planned development and the objectively assessed need for housing. The options are likely to enable local stakeholder aspirations for economic growth to be achieved.

Environment

Summary of the County Council's response:

- the methodology used to assess environmental impacts is broadly acceptable for the current stage of the project and is generally expected to produce reliable results;
- there are errors in the technical reports that should be rectified at the next stage of the project;
- the ESR does not include the design of mitigation measures, which is disappointing given that major adverse environmental impacts are expected. Therefore, more detailed assessment and design of mitigation measures is necessary at the next stage of the project;
- a detailed and high quality package of environmental mitigation measures is required to reflect the quality of the habitat that will be negatively affected, including extensive landscaping / screening, translocation of soils from Ancient Woodland to create new compensatory habitats, creation of a 'green bridge' to maintain connectivity between Ancient Woodland, extensive noise mitigation, and new facilities for NMUs
- although it is not possible to replace Ancient Woodland, it is considered that it should be possible to mitigate this loss to an acceptable level, provided that sufficient land can be identified to create replacement woodland; this will be most achievable for options 1 and 5A;
- a viaduct would be preferable to an embankment east of Ford Road to reduce landscape impacts and visual impacts on the historic environment

64. The Highways England objectives that are relevant to this section are:

- Deliver a scheme that minimises environmental impact and seeks to protect and enhance the quality of the surrounding environment through its high quality design; and
- Respect the South Downs National Park and its special qualities in our decision making.

65. In assessing the extent to which these objectives are achieved, it is important to acknowledge that the environment is comprised of a range of

natural and built components. Impacts on the environment can be positive and negative, and positive impacts on some components of the environment could outweigh negative impacts on other components. The impacts of the proposals on the environment should be weighed up against the social and economic benefits (discussed elsewhere in this Consultation Response).

66. The EIA Directive (2011/92/EU) (as amended) requires that an EIA should be completed for certain types of development that may result in a significant impact upon the environment. The EIA Scoping Report identifies that some topics may require detailed assessment; however, due to the level of design information available, only 'simple level' assessments have been carried out in some cases at this stage and the results are presented in the ESR.
67. The ESR assesses the environmental impacts of the proposals but, at this stage in the scheme development process, only provides limited information and does not include the design of mitigation measures. As each of the options includes some impacts that are categorised as major adverse, it is disappointing that more information about the design of environmental mitigation measures is not available (as local stakeholders' views will be influenced by the design of environmental mitigation measures). It is also necessary to demonstrate that the environmental mitigation measures are feasible and deliverable, which is more difficult to judge in the absence of this information. More detailed assessment and design of mitigation measures is necessary at the next stage of the project.
68. In reviewing the EAR and TAR, it has become apparent that there are errors in the reports. These errors are unwelcome and could have been rectified in advance of the consultation (by providing opportunities and sufficient time for local stakeholders and specialists to fact-check technical reports). However, we do not consider that the errors that we are aware of are so fundamental that they affect our overall conclusions at this stage. Highways England should have regard to the feedback received during the consultation and ensure that the errors are rectified at the next stage of the project.

Landscape

69. To inform the overall environmental assessment, landscape and visual impact assessments of the proposals have been carried out. These assessments have identified the likelihood of potentially significant effects on high sensitivity landscape and visual receptors. The County Council consider that the assessment is appropriate for the current stage of the project although it is recognised that the level of assessment is unlikely to be sufficient for some local stakeholders (due to the impacts on South Downs National Park, which is a protected landscape).

Option 1

70. Option 1 is expected to have a minor adverse landscape impact overall. This option involves the least amount of new road construction and it is the nearest in form to the existing route. The landscape impact of this option is on South Downs National Park and the Arun Valley floodplain. The County Council agree with this overall assessment.
71. The County Council consider that there is reasonable scope to mitigate the landscape impact of option 1 through integrating the scheme into the landscape. Widening works will significantly change the existing road corridor by expanding and urbanising it. Highways England should ensure that sufficient land is included within the design of the scheme to provide mitigation that will reduce the overall impact of the widened section.
72. The majority of properties affected by option 1 have existing influences from the A27. Although it is necessary to take these existing influences into account as part of the landscape assessment, they are not necessarily welcomed by those affected and will be exacerbated in option 1. The County Council consider that the aim of mitigation should be to reduce the impacts compared to the existing situation.

Option 3

73. Option 3 is expected to have a moderate adverse landscape impact overall. The greatest impacts will be on the South Downs National Park, mature woodland including semi-natural Ancient Woodland, the Arun Valley floodplain, areas of tranquillity, and Binsted Wood. This option will create a new linear feature that cannot be integrated into the flat landscape of the Arun Valley; this is because of the elevation required to stay above the floodplain and to cross the railway, the flood embankments and the river. This will also affect the setting of South Downs National Park.
74. Mitigation measures may themselves have a negative landscape impact as they are uncharacteristic of the area. Therefore, there is a need for careful design of landscaping to ensure that mitigation measures are sympathetic to the landscape features of the area and to seek to protect the most sensitive views.
75. Many of the properties affected do not currently experience impacts from the A27. The County Council consider that these impacts should be weighed against the potential benefits to areas that will be less affected as a result of reduced traffic flow on the existing A27.
76. As option 3 would be a new road alignment along much of its length, there would be a loss of tranquillity in areas of high tranquillity. In order to mitigate this issue, detailed mitigation measures should be identified at the next stage of the project.
77. If this option is taken forward, the County Council consider that a viaduct would be preferable to an embankment, as this would allow views to be maintained. The design should aim to provide a high quality, elegant, visually lightweight form. It would also be preferable from a landscape

perspective, for the street lighting to be constrained to the junctions where they are important for highway safety. It is also considered that the incorporation of a green bridge into the design would help to reduce the landscape impact of the scheme (as well as connecting habitats and creating new leisure facilities).

Option 5A

78. Option 5A is expected to have a moderate adverse landscape impact overall. The greatest impacts will be on the Arun Valley floodplain, areas of high tranquillity, and Binsted Wood. The County Council agree with this overall assessment. This option will create a new linear feature that cannot be integrated into the flat landscape of the Arun Valley; this is because of the elevation required to stay above the floodplain and to cross the railway, the flood embankments and the river. This will also affect the setting of South Downs National Park.
79. Mitigation measures may themselves have a negative landscape impact as they are uncharacteristic of the area. Therefore, there is a need for careful design of landscaping to ensure that mitigation measures are sympathetic to the landscape features of the area and to seek to protect the most sensitive views.
80. Many of the properties that will be negatively affected do not currently experience impacts from the A27. The County Council consider that these impacts should be weighed against the potential benefits to areas that will be less affected as a result of reduced traffic flow on the existing A27.
81. As option 5A would be a new road alignment along much of its length, there would be a loss of tranquillity in areas of high tranquillity. In order to mitigate this issue, detailed mitigation measures should be identified at the next stage of the project.
82. If this option is taken forward, the County Council consider that a viaduct would be preferable to an embankment as this would allow views to be maintained. It would also be preferable from a landscape perspective for the street lighting to be constrained to the junctions where they are important for highway safety.
83. Large scale woodland planting could be implemented from west of Tortington Priory past Binsted. It is likely to be possible to integrate mitigation planting into the landscape reducing the impact of the option over the longer term. It is also considered that the incorporation of a green bridge into the design would also help to reduce the landscape impact of the scheme (as well as connecting habitats and creating new leisure facilities).

Nature conservation

84. A desktop assessment has been carried out drawing on information from a range of relevant sources. The assessment has considered both the construction and operational phases of the scheme and identified a

number of generic ecological impacts that would be likely to occur without mitigation measures being applied. This approach has included an assessment of the impacts on designated sites which follows national guidance. An extended phase 1 habitat survey was also carried out using a standard Joint Nature Conservation Committee (JNCC) assessment methodology extended to gather evidence of, or potential for, protected or notable species. Each of the options are expected to have different nature conservation impacts that should be taken into account.

Option 1

85. Option 1 would have a moderate adverse impact on nature conservation overall, including the loss of approximately 5.2ha of the Ancient Woodland that the existing road already separates. Option 1 may also have adverse impacts on protected species, including badgers, bats and reptiles.
86. Although widening of the existing bridge over the River Arun will have an adverse impact, it is less damaging than creating an entirely new river crossing. The offline section to the east of the River Arun will result in some habitat loss and severance. These impacts should be mitigated through the development of a comprehensive environmental mitigation strategy.
87. As an irreplaceable habitat, it is impossible to fully compensate for loss of Ancient Woodland. As well as direct loss of ancient woodland, retained woodland near the route will be degraded. Therefore, if this option is selected, it will be necessary to create sufficient new high quality habitat to compensate for the loss of Ancient Woodland. It is disappointing that, at this stage in the project, an area for compensatory habitat has not yet been identified. Therefore, it is not possible to judge whether the level of environmental mitigation for this loss will be sufficient. However, it is possible to judge the performance of the option relative to the other options. Option 1 is expected to have least impact on Ancient Woodland of the options presented and is most likely to be successfully mitigated.
88. Option 1 would require a robust package of ecological mitigation, compensation and enhancement measures, including creating new woodland, hedgerow and tree planting schemes to increase woodland connectivity within the wider landscape, and implementing a management regime for the retained woodland and wetland habitats within the Arun floodplain.
89. Overall, option 1 is likely to have significantly smaller adverse impacts on nature conservation than options 3 and 5A.

Option 3

90. Option 3 would have a large adverse impact on nature conservation overall, including the loss of over 24ha of Ancient Woodland, the severance of areas of Ancient Woodland, the loss of wetland habitat, and fragmentation in the Arun floodplain (including a new river crossing). This

option is likely to have adverse impacts on protected species, including dormice, badger, bats and reptiles, plus possibly water vole and otter.

91. As an irreplaceable habitat, it is impossible to fully compensate for loss of Ancient Woodland. As well as direct loss of ancient woodland, retained woodland near the route will be degraded. Therefore, if this option is selected, it will be necessary to create sufficient new high quality habitat to compensate for the loss of Ancient Woodland. It is disappointing that, at this stage in the project, an area for compensatory habitat has not yet been identified. However, option 3 is likely to have the greatest impact on Ancient Woodland of the options presented and is the least likely to be successfully mitigated. Therefore, this impact should be weighed alongside the other positive and negative impacts of the scheme.
92. Option 3 would require a robust package of ecological mitigation, compensation and enhancement measures, including creating new woodland, hedgerow and tree planting schemes to increase woodland connectivity within the wider landscape, and implementing a management regime for the retained woodland and wetland habitats within the Arun floodplain. The new river crossing would also require significant ecological mitigation. Green bridges and animal underpasses could reduce the impacts of habitat severance by aiding movement of bats, otters, dormice and other protected species.
93. Overall, option 3 is likely to have significantly greater adverse impacts on nature conservation than options 1 and 5A due to the greater loss of Ancient Woodland.

Option 5A

94. Option 5A would have a moderate adverse impact on nature conservation overall, including the loss of over 6ha of Ancient Woodland, the severance of habitats (including areas of Ancient Woodland), the loss of wetland habitat, and fragmentation in the Arun floodplain (including a new river crossing). This option is likely to have adverse impacts on protected species, including dormice, badger, bats and reptiles, plus possibly water vole and otter.
95. As an irreplaceable habitat, it is impossible to fully compensate for loss of Ancient Woodland. As well as direct loss of ancient woodland, retained woodland near the route will be degraded. Therefore, if this option is selected, it will be necessary to create sufficient new high quality habitat to compensate for the loss of Ancient Woodland. It is disappointing that, at this stage in the project, an area for compensatory habitat has not yet been identified. As the scale of the impact of option 5A on Ancient Woodland is similar to option 1, it is also considered likely that this impact can be mitigated to an acceptable level.
96. Option 5A would require a robust package of ecological mitigation, compensation and enhancement measures, including creating new woodland using translocation of soils from the area being lost, hedgerow and tree planting schemes to increase woodland connectivity within the

wider landscape, and implementing a management regime for the retained woodland and wetland habitats within the Arun floodplain. The new river crossing would also require significant ecological mitigation. Green bridges and animal underpasses could reduce the impacts of habitat severance by aiding movement of bats, otters, dormice and other protected species.

97. Overall, option 5A is likely to have greater adverse impacts on nature conservation than option 1 but significant smaller impacts than option 3 as it requires a smaller loss of Ancient Woodland.
98. Detailed Ecological Impact Assessment (EclA) will be required at the next stage of the project to better understand the impacts of the proposal on ecology. The assessment should be used to determine a robust package of mitigation and compensation measures to reduce the ecological impacts to an acceptable level. This should include measures to address habitat loss and severance, and species conservation issues including legally protected species and notable or locally important populations of other species. The design and quality of the mitigation and compensation measures should reflect the quality of the habitat that will be negatively affected by the scheme.

Air quality

99. The Air Quality Standards Regulations 2010 implement the EU's Directive 2008/50/EC on ambient air quality for the UK. The National Air Quality Strategy (AQS) establishes the UK framework for air quality improvements. The air quality objectives in the AQS are a statement of policy intentions and policy targets; although there is no legal requirement for Highways England to meet these objectives, authorities are required to work towards achieving the Strategy's objectives.
100. No Air Quality Management Areas (AQMA) have been designated on the A27 in the immediate vicinity of the scheme. However, AQMA have been declared on the A27 in Worthing between Grove Lodge and Lyons Farm and at Stockbridge Road in Chichester. An AQMA has also been declared on Storrington High Street which is a well-used route to avoid congestion on the A27 at Arundel and should be taken into account in assessing the impacts of the options. All AQMA have been declared due to exceedance of air quality standards for NO_x, principally due to traffic.
101. As the Stockbridge Road AQMA in Chichester is on the A27, potential impacts on this AQMA should be assessed and mitigated, if necessary, at the next stage of the project.
102. The options are expected to affect air quality during construction and operation of the scheme. During construction of the scheme, the magnitude and risk of impacts vary in the options from medium magnitude of impact with a low risk in option 1 to large magnitude, medium risk in options 3 and 5A. These issues are temporary and so are considered to be acceptable, although mitigation measures should be identified to reduce the magnitude and risk of these impacts.

103. During operation of the scheme, the options are expected to have varying impacts on air quality due to the impacts that they are expected to have on traffic flows through AQMAs. Due to the limited information available at this stage, only a qualitative assessment on the overall impact on air quality has been carried out. The impacts have been assessed as neutral in option 1 and moderate positive in options 3 and 5A. However, the traffic modelling carried out to assess the traffic impacts indicates that there are significant differences in the performance of the options through the Storrington AQMA, as shown in table 5.

Table 5. Traffic impact on Storrington AQMA

Option	AM		IP		PM	
	A283	B2139	A283	B2139	A283	B2139
1	-10%	-7%	-6%	-5%	-18%	-21%
3	-6%	-4%	-4%	-3%	-19%	-21%
5A	-24%	-29%	-35%	-40%	-22%	-28%

104. The impacts on the Storrington AQMA are expected to be significantly better in the PM peak period in all options. This is likely to be because congestion on A27 at Arundel causes more traffic to use this alternative route in this period. The County Council consider that the positive impacts on air quality in option 5A are likely to be greater than in option 3 as this is expected to have a noticeably greater impact on traffic using Storrington in the AM and IP periods.

Table 6. Traffic impact on Worthing AQMA

Option	AM	IP	PM
	A27 Offington Corner to Grove lodge		
1	2%	3%	2%
3	1%	2%	1%
5A	1%	2%	1%

105. The impacts on Worthing AQMA are small. This may be because the road is heavily congested in the AQMA and, as the assessment is not cumulative, the A27 in Worthing is assumed to be unimproved. Therefore, there is very little to distinguish between the options based on the impacts they will have on the AQMA in Worthing.
106. Whichever option is taken forward, it is unlikely to result in the removal of the Worthing AQMA. This will place reliance on efforts to improve the cleanliness of the vehicle fleet and to switch short journeys to sustainable modes of transport. The County Council would welcome support from Highways England to deliver the Worthing Air Quality Action Plan, including potential to use 'Designated Funds' to deliver improvements away from the A27, such as installation of electric vehicle charging infrastructure.

Noise

107. The options have the potential to affect the noise and vibration levels experienced by nearby noise sensitive receptors in each of the options. Only a qualitative assessment of operational noise has been carried out which is appropriate for the current stage of the project. Detailed noise surveys and the identification of mitigation measures is required at the next stage, with particular focus on Noise Important Areas (NIAs), where areas and properties that do not currently experience noise from A27 are expected to be negatively affected. It will be important to understand the scope for noise mitigation measures and the extent of residual impacts in NIAs.
108. Defra have identified NIAs at a number of locations on the existing A27. These are generally locations where residential properties are in close proximity to the A27 which carries high traffic flows. The locations include Ford Road junction, two locations adjacent to Arundel Station, and three locations west of Ford Road junction. The NIAs are identified in the ESR and should be taken into account in the design of the scheme. The options are expected to have different impacts on the NIAs and these impacts have been reflected in the qualitative noise impact assessments.
109. The new road alignments will also bring traffic to new areas that are not currently affected by noise and this has been considered in the preliminary assessment. Although these impacts have been taken into account in the qualitative noise impact assessments, these impacts are likely to cause concern for affected residents. Detailed assessment and design of mitigation measures is needed to give local stakeholders confidence that the mitigation measures are deliverable and will be effective in tackling noise issues caused by the scheme.
110. The following sections provide a commentary on the qualitative noise impact assessments of each option and identify areas that Highways England should consider at the next stage of the project. The County Council recognise that the qualitative noise impact assessment necessarily considers the impact of each option on its merits. However, the County Council also consider there is a need to consider the potential benefits to existing residents who are currently affected by noise but may not be in the future. Similarly it is necessary to consider the negative impacts on residents who are not currently affected by noise but may be in the future.

Option 1

111. The overall assessment of noise in option 1 is minor adverse (short term) and minor adverse (long term). Although the assessment reflects the impact of the option, the County Council considers that this assessment does not adequately reflect the existing impact of noise on local residents in Arundel and this option will exacerbate rather than reduce this impact overall, even in the long term. This is undesirable and is unlikely to meet local ambitions that the scheme will have a beneficial impact overall.

Option 3

112. The overall assessment of option 3 is minor beneficial (short term) and negligible (long term). However there will be some residential properties in the southern part of Arundel that will be adversely affected. Overall, this option is likely to meet the local ambition to have a beneficial impact, particularly over the longer term once mitigation measures such as planting become well established.

Option 5A

113. The overall assessment of option 5A is moderate beneficial (short term) and negligible (long term). However there will be a small number of residential properties in Binsted that will be adversely affected. The effects on this small number of properties are masked as part of the assessment summary. As this area is currently quiet, this impact is likely to be viewed as very significant by the community in Binsted. Therefore Highways England should undertake detailed assessment of the noise impacts on Binsted as a priority and develop a robust package of mitigation measures including for example planting and noise bunds and barriers to protect the community of Binsted. Overall, this option is likely to meet the local ambition to have a beneficial impact, particularly over the longer term once mitigation measures such as planting become well established.

114. It is not clear whether the options are likely to result in the removal of the NIAs, but it is recognised that there are no easy highway solutions and there is a need to weigh up noise impacts alongside other scheme benefits. If noise issues cannot be resolved through highway solutions, then the County Council consider that, to meet the requirements of the Environmental Noise Regulations, Highways England should consider introducing a scheme for local residents in NIAs to apply for a financial contribution towards home improvements to mitigate noise issues.

115. There are expected to be temporary medium to high noise impacts during construction. Although it is acknowledged that some noise impacts during construction are unavoidable, the County Council consider that Highways England should take steps to minimise the duration of construction and the temporary noise impacts that will affect residents living nearby.

Historic environment

116. The ESR includes a simple level assessment of the impact of the proposals on the historic environment which makes use of relevant local information. Drawn from this information, the ESR identifies a range of designated heritage assets with different levels of sensitivity to change. The County Council consider that this level of assessment is appropriate for the current stage of the project to inform a decision about the Preferred Route.

117. All of the options are expected to affect the setting of designated heritage assets to some extent. The County Council consider that whichever option is taken forward, desk-based and field-based archaeological assessment and mitigation measures should be applied to ensure that understanding of the historic environment is enhanced by the scheme through use of:
- Archaeological desk-based assessment;
 - Geoarchaeological desk-based assessment (e.g. deep silts of River Arun);
 - Archaeological field evaluation (geophysics & trial trench excavation);
 - Geoarchaeological field evaluation (geoarchaeologist's monitoring of geotechnical ground investigations, purposive test pits/ boreholes);
 - Below-ground archaeological mitigation and geoarchaeological mitigation strategy involving investigation, recording, reporting; and
 - Community information on archaeological investigations and involvement, where feasible.

Option 1

118. Option 1 would involve the least potential archaeological impact of the three options as it will involve the lowest amount of new road construction. However, option 1 will have a major adverse impact on the setting of five Scheduled Monuments. The impacts of noise on the setting of Arundel would be exacerbated rather than reduced in this option.
119. The County Council consider that the assessment and mitigation measures listed in paragraph 117 will be appropriate to mitigate archaeological impacts as this will result in assessment and recording of below ground archaeological assets.
120. The cultural heritage impact overall has been assessed as slight to major adverse as option 1 will affect the setting of assets that are of regional and local significance. These include one Grade II* Listed building, two Grade II listed buildings and the Arundel Conservation Area, as well as the five Scheduled Monuments. The County Council accepts the conclusions of the overall assessment on the historic environment.
121. The County Council consider that option 1 could be deliverable from a historic environment perspective. However, the impacts on the setting of Arundel are undesirable and although the impact has not been assessed as greater, other options would be preferable.

Option 3

122. Option 3 would have a significantly greater archaeological impact than option 1, but less than option 5A. This is largely due to the area of new road construction involved in the scheme.

123. The setting of eight designated heritage assets would also be affected by option 3 resulting in a major adverse impact. This includes a visual impact on the setting of the nationally important Tortington Priory (a Scheduled Monument) immediately adjoining the route. Although the Priory grounds have a belt of established trees on their southern boundary, the adjoining section of road would sit on a high embankment or viaduct, and so would be visible through the tree screen, above ground level. The proposed attenuation basin to the north of the new road and on the west side of Tortington Priory would also have a visual impact on the Scheduled Monument. Option 3 would also involve a noise impact on Tortington Priory.
124. Option 3 would also have a major adverse impact on the setting of Arundel with its important historic structures (Castle, St Nicholas' church, Cathedral) due to the elevated embankment/ viaduct of the new road and new River Arun road bridge. The "Typical Structure" for the new River Arun Bridge (Technical Appraisal Report, Appendix H-1), scaled from the elevation, appears to show a clearance between the top of the western flood defence earthwork and the bottom of the bridge substructure of just over 1 metre, which is clearly not sufficient as this is a Public Right of Way. Raising the level of clearance would have a greater impact.
125. Highways England should take into account that option 3 is likely to have archaeological impacts on known significant non-designated heritage assets including:
- The alignment of the recently rediscovered Sussex coastal Roman road, in Tortington Common/ Binsted Woods;
 - The probably medieval Old Scotland Lane, in Tortington Common/ Binsted Woods; and
 - The medieval assart fieldscape between Tortington Priory and Binsted Woods/ Tortington Common.
126. The County Council consider that if option 3 is taken forward, in addition to assessment and mitigation measures listed in paragraph 117, the following mitigation measures should be included in the scheme:
1. To minimise the impacts on the setting of Arundel, the preferred design option from a historic environment perspective for the River Arun flood plain would be a viaduct with single box girders as this will have less impact on views of Arundel from the south.
 2. Street lighting should be omitted from the section of the route close to Tortington Priory to minimise the visual impact of modern features in the setting of the Priory Scheduled Monument and also to minimise to visual impact of artificial lighting during hours of darkness.
 3. To minimise the visual impacts on Tortington Priory, the preferred design for the elevated section to the west of Ford Road is an embankment with tree planting. Highways England should also

consider whether it is technically feasible and would have less impact on the setting of the Priory if the proposed attenuation pond were to be relocated to the south of the new road.

4. To minimise noise impacts on Tortington Priory, robust noise assessment and mitigation should be identified likely to include tree planting to reduce the impact on the quiet setting of the medieval Priory.
 5. Retention alongside route of existing medieval field boundaries in medieval assart fieldscape to the west of Tortington Priory.
127. The County Council consider that subject to robust and achievable mitigation in respect of visual and noise impacts upon Tortington Priory scheduled monument such as these, option 3 could be deliverable from a historic environment perspective.

Option 5A

128. Option 5A would potentially have the greatest archaeological impact of the options. This is largely due to the area of new road construction involved in the scheme.
129. The setting of seven designated heritage assets would also be affected by option 5A resulting in a major adverse impact. This includes a visual and noise impact on the setting of the nationally important Tortington Priory (a Scheduled Monument) immediately adjoining the route. The Priory grounds have a belt of established trees on their southern boundary, but the adjoining section of road would sit on a high embankment or viaduct, and so would be visible and audible through the tree screen, above ground level. The proposed attenuation basin to the north of the new road and on the west side of Tortington Priory would also have a visual impact on the Scheduled Monument.
130. Option 5A would also have a major adverse impact on the setting of Arundel with its important historic structures (Castle, St Nicholas' church, Cathedral) due to the elevated embankment/ viaduct of the new road and new River Arun road bridge. The "Typical Structure" for the new River Arun Bridge (Technical Appraisal Report, Appendix H-1), scaled from the elevation, appears to show a clearance between the top of the western flood defence earthwork and the bottom of the bridge substructure of just over 1 metre, which is clearly not sufficient as this is a Public Right of Way. Raising the level of clearance would have a greater impact.
131. Option 5A would also affect the settings of listed buildings in Binsted including St Mary Magdalene parish church, Glebe Cottage, Church Farmhouse, Royal Oak Inn (all grade II listed buildings). The route would pass between 250m – 450m to the east of St Mary Magdalene parish church, Glebe Cottage, Church Farmhouse. The outward views across the fields, towards Binsted Woods, from the medieval Binsted parish church in particular, are at present unimpeded and would be adversely affected to some degree.

132. Highways England should also take into account the following non-designated but nevertheless important heritage assets:
- a well-preserved north-south aligned linear bank and ditch earthwork, of probable Iron Age date, close to the proposed new junction at Yapton Lane; and
 - a medieval assart fieldscape between Tortington Priory and Binsted Woods/ Tortington Common.
133. The County Council consider that if option 5A is taken forward, in addition to assessment and mitigation measures listed in paragraph 117, the following mitigation measures should be included in the scheme:
1. To minimise the impacts on the setting of Arundel, the preferred design option from a historic environment perspective for the River Arun flood plain would be a viaduct with single box girders as this will have less impact on views of Arundel from the south.
 2. Street lighting should be omitted from the section of the route close to Tortington Priory to minimise the visual impact of modern features in the setting of the Priory Scheduled Monument and also to minimise the visual impact of artificial lighting during hours of darkness.
 3. To minimise the visual impacts on Tortington Priory, the preferred design for the elevated section to the west of Ford Road is an embankment with tree planting. Highways England should also consider whether it is technically feasible and would have less impact on the setting of the Priory if the proposed attenuation pond were to be relocated to the south of the new road.
 4. To minimise noise impacts on Tortington Priory, robust noise assessment and mitigation should be identified likely to include tree planting to reduce the impact on the quiet setting of the medieval Priory.
 5. Retention alongside route of existing medieval field boundaries in medieval assart fieldscape to the west of Tortington Priory.
 6. Tree planting screening on embankment and alongside cutting of route within visual envelope of Binsted village.
134. The County Council consider that subject to robust and achievable mitigation in respect of visual and noise impacts upon Tortington Priory Scheduled Monument, option 5A could be deliverable from a historic environment perspective.

Drainage

135. As the Lead Local Flood Authority (LLFA), the County Council have considered the options and consider that it is too early to provide meaningful input on the drainage proposals as there is a lack of detailed

site-specific environmental data to test the feasibility of the proposals. As LLFA, the County Council welcomes the fact that the sustainable drainage proposals are based on a number of generic designs and request an opportunity to comment once more detailed drainage designs, supported by the appropriate topographical, geotechnical and environmental surveys, are available.

136. Whichever option is taken forward, the scheme should be capable of dealing with 1 in 100 year rainfall events plus an allowance for climate change effects in line with national planning practise guidance. The County Council would welcome discussions about potential drainage impacts at the next stage of the project.
137. The County Council is delivering a Lyminster Bypass as part of its Capital Programme to support strategic housing development north of Littlehampton. Each of the A27 Arundel options will potentially have a significant footprint in the floodplain. As tidal flooding is expected to be the main cause of flooding, this additional footprint could potentially impact on the flood levels downstream of the proposed Lyminster bypass. Therefore, there is a need to understand the interaction of an Arundel Bypass with the A284 Lyminster Bypass scheme through detailed hydrological modelling at the next stage of the project and, where necessary, provide mitigation through the design of the scheme.
138. It is noted that the Environment Agency has suggested that the A27 Arundel Bypass scheme may include improvement works to the existing River Arun flood defences, which would assist in protecting areas downstream. The County Council would welcome further discussion about these potential improvement works to ensure that they would not cause problems for the Lyminster Bypass scheme.

Other options

139. In developing the options for A27 Arundel, it is recognised that a wide range of possible options have been considered. The County Council agreed with the conclusions of the DfT's A27 Corridor Feasibility Study that there is a need for road based solutions to tackle the strategic issues caused, at least in part, by the A27. However, the County Council also consider that there is a need for sustainable transport measures to be developed to increase the distributional impacts of the scheme and welcome the opportunity to work with Highways England and other local stakeholders to ensure these measures can be integrated into the wider network of facilities as this is constructed.

Conclusions

140. The County Council's West Sussex Transport Plan 2011-26 identifies improvements to the A27 at Chichester, Arundel and Worthing as its highest priority. The poor performance of the A27 disrupts businesses, residents and visitors to West Sussex on a daily basis. Traffic levels are forecast to grow in the future due to economic and population growth, increasing car ownership, income levels, and the price of fuel. Without

improvements to the A27 at Arundel, there will be increased congestion at peak times, resulting in greater rat-running and 'peak spreading'; i.e. peak period conditions will extend into other parts of the day. Accessibility to coastal areas, which are important for tourism and in need of regeneration in some places, will also continue to deteriorate as queues on the local roads approaching the A27 become longer.

141. The County Council have identified championing the West Sussex economy as one of its highest priorities. Therefore, it gives significant weight to the potential economic benefits of improving the A27. The County Council also consider that it is necessary to take a long term view on the environmental impacts, some of which will reduce as mitigation measures become established.
142. A number of potential mitigation measures have been identified in earlier sections of the report and should be developed in more detail at the next stage of the project and delivered as part of the scheme. Notably these include extensive landscaping / screening, translocation of soils from Ancient Woodland to create new compensatory habitats, creation of a 'green bridge' to maintain connectivity between Ancient Woodland, extensive noise mitigation, and new facilities for NMUs. The County Council consider that the design and quality of the mitigation measures should reflect the quality of the habitat that will be negatively affected by the scheme. Therefore, the environmental mitigation package will need to be of a high quality.
143. Opportunities should also be sought to future-proof the scheme for technological changes over time. The County Council welcome the identification of options to incorporate Intelligent Transport Systems into the design of the route and encourage Highways England to incorporate these features into the design as part of a comprehensive package of measures for the A27 route to help improve the management of seasonal traffic flows and the effects of local events.
144. Highways England have stated the 'objectives' for the scheme are to:
 - Improve capacity whilst supporting local planning authorities to manage the impact of planned growth;
 - Reduce congestion, reduce travel time and improve journey time reliability;
 - To improve the safety of travellers and consequently the wider local road network;
 - Improve accessibility for all users to local services and facilities;
 - Deliver a scheme that minimises environmental impact and seeks to protect and enhance the quality of the surrounding environment through its high quality design; and
 - Respect the South Downs National Park and its special qualities in our decision making.

145. Option 1 would have beneficial traffic impacts by attracting traffic to the A27 from parallel local roads that are used as rat-runs. However, the option performs significantly less well compared to options 3 and 5A. Option 1 provides the lowest economic benefits of the options but offers the best value for money of the options presented. The alignment through Arundel will mean that existing severance and noise issues would not be resolved and may be exacerbated, particularly west of Ford Road. For these reasons, option 1 is not preferred.
146. Option 3 would have beneficial traffic impacts by attracting traffic to the A27 from parallel local roads. The economic benefits of this option are better than option 1 but not as high as option 5A and it has the lowest value for money of the options presented. The adverse environmental impacts of this option are greater than option 5A due to the amount of Ancient Woodland that would be lost, which will require very extensive environmental mitigation. Although it is considered that this option is potentially deliverable (if sufficient environmental mitigation measures can be identified), it is not preferred.
147. Option 5A would have beneficial traffic impacts by attracting traffic to the A27 from parallel local roads. The economic benefits are the greatest of the options presented. The adverse environmental impacts of this option are greater than option 1 but significantly less than option 3 (as it will have a smaller impact on Ancient Woodland). However, there is still a need for a high standard of environmental mitigation. Although the alignment through the village of Binsted will cause some community severance and noise, it will affect a much smaller number of residents than are currently affected by the alignment of A27 through Arundel.
148. Overall, it is considered that the environmental impacts of option 5A, if appropriately mitigated, are likely to be significantly outweighed by the substantial economic benefits of this option over the longer term. Therefore, provided that a detailed and high quality package of environmental mitigation measures is identified and delivered as part of the scheme, option 5A is the County Council's preferred option for an Arundel Bypass because it represents the best fit with the strategic outcomes that the Authority is seeking for the A27.
149. Although a significant amount of technical work has been published by Highways England, there is a great deal of further work required to: assess the cumulative impact of improving the A27 corridor; to develop detailed proposals for NMU facilities; and to understand the wider economic impacts of the options. Although the County Council consider it to be in the best interest of the West Sussex community that a route for an Arundel Bypass is identified and delivered as soon as possible, some of this work should begin before a Preferred Route is announced to ensure that the challenging programme for the scheme is achieved.

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.



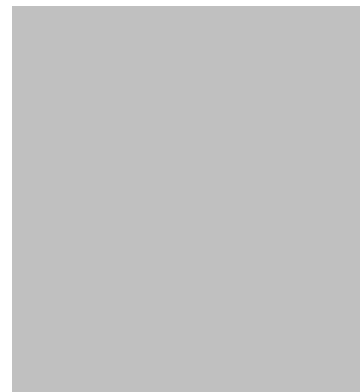
A27

Arundel Bypass

Report on public consultation

Spring 2018
Appendix D2 – Stakeholder responses
Elected members

KEITH TAYLOR
Green Party
for the South East of England



A27ArundelBypass@highwaysengland.co.uk

3 October 2017

Dear Highways England,

Re: A27 at Arundel Consultation Response

As a Member of the European Parliament for South East England and a visitor of both Arundel itself and the beautiful surrounding countryside, I am writing to share my deep concerns regarding your proposals for a new section of dual carriageway at Arundel. It is extremely concerning that this important landscape is under threat.

Reducing congestion

The single biggest problem affecting the A27 at Arundel is congestion. However, focusing solely on road capacity to tackle this issue will only exacerbate existing problems by encouraging more cars onto the road and increasing congestion at Chichester and Worthing. This is borne out by decades of empirical studies and official reports which show that more road capacity simply leads to more traffic.

The imperative should not be to build a bigger road but to reduce traffic volumes and manage roads more effectively. To achieve this, the enormous amount of funding allocated to this scheme should instead be invested in increasing travel choices, particularly sustainable alternatives to private vehicles such as cycling and walking, and public transport, including buses and trains in combination with carpooling and carsharing.

A properly joined up and integrated mobility strategy would also focus on reducing the need to travel. For example, by focusing new developments in towns around new and existing railway stations and by creating transport hubs that facilitate end-to-end journeys involving more than one mode of transport.

Maximising efficiency through innovation and new technology is also crucial in reaching this goal. For example, electronic real-time boards at bus stops linked to satellite tracking which show exactly when a bus will arrive as well as smartcard and smartphone ticketing have been proven to substantially improve public transport efficiency.

I have seen many positive examples in Europe where smart investment in public transport has reduced congestion and demand on the road network. For example, in the Öresund region, linking Copenhagen and Malmö, 50% of journeys are by rail and over 20% are by bike. There is no reason, other than short-sightedness and lack of political will, why we should not be aiming to achieve the same in South East England.

The population of Arundel is smaller than that of Groningen in the Netherlands and Freiburg in Germany and yet both these areas have successfully prioritised other modes of transport over cars, and with impressive results. In Groningen, 60% of journeys are by bike. In Freiburg, 24% of journeys are on foot, 28% by bike and 18% by public transport.

If sustainable mobility alternatives, such as investment in public transport, cycling and walking and creating intermodal sustainable mobility chains, were given adequate resources, the current road would be fit for purpose. A dual carriageway at Arundel is quite simply not necessary.

Impact of proposed options on local environment and wildlife

Not only would building a new road be ineffective, it would irreparably damage the local environment and wildlife habitats. All three of the currently proposed options include new stretches of dual carriageway that destroy ancient woodlands and rare chalk stream habitat.

The information on the impact of the new roads on wildlife is insufficiently detailed and inaccurate environmental information has been included which has, in turn, been poorly interpreted. For example, option 5A was originally described as running between the National Park and Binsted Woods. This was blatantly untrue and the consultation documents have since been quietly updated to say the bypass will run through both, but not before considerable support was drummed up for this option based on wrong information. This is nothing short of scandalous.

The landscape to the south and west of Arundel, which would be decimated by options 3 and 5A, comprises a wealth of varied features including ancient woodland, ancient hedgerows and the medieval village of Binsted together with valleys, fields and the fenland grazing marshes of the Binsted and Tortington Rifes.

The importance of this landscape must be considered in its wider context. Upstream, the Arun-Rother area has many wildlife designated sites (SSSI, SPA, SAC, RAMSAR) dependent on the landscape around Arundel for support migrating waterfowl and other migrating wildlife. Any development likely to have a significant effect on a SAC (conservation areas afforded the highest possible protection in EU law) must be subject to an appropriate assessment and take a precautionary approach that would halt development where serious adverse effects cannot be ruled out. Failing to carry out such an assessment properly, as a new ClientEarth report reveals, is a persistent problem.

In 2016, 13 different species of bat were found in Binsted, on the planned route of option 5A. All bat species, their breeding sites and resting places are fully protected by EU law.

The Environment Act 1995 sets out two statutory purposes for national parks in England and Wales; to conserve and enhance the natural beauty, wildlife and cultural heritage and promote opportunities for the understanding and enjoyment of the special qualities of national parks by the public. To allow a new dual carriageway to be built through the National Park would be in direct conflict with these aims.

Noise pollution

Noise is a major cause of increased stress and sleep disturbance, leading to an increased risk of heart disease, stroke and poor mental health, and has been linked recently to an increased risk of Alzheimer's disease.

Seeking to mitigate the negative effects of noise pollution through building insulation is simply not good enough and fails to address the wider impacts of noise pollution on people outdoors, and on the natural environment. Noise from traffic on the proposed new road would not only have adverse impacts on human health, it would also undermine the tranquillity of the countryside and have damaging effects on wildlife.

Options 3 and 5A score very badly on noise pollution given that they are both high speed roads. The increasing use of electric vehicles, whilst welcome on air pollution grounds, will not mitigate noise pollution at speeds of over 40 mph. Traffic noise comes from a combination of engine, tyres, road and wind. The faster vehicles are travelling, the more noise from the road, tyres and wind contributes to the cumulative effect.

Air pollution

Air pollution contributes to the premature deaths of approximately 40,000 people every year in the UK. The Government's Draft Air Quality Plan proposes reducing air pollution by tackling congestion on the roads by ensuring the UK's local and strategic road and public transport networks are fit for purpose. But this approach is fundamentally flawed, being neither effective nor cost efficient.

The two schemes that the Government itself acknowledges will most significantly reduce harmful air pollution are charging Clean Air Zones and a diesel scrappage scheme. Road transport – primarily diesel-powered engines – is estimated to be responsible for 60% of all NO₂ emissions. We need fewer cars not bigger roads.

Supporting the wider economy

There is very little evidence that new road schemes have a positive economic impact. They tend to be extremely costly and, according to a recent CPRE study¹ of 25 road schemes justified on the basis that they would benefit the local economy, only five showed evidence of any economic effects at all and even in these five cases there was no evidence that the road itself was responsible for the benefits or that it had not simply moved economic activity from other areas.

Climate change

Climate change is currently the most serious threat facing humanity and the detrimental effects of climate change are already severe. Road transport accounts for about one fifth of the EU's total emissions of CO₂ (cars and vans 15%, heavy duty vehicles 6%). We urgently need to reduce these figures. Building new roads will only increase them and in so doing contribute to climate change.

Journey times

According to the recent CPRE study, of the road schemes studied, median journey times hardly changed with savings of just 90 seconds during peak periods. According to Highways England's own figures, none of the three options on the table is likely to reduce journey times of more than an average of between 3 - 10 minutes, depending on the time of day. It is outrageous that Highways England is planning to spend £250 million irreparably damaging precious countryside, encouraging more traffic into the area and contributing to devastating climate change all for the sake of reducing journey times by a few minutes.

On the subject of journey times, it is equally important to focus on improvements specifically to bus and bike journey times as a way to encourage better uptake of public transport and cycling. Dedicated bus and cycle lanes should be included in every new scheme proposed by Highways England.

Accessibility

As a shadow rapporteur for the European Parliament's Transport Committee opinion on a proposal for a European Accessibility Act, I have detailed knowledge of the importance of the built environment for accessibility and I recommend that the scheme is revised to reflect the recommendations in the Accessibility Act, measures such as ensuring step-free access to buses. Improving the accessibility of transport will help people with disabilities fully participate in society on a more equal basis with others. Accessibility is also necessary for older people to maintain an active role in society.

Conclusion

None of the proposed options are fit for purpose. The money allocated to this scheme should instead be spent on the broader objective of improving mobility - intermodal sustainable mobility chains, ensuring the smooth flow of an entire journey, prioritising non-motorised mobility, such as

¹ <http://www.cpre.org.uk/resources/transport/roads/item/4542-the-impact-of-road-projects-in-england>

walking and cycling, in combination with public or collective transport systems, carpooling, car-sharing and taxis, as well as electrified mobility with a focus on e-bikes, trains, trams and buses.

It is also necessary to create more efficient and environmentally friendly urban freight transport systems, including reducing large freight transport on roads such as the A27. We need to make use of the available capacity on other modes, particularly rail. One example of how to enhance freight logistics is to work smarter using technology to improve efficiency.

Increasing road capacity as an overall approach to reducing congestion is unbelievably narrow and short sighted, ignoring completely the urgent need to reduce the volume of traffic on the roads both to combat climate change and improve air quality and to create a safer and more pleasant environment for life and work generally.

A final word on the consultation process

This entire consultation process is a sham. Before the public consultation even commenced, the scope of the scheme described in the Road Investment Strategy had been limited to: "*The replacement of the existing single carriageway road with a dual carriageway bypass, linking together the two existing dual carriageway sections of the road.*" This completely precluded any consideration of how sustainable mobility schemes might help solve Arundel's traffic woes without the need to waste millions of pounds of taxpayers' money on what is effectively a huge white elephant.

Had the scope of the scheme not been so negligently limited, it would have been possible to include ideas from the local community as well as the sustainable mobility ideas advocated by me in this letter. Local residents and environmental groups including SCATE, the Campaign for Better Transport, the South Downs Society, CPRE Sussex, Labour and Green party political candidates all favour another more effective, cost efficient and less environmentally damaging road based solution. It is known locally as the 'new purple route' and was designed by Arundel residents themselves. Following roughly the same path as option 1, it is a single carriageway road with measures, crucially, focused on improving the flow of traffic as opposed to increasing the capacity of the road.

Genuine consultation would include proper engagement with the local community and an openness to considering all possible solutions to the problem of congestion on our roads, including single carriageway solutions such as the 'new purple route' and the sustainable mobility solutions I have outlined in this letter.

All three options must be rejected and the consultation restarted with the inclusion of sustainable mobility schemes and the 'new purple route' favoured by so many local residents and environmental groups.

Yours sincerely,




Keith Taylor, Green MEP, South East England.

Lewes District Councillor Susan Murray (Castle Ward)

1. I am writing to express my concerns about the poorly conducted consultation process on these Arundel Bypass proposals. The proposals include inaccurate information, poor interpretation and have not made use of the most up-to-date environmental data. Furthermore the proposals fail to present sufficient detailed information on the impact on wildlife
2. I strongly object to options 3 and 5A which will destroy ancient woodlands and smother vulnerable and rare chalk stream habitat. Such an outrageous impact on habitats and species is completely unacceptable
3. I also object to option 1 in its current form - it is also excessively destructive.
4. I feel that there should be a new consultation that fully incorporates the transport hierarchy over a wider area of the A27, so concerns are properly addressed and the environment is valued appropriately

Councillor Susan Murray, Green Party, Castle ward



YOUR TOWN AND DISTRICT GREEN COUNCILLOR WORKING FOR THE COMMON GOOD

MP for Arundel and the South Downs Nick Herbert

I am writing in response to the consultation on the A27 Arundel bypass.

I strongly support an offline bypass at Arundel. In the twelve and a half years in which I have been MP for Arundel & South Downs I have consistently made the case for this, as did both of my predecessors, including in my election address in the most recent general election. I campaigned for the bypass to be put back in the roads programme, and won the funding for it in the Government's Roads Investments Strategy.

While I accept that there is some opposition to a bypass, my judgement – based on the many meetings which I hold and the correspondence I receive – is that overall there is strong support in my constituency for an offline bypass. It is important to note that this support extends well beyond Arundel itself, reflecting the impact which delays on the A27 have on the wider community. It is also generally accepted, even by opponents of a bypass, that the existing road is inadequate.

An Arundel bypass was first proposed in 1985, and was elevated to the Conservative Government's main roads programme in 1996, but was shelved by the Labour Government after 1997. In the 20 years since, traffic has increased substantially. Most of the A27 in West Sussex is dualled. The only stretches that are not are in Arundel and Worthing. A substantial majority of the 25,000 traffic movements through Arundel every day is not local, and the A27 in the town is already operating at or over capacity, with significant congestion at peak times each day and an above average number of accidents. With a very large amount of additional housing planned in the Arun District and beyond this situation will only get worse. It is essential that a long-term solution is adopted, which means an offline dual carriageway bypass without the obstruction of roundabouts or traffic lights.

Congestion on the A27, including at Arundel, exacts an economic toll. Improvements are therefore strongly supported by local businesses and their representative organisations. However, it also damages the environment. Vehicles currently avoid the A27 at Arundel by rat-running through the historic town itself and the South Downs. Villages such as Amberley, Storrington and Pulborough suffer from excessive traffic as a result – indeed, Storrington has some of the worst air quality in the South East. An offline bypass at Arundel would take traffic away not just from the town but from these villages and the South Downs National Park. The consultation document indicates that a bypass would reduce traffic on the A29, for instance, by as much as a third, depending on the chosen route, as well as reducing through-traffic in Arundel by up to 62 per cent.

I therefore reject the argument that the bypass would damage the National Park. The A27 already passes through the National Park at Arundel, and new sections would not cut through chalk downland. In fact, by drawing traffic away from the Park and downland villages, an offline bypass would create a net gain for the National Park and the local environment.

I strongly oppose Option 1, which would bring a dual carriageway road through Arundel, would massively increase traffic through this historic town (by 62 per cent according to the consultation document), would not deliver the time savings or anything like the same relief to the downland villages, and would sever Arundel. This route would also be less effective in reducing congestion as there would still be a roundabout at Ford Road. There would be major – and potentially unsafe – access problems for properties such as Arundel Community

Hospital and roads such as Canada Road. Option 1, which has almost no public support, must therefore be rejected.

I remain in favour of the original 'pink-blue' route, now Option 3, which was agreed decades ago by the whole community, including local environmental groups and conservation bodies. The then Transport Secretary's decision on the preferred pink-blue route noted that it was supported by English Nature, Sussex Wildlife Trust, the Arun branch of Friends of the Earth and the Sussex branch of the Council for the Protection of Rural England.

Both Option 3 and (to a lesser extent) 5A would pass through what has now been designated as 'replanted ancient woodland'. I note that this is largely non-native, recently replanted conifer woodland, the loss of which could be mitigated by planting a much larger area of broadleaved woodland. While I am aware that a number of local authority and other respondents have preferred Option 5A to Option 3 primarily because it would mean a lesser loss of this woodland, I note that Option 5A passes much closer to the village of Binsted. While neither offline route would mean the demolition of any houses, it is regrettable that recently planted, non-native conifer trees appear to have more protection than communities.

It is important that, whichever offline route is selected, the bypass is designed to the highest possible standards. I have urged that, for instance, a new bridge over the River Arun should be a beautiful design which is fitting for the local landscape.

It has been suggested that the time saving created by the bypass is insufficient to justify it. However, the consultation document suggests a maximum time saving for a return journey passing Arundel of between 12 and 17 minutes by 2041. Someone doing this journey each day Monday to Friday would save between 1 hour and 1 hour 25 minutes of journey time each week. These are significant enough savings for an individual, while multiplied by the total number of passenger journeys they are very substantial.

I note that significant Government investment of £300 million has also been announced for improvements to the Southern and Thameslink railway networks, and I continue to make the case for further substantial investment in the local rail service to make the infrastructure equal to rising demand. However, given the reliance by most local people on their cars, I do not believe that the railway can realistically be expected to substitute for the existing demand on the A27, let alone an increase.

While the investment in the proposed Arundel bypass, of up to £250 million, is substantial, the consultation document recognises that the economic benefits of the offline routes would be at least double this sum, representing high value for money. It is essential that this major investment in West Sussex, which would significantly benefit the local economy, is not lost.

It has been suggested that there would be little point in constructing the Arundel bypass if improvements to the A27 and Worthing do not go ahead. I strongly agree that such improvements are needed, but we cannot allow an essential upgrade at Arundel – where the A27 is already dualled on either side – to be delayed or put at risk because of any delays in improving other sections of the A27.

In conclusion, I believe that the case for a fully-dualled, offline A27 Arundel bypass is very strong and widely supported. This long overdue road improvement would benefit the local economy and environment alike, and it must go ahead.

THE RT HON NICK HERBERT CBE MP
MP for Arundel & South Downs



If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.



A27

Arundel Bypass

Report on public consultation

Spring 2018
Appendix D3 – Stakeholder responses
Parish councils



SLINDON PARISH COUNCIL

Email To: clerk@slindonparishcouncil.gov.uk
www.slindonparishcouncil.gov.uk

HIGHWAYS ENGLAND FREEPOST A27 ARUNDEL

By Email to A27ArundelBypass@highwaysengland.co.uk

13th October 2017

Dear Sirs

Re: A27 ARUNDEL BYPASS CONSULTATION

STATEMENT OF SUPPORT:

Slindon Parish Council strongly supports the principle of creating a bypass for Arundel that links the A27 to the west of the White Swan Hotel with the Crossbush junction to provide the much-needed highways infrastructure to support the large developments in the area.

Slindon is a small Parish wholly within the South Downs National Park which shares a boundary with the A27 and contains residents with properties which are also adjacent to the A27. It is at the western end of the area in the scope of the scheme.

There is consensus that doing nothing is not a viable option and in responding to this consultation, the Parish Council acknowledge that the options will have a greater impact in other parishes than Slindon itself. We therefore confine our comments to those matters which directly impact our residents. We have also actively encouraged residents and councillors to express their opinion by use of the questionnaires.

B2. Please tell us which option(s) you support for improving the A27 at Arundel

Option 3 – Supported
Option 5A – Strongly opposed

B3. In responding to B2, state any outstanding concerns

Option 5A has the most impact on the Parish and the Parish council has received representations from residents in the Slindon Common area who are concerned about the adverse impact of the proposed new junction near Yapton Lane and its impact on the Shellbridge Road and Mill Road area of the Parish.

B4. Do you have any other comments on the options?

Option 1 is clearly the least impactful for Slindon, it is not thought to offer much in terms of relief for the traffic problems experienced by Arundel. In particular the traffic signals on the Ford Road roundabout will interrupt the traffic flow and create delays. It is thought to be unsafe at Hospital Hill due to three points where a double carriageway is crossed, to access Arundel hospital, The Cricket Club and The White Swan public house and hotel.

Option 3 is less impactful as it is a shorter route and is similar to the previously suggested "pink/blue" that the Parish council has supported. It is recognized that this will impact residents at Tortington and Havenwood Park Retirement Mobile Home Park.

B5. Suggest any alternative improvements

Highways England acknowledge the existence of listed structures on the boundary of the A27 in the Parish of Slindon at Mill Road.

One residential property, Firgrove House and its associated structures make, and continue to make a significant contribution to the history and community life of the Parish.

There are residential properties on the boundary of the A27 in the Parish of Slindon at both Mill Rd and Shellbridge Rd (see map). These roads also provide a gateway to enter the South Downs National Park.

We note that the Scheme Objectives include a statement 'to improve the capacity of the A27'. This is irrespective of which option may go forward. (Highways England assess an increase of between 7% and 15% varying by option).

This increase in capacity will directly impact residents in The Parish of Slindon.

We would therefore seek the highest possible quality of design and materials to mitigate the impact on the natural environment and residential amenity of the inhabitants to minimise noise levels, preserve the natural environment and prevent a deterioration in air quality in the vicinity.

We request that regardless of which option is selected the impact in the area where the Parish borders the A27 is assessed and appropriate mitigating solutions put in place.

We ask that Highways England work with residents to determine and agree how this might be achieved.

We ask that low noise road surfaces and noise barriers are considered on the A27 itself. We ask that you note that this may require remedial work at the western end of the scheme regardless of the option chosen.

In particular, should option 5a - the over bridge envisaged as part of the improvements at the Yapton Lane junction with the A27 – proceed, we ask that noise assessments are undertaken to determine impacts from the elevated section. Further we seek the implementation of appropriate mitigating solutions in the interests of the amenity of nearby residents.

We believe that regardless of whichever option is selected as the preferred route, there will be additional impacts on residents during development work and we therefore ask that Highways England work with residents to minimise this disruption.

B6. Suggest further improvements for people who wish to walk, cycle and horse ride

Option 5A would have the most direct impact on the Parish.

More specifically it is highly likely to put more traffic into Shellbridge Road (B2132). This is a single carriageway rural road with no pedestrian footpath. There are places where two large vehicles cannot pass each other (which is inconsistent with its 'B' designation). It has residential properties at points on both sides. It is a known and well used local "rat run" between the A29 and the A27, particularly during the week day rush hour and as an alternative route in general if there is congestion on this stretch of the A27.

This road currently lacks provision for pedestrians who must use the road for access to postboxes, bus stop and other amenities (shop, pub, stables, woodland walks, play facilities and recreation ground). We would therefore seek the inclusion of a walkway of rustic appearance and drainage provision to make the road safer for all non-motorized users and consider that this should also be a consideration throughout the length of the scheme.

It is unclear in respect of option 5a what is intended at the A27 and Mill Rd junction. There is currently access on to, and off, the A27 eastbound carriageway only at this point. (Note – it is not possible to cross the A27 in a vehicle at this point). There is much rumour and speculation that the intention is to close this access. This would impact residents in Mill Rd and the vicinity in their daily comings and goings. It would also put more traffic onto Shellbridge Rd. Residents request that this access remain as at present. There has been much speculation about the future of this junction and we would urge Highways England to provide clarification regarding its intentions in respect of this junction.

It is unclear in respect of option 5a what provision is made for walkers, cyclists and horse riders to get from the north to the south of the A27 (or vice versa).

The woodland and National Trust Estate land in this area is popular with walkers and many cross between the Parishes of Slindon and Walberton as part of planned walks. We therefore seek clarification regarding the recommended route for walkers.

There is also an extensive network of cycle paths in the area – please clarify how they will interface with the new design.

There is also an extensive network of bridle paths in the area and several horses are kept in fields along Shellbridge Rd (B2132) and Mill Rd– how will the bridlepaths interface with the new design.

Yours sincerely



Encs.



Submission by South Stoke Parish Council,

South Stoke Parish Council, including Offham, is in favour of creating a dual carriageway bypass for the A27 at Arundel linking from Crossbush to Yapton Lane.

The Parish supports the objectives of HE's scheme and in particular supports Option 5A as set out in the public consultation document.

As residents of the Parish, our access and egress to and from the A27 and the Town is often severely limited by the bottlenecks created by the weight of traffic on the current single carriageway

In particular access along Mill Road onto Queens Road and A27 can be impeded when the weight of traffic either causes rat running along the High Street or when there are bottlenecks at the Crossbush and Ford roundabouts.

Mostly this happens at early or evening commuter times or when holiday traffic leaves Mill Road at the weekends. It also occurs when there are accidents and hold ups on the A27 itself.

In addition there is often rat running at speed through Arundel High Street when traffic backs up behind the Ford roundabout

The A27 is a national and regional Route and apart from severe local inconvenience, delays inevitably occur to all traffic including through traffic (which accounts for 70%) which is forced to use the current single lane bypass. The current bottlenecks, congestion, noise and air pollution are a national disgrace.

We recommend that HE select route 5a which is the best engineering solution and would avoid Arundel being divided. Option 1 is not considered viable as Arundel would remain split with continuing and worsening noise and air pollution. In addition the time to complete the project would cause significant damage to the local economy which would have a long term adverse effect on Arundel and the local economy.

It is noted that all the routes run through the SDNP but it is considered that Option 5A would also be the optimum route in respect of reducing rat running not only in Arundel but also in surrounding villages including nearby villages such as Amberley and Houghton.





**A27 ARUNDEL BYPASS IMPROVEMENT SCHEME
PUBLIC CONSULTATION
by Highways England**

WALBERTON PARISH COUNCIL

Response 9th October 2017

Walberton Parish Council (WPC) is grateful for the opportunity to respond to Highways England (H.E.) as a Consultee on the Do Nothing, online and two offline options set out in the A27 Arundel Bypass Public Consultation document.

The two offline routes directly affect this parish, Options 3 and 5A. Binsted village, one of the three villages in this rural parish's area, would be impinged by Option 3 but would be savaged by Option 5A. Both these routes also impact adversely on traffic conditions, amenity and the environment more widely across the parish, particularly in the case of Option 5A.

WPC Traffic Background

As our key East-West route for access and commuting, as a physical barrier to the north, as an entrance to the South Down National Park, and as the artery from which several lanes run southwards into our residential areas, the A27 is an integral part of the WPC community fabric. Its presence looms large in parish life and any changes will be noticed and will be important for parishioners.

The A29 lies outside the parish boundary and is one of three North - South routes that are used by residents and those commuting through our Parish. The least used is West Walberton Lane, but the most used parish road is Yapton Lane. These three routes and the connecting lanes between them are critical because to the south is another physical barrier - the railway. Through-traffic will automatically find its way northwards from either of the two relevant rail crossing points and on towards the least congested A27 access point it can find, criss-crossing the local lanes to do so, and visa-versa from the A27 southwards. How this articulates depends on whether that traffic approaches from the east or west and if its destination is east or west. Morning and evening rush-hours have reversing flows naturally, but not symmetrically. Folk do not retrace their route because of the one-way accesses onto the A27. Additionally, not all routes are open to HGVs.

Yapton Lane (B2132), the most-used parish North - South route, serves only two other public roads in its length between the A27 and the junction with Lake Lane and its railway level crossing on the parish's southern boundary. These two roads are Binsted Lane, leading eastwards into Binsted village and back to the A27 only, a virtual dead-end, and The Street, which leads westwards through the two

conservation areas of Walberton village where in places it is single lane (given necessary street parking). Because neither Binsted Lane nor The Street is suitable for through traffic, Yapton Lane is heavily limited by its level crossing, described in Appendix 1 as having nearly 300 trains a day and used by 7,900 vehicles a day. Given the funnelling effects on through-traffic flow imposed by the railway and the A27 access and exit points described above, it will be appreciated how important and sensitive the whole parish is to changes in Yapton Lane, a “B” class road whose upgrading has not been costed into the Bypass works totals nor its disbenefits allowed for in BCR ratios. Yapton Lane is too narrow in places for two HGVs to pass abreast.

Although the traffic models could include planning changes, it is unclear to us that *any* of the options fully account for the 2,500 houses planned at Eastergate on the A29 or the 600 houses resolved to be built in WPC’s own community, and the economic and housing developments at Littlehampton and Bognor; Arun D.C. plans 1,000 houses each year for the foreseeable future which do not seem to be reflected in much increase in traffic between now and 2041 for when H.E. data is given. In sum WPC contend that all its local lanes including Yapton Lane will have become close to capacity before 2041 but H.E. data seem to allow for little change in the intervening 24 years.

WPC Response to Consultation

Walberton Parish Council’s comments on the Consultation document are as follows:

1. WPC’s Neighbourhood Development Plan (NDP) made in 2017 is now part of the Local Development Plan for the Arun DC area. Several of its policies are relevant to the A27 and its improvement, and the policies are in the public domain. The most relevant policies are attached as Appendix 2. WPC NDP policies are severely in conflict with Option 5A, and also modestly in conflict with Option 3. There is no conflict with Option 1.
2. WPC is strongly opposed to Option 5A for this reason among others expanded on below.
3. WPC is willing to compromise and accept Option 3 because it recognises the advantages for regional traffic of some improvement works to the A27. If proper mitigation measures and other concerns of WPC noted below are dealt with, WPC would be willing to take a supportive position on Option 3. However WPC in correspondence with H.E. has realised that these concerns might not be met so our support is reliant on successful further correspondence and discussions. Meanwhile, a viable alternative is available in Option 1.
4. WPC is in principle supportive of A27 improvement works and this is made clear in its NDP. It follows that WPC is in favour of choosing one of the options rather

than doing nothing. WPC is able to commend Option 1 at this stage, subject to further discussions and again subject to our local concerns being recognised.

5. Overall, WPC's concerns are fivefold:

- i. Traffic impact: the generation of significant additional traffic flows on local roads, with visual impact, noise and disturbance, loss of air quality and amenity, and the imposition of traffic delays on parish roads used by WPC residents. These are clearly worst under Option 5A and least under Option 1. According to H.E. data:
 - a. Option 1: increases WPC's local road traffic by 2,900 AADT
 - b. Option 3: increases WPC's local road traffic by 4,500 AADT
 - c. Option 5A: increases WPC's local road traffic by 8,300 AADT

According to supposedly reliable H.E. data, the A27 traffic increase under Option 5A compared with the Do Nothing scenario at the Fontwell FP is just 4,400 AADT, whereas the local traffic increase in Walberton parish area is 8,300 AADT (See Appendix 3). This is a poor return on an investment of £250 million when the parish disbenefits are taken into account. Appendix 3 also comments on the relative and absolute levels of BCR and potential problems with their computations.

- ii. Community impact: the severe negative of splitting the parish community (Option 5A) and the diminution in community cohesion and sense of place. This extends to the loss of amenity for private and residential and commercial and agricultural properties directly and indirectly affected, with parishioners' landholdings divided. This is clearly of least concern under Option 1.
- iii. Environmental impact: the harm and the ecological damage caused to ancient woodland areas and to other irreplaceable and important habitats and species, and the loss of open space and wooded amenity for walkers, horse riders, cyclists and others. Professional surveys by MAVES show an exceptional biodiversity and habitats network in the wider affected landscape in the Binsted and Tortington areas, which is greater for Option 5A than for either Option 3 or Option 1. This extends to damage to parish infrastructure and its landscape with visual impact, noise and disturbance, and loss of air quality and amenity. In environmental terms Option 1 has the least negative impact and Option 5A the greatest negative impact. Some of the ecological impacts are in respect of issues with which parish councillors are not fully conversant, and WPC takes its lead from MAVES' technical studies. MAVES data is to be submitted to H.E. separately and we believe the greatest harm comes from Option 5A and the least from Option 1. One little remarked-upon feature is that Option 5A is largely an embankment scheme, in some places at up to roof height, whereas

Option 3 is a scheme that uses cuttings and is therefore visually much less intrusive and is a potentially quieter scheme.

- iv. NDP impact: WPC consulted widely on its local policies and at referendum these were supported by 96% on one of the highest turnouts in the country, being made by Arun D.C. in March this year. Its policies, core objectives and its vision clearly conflict with Option 5A, and have modest conflict with Option 3 also. As mentioned above, the Do Nothing option is one that is in conflict with WPC's NDP. Option 1 however accords with NDP policies in general, which are supportive of sustainable development and economic progression, so, on the basis of NDP policies, WPC is potentially able to support this option.
- v. Cost and Benefits: All three options are considered by H.E. to meet its six objectives including the alleviation of the traffic problems at Arundel and all three therefore qualify for inclusion in the consultation process, alongside the Do Nothing option.
 - a. As to Costs, Option 1 is well within the set budget and is likely to be delivered, potentially with modest improvements that derive from the consultation; it allows for an additive process. Conversely, Options 3 and 5A are at or over budget, and have no room for improvements but on the contrary, will probably look for savings in traffic, community, environmental or other disbenefits so as to become affordable. WPC takes the pragmatic approach that choosing an option that is already at the limit of affordability before detailed work has begun is a recipe for eventual failure and would tend therefore to discount both Options 5A and 3 on cost grounds.
 - b. As to Benefits, WPC faces the effects that the offline options have on the parish, in particular 5A with its parish traffic impact, and considers these modestly (Option 3) or significantly (Option 5A) outweigh the listed or supposed benefits, including impacts on Arundel; this is especially true of the Option 5A traffic problems that would hit the WPC area. It notes the significant benefit included in discussions and in the consultation of ending the use of the Storrington route through the SDNP under Option 5A. But WPC is unpersuaded by the supporting traffic and BCR data and its reasoning is set out in Appendix 3. This factor clearly places Option 3 above Option 5A in benefit terms. In sum, Option 5A has a poorer BCR than Option 3 and Option 1 has a better BCR than either.
6. The "old pink / blue" route is one that WPC previously supported. The closest route to this is now Option 3. Some supporters are potentially moving away from

this route due to the increase in costs associated with revised layout and the environmental mitigation of the ancient soils. There are also suggestions of a cut and cover tunnel through the woods and we would support this solution if it was found to be beneficial to cost and environmental mitigation.

With changes to the layout of the Northern junction, which is heavily over specified, and with the addition of a link from Ford Road, we believe it would regain its previous widespread support and therefore likely to achieve H.E. preferred option status.

Meanwhile, Option 5A is anathema to WPC:

- a. It destroys Binsted village - quite unnecessarily so in our view when Option 1 exists - and has negative effects on traffic flows on local rural lanes and negative effects such as noise and disturbance, visual impact, loss of air quality, loss of amenity, and the imposition of traffic delays on better-used parish roads.
- b. It does the greatest harm to the environment, and causes the most ecological damage to ancient woodland areas and the loss of open space and wooded amenity for walkers, horse riders, cyclists and our successors living in this place.
- c. It damages our community cohesion and sense of place by splitting the parish in two.
- d. It is significantly more intrusive, and noisy and light-polluting than other options.
- e. WPC is not in a position to contest the point, but it seems to us that Option 5A and Option 3 fall foul of the NNNPS, as H.E. highlight in the Consultation document.
- f. Having studied the data, WPC does not believe that it benefits the SDNP and the alternate Storrington route, and therefore it has the worst BCR of the options on offer. Given its starting cost, it also seems unlikely to be a pragmatic choice because of the likelihood of its being over-budget once the full cost of mitigation is taken into account.

WPC Proposal and Conclusion

In view of its total opposition to Option 5A WPC makes no positive proposals for it.

On Option 3, WPC feels the Havenwood junction is heavily over-specified, needing only a single flyover westwards serving the old A27 and not requiring the dumbbell roundabouts or the Havenwood access road. This lowers costs.

On Option 1, WPC confines itself to mentioning only one item and that is the wider benefit of a more comprehensive and complete treatment of the A27 junction with Ford Road; it would support further detailed traffic flow and design work on this aspect.

Option 3 is our preferred offline route and is a proposal on which we are willing to offer support under certain circumstances. But in the possible absence of sufficient funding for Option 3, Option 1 is our preference.

Many parishioners support Option 3, with some supporting Option 1 but are all absolutely against 5A.

Appendix 1

ABC Railway Guide Crossing Data

- **Name:** Yapton
- **Crossing Type:** Public Highway
Automatic Half Barriers
- **Location:** Yapton CP
- **Postcode:** BN180DN
- **Route:** Sussex
- **ELR:** TBH2
- **Distance:** 20 miles 79 chains
- **Individual risk rating:** D (High)
- **Collective risk rating:** 2 (Very High)
- **Last assessment:** September 2015
- **Next assessment due:** December 2016
- **Types of trains:** Passenger & Freight
- **Line speed:** 30 mph
- **Trains per day:** 290
- **Usage:**
 - 7884 Vehicles
 - 54 Pedestrians or Cyclists

Notes: **Individual Risk Rating** is the risk to individual users of the crossing. It is presented as a single letter, with A being the highest risk and M being the lowest. **Collective Risk Rating** is the overall risk of any incident involving any person or vehicle on the crossing, including train staff and passengers as well as users of the crossing. It is presented as a number, with 1 being the highest risk and 13 being the lowest. This is the most important rating when prioritising safety measures at level crossings.

Misuse history: Nil incidents in year prior to assessment date (Sep-2015), -

Nil incidents since.

Near-miss history: Nil incidents in year prior to assessment date (Sep-2015), - Nil incidents since.

Accident history: Nil incidents in year prior to assessment date (Sep-2015), - Nil incidents since.

Key risk factors:

- Large Numbers of users

- Blocking Back

- Frequent Trains

- Large Numbers of HGVs

Current protection arrangements:

- Half barrier equipment

- Road traffic light signals

- Audible alarm

- Signage

Appendix 2

WPC Neighbourhood Development Plan Policies

Appendix 3

Traffic Data and Traffic Impact

H.E. has adopted WSCC's County Transport Model to assess the performance of the options. The Model was used by H.E.'s consultants, WSP, to produce the modelled flows that provide the data in the Consultation document. Along with other consultees we rely on that document's figures, but having pointed out the impact on parish local roads, we were kindly provided by H.E. with the background modelled flows that support each option. In those we found significant discrepancies. The most significant was traffic on Yapton Lane, the most relevant to our consideration of the options. WSP modelling here works on the basis of an AADT of 2,800 under Do Nothing in 2041 for the southern end of Yapton Lane. This is to be inclusive of traffic from the building of 20,000 houses and matching commercial and industrial space that is to be developed between now and 2041. However, a reliable source states that prior to any development and any traffic growth up till 2041, the *current* Yapton Lane flow at the same location is 7,900 AADT, several times higher than the future WSP baseline. WPC's own SpeedWatch volunteers conclude that at the northern end of Yapton Lane *current* traffic is at

5.3 Getting Around

Key Transport Aims

1. Provide more sustainable transport links
2. Endeavour to solve current congestion and 'hot spotting' problems
3. Address parking issues
4. Avoid increasing access by HGV.

Policy GA 1 Open Access and Permissive Paths
Support will be given to proposals which provide open and permissive footpaths, bridleways and cycle paths within the Parish.

Policy GA 2 Footpath Bridleway and Cycle Path Network
Support will be given to proposals that improve and extend the existing footpath, bridleway and cycle path network, allowing easier and safer access to the local amenities and services, to open spaces, to any new housing and to the open countryside. The loss of existing footpaths, bridleways and cycle paths will be resisted.

Policy GA 3 Car Parking
Proposals which remove existing parking in the vicinity of existing retail and commercial premises will not be supported. Proposals which reduce existing available parking in the Parish will be resisted.
Reason: The Parish has limited public transport and therefore a practical reliance on car-borne shopping. Though it suffers also from narrow streets and lanes that make on street parking unacceptable. It is therefore necessary to enter for the economic and environmental

infrastructure properly. The PC will maintain support for the provision of cycle roads where appropriate.

Policy GA 4 School Transport

Proposals will be supported that improve transport facilities, especially for local school children.

Reason: The community has expressed in its Survey comments a real concern for the safety of all residents but children in particular on the Parish's narrow and unoperated lanes. There is a need for a network of cycleways in addition to improved public transport for buses. Children in particular, who need to go beyond the village confines.

Policy GA 5 Traffic Management

Proposals that significantly increase the level of traffic within the villages will be resisted particularly in the case of HGV movements.

Reason: It is part of the vision for the Parish that through traffic and especially HGV and other commercial traffic shall be kept to a minimum because of the size and density of the built form of the rural lanes. The points involved and the accidental nature of the roads and lanes affected by re-routing. It diminishes the quality of the housing and the well-being of residents, as well as being threatening to pedestrians, cyclists and riders where the lanes are mostly unlit and unimproved. The through traffic issue is a major recurring theme in the Survey. In planning terms it is also a significant planning constraint in respect of the sustainable development of both housing and employment space.

Policy GA 6 A27/A29 Junction West and other Strategic Junctions

Proposals for the upgrading and remodelling of this junction and others that lie outside the Parish will be supported where these works will result in an improvement to the traffic environment on the residential roads through Southwell and Walberton.
Reason: the A27 traffic hotspot is the key trunk route junction within or at the edge of the Parish and is especially relevant to parishes. Through traffic uses 'system' lanes, West Walberton Lane, the 'street' in model Road, Wandleys Lane and Easlegate Lane as shortcuts. In line with the Vision and Core Objectives, it will be Plan policy to reduce through traffic with effective medication

measures where possible. In relation to the A27, this will be for the Walberton Green Conservation Area, as detailed by WSCC in traffic modelling, but affects Mundel Road and West Walberton Lane in particular.

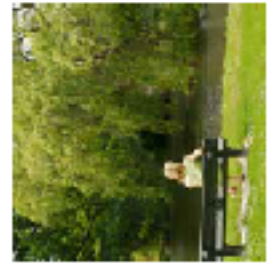
Depending on the A27 proposals, the same supportive policy stance may be required for the northern end of 'system' lanes. This is because the possible signalisation will provide greater A27 delay and therefore an increased preference for short-cutting at Yapton Lane and Mundel Road, and the consequent extra volumes (on early HGV as well as private off-highway) in both Southwell and Walberton villages.

Depending on the A27 proposals, the same supportive policy stance will need to be maintained in relation to the required in respect of junctions with Barnham Road and Eastgate Lane and Wandleys Lane.

Policy GA 7 A27 Arundel Bypass

The Arundel Bypass is supported in principle but only when taking the route that causes the least damage to the countryside in the north of Binsted village within the Parish's boundary.

Reason: The area to the north of Binsted includes countryside that is cherished by parishioners for some of the most attractive and - in ecological terms - most valuable in the Parish. The policy is important for delivering on the vision and Core Objectives and reflects Survey results and comments.



least 5,250 - 6,300, some three times that shown in the H.E. / WSP Do Nothing 2041 model, and might have been higher if not "anchored" by knowing the H.E. / WSP figure!

This and many other examples, such as allocating 1,000 AADT to a short unmade track in our parish serving seven houses, led us to re-evaluate and question the Consultation document's data. In correspondence with WSCC and H.E., we realised that the data provided in the Consultation document were extremely rudimentary

and that they were not suitable for the purpose to which they were being put in respect of anything other than very specifically dealing with East-West traffic on the A27 *only* and then *only* between the Fontwell FP and Crossbush / Poling. In particular the modelling by WSP was not explanatory of or reliable for North - South traffic data, such as that of the A29, Yapton Lane etc. Thus, in certain respects the data is reliable but in others it cannot be relied on in any serious degree, mainly when the direction of travel is North - South, where we are able to show error rates of 300% quite easily, multiple times.

More detailed modelling for these aspects is dependent on further detailed study, by which time the preferred route will have already been chosen using unreliable data. The reliable data for the model will only be available when the key choice has been made and cannot be used to choose the route. This seems to be a process-driven nonsense. To that extent WPC considers that a proper case has not been made for any option, save possibly for Option 1.

Reliable East - West data comprise the eight A27 flowcount points. Two of these are at Fontwell and Havenwood. This table, with figures from the Consultation document, compares them:

	FONTWELL Flowcount point	HAVENWOOD Flowcount point/s	Flowcount point Difference	Cumulative Difference over
DO NOTHING	29,400	28,500	900	-
OPTION 1	31,400	33,000	1,600	2,500
OPTION 3	31,800	35,400	3,600	4,500
OPTION 5A	33,800	41,200	7,400	8,300

Under the Do Nothing Option, the Fontwell flowcount point (FP) records a greater AADT than does Havenwood's FP, implying a 900 AADT loss of eastbound traffic into our local parish roads. We assume here that this eastbound loss into local roads is not affected by Arundel Bypass works, well to the east. The 900 AADT is only a quite small element in the whole total of traffic that joins or leaves the A27 at the north end of Yapton Lane; it is the amount by which the eastbound traffic over the course of a day (thus two rush-hours) exceeds the westbound traffic. The *base* level in the model remains unknown. This makes two points:

First that under Option 1, where the Havenwood FP reading is higher than Fontwell's the new westbound loss into local roads is additional to the eastbound loss, thereby adding a further loss into local roads of 1,600 for an *increase* of 2,500 AADT on top of the current unknown total level. Therefore according to H.E. / WSP we have

Option 1: increases WPC's local road traffic by 2,500 AADT

Option 3: increases WPC's local road traffic by 4,500 AADT

Option 5A: increases WPC's local road traffic by 8,300 AADT

Second, the Yapton junction is a very complex set of circumstances. Traffic exiting onto the A27 can go west on the A27 to Chichester, or west as far as the eastern Fontwell roundabout before circuiting 360 degrees to head back eastwards to Arundel, because the A27 is a dual carriageway. Or again, it can circuit the roundabout 270 degrees and take the A29 northwards; some of this will be rat-running traffic bound for Storrington, some not. Some traffic therefore passes the Fontwell FP twice. The same is not true in reverse because there is a cross-over for eastbound traffic seeking to join Yapton Lane from the A27, and regular commuters will take different routes out and back, utilising the southern A29 arm if heading south-westwards having avoided it when heading northwards because it is at over-capacity in rush-hours. Given that H.E. / WSP has no reliable model for any of these multiple scenarios as noted, because they all involve an unmodellable North - South journey, it is quite incapable of supporting its model to show a staggering 26% reduction in traffic between Options 3 and 5A at the Madehurst FP on the A29 (4,200 AADT). After all, eastbound drivers at Fontwell have - under Option 3 - the benefit of going to Shoreham via the A27 along the Arundel bypass, so there is no logic to their deciding not to rat-run but to take the A27 just because it swoops through Binsted rather than Tortington - the difference in distance is insignificant in driving terms versus any additional congestion on that route. Although it is tempting to suggest that because all the Yapton Lane traffic under Option 5A can turn directly eastwards on the new junction and so the A29 is less used for rat-running, this cannot be the case according to H.E. / WSP: under 5A the model proposes a *drop* in Yapton Lane traffic to fewer than 1,000 AADT. It weakens the WPC stance only slightly to suggest that this figure (an 85% drop from *current* levels) is even more likely to be wrong than the A29 figure!

The figures in the table above only use the supposedly reliable East-West A27 data from the Consultation document, and we need to accept that they are correct; if even these are unreliable then the Consultation process itself is wholly pointless. Under the three improvement options the vast majority of the extra traffic put onto WPC roads, whose northern junctions with the A27 lie between the flowcount points, will be using the current main parish North-South route, the B2132 Yapton

Lane. H.E. states that it has not costed in any works to upgrade Yapton Lane, which currently carries an estimated 7,900 vehicles a day at its southern end. Yapton Lane crosses the main South Coast rail lines at Lake Lane level crossing. Heavily used, with 300 trains a day, it is halting traffic when most trains are running - in rush hours.

North - South H.E. data are not reliable and this includes not only Yapton Lane but also the A29. But a very significant part of the Option 5A BCR gains are created by H.E.'s supposed 26% reduction in traffic at the Madehurst FP under Option 5A which it assumes is due to the cessation of rat-running via Storrington. There are three things wrong with this:

1. The unreliability of AADT data and its mismatches
 2. The cause being the Arundel Bypass and not the Worthing-Lancing improvements
 3. The consequential BCR treatment of Option 5A in respect of 1. and 2.
-
1. As noted above, there is no reliable data at all for the A29 at the Madehurst FP, and if there were we might be unsure what it signified given the highly complex circumstances. The proposal that it signifies less rat-running has been shown as illogical and very unlikely.
 2. As can be seen off the attached map of the Storrington rat-run, the Worthing / Lancing congestion is arguably a greater problem than the Arundel congestion. As drivers will acknowledge, five miles of clearer road to reach the next congestion area more quickly is only a modest advance, and probably saves no travel time. For the Storrington rat-run to fall into disuse, both Arundel and Worthing / Lancing congestions have to be resolved. It is a worthy objective of the Arundel Bypass to be part of this resolution. But the scheme is declared to be "standalone", meaning its outcomes are self-contained. It is unclear whether it has been truly judged in that way. If so, it is - once again - highly unlikely that the Arundel Bypass alone and without the Worthing / Lancing improvements can have the 26% positive effect on the A29 being (in our view quite unjustifiably) attributed to it. Once again, it defies logic. As WPC understands it, the Worthing - Lancing improvements are not decided upon and it is still perfectly feasible that they will not proceed, adding a further layer of doubt onto the BCR for the Arundel Bypass's Option 5A.
 3. As a standalone scheme, the Arundel bypass cannot claim the Worthing / Lancing benefit of reduced congestion; it might one supposes claim half if half the cost was shared, and visa-versa. H.E. has not declared that this

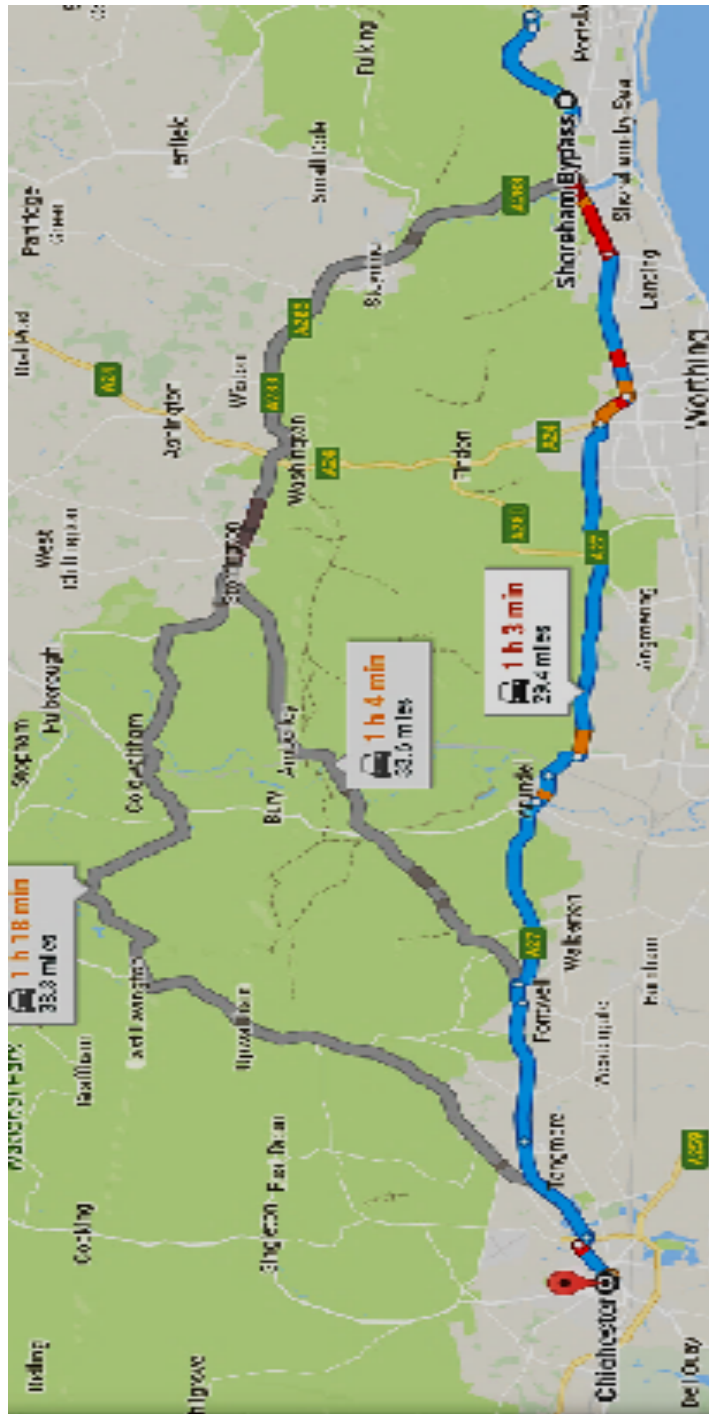
has been done because as a standalone scheme it could not be. Yet as we have seen, Option 5A has no special advantages, for the congestion-aware drivers, over Option 1 or Option 3 in ending the usefulness of the Storrington rat-run. As noted elsewhere, it is understood that progression of the Worthing - Lancing improvements are in any case not a foregone conclusion.

We are also concerned that the benefits in the BCR of Option 5A have risen in the last two years roughly twice as much as the benefits in the BCR of Option 3, although we know of no reason why any *relative* change in their benefits should occur, for reasons given in 2. above.

WPC therefore rejects the idea that Option 5A has the newly awarded benefit of a vastly improved BCR of 2.6. It is unsupported by evidence. It is based on provably unreliable modelled traffic flows and unsubstantiated and illogical assumptions. For us, the BCR from 2015 of 1.7 seems much more in line with the facts.

In reference to the BCR for all options, WPC notes that a significant part of the computation relies on journey times. While journey time savings measurements are taken from a point at Poling, to include the Crossbush junction, they treat the western end of the improvements differently by ending at Tye Lane rather than at Fontwell. The potential for delays at Fontwell east and west roundabouts - which are at capacity and are to be signalised under H.E. plans - would impact on journey times adversely, but if rat-running is an element in the BCR then the eastern roundabout at least needs to be included in the measurement distance. Preferably both Fontwell roundabouts need to be included so as to capture the southbound (A29) and westbound (A27) traffic that might no longer use the rat-run to or from Storrington.

Furthermore, the standalone basis of analysis on journey times removes the impact of delays and their potential resolutions at Chichester and Worthing / Lancing. Therefore journey time savings scoring positively in the BCR are entirely theoretical when seen from the driving seat of a rat-running vehicle making a regional journey. In that regard any difference between the options is largely false in practical terms for vehicles. WPC considers the journey time element could have been falsely measured and may have been accorded an overlarge influence.



via A27	1 h 3 min
Faster route, despite the usual traffic	30.4 miles
DETAILS	
via A283	1 h 4 min
Congestion causing 12 min delay	33.6 miles
via A263 and A265	1 h 18 min
Congestion causing 13 min delay	38.3 miles

WASHINGTON PARISH COUNCIL



Email: clerk@washingtonparish.org.uk
Website: www.washingtonparish.org.uk

6th October, 2017

Dear Sir/Madam,

Re: A27 Arundel Bypass - Consultation Response from Washington Parish Council

Councillors discussed the A27 proposals by Highways England and consultation documents for the above scheme at the Washington Parish Council Meeting on 2nd October, 2017.

On balance, Councillors favour Option 5A as the most economically and environmentally viable, as it shows the greatest reduction in traffic flows on the A283 through Washington, Storrington and surrounding areas.

Kind regards



If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.

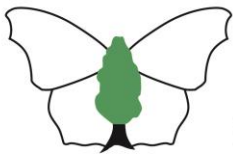


A27

Arundel Bypass

Report on public consultation

Spring 2018
Appendix D4 – Stakeholder responses
Environmental groups



Highways England A27 Arundel Bypass Consultation Response by Butterfly Conservation

Summary

Having thoroughly reviewed the plans to improve the A27 at Arundel, including site visits to assess the potential impacts of Options 1, 3 and 5A, Butterfly Conservation wishes to register its strongest possible objection to the proposals for routes 3 and 5A, based on the unacceptable and irreparable environmental damage they would cause.

Butterfly Conservation also recognises that Option 1 would cause significant environmental damage, albeit at a much reduced level when compared to Options 3 and 5A. Butterfly Conservation is supportive of the additional, wide single-lane option referred to as the 'New Purple' route by Arundel A27 Forum, which follows the line of Option 1 but causes less environmental damage, being more restricted in its length and land-take.

Objections to Options 3 and 5A

Habitat loss and fragmentation

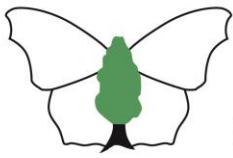
Option 3 would involve the loss of c.24 hectares of ancient woodland. However, the environmental damage affecting Lepidoptera (butterflies and moths), some of which are of high conservation concern, would not be restricted to habitat loss alone. This route would cause significant fragmentation and isolation of areas of regionally important woodland habitat, resulting in the disruption of vital dispersal corridors.

Butterfly Conservation (BC) also recognises the similar, negative impact on other faunal groups, including bats and Hazel Dormouse. Furthermore, BC notes that there is no mitigation measure available to compensate for the loss of ancient woodland.

Option 5A would involve the loss of c.6 hectares of ancient woodland. The loss of other areas of woodland, which although relatively small and set in more open countryside (e.g. The Shaw, Binsted Park), would also negatively impact some species of Lepidoptera, removing important foodplants including Wych Elm, English Oak and willow. Areas such as this currently provide important nurseries, vital in supporting the populations of some species found in the larger area of woodland to the north, including the Purple Emperor.

However, the environmental damage affecting Lepidoptera, some of which are of high conservation concern, would not be restricted to habitat loss alone. This route would disrupt the system of hedgerows and ditches, which woodland species of butterfly and moth use as dispersal corridors when moving through the wider landscape. These movements are critical in supporting a healthy metapopulation structure.

BC also recognises the similar, negative impact on other faunal groups, including bats, Hazel Dormouse and Water Vole.



Key Butterfly and Moth Species Affected

The following species of butterfly and moth, of particular importance, would be adversely affected by the routes proposed under Options 3 and 5A:

Pearl-bordered Fritillary *Boloria euphrosyne*

Section 41 species of principal importance under the NERC Act in England; UKBAP Priority Species; Protected under Schedule 5 of the 1981 Wildlife and Countryside Act (for sale only).

BC is currently conducting the *Fritillaries for the Future* project, with the aim of rebuilding a coherent, landscape-scale metapopulation of the regionally endangered Pearl-bordered Fritillary. Rewell Wood supports the last, naturally occurring, large population of this species in Sussex. Work is underway in woodlands to the east of the Arun Valley, to encourage natural colonisation. The fragmentation of woodland habitat and disruption of both woodland and hedgerow dispersal corridors, inevitably caused by Options 3 and 5A, will severely hamper these efforts.

White Admiral *Limenitis camilla*

Section 41 species of principal importance under the NERC Act in England; UKBAP Priority Species.

This declining species would be particularly hard-hit by Option 3, through the loss of habitat. The area including Binsted Wood, Paine's Wood and Tortington Common is listed within the top five most important sites for this species in Sussex, and within the top three sites for West Sussex (*The Butterflies of Sussex*, 2017).

Purple Emperor *Apatura iris*

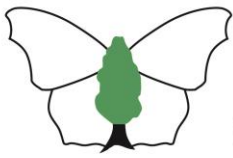
Protected under Schedule 5 of the 1981 Wildlife and Countryside Act (for sale only).

This iconic woodland species is present throughout most of the area potentially affected by Options 3 and 5A, including the shaws and copses to the south of the main woodland block, which probably provide the main breeding areas.

Drab Looper moth *Minoa murinata*

Section 41 species of principal importance under the NERC Act in England; UKBAP Priority Species.

This nationally scarce moth has one of its Sussex strongholds in the Rewell Wood area and readily colonises any patches of woodland habitat where periodic management (e.g. coppicing) encourages Wood Spurge to flush. BC is currently conducting a project to assist this species in the county.



Two additional species of conservation concern are considered highly likely to occur in areas potentially impacted by Option 5A. Survey work is required to clarify their status. These are:

White-letter Hairstreak *Satyrrium w-album*

Section 41 species of principal importance under the NERC Act in England; UKBAP Priority Species; Protected under Schedule 5 of the 1981 Wildlife and Countryside Act (for sale only).

This species was only detected in a dozen 2x2 kilometre tetrads in West Sussex during the 2010 – 2014 period (*The Butterflies of Sussex*, 2017), but has previously been recorded in the area potentially affected by Option 5A, where suitable habitat currently remains.

Brown Hairstreak *Thecla betulae*

Section 41 species of principal importance under the NERC Act in England; UKBAP Priority Species; Protected under Schedule 5 of the 1981 Wildlife and Countryside Act (for sale only).

No surveys have yet been performed to confirm the presence, or otherwise, of this species, which occurs within the local landscape.

Objections to Option 1

Habitat loss

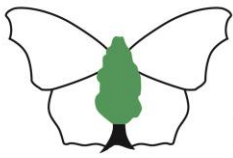
Option 1 would involve the loss of c.5.5 hectares of ancient woodland. In this case the potential environmental impact affecting Lepidoptera, some of which are of high conservation concern (see above), would be largely restricted to habitat loss, which would be at a greatly reduced level (for ancient woodland and/or hedgerow and ditch habitats), relative to Options 3 and 5A.

The potential impacts of habitat fragmentation and isolation, and the disruption of Lepidoptera dispersal corridors (and for other faunal groups), as arising through Options 3 and 5A, are considered to be reduced in this case, due to the in-line nature of Option 1.

Overall, the potential environmental impact on Lepidoptera (and for other faunal groups) caused by Option 1 is considered to be much smaller than that posed by either Options 3 or 5A.

Wider concerns relating to the consultation process

Bearing in mind the very different potential impacts on Lepidoptera, and other fauna and flora, BC is surprised to see, and fundamentally disagrees with, the equal categorisation of Options 1, 3 and 5A under the section 'Nature Conservation' in Highways England's 'Environmental appraisal' (Consultation Brochure pp.28-29). This has the effect of 'flattening' the perceived potential impacts on 'Nature Conservation' posed by the three options.



Butterfly Conservation

Saving butterflies, moths and our environment



www.sussex-butterflies.org.uk

In terms of 'Nature Conservation', when looking at the potential loss of ancient woodland (the entire habitat type west of Arundel in Option 1), the difference in land-take between Option 1 (5.5 hectares) and Option 3 (24 hectares) is very significant, the latter representing an increase of 336.4%. However, the potential difference in negative impacts is substantially larger than this when other habitat types and issues of habitat connectivity are taken into account.

The above categorisations are even more surprising when very small journey time savings of 3-7 minutes for Option 1, and 4-8 minutes for Option 3, are used as the basis for differentiating between 'Moderate – Slight Benefit' (Option 1) and 'Major Benefit' (Option 3) under the section 'Improve capacity whilst supporting local planning authorities to manage the impact of planned growth' in Highways England's 'Objectives assessment' (pp.26-27).

In Highways England's 'Costs and Benefits' section (p.30) of the Consultation Brochure, the 'Most likely cost' attributed to Options 1 (£135m), Option 3 (£260m) and Option 5 (£250m) is used to generate 'Benefit to Cost' ratios of 3.6 (best), 2.0 (worst) and 2.6 respectively. All are categorised as being of 'High' value for money, with the threshold for 'High' being 2.0. However, this process does not take into account the potential costs of mitigation measures, the scale and nature of which cannot be determined at this time. Butterfly Conservation considers that these additional costs are likely to be substantially higher for Options 3 and 5A, further increasing the relative value for money of Option 1.

This inconsistent approach appears, in every case, to demonstrate a bias, favouring Options 3 and 5A over Option 1.



Chichester Natural History Society

I wish to comment on the present proposals as they seem to have been drawn up without any consultation with environmental bodies, and, if they go forward in their present state will destroy, for good and all irreplaceable habitat including chalk streams and ancient woodland. It is appalling that £250 million (public money) could be spent on such destruction – which will at best save just a few minutes of journey time.

Insufficient detail has been provided about the impact on wildlife. The information which has been provided is inaccurate, the interpretation is poor and it has not used the most up-to-date environmental data. This is particularly so of schemes 3 and 5a which under NO CIRCUMSTANCES should be allowed to go forward due to the outrageous impact on habitats and species. Option 1 has possibilities – with amendments.

Please open a new consultation – which fully incorporates the transport hierarchy over a wider area of the A27 so that concerns are properly evaluated. As the present suggestions have incorporated such outdated knowledge, please work with the experts at the SUSSEX WILDLIFE TRUST.



President,
Chichester Natural History Society

8th October 2017

Thank you for your letter of 19th September. I accept that Option 1 would require the removal of a strip of ancient woodland on the northern edge of Binsted Wood Complex LWS, but I cannot accept that the Brochure provides an accurate description of the relative effects of the three options on the environment.

1. Brochure

Page 26 of the Brochure states “All 3 options have a significant environmental impact with the potential to adversely impact nature conservation, heritage features, landscape, soils, noise and hydrology”. The more detailed tables on page 28, however, show that while all three options would have a similar adverse effect on cultural heritage and nature conservation, Option 1 would have a minor effect on landscape, soils and hydrology. Options 3 and 5A would have a major adverse impact on these three factors.

Page 26 therefore misleads the reader by stating that all three options would have similar adverse effects. Option 1 has fewer adverse effects than Options 3 and 5A, and this evidence should be clearly stated.

2. Environmental Study Report

I have read this report, which proves to be the source of the error in the Brochure about the relationship of Option 1 to the Rewell Wood complex LWS. It is stated in paragraphs 8.3.3 and 8.7.15 that Option 1 runs between Binsted Woods Complex LWS and Rewell Woods Complex LWS; 8.7.15 states that a belt of woodland would be taken from each LWS to widen the A27 and that the impact was likely to compromise the ecological integrity of both LWSs. Further confusion about the relationship between the Rewell Wood Complex LWS and the possible routes for the bypass is shown in Table 8.2, which states that Options 1, 3, and 5A pass within or adjoin Rewell Woods Complex LWS. Options 3 and 5A adjoin the LWS where they rejoin the present A27, but none of the options would be within the Complex. The confusion about the relationship of the

EAST PRESTON AND KINGSTON PRESERVATION SOCIETY

options to Rewell Woods Complex LWS is also shown in paragraph 8.6.6, which states that if Options 4 or 5 was chosen, either option would bisect Rewell Wood.

I have noticed a number of other errors in this Report. I do not expect my list is comprehensive but it contains serious errors that destroy its value.

Arun Local Plan policies relevant to the scheme are described in 7.5.13; but the most relevant policy, Area 3 The Setting of Arundel, is not mentioned. This policy states that no development will be permitted which would adversely affect views of Arundel or its special setting; and that development will not be permitted that would adversely affect the rural views outwards from the town. Paragraphs 7.7.27 and 7.7.46 state that Options 3 and 5A would have similar landscape and visual impacts to Option 2. This option is described as being prominent in the foreground of views towards Arundel Castle from the south, where it would detract from the attractiveness and composition of existing views (Paragraph 7.7.21) while extensive views of the proposed scheme and traffic in the Arun valley floodplain would be available from the Arundel Conservation Area from properties that currently have long views to the south over the pastoral river landscape. The scheme would also be visible from other buildings in Arundel, in Torton Hill, in Tortington Lane and at Crossbush. (Paragraphs 7.7.22 and 7.7.23).. This description suggests that the impact of the embankment or viaduct carrying Options 3 and 5A across the Arun floodplain would contravene Policy Area 3.

Confusion about the characteristics of the options is shown in paragraph 7.7.2, which states that all options require new offline dual carriageways of from 4km to 7.35 km. The length of the new dual carriageway from Crossbush to Ford Road in Option 1 appears to be about 1.8 km.

The descriptions of the route of Option 5A fail to mention that it would run through Binsted Park. . The list of heritage assets in Appendix B, Table B26, states that Binsted Park is outside the scheme area. This error may result from the mistakes in the maps in Annex A, Figures 6.1 and 7.2, which both mark Binsted Park as being north of its actual position, approximately where the OS Explorer map marks Binsted Wood..Binsted Park is thus one heritage asset that would be destroyed by Option 5A, but this effect is not mentioned in the Report.

Three different estimates of the impact of Option 5A on ancient woodland are provided in the Report. Paragraph 3.2.15 states that approximately 600metres of Option 5A runs though ancient woodland, suggesting it might take some 18 hectares of this woodland. Paragraph

8.7.20 states that Option 5A would result in the permanent loss of approximately 13 hectares of ancient woodland in the north-west corner of Binsted Woods Complex LWS. Paragraph 7.7.47 states that Option 5A requires the loss of up to 6 ha of ancient woodland. This last figure is used on p.29 of the Brochure. However, one cannot accept this figure with confidence when two other figures are quoted in the Report, and there appears to be some uncertainty about the relationship between the route of this option and the features of the landscape.

This catalogue of errors suggests that the authors of the Environmental Study Report are not familiar with the local landscape, have not studied reliable maps of that area and are unfamiliar with the routes that would be followed by the various options. They were not therefore qualified to write a report on the environmental impact on the district of the various options for a bypass. Such a report needs to be produced before the environmental impact of the three options can be evaluated.

3. Traffic Modelling

The model used to assess the options is described by Darryl Hemmings of WSCC as a strategic model; though he describes it as appropriate for this stage in the appraisal of the scheme, he also says that a limitation of the methodology is that not every local road in the study area is represented in the model. He went further at the meeting of the Environmental Audit Committee on September 28, telling the Committee that the model does not represent every road and performs better for major roads. He added that the model seemed very sensitive to small changes and so was switching traffic between roads. This sensitivity may explain some of the unexpected results of the model. For example, the forecast average daily traffic on the B2132 Yapton Lane in 2041 is, according to maps supplied by WSP:

Do Minimum case	2038
Option 1	498
Option 3	27
Option 5A	831

More significantly, the variations in the effects of the three options on traffic on the A283 and B2139 at Storrington do not appear plausible. According to WSCC, the changes from the Do Minimum levels would be:

Option	AM Peak		PM Peak	
	A283	B2139	A283	B2139
1	-10%	-7%	-18%	-21%
3	-6%	-4%	-19%	-21%
5A	-24%	-29%	-22%	-28%

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The most implausible features of these figures are that 5A creates a greater diversion of traffic to the A27 than the other options in the morning but not in the afternoon; and that Options 1 and 3 divert more traffic to the A27 in the afternoon than in the morning, but option 5A diverts slightly less in the afternoon than in the morning. Variations in the time-savings for traffic using the A27 at Arundel might be expected to explain these differences; but the figures cited in the Brochure do not do so.

Average time saving in minutes in 2041				
Westbound			Eastbound	
	AM Peak	PM Peak	AM Peak	PM Peak
Option1	4	7	5	5
Option 3	4	8	6	6
Option 5A	5	10	7	7

These time-savings suggest that Option 5A would divert more traffic back to the A27 in the PM peak, but that there would be little difference between the three options in the AM peak. The model's output for the AM peak therefore appears illogical. The figures quoted by WSCC cannot be accepted as reliable evidence of the relative performance of the three options, and the model cannot be relied upon to provide evidence of the effect of the bypass on traffic on other roads.

Darryl Hemmings told the Committee that the next stage in appraising the scheme will use a more detailed model specially developed for this scheme, and that the representation of local roads deserves closer scrutiny at this stage. This more detailed scrutiny would be applied to the preferred option, after the choice had been made. This more detailed appraisal is required to choose the best option. If the amount of traffic drawn to the A27 from local roads is one indicator of success, a strategic model is not the most appropriate model to use for the appraisal. As Mr Hemmings said, a model that fully represents local roads is required. If the three options were appraised with such a model, we would be more confident that we knew the effects of the improvements on the network.

The work done so far does not provide the evidence needed to make a confident choice between the options. The Society believes that the options need to be evaluated with a more detailed model, and that their environmental impact needs to be tested with a more thorough environmental report.

Yours sincerely


Chairman



05 October 2017

Your Ref: **A27 Arundel, Comms,
SH1**



Thank you for your consultation on the above scheme dated 14th August 2017 which was received by the Forestry Commission via email on 14th August 2017.

The Forestry Commission's summary points are:

- Ancient Woodlands and Veteran Trees* are acknowledged as an irreplaceable habitat and a part of our Natural Heritage. Mixed broadleaved woodland, wood-pastures and parkland are also regarded as principally important for the purpose of conserving biodiversity. It is not possible to mitigate against the loss of any irreplaceable habitat such as Ancient Woodlands, therefore, the chosen option should seek to avoid the loss of these important habitats.
- A scheme that dissects any woodland, particularly an Ancient Woodland, will not only result in significant loss of Ancient Woodland, but will also negatively increase the ecological value and natural heritage impacts due to habitat fragmentation, and a huge negative impact on the natural plants and animals' ability to respond to the impacts of climate change.
- To enhance existing habitats, we would recommend consideration being given to creation of a "green-bridge"¹ over the current line of the A27 to re-establish a link between Binsted Woods south of the A27 and Rewell Wood north of the A27.
- For the chosen option, the Forestry Commission would welcome the opportunity to work with the developer and Highways England to ensure the most appropriate measures are adopted to minimise the impacts on Ancient Woodlands.
- Locally sources timber is used in construction of appropriate structures including sound baffles.

(*Note: Ancient Woodlands includes Ancient Semi-Natural Woodland (ASNW) and Plantations (including conifers) on Ancient Woodland Sites (PAWS).

The Forestry Commission is the Government Department that works with others to protect, improve and expand our nation's forests and woodland, increasing their value to society and the environment. As recognised in the Government's Policy Statement on forestry and woodlands (2013)²:

"New and better managed woodland also has a role in making our rural and urban landscapes more resilient to the effects of climate change. Our objectives for sustainable woodland creation and management will improve woodlands' resilience to climate change and other threats and enhance its contribution to

¹ <https://www.gov.uk/government/news/green-bridges-safer-travel-for-wildlife>

² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/221023/pb13871-forestry-policy-statement.pdf

wider climate change adaptation. Carbon will be sequestered through the growth of new woodlands. The wood products that are harvested from England's woodlands will help to reduce greenhouse emissions from the energy sector directly as woodfuel and from other sectors where timber replaces more energy intensive materials. In addition, our focus on protection will help to ensure that we can safeguard the large store of carbon in England's woodlands."

The Forestry Commission is the Government experts on forestry & woodland and a statutory consultee (as defined by Schedule 1 of The Infrastructure Planning (Applications: Prescribed Forms And Procedures) Regulations 2009)³ for major infrastructure (Nationally Significant Infrastructure Projects (NSIPs)) that are likely to affect the protection or expansion of forests and woodlands (Planning Act 2008)⁴.

The Forestry Commission's response is based on information submitted by Highways England in support of its application for a Development Consent Order ('DCO') in relation to the A27 Arundel bypass scheme.

This response highlights matters which should be resolved as part of the pre-application process. We believe that these issues should be addressed by Highways England and the Examining Authority as part of the examination and consenting process before development consent is granted.

A27 Arundel Bypass public consultation brochure⁵

Figure 2: Environmental constraints map on pages 8 & 9 has correctly highlighted Ancient Woodlands as "Woodland that has existed since at least 1600AD. It is given national level of protection." The Forestry Commission appreciate that Highways England has acknowledge the importance of Ancient Woodlands. For consistency, the Forestry Commission recommends that this status is recognised and acknowledged throughout the A27 Arundel Bypass Environmental Study Report (ESR, or 'the Report').

A27 Arundel Bypass Environmental Study Report⁶

Chapter 8: Nature Conservation

Chapter 8 of the A27 Arundel Bypass ESR describes the ecological baseline and evaluates the nature conservation value of ecological features for the proposed scheme. The Forestry Commission recommends that further, more detailed survey* work to provide full facts is required in line with the comments outlined below before an options appraisal can be determined:

(*Note: When using a BS5837:2012 Cascade chart⁷ for tree quality assessment, ancient woodlands would automatically be classified as A3 due to their natural heritage and ecological value.)

³ <http://www.legislation.gov.uk/ukxi/2009/2264/contents/made>

⁴ <http://www.legislation.gov.uk/ukxi/2009/2264/schedule/1/made>

⁵ https://highwaysengland.citizenspace.com/he/a27-arundel-bypass/supporting_documents/S170141_A27%20Arundel%20Consultation_v2_spreads.pdf

⁶ <https://highwaysengland.citizenspace.com/he/a27-arundel-bypass/>

⁷ http://www.flac.uk.com/wp-content/uploads/2012/09/Table-1_flac.pdf

8.2 Assessment Methodology

Desk Study Methodology

As highlighted in the *Irreplaceable habitats including ancient woodland and veteran trees* section of the National Policy Statement National Networks (NPSNN):

Paragraph 5.32

“Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the national need for and benefits of the development, in that location, clearly outweigh the loss. Aged or veteran trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Where such trees would be affected by development proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons for this.”

Ancient woodlands and veteran trees are included in the list of protected species as highlighted on the Natural England website⁸. Ancient woodlands and veteran trees are irreplaceable and are considered important for their wildlife, soils, recreation, cultural value, history and contribution to the landscape. Therefore, Ancient Woodlands and veteran trees must be included in all future habitat and species surveys in relation to this DCO.

For consistency with your public consultation brochure, and in recognition that ancient woodlands and veteran trees are irreplaceable, the Forestry Commission recommends that ancient woodlands and veteran trees are regarded at the national threshold value in *Table 8-1: Criteria to be considered when identifying Valued Ecological Receptors*.

Consideration must also be given to mixed broadleaved woodland, wood-pastures and parkland⁹. Under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006¹⁰, these habitats “are of principal importance for the purpose of conserving biodiversity.” Therefore, these woodland habitats must also be included in all future habitat surveys to ensure adherence to the requirements of the NPSNN report as outlined below:

Paragraph 5.25

“As a general principle, and subject to the specific policies below, development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. The applicant may also wish to make use of biodiversity offsetting in devising compensation proposals to counteract any impacts on biodiversity which cannot be avoided or mitigated. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought.”

⁸ <https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications>

⁹ <http://jncc.defra.gov.uk/page-1437>

¹⁰ <http://www.legislation.gov.uk/ukpga/2006/16/section/41>

8.4 Baseline Conditions

Designated Sites

As highlighted in the Natural Environment section of the National Planning Practice Guidance (NPPG) under Biodiversity and ecosystems¹¹:

“Both Ancient Semi-Natural Woodland (ASNW) as well as Plantations on Ancient Woodland Sites (PAWS) are ancient woodland. Both types should be treated equally in terms of the protection afforded to ancient woodland in the National Planning Policy Framework.”

All ASNW, PAWS and ancient woodland areas should be included in the study area to:

- ensure these areas are treated equally in terms of protection afforded to ancient woodlands; and,
- to secure the future of one of the most diverse ecosystems in perpetuity.

As outlined in the NPPG, this will ensure these irreplaceable habitats continue to provide local ecological networks important for securing and enhancing ecosystem services including biodiversity, and for holding nature conservation value of the area.

The Forestry Commission recommends that veteran trees, ancient woodlands (including ASNW and PAWS sites) and all woodland habitats recognised as a habitat of principal importance under Section 41 of the NERC Act 2006 are included in all survey work and study reports, clearly highlighting their status in *Table 8-2: Statutory and non-Statutory Designated Sites* under the column *Key Habitat Type*.

Phase 1 Habitat Survey

This section of the report, and *Table 8-3: Phase 1 Habitat types within each scheme option* (✓ = *habitat present*) outlines the relationship between different habitat types and the various scheme options. In line with the NPPG, the Forestry Commission recommends that this table clearly defines the ancient woodland sites, to include ASNW and PAWS sites to ensure that a thorough assessment will acknowledge the impacts on any potential losses of an irreplaceable habitat.

Due to the nature of ancient woodlands and veteran trees being an irreplaceable habitat, the Forestry Commission recommends that every effort is afforded to avoid this scheme affecting ancient woodlands or veteran trees. The Planning Inspectorate and developer should start by looking for ways to avoid the development affecting ancient woodland or veteran trees e.g. by redesigning the scheme in line with the recommendations outlined in BS 5837:2012¹². It is not possible to fully compensate for the loss or damage to ancient woodlands, thus compromising Highways England’s aim to achieve no net loss of biodiversity by 2020 as set out in their strategy document: ‘Our plan to protect and increase biodiversity’ (Highways England 2015).

¹¹ <https://www.gov.uk/guidance/natural-environment>

¹² <https://shop.bsigroup.com/ProductDetail/?pid=00000000030213642>

8.5 Regulatory and Policy Framework

The Forestry Commission considers the relevant paragraphs and guidance notes outlined in the appendices with respect to considering biodiversity in planning decisions as being pertinent to any DCO and should be included in a report prepared for considerations.

In addition to the regulatory and policy framework outlined in the Report, the Forestry Commission considers the relevant documents and guidance notes outlined below as being pertinent to this DCO in relation to ancient woodland and veteran trees and should also be included in the report considerations.

[The UK Forestry Standard](#) (4th edition published August 2017).

[National Planning Practice Guidance](#) – Natural Environment Guidance (Published January 2016)

[Our plan to protect and increase biodiversity](#) – Highways England biodiversity plan (Published June 2015)

[Standing Advice for Ancient Woodland and Veteran Trees](#) (Published April 2014)

[Government Forestry and Woodlands Policy Statement](#) (Published January 2013)

[Natural Environment White Paper “The Natural Choice”](#) (published June 2011)

[Biodiversity 2020: a strategy for England’s wildlife and ecosystem services](#) (published August 2011).

[Keepers of Time](#) – A Statement of Policy for England’s Ancient and Native Woodland (published June 2005).

[A Habitats Translocation Policy for Britain](#) – (published July 2003)

8.6 Design, Mitigation and Enhancement Measures, including Monitoring Requirements

This section of the Report outlines broad recommendations of likely mitigation requirements which are based on a preliminary impact assessment which includes options to ameliorate or reduce an adverse impact where this cannot be avoided.

Ancient Woodlands

AWAW Table 8-4: Likely loss of Ancient Woodland associated with each option clearly states the number of hectares of Ancient Woodland that is likely to be lost with each scheme option. The Forestry Commission would recommend that this table includes a column to include the number of veteran trees that are likely to be lost with each scheme option. This will ensure the requirement outlined in Paragraph 5.32 of the NPSNN as outline above is met.

The Forestry Commission acknowledge that the Report has recognised that “The preferred Scheme Option should be designed to avoid any adverse impacts on Ancient Woodland given that this habitat is irreplaceable and therefore losses cannot be

compensated for.” (Paragraph 8.6.4) If the final Scheme Option results in the loss of Ancient Woodland, the report proposes that this would be partially compensated for through “soils, dead wood and coppice stools will be salvaged and translocated to new broad-leaved woodland creation areas.” As highlighted in the Joint Nature Conservation Committee (JNCC) Habitat Translocation Policy document¹³:

“Available information shows that it is not possible to move species assemblages without substantial changes taking place in the structure of the habitat and its species composition, thus rendering the translocation unsuccessful.”

Through a literature review of case studies to address environmental impacts of linear transport infrastructure on protected species and habitats, Edition 3 of the Natural England Commissioned Report (NERC 132)¹⁴ reiterates the message that “translocation of ancient woodland soils and coppiced stools does not imply that these methods mitigate the loss of ancient woodland.” and that “the measure should not be interpreted as a successful means of mitigating the fragmentation of ancient woodland; a resource which cannot be re-created through tree planting or habitat translocation due to its complex structure and wider-ranging biodiversity.”

In assessing these schemes, if the Planning Inspectorate decides to grant planning permission in line with the National Planning Policy Framework, it should seek appropriate compensation from the developer. As the government experts on forestry & woodland and a statutory consultee (as defined by Schedule 1 of The Infrastructure Planning (Applications: Prescribed Forms And Procedures) Regulations 2009) for major infrastructure (Nationally Significant Infrastructure Projects (NSIPs)), the Forestry Commission would welcome the opportunity to discuss with the developer options for addressing issues with regard to the A27 Arundel Bypass scheme.

The Planning Inspectorate should use planning conditions or obligations to secure compensation measures and subsequent ecological monitoring. The joint Standing Advice, prepared by Forestry Commission and Natural England, provides advice and the assessment tools to be used when assessing the impacts of all options for the A27 Arundel bypass scheme.

Conclusion:

From the information supplied, of the options presented in the ESR, we advise that in respect of woodland and irreplaceable ancient woodland ecosystems*:

- Options 0A and 5B have minimal impact on woodlands and results in no net loss of Ancient Woodlands. Therefore, these would be the preferred options to be considered for avoiding the loss of an irreplaceable habitat.
- Options 5, 5A, and to a lesser extent, options 0BA and 4 all result in woodland loss and / or fragmentation.
- Option 3 (and to a lesser extent, Option 2) has the greatest adverse impact through:
 - o Direct loss of over 24 ha Ancient Woodlands (14 ha for Option 2), and
 - o Fragmentation of the large ecological block of Binsted Wood.

(*Note: in the absence of a map showing the location of veteran trees, our assessment cannot include comments on the impacts that may be afforded with each of the options outlined above.)

¹³ http://jncc.defra.gov.uk/pdf/habitats_policy.pdf

¹⁴ <http://publications.naturalengland.org.uk/publication/6184646404472832>

For all the schemes outlined above, the cost of compensation for loss of irreplaceable and principally important habitats must be included in the test of public benefit to demonstrate accurately that “the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm” as outlined in bullet point 6.5.8 of the ESR.

For the loss of any woodland, the Forestry Commission would ask:

1. To explore with you how this loss could be further reduced;
2. How best to target the creation of new woodland to compensate for the loss of trees and woodlands;
3. To explore options to re-establish ecological linkages through the use of “green-bridges” between Binsted and Rewell Woods (as successfully used over the A21 at Scotney Castle in Kent); and
4. That Highways England engages with the Forestry Commission at the earliest opportunity so that our expertise can be used to support the development of options and design of the chosen way forwards.

Outlined above are the key areas of information would be required in order to allow the Developer to proceed with an Option with least detrimental impact to the surrounding environment, and the Examining Authority properly to undertake its task or where further work is required to determine the effects of the project and/or to flesh out compensation proposals to provide a sufficient degree of confidence as to their efficacy.

Forestry Commission’s headline points are that on the basis of the information submitted, if approved, the project must be subject to all necessary and appropriate requirements which ensure that unacceptable environmental impacts either do not occur or are sufficiently compensated, as proposed in the proposed Code of Construction Practice.

If you disagree with our recommendations for the above schemes, then please consult the Forestry Commission.

Yours sincerely,



Forestry Commission - South East & London
Bucks Horn Oak
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Appendix 1: National Policy Statement for National Networks 2014

The National Networks National Policy Statement (NN NPS), hereafter referred to as 'NPS', sets out the need for, and Government's policies to deliver, development of nationally significant infrastructure projects (NSIPs) on the national road and rail networks in England. It provides planning guidance for promoters of nationally significant infrastructure projects on the road and rail networks, and the basis for the examination by the Examining Authority and decisions by the Secretary of State.

Chapter 1: Introduction

Purpose and scope

1.2 The Secretary of State will use this NPS as the primary basis for making decisions on development consent applications for national networks nationally significant infrastructure projects in England. Other NPSs may also be relevant to decisions on national networks nationally significant infrastructure projects. Under section 104 of the Planning Act the Secretary of State must decide an application for a national networks nationally significant infrastructure project in accordance with this NPS unless he/she is satisfied that to do so would:

- *lead to the UK being in breach of its international obligations;*
- *be unlawful;*
- *lead to the Secretary of State being in breach of any duty imposed by or under any legislation;*
- *result in adverse impacts of the development outweighing its benefits;*
- *be contrary to legislation about how the decisions are to be taken*

1.3 Where a development does not meet the current requirements for a nationally significant infrastructure project set out in the Planning Act (as amended by the Threshold Order), but is considered to be nationally significant, there is a power in the Planning Act for the Secretary of State, on application, to direct that a development should be treated as a nationally significant infrastructure project. In these circumstances any application for development consent would need to be considered in accordance with this NPS. The relevant development plan is also likely to be an important and relevant matter especially in respect of establishing the need for the development.

Consistency of NPS with the National Planning Policy Framework

1.17 The overall strategic aims of the National Planning Policy Framework (NPPF) and the NPS are consistent, however, the two have differing but equally important roles to play.

1.18 The NPPF provides a framework upon which local authorities can construct local plans to bring forward developments, and the NPPF would be a material consideration in planning decisions for such developments under the Town and Country Planning Act 1990. An important function of the NPPF is to embed the principles of sustainable development within local plans prepared under it. The NPPF is also likely to be an important and relevant consideration in decisions on nationally significant infrastructure projects, but only to the extent relevant to that project.

1.19 However, the NPPF makes clear that it is not intended to contain specific policies for NSIPs where quite particular considerations can apply. The National Networks NPS will assume that function and provide transport policy which will guide individual development brought under it.

1.20 In addition, the NPS provides guidance and imposes requirements on matters such as good scheme design, as well as the treatment of environmental impacts. So, both documents seek to achieve sustainable development and recognise that different approaches and measures will be necessary to achieve this.

Chapter 2: The need for development of the national networks and Government's policy

Summary of needs

2.9 Broader environment, safety and accessibility goals will also generate requirements for development. In particular, development will be needed to address safety problems, enhance the environment or enhance accessibility for non-motorised users. In their current state, development, the national networks will act as a constraint to sustainable economic growth, quality of life and wider environmental objectives.

The need for development of the national road Network

2.16 Traffic congestion constrains the economy and impacts negatively on quality of life by:

- *constraining existing economic activity as well as economic growth, by increasing costs to businesses, damaging their competitiveness and making it harder for them to access export markets. Businesses regularly consider access to good roads and other transport connections as key criteria in making decisions about where to locate.*
- *leading to a marked deterioration in the experience of road users. For some, particularly those with time-pressured journeys, congestion can cause frustration and stress, as well as inconvenience, reducing quality of life.*
- *constraining job opportunities as workers have more difficulty accessing labour markets.*
- *causing more environmental problems, with more emissions per vehicle and greater problems of blight and intrusion for people nearby. **This is especially true where traffic is routed through small communities or sensitive environmental areas.***

Chapter 3: Wider Government policy on the national networks

Environment and social impacts

3.2 The Government recognises that for development of the national road and rail networks to be sustainable these should be designed to minimise social and environmental impacts and improve quality of life.

3.3 In delivering new schemes, the Government expects applicants to avoid and mitigate environmental and social impacts in line with the principles set out in the NPPF and the Government's planning guidance. Applicants should also provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes. The Government's detailed

policy on environmental mitigations for developments is set out in Chapter 5 of this document.

- 3.5** Outside the nationally significant infrastructure project regime, Government policy is to bring forward targeted works to address existing environmental problems on the Strategic Road Network and improve the performance of the network. This includes reconnecting habitats and ecosystems, enhancing the settings of historic and cultural heritage features, respecting and enhancing landscape character, improving water quality and reducing flood risk, avoiding significant adverse impacts from noise and vibration and addressing areas of poor air quality.

Chapter 4: Assessment principles

- 4.3** In considering any proposed development, and in particular, when weighing its adverse impacts against its benefits, the Examining Authority and the Secretary of State should take into account:
- *its potential benefits, including the facilitation of economic development, including job creation, housing and environmental improvement, and any long-term or wider benefits;*
 - *its potential adverse impacts, including any longer-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.*
- 4.4** In this context, environmental, safety, social and economic benefits and adverse impacts, should be considered at national, regional and local levels. These may be identified in this NPS, or elsewhere.
- 4.5** Applications for road and rail projects (with the exception of those for SRFIs, for which the position is covered in paragraph 4.8 below) will normally be supported by a business case prepared in accordance with Treasury Green Book principles. This business case provides the basis for investment decisions on road and rail projects. The business case will normally be developed based on the Department's Transport Business Case guidance and WebTAG guidance. The economic case prepared for a transport business case will assess the economic, environmental and social impacts of a development. The information provided will be proportionate to the development. This information will be important for the Examining Authority and the Secretary of State's consideration of the adverse impacts and benefits of a proposed development. It is expected that NSIP schemes brought forward through the development consent order process by virtue of Section 35 of the Planning Act 2008, should also meet this requirement.

Environmental Impact Assessment

- 4.15** All proposals for projects that are subject to the European Union's Environmental Impact Assessment Directive⁵² and are likely to have significant effects on the environment, must be accompanied by an environmental statement (ES), describing the aspects of the environment likely to be significantly affected by the project. The Directive specifically requires an environmental impact assessment to identify, describe and assess effects on human beings,⁵⁴ fauna and flora, soil, water, air, climate, the landscape, material assets and cultural heritage, and the interaction between them. Schedule 4 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 sets out the information that should be included in the environmental statement including a description of

the likely significant effects of the proposed project on the environment, covering the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project, and also the measures envisaged for avoiding or mitigating significant adverse effects. Further guidance can be found in the online planning portal. When examining a proposal, the Examining Authority should ensure that likely significant effects at all stages of the project have been adequately assessed. Any requests for environmental information not included in the original environmental statement should be proportionate and focus only on significant effects. In this NPS, the terms 'effects', 'impacts' or 'benefits' should accordingly be understood to mean likely significant effects, impacts or benefits.

Habitats Regulations Assessment

4.25 Where a development may negatively affect any priority habitat or species on a site for which they are a protected feature, any Imperative Reasons of Overriding Public Interest (IROPI) case would need to be established solely on one or more of the grounds relating to human health, public safety or beneficial consequences of primary importance to the environment.

Alternatives

4.26 Applicants should comply with all legal requirements and any policy requirements set out in this NPS on the assessment of alternatives. In particular:

- *The EIA Directive requires projects with significant environmental effects to include an outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects.*
- *There may also be other specific legal requirements for the consideration of alternatives, for example, under the Habitats and Water Framework Directives.*
- *There may also be policy requirements in this NPS, for example the flood risk sequential test and the assessment of alternatives for developments in National Parks, the Broads and Areas of Outstanding Natural Beauty (AONB).*

Criteria for "good design" for national network infrastructure

4.34 Whilst the applicant may only have limited choice in the physical appearance of some national networks infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting and design measures relative to existing landscape and historical character and function, landscape permeability, landform and vegetation.

Climate change adaptation

4.37 This section sets out how the NPS puts Government policy on climate change adaptation into practice, and in particular how applicants and the Secretary of State should take the effects of climate change into account when developing and consenting infrastructure. Climate change mitigation is essential to minimise the most dangerous impacts of climate change, as previous global greenhouse gas emissions have already committed us to some degree of continued climate change for at least the next 30 years. Climate change is likely to mean that the UK will experience hotter, drier summers and warmer, wetter winters. There is an increased risk of flooding, drought, heatwaves, intense rainfall events and other extreme events such as storms and wildfires, as well as rising sea levels.

- 4.38** Adaptation is therefore necessary to deal with the potential impacts of these changes that are already happening. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the provision of green infrastructure.
- 4.40** New national networks infrastructure will be typically long-term investments which will need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the impacts of climate change when planning location, design, build and operation. Any accompanying environment statement should set out how the proposal will take account of the projected impacts of climate change.

Chapter 5. Generic impacts

Overview

- 5.2** Sufficient relevant information is crucial to good decision-taking, particularly where formal assessments are required (such as Environmental Impact Assessment, Habitats Regulations Assessment and Flood Risk Assessment). To avoid delay, applicants should discuss what information is needed with statutory environmental bodies as early as possible.

Biodiversity and ecological conservation

- 5.20** Biodiversity is the variety of life in all its forms and encompasses all species of plants and animals and the complex ecosystems of which they are a part. Government policy for the natural environment is set out in the *Natural Environment White Paper* (NEWP). The NEWP sets out a vision of moving progressively from net biodiversity loss to net gain, by supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks that are more resilient to current and future pressures. Geological conservation relates to the sites that are designated for their geology and/or their geomorphological importance.
- 5.22** Where the project is subject to EIA the applicant should ensure that the environmental statement clearly sets out any likely significant effects on internationally, nationally and locally designated sites of ecological or geological conservation importance (including those outside England) on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity and that the statement considers the full range of potential impacts on ecosystems.
- 5.23** The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.
- 5.24** The Government's biodiversity strategy is set out in *Biodiversity 2020: A Strategy for England's wildlife and ecosystem services*. Its aim is to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people. This aim needs to be viewed in the context of the challenge of climate change: failure to address this challenge will result in significant impact on biodiversity.

5.25 As a general principle, and subject to the specific policies below, development should avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. The applicant may also wish to make use of biodiversity offsetting in devising compensation proposals to counteract any impacts on biodiversity which cannot be avoided or mitigated. Where significant harm cannot be avoided or mitigated, as a last resort, appropriate compensation measures should be sought.

5.26 In taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national and local importance, protected species, habitats and other species of principal importance for the conservation of biodiversity, and to biodiversity and geological interests within the wider environment.

5.32 Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. **Once lost it cannot be recreated. The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of aged or veteran trees found outside ancient woodland**, unless the national need for and benefits of the development, in that location, clearly outweigh the loss. Aged or veteran trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Where such trees would be affected by development proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons for this.

5.33 Development proposals potentially provide many opportunities for building in beneficial biodiversity or geological features as part of good design.⁸⁰ When considering proposals, the Secretary of State should consider whether the applicant has maximised such opportunities in and around developments. The Secretary of State may use requirements or planning obligations where appropriate in order to ensure that such beneficial features are delivered.

5.36 Applicants should include appropriate mitigation measures as an integral part of their proposed development, including identifying where and how these will be secured. In particular, the applicant should demonstrate that:

- *during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works;*
- *during construction and operation, best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised (including as a consequence of transport access arrangements);*
- *habitats will, where practicable, be restored after construction works have finished;*
- *developments will be designed and landscaped to provide green corridors and minimise habitat fragmentation where reasonable;*
- *opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals, for example through techniques such as the 'greening' of existing network crossing points, the use of green bridges and the habitat improvement of the network verge.*

Appendix 2: National Planning Policy Framework 2012

The National Planning Policy Framework (NPPF) set out the Government's planning policies for England and how these are expected to be applied by Local Authorities within their Local Development Frameworks (LDF).

Achieving Sustainable Development:

Chapter 11: Conserving and enhancing the natural environment

109 *The planning system should contribute to and enhance the natural and local environment by:*

- *Protecting and enhancing valued landscapes, geological conservation interests and soils;*
- *Recognising the wider benefits of ecosystem services; and*
- *Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.*

114 *Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.*

117 *Local planning authorities should set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure. To minimise impacts on biodiversity and geodiversity, planning policies should:*

- *Plan for biodiversity at a landscape-scale across local authority boundaries; identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them and areas identified by local partnerships for habitat restoration or creation;*
- *Promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan; and, _ Aim to prevent harm to geological conservation interests; and where Nature Improvement Areas are identified in Local Plans, consider specifying the types of development that may be appropriate in these Areas.*

118 *When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*

- *If significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.*
- *Proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments)*

should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly

- *outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;*
- *Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- *Opportunities to incorporate biodiversity in and around developments should be encouraged; and,*
- ***Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and.***
- *the following wildlife sites should be given the same protection as European sites:*
 - *potential Special Protection Areas and possible Special Areas of Conservation;*
 - *listed or proposed Ramsar sites; and*
 - *sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

119 *The presumption in favour of sustainable development (paragraph 14) does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined.*

Plan-making

Local Plans

157. *Crucially, Local Plans should:*

- *plan positively for the development and infrastructure required in the area to meet the objectives, principles and policies of this Framework;*
- *be drawn up over an appropriate time scale, preferably a 15-year time horizon, take account of longer term requirements, and be kept up to date;*
- *be based on co-operation with neighbouring authorities, public, voluntary and private sector organisations;*
- *indicate broad locations for strategic development on a key diagram and land-use designations on a proposals map;*
- *allocate sites to promote development and flexible use of land, bringing forward new land where necessary, and provide detail on form, scale, access and quantum of development where appropriate;*
- *identify areas where it may be necessary to limit freedom to change the uses of buildings, and support such restrictions with a clear explanation;*
- *identify land where development would be inappropriate, for instance because of its environmental or historic significance; and*
- *contain a clear strategy for enhancing the natural, built and historic environment, and supporting Nature Improvement Areas where they have been identified.*

Environment

165. *Planning policies and decisions should be based on up-to-date information about the natural environment and other characteristics of the area including drawing, for example, from River Basin Management Plans. Working with Local Nature Partnerships where appropriate, this should include an assessment of existing and potential components of ecological networks. A sustainability appraisal which meets the requirements of the European Directive on strategic environmental assessment should be an integral part of the plan preparation process, and should consider all the likely significant effects on the environment, economic and social factors.*

Appendix 2: National Planning Practice Guidance

As highlighted in the Natural Environment section of the NPPG under Biodiversity and ecosystems, the Forestry Commission consider the following sections to be relevant:

What are local ecological networks and what evidence should be taken into account in identifying and mapping them?

The components of an ecological network are explained at section 2.12 of the Natural environment white paper¹⁵.

Relevant evidence in identifying and mapping local ecological networks includes:

- *the broad geological, geomorphological and bio-geographical character of the area, creating its main landscapes types;*
- *key natural systems and processes within the area, including fluvial and coastal;*
- *the location and extent of internationally, nationally and locally designated sites;*
- *the distribution of protected and priority habitats and species¹⁶;*
- *areas of irreplaceable natural habitat¹⁷, such as ancient woodland or limestone pavement, the significance of which may be derived from habitat age, uniqueness, species diversity and/or the impossibilities of re-creation;*
- *habitats where specific land management practices are required for their conservation;*
- *main landscape features which, due to their linear or continuous nature, are important for the migration, dispersal and genetic exchanges of plants and animals, including any potential for new habitat corridors to link any isolated sites that hold nature conservation value, and therefore improve species dispersal;*
- *areas with potential for habitat enhancement or restoration, including those necessary to help biodiversity adapt to climate change or which could assist with the habitats shifts and species migrations arising from climate change;*
- *an audit of green space within built areas and where new development is proposed;*
- *information on the biodiversity and geodiversity value of previously developed sites and the opportunities for incorporating this in developments; and*
- *areas of geological value which would benefit from enhancement and management.*

How are ecosystems services taken into account in planning?

The National Planning Policy Framework states that the planning system should recognise the wider benefits of ecosystem services. Information about ecosystem services is in Biodiversity 2020: A strategy for England's biodiversity and ecosystem services¹⁸. An Introductory guide to valuing ecosystem services¹⁹ has also been published by Defra along with a practice guide, which could, where appropriate, inform plan-making and decision-taking on planning applications. The National pollinator strategy: for bees and other pollinators in England²⁰ is a 10 year plan to protect

¹⁵ <https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature>

¹⁶ <https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications>

¹⁷ <https://www.gov.uk/guidance/protected-sites-and-areas-how-to-review-planning-applications>

¹⁸ <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>

¹⁹ <https://www.gov.uk/government/publications/an-introductory-guide-to-valuing-ecosystem-services>

²⁰ <https://www.gov.uk/government/publications/national-pollinator-strategy-for-bees-and-other-pollinators-in-england>

pollinating insects which support our food production and the diversity of our environment.

(Relevant to NPPF paragraph 109)

How can I find out whether an area is 'ancient woodland'?

A starting point to establish whether an area is ancient woodland is to look at the relevant ancient woodland inventory. These inventories comprise county maps of sites (generally greater than 2 hectares) that are thought to have been continuously wooded since 1600 AD. The national inventory²¹ is published and updated by Natural England. Both Ancient Semi-Natural Woodland (ASNW) as well as Plantations on Ancient Woodland Sites (PAWS) are ancient woodland. Both types should be treated equally in terms of the protection afforded to ancient woodland in the National Planning Policy Framework.²²

How can I find out whether trees that could be affected by a development proposal are 'aged or veteran' trees?

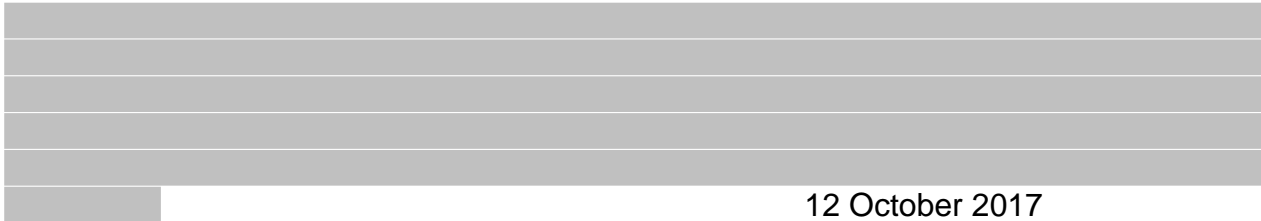
Guidance on the features and importance of veteran trees²³ is provided by Natural England. Local Records Centres and other organisations with an interest in trees may be able to advise on the location of known veteran trees.

(Relevant to NPPF paragraph 118)

²¹ http://www.gis.naturalengland.org.uk/pubs/gis/tech_aw.htm

²² <https://www.gov.uk/guidance/natural-environment#biodiversity-and-ecosystems>

²³ <http://publications.naturalengland.org.uk/publication/75035>



12 October 2017



Pre-application Advice

A27 IMPROVEMENTS NEAR ARUNDEL, WEST SUSSEX

Historic England has offers the following comments in response to your public consultation about the proposed options to improve the A27 at Arundel.

Summary

All three route options are likely to be harmful to heritage assets, some of which are of national importance. The environmental assessment reports are useful in highlighting the potential scale of impacts but do not provide sufficient information to discriminate very effectively between the route options. Therefore, we recommend that further heritage assessment should be undertaken so that the likely harm of each option can be identified. However, on the basis of the limited information that we have seen Option 1 seems likely to be the least harmful.

Advice

Significance

Arundel lies adjacent to the gap in the South Downs through which the river Arun flows. It is situated at the end of a downland spur that projects into the floodplain. To the south of the town the alluvial plain might have once been a sea inlet and later a marshy estuary. Important Palaeolithic deposits have been discovered in the Brighton-Norton raised beach cliff line, river terrace and alluvial deposits; and early Holocene pollen evidence has been discovered in peats of the Arun valley. Numerous Later Prehistoric and Romano British remains have been found on the South Coast Plain and foot of the downland dip slope, such as at Gobblestubs Copse and Binsted, and further afield at Bersted and Medmerry. The recent analysis of LIDAR survey revealed remains of the Chichester to Arundel Roman Road and an element of the Iron Age Chichester Entrenchments in Binsted Woods, and a potential Anglo Saxon Moot Mound at Hundred House Copse.



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The Arun is thought to have been navigable to the town, and further upriver, during the medieval period. Below the town, reclamation for agriculture and industry probably occurred by the late eleventh- or early twelfth-century and might have left earthworks, salterns and other remains. Arundel Castle was intended to be an impressive focal point within the wider landscape and the most dominant building for miles around. Tortington Priory was intended to be both a spiritual enclosure and the centre of an agricultural estate and so might be expected to have outlying features and contextual and visual relationships with the surrounding landscape. A medieval moated site to the south of Tortington Priory, next to the river, has been excavated.

Other historic buildings, which lie in close proximity to the route options, may also derive part of their heritage significance from their settings, such as:

- o A heavy Anti-aircraft battery at Dunford Farm, south of Arundel station.
- o A type SR signal box south of Arundel station.
- o Meadow Lodge (a grade II Listed Building), Binsted Lane.
- o Morleys Croft (a grade II Listed Building), Binsted Lane.
- o The Church of St Mary, Binsted (grade II)
- o The Royal Oak Inn (grade II), Yapton Lane. Walberton.
- o The Avisford Park Hotel (grade II) and Lodge (grade II), Walberton.
- o Walberton Conservation Area.

Impact

Impacts on archaeological remains might arise from excavation for the road corridor, foundations for bridges, ground stabilisation for embankments, and associated features such as balancing ponds, mitigation works, haulage routes and works compounds. All route options have the potential to affect known and hitherto unknown archaeological, palaeo-environmental and geo-archaeological remains, which might be of great importance. The settings of historic areas and buildings are also likely to be harmed by the presence of a new road, cuttings, embankments and associated features. Proximity to heritage assets will cause harm to visual amenity and tranquillity, and the presence in longer views will undermine appreciation of them and diminish their wider settings, which may be important aspects of their heritage significance.

Option 1 seems likely to be the least harmful to heritage significance because simply because it requires less new land take and would probably intrude less into views of the historic buildings of the town. We cannot be more specific without having more information of likely archaeological remains and the nature and degree of impacts on archaeological remains and historic buildings and areas.

It seems likely that route options 3 and 5A would cause considerable harm the setting of Tortington Priory scheduled monument because of their proximity and elevation on an embankment and bridges over Ford Road and the river. The options are also likely



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to harm the setting of Arundel Castle, Arundel Cathedral, other listed buildings in the town and the Conservation Area as a result of the presence of a new road and bridges in views to and from the town. These two options would also involve much longer off-line routes, including substantial lengths of new embankments to the west of the Ford Road and large new junctions with the existing A27, which are likely to cause considerable harm to known and hitherto undiscovered archaeological remains and the settings of historic buildings and areas.

Position

The Environmental Appraisal Summary in the brochure and the Stage 1 Environmental Study Report are useful in highlighting the potential scale of impacts but a range of effects between slight and major for all options does not provide sufficient information to discriminate very effectively between the route options. Therefore, we wish to see the results of heritage surveys and assessments that have already been done, and recommend further assessment work is undertaken, before we express a clear preference for a particular option. However, on the basis of the limited information that we have seen, Option 1 seems likely to be the least harmful.

We appreciate that some heritage assessment will not be possible until access to land is available; however we recommend more assessment is undertaken to inform the choice of a preferred route option, including the following where possible:

- Desk-based assessment
- Archaeological investigations comprising LIDAR survey, walk-over and surface collection survey, building surveys, earthwork surveys, geophysical survey and trial trenching, geo-archaeological survey, palaeo-environmental survey, monitoring of geo-technical test pits,
- Assessment of landscape development and production of a deposit model.
- Assessment of the settings of heritage assets in accordance with *Historic England Good Practice in Planning Note 3* (in addition to any Landscape and Visual Impact Assessment).
- Assessment of historic landscape character.
- Visual representations (photomontages) of the effects on designated and non-designated heritage assets and historic landscape character

We would be pleased to advise further about the appropriate scope and methodology of such fieldwork, although the South Downs National Park and West Sussex County Council heritage conservation advisors will be your principal advisors about undesignated archaeological remains, listed buildings, conservation areas and historic landscape character, and will help you to develop appropriate schemes of assessment and mitigation.



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Next Steps

Thank you for involving us at the pre-application stage. Your scheme may benefit from our continued engagement; if so, we would welcome the opportunity to continue discussions through our Extended Pre-application service, which is charged on a cost-recovery basis. Details can be found on our website at www.HistoricEngland.org.uk/EAS. If you would like to discuss this option further, please do contact me.

Yours sincerely

[Redacted signature block]

List of information on which the above advice is based

Consultation brochure
Environmental Study Report (Stage 1)



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MAVES

The Mid Arun Valley 2015 - 2017

A27 Arundel bypass

Road Options 1, 3 and 5A

Ecological Impact Report

(using current data)



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EXECUTIVE SUMMARY

- The A27 Arundel Improvements Scheme with the finalisation of the routes for the three 'Options', was first made public by Highways England, on their website at the commencement of the Public Consultation on 22nd August 2017.
- The ecological desk study data used to develop and present an assessment of the Options did not include MAVES' 2015-17 data as to what has actually been found in this previously under-surveyed area. This led to many significant omissions and errors of fact and judgement in the Preliminary Ecological Appraisal used for the Consultation.
- This report has been written on behalf of MAVES (Mid Arun Valley Environmental Survey) in order to assess the ecological impact of the three Options including impacts, which would not have been known to Highways England from earlier data.
- The aim of this report is to appraise the potential impacts of the three Options using the most recent data only, which has been collated over the past two years.

The Mid Arun Valley

- The Mid Arun Valley supports fourteen Section 41 Habitats of Principal Importance for the conservation of biodiversity.
- The Mid Arun Valley supports bats, Badger, birds, Dormice, Adder, Grass Snake, Slow Worm, Common Lizard and Water Vole all of which receive legal protection. It supports Brown Hare, European Eel, European Hedgehog, Common Toad and Harvest Mouse, all of which are Section 41 Species of Principal Importance for the conservation of biodiversity.
- With the exception of Badger, which is widespread and common, the populations are considered to be of Regional Importance. Some populations, such as bats, invertebrates and birds may even reach National Importance with further surveys.
- The Mid Arun Valley supports high populations of newts and may support Great Crested Newt, though this species been recorded. It has areas of suitable habitat for breeding Otter, again not recorded.
- All three Options cut through significant areas of the South Downs National Park, though Options 3 and 5A will result in large areas of unspoilt National Park landscape being taken whereas there is already a road cutting through with Option 1.

Option 5A Section 41 habitat impacts - woodland, hedgerows & veteran trees

- The major junction at the western end of the woodland will impact upon an area of ancient woodland comprising a wet woodland mosaic with chalk springs and seepages. This S41 Habitat of Principal Importance is not replaceable with woodland planting. This is not included in the loss of ancient woodland figures.

- The major junction at the western end of the woodland will leave two isolated fragments of woodland. One will be 'sandwiched' between two major carriageways and is likely to degrade over time and lose many species. This is not included in the loss of ancient woodland figures.
- Option 5A will sever the unusual 'W' pattern of woodland at the southern edge of the South Downs National Park. This comprises areas of Section 41 Habitats such as wet woodland, ponds and notable / veteran trees, much of which is irreplaceable.
- Option 5A will sever eleven habitat corridors radiating from the Binsted Woods Complex on the west side of the Arun. Three of these corridors are ancient shaws with streams. Eight of these corridors are hedgerows of which three are likely to be 'important' under the 1997 Hedgerow Regulations. One supports over 100 species of ground flora. Hedgerows such as this are irreplaceable.
- Option 5A will destroy a high number of notable and veteran trees found in areas of woodland in the National Park and tree-lines and ancient shaws. This S41 Habitat cannot be replaced in a lifetime.

Option 5A Section 41 habitat impacts – chalk streams, watercourses, ponds & lowland fen

- Option 5A would disrupt the network of watercourses / ditches that drain the higher land of the Binsted Woods Complex. Some of these watercourses originate in the chalk bedrock draining the South Downs, and two are chalk streams. These are Section 41 Habitats and are irreplaceable.
- The major junction planned at the western end of Option 5A is on the stream / seepage system of the largest chalk stream. This would break the geological situation where saturated gravels carry water from the South Downs.
- This would have impacts on the Binsted Rife Valley which supports uncommon lowland fen and swamp communities which are S41 Habitats, and rare plants such as Blunt-flowered Rush, Fen Bedstraw and Whorl-grass which are all scarce in the county. The Red Data Book Frogbit (listed as Vulnerable) is also in Binsted rife (and Tortington Rife).
- Protected species such as Water Vole and Grass Snake and uncommon birds such as Snipe (Amber List), bats and Nationally Scarce invertebrates have all recently been recorded in this area.
- A second chalk stream originates at Sandy Hole Pond, which is likely fed from an underground spring. It flows through Lake Copse where there are ponds and ancient woodland with a high diversity of beetles (including one Red Data Book species and 8 Nationally Scarce / Notable species) of wet and dry woodland.
- The remaining streams feed into Tortington Rife and into a network of ditches and ponds throughout the area. Additionally, variations in geology / soil type in some areas has created a number of different habitats such as wet woodland, swamp and reedbed and marshy ground.
- Due to these features, some of these areas are unmanaged or seldom managed and therefore of importance to wildlife. Disruption of this system is likely to have a negative impact on Harvest Mice, Water Vole, invertebrates and breeding birds such as Marsh Tit (Red List) amongst many others.
- Many ponds are directly fed by the streams and ditches and so these may disappear with the destruction / disruption of the land drainage system.

Option 5A Section 41 habitat impacts – floodplain grassland, reedbed and river corridor

- The floodplain grazing marsh is part of a corridor from the coast and along the Arun into mid Sussex to areas such as Pulborough Brooks, Amberley Wildbrooks and Waltham Brooks. Option 5A will cause a direct loss of this habitat and present a barrier across the floodplain grassland and associated drainage ditches with ribbons of reedbed.
- Option 5A will result in a small amount of river corridor habitat being lost and possibly rare and uncommon plant species.

Option 5A Section 41 habitat impacts – overview

- A total of ten S41 habitats will be negatively impacted upon by Option 5A, of which five are irreplaceable and one (veteran trees) takes well over one hundred years to replace. It is considered that the entire Binsted Woods Complex is of National Importance and the entire system of seepages, springs, chalk streams, wet woodland, Binsted Rife Valley and spring-fed ponds is of County Importance. The integral landscape is irreplaceable.

Option 5A Protected species impacts – Badger and bats

- Option 5A will destroy one Badger sett and isolate another between two busy carriageways. It will form a barrier through two, possibly three Badger territories. The road will have a high adverse impact on this species. Only the western part of the area has been assessed for this species.
- Thirteen species of bat have been recorded in the Binsted Woods Complex, including the very rare Alcahoie bat and Bechstein's bats and Barbastelles, which are Annex II species. Option 5A would result in the loss of oak woodland in three areas which is important to foraging Bechstein's bats.
- Option 5A would form a barrier between Alcahoie maternity roosts which are in the main block of woodland and that to the west. It would sever flight lines between the main block of woodland and that to the west. It would form a barrier between the main block of woodland and the arms of woodland to the south.
- Option 5A will cut off commuting corridors for bats roosting within the Binsted Woods Complex and foraging elsewhere, and those that roost elsewhere and forage in and around the Binsted Woods Complex such as Serotines from Barnham.
- The bat population is of at least Regional and may prove to be of National Importance. Option 5A will have a high adverse impact on many bat species.

Option 5A Protected species impacts – birds

- Option 5A cuts through a major swan winter roosting site, comprising two fields adjacent to the River Arun, and supporting 200-300 birds each year for over 50 years.
- Option 5A is adjacent to four Barn Owl nesting sites in Binsted; it cuts through an ancient shaw with breeding nightingales; and the proposed bridge across the Arun is just to the north of a large area of reedbed that may support Bittern (Amber List) and Marsh Tit (Red List).
- The number and diversity of birds is such that the Mid Arun Valley populations, when considered as part of the green corridor through the county, may be of National Importance. Option 5A will have a

high adverse impact on groups of birds that are suffering the highest declines such as farmland and wetland species and those that are low-flying such as Barn Owl and swans.

Option 5A Protected species impacts – Dormice, reptiles & Water Vole

- The Binsted Woods Complex is part of the National Dormouse Monitoring Programme. Option 5A will destroy three areas of woodland known to support breeding Dormice. It will sever corridors that allow this species to disperse from a sizable breeding and important core population to smaller woodlands, copses, shaws and outgrown hedgerows within the Mid Arun Valley and beyond, thus impacting on population stability across the landscape.
- Although Option 5A will directly destroy some areas of reptile habitat, the worst impact will be on those that travel furthest, Grass Snake and Adder, because Option 5A will sever the habitat linkages particularly from prime woodland hibernation sites to foraging and breeding areas.
- A major barrier across this landscape is likely to result in high direct mortality and a gradual decrease in the population sizes of all four reptiles.

Option 5A impacts - UKBAP / S41 species

- Water Vole has been recorded at low densities in the area. Option 5A will create an additional road across the floodplain grassland and alter the hydrology of the watercourses to the north of the floodplain grassland. Wetland habitats in Sussex are at 'critical' and yet they are regularly being destroyed, damaged and fragmented by developments such as this.
- Water Vole will likely suffer a high adverse impact, and alteration of this habitat and the ability of this species to disperse effectively may well result in the loss of Water Vole from the Mid Arun Valley area.
- The Brown Hare is known to be across the farmland in the Binsted area and is likely to be across the entire Mid Arun Valley area. The adverse impact is expected to be high for this species has been shown to have high mortality rates on roads and may be lost from the area as a result of Option 5A.
- Option 5A is extremely close to and separates two major Common Toad ancestral breeding sites – the Madonna Pond and Tortington Rife. Option 5A will have a direct negative on Common Toad by dissecting the interconnected terrestrial and wetland habitat resulting in high fatalities. This is likely to have a high adverse impact on the Mid Arun Valley population of Common Toad.
- Hedgehogs have been recorded in the woodland and along footpaths. Option 5A is likely to have a high adverse impact on Hedgehogs which commonly travel up to 2 km per night foraging.
- A good population of Harvest Mouse has been found in a field to the south of Option 5A. There is suitable habitat throughout the area and this species has been recorded in the Binsted Woods Complex to the north of the proposed route of Option 5A. This will sever dispersal corridors and is likely to have a high adverse impact on this species.
- Mitigation measures such as green bridges and underpasses will not be effective and stem the flow of the loss of species from the area as a result of a major carriageway without barriers to prevent protected mammals, amphibians and reptiles crossing the road.

Option 5A impacts - invertebrates

- The mosaic of habitats and rare habitats such as wet woodland, veteran trees and wetland together with sheltered 'edge' habitats has resulted in a very high diversity of invertebrates. Two of the invertebrate surveys carried out demonstrate this. A general invertebrate survey found 551 species (including 28 Nationally Scarce species, three S41 species and 6 Red Data Book species). A survey of Lake Copse and 2 hedgerows found 230 beetle species including 10 Nationally Scarce species and 3 species new to Sussex.
- Twenty-seven species of butterfly are consistently recorded each year, which includes the Purple Emperor (IUCN Red List – Near Threatened), and Dingy Skipper and White Admiral, which are both Section 41 Species.
- The diversity of invertebrates is such that, with continued new findings, or surveys of the floodplain areas, it may be that the status is elevated to National Importance.
- Option 5A would have the highest adverse impact in areas of wet woodland with streams and seepages which have high numbers of notable invertebrates. It would also impact on the dead wood habitat that yielded a high number of saproxylic invertebrates, which is our rarest invertebrate group. These habitats are non-replaceable / non-replicable, or take hundreds of years to replace and therefore cannot be mitigated for.

Option 5A avoidance of western block of woodland

- The possibility of placing the western end of Option 5A between the two blocks of woodland would have a high negative impact on both woodlands, a chalk spring-fed pond and chalk stream, Dormice, commuting bats, Alcatloe bats commuting between nursery roosts, Hedgehogs and Badgers.
- This was considered in 1993 by the then Secretary of State to be unacceptable. It was reasoned that in time the Yapton Lane junction would be redesigned to be similar to that currently proposed, with its associated ecological harm. This would therefore ultimately lead to an escalation in long-term damage to the environment.

Option 3 Section 41 habitat impacts - woodland, hedgerows & veteran trees

- Option 3 would result in a significant loss of approximately 24 ha of diverse woodland. It would sever the stream network and the ancient trackway, Old Scotland Lane, which boasts a huge diversity of sedges and butterflies (including Red Data Book and UKBAP / S41 species) along its length.
- Option 3 would create a large amount of woodland 'edge' along the carriageway. This would not be the same quality as 'edge' habitat adjacent to fields, as it will be prone to dust and pollutants.
- Option 3 would sever five hedgerows to the west of the Arun, two of which serve as corridors from the woodland.
- It is likely that a number of important and irreplaceable veteran trees will be in the pathway of Option 3 as this traverses such a big and uninterrupted block of ancient woodland.

Option 3 Section 41 habitat impacts – watercourses & ponds

- Option 3 traverses 3 main watercourses that are possibly in part spring fed and drain the Binsted Woods Complex feeding through to the Madonna Pond and The Lag, Tortington Rife and a number of ponds in various locations in Tortington.
- Disruption of this system is likely to have a negative impact on species-rich wet fields, wet woodland, Common Toad, Harvest Mice, Water Vole, invertebrates and breeding birds such as Marsh Tit (Red List).
- Many of the ponds are directly fed by the streams and ditches and so these may disappear with the destruction / disruption of the land drainage system. The Madonna Pond is of particular importance as this appears to be a major breeding site for Common Toad (along with Tortington Rife).
- The ditch and pond network throughout a large section of the Mid Arun Valley could be lost fully / partially or subjected to differing water regimes. It is also likely to suffer from pollutants from the proposed road.

Option 3 Section 41 habitat impacts – floodplain grassland, reedbed and river corridor

- The floodplain grazing marsh is part of a corridor from the coast and along the Arun into mid Sussex to areas such as Pulborough Brooks, Amberley Wildbrooks and Waltham Brooks. Option 5A will cause a direct loss of this habitat and present a barrier across the floodplain grassland and associated drainage ditches with ribbons of reedbed.
- Option 3 will result in a small amount of river corridor habitat being lost and possibly rare and uncommon plant species.

Option 3 Section 41 habitat impacts – overview

- A total of eight S41 habitats will be negatively impacted upon by Option 3, of which three are irreplaceable and one (veteran trees) takes well over one hundred years to replace. It is considered that the entire Binsted Woods Complex is of National Importance and that the large amount of woodland loss and degradation is unacceptable.

Option 3 Protected species impacts – Badger and bats

- Option 3 will create a barrier to bat movement through the entire block of the Binsted Woods Complex and to the surrounding habitats from the isolated eastern end of the woodland.
- The severance of the woodland by a major road will reduce the foraging habitat for species that will not cross this barrier, thereby impacting upon the viability of the fragmented population. The greatest impact will be on Bechstein's bats (Annex II species). This species forages within mature native woodland, notably oak woodland, and is reluctant to leave an area of continuous canopy cover.
- A more serious impact on Bechsteins is the location of the road, which will form a barrier between a Bechstein's maternity roost along the southern edge of Tortington Common and two other roosts in Stewards Copse. Bechstein's bats will routinely move between roost sites.
- The bat population is of at least Regional and may prove to be of National Importance. Option 3 will have a high adverse impact on many bat species.

Option 3 Protected species impacts – birds

- Option 3 is likely to have a high adverse impact on woodland birds including those of coniferous woodland. It is likely to have a high adverse impact on other groups of birds such as wildfowl and wetland species and low-flying species.
- Option 3 cuts through a major swan winter roosting site in fields adjacent to the River Arun, supporting 200-300 birds each year for over 50 years. The proposed bridge across the Arun is just to the north of a large area of reedbed that may support Bittern (Amber List) and Marsh Tit (Red List).
- The number and diversity of birds is such that the Mid Arun Valley populations, when considered as part of the green corridor through the county, may be of National Importance. Option 3 will have a high adverse impact on groups of birds that are suffering the highest declines such as farmland and wetland species and those that are low-flying such as swans.

Option 3 Protected species impacts – Dormice, reptiles & Water Vole

- The Binsted Woods Complex is part of the National Dormouse Monitoring Programme. They are known through several areas in the woodland and are likely to be throughout the entire woodland.
- Option 3 will isolate Dormouse populations that will be unable to disperse further than the existing A27 to the north, the River Arun and Arundel to the east (south east) and the Option 3 route to the south and west.
- It is likely that all four reptiles in the area are present in the pathway of Option 3, although this route Option is likely to have a higher negative impact on Adder, which is the least common of these reptiles, and routinely seen in woodland clearings.
- Reptiles will move through and inhabit the more open areas of the woodland such as glades, wayleaves and footpaths, of which Option 3 severs several. It is likely to result in high mortality of reptiles.
- Water Vole has been recorded at low densities in the area. Option 3 will create an additional road across the floodplain grassland and alter the hydrology of the watercourses to the north of the floodplain grassland. Wetland habitats in Sussex are at 'critical' and yet they are regularly being destroyed, damaged and fragmented by developments such as this.
- Water Vole will likely suffer a high adverse impact, and alteration of this habitat and the ability of this species to disperse effectively may well result in the loss of Water Vole from the Mid Arun Valley area.

Option 3 impacts - UKBAP / S41 species

- Option 3 is likely to have an adverse impact on the known population of Brown Hare in the area due to high road mortality and habitat fragmentation.
- Common Toad is throughout the Binsted Woods Complex and the surrounding area. It is likely to also be in ditches to the east of the Arun. Option 3 will sever corridors between foraging and breeding areas in a large part of the Mid Arun Valley area.

- Hedgehog populations are likely to be highest in the Binsted Woods Complex and Option 3 would pose a significant barrier to dispersal through the woodland and result in an unacceptable level of road deaths.
- Option 3 is likely to impact upon watercourses that contribute to a known area of Harvest Mouse habitat and sever potential open dispersal corridors through the Binsted Woods Complex.

Option 3 impacts - invertebrates

- The mosaic of habitat types in the Binsted Woods Complex with damp wayleaves, glades, ephemeral ponds, streams and veteran trees has resulted in a high invertebrate diversity with a beetle survey finding 400 species including 27 Nationally Scarce / Red Data Book species.
- Old Scotland Lane is indeed rich in butterflies for White Admirals (UK BAP / S41 species) and Silver-washed Fritillaries are frequently seen together with Purple Emperors (Red List NT).
- Option 3 would result in a significant loss of woodland that would have a direct negative impact on this diversity. Option 3 may also interfere with the ability of species to the east of the potential carriageway to disperse through the woodland and ultimately along habitat corridors.
- Option 3 may have an impact on invertebrates in the floodplain grassland ditches by destroying corridors and degrading habitat.

Option 1 Section 41 habitat impacts - woodland, hedgerows & veteran trees

- Option 1 will require road widening along part of the Rewell Wood Complex LWS, the Binsted Woods Complex and a small fragment of woodland amounting to 5.5 ha of woodland loss along woodland edge habitat.
- Woodland edge can have an extremely high diversity of species due to higher light levels and a mixture of woodland plants and plants from additional habitats, though it is not likely to support any rare or notable species. Option 1 is unlikely to negatively impact upon this 'edge' diversity, as it will readily re-establish, though there will be a woodland 'take' as the woodland interior will become 'edge.'
- Option 1 would result in the loss of very scrubby and gappy hedgerows along the current A27 and the loss of short gappy hedgerows across the floodplain.
- There may be some notable and veteran trees along the edge of the woodlands, though this has not been investigated.

Option 1 Section 41 habitat impacts – floodplain grassland, reedbed and river corridor

- The floodplain grazing marsh is part of a corridor from the coast and along the Arun into mid Sussex. Option 1 will cause a direct loss of this habitat and present a barrier across the floodplain grassland and associated drainage ditches with ribbons of reedbed.
- Option 1 will result in a small amount of river corridor habitat being lost and possibly rare and uncommon plant species.

Option 1 Section 41 habitat impacts – overview

- A total of seven S41 habitats will be negatively impacted upon by Option 1, one of which, ancient woodland, is irreplaceable and veteran trees (if present) will take well over one hundred years to replace.

Option 1 Protected species impacts – Badger and bats

- It is unlikely that Badgers would venture across the A27 to forage with ample foraging habitat to the north and to the south, and so it is highly unlikely that Option 1 would provide a barrier across territories. However, it is likely that there will be the loss of foraging habitat and possibly setts if these are present in banks along the current carriageway.
- Bats are abundant in both the Binsted Woods Complex and the Rewell Woods Complex, yet it is currently unknown whether there is movement between these two areas of woodland. If movement were to occur, it is likely that bats would cross the current A27 at its narrowest point with the most canopy cover.
- If bats were regularly moving between the Binsted Woods Complex and the Rewell Woods Complex, the widening of the carriageway would present a significant barrier to this movement.

Option 1 Protected species impacts – birds

- Option 1 is likely to have an adverse impact on woodland birds and wetland and wildfowl species with some loss of nesting habitat for passerines along scrubby edge habitat. It may impact upon some woodland species at the edge of the woodland blocks.
- Option 1, as with all the road Options, may have a negative impact on the Mid Arun Valley as part of an integrated corridor for birds from the coast and along the Arun into mid Sussex.

Option 1 Protected species impacts – Dormice, reptiles & Water Vole

- Dormice are known to be breeding throughout the Binsted Woods Complex and the Rewell Woods Complex and so removal of some of the woodland may result in the removal of Dormouse breeding habitat. It is unlikely, however, that this woodland removal will have any impact on dispersing Dormice or corridors for dispersal as the current A27 already forms a barrier to movement for this species.
- Option 1 is likely to isolate populations of reptiles between two roads, but unlikely to have a significant impact upon reptile movement across the landscape as there is already a barrier to dispersal in the form of the current A27 for north-south movement. However, whilst presently there may be very occasional movement, this will not be possible in the future without mitigation in the form of bridges.
- Option 1 traverses an area of sub-optimal Water Vole habitat but will significantly impact upon movement across the landscape as it would provide another set of 'pinch points' in the form of culverts with a relatively small area of floodplain grassland sandwiched between two roads.

Option 1 impacts - UKBAP / S41 species

- Option 1 is likely to have an adverse impact on the known population of Brown Hare in the area due to high road mortality and habitat fragmentation.
- Option 1 may sever connections between possible breeding sites and suitable terrestrial habitat for Common Toad. It will also lessen the ability for this species to disperse along the Arun Valley.
- Option 1 may result in an increase in Hedgehog road mortality, particularly in the area of new road construction across the floodplain grassland.
- Harvest Mouse may be in the areas to be impacted by Option 1, though it is unlikely because the habitat is sub-optimal.

Option 1 impacts - invertebrates

- The current A27 road verges are likely to support a high diversity of invertebrates, though a low number of notable or rare invertebrates. The invertebrate community in these areas is likely to re-establish fully.
- The wet ditches in the floodplain grassland have the highest potential to support rare invertebrate species and although Option 1 will not destroy these habitats entirely, it may degrade the habitat.

The three Options

- The Mid Arun Valley supports thriving populations of most protected species and a high number of S41 Habitats. Compared with most areas of the British countryside the diversity in this area is outstanding.
- It is clear that Options 3 and 5A are extremely damaging in terms of the size and number of Section 41 habitats destroyed, the number of species directly impacted and indirectly impacted upon and the ability for species to move across the Mid Arun Valley area and the wider landscape with very real threats to long-term viability.
- Option 1 would result in the felling of fewer trees, less land grab, far less loss of irreplaceable habitats, less severance of habitat, habitat corridors and flight lines.

Habitat corridors

- The Mid Arun Valley forms a continuation of an exceptionally diverse river corridor that is relatively uninterrupted from the middle of Sussex to the English Channel. It is the presence of good quality habitats, the proximity to other good quality habitats and the lack of barriers to dispersal that has resulted in the diverse range of species observed in the Mid Arun Valley area.
- All three Options result in a degree of severing dispersal corridors, though Option 5A would, in effect, isolate the entire woodland from the surrounding landscape. The 11 habitat corridors from the Binsted Woods Complex link to the surrounding habitats and subsequently link the surrounding habitats to each other and further afield. This forms an important integrated network of habitat linkages.

- Option 3 would sever this uninterrupted block of woodland into two and, in effect have the same, but lesser isolation impact which would be restricted to the eastern part of the woodland.
- All three Options would result in an additional significant barrier across the Arun floodplain corridor that extends from Mid Sussex to the coast.

Mitigation and fragmentation

- Proposed mitigation is primarily concerned with the direct loss of ancient woodland due to compensation costs. There is no account given to degradation, fragmentation and the loss of irreplaceable habitats such as chalk streams and veteran trees.
- Mitigation does not compensate for this habitat fragmentation and even when green bridges and culverts are constructed there is little evidence that these are compensatory.
- The problems with habitat fragmentation and the importance of habitat connectivity and corridors has increasingly been a focus for planning and action, culminating in the national 'Making Space for Nature' Lawton report (2010). The report promotes four essential principles for future nature conservation in the UK: bigger, better, more, and joined-up.
- The interruption of these large and secure populations in the Mid Arun Valley is likely to have very real cumulative and significantly adverse impacts on Regionally and possibly Nationally Important populations. The area will likely become impoverished in comparison to its current status.
- If that significant harm cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused (PPS9).
- This survey has demonstrated that effective mitigation will not be possible, and that Option 1 is by far the least damaging Option, but even so, will not be achieved without a severe and significant negative impact upon the Arun corridor and the north – south dispersal of many protected species.

1 INTRODUCTION

BACKGROUND TO THE STUDY

- 1.1 The A27 Arundel Improvements Scheme, showing the final routes for Options 1, 3 and 5A, was first made public by Highways England on their website at the commencement of the Public Consultation on 22nd August 2017.
- 1.2 The ecological desk study data used to develop and present the Options did not include MAVES' 2015-17 data as to what has actually been found in this previously under-surveyed area. This led to many significant omissions and errors of fact and judgement in the Preliminary Ecological Appraisal used for the Consultation.
- 1.3 This report has been commissioned by MAVES, Mid Arun Valley Environmental Survey, to assess the ecological impact of all the route Options including impacts which would not have been known to Highways England from earlier data.

AIMS

- 1.4 The aims of this survey are as follows:
- To collate the most relevant and up to date data from two years of survey work in the Mid Arun Valley
 - To use the current data to assess the likely impacts of the three route Options on protected species and Habitats of Principal Importance.

THE MID ARUN VALLEY

- 1.5 The Mid Arun Valley landscape is one of ancient semi-natural woodland, floodplain grassland, small grassy and tussocky fields, arable fields with wide, grassy margins, valley streams surrounded by swamp, fen and marsh and a scatter of ponds and ancient trees. These habitats are both linked and separated by a network of wet ditches, streams, shaws, hedgerows and treelines.
- 1.6 A network of streams and ditches, some arising in springs and seepages with their origin being the South Downs, drains the northern part of the area. These mostly arise within and extend from the Binsted Woods Complex where they eventually meet with the drainage ditches dissecting the floodplain grassland.
- 1.7 The Binsted Woods Complex is a Local Wildlife Site and situated within the South Downs National Park. This woodland block and much of the surrounding habitat comprises fourteen different Section 41 Habitats of Principal Importance for the conservation of biodiversity.

- 1.8 It has excellent connectivity to similar habitat along the Arun, Local Wildlife Sites (LWS), a privately owned wildlife site and Sites of Special Scientific Interest (SSSI). This has resulted in an extremely high number of rare and threatened species in the area.

THE THREE OPTIONS

- 1.9 The three proposed route Options traverses are shown in Figure 1.

Figure 1: *The three potential A27 route Options*



- 1.10 All three Options will traverse the Arun floodplain at which point Option 1 re-joins the existing A27 through the South Downs National Park. Options 3 and 5A traverse unspoiled areas of the National Park.
- 1.11 Option 3 would divide the Binsted Woods Complex into two whereas Option 5A would skirt around much of the main woodland block, though leaving two isolated woodland fragments.
- 1.12 All route Options would create a major barrier across the floodplain grassland and Options 3 and 5A would create barriers though the woodland and from the woodland across the landscape.

2 METHODS

HABITAT SURVEYS

Phase 1 habitat survey

- 2.1 Much of the Phase 1 habitat survey was completed in 2015 / 2016 (Thompson 2016). Further surveys were completed in 2017 and this report collates all the information gathered.
- 2.2 Phase 1 surveys followed the standard methodology (JNCC, 2010). In summary, this comprised walking over the survey area and recording the habitat types, species and boundary features present.
- 2.3 In addition, the habitats within the survey area were assessed for their potential to support legally protected or otherwise notable flora and fauna. Where species were seen or heard these were recorded.
- 2.4 Where suitable habitat was identified on site, a search was conducted for signs indicating the presence of protected species such as droppings, burrows, tracks and evidence of feeding. Further surveys were carried out where possible.

Recording notable trees

- 2.5 Trees have been categorised according to diameter at breast height (DBH), which generally serves as a good indication of age. Size classifications used are shown in Table 1. Many trees that have been recorded as 'notable', due to the fact that they have not reached a size to indicate truly significant age, are none-the-less extremely old and have veteran features that are of importance to wildlife.
- 2.6 The tree locations have been recorded with hand-held GPS devices. The locations of the trees therefore may be accurate within a 5-10 m range.

Table 1: Classification sizes for notable trees

DBH - metres	Classification
1 – 1.4	Notable
1.5 – 1.6	Veteran
1.7 +	Ancient

Discussion of the impacts of the various route Options

- 2.7 The route Options are discussed in Section 5 in the order of those with the most habitats to be impacted upon. Option 5A is followed by Option 3 and finally Option 1.
- 2.8 Many aspects are discussed regarding Option 5A and referred to in the subsequent sections in order that impacts do not become too repetitive. This includes potential mitigation if it is the same or similar.

ADDITIONAL SURVEYS

2.9 A number of specific surveys have been undertaken by professional ecologists, experts and county recorders as follows:

- Bats – Daniel Whitby (AEWC), 2016 and 2017;
- Badger – Dominic Walding (undergraduate project) supervised by Dr Dawn Scott;
- Beetles – Dr Katherine Grove 2016;
- Birds – David and Heather Hart 2015, Ben Knight 2017;
- Butterflies – John Knight 2017;
- Botanical surveys – Frances Abraham, Nick Sturt and other members of the Sussex Botanical Recording Society;
- Dormouse – Ian Powell as part of the National Dormouse Monitoring Programme;
- Dormouse - James Burford (undergraduate project) supervised by Dr Dawn Scott;
- Fungi – Bill Young 2016;
- Harvest Mouse - Sam Buckland, Lucy Groves and Ian Powell, 2016;
- Invertebrates – Mike Edwards with Peter Hodge and Graeme Lyons, 2016 and 2017;
- Invertebrates – Nathalie GuerIn 2015 and 2017; and
- Freshwater invertebrates – Bill Young 2015 and 2016.

2.13 Additional to the 'targeted' surveys, records have been collated on an 'ad hoc' basis from interested parties, local residents, woodland owners and Arundel residents.

Survey data

2.14 Data collated for this report has been taken from a number of different surveys as outlined in Section 2.7 and referenced in Section 7. Data additional to these reports is available on request in an excel spreadsheet.

Use of nomenclature

2.15 Plant nomenclature in this report follows Stace (2010) for native and naturalised species of vascular plant.

2.16 For all species the scientific name is given once and then not repeated again. Some of the rarer invertebrates do not have a 'common' name and so, in these cases, just the specific name is used.

SURVEY LIMITATIONS

2.17 It must be taken into account whilst reading this report that most of the survey effort has been concentrated around the west part of the survey area, particularly Option 5A and to a lesser extent Option 3.

2.18 The floodplain grassland and ditches to the east of the Arun could not be surveyed due to lack of access and much of the area was viewed with binoculars from Public Rights of Way.

- 2.19 This amounts to the main part of Option 1, traversing unspoiled habitat across the floodplain grassland, not being surveyed.

3 RESULTS

HABITATS

3.1 The habitat survey considers the entire survey area across the Mid Arun Valley and shown in the Phase 1 habitat map in Appendix 1. It is an extremely diverse landscape comprising an interconnected mosaic of habitats, many of which are Section 41 Habitats of Principal Importance (formerly Priority Habitats). The following habitats have been recorded in the survey area:

- ancient semi-natural woodland;
- woodlands and shaws;
- hedgerows;
- notable and veteran trees;
- orchard;
- plantation woodland;
- ruderals and scrub;
- scattered trees and tree-lines;
- arable field margins;
- grassland;
- lowland meadow;
- chalk streams;
- drainage ditches and streams;
- ponds;
- lowland fen, swamp and reedbed
- coastal and floodplain grazing marsh; and
- river corridor.

Ancient semi-natural woodland

3.2 The Binsted Woods Complex is a complex of woodland sites and is the largest area of woodland to the south of the A27 along the West Sussex coastal plain. The site supports ancient woodland, conifer plantation, species-rich pasture and ancient tracks. This mixture of habitats coupled with the geology has resulted in the extremely diverse flora resulting in its Local Wildlife Site designation.

3.3 The woodland varies greatly in nature, though the main National Vegetation Communities found are W10 *Quercus robur* – *Pteridium aquilinum* – *Rubus fruticosus* woodland with localised areas of W8 *Fraxinus excelsior* – *Acer campestre* – *Mercurialis perennis* woodland and small pockets of W16 *Quercus* spp. – *Betula* spp. – *Deschampsia flexuosa* woodland.

3.4 The main canopy species are Pedunculate Oak *Quercus robur* and Ash *Fraxinus excelsior* with localised stands of tall Birch *Betula* spp. and occasional Beech *Fagus sylvatica* and Hornbeam *Carpinus betulus*. The structure of the woodland is extremely variable with a shrub layer sometimes dominated by over-stood coppiced Hazel *Corylus avellana* with Sweet Chestnut

Castanea sativa in places or with dense thickets of Holly *Ilex aquifolium* and even vigorous growth of Field Maple *Acer campestre*.

- 3.5 Areas of plantation woodland are also interesting with coniferous species giving way to deciduous woodland with the ground flora forming a mosaic of species of acidic and more base rich communities. Species such as Yellow Pimpernel *Lysimachia nemorum* and Enchanter's-nightshade *Circaea lutetiana* are growing alongside plants and bryophytes of acidic conditions such as Tormentil *Potentilla erecta* and bryophytes such as *Polytrichastrum formosum* and *Hypnum jutlandicum*.
- 3.6 In some small openings the vegetation would best be described as lowland heath with open areas dominated by Bracken *Pteridium aquilinum* and associates such as Heather *Calluna vulgaris*.
- 3.7 The field layer is dissected by streams, banks, craters and ancient tracks and is, in places, breathtakingly diverse, particularly around Furzefield Copse and the western end of the woodland, extending into Ash Piece. Stands of Bluebells *Hyacinthoides non-scripta* are intermixed with a great variety of woodland plants including less common species such as Southern Wood-rush *Luzula forsteri* and Orpine *Sedum telephium* as well as a range of species indicative of ancient woodland.
- 3.8 There are localised flushes of wet woodland, particularly in Hundred House Copse and Little Danes Wood where there are pockets of Alder carr surrounding chalk springs. Here the community moves towards the more unusual W7 *Alnus glutinosa* – *Fraxinus excelsior* – *Lysimachia nemorum* woodland. The field layer is rich in flowering plants and bryophytes with a hundreds of Early-purple orchids *Orchis mascula* and less common bryophytes such as *Trichocolea tomentella* (more common in the wetter west) and *Neckera complanata*, a species of base rich conditons.
- 3.9 Another extremely interesting pocket of wet woodland is in Tortington Common forming a small area of W4 *Betula pubescens* – *Molinia caerulea* woodland. The ground flora is dominated by Purple Moor-grass *Molinia caerulea* with associates such as Sphagnum mosses, sedges (of acidic substrates) and Cross-leaved Heath *Erica tetralix* beneath a canopy dominated by Downy Birch *Betula pubescens*.
- 3.10 More robust species in the field layer include ten species of ferns from a variety of habitats including Narrow Buckler-fern *Dryopteris carthusiana* found in wet woodland and fens; Soft Shield-fern *Polystichum setiferum*, which is a moderate calcicole; and Polypody *Polypodium vulgare*, a rhizomatous species of well-drained, predominantly acidic substrates.
- 3.11 There is great variation in the size classes of trees, but there are some stands dominated by mature Pedunculate Oak (with a diameter of 0.9 m – 1 m) and some ancient Ash and Sweet Chestnut coppice stools as well as a scatter of notable, ancient and veteran trees throughout, but particularly frequent around Lake Copse and The Shaw where Pedunculate Oak and Ash trees frequently have a trunk diameter of over 1.4 m.
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Woodlands and shaws

- 3.12 Wooded corridors (shaws) radiate out from the Binsted Wood Complex across the surrounding countryside and, on occasion, these widen into small pockets of woodland. Many support a diverse assemblage of native species and good numbers of mature, notable and veteran Oaks.
- 3.13 The Shaw and The Lag are remnants of ancient woodland (shown in Figure 2), now in-filled and forming woodlands, radiating from the Binsted Woods Complex. Together with Lake Copse all three areas of woodland follow watercourses and, as such they have features such as wet flushes, ponds and winter wet areas with localised growth of Grey Willow *Salix cinerea* and a wetland ground flora. They form a distinctive and very diverse woodland feature of the Mid Arun Valley.

Figure 2: The Shaw and The Lag in 1876



Map taken from a copy of *Sussex LXII* (includes: Aldingbourne; Barnham; Eastergate; Walberton; Yapton.) Surveyed: 1875 to 1876 and published: 1880

- 3.14 These wooded areas tend to have a good shrub layer and a high number of Ancient Woodland Indicators such as Butcher's-broom *Ruscus aculeatus*, Pignut *Conopodium majus*, Primrose *Primula vulgaris* and Hart's-tongue *Asplenium scolopendrium*.

Hedgerows

- 3.15 Hedgerows heavily dissect the landscape to the south of the Binsted Wood Complex and that surrounding the village of Binsted. They are less frequent towards the eastern side of the survey area though they follow Tortington Lane and Ford Road.

- 3.16 Approximately sixty hedgerows were surveyed of which nearly half supported an average of four or more woody species in a 30 m stretch. A third of the hedgerows surveyed qualify as 'Ancient and / or species-rich hedgerows' of which at least half would classify as 'important' under the Hedgerow Regulations 1997.
- 3.17 The hedgerows surveyed support a good range of woody species with Hawthorn *Crataegus monogyna*, Hazel and Blackthorn *Prunus spinosa* being the most frequently occurring species. Other species include Field Maple *Acer campestre*, English Elm *Ulmus procera*, Ash and Pedunculate Oak as well as those indicative of base-rich soils such as Spindle *Euonymus europaeus*, Wayfaring-tree *Viburnum lantana* and Guelder-rose *Viburnum opulus*.
- 3.18 Many of the hedgerows have standard trees including notable and veteran trees, and some have some old coppiced stools of Hazel. Woody climbers such as Dog-rose *Rosa canina* and Field-rose *Rosa arvensis* also contribute to the structure and diversity of the hedgerows.
- 3.19 The main structure of the hedgerows ranges from clipped and dense to overgrown and defunct and becoming invaded by Bramble. Other hedgerows have developed into tree-lines with natural shrub invasion at the base of the trees. Approximately half of the hedgerows surveyed had features of importance to wildlife such as banks, ditches and standard trees.
- 3.20 The hedgerows along the existing A27 are very gappy and infilled with dense stands of Bramble. In places they are reduced to scattered overgrown shrubs / scrub with species such as Hawthorn and Blackthorn.

Notable / veteran trees

- 3.21 A total of 180 notable trees were recorded in the Mid Arun Valley area (though there are many more), of which 125 were classified as notable, 30 as veteran and 25 as ancient. Such trees are throughout the landscape, some in the Binsted Woods Complex, others in the shaws extending from the woodland and many in fields and hedgerows.
- 3.22 The most frequently occurring species are Pedunculate Oak occurring as single-stemmed trees and Ash, which is usually multi-stemmed. Other species include Beech, Sweet Chestnut, Hazel, Field Maple and, uncommonly a single tree of Wild Cherry *Prunus avium*.
- 3.23 It must be noted that the trees have been classified purely on size and of the 125 notable trees recorded approximately 90 % do have 'veteran' features of importance to wildlife such as dead wood, lifted bark, holes and water filled hollows.

Orchard

- 3.24 There are three orchards within the Mid Arun Valley area, one of which at Lake Copse has 350 trees of mixed varieties in sheep-grazed grassland. Another is in Tortington to the west of Tortington Manor.
- 3.25 The orchard at Meadow Lodge is smaller with older trees of Apple *Malus sylvestris s.l.*, Pear *Pyrus communis s.l.* and Cherry *Prunus sp.*, again in grassland that is occasionally grazed by sheep. Some of these trees have hollows and are gnarled and twisted.
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Plantation woodland

- 3.26 Small stands of plantation woodland are scattered throughout the area such as around the golf course at SU 97824 06489, SU 981 060, SU 98054 05917, SU 98162 06036 and SU 98039 06316. These tend to be reasonably young and support species such as Ash, Field Maple, lime *Tilia* sp., cherry *Prunus* sp., Hornbeam and Pedunculate Oak.
- 3.27 The field layers support mostly robust herbaceous species such as Cow Parsley *Anthriscus sylvestris* and Red Campion *Silene dioica* with species indicative of nutrient enrichment such as Common Nettle *Urtica dioica*. Woodland plants occur in areas near mature woodland or hedgerows and include Lords-and-Ladies *Arum maculatum*, Dog's Mercury *Mercurialis perennis* and ferns such as Hart's-tongue.
- 3.28 Other small wooded areas are scattered around such as at SU 98478 06057 and at Marsh Farm (SU 98936 04834). The largest area of plantation woodland is just to the north of the railway line at SU 99023 04455 around the reservoirs. This is mixed deciduous woodland that is approximately 15 years old with a very varied field layer.

Scattered trees

- 3.29 Aside from notable, veteran and ancient trees, trees are scattered throughout the area mostly in hedgerows and some smaller trees in hedgerows / scrub lines along the A27. Species include Ash, Pedunculate Oak and Wild Cherry. Some of the tree lines around Binsted Village support mature trees of Pedunculate Oak with a trunk diameter of 0.7 m to 0.9 m, which will serve as the next generation of veteran trees.
- 3.30 Some trees are reasonably young such as those along the hedgerows at grid references SU 98451 06330 and SU 98691 06171. There are also clusters of trees that have been planted around the golf course and in small fields such as those at grid references SU 98502 06073, SU 98637 05961 and SU 99361 05429, the last of which includes a range of fruit trees.
- 3.31 As part of a Mid Arun Valley Environmental Survey MAVES community project, Black Poplar *Populus nigra* saplings have been planted at Noor Wood SU 997064, Manor House SU 993060, Meadow Lodge SU 993056, Kents Cottage SU 990057 and Mill Ball SU 989056 and SU 987056.

Ruderals and scrub

- 3.32 Ruderals are scattered throughout the area, mostly forming small stands in copses or at the edges of arable fields. The most common species are Common Nettle, Curled Dock *Rumex crispus* and Broad-leaved Dock *Rumex obtusifolius*.
- 3.33 Ruderals and scrub are found along the margins of the existing A27 where they are intermixed with grassland and woodland species.
- 3.34 Pockets of scrub mostly dominated by Bramble and Grey Willow are scattered throughout the area along ditches, fence lines and field corners. Bramble is also found infilling gaps in hedgerows.

Arable field margins

- 3.35 Many of the arable fields have wide margins of up to 20 m supporting a good range of vegetation. Some areas have tall rough grassland with robust plants such as Cow Parsley and Common Nettle. Other areas support a good range of smaller grassland herbs such as Smooth Tare *Vicia tetrasperma*, White Clover *Trifolium repens*, Cut-leaved Crane`s-bill *Geranium dissectum*, Common Mouse-ear *Cerastium fontanum*, Lesser Stitchwort *Stellaria graminea* and Lesser Trefoil *Trifolium dubium*.
- 3.36 Orchids such as Common Spotted-orchid *Dactylorhiza fuchsii* and Early-purple Orchid are locally abundant. The fields themselves support occasional arable weeds such as Common Poppy *Papaver rhoeas*, Red Dead-nettle *Lamium purpureum* and Cornflower *Centaurea cyanus*, which is scarce in Sussex and listed on the Sussex Rare Species Inventory (SxRSI).

Grassland

- 3.37 The grassland surveyed ranged from a sward mostly dominated by Perennial Rye-grass *Lolium perenne* to damp grassland and rough tussocky grassland. The most common communities are MG7 *Lolium perenne* leys and related grasslands and, in damper areas MG10 *Holcus lanatus*-*Juncus effusus* rush-pasture.
- 3.38 In some areas where herbaceous species are more frequent, the grassland approaches the NVC type MG6 *Lolium perenne*-*Cynosurus cristatus* grassland, although this is patchy in extent. Other fields are seldom-managed rough grassland of the NVC type MG1 *Arrhenatherum elatius* grassland with a good number of herbaceous species.
- 3.39 A damp field to the west of Tortington Rife has damp grassland intermixed with wetland species with a reasonably diverse assemblage including Common Knapweed *Centaurea nigra*, Yarrow *Achillea millefolium* and Cut-leaved Crane`s-bill *Geranium dissectum* alongside wetland species such as Wild Angelica *Angelica sylvestris* and Hemlock Water-dropwort *Oenanthe croccata*.

Lowland Meadow

- 3.40 A species-rich field is on the outskirts of Arundel adjacent to Steward`s Copse. It supports a diverse assemblage of herbaceous species such as Eyebright *Euphrasia nemorosa*, Autumn Hawkbit *Scorzoneroides autumnalis*, Common Bird`s-foot-trefoil *Lotus corniculatus* and Red Bartsia *Odontites vernus*. It is most similar to the NVC type MG5 *Cynosurus cristatus* – *Centaurea nigra* grassland. This is an old meadow assemblage and a S41 Habitat of Principal Importance.

Chalk streams

- 3.41 Binsted Rife is a chalk stream fed from the drainage of the South Downs. As a consequence aquatic and emergent species indicative of calcareous conditions are present such as *Ranunculus circinatus* Fan-leaved Water-crowfoot, which is declining throughout its range, Flowering-rush *Butomus umbellatus* and Mare`s-tail *Hippuris vulgaris*.
- 3.42 An additional chalk stream originates above the ground at Sandy Hole Pond, at the edge of Binsted Lane by Barns Copse. This tracks along boundaries, disappearing beneath the ground
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for a stretch along Copythorn Field west hedge. It passes through Lake Copse woodland feeding a pool and a large pond and continues along ditches in the area.

- 3.43 The influence of the chalk is visible in Sandy Hole Pond due to the abundance of the Nationally Scarce and Sussex Scarce (SxRSI) Water Soldier *Stratiotes aloides*, a species indicative of calcareous water, but is soon lost presumably due to the influence of the local geology.

Drainage ditches and streams

- 3.44 Ditches and streams are throughout the area with some originating in the South Downs, others draining the Binsted Woods Complex and possibly with some influence from the South Downs and others surrounding the River Arun.
- 3.45 Generally, the vegetation along the ditches is variable with some areas dominated by reedbed, others with robust species such as Hemlock Water-dropwort and Great Willowherb *Epilobium hirsutum*. Others are poached by cattle leaving bare mud for colonisation by less common species such as Whorl-grass *Strigosa Paraphilias* (SxRSI).
- 3.46 Streams flow through the distinctive three arms of woodland extending to the south of the Binsted Woods Complex. The Shaw and The Lag are fed from ditches / watercourses traversing the Binsted Woods Complex.
- 3.47 The Lag (and possibly The Shaw) feed into Tortington Rife, which supports a good arrange of aquatic and emergent species including Frogbit *Hydrocharis morsus-ranae*, listed on the Sussex Rare Species Inventory (SxRSI), Celery-leaved Buttercup *Ranunculus sceleratus* and Water Mint *Mentha aquatica*.
- 3.48 The ditches that dissect the floodplain grassland were not surveyed due to lack of access.

Ponds

- 3.49 A great diversity of ponds litter the landscape and vary from those that are winter wet seasonal ponds in woodland and in fields to large permanent ponds with a good diversity of species. Several of the ponds in the Binsted Wood Complex are heavily shaded and lack wetland vegetation, although there are ponds within the woodland that hold water all year and support aquatic, emergent and water margin vegetation.
- 3.50 A number of ponds are around Binsted Village and Tortington Village in gardens. Others are in wet woodland or adjacent to woodland. A winter-wet field pond is to the east of Tortington Rife and many of the woodland ponds appear to be ephemeral in nature.
- 3.51 Only the ponds to the west of the survey area around Binsted could be accessed for survey. A good range of aquatic and water-margin species are present including the Nationally Scarce and Sussex Scarce Water Soldier (Sandy Hole Pond), and the less common Bogbean *Menyanthes trifoliata* (Madonna Pond).
- 3.52 Other aquatic vegetation includes less common duckweeds such as Greater Duckweed *Spirodela polyrhiza* and Ivy-leaved Duckweed *Lemna trisulca*. Emergent / water margin species include Lesser Bulrush *Typha angustifolia*, Cyperus Sedge *Carex pseudocyperus* and Water-plantain *Alisma plantago-aquatica*.
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Lowland fen and swamp

- 3.53 Binsted Rife has a wide range of National Vegetation Classification communities. It is a mosaic of rush pasture, damp grassland, swamp and lowland fen communities where the ground is permanently or seasonally very wet. The northern end of the rife is extremely diverse with the main community, MG10 *Holcus lanatus*-*Juncus effusus* rush-pasture, interrupted by mosaics of various communities such as S5 *Glyceria maxima* community, S6 *Carex riparia* swamp, S7 *Carex acutiformis* swamp and S14 *Sparganium erectum* swamp, all forming mostly single-species stands. These communities sometimes fringe the rife itself, though the main community along the watercourse is S4 *Phragmites australis* swamp and reedbeds.
- 3.54 Intermixed with this there are some more diverse areas that are more accurately described as lowland fen, with communities such as S26d *Phragmites australis*-*Urtica dioica* tall-herb fen, *Epilobium hirsutum* sub-community and S28b *Phalaris arundinacea* tall-herb fen, *Epilobium hirsutum*-*Urtica dioica* sub-community. These communities are extremely diverse with a good range of associates such as Lesser Water-parsnip *Berula erecta*, Ragged-robin *Silene flos-cuculi*, Bog Stitchwort *Stellaria alsine*, Cuckooflower *Cardamine pratensis*, Celery-leaved Buttercup, Wild Angelica, False Fox-sedge *Carex otrubae*, Water Forget-me-not *Myosotis scorpioides* and Plicate Sweet-grass *Glyceria notata*.
- 3.55 This vegetation grades into short grassland on higher ground up the banks, with some small areas of relatively species-rich rabbit-grazed grassland of the NVC type MG6 *Lolium perenne*-*Cynosurus cristatus* grassland.
- 3.56 At the southern end of the rife, the robust swamp vegetation gives way to a shorter sward and the rush grassland becomes less dominant. Here the main communities are MG7d *Lolium perenne* – *Alopecurus pratensis* grassland, MG13 *Agrostis stolonifera*-*Alopecurus geniculatus* grassland, S19 *Eleocharis palustris* swamp and S22 *Glyceria fluitans* water-margin vegetation.
- 3.57 Whorl-grass, listed on the SxRSI, was found in the muddy margins of two ditches and the Nationally Scarce aquatic Frogbit *Hydrocharis morsus-ranae* was found within the rife. Fen Bedstraw *Galium uliginosum*, also listed on the SxRSI, was growing amongst the wetland vegetation.
- 3.58 A marshy field to the west of Tortington Rife supports a good diversity of flowering plants intermixed with areas of reedbed of the NVC types S4 *Phragmites australis* swamp and reedbeds and S7 *Carex acutiformis* swamp. The fields to the south of this lack the diversity but are very wet with areas of swampy vegetation variously dominated by *Carex nigra* Common Sedge and *Carex disticha* Brown Sedge.

Reedbed

- 3.59 Linear areas of reedbed are throughout the Mid Arun Valley along ditches, which, on occasion extend into fields, such as reedbed found in the marshy field to the west of Tortington Rife, fields around the reservoirs and pockets of reedbed along the Arun.
- 3.60 A particularly large area of reedbed is on the east side of the Arun. This is fringed with salt-marsh vegetation dominated by Sea-purslane *Atriplex portulacoides* adjacent to the river.
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3.61 The reservoirs to the south of Binsted Rife are fringed with a wide margin of reedbed vegetation of the NVC type S4 *Phragmites australis* swamp and reedbeds. Other wetland associates include Great Willowherb, Hemlock Water-dropwort, Common Fleabane *Pulicaria dysenterica* and Hard Rush *Juncus inflexus*.

3.62 This vegetation grades into tall, species-rich grassland of the NVC type MG1e *Arrhenatherum elatius* grassland, *Centaurea nigra* sub-community and stands of tall herbaceous species and ruderals. Species indicative of more base-rich conditions, possibly due to the chalk origin of the water, include Southern Marsh-orchid *Dactylorhiza praetermissa*, Weld *Reseda luteola* and Wild Parsnip *Pastinaca sativa*.

Coastal and floodplain grazing marsh

3.63 The floodplain grazing marsh extends along the Arun with smaller areas along Binsted Rife where it forms a mosaic, in part, with the lowland fen, swamp and reedbed habitat. It also extends along Tortington Rife.

3.64 The grazing marsh has not been surveyed to the east of the Ford Road where it surrounds the River Arun and is dissected by drainage ditches. It is often the case in such habitats that the drainage ditches hold the main botanical interest.

River corridor

3.65 The margins of the River Arun support species of brackish conditions including frequent Sea Aster *Aster tripolium*, Sea Beet *Beta vulgaris* subsp. *maritima* and Sea-purslane *Atriplex portulacoides*. Other species found on an occasional basis include Sea Plantain *Plantago maritima* and Sea Arrowgrass *Triglochin maritima* and the Nationally Scarce Marsh-mallow *Althaea officinalis*.

3.66 Much of the upper margin and flood defence bank is dominated by rough vegetation, largely composed of typical species of coarse coastal grassland, such as Wild Carrot *Daucus carota*, Bristly Oxtongue *Helminthotheca echioides*, Mugwort *Artemisia vulgaris* and Common Fleabane. Less common species include Corn Parsley *Petroselinum segetum*. Grasses include False Oat-grass *Arrhenatherum elatius*, Sea Couch *Elytrigia atherica* and Meadow Barley *Hordeum secalinum* with scattered stands of Common Reed *Phragmites australis*.

3.67 The path along the west side of the bank has a varied and colourful grassland flora, which includes locally frequent Common Broomrape *Orobancha minor*. Occasional patches of damp mud support plants of brackish habitats such as Divided Sedge *Carex divisa* (NS, SxRSI, S41 Species of Principal Importance), Saltmarsh Rush *Juncus gerardii*, Reflexed Saltmarsh-grass *Puccinellia distans*, Common Saltmarsh-grass *Puccinellia maritima*, sea-spurreys *Spergularia* spp., and Hard-grass *Parapholis strigosa*.

PLANTS AND FUNGI

Fungi

- 3.68 Twenty-three fungal species have been recorded in the Mid Arun Valley with numerous records that cannot be assigned to species with a rigorous level of confidence.
- 3.69 Within this list the Zoned Rosette *Podoscypha multizonata* is a Section 41 Species of Principal Importance and also listed on the Sussex Rare Species Inventory (SxRSI), found in Binsted Park and the Violet Webcap *Cortinarius violaceus* (SxRSI) was found in Tortington Common.
- 3.70 The woodlands and shaws are considered to have the potential to support an important assemblage of fungi.

Notable plant species

- 3.71 The following notable species, listed in Table 2, have been found in the Mid Arun Valley. They are all on the Sussex Rare Species Inventory and two are Red Data Book species.

Table 2: Notable plant species found in the Binsted area in 2015-2017

Common Name	Latin Name	Location	Status	SxRSI
Blunt-flowered Rush	<i>Juncus subnodulosus</i>	Binsted Rife		
Box	<i>Buxus sempervirens</i>	Binsted Wood	NR	
Cornflower	<i>Centaurea cyanus</i>	Arable field		
Divided Sedge	<i>Carex divisia</i>	Banks of Arun	NS / S41	
Fen Bedstraw	<i>Galium uliginosum</i>	Binsted Rife		
Fritillary	<i>Fritillaria meleagris</i>	Binsted Park	NS/RDB VU	
Frogbit	<i>Hydrocharis morsus-ranae</i>	Binsted & Tortington	RDB VU	
Ivy-leaved Crowfoot	<i>Ranunculus hederaceus</i>	Binsted Rife		
Marsh-mallow	<i>Althaea officinalis</i>	Banks of Arun	NS	
Narrow-leaved	<i>Lathyrus sylvestris</i>	Binsted		
Royal Fern	<i>Osmunda regalis</i>	Binsted		
Water-soldier	<i>Stratiotes aloides</i>	Sandy hole pond	NR	
Whorl Grass	<i>Catabrosa aquatica</i>	Binsted Rife		

- 3.72 In addition the following noteworthy local and / or uncommon species species have been recorded in the area:

- Orpine *Sedum telephium* – Several patches in Binsted Woods – it is an uncommon ancient woodland indicator, though no longer classified as Nationally Scarce as it was in 1992.
- Southern Wood-rush *Luzula forsteri* - found in Binsted Woods and near the east end of Muddy Lane is a less common species only occurring in the south.
- *Luzula forsteri* x *pilosa* = *L. x borrieri*. This is a local species and was recorded at Tortington Common.
- Bogbean *Menyanthes trifoliata*. This species has decreased in south-east England because of the drainage of wetlands in both historic and recent times. It grows in the Madonna Pond.

- Thin-spiked Sedge *Carex strigosa* – found in Steward’s Copse. There has been a noteworthy decline of this species in Sussex and Kent.
- Adder’s-tongue *Ophioglossum vulgatum*. This rhizomatous, deciduous fern was found growing abundantly in a damp field by Tortington Rife. It is found on mildly acidic to base-rich soils in open woodland, meadows and damp pastures but has been lost from many lowland sites due to intensification of agriculture and land drainage.

Non-native invasive species

3.73 The following non-native invasive species were recorded in the area.

- Rhododendron *Rhododendron ponticum* found growing in the Binsted Wood Complex in several areas.
- Cherry Laurel *Prunus laurocerasus* recorded growing near the Madonna Pond and in Hundred House Copse.

3.74 Rhododendron, is listed on Schedule 9 of the Wildlife and Countryside Act 1981. As such, it is illegal to plant or otherwise knowingly cause these species to grow in the wild or spread to adjacent land owned by others.

3.75 Cherry Laurel is listed as an invasive species in Sussex. Its growth form and impact on wildlife is very similar to that of Rhododendron, forming dense thickets and excluding all other species from woodlands.

PROTECTED SPECIES

Badger

3.76 Badger *Meles meles* activity is extremely high in the area with numerous records of excavation, foraging signs, latrines and Badger crossing roads.

3.77 Active setts have been confirmed in the Barns Copse, The Shaw, along Binsted Rife and Fowlers Copse. Smaller setts, possibly outliers, have been recorded in a garden in Binsted and near Tortington Rife.

Bats

3.78 Bat trapping and tagging surveys have been carried out in the last two years by AEW (Whitby 2016, 2017) within the Binsted Woods Complex. These surveys have confirmed presence of the following species:

- Barbastelle *Barbastella barbastellus*
- Serotine *Eptesicus serotinus*
- Alcathe bat *Myotis alcathe*
- Bechstein’s bat *Myotis bechsteinii*
- Brandt’s bat *Myotis brandtii*
- Daubenton’s bat *Myotis daubentonii*

- Natterer's bat *Myotis nattereri*
- Whiskered bat *Myotis mystacinus*
- Noctule bat *Nyctalus noctula*
- Common Pipistrelle *Pipistrellus pipistrellus*
- Nathusius's Pipistrelle *Pipistrellus nathusii*
- Soprano Pipistrelle *Pipistrellus pygmaeus*
- Brown Long-eared bat *Plecotus auritus*

- 3.79 This list includes Bechstein's bat and Barbastelles, which are Annex II species. Eight species of bat may have maternity colonies within the Binsted Woods Complex as pregnant females were found.
- 3.80 A Bechstein's maternity colony is located in the southern part of Torrington common with a count of 26 bats emerging during a survey in 2016. Two additional roost sites for this species were found in Steward's Copse.
- 3.81 Locally breeding female Alcahoses were caught in 2016 and roosts identified through tagging one individual. In 2016 / 2017 roosts were found in Torrington Common and Binsted Woods.
- 3.82 A new maternity colony of Serotine bats has been confirmed in Barnham to the south west of the Binsted area using several buildings for roost sites. During the surveys a number of Serotine bats were observed commuting from the west following hedgerows and woodland edges indicating that these bats are likely foraging in the Binsted Woods Complex.

Birds

- 3.83 A total of 84 species of birds have been recorded within the Mid Arun Valley of which 16 are Birds of Conservation Concern (BoCC) Red-listed species and 20 are Amber-listed species. A total of 15 of the birds recorded have Biodiversity Action Plans and 6 are also Schedule 1 species.
- 3.84 Many of the less common species have had numerous sightings such as Mistle Thrush *Turdus viscivorus* (Red List), Song Thrush *Turdus philomelos* (Red List), Linnet *Carduelis cannabina* (Red List), Nightingale *Luscinia megarhynchos* (Red List), Yellowhammer *Emberiza citrinella* (Red List), Cuckoo *Cuculus canorus* (Red List), Grey Wagtail *Motacilla cinerea* (Red List) and Meadow Pipit *Anthus pratensis* (Amber List).

Dormouse

- 3.85 Paines Wood, Ash Piece and recently Noor Wood (Torrington Common), are part of the National Dormice Monitoring Programme (NDMP). Good (though fluctuating) populations of Dormice *Muscardinus avellanarius* have been recorded consistently at Paines Wood and Ash Piece for fifteen years. Dormice and their nests are now routinely recorded at Noor Wood, within which nest boxes were erected when it was added to the programme in 2015.
- 3.86 In 2016 Lake Copse and The Shaw were added to the National Dormouse Monitoring Programme and Dormouse nests have already been found in both arms of woodland, as was expected, due to the ideal habitat.
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3.87 In 2017 Manor House and Meadow Lodge were added to the National Dormouse Monitoring Programme. A confirmed Dormouse nest has been recorded at Meadow Lodge.

Great Crested Newt

3.88 Smooth Newt *Lissotriton vulgaris* and Palmate Newt *Lissotriton helveticus* have both been recorded in high numbers throughout the area.

3.89 Great Crested Newts *Triturus cristatus* have not been found in the ponds that have been explored around Binsted Village, though no targeted surveys have been undertaken. However, there is much suitable habitat in the area such as Binsted Rife, Tortington Rife and ponds around Tortington.

Reptiles

3.90 All four species of 'common' reptiles have been recorded in the Mid Arun Valley in the last two years. These species have all declined dramatically and are therefore given protection wherever they occur.

3.91 There have been no targeted surveys for reptiles and the following are 'ad hoc' sightings from ecologists and residents.

- Common Lizard *Zootoca vivipara* – this species is widespread in the area with many sightings in the last two years basking along field edges, in rough grassland, in gardens on logs.
- Slow Worm *Anguis fragilis* – this species has been seen around Binsted and in woodland clearings around Tortington Common.
- Grass Snake *Natrix natrix* – there have been many sightings of Grass Snake throughout the area such as damp rough grassland to the north of the railway line, basking along the edge of Tortington Lane, in woodland clearings in Tortington Common, The Shaw, The Lag and Binsted Rife.
- Adder *Vipera berus* – has been seen in Binsted at the edge of the nursery and basking in the garden at the southern end of The Shaw. This species also occupies the mosaic of wet and dry habitat in the Binsted Woods Complex around Tortington Common.

UKBAP priority species / SPI – Brown Hare

3.92 The European Brown Hare *Lepus europaeus* was recorded near Lake Copse in 2016 and has also been recorded in Ford.

3.93 In 2017 there have been three recordings in and around Binsted, one of which was a dead Hare killed by a car on Binsted Lane.

UKBAP priority species / SPI – Common Toad

3.94 Common Toad *Bufo bufo* is widespread throughout the area with sightings throughout the Mid Arun Valley. Ponds and ditches are throughout the Binsted and Tortington area and it is possible that many more than could be surveyed may support Common Toad.

3.95 An estimated one thousand plus Common Toads were seen breeding in Madonna Pond in March 2017. Strings of toad spawn were found during a survey (March 2017) in a garden pond at the southern end of The Shaw and tadpoles were found in a garden pond at the southern end of Lake Copse, The Shaw and The Lag.

3.96 The latter pond is in close proximity to Tortington Rife where thousands of Common Toad tadpoles were recorded in the spring of 2016.

UKBAP priority species / SPI European Eel

3.97 The European Eel *Anguilla anguilla* has been recorded in Lake Copse at Binsted and the Black Ditch at Lyminster (Thompson 2016).

UKBAP priority species / SPI – European Hedgehog

3.98 Field signs for European Hedgehog *Erinaceus europaeus* have been recorded for a 300 m stretch along Muddy Lane in the north part of Binsted. There is also a separate sighting for Hedgehog along Muddy Lane.

3.99 Hedgehog faeces have been recorded in Noor Wood which is in Tortington Common.

UKBAP priority species / SPI – Harvest Mouse

3.100 A survey in one of the suitable locations for Harvest Mouse *Micromys minutus*, a field to the west of Tortington Rife, was undertaken in 2016 by Sam Buckland, Lucy Groves and Ian Powell in October 2016. A total of eleven nests were found throughout the field.

Water Vole

3.101 In 2015 spot checks were carried out for Water Vole *Arvicola amphibius* feeding remains and latrines. Feeding remains and latrines were found along Binsted Rife at SU 9839 0453 and at the reservoirs to the south of Binsted Rife at SU 98698 04497. Additionally, potential burrows were observed on an island in the larger reservoir (SU 98740 04490). Possible Water Vole footprints were observed at Lake Copse (SU 98828 05782) and the distinctive sound of a Water Vole dropping into water was heard.

Invertebrates - butterflies

3.102 A total of 179 records for butterflies have been submitted within the last 2 years which does not include any of the targeted invertebrate surveys that have been undertaken.

3.103 This amounts to 28 species which include the Purple Emperor *Apatura iris* (IUCN Red List – Near Threatened), Dingy Skipper *Erynnis tages* and White Admiral *Limenitis camilla* which are both Section 41 Species of Principal Importance under the NERC Act (2006).

Invertebrates – beetles

3.104 A beetle survey was conducted at Lake Copse, and two nearby field hedges in May to October (Grove 2016).

3.105 The survey found 230 beetle species, including one Red Data Book species and 10 Nationally Scarce species. Moreover, each location also produced a beetle not previously recorded in Sussex.

3.106 Dr. Grove is familiar with the area having previously recorded beetles in the Binsted Woods Complex (2006) where 400 species from 46 different families including 25 Nationally Notable species and 2 Red Data Book species were found.

Invertebrates - general

3.107 In 2016 / 2017 Mike Edwards led an invertebrate survey sampling a number of invertebrate groups in Little Danes Wood, Binsted Rife, the western edges of the Binsted Woods Complex, and an area in Binsted Village.

3.108 A total of 551 species were recorded which includes 29 Nationally Scarce species, 3 Section 41 species (NERC 2006) and 6 Red Data Book Species such as *Dorycera graminum*, *Andrena bucephala*, *Limnophila pictipennis* and *Limonia masoni*.

3.109 In just two hours of collecting (22.08.15), a local entomologist, Nathalie Guerin, found 130 invertebrate species along the edge of Binsted Rife including approximately 29 hoverflies, 29 bugs, 18 beetles and a variety of other groups such as gall flies, bumblebees and bush crickets. It also included a Section 41 Species of Principal Importance, two Nationally Notable hoverflies *Volucella inanis* and *Volucella zonaria* and a Nationally Scarce Beetle *Anthocomus fasciatus*.

3.110 In a half-day sampling session (17.06.17) in Noor Wood Tortington Common, Nathalie Guerin found 87 species including hoverflies, moths, weevils, shieldbugs, flies and beetles. Many species were associated with Oaks and one Nationally Notable species, *Ampedus elongantulus*, a click beetle, was found together with a Nationally Scarce moth species and two Local species.

Invertebrates - aquatic

3.111 During a three-minute standard net in water freshwater sampling survey undertaken in Binsted Rife (07.07.16 Bill Young) seventeen genera were found. Simpson's Diversity Index was used to measure the diversity of the rife. This method of measuring species richness takes evenness as well as diversity into account and gave an index of 8 indicating that Binsted Rife supports a diverse assemblage of aquatic invertebrates.

Invertebrates - moths

3.112 Two moth-trapping exercises were carried out in 2016. A survey at Lake Copse at SU 990 057 (29.07.16) found 47 moth species including one Section 41 Species of Principal Importance, the Yellow-tail *Euproctis similis*.

3.113 An additional survey relatively nearby at SU 986 065, along the hedgerow bounding the south of Scotland field (06.08.16), found 40 moth species. This included 6 Section 41 Species of Principal Importance including Ghost Moth *Hepialus humuli* and Rosy Rustic *Hydraecia micacea* and 4 with Local status such as Rosy Footman *Mitochrista miniata*.

Invertebrates - Odonata

- 3.114 Twelve species of dragonfly and damselfly have been recorded in the Mid Arun Valley. This includes the Azure Damselfly *Coenagrion puella*, the Broad-bodied Chaser *Libellula depressa* the Brown Hawker *Aeshna grandis*, the Southern Hawker *Aeshna cyanea* and the less common White-legged Damselfly *Platycnemis pennipes*.

Invertebrates - miscellaneous

- 3.115 The Stag Beetle *Lucanus cervus*, a Section 41 Species of Principal Importance due to significant National (and European) declines, was recorded in Binsted Woods in 2015. This species also requires wood that is the texture of balsa, but at ground level.
- 3.116 The Glow-worm, *Lampyrus noctiluca*, is another iconic beetle in the area. This is frequently seen along Old Scotland Lane and is observed yearly in a garden in Binsted at the southern end of The Shaw. Although this species is not listed as rare, it is not common.

4 EVALUATION

HABITATS

4.1 The Mid Arun valley comprises a rich mosaic of habitats, many of which are Section 41 Habitats of Principal Importance for the conservation of biodiversity. The habitats that will be directly impacted upon by any of the route Options are considered below.

Ancient semi-natural woodland

4.2 This is a large block of extremely diverse woodland, which constitutes three S41 Habitats of Principal Importance – *lowland deciduous woodland*, *wet woodland* and *lowland heath*. (The latter will not be impacted by the route Options).

4.3 The Binsted Woods Complex is a complex of woodland sites and is the largest area of woodland to the south of the A27 along the Sussex coastal plain. It is the size of this woodland that enables it to support such a diverse and viable range of protected species, many of which rely on the surrounding habitats as well in order to survive.

4.4 A 1992 assessment by the Environmental Advisory Unit Ltd. noted that over 250 plant species had been found in the past, with the wooded areas holding between 150 and 170 plant species. This was put to the test in 2015 by recorders from the Sussex Botanical Recording Society who found a total of 261 native species, which includes 53 Ancient Woodland Indicator species (past surveys have found 52).

4.5 The woodland has a high number of mature, notable and veteran trees and a high number of areas within the Binsted woodland complex hold Tree Protection Orders (TPO's) including a block in Little Danes Wood, one at Brickkiln Piece and a number of areas around Steward's Copse.

Woodland and ancient shaws

4.6 These areas of woodland are classified as S41 Habitats of Principal Importance *lowland deciduous woodland* and *wet woodland*.

4.7 They provide important reservoirs of ancient woodland species and this enables colonisation of such species in the younger blocks of plantation woodland. They serve as habitat linkages / green corridors and provide nesting habitat for farmland birds and Dormice. In 2016 three Nightingales were heard singing in one such area of woodland at SU 9976 0587.

Hedgerows

4.8 All the hedgerows in the area comprise native woody species and, as such, classify as S41 Habitats of Principal Importance.

4.9 The range of hedgerow structure is from trimmed and dense to tall and overgrown with dense stands of Bramble. This provides excellent habitat for a range of farmland birds in the area such

as Linnet, Tree Sparrow *Passer montanus*, Yellowhammer and Turtle Dove *Streptopelia turtur* all of which are Red List species.

4.10 Many have ancient woodland indicator species such as Butchers Broom and Primrose. Standard trees are frequent in the hedgerows and many of these are classed as veteran or notable with features of considerable value to wildlife.

4.11 The hedgerows provide extremely important corridors radiating out from the Binsted Woods Complex and across the landscape.

Notable / veteran trees

4.12 Notable and veteran trees are classified as S41 Habitats of Principal Importance within the category *wood pasture and parkland*.

4.13 They are important for the features that they display with progressive aging, providing habitat for many organisms, known as 'veteran features'. The tree is progressively colonised by fungi that change the nature and condition of the wood resulting in an accumulation of dead woody tissue. This often results in the shedding of branches which in turn may result in branch cavities, shattered branch ends, loose bark, sap runs, a range of rot types and eventually the hollowing of the tree. The fruiting bodies and mycelia of saproxylic fungi may in turn be colonised by specialised invertebrates.

4.14 As the tree ages the number of specialist niches increases, each with a diverse food web. Due to the decrease in the number of such trees and the clearing and tidying of dead wood, many of these species are very rare. Such saproxylic invertebrates have limited powers of dispersal, and so the greater the length of time a group of trees have persisted in an area, the greater the chance that this habitat has been colonised by such species.

4.15 Another group to make use of these trees is the bats. Many species roost under bark, in crevices and in hollows. Such trees may also be used for maternity roosts and hibernation. The high numbers of tree-roosting bats in the Mid Arun Valley, is, in part, attributable to the abundance of these trees.

Arable field margins

4.16 The more species rich arable field margins would be classified as a S41 Habitat of Principal Importance.

4.17 All arable field margins provide a transition from bare ground to dense vegetation supporting a range of flowering plants and grasses and collectively covering a significant area. This, in turn provides a food source and cover for a diversity of vertebrates and invertebrates.

4.18 Arable field margins are life-lines and corridors that allow mammals, reptiles and amphibians to move across the landscape.

Chalk streams

4.19 Chalk streams classify as S41 Habitats of Principal Importance within the category *aquifer-fed naturally fluctuating water bodies*.

4.20 Binsted Rife is fed from drainage of the South Downs and is surrounded by a mosaic of lowland fen, swamp and wetland vegetation. It is one of the most diverse and unusual habitats in the area and a remnant of wetland habitat that is becoming scarce in the county.

4.21 A second chalk stream originates at Sandy Hole Pond and traverses the landscape above and below ground along field edges and into the Lake Copse woodland. Although calcareous in origin, this influence is mostly lost along its course.

Drainage ditches and streams

4.22 The streams and ditches vary widely in nature and therefore have the potential to support a wide range of species (both plant and animal) across the landscape.

4.23 The streams traversing areas of woodland alter the local environment, sometimes with wet marshy areas and braiding. This is reflected in a more diverse ground flora and humid conditions ultimately resulting in localised increases in biodiversity.

4.24 The streams and ditches provide riparian corridors through the landscape, allowing ease of movement for species such as Water Vole, European Eel and potentially Otter.

Ponds

4.25 A number of ponds, particularly those that are species rich, of ancient origin or support protected species, would be classified as S41 Habitats of Principal Importance.

4.26 Ponds, both ephemeral and permanent, throughout the area collectively support a high number of plant species. Sandy Hole Pond and ephemeral pools within Hundred House Copse and Little Danes Wood are unusual being calcareous; fed from chalk springs / seepages.

4.27 Several of the ponds are marked on the 1880 Ordnance Survey map (Sheet LXII) and, as such, have provided a continuous habitat for well over one hundred years enabling them to be used by generations of species. Examples are that they are now important breeding sites for Common Toad, watering holes for Badgers and foraging areas for bats.

4.28 Ponds are generally known to accumulate more species with age, and because individual ponds vary significantly in their species composition, overall they often contribute more to local biodiversity than rivers or other habitats.

Lowland fen and swamp

4.29 Lowland fen and swamp communities are S41 Habitats of Principal Importance under *lowland fen*.

4.30 They have declined in extent due to land drainage schemes. However, there are pockets of good quality habitat in the area, particularly along Binsted Rife and to the west of Tortington Rife.

4.31 This habitat is uncommon in Sussex, particularly with an assemblage of associated rare plants intermixed with those of calcareous origin which would elevate Binsted Rife to be of County significance.

Reedbed

- 4.32 Reedbed is a S41 Habitat of Principal Importance. The most notable area is to the east of the Arun, and is considered to be noteworthy due to its large size.
- 4.33 The ribbons of reedbed along the ditch network link this habitat providing cover and habitat for a range of protected species.

Coastal and floodplain grazing marsh

- 4.34 This is a S41 Habitat of Principal Importance and forms part of a contiguous corridor of open habitat along the River Arun from the middle of Sussex right down to the coast through the Climping Gap.
- 4.35 This, when compared to other mid-Sussex rivers such as the Adur and the Ouse is largely uninterrupted by urban areas and major road networks.

River corridor

- 4.36 The river corridor is a S41 Habitat of Principal Importance and supports a number of rare plant species.
- 4.37 The banks along this stretch of the Arun have mostly been artificially enforced, though there are scattered communities of interest such as a sizable area of reedbed on the east side, smaller areas of reedbed along its length and small areas of saltmarsh vegetation.

Other habitats

- 4.38 Additional S41 habitats such as saltmarsh and lowland heath are in small fragments in the area or will not likely be significantly negatively impacted by any of the Options.
- 4.39 Habitats such as ruderals and scrub, pockets of grassland and scattered trees are throughout the area, as they are the general countryside. They are immensely important to protected species forming protective cover, habitat for breeding birds, corridors and refuges in a farmed landscape. These habitats are however readily replaceable, though the numerous corridors they provide are not.

Important habitats

- 4.40 The Binsted Woods Complex, due to its diversity of woodland types as well as plants, fungi, bryophytes and invertebrates, together with a high number of protected species, is considered to be of National Importance.
- 4.41 The calcareous streams, springs and seepages and associated features such as Alder carr and lowland fen, resulting from the unique geology, are considered to be of County Importance.

PROTECTED SPECIES

Badger

- 4.42 Badgers are protected under the Protection of Badgers Act (1992); the Wildlife and Countryside Act of 1981 (and as amended). As such it is an offence to willfully take, kill, injure a Badger. Under the Protection of Badgers Act (1992), their setts are also protected against obstruction, destruction, or damage in any part, and the animals within a sett cannot be disturbed.
- 4.43 The Badger population is extremely high in the area due to a good range of habitat types. Higher and drier land, optimal for sett building is juxtaposed with low lying damp grassland and arable fields throughout the area offering excellent foraging opportunities.
- 4.44 Badger sett-building activity has been observed in quite open habitat on narrow sloping pasture in the Binsted Rife valley which may be due to a very high population density and / or a lack of disturbance in the area.

Bats

- 4.45 All species of bat present in the UK receive full protection under The Conservation of Habitats and Species Regulations 2010, and the Wildlife and Countryside Act 1981 (as amended).
- 4.46 A number of bat species, Barbastelles, Bechsteins's bats, Noctule, Soprano Pipistrelle, Brown Long-eared bat are UKBAP priority species that have been adopted as Species of Principal Importance in England under Section 41 of the NERC Act (2006).
- 4.47 The four rarest British bat species are listed in Annex II of the Habitats Directive (adopted in 1992). For species listed in Annex II of the Habitats Directive, core areas of their habitat must be protected under the Natura 2000 Network and the sites managed in accordance with the ecological requirements of the species.
- 4.48 The local area is known to be important for bats for extensive surveys have been conducted at Slindon National Trust estate over a number of years to identify the species present and study the Barbastelle colony discovered there.
- 4.49 Thirteen bat species amounts to fractionally below three quarters of the entire British species, but given the landscape, habitats and small amount of survey effort, more species may be present. Bats will roost in a variety of habitats such as mature trees, buildings and bridges.
- 4.50 The presence of two Annex II bat species within the Binsted Woods complex, one of which, Bechstein's bat, with a confirmed maternity roost in Tortington Common, gives the area potentially qualifying criteria for a Special Area of Conservation (SAC) and possibly Nationally Important status particularly if a Barbastelle maternity colony is found or additional bat species.
- 4.51 The surveys have demonstrated that the area is littered with trees with features suitable for roosting bats such as hollowing, splits, cracks, woodpecker holes and rot holes. The full extent of these trees present in the Binsted Wood Complex and throughout the landscape has only just been touched upon and certainly not recorded.

- 4.52 The landscape provides an ideal dark area for foraging. Open spaces within the Binsted Wood Complex such as the wayleave, Old Scotland Lane and small clearings in Tortington Common as well as the woodland edge, woodland extensions such as Lake Copse, The Lag and The Shaw and the shaws extending from the woodland to the south of Tortington Common, provide ideal sheltered foraging habitat in areas of still air.
- 4.53 The low-lying floodplain landscape with the river, water bodies, wet ditches and damp fields surrounded and sheltered by hedgerows and tree-lines attracts insects such as midges, moths and micro-moths. This abundant habitat is readily accessible, for the numerous hedgerows, scrub-lines and tree-lines provide flight-lines and protective cover whilst foraging.
- 4.54 This landscape provides a variety of roost sites and foraging areas relatively close together and a dense commuting network with no barriers to dispersal. This combination of factors means that there are likely to be lower metabolic demands on commuting bats and lower predation, which would result in increased breeding success and therefore stable populations – hence the good diversity of bat species.
- 4.55 These initial baseline surveys clearly show that this is an important area for bats, with two Annex II species present and several other rare or threatened species including the recently discovered Alcathe bat. Bats can be used as indicators of biodiversity and show that this is an ecologically important area.
- 4.56 The Mid Arun Valley including the Binsted Woods Complex, smaller copses, shaws, farmland, fen, wetland and traditional old buildings covers a large area, which requires a thorough and complete set of bat surveys across all habitats and different areas throughout the year to build up a picture of bat species using the site.

Birds

- 4.57 Breeding birds are protected by the Wildlife and Countryside Act 1981 (as amended). Under this legislation, it is an offence to intentionally kill, injure or take the birds or their eggs, or to intentionally destroy or disturb a nest, when it is in use or being built.
- 4.58 Many bird species are listed as being UKBAP priority species and have subsequently been adopted as Species of Principal Importance (SPI) for the conservation of biodiversity in England, in Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. A proportion of UK birds are Birds of Conservation Concern, Red List or Amber List species.
- 4.59 A high number of birds have been recorded within the last two years and the area, as a whole, is known to have an extremely high diversity of birds with just under a third of the British total in a relatively small area of the Mid Arun Valley (Thompson 2016). There are a number of reasons for this high species diversity as follows:
- The diversity of habitats of which many are either Section 41 Habitats and / or in environmental stewardship schemes. This has resulted in a good mix of farmland, wetland and woodland species with a good representation of birds of prey such as Buzzard *Buteo buteo*, Barn Owl *Tyto alba* (Schedule 1) and Tawny Owl *Strix aluco* (Amber List).

- The damp fields and network of ditches provide aerial forage for summer visitors such as Swallows *Hirundo rustica*, Swifts *Apus apus* (Amber List) and House Martins *Delichon urbica* (Amber List). Undisturbed buildings, barns and stables provide nesting opportunities.
- The farmland supports large numbers of winter visitors such as Redwings *Turdus iliacus* and Fieldfares *Turdus pilaris* and declining species such as Linnet and Yellowhammer (all Red List species).
- The river Arun provides hunting corridors for the Hobby *Falco subbuteo* and nesting opportunities for Kingfishers *Alcedo atthis* (Amber List), which are both Schedule 1 species.
- Undisturbed, scrubby woodland above dense and tall vegetation is ideal for Nightingales (Red List).
- The vast area of floodplain grassland is of importance to a wide range of wetland species; many of which have declined substantially and therefore have various layers of protection.
- The juxtaposition to the Arun Valley SNCI, which comprises extensive wetlands, supporting breeding wintering birds, waders and wildfowl such as Snipe *Gallinago gallinago* (Amber List) and Lapwing *Vanellus vanellus* (Red List and Schedule 1), which also breed in the Mid Arun Valley area.
- The proximity of the Arundel Wetlands Centre which provides a haven for a high number of passage waders and the landscape linkage from the coast through the Mid Arun Valley area and along the Arun into mid Sussex to areas of the Arun Valley such as Pulborough Brooks, Amberley Wildbrooks and Waltham Brooks. These form the Arun Valley Special Protection Area for rare and threatened birds (SPA).
- A high number of species recorded in the SPA have been recorded in the Mid Arun Valley (Thompson 2016), and this uninterrupted corridor may contribute to the high numbers of birds in the area and may be of importance to the bird populations.
- The extensive reedbeds of the Arundel Wildfowl and Wetlands Trust reserve and along the River Arun and ditches extending into the Mid Arun Valley are a major stronghold of breeding Reed Warblers *Acrocephalus scirpaceus* in west Sussex (recorded repeatedly in the Mid Arun Valley). This is an important species for the Cuckoo (Red List), which is frequently heard in the spring and a brood parasite of this species.

4.60 The British Trust for Ornithology (BTO) has conducted annual bird surveys on the same square kilometer at Marsh Farm for approximately twenty-five years (1989 – 2013). While farmland birds underwent massive declines in the wider countryside, the number of birds and species of birds recorded at Marsh Farm stayed constant with sixty-four species recorded during the first year and sixty-three during the last.

4.61 It is considered that the integrated landscape offers ideal breeding and foraging opportunities for a great range of birds of different habitats.

Dormouse

4.62 Dormice receive full protection under The Conservation of Habitats and Species Regulations 2010, and the Wildlife and Countryside Act 1981 (as amended). Dormouse is a UKBAP priority

species and has been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act (2006). The UK holds 25% of world population of Dormice.

- 4.63 The landscape lends itself to a strong Dormouse population due to the large and uninterrupted block of woodland with a varied canopy and dense shrub layer in places. During an initial scoping survey in 2015 it was thought that the landscape is ideal for dispersal with arms of woodland and shaws extending from the main woodland of the Binsted Woods Complex, which are linked to the wider landscape by outgrown and undermanaged hedgerows and tree-lines. Pockets of woodland litter the landscape and all have a variety of species providing a varied food source that would be able to support viable populations of Dormouse.
- 4.64 Dormouse monitoring was therefore extended through some of these areas and this initial assessment has proved to be correct with Dormice dispersing from the Binsted Woods Complex through The Lag and The Shaw. Dormice can also disperse through the linked canopy between the main block of the Binsted Woods Complex into Hundred House Copse to the west.
- 4.65 In 2015 / 2016 Brighton University undergraduate student James Burford undertook a project whereby the habitat suitability for Dormouse throughout the Binsted Woods Complex was calculated. The Complex was divided into similar parcels of woodland and a suite of habitat factors, based on the current literature and those associated with the most frequently occupied nest boxes in Ash Piece and Paines Wood since recording began (fifteen years ago).
- 4.66 Variables included scrub and canopy cover, dead wood availability, species diversity and connectivity. Based on the environmental parameters selected, all the other woodlands in the Binsted Woods Complex had higher Habitat Suitability Index (HSI) scores than Ash Piece and Paines Wood, with the exception of one area of pinewoods. From this and the results of the additional monitoring, it can be inferred that Dormice will be present throughout the Binsted Woods Complex.
- 4.67 Given the size of the woodland and the connectivity across the Mid Arun Valley landscape with Dormice proven to be dispersing, the Binsted Woods Complex may well be an important source population for the surrounding areas.

Great Crested Newt

- 4.68 Great Crested Newts are fully protected by both the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. The species is a European Protected Species, a UKBAP priority species and has been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act (2006).
- 4.69 The pond and ditch network provide ideal habitat for Great Crested Newt. Great Crested Newt (GCN) has been recorded 850 m from the area, and as there are presently no barriers to dispersal, there is the possibility that this species could be breeding in the Mid Arun Valley

Otter

- 4.70 Otters are classed as European Protected Species (EPS) under The Conservation of Habitats and Species Regulations 2010, and the Wildlife and Countryside Act 1981 (as amended). It is

therefore an offence to deliberately or recklessly kill, injure or disturb an Otter. It is an offence to obstruct access to or to destroy an Otter breeding site.

4.71 Otter is a UKBAP priority species and has been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act (2006). Otter is also a Sussex BAP and listed on the SxRSI.

4.72 Eurasian Otter populations throughout Western Europe declined over the 20th Century due to bioaccumulation of pesticides. Since the introduction of legislation to ban / restrict such chemicals and to improve water quality this species is beginning to recover.

4.73 Otter is thought to be just beginning to extend its range across the Hampshire border into Sussex and there have been unconfirmed sightings in this catchment. There are undisturbed areas that are ideal for holt construction such as around Binsted Rife and areas of wet woodland.

Reptiles

4.74 Reptiles are protected under the Wildlife and Countryside Act of 1981 (and as amended), making it an offence to intentionally kill, injure, sell or advertise to sell any of the native species of reptile in the UK.

4.75 All reptiles are UKBAP priority species and have been adopted as Species of Principal Importance in England under Section 41 of the NERC Act (2006).

4.76 Four species of reptile are frequently seen in the area – Adder, Grass Snake, Slow Worm and Common Lizard. These species require the good diversity of habitat structure that the Mid Arun Valley landscape provides such as areas of lush grassland for hunting (and ditches and ponds for Grass Snake hunting), field edges, hedgerows and ditches for dispersal corridors, banks and arable field margins for basking and abundant mammal burrows and gaps beneath tree roots within hedgerows, shaws and woodland for hibernation.

4.77 Reptile populations are thought to be extremely high in the area as there are frequent sightings both in exceptionally good reptile habitat such as around Binsted and Tortington Rifes and Tortington Common and in other areas such as arable field margins, hedgebanks and other 'edge' habitats throughout the survey area.

Water Vole

4.78 Water Voles are protected under the Wildlife and Countryside Act of 1981 (and as amended), making it an offence to intentionally kill, injure any individual or recklessly damage, destroy or obstruct access to any structure or place which Water Voles use for shelter or protection or disturb Water Voles while they are using such a place

4.79 The Water Vole is a UKBAP priority species and has been adopted as a Species of Principal Importance in England under Section 41 of the NERC Act (2006).

4.80 The Mid Arun Valley area has an extensive interconnected ditch network with scattered ponds. Although some of the ditches are ephemeral in nature, many remain wet throughout the year offering suitable habitat. Moreover, there are ditches and ponds that are undisturbed by large

grazing animals in key areas of lush fringing and surrounding habitat such as along Binsted Rife, along Tortington Rife and ditches / reservoirs to the north of the railway line.

- 4.81 These areas offer a more complex habitat than just a linear network of ditches with breeding refuges for Water Voles where they are less likely to be predated upon by American Mink.

UKBAP priority species / SPI – Brown Hare

- 4.82 The European Brown Hare is a species of an open landscape where it occupies arable fields and pasture, both abundant in the Mid Arun Valley area. It is not usually seen unless disturbed for it is a nocturnal species spending most of the day in small depressions in the grass known as forms.

- 4.83 It has been seen around the Binsted area, but is likely to be present across the entire Mid Arun Valley landscape.

UKBAP priority species / SPI – Common Toad

- 4.84 A high and likely ancestral breeding population of Common Toad was found centred around Binsted though other suitable areas such as ponds in Tortington, Binsted Rife and the ditch network were not investigated for this species.

- 4.85 These are linked by numerous corridors in the form of the rough grassland along field edges and hedgerows, tall wetland vegetation fringing the numerous ditches and the areas of swamp, fen and marshy vegetation providing ideal damp refuges. Parts of the Binsted Woods Complex, Lake Copse, The Lag and The Shaw also provide excellent habitat that will remain damp all year.

- 4.86 Amphibians require both aquatic and terrestrial habitats in order to breed and survive. Favoured terrestrial habitats are those that are likely to stay damp during the hottest days and the driest seasons providing moist refuges in which to shelter such as rotting wood, tussocks of vegetation, logs and accumulations of leaf litter.

- 4.87 It is likely that Common Toad, along with other amphibians, use much of the landscape across the Mid Arun Valley and could be present in significant numbers.

UKBAP priority species / SPI – European Eel

- 4.88 European Eel elvers migrate along the coastline and into our Sussex river estuaries in order to grow. After 5–20 years in fresh water, the eels become sexually mature and they begin their migration back to the Sargasso Sea to spawn. The connectivity of the landscape is demonstrated by the presence of this species in the lake in Lake Copse and a ditch in Lyminster (Thompson 2016).

UKBAP priority species / SPI – European Hedgehog

- 4.89 The woodland and habitat linkages with shaws, scrubby tree-lines, outgrown hedgerows and unkempt field margins provide excellent Hedgehog habitat. Moreover, the presence of this species is a good indicator of the abundance of ground-dwelling invertebrates and of varied habitat features, such as hedges and copses (Reeve, 1994) as found in the Mid Arun Valley.
-

- 4.90 Various studies indicate that Badger predation is one of the main causes of Hedgehog mortality (Doncaster *et al.*, 1992, Hof and Bright 2010). However, it appears probable that the habitats in the Mid Arun Valley have the diversity and complexity to support viable populations of Hedgehogs despite the known high population of Badgers.

UKBAP priority species / SPI – Harvest Mouse

- 4.91 This species has shown a continual and steep decline since the 1970's attributable to habitat loss (Battersby 2005). However there are corridors and pockets of suitable habitat throughout the Mid Arun Valley.
- 4.92 Just one location, a field adjacent to Tortington Rife, was surveyed for Harvest Mice in 2016, though there are additional significant areas of excellent habitat along Binsted Rife, land to the north of the train line and along the river corridor. Other pockets of suitable habitat in the form of tall rough grassland and bramble bound the arable fields and provide suitable dispersal corridors across the landscape.
- 4.93 This species has been shown to disperse through the area, for a Harvest Mouse nest has previously been recorded in a wayleave in the Binsted Woods Complex.

Invertebrates - landscape

- 4.94 The mosaic of habitats across this landscape has the potential, which has been demonstrated by surveys, to support a wide variety of invertebrates. This diversity provides numerous interfaces such as woodland edges, grassy hedge banks adjacent to bare arable land, lush wetland vegetation adjacent to short grassland.
- 4.95 Interfaces (ecotones) are more species and number-rich than extensive areas of similar-structured habitat. This reflects the juxtaposition of the availability of warmth (exposure to sun), humidity (many insect larvae have major problems with desiccation, but want to be warm to grow quickly) and food resource (botanical diversity - which relates back to the first two resources).
- 4.96 The whole landscape scores very well on interfaces, and it also has other particularly important good quality habitats such as the presence of seepage / streams in woodland and much dead wood habitat.

Invertebrates – dead wood habitat

- 4.97 Dead wood is an extremely important invertebrate habitat and is abundant in the Mid Arun Valley in the Binsted Woods Complex, Lake Copse, The Shaw and narrower shaws, tree-lines and hedgerows.
- 4.98 In the course of Dr Grove's 2016 survey of Lake Copse and two nearby hedgerows, 52 saproxylics (dependent on dead or decaying wood) were identified, and this was measured against the Saproxylic Quality Index (SQI).
- 4.99 The SQI rates the importance of the dead wood habitat, a habitat that is becoming scarcer as rotten branches on trees are removed for safety reasons. Despite the small area covered by this

survey, many species found were uncommon or even rare, and they produced a high score on the SQI.

- 4.100 The overall SQI score of 434 places Binsted about halfway down the list of sites recorded in Southern England. At the top, with a rating of about 850, are sites such as the New Forest and Windsor Forest, while Petworth Park is only just above Binsted. Most of these sites are much bigger and have been studied for much longer.

Invertebrates – a comparison with other important sites

- 4.101 When compared to other good quality sites with similar recording effort the invertebrate diversity in the Mid Arun Valley is extremely high as shown in Table 3.

Table 3: A comparison of the Mid Arun Valley invertebrate diversity

Site	Year	Days	Species number
Mid Arun Valley – partial LWS	2016 / 17	13	551
Midhurst Downs – set of small sites on conservation land – much in SSSI	2016	14	570
Ebernoe Common - LWS	2016	14	565

- 4.102 The high diversity can, in part be attributed to the mosaic of habitats present, the abundant 'edge' habitat providing ecotones, plentiful dead wood habitat and the less common wet woodland with seepage / stream and pond habitats.

Invertebrates - butterflies

- 4.103 The heterogeneous landscape is ideal for butterflies, which require sometimes specific food plants, shelter from strong winds and warmth. The pockets and ribbons of open species rich habitat, the woodland rides, wayleaves and open glades, the field margins such as those around Binsted Park, Tortington Rife and Binsted Rife, the southern margin of the Binsted Woods Complex with sheltered shaws / tree lines / hedgerows and the low lying area between the banks of the Arun and the drainage ditch running alongside provide ideal butterfly habitat.
- 4.104 Despite data from *The State of the UK's Butterflies* 2015 showing significant and sustained decreases in abundance and occurrence of both habitat specialist and generalist species of butterfly, the Mid Arun Valley area appears to be showing good diversity and abundance of species.
- 4.105 This is demonstrated in the butterfly recordings that have been consistent from 2015 to 2017 with 27 species recorded in 2015 and a total of 28 species recorded in 2017. This compares well with Arundel Park SSSI, which supports 25 breeding species of butterfly.

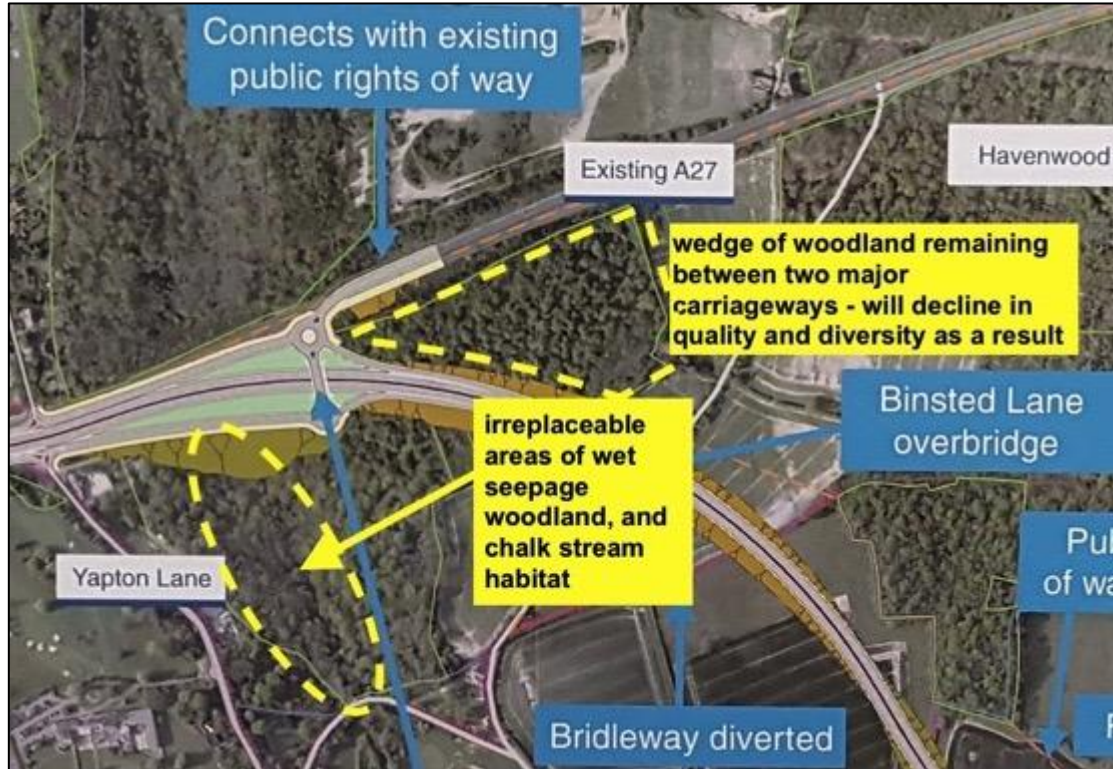
5 IMPACTS

OPTION 5A - HABITATS

Ancient semi-natural woodland

- 5.1 All areas of woodland are within the South Downs National Park and are included in the Binsted Woods Complex Local Wildlife Site. Broad-leaved deciduous woodland and wet woodland are section 41 Habitats of Principal Importance and Option 5A will traverse and destroy / degrade a mosaic of wet and dry woodland in Little Danes Wood and Hundred House Copse (shown in yellow in Figure 3).
- 5.2 Hundred House Copse and Little Danes Wood are a mixture of Ash and Oak woodland. However in areas of springs and seepage the community moves towards W7 *Alnus glutinosa* – *Fraxinus excelsior* – *Lysimachia nemorum* woodland.
- 5.3 Wet woodland combines elements of many other ecosystems and, as such, is important for many taxa. The high humidity favours bryophyte growth and the number of invertebrates associated with Alder, birch and willows, is very large. Two Red Data Book flies and a Nationally Scarce beetle were found by Mike Edwards (2017) in this woodland.

Figure 3: Areas of woodland that will be destroyed or degraded



- 5.4 This habitat is extremely diverse and has species indicative of the chalk influence. This habitat cannot be created elsewhere with tree planting, and the road will lead to the loss of rare

invertebrates, uncommon bryophytes and the stands of hundreds of Early-purple orchids associated with the habitat.

5.5 Moreover, it is stated that 6.6 ha of ancient woodland will be lost (WSP Parsons Brinckerhoff 2017), yet this does not take into account the quality of the woodland (which is extremely high). It also does not take into account the fact that the block of woodland that will remain to the north of Option 5A (Barns Copse) will be severely degraded due to becoming a fragmented 'wedge' of woodland sandwiched between two major carriageways (also shown in yellow in Figure 3).

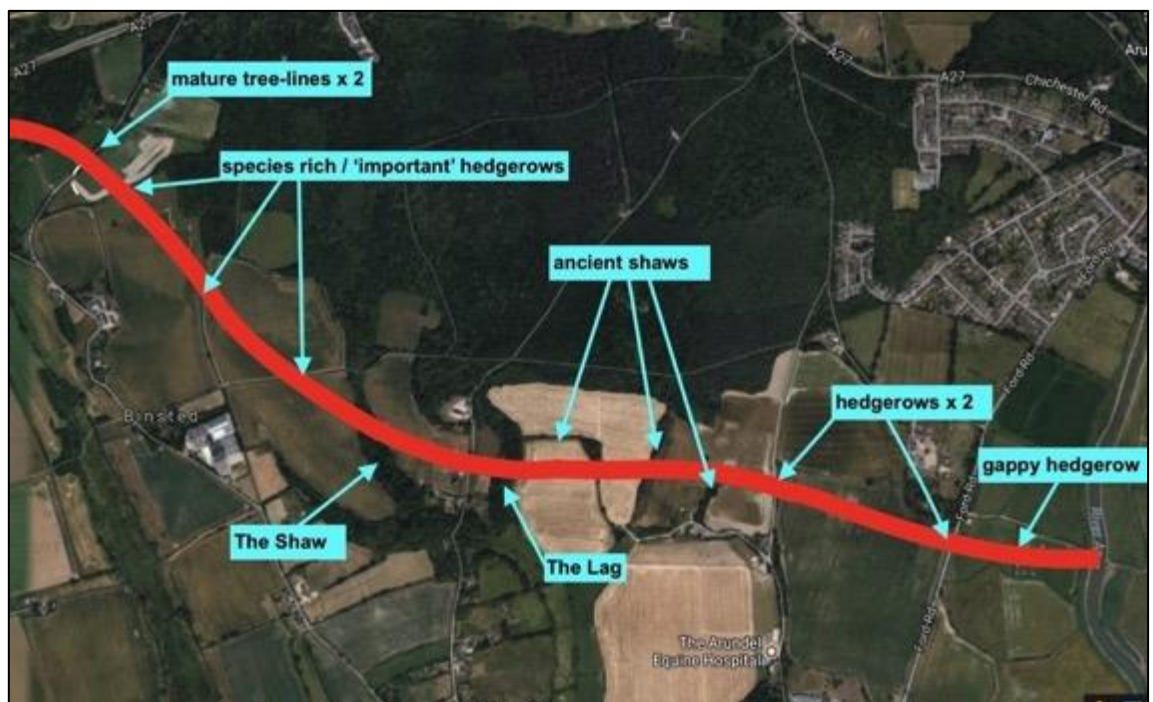
Woodland

5.6 The Shaw is partly ancient woodland and The Lag is wet woodland (formerly classified as wood pasture). Both areas of woodland have a number of veteran trees, are S41 HPI's and within the South Downs National Park. The woodlands are shown in Figure 4.

5.7 The Shaw and The Lag are mosaics of wet and dry woodland with ponds, streams and braided streams supporting a wide diversity of species including ancient woodland indicators and rare plants such as Fritillaries, (listed on the IUCN Red List VU, SxRSI), the uncommon Southern Wood-rush and Wych Elm *Ulmus glabra*, an important food plant for the White-letter Hairstreak *Satyrrium w-album*, a UKBAP and S41 species that could well be present.

5.8 These habitats will be directly lost and fragmented by Option 5A resulting in a disproportional impact to the woodland. The mosaic of habitats that result from the antiquity of the landscape and the watercourses cannot be replicated by tree planting elsewhere.

Figure 4: Ancient shaws, hedgerows and mature tree lines radiating from the Binsted Woods Complex



- 5.9 The 'W' shape of these three arms of woodland is an iconic landscape feature of the Mid Arun Valley and irreplaceable.
- 5.10 Additional very narrow strips of woodland or ancient shaws, present on the 1876 OS map Sussex LXII, radiate from the south of the Binsted Woods Complex at Tortington Common and are shown in Figures 2 and 4. These have notable and veteran trees and support a range of less common nesting birds. Due to their antiquity the habitat is irreplaceable.

Hedgerows

- 5.11 Hedgerows are S41 Habitats of Principal Importance. Option 5A would sever eight hedgerows and two mature tree-lines shown in Figure 4.
- 5.12 Three of the hedgerows are classified as species-rich of which two, and possibly the third, would be classified as 'Important' under the 1997 Hedgerow Regulations.
- 5.13 One of these hedgerows is the Copythorn Field west hedge. This hedge has 20 woody species, 90 herbaceous species, 12 sedges, rushes and grasses and 2 ferns. Such hedgerows provide habitats for a diversity of invertebrates that may live in ditches, burrow into banks or be associated with herbaceous plants.
- 5.14 Option 5A would sever these corridors and change the properties (i.e. humidity, dust, airborne pollutants etc.) of the immediately surrounding hedgerow / shaw / tree-line areas. These factors would have negative impacts on protected and notable species from Dormice to moths.

Notable and veteran trees

- 5.15 Ancient, veteran and notable trees are a feature of the Mid Arun Valley landscape and are throughout the area, particularly in the woodlands and shaws.
- 5.16 There are a number of trees that appear to be in the pathway of Option 5A, particularly in The Shaw and Hundred House Copse / Little Danes Wood / Barns Copse.
- 5.17 Veteran trees support rare fungi, invertebrates and protected species such as bats. They provide a particular series of niches of immense importance to wildlife that cannot be replicated. This habitat is irreplaceable in a human life-time.

Arable field margins

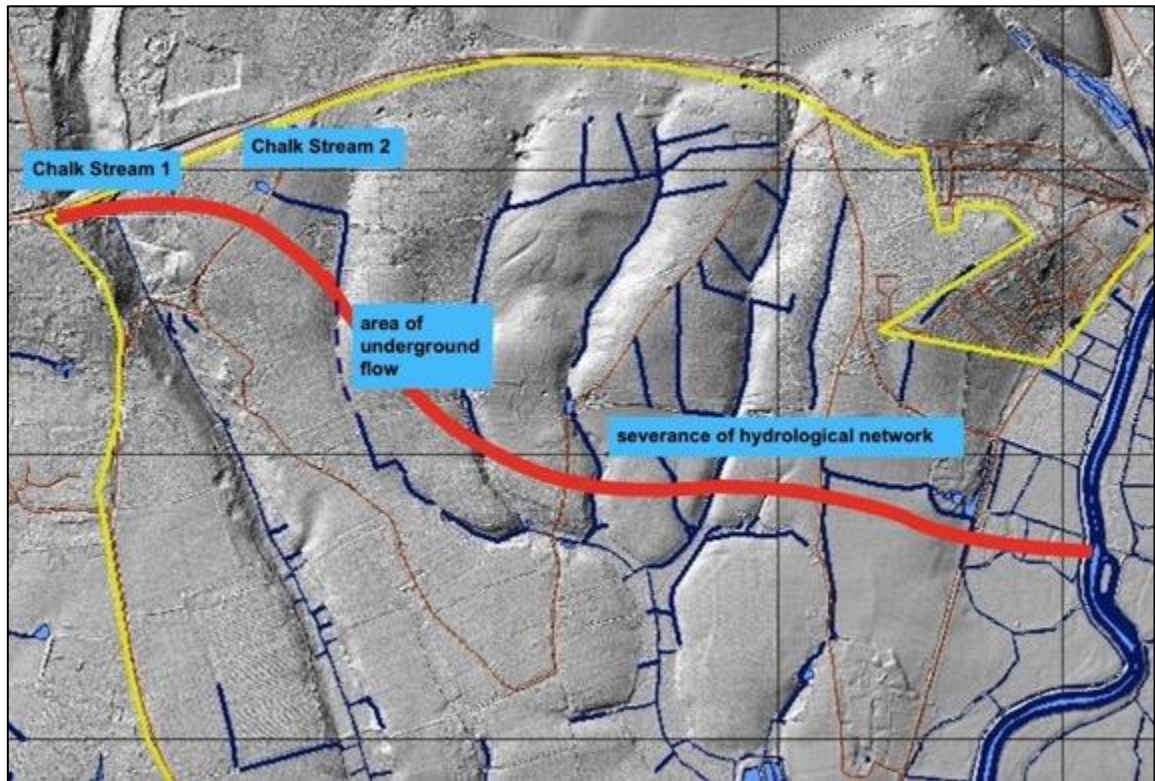
- 5.18 The main importance of the arable field margins is that they complement the hedgerows and provide habitat and a network of corridors across the landscape for a number of protected species.

Chalk streams

- 5.19 Option 5A would disrupt the network of watercourses / ditches that drain the higher land of the Binsted Woods Complex. Some of these watercourses originate in the chalk bedrock draining the South Downs. Although the full extent is unknown, two have been identified as chalk streams.

5.20 The extent of the severance / interruption / disruption of the drainage system throughout the entire Mid Arun Valley area is shown in Figure 5 where the approximate course of Option 5A has been superimposed on a LIDAR (Light Detection and Ranging) image.

Figure 5: The Mid Arun Valley stream network on a LIDAR image



Chalk Stream 1

5.21 The first chalk stream follows the boundary between the two woodlands with the valley clearly seen on the LIDAR image (Figure 5). The source is drainage from the South Downs and there are also springs in the woodland, presumably from the same source.

5.22 A major junction is planned right on the stream / seepage system itself. This would break the geological situation where saturated gravels are carrying water from the South Downs.

5.23 This would have enormous implications in terms of road run-off and balancing ponds, which then have very large effects upon the seepage system and its water quality. The proposed cutting is likely to drain the woodland the 'wrong way' for the natural drainage pattern.

5.24 Ultimately this could result in the loss / deterioration of the Binsted Rife Valley chalk stream with additional impacts on the integrated ditch network and the surrounding mosaic of lowland fen and swamp habitat.

Chalk stream 2

5.25 The second chalk stream originates at Sandy Hole Pond, which is likely fed from an underground spring.

- 5.26 This stream flows at times of high rainfall and in the winter along natural boundaries. The dashed line shown in Figure 5 is where it disappears beneath the ground for a stretch along the Copythorn Field west hedge.
- 5.27 It then flows through the Lake Copse woodland where there is a pond, pooling and marshy areas keeping the woodland humid.
- 5.28 This woodland is particularly important for invertebrates, for Dr Grove recorded 96 beetle species in this woodland in 2016 with a different assemblage in the wetter areas. This included one Red Data Book species and 8 Nationally Scarce / Notable species.
- 5.29 The chalk streams and the integrated surrounding habitats are all Section 41 Habitats of Principal Importance and are irreplaceable.

Streams and ditches

- 5.30 Severance / rerouting of the remaining streams / watercourses will have far reaching impacts. There are four main additional watercourses that feed through, from west to east on Figure 5, The Shaw, The Lag and two narrower ancient woodland shaws.
- 5.31 These streams feed into Tortington Rife and into a network of ponds throughout the area. Additionally, variations in geology / soil types in some areas has created a number of different habitats such as braiding of the stream in The Lag, marshy ground at the southern end of The Shaw and swamp communities in fields to the west of Tortington Rife.
- 5.32 Due to these features, some of these areas are unmanaged or seldom managed and therefore of importance to wildlife. Disruption of this system is likely to have a negative impact on Harvest Mice, Water Vole, invertebrates and breeding birds such as Marsh Tit (Red List).
- 5.33 The ditch and pond network throughout the Mid Arun Valley could be lost fully / partially or subjected to differing water regimes. It is also likely to suffer from pollutants from the proposed road.

Ponds

- 5.34 Many of the ponds are directly fed by the streams and ditches and so these may disappear with the destruction / disruption of the land drainage system.
- 5.35 The pond and ditch networks serve as corridors and stepping-stones for dispersal throughout the wider landscape, which would be blocked or impeded by the presence of another road through such a diverse area.
- 5.36 There will also be indirect and less immediately apparent impacts on the ponds (and the stream / ditch network), for the proximity to a major road is likely to cause a degree of deterioration due to nitrates and particulates with the potential to change the species composition. Such deposition has been shown to have an impact for a distance of 200 m from the source (Bignal *et al.* 2008).

Lowland fen and swamp

- 5.37 The loss / alteration / pollution of the Binsted Rife chalk stream will threaten the surrounding lowland fen and swamp habitat, which comprises a good quality mosaic habitat with fen and swamp communities intermixed with grazing marsh.
- 5.38 This habitat supports uncommon communities such as the National Vegetation classification type S28b *Phalaris arundinacea* tall-herb fen, which is extremely species rich in places with uncommon species such as Blunt-flowered Rush and Fen Bedstraw (both on the SxRSI).
- 5.39 It also supports less common species such as those indicative of calcareous conditions including Fan-leaved Water-crowfoot, which is declining throughout its range, Flowering-rush, Mare`s-tail and Whorl-grass (SxRSI).
- 5.40 There will also be an impact on protected species such as Water Vole, Grass Snake, uncommon birds such as Snipe (Amber List), bats and invertebrates.
- 5.41 There can be no mitigation for this S41 Habitat, for it is not only wetland habitat but it has a calcareous influence reflective in some of the species found. It is irreplaceable.

Reedbed

- 5.42 Reedbed is a S41 Habitat and areas will be lost and degraded due to the likely impact on the stream network. Additionally ribbons of reedbed corridors along ditches will be severed.
- 5.43 The largest reedbed in the area is just to the south of the proposed bridge. The siting of the bridge will degrade the quality of this reedbed and likely impact upon the species therein.

Floodplain grazing marsh

- 5.44 The floodplain grazing marsh (S41 Habitat) is part of a corridor from the coast and along the Arun into mid Sussex to areas such as Pulborough Brooks, Amberley Wildbrooks and Waltham Brooks.
- 5.45 Option 5A will cause a direct loss of this habitat and present a barrier across the floodplain grassland and associated drainage ditches with implications as to the viability of protected species in the area.

River corridor

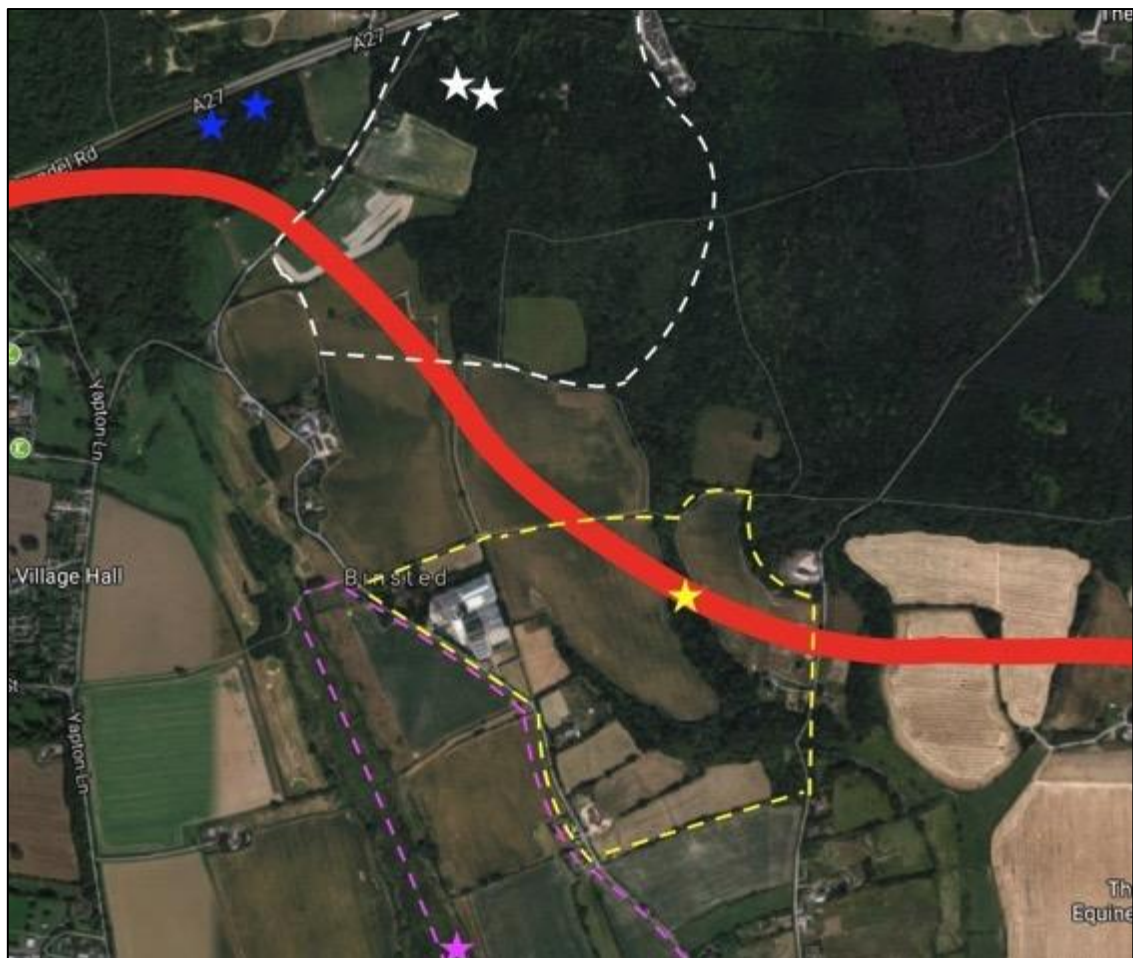
- 5.46 Option 5A will result in an area of river corridor habitat being lost with the possible loss of rare plants.
- 5.47 The bridge over the river is just to the north of a large area of reedbed that is likely to be of importance to breeding birds.

OPTION 5A SPECIES

Badger

- 5.48 The locations of setts and an estimate of territory size attained by bait marking (Dominic Walding 2016) is shown in Figure 6. Different territories are shown in different colours with 'stars' marking the approximate sett locations.
- 5.49 The sett in The Shaw will be destroyed by Option 5A and two territories are in the path of the proposed road.

Figure 6: Badger setts and territories in the pathway of Option 5A

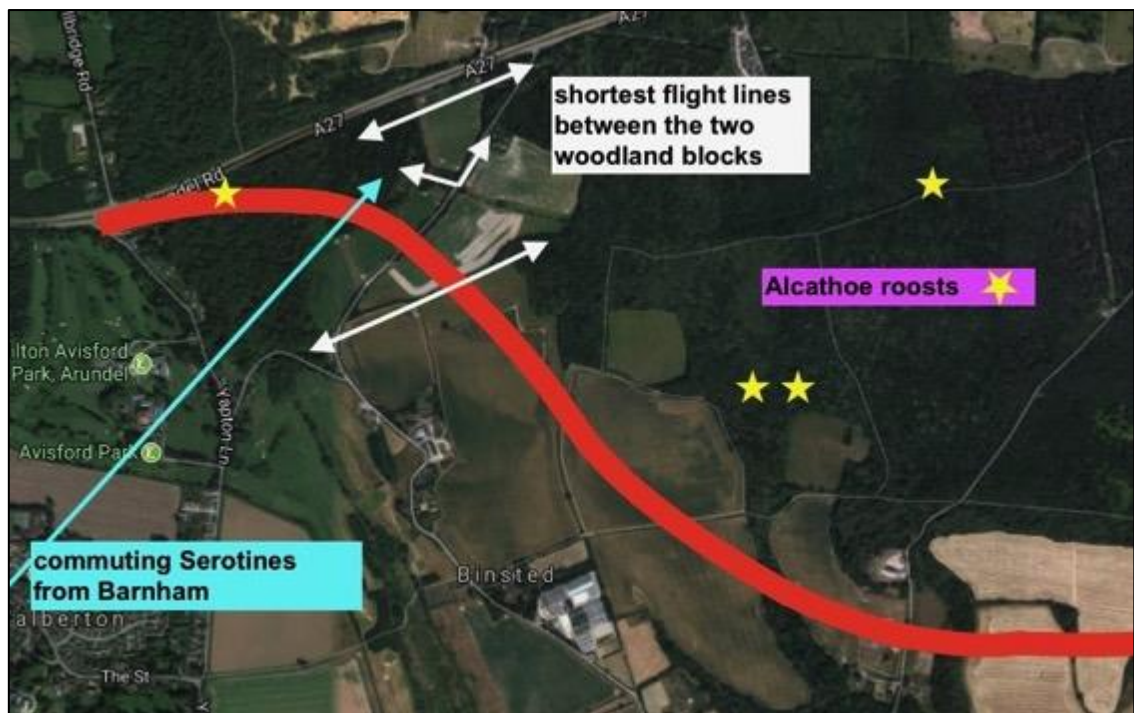


- 5.50 Mitigation will be required in the form of excluding Badgers from the sett to be destroyed (The Shaw) and providing an artificial sett if there is no other sett available within the territory.
- 5.51 Given that the Badger population is extremely high mitigation will be required to ensure that this species can cross the road safely. This would be achieved by the provision of purpose-built underpasses and badger-proof fencing to stop individuals being killed. It is important that such underpasses are located on or close to existing badger paths.

Bats

- 5.52 The movements of bats appear to be throughout the Binsted Woods Complex including the block of woodland to the west (Hundred House Copse / Barns Copse / Little Danes Wood). Flight lines in the form of tree-lines and hedgerows readily connect the two blocks of woodland (shown in Figure 7). Option 5A would sever all these corridors.
- 5.53 Alcaethoes, a UKBAP priority species, is the rarest species found, with maternity roosts discovered in both blocks of woodland (Figure 7). Alcaethoes maternity roosts have only been found in 3 counties and this is the most southern known colony in the UK. Option 5A would sever links between the roosts.

Figure 7: Alcaethoe roosts and flight lines



- 5.54 Serotines are one of our less common species, occurring mainly south of a line drawn from The Wash to South Wales. It roosts in buildings and tends to feed on larger invertebrates such as chafers. Option 5A will impact upon this species commuting from its roost sites in Barnham.
- 5.55 Option 5A will result in a loss of foraging habitat for Bechstein's bats, (three roosts found to date) which is predominantly mature native woodland, notably Oak woodland, which will be lost in The Shaw and Hundred House Copse / Little Dane's Wood.
- 5.56 Barbastelles are known to be roosting in the woodland with a roost found at the western side. It is possible that more roosts are throughout the woodland as Barbastelles are tree roosting specialists and more commonly found in old woodland roosting in veteran / damaged trees.
- 5.57 Barbastelles are known to forage over a wide area utilising both woodlands and farmland / floodplains for foraging, and so Option 5A will present a barrier between roosting and foraging areas.

- 5.58 A number of bat species have been found flying in The Shaw in the location of Option 5A including Natterers bat, Alcathees, Brown Long-eared and Nathusius Pipistrelle. This route would sever these foraging corridors and habitat linkages.
- 5.59 Based on the limited bat data collated to date, the highest impact of Option 5A will be on Alcathees. This species uses a lot of maternity roosts and there are likely to be more in the woodlands.
- 5.60 Given the importance of this woodland to a range of bat species, including some of our rarest species, Option 5A would require mitigation and enhancements to ensure connectivity is maintained between the blocks of woodland. Suitable mitigation would be the construction of underpasses or green bridges in the path of existing flight lines.
- 5.61 Mitigation would also require that artificial lighting is not used along the carriageway as most bat species, including Bechstein's bats, will avoid lit roads.

Birds

- 5.62 The extent on the impact of birds is impossible to quantify due to unknowns such as the extent of the loss and degradation of habitat that would be expected from Option 5A such as the ditch network, Binsted Rife swamp and fen.
- 5.63 Option 5A is likely to have a high adverse impact on birds of the open country such as farmland birds; a group that have suffered the most severe declines. It is likely to have a high adverse impact on other groups of birds such as wildfowl and wetland species and low-flying species.
- 5.64 Option 5A is likely to have a high adverse impact on the Barn Owl, which is known to have several breeding sites in and around Binsted. This is a low, slow flying species affected by collisions with vehicles. Option 5A is likely to sever important foraging areas from nesting sites and increase the risk of death and injury from vehicle collisions.
- 5.65 Option 5A traverses one field and is adjacent to another that have been used by swans Mute Swan *Cygnus olor* (Amber List) and likely Bewick's Swan *Cygnus columbianus* (Amber List), as a wintering roost area for over 50 years if not more.
- 5.66 Swans are routinely seen scattered throughout the fields, shown in Figure 8, in their hundreds (200 – 300 estimated) in the spring and autumn. Arundel residents describe the sight thus 'as though the fields were strewn with hundreds of white tissues.'
- 5.67 These are low-flying birds, which succumb to road deaths on the current bridge. There is likely to be a much-increased risk of this with the proposed road within such close proximity to this roost site.
- 5.68 The additional bridge is also likely to escalate the number of swans killed by roads at such crossings as they fly along the Arun.
- 5.69 The proposed bridge is adjacent to a large area of reedbed (Figure 9), which has the potential to be used by rare species such as Bittern *Botaurus stellaris* (Amber list) due to its isolated location. The potential for other birds and protected species has not been investigated due to lack of access.

Figure 8: Roosting site for two to three hundred swans

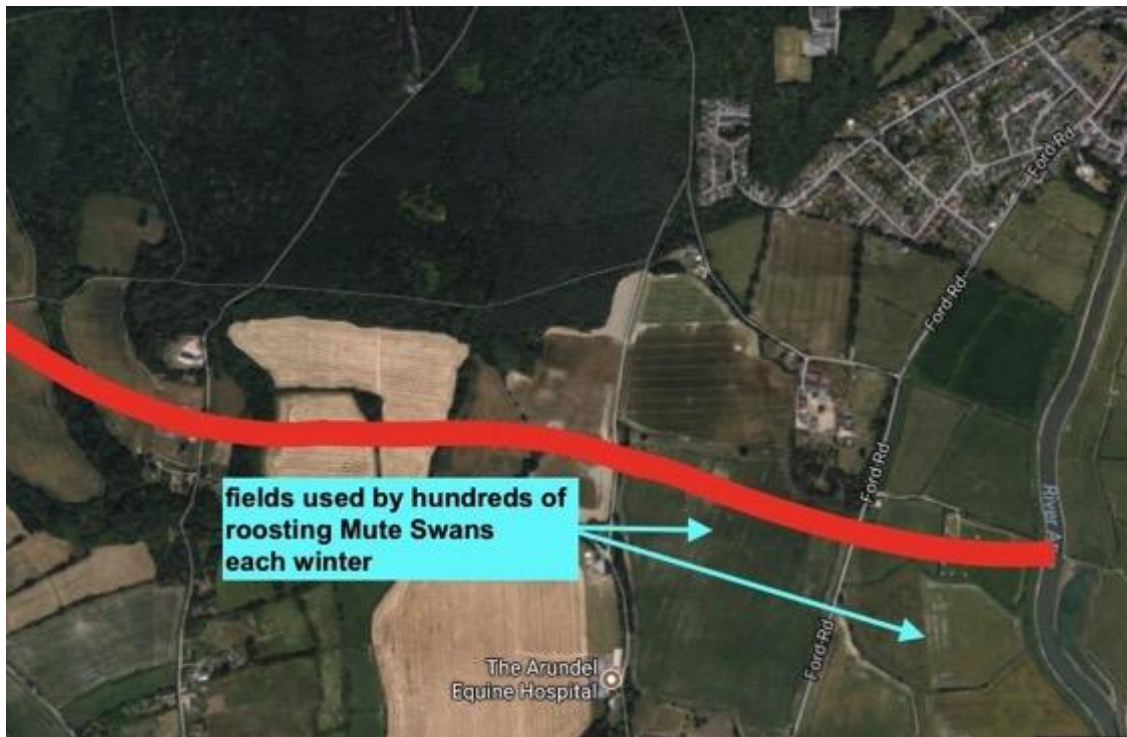


Figure 9: A large area of reedbed adjacent to proposed additional bridge siting



- 5.70 Much of the negative impact on birds will be ‘invisible’ due to a decrease in breeding numbers near roads. A 5-year research programme at Harvard University (Forman *et al.* 2002) concluded that birds might be strongly affected by traffic volume or changes in volume. With traffic of 15,000–30,000 cars per day (a two-lane highway), both bird presence and breeding were decreased for a distance of 700 m. A heavy traffic volume of $\geq 30,000$ vehicles / day saw bird presence and breeding reduced for a distance of 1200 m from a road.
- 5.71 The Mid Arun Valley is part of a corridor from the coast and along the Arun into mid Sussex to areas such as Pulborough Brooks, Amberley Wildbrooks and Waltham Brooks. These form the Arun Valley Special Protection Area (for rare and threatened birds) with very high numbers of over-wintering waterfowl. All these species have been recorded in the Mid Arun Valley area (Thompson 2016) and the impact of increased infrastructure in this area would be difficult to quantify.
- 5.72 The bird diversity and the number of birds in the Mid Arun Valley area is at least of Regional Importance and could well be of National Importance, particularly if considered with the ‘green corridor’ of wetland and wildfowl species.
- 5.73 Mitigation for birds is usually concerned with the immediate destruction of breeding habitats and the creation of nesting sites for the more widespread species. It does not take the wider issues into account.

Dormouse

- 5.74 Dormice are known to be breeding throughout the Binsted Woods Complex, with Figure 10 showing the exact locations of where Dormice or Dormice nests have been found. The population is considered likely to be key to sustaining Dormice in the surrounding areas and therefore of Regional Importance.
- 5.75 Option 5A will have a direct impact on this species by traversing three areas of woodland that support breeding Dormice, Hundred House Copse, The Shaw and the Lag.
- 5.76 Option 5A will sever corridors that allow this species to disperse from a sizable breeding and important core population in the Binsted Woods Complex to smaller woodlands, copses, shaws and outgrown hedgerows within the Mid Arun Valley and beyond.
- 5.77 The Binsted Woods Complex is the biggest and only continuous and sizable block of woodland in the area and along the coastal plain to the south of the A27. Figure 11 shows its size and importance for Dormice in the wider area.
- 5.78 The Severance of the dispersal corridors, that may lead as far as the Climping Gap, Angmering and Chichester harbour, would potentially have high adverse impacts on the regional population of Dormice.
- 5.79 A range of protected species as well as Dormice, such as reptiles, amphibians and small mammals are likely to use these corridors across the landscape.

Figure 10: Known breeding locations for Dormice in the Binsted Woods Complex

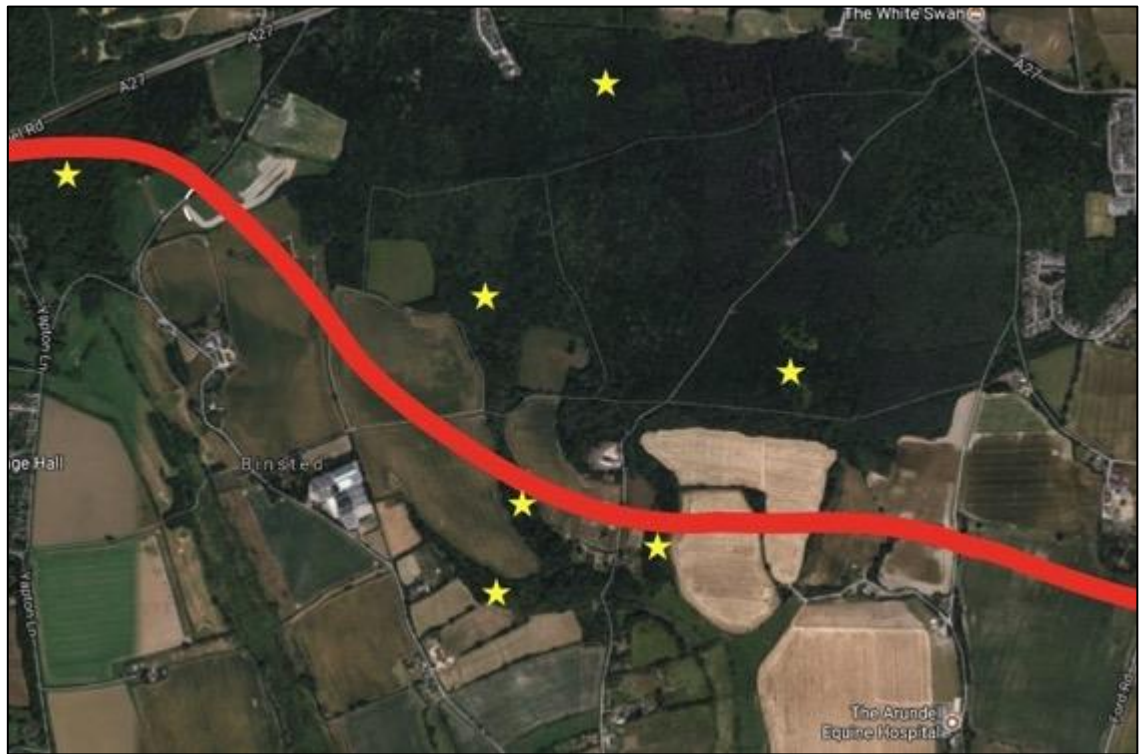
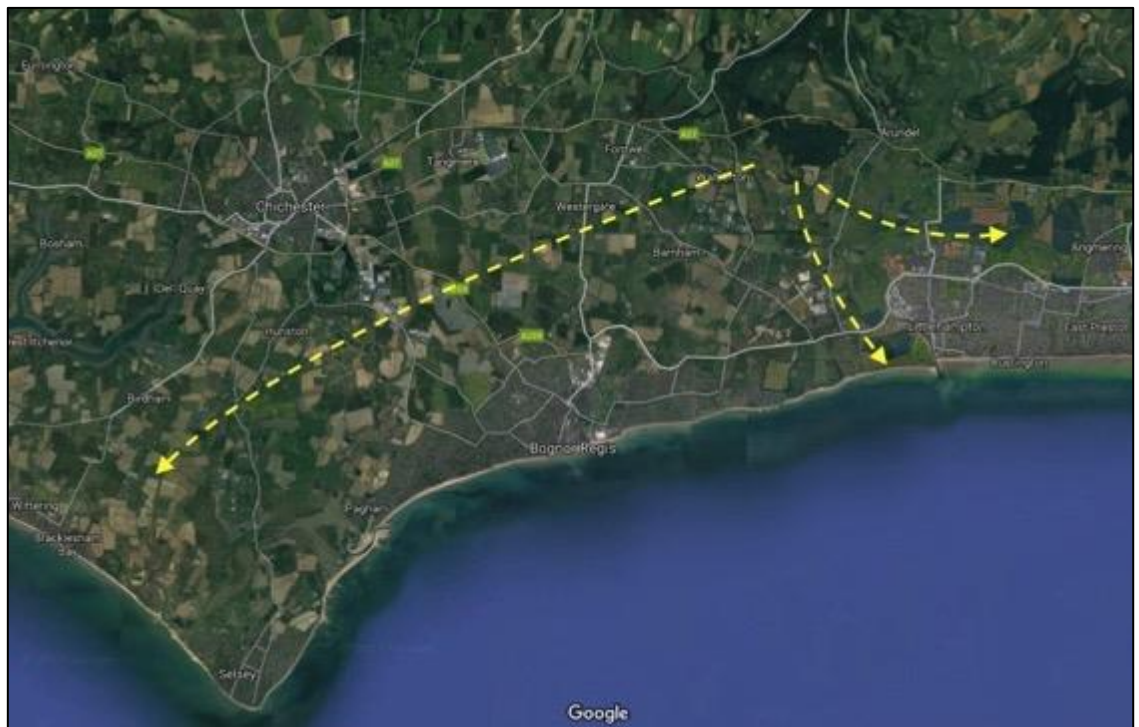


Figure 11: Potential regional dispersal corridors for Dormice from the Binsted Woods Complex



Great Crested Newt

5.80 If this species is not in the area then it may have undergone a local extinction at some point in the past, and there is no good reason why this species cannot once again occupy the suitable habitat in the Mid Arun Valley area.

5.81 However, Option 5A will pose significant barriers to dispersal for Great Crested Newt, for it will no longer be able to access all the water bodies and terrestrial habitat that are currently available.

Otter

5.82 There are a number of undisturbed areas within the Mid Arun Valley that would offer excellent locations for Otter holts. The best areas are Binsted Rife, land to the west of Tortington Rife, land to the north of the railway line and pockets of wet woodland.

5.83 Option 5A, by severing the network of watercourses feeding these streams and ditches, is likely to change the hydrology of the entire area and have a negative impact upon these sites.

5.84 This will have a negative impact on Otters, if in the area, as there are so few undisturbed and suitable potential nesting sites for this species in this part of the county.

Reptiles

5.85 The mosaic of habitats found in the Mid Arun Valley is ideal for reptiles and therefore the populations of all four species in the area is believed to be extremely high and of Regional Importance.

5.86 Reptiles routinely move across areas of landscape and, particularly Grass Snake, will traverse large areas of in order to search for suitable breeding sites, productive foraging locations and suitable hibernation sites.

5.87 Standard mitigation would include removal of all reptiles from the road development and a Temporary Amphibian / Reptile Fence to be installed along the entire carriageway in order to keep individuals away from works while in progress.

5.88 However, Option 5A will sever the habitat linkages (shown in Figure 4), particularly from prime woodland hibernation sites to foraging and breeding areas. A major barrier across this landscape is likely to result in high direct mortality and a gradual decrease in the population sizes of all four reptiles.

Water Vole

5.89 Option 5A will create an additional road across the floodplain grassland and alter the hydrology of the watercourses to the north of the floodplain grassland. Wetland habitats in Sussex are at 'critical' and yet they are regularly being destroyed, damaged and fragmented by developments such as proposed Option 5A.

5.90 The current bypass has several culverts through which Water Voles can potentially traverse. However, these also serve as 'pinch points' where Water Vole may be open to higher levels of

predation. The proposed road would provide another set of pinch points with a relatively small area of floodplain grassland sandwiched between two roads. This is likely to increase predation and decrease dispersal to negligible levels.

5.91 Ditch networks, though cited as being 'ideal' habitat for Water Voles, only provide marginalized wetland habitats within strict linear confines, allowing efficient Mink predation. The more complex habitat in parts of the Mid Arun Valley area, with the wetland surrounding Binsted Rife, the fields to the west of Tortington Rife, the reservoirs to the south of the area and the woodland around Lake Copse, currently provide refuges for the species.

5.92 Water Vole has been found at low levels, which may be due to predation from Mink. However, as the wider population is so fragile, the presence of Water Vole in the Mid Arun Valley is considered to be of Regional Importance.

5.93 Alteration of this habitat and the ability of this species to disperse effectively will have a high adverse impact and may well result in the loss of Water Vole from the Mid Arun Valley area.

UKBAP priority species / SPI Brown Hare

5.94 The Brown Hare is known to be across the farmland in the Binsted area and is likely to be across the entire Mid Arun Valley area considered to be of Regional Importance.

5.95 Brown Hare has been shown to have high mortality rates on roads, to avoid habitats fragmented by large roads and to be found in far lower abundances in areas with large roads (Roedenbeck and Vosser 2008).

5.96 Option 5A is likely to have a high adverse impact on the known population of Brown Hare in the area to the extent that it may be lost.

UKBAP priority species / SPI Common Toad

5.97 The Common Toad population appears to be high and the locations of this species within the last two years are shown in Figure 12. The smaller yellow stars are where Common Toad has been seen crossing roads, and the larger yellow star is where they are routinely seen in substantial numbers in woodland with a wet flush (Noor Wood).

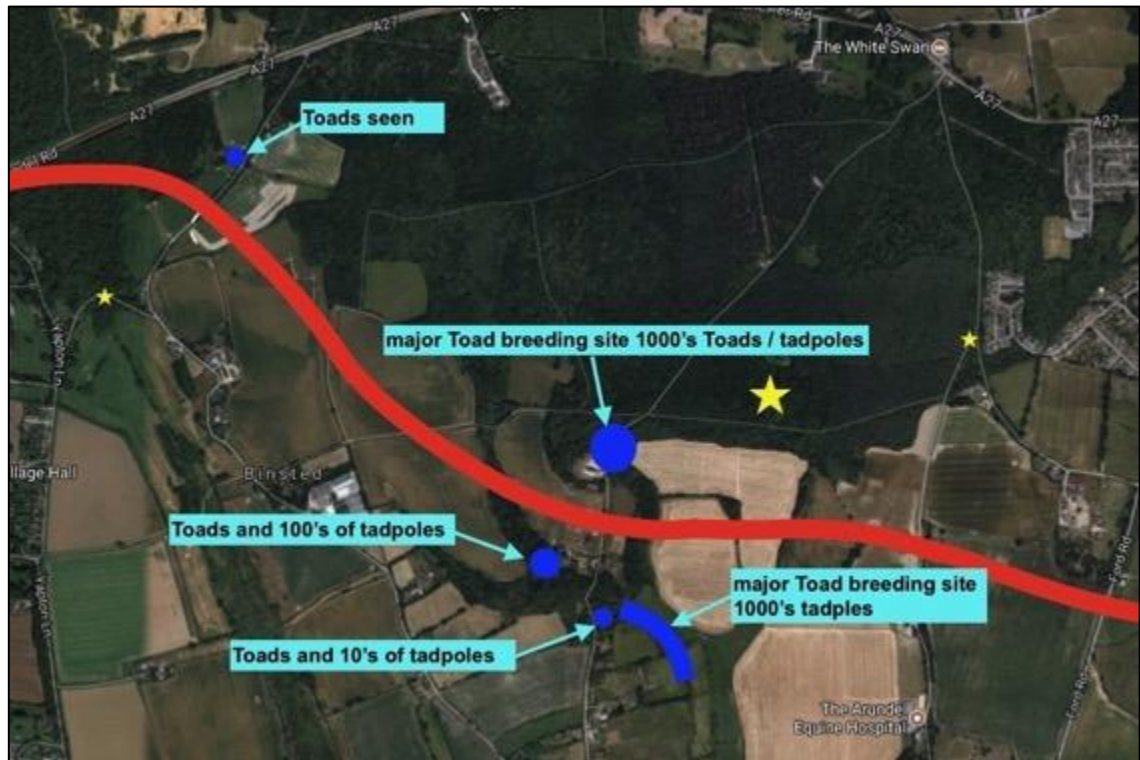
5.98 It is likely that additional Common Toad breeding sites are in the area such as Binsted Rife, the ponds around Tortington and other wet ditches. The population is likely to be of Regional Importance.

5.99 Common Toad habitually migrates to ancestral breeding ponds each year. They follow the same route, regardless of what gets in their way, which would lead to potentially high fatalities on the proposed road thereby impacting on the local population year on year.

5.100 Option 5A will have a high adverse impact upon Common Toad by cutting across the watercourses that feed into some of the ponds and ditches that are used for breeding.

5.101 Option 5A will have a high adverse impact on Common Toad by dissecting the interconnected terrestrial and wetland habitat resulting in high fatalities. This is likely to have a high adverse impact on the Mid Arun Valley population of Common Toad.

Figure 12: Common Toad locations



5.102 Mitigation would be dependent upon the location and number of Common Toad breeding sites and the way in which they utilize the landscape. Underpasses / bridges would be required in order to facilitate access to ancestral breeding sites. Additionally the creation of breeding sites to replace those lost would also be required.

5.103 However, it is still likely that without barriers, high numbers of Common Toad would be killed on the proposed road.

UKBAP priority species / SPI European Eel

5.104 The movement fish, such as the European Eel, may be impeded by the presence of an additional road cutting through a high number of ditches.

5.105 Any action that threatens the stream and ditch network in the area would have an adverse impact upon this species in the Mid Arun Valley.

5.106 Fish passage can be blocked by improperly functioning stream culverts or by a lack of them, creating an often-impassable barrier. Schaefer *et al.* (2003) reported that culverts restricted movement of the Darter *Percina pantherina*, a North American fish.

UKBAP priority species / SPI European Hedgehog

5.107 The population density of Hedgehogs is unknown in the Mid Arun Valley. However, due to the continuing decline of this species, it is considered that the Mid Arun Valley offers an uninterrupted landscape for Hedgehogs to persist. The population is therefore considered to be of Regional Importance.

5.108 Option 5A will impact on this species by creating a barrier to dispersal across the landscape and likely have a high adverse impact. Mitigation will likely be ineffective unless barriers are used to prevent high road kill numbers.

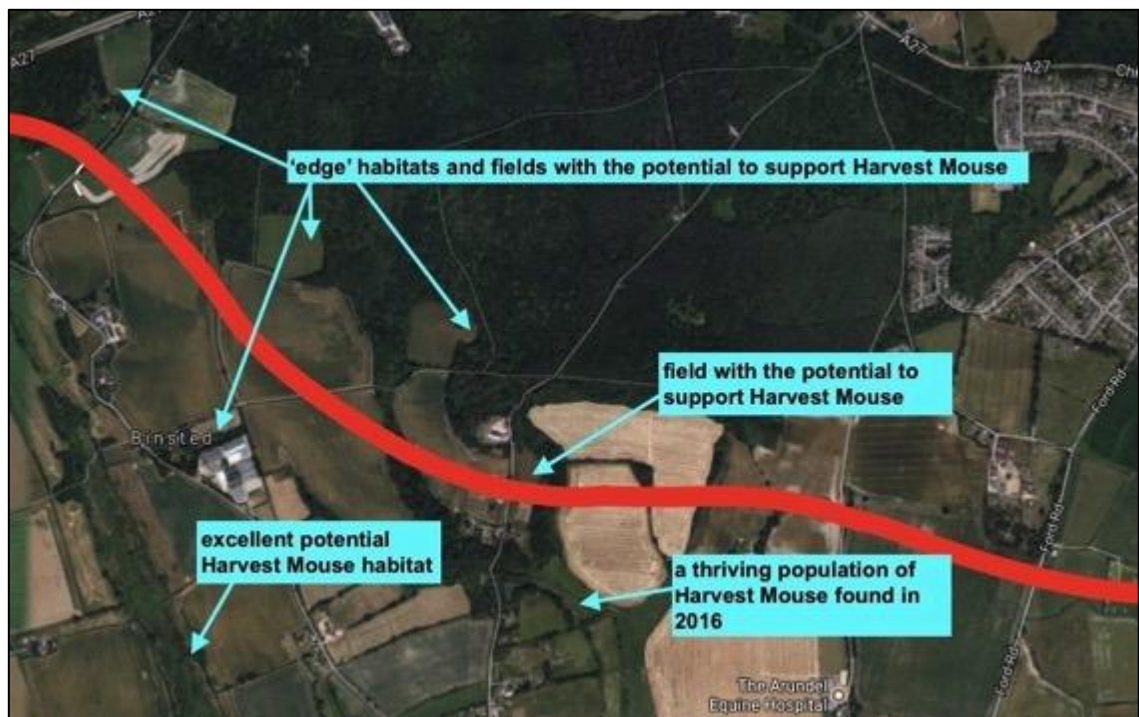
UKBAP priority species / SPI – Harvest Mouse

5.109 Suitable habitat for Harvest Mouse is to the north and south of Option 5A. One such area was surveyed and found to support a good population of this species (shown in Figure 13). The population of this declining species is considered to be of Regional Importance.

5.110 Habitat corridors of rough grassland and scrub along field edges, hedgerows and ditches link areas of suitable habitat.

5.111 Figure 13 shows that the areas of potential Harvest Mouse habitat and the ‘edge’ habitat and corridors for movement will be severed by Option 5A. Option 5A may also result in a deterioration of habitat for this species due to the potential loss of seldom managed rough and marshy grassland. There will likely be a high adverse impact for Harvest Mouse.

Figure 13: Harvest mouse population and some other suitable locations



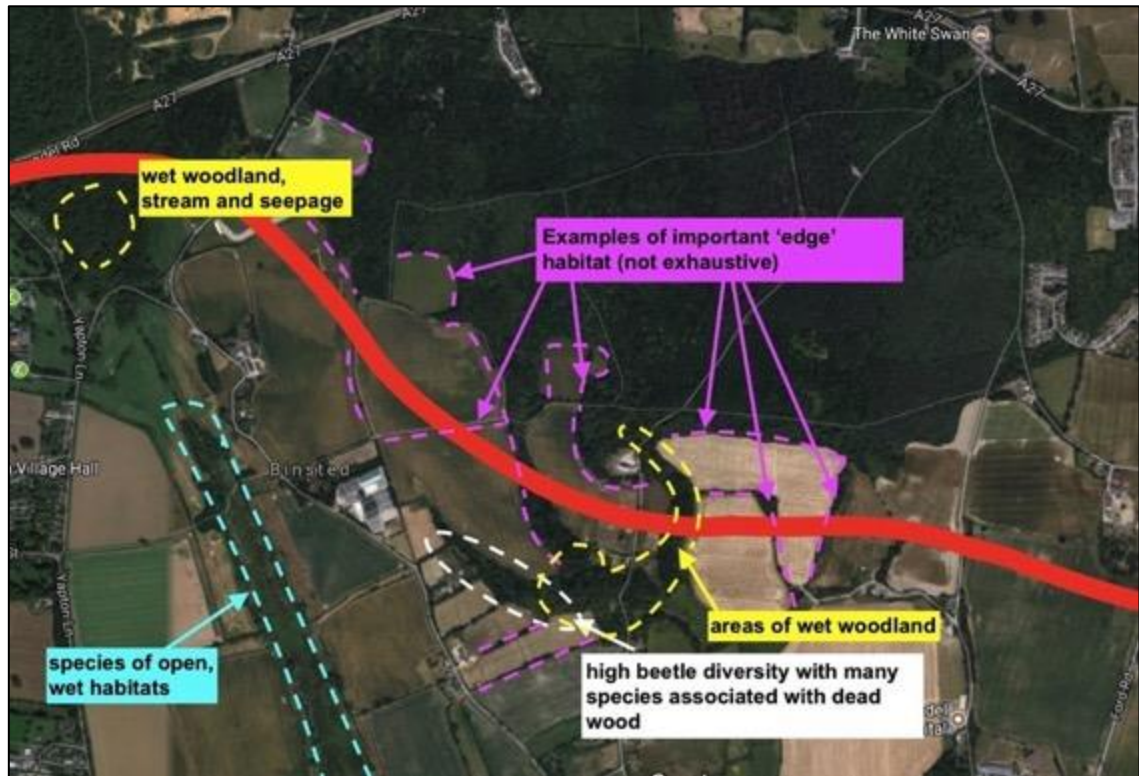
Invertebrates

5.112 The invertebrate diversity is high across the areas of the landscape surveyed to date. The east part of the landscape has not been surveyed. Key areas that are of importance to invertebrates are shown in Figure 14. This does not include the main block of woodland, which has not been surveyed since 2006 (Grove 2006).

5.113 Option 5A would have the highest adverse impact in areas of wet woodland with streams and seepages. These areas are non-replaceable / replicable and therefore cannot be mitigated for.

- 5.114 Option 5A would result in the loss of a good quantity of dead wood habitat (both standing and fallen) in mature trees in The Shaw, The Lag and Hundred House Copse / Little Danes Wood. This habitat is not replaceable even in the mid or long term and so cannot be mitigated for.

Figure 14: Areas of importance to invertebrates



- 5.115 The functioning of the area as a 'whole' with its high invertebrate diversity (on a par with Ebernoe and an SSSI) cannot be mitigated for. The high numbers and diversity of invertebrates together with significant numbers of Nationally Scarce and Red Data Book species would put invertebrates, as a collective whole, on a level of at least Regional, if not National Importance.
- 5.116 There are many hidden impacts for invertebrates such as roads forming barriers to dispersal and causing high direct mortality found in dragonflies by Soluk *et al.* 2011. Other problems highlighted in a *Buglife* report include attraction to artificial lights, ovipositing on artificial surfaces, disruption to feeding, disruption to breeding and disruption to moving across the landscape (Bruce-White and Shardlow 2011).
- 5.117 Such factors have contributed to the widespread decline of key groups such as dragonflies and damselflies, butterflies and moths and cannot be mitigated for. Their decline will have knock-on effects on the birds, bats and mammals, which depend on them for food, and is a reflection of the continuing and widespread degradation of our environment.

AVOIDANCE OF HUNDRED HOUSE COPSE

- 5.118 Superficially, the impact on ancient woodland at Hundred House Copse, Little Danes Wood and Barns Copse together with the impact on one of the chalk streams (Binsted Rife) could be avoided with a roundabout joining Option 5A to the current A27 in between the two blocks of ancient woodland.
- 5.119 This would separate the two woodland blocks and leave Hundred House Copse isolated from the main woodland block.
- 5.120 This would still have severe impacts on Dormice, commuting bats, Alcaethoe bats commuting between nursery roosts, Hedgehogs and Badgers.
- 5.121 It would degrade and likely destroy Sandy Hole Pond, originating from a chalk spring, and sever the remainder of the chalk stream that leads from the pond to Lake Copse and Tortington Rife.
- 5.122 The road would be extremely close to the west side of the main block of woodland, degrading and more severely impacting on the varied 'edge' woodland habitat that currently is of high quality due to the fact that it is bounded by fields.
- 5.123 This option was considered in 1993 by the then Secretary of State to be unacceptable. It was reasoned that in time it would be altered to the Yapton Lane junction as currently proposed, with its associated ecological harm.
- 5.124 This option would therefore ultimately lead to an escalation in long-term damage to the environment.

IMPACTS OPTION 3 - HABITATS

Ancient semi-natural woodland

- 5.125 All areas of woodland are within the South Downs National Park and are included in the Binsted Woods Complex Local Wildlife Site. The entire area of woodland to be impacted upon is classed as either Ancient Woodland or Plantation on Ancient Woodland Sites.
- 5.126 The woodland comprises a diverse matrix of plantation, plantation intermixed with broadleaved woodland and broadleaved woodland. There are small wet flushes, streams and ditches adding to the diversity.
- 5.127 The ground flora reflects this diversity with species indicative of base-rich or neutral woodlands found elsewhere in the woodland growing in close proximity to those of acidic substrates such as Tormentil *Potentilla erecta* Green-ribbed Sedge *Carex binervis* and the moss *Hypnum jutlandicum*.
- 5.128 The plantation is often varied, an example being Larch plantation with frequent birch growing above a patchy shrub layer of coppiced Hazel and the odd veteran Beech tree. This diversity in woodland age and type is responsible for the high diversity of invertebrates found.

5.129 Option 3 would result in a significant loss (approximately 24 ha of this woodland). It would sever the stream network and the ancient track way, Old Scotland Lane, which boasts a huge diversity of sedges and butterflies along its length.

5.130 Option 3 would create a large amount of woodland 'edge' along the carriageway. This would not be the same quality as 'edge' habitat adjacent to fields, as it would be prone to dust and pollutants. It will also allow species associated with edge habitats, and not usually found in the interior of such a large block of woodland, to spread along the carriageway and possibly into the woodland.

Hedgerows

5.131 Hedgerows are S41 Habitats of Principal Importance. Option 3 would sever five hedgerows to the west of the Arun.

5.132 Two of these hedgerows are along Tortington Lane and two along Ford Road providing corridors from the Binsted Woods Complex. The fifth is a field hedge.

5.133 The hedgerows tend to be dominated by just one or two species with gaps infilled with dense Bramble that has, in effect, become part of the hedgerow corridor.

Notable and veteran trees

5.134 Ancient, veteran and notable trees are a feature of the Mid Arun Valley landscape and are throughout the area, particularly in the woodlands and shaws.

5.135 It is likely that a number of important trees will be in the pathway of Option 3 as this traverses such a big and uninterrupted block of ancient woodland.

5.136 Veteran trees support rare fungi, invertebrates and protected species such as bats. They provide a particular series of niches of immense importance to wildlife that cannot be replicated. This habitat is irreplaceable in a human life-time.

Arable field margins

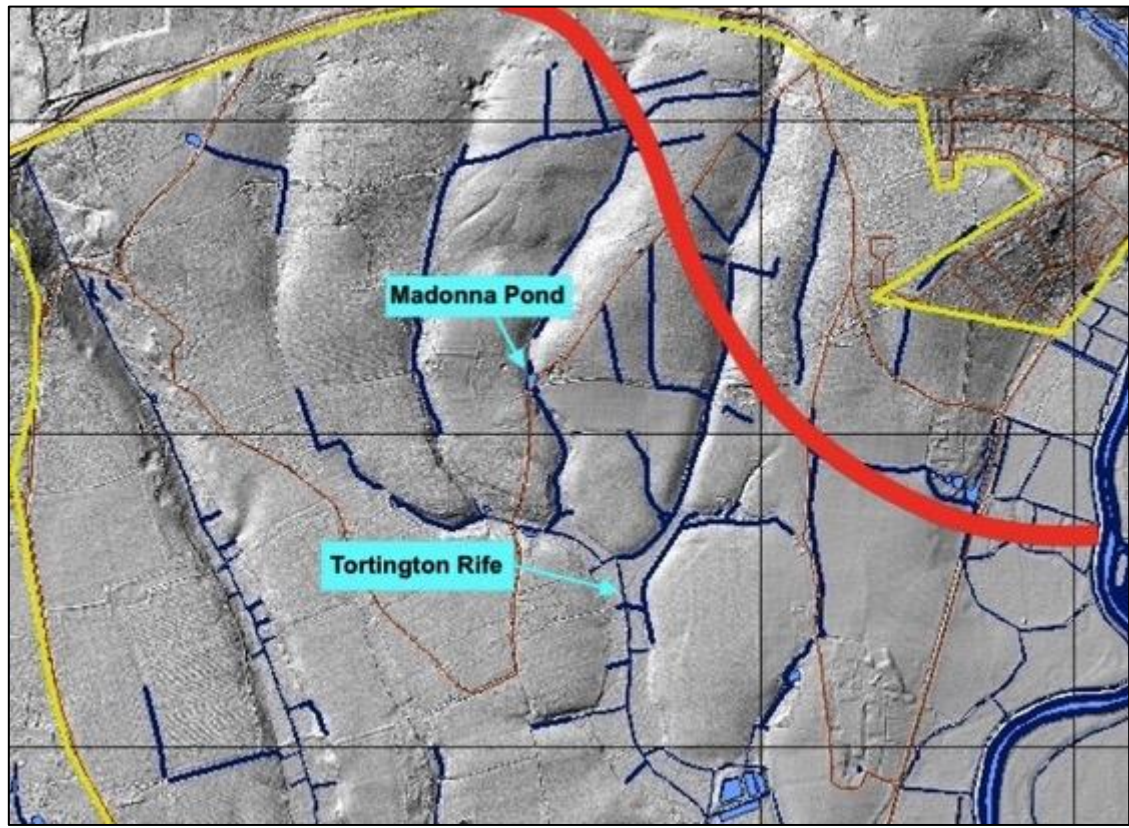
5.137 This Option cuts through two arable field margins that provide grassy corridors from the Binsted Woods Complex. Though still useful, these will be used by a more limited range of species than use the hedgerow corridors.

Streams and ditches

5.138 There are three main watercourses that feed through to, from west to east on Figure 15, the Madonna Pond and The Lag, Tortington Rife and a number of ponds in various locations in Tortington.

5.139 The source of the streams is unknown and while it is clear that they are draining the Binsted Woods Complex, there may also be some input from drainage of the South Downs.

Figure 15: A LIDAR image of streams and ditches impacted by Option 3



- 5.140 The Lag is an area of wet woodland with a braided stream leaving wet pools in the winter. Some fields that are rich in wildlife surround Tortington Rife. These fields are occasionally inundated which has resulted in areas of swamp and wetland vegetation that has made management difficult.
- 5.141 Due to occasional water incursion and a lack of regular management, these fields are of importance to wildlife. Disruption of this system is likely to have a negative impact on Harvest Mice, Water Vole, invertebrates and breeding birds such as Marsh Tit (Red List).
- 5.142 The ditch and pond network throughout a large section of the Mid Arun Valley could be lost fully / partially or subjected to differing water regimes. It is also likely to suffer from pollutants from the proposed road.

Ponds

- 5.143 Many of the ponds are directly fed by the streams and ditches and so these may disappear with the destruction / disruption of the land drainage system.
- 5.144 The Madonna Pond (Figures 12 and 15) is of particular importance as this appears to be a major breeding site for Common Toad (along with Tortington Rife). Other ponds in Tortington could also be important for amphibian breeding though these have not been surveyed.

- 5.145 The pond and ditch networks serve as corridors and stepping-stones for dispersal throughout the wider landscape, which may be lost if Option 3 were to change the hydrology, or may deteriorate in quality due to pollutants.

Reedbed

- 5.146 Reedbed is a S41 Habitat and areas will be lost and degraded due to the likely impact on the stream network. Additionally ribbons of reedbed corridors along ditches will be severed.
- 5.147 The largest reedbed in the area is just to the south of the proposed bridge. The siting of the bridge may degrade the quality of this reedbed and likely impact upon the species therein.

Floodplain grazing marsh

- 5.148 The floodplain grazing marsh (S41 Habitat) is part of a corridor from the coast and along the Arun into mid Sussex to areas such as Pulborough Brooks, Amberley Wildbrooks and Waltham Brooks.
- 5.149 Option 3 will cause a direct loss of this habitat and present a barrier across the floodplain grassland and associated drainage ditches with implications as to the viability of protected species in the area.

River corridor

- 5.150 Option 3 will result in an area of river corridor habitat being lost with the possible loss of rare plants.
- 5.117 The bridge over the river is just to the north of a large area of reedbed that is likely to be of importance to breeding birds.

OPTION 3 - SPECIES

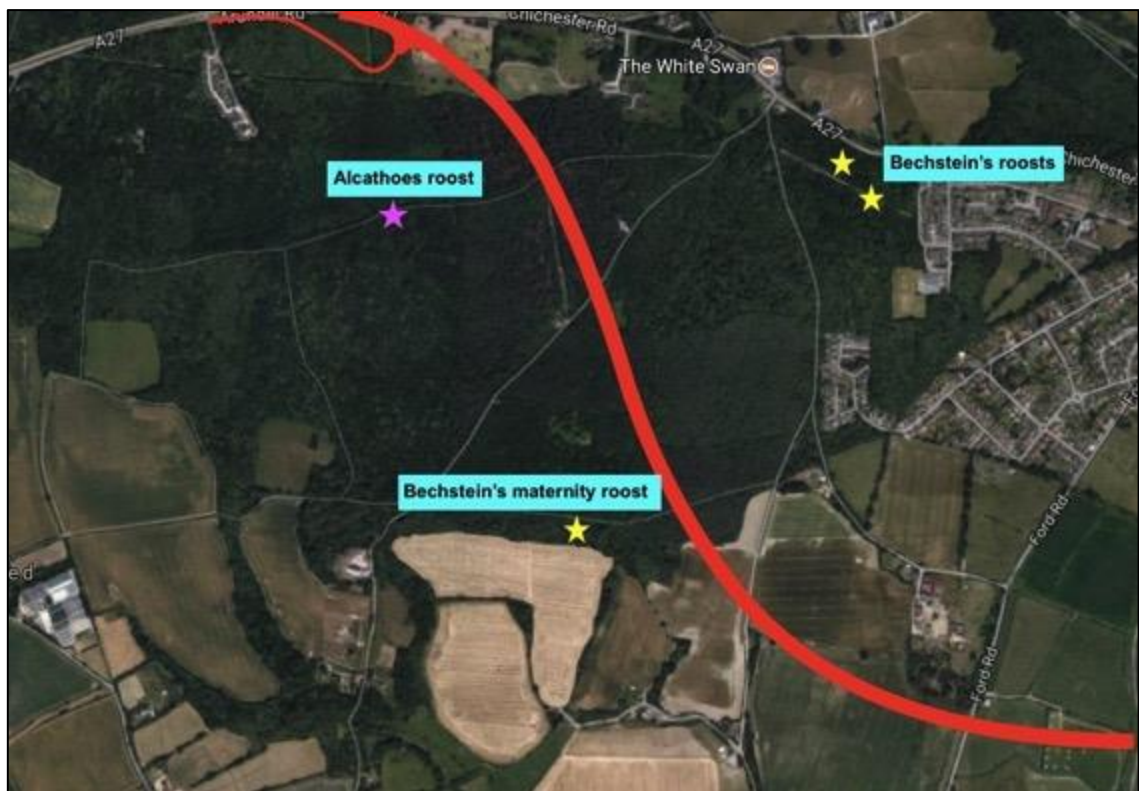
Badger

- 5.151 Badger foraging activity has been observed in Paines Wood to the west, Jupps Wood to the east and within the approximate pathway of Option 3 in Tortington Common.
- 5.152 Although no Badger setts have been found in this area of woodland, given that the Badger population is high elsewhere in the area, and signs of activity within the woodland are frequently recorded, it is highly probable that Option 3 will traverse setts or territories.
- 5.153 Mitigation will be required to ensure that the road can be crossed safely. This would be achieved by the provision of purpose-built underpasses and Badger-proof fencing to stop individuals being killed. It is important that such underpasses are located on or close to existing badger paths.

Bats

- 5.154 The movement of bats appears to be throughout the Binsted Woods Complex and the surrounding habitats. Veteran trees, a stream network, marshy areas, small sheltered glades, wayleaves and footpaths enhance the woodland for foraging bats.
- 5.155 The severance of the woodland by a major road will reduce the foraging habitat for species that will not cross this barrier, thereby impacting upon the viability of the fragmented population. The greatest impact will be on Bechstein's bats (Annex II species). This species forages within mature native woodland, notably oak woodland, and is reluctant to leave an area of continuous canopy cover.
- 5.156 A more serious impact on Bechsteins is the location of the road, which will form a barrier between a Bechstein's maternity roost along the southern edge of Tortington Common and two other roosts in Stewards Copse shown in Figure 16. Bechstein's bats will routinely move between roost sites.

Figure 16: Option 3 presenting a major barrier between Bechstein's roosts



- 5.157 An Alcathoes roost is to the west of Option 3, and it is possible that this species may have additional roosts to the east of Option 3.
- 5.158 Given the frequency of veteran / notable trees throughout the Binsted Woods Complex, it is possible that other very rare tree-roosting species such as Barbastelles (Annex II), which have a known roost in the western part of woodland, may be throughout the Complex.

5.159 Surveys carried out on behalf of MAVES have been minimal and only touched upon bat activity within a small part of the Binsted Woods complex. Despite this, a high number of bats and roosts have been found. This can, in part, be attributed to a large and uninterrupted block of ancient woodland.

5.160 Option 3 would present a barrier between the two blocks of woodland and impact upon the extent of available foraging area. Mitigation would be required for this barrier in the form of a major green bridge with a continuous canopy cover.

Birds

5.161 Option 3 is likely to have a high adverse impact on woodland birds including those of coniferous woodland. It is likely to have a high adverse impact on other groups of birds such as wildfowl and wetland species and low-flying species.

5.162 Conifers are likely to increase the bird diversity with species such as Goldcrest *Regulus regulus*, Siskin *Carduelis spinus*, Crossbill *Loxia curvirostra*.

5.163 Tawny Owl *Strix aluco* is frequently heard in the Binsted Woods Complex and will roost in trees and frequently hunt in open areas with Option 3 both destroying habitat and providing a potential barrier. Research has shown that the density of Tawny Owl and Little Owl is much lower near major roads with the impact reaching up to 2km (Silva et al 2012).

5.164 The route of Option 3 to the east of the Arun is as Option 5A traversing a field used as a winter roost by swans for over 50 years if not more. (Paragraph's 5.65 – 5.68 and Figure 8).

5.165 The proposed bridge is adjacent to a large area of reedbed (Figure 9), which has the potential to be used by rare species such as Bittern due to its isolated location. The potential for other birds and protected species has not been investigated due to lack of access.

5.166 Much of the negative impact on birds will be 'invisible' due to a decrease in breeding numbers near roads. A 5-year research programme at Harvard University (Forman *et al.* 2002) concluded that birds might be strongly affected by traffic volume or changes in volume. With traffic of 15,000–30,000 cars per day (a two-lane highway), both bird presence and breeding were decreased for a distance of 700 m. A heavy traffic volume of $\geq 30,000$ vehicles / day saw bird presence and breeding reduced for a distance of 1200 m from a road.

5.167 The Mid Arun Valley is part of a corridor from the coast and along the Arun into mid Sussex to areas such as Pulborough Brooks, Amberley Wildbrooks and Waltham Brooks. These form the Arun Valley Special Protection Area (for rare and threatened birds) with very high numbers of over-wintering waterfowl. All these species have been recorded in the Mid Arun Valley area (Thompson 2016) and the impact of increased infrastructure in this area would be difficult to quantify.

5.168 The bird diversity and the number of birds in the Mid Arun Valley area is at least of Regional Importance and could well be of National Importance, particularly if considered with the 'green corridor' of wetland and wildfowl species.

Dormouse

5.169 Dormice are known to be breeding throughout the Binsted Woods Complex with Figure 17 showing that two locations included in the National Dormouse Monitoring Programme are adjacent to Option 3. The population is considered to be key to the surrounding areas and of Regional Importance.

Figure 17: Known breeding locations for Dormice in the Binsted Woods Complex



5.170 It is been demonstrated by James Burford (2016), using a habitat suitability index for this species, that Dormice are likely to be throughout the entire woodland block with the exception of one area. Option 3 will have a high negative impact by dividing one of the largest, uninterrupted blocks of Dormouse breeding habitat into two.

5.171 Option 3 will isolate Dormouse populations to the east of the proposed Option 3 that will be unable to disperse further than the existing A27 to the north and the River Arun to the east.

5.172 Option 3 will sever corridors that allow this species to disperse from a sizable breeding and important core population in the eastern side of the Binsted Woods Complex to smaller woodlands, copses, shaws and outgrown hedgerows within the Mid Arun Valley and beyond.

Great Crested Newt

5.173 Option 3 will sever potential hibernating and foraging sites from potential breeding sites for Great Crested Newt.

5.174 Option 3 is likely to have an indirect impact by altering the hydrology and possibly the existence of ponds in the area that are suitable for this species such as the Madonna Pond.

Otter

5.175 Option 3, by severing the network of watercourses feeding suitable Otter habitat, is likely to have a negative impact upon these sites.

5.176 This will have a negative impact on Otters in the area, as there are so few undisturbed and suitable potential nesting sites for this species in this part of the county.

Reptiles

5.177 The mosaic of habitats found in the Mid Arun Valley is ideal for reptiles and therefore the populations of all four species in the area is believed to be extremely high and of Regional Importance.

5.178 It has been mentioned that Grass Snake and Adder routinely move across large areas of the landscape in order to access suitable breeding, foraging and hibernation sites.

5.179 It is likely that all four reptiles in the area are present in the pathway of Option 3, although this route Option is likely to have a higher negative impact on Adder, which is the least common of these reptiles.

5.180 Adders are routinely seen in woodland clearings and in the north of the area, approximately where the junction and roundabout are planned.

5.181 Reptiles will move through and inhabit the more open areas of the woodland such as glades, wayleaves and footpaths, of which Option 3 severs several. The standard mitigation procedure of reptile removal and temporary exclusion fencing will not solve the longer-term issue of reptiles moving across the landscape.

5.182 Without barriers along the proposed road, there would be an unacceptable level of road deaths due to habitat severance.

Water Vole

5.183 Please refer to Paragraphs 5.89 – 5.93 as the general impacts are similar, though without the potential impact upon the Binsted Rife Valley wetland habitat.

UKBAP priority species / SPI Brown Hare

5.184 Option 3 is likely to have an adverse impact on the known population of Brown Hare in the area due to high road mortality and habitat fragmentation.

UKBAP priority species / SPI Common Toad

5.185 The Common Toad population is known to be high in the Mid Arun Valley with the main locations shown in Figure 18. An important breeding area comprising ponds and ditches is circled in yellow and a potential breeding area in white. The large star is where numerous Toads

are routinely recorded in a wet flush in woodland (Noor Wood) and the smaller star is another record.

5.186 The main block of woodland has a number of wet flushes, streams and ditches throughout which have not been investigated for Common Toad. Even if not breeding in these locations, these areas provide ideal terrestrial habitat.

Figure 18: Common Toad locations



5.187 Common Toad habitually migrates to ancestral breeding ponds each year. They follow the same route, regardless of what gets in their way, which would lead to potentially high fatalities on the proposed road thereby impacting on the local population year on year.

5.188 Option 3 will have a high adverse impact upon Common Toad by cutting across the watercourses that feed into two major known breeding areas – the Madonna Pond and Tortington Rife.

5.189 Option 3 will have a high adverse impact on Common Toad by creating a barrier between the woodland and known breeding sites. It will also sever corridors from the woodland to ponds in Tortington, which may also support breeding Common Toad.

5.190 Severance of good terrestrial woodland habitat and dispersal corridors from breeding sites is likely to result in high fatalities. This is likely to have a high adverse impact on the Mid Arun Valley population of Common Toad.

5.191 Mitigation would be dependent upon the location and number of Common Toad breeding sites and the way in which they utilize the landscape. Underpasses / bridges would be required in

order to facilitate access to ancestral breeding sites. Additionally the creation of breeding sites to replace those lost would also be required.

- 5.192 However, it is still likely that without barriers, high numbers of Common Toad would be killed on the proposed road.

UKBAP priority species / SPI European Eel

- 5.193 Please see Paragraphs 5.104 – 5.106.

UKBAP priority species / SPI European Hedgehog

- 5.194 The population density of Hedgehogs is unknown in the Mid Arun Valley. However, due to the continuing decline of this species, it is considered that the Mid Arun Valley offers an uninterrupted landscape for Hedgehogs to persist. The population is therefore considered to be of Regional Importance.

- 5.195 It is likely that the Binsted Woods Complex holds the highest population of Hedgehogs in the Mid Arun Valley area and that Option 3 would pose a significant barrier to dispersal through the woodland.

- 5.196 Option 3 is likely to result in high mortality of this species without permanent barriers to stop Hedgehogs, which are known to travel up to 2 km per night, from wondering onto the road.

UKBAP priority species / SPI – Harvest Mouse

- 5.197 It is possible that Harvest Mouse is in the dense reedbed vegetation along the Arun as there are corridors for dispersal comprising field margins and ribbons of reedbed through the entire area.

- 5.198 Option 3 is likely to impact upon watercourses that contribute to a known area of Harvest Mouse habitat (Paragraph 5.109, Figure 13) and sever potential dispersal corridors through the Binsted Woods Complex.

Invertebrates

- 5.199 The invertebrate diversity is high across the areas of the landscape surveyed to date and considered to be, collectively of Regional, if not National importance.

- 5.200 The locations of the beetle survey that found 400 species belonging to 46 families is shown in Figure 19. It can be seen that just five locations within the woodland complex delivered this high diversity.

- 5.201 Grove, in her 2006 report concluded thus ‘I particularly remember one day, working at Old Scotland Lane, when every time the sun came out, the scene came to life. Orange Pearl-bordered Butterflies appeared as if from nowhere and flew in drifts up and down the track, White Admirals flitted along the trees, a large dragonfly hunted along the path and black and yellow longhorns were among the myriad of other insects enjoying the sudden warmth. Yet, for the most part, these woods are deserted, their great diversity of insects unknown and unappreciated.’

Figure 19: Locations of a 2006 beetle survey in the Binsted Woods Complex



- 5.202 Old Scotland Lane is indeed rich in butterflies for White Admirals (UK BAP / S41 species) and Silver-washed Fritillaries are frequently seen together with possible (though not confirmed and therefore not included in records) Pearl-bordered Fritillaries (UK BAP / S41 species) and occasionally Purple Emperors (Red List NT).
- 5.203 Option 3 would result in a significant loss of woodland that would have a direct negative impact on this diversity.
- 5.204 Option 3 may also interfere with the ability of species to the east of the potential carriageway to disperse through the woodland and ultimately along habitat corridors.
- 5.118 There are many hidden impacts for invertebrates such roads forming barriers to dispersal and causing high direct mortality found in dragonflies by Soluk *et al.* 2011. Other problems highlighted in a *Buglife* report include attraction to artificial lights, ovipositing on artificial surfaces, disruption to feeding, disruption to breeding and disruption to moving across the landscape (Bruce-White and Shardlow 2011).
- 5.119 Such factors have contributed to the widespread decline of key groups such as dragonflies and damselflies, butterflies and moths and cannot be mitigated for. Their decline will have knock-on effects on the birds, bats and mammals, which depend on them for food, and is a reflection of the continuing and widespread degradation of our environment.

OPTION 1 - HABITATS

Ancient semi-natural woodland

- 5.205 Option 1 will require road widening along part of the Rewell Wood Complex LWS to the west of the roundabout. It may also take from the Binsted Woods Complex to the south of the road and an additional small fragment of woodland.
- 5.206 Option 1 will result in the loss of approximately 5.5 ha of mixed deciduous Ancient Woodland. It will take 'edge' woodland and woodland that is currently a short distance from the edge will become 'edge'.
- 5.207 Woodland edge can have an extremely high diversity of species due to higher light levels and a mixture of woodland plants and plants from additional habitats, though it is not likely to support any rare or notable species.
- 5.208 Option 1 is unlikely to negatively impact upon this 'edge' diversity, as it will readily re-establish. However, the internal areas of woodland that will become 'edge' will require survey in order to establish whether they support rare and threatened species.

Hedgerows

- 5.209 Hedgerows are S41 Habitats of Principal Importance. Option 1 would result in the loss of very scrubby and gappy hedgerows along the current A27 and the loss of five short gappy hedgerows across the floodplain.
- 5.210 The hedgerows are unlikely to be species rich and will, in places, provide habitat for breeding birds.

Notable and veteran trees

- 5.211 Ancient, veteran and notable trees are a feature of the Mid Arun Valley landscape and are throughout the area, particularly in the woodlands and shaws.
- 5.212 There may be some notable and veteran trees along the edge of the Rewell Wood Complex, though this has not been investigated.

Ponds

- 5.213 The aerial maps show a depression in one of the floodplain fields that Option 1 would pass through. This may be an ephemeral pond or a scrape.
- 5.214 Ephemeral ponds and scrapes do not support the same diversity of plant and invertebrate species as permanent ponds and therefore would not be classified as a S41 HPI. However, they do serve a purpose for some invertebrates and are important to birds.
- 5.215 Ephemeral ponds and scrapes are habitats that can readily be created in damper depressions of floodplain fields.

Reedbed

- 5.216 Most of the ditches that Option 1 will sever have become invaded by scrub along the margins. However, there appear to be some areas of reedbed that will be severed by the road.
- 5.217 These appear relatively small in extent though they may serve as corridors across the floodplain.

Floodplain grazing marsh

- 5.218 The floodplain grazing marsh (S41 Habitat) is part of a corridor from the coast and along the Arun into mid Sussex to areas such as the Pulborough Brooks, Amberley Wildbrooks and Waltham Brooks.
- 5.219 This habitat comprises grassland interspersed with wet drainage ditches and it is usually the case that the drainage ditches hold the botanical interest forming ribbons of floristic diversity through the grassland. The extent of the wet drainage ditches in this part of the floodplain is unknown.
- 5.220 Option 1 will cause a direct loss of this habitat and present a barrier across the floodplain grassland and associated drainage ditches with implications as to the viability of protected species in the area.
- 5.221 This habitat is important for protected species such as wading birds, Water Vole and possibly Otter.

River corridor

- 5.222 Option 1 involves the widening of the current bridge, which will result in an additional small area of river corridor habitat being lost with the possible loss of rare plants.

OPTION 1 SPECIES

Badger

- 5.223 Badger activity is abundant to the south of the A27 in the woodland and farmland and it may be so to the north.
- 5.224 Badgers will build setts along road edges in banks, and so if this were the case any setts would require replacing.
- 5.225 It is unlikely that Badgers would venture across the A27 to forage with ample foraging habitat on each side of the road, and so it is highly unlikely that Option 1 would provide a barrier across territories. However, it is likely that there will be a loss of foraging habitat.

Bats

- 5.226 Bats are abundant in both the Binsted Woods Complex and the Rewell Woods Complex, yet it is currently unknown whether there is movement between these two areas of woodland.

- 5.227 A Barbastelle breeding colony is in Rewell Woods, and this species has been recorded roosting in the Binsted Woods Complex. If exchange were to occur between the roosts, it is likely that bats would cross the current A27 at its narrowest point with the most canopy cover.
- 5.228 To ascertain whether this is the case and there is intermixing of Barbastelles between the two woodlands, surveys would be required to establish flight lines and crossing points so that suitable mitigation could be implemented.

Birds

- 5.229 Option 1 is likely to have an adverse impact on woodland birds and wetland and wildfowl species with some loss of nesting habitat for passerines along scrubby edge habitat and a barrier across the floodplain.
- 5.230 It may particularly reduce the number of birds found foraging in the area to the north east of the road across the floodplain due to the proximity of two roads, and would certainly have an impact upon any birds breeding in this area (Forman *et al.* 2002).
- 5.231 Option 1, as with all the road Options, may have a negative impact on the Mid Arun Valley as part of an integrated corridor for birds from the coast and along the Arun into mid Sussex to areas such as Pulborough Brooks, Amberley Wildbrooks and Waltham Brooks. All the birds in these areas have been recorded, at some point, in the Mid Arun Valley area (Thompson 2016) and the impact of the increased infrastructure would be difficult to quantify.
- 5.232 The bird diversity and the number of birds in the Mid Arun Valley area is at least of Regional Importance and could well be of National Importance, particularly if considered with the 'green corridor' of wetland and wildfowl species.
- 5.233 Mitigation for birds is usually concerned with the immediate destruction of breeding habitats and the creation of nesting sites for the more widespread species. It does not take the wider issues into account.

Dormouse

- 5.234 Dormice are known to be breeding throughout the Binsted Woods Complex and the Rewell Woods Complex.
- 5.235 It is possible that the removal of some of the woodland will result in the removal of Dormouse breeding habitat.
- 5.236 It is unlikely, however, that this woodland removal will have any impact on dispersing Dormice or corridors for dispersal, as the current A27 already forms a barrier to movement for this species.

Great Crested Newt

- 5.237 Great Crested Newt do not usually breed in ditches, however, there is the possibility that they may use the slightly wider ditches to the south of the roundabout.

5.238 If this were the case then Option 1 would effectively isolate this breeding habitat from the currently accessible terrestrial habitat to the south and west.

Otter

5.239 The habitat in the vicinity of Option 1 to the east of the Arun is unsuitable for Otter. However, the widening of the bridge across the Arun may cause some temporary short-term disruption to this species, if in the area.

Reptiles

5.240 The south-facing road banks and the edge habitat along the road corridor are suitable for reptiles, particularly Slow Worm and Common Lizard, providing grassland for foraging and scrub cover.

5.241 The ditch network corridor is also suitable these two species, if there is sufficient fringing cover, and may support Grass Snake as well.

5.242 Option 1 would have a significant impact on Grass Snake if present and left in the 'island' of floodplain habitat sandwiched between two roads (the current A27 and Option 1) as this species disperses several kilometres between suitable breeding, foraging and hibernation habitats, and this would not be possible.

5.243 Grass Snake readily move in water, though it is debatable whether this species would use culverts of the length that would be required to cross a four-lane carriageway plus embankments. The culvert would have a very cool microclimate that would not be suitable for Grass Snake.

5.244 Option 1 is likely to isolate populations of less mobile reptiles between two roads, but unlikely to have a significant impact upon reptile movement across the landscape as there is already a barrier to dispersal in the form of the current A27 for north-south movement. However, whilst presently there may be very occasional movement, this will not be possible in the future without mitigation in the form of crossings.

Water Vole

5.245 The area of floodplain to be impacted upon lacks wide margins of reedbed and other areas that provide a more complex habitat required in order that Water Vole can successfully evade Mink predation. However, the area is suitable for dispersal to find good habitat along the Arun corridor.

5.246 The current bypass has several culverts through which Water Voles can potentially traverse. However, these also serve as 'pinch points' where Water Vole may be open to higher levels of predation. The proposed road would provide another set of pinch points with a relatively small area of floodplain grassland sandwiched between two roads. This is likely to increase predation and decrease dispersal to negligible levels.

UKBAP priority species / SPI Brown Hare

- 5.247 Option 1 is likely to have an adverse impact on the known population of Brown Hare in the area due to high road mortality and habitat fragmentation.

UKBAP priority species / SPI Common Toad

- 5.248 The Common Toad population is known to be high in the Mid Arun Valley to the west of the river but the population to the east is unknown. Drainage ditches generally provide suitable breeding habitat and so it is likely that this species is present.
- 5.249 Option 1 will sever connections between possible breeding sites and suitable terrestrial habitat for Common Toad. Option 1 will also lessen the ability for this species to disperse along the Arun Valley.

UKBAP priority species / SPI European Eel

- 5.250 Please see Paragraphs 5.104 - 5.106.

UKBAP priority species / SPI European Hedgehog

- 5.251 Hedgehogs are likely to be present along the scrubby 'edge' habitat alongside the current A27 and possibly may use scrubby corridors along the floodplain grassland for foraging.
- 5.252 Option 1 may result in an increase in road mortality, particularly if Hedgehogs are in the area of new road construction across the floodplain grassland.

UKBAP priority species / SPI – Harvest Mouse

- 5.253 It is possible, though unlikely, that this species is in along this part of the floodplain grassland due to the lack of good quality reedbed and ditch edge vegetation.
- 5.254 It is possible, though unlikely, that Harvest Mouse is in the tall grassland found along some of the existing road edges.

Invertebrates

- 5.255 The invertebrate diversity is high across the areas of the landscape surveyed to date and considered to be, collectively of Regional, if not National importance.
- 5.256 The current A27 road verges have a high diversity of shrubs, flowering plants and grasses, with differences in height and aspect forming a gradation of microclimates. These areas are therefore likely to support a high invertebrate diversity. However, although high in diversity this habitat is not likely to have high numbers of notable species.
- 5.257 Both the Binsted Woods Complex and the Rewell Woods Complex are high in invertebrate diversity. It is possible that the removal of some of the woodland may remove some the habitat for some species, but unlikely that it would destroy an area of 'entire' habitat for a given species.
- 5.258 The wet ditches in the floodplain grassland have the highest potential to support rare invertebrate species which may be aquatic or semi-aquatic and include molluscs and

dragonflies / damselflies. Although Option 1 will not destroy these habitats entirely, it may degrade them.

5.120 There are many hidden impacts for invertebrates such roads forming barriers to dispersal and causing high direct mortality found in dragonflies by Soluk *et al.* 2011. Other problems highlighted in a *Buglife* report include attraction to artificial lights, ovipositing on artificial surfaces, disruption to feeding, disruption to breeding and disruption to moving across the landscape (Bruce-White and Shardlow 2011).

5.121 Such factors have contributed to the widespread decline of key groups such as dragonflies and damselflies, butterflies and moths and cannot be mitigated for. Their decline will have knock-on effects on the birds, bats and mammals, which depend on them for food, and is a reflection of the continuing and widespread degradation of our environment.

6 CONCLUSIONS

A SUMMARY

- 6.1 Surveys within the Mid Arun Valley over the past two years have shown the area to support an exceptional number of S41 Habitats and Species of Principal Importance for the conservation of biodiversity. A summary of the site attributes is as follows:
- A total of 14 S41 Habitats, which cover the majority of the area.
 - An assemblage of bats that is likely to be of National Importance.
 - An assemblage of invertebrates that could be of National Importance.
 - An assemblage of birds that could be of National Importance.
 - Known high populations of protected species that are likely to be of Regional Importance such as Dormouse, Harvest Mouse, Common Toad, Grass Snake, Common Lizard, Slow Worm and Adder.
 - Populations (extent unknown) of species also likely to be of Regional Importance such as Water Vole, Brown Hare, European Eel and Hedgehog.
 - Habitat with the potential to support Otter and Great Crested Newt.
 - A very high population of Badger, which is likely to be of Local Importance.
- 6.2 Areas such as this should be 'ring-fenced' for protection. The Mid Arun Valley does not just support populations of one or two protected species, but thriving populations of most protected species.
- 6.3 In this, it is an unusual area, for much of the British countryside is impoverished, and large areas usually support just a handful of habitats which do not include a range of S41 Habitats of Principal Importance.
- 6.4 Assemblages and habitats such that seen in the Mid Arun Valley take time to accumulate and therefore there is no appropriate mitigation or compensation for such outstanding biodiversity.

THE THREE OPTIONS

- 6.5 A summary of the three Options is given in the following tables. Table 4 summarizes the potential impacts of the three scheme Options on S41 Habitats of Principal Importance and Table 5 summarizes the potential impacts on protected and S41 species or species groups.
- 6.6 It is clear that not all the Options will present the same type or magnitude of impact, for Options 3 and 5A are entirely through unspoiled countryside and Option 1 is largely along an existing carriageway with a far smaller proportion through unspoiled countryside.

Table 4: Summary of adverse impacts of the Options on S41 habitats

Habitat	Potential loss		
	5A	3	1
Route Option			
Ancient woodland	6.6 ha but greater area lost / degraded / fragmented	24 ha / severe fragmentation, much degradation due to road edge	5.5 ha
Woodland	2 main areas of good quality habitat	-	A fragment
Hedgerows	8 (3 species rich / important)	5 (4 long)	5 – 7 (short)
Ancient shaws	3	-	-
Notable / veteran trees	Unknown – likely many	Unknown – likely many	Unknown
Chalk Streams – (aquifer fed water bodies)	2 streams	-	-
Streams and ditches – (possibly aquifer fed water bodies and some reedbed)	4 main streams	3 main streams	-
Ponds – spring and stream fed	3 possibly more	3 possibly more	-
Lowland fen (and swamp)	Potential loss of Binsted Rife Valley	-	-
Reedbed	Loss along river corridor and ditches and potentially in fields	Loss along river corridor and ditches	Loss along ditches
Floodplain grassland	Area lost and dissected	Area lost and dissected	Area lost and dissected
River corridor	Small area lost – new obstruction	Small area lost –new obstruction	Small area lost

Table 5: Summary of adverse impacts of the Options on protected species

Species	Importance	Negative impact (includes breeding / dispersal)		
		5A	3	1
Badger	Local	High	Medium	Medium
Bats	Regional / National	High	High	Low / medium
Birds	Regional / National	High	High	Medium
Dormouse	Regional	High	High	Low
Reptiles	Regional	High	Medium / high	Medium
Water Vole	Regional	High	High	High
Common Toad	Regional	High	Medium / high	Medium
Brown Hare	Regional	High	High	Low / medium
European Eel	Regional	High	High	High
Hedgehog	Regional	High	High	Medium
Harvest Mouse	Regional	High	Medium	Low / medium
Invertebrates	Regional / National	High	High (some groups)	Low

Ancient woodland and woodland

- 6.7 Option 3 destroys an extremely large area of irreplaceable ancient woodland, and will possibly degrade an additional large area (along the sides of a new carriageway). It fragments the largest remaining block of woodland on the West Sussex coastal plain.
- 6.8 Although Option 5A destroys less woodland, it will degrade an important area of wet woodland and leave much smaller fragments that are likely to lose species and long term viability due to fragmentation.
- 6.9 Option 1 will destroy the lowest amount of woodland and it will not result in fragmentation of woodland habitat.

Streams and ponds

- 6.10 Option 5A is likely to destroy or severely degrade two chalk streams and the associated habitat, which is extremely rich and diverse along the Binsted Rife Valley.
- 6.11 Option 5A and Option 3 will destroy or severely degrade a stream and ditch network, which shapes many of the habitats and much of the diversity (across all groups), through much of the area.
- 6.12 Option 1 will not impact upon this network.

Habitat corridors

- 6.13 Option 5A severs all the major terrestrial corridors from the Binsted Woods Complex (eleven in total), which, in effect will isolate the woodland creating an 'island'.
- 6.14 Option 3, by dividing the woodland decreases the number of species that will be able to access these corridors and cuts off the remaining habitat corridors from the block of woodland to the east. Both these Options will have significant impacts on species movement.
- 6.15 Option 1 follows an existing barrier through woodland and so the impact is going to be far lower for species that may disperse from woodland on a diurnal or seasonal basis.
- 6.16 All three Options present a significant barrier across the floodplain grassland, which will negatively impact upon the habitat, the north-south movement for some groups, and species distributions.

Habitat fragmentation

- 6.17 Option 5A will produce two fragmented areas of woodland that cannot be easily linked due to the position of the carriageway. Option 3 will fragment a hugely viable large woodland block into two.
- 6.18 Option 1 would leave a fragment of floodplain grassland isolated between two roads, whereas Options 3 and 5A would leave a slightly larger area of floodplain between two roads.

- 6.19 Fragmented populations are exposed to all the problems associated with isolation: genetic deterioration from inbreeding and random drift in gene frequencies, environmental catastrophes, fluctuations in habitat conditions, and demographic stochasticity (i.e., chance variation in age and sex ratios).
- 6.20 Populations living in smaller fragments have a higher probability of becoming extinct, and once that local extinction has taken place, without usable habitat corridors, the extinct population is unlikely to be replaced.
- 6.21 The Dormouse monitoring in the Binsted Woods complex has recorded great variations in the numbers of Dormice recorded year on year, making it clear to see how easily the populations in newly fragmented areas of woodland could become extinct.
- 6.22 Moreover, as the corridors from the large, stable and likely 'source' population of Dormice in the Binsted Woods Complex are severed, other populations that may be in smaller copses, hedgerows and plantation woodlands in the area may not be replaced should extinction occur. This scenario may be played out by many species.

MITIGATION

Direct habitat loss

- 6.23 Mitigation measures usually consider the direct loss of habitat that would disappear beneath a given feature i.e. direct habitat loss. In this instance there are a number of indirect impacts and impacts that will not be realised until the longer term as follows:
- The quality of the habitat such as the wet seepage woodland in Hundred House Copse / Little Danes Wood that would be altered / destroyed due to the road. These habitats are irreplaceable (Option 5A).
 - The division of the last remaining large block of woodland on the Sussex coastal plain (Option 3).
 - The fragmentation of woodland leaving small remnants that will gradually lose their wildlife interest and value such Barns Copse, The Lag and The Shaw (Option 5A).
 - The severance of two chalk streams, which support rare and threatened species and are irreplaceable (Option 5A).
 - The impact upon the stream and ditch network, the ponds fed by this system, and the areas of adjacent and integrated lowland fen, reedbed, swamp and marshy grassland (Options 3 and 5A).
 - The destruction of habitat corridors seen in all Options but greater in 5A, which will ultimately impact on many species.

An integrated landscape for protected species

- 6.24 The Mid Arun Valley forms a continuation of an exceptionally diverse river corridor that is relatively uninterrupted from the middle of Sussex as far as the English Channel. It is the presence of good quality habitats, the proximity to other good quality habitats such as the Arun

Valley Special Area of Conservation, the Arundel Park SSSI and the Arundel Wildfowl and Wetlands Trust Reserve and the lack of barriers to dispersal that has resulted in the diverse range of species observed in the Mid Arun Valley area.

- 6.25 The course of the River Arun, with a margin of associated floodplain grassland, can be traced from the coast to its origin in mid Sussex with very few barriers. This, when compared to other mid-Sussex rivers such as the Adur and the Ouse, provides a corridor that is largely uninterrupted by urban areas and major road networks.
- 6.26 This uninterrupted landscape feature, that is of immense importance to wildlife, should be preserved in an area with such a high human population density.

Loss of dispersal corridors for protected species

- 6.27 There are 11 habitat corridors from the Binsted Woods Complex linking to the surrounding habitats and subsequently linking the surrounding habitats to each other and further afield. This forms an important integrated network of habitat linkages.
- 6.28 Option 3 would create a barrier across the Binsted Woods Complex and a barrier across two potential habitat corridors from the section of woodland to the east.
- 6.29 The road will from a significant barrier across the River Arun Corridor which would require culverts and bridges.
- 6.30 Mitigation will not provide crossings for all the corridors and will have a negative impact on species that rely on moving across the landscape on a seasonal or diurnal basis. Protected species that would occupy both woodland and open habitats and use these habitat linkages are as follows:
- Badger, birds and bats – move across the landscape on a daily basis for foraging.
 - Common Toad – move across the landscape in order to access ponds to breed and then spend most of their life cycle terrestrially in damp grassland, woodland, shaws and copses.
 - Reptiles, particularly Adder and Grass Snake, move several kilometres across a given landscape from hibernation sites to breeding and foraging grounds.
 - Hedgehogs routinely travel up to 2 km per night to forage.
 - Dormice will use the corridors primarily for dispersal to find new areas of habitat.
 - Water Voles are largely restricted to the use of ‘wet’ corridors across the landscape.
 - Invertebrates follow corridors in order to disperse and to search for food plants.

- 6.31 Mitigation does not compensate for habitat fragmentation, and even when green bridges and culverts are constructed there is little evidence that these are compensatory.
- 6.32 Ree *et al.* 2007 reviewed 123 papers on the effectiveness of mitigation methods for animals crossing roads. Most studies demonstrated that most measures designed to increase the permeability of roads for wildlife were successful at the level of the individual animal (i.e. an animal was found using it).

- 6.33 However, the extent to which the population benefits from a successful crossing is unclear. They say that there is insufficient information and analysis in the majority of studies to evaluate whether these structures increase the viability of the population to an acceptable level.
- 6.34 The problems with habitat fragmentation and the importance of habitat connectivity and corridors has increasingly been a focus for planning and action, culminating in the national 'Making Space for Nature' Lawton report (2010).
- 6.35 During the launch of this report Professor Lawton said "There is compelling evidence that England's collection of wildlife sites are generally too small and too isolated, leading to declines in many of England's characteristic species. With climate change, the situation is likely to get worse".
- 6.36 "This is bad news for wildlife but also bad news for us, because the damage to nature also means our natural environment is less able to provide the many services upon which we depend. We need more space for nature".
- 6.37 The 2010 Lawton report promotes four essential principles for future nature conservation in the UK: bigger, better, more, and joined-up.
- 6.38 Local populations of a given species will be scattered across the Mid Arun Valley and beyond. At some locations and may become extinct for a number of reasons such as localised flooding, drying, freezing, predation etc.
- 6.39 Many species have very limited dispersal abilities and so without the ability to move about the landscape and recolonize such areas, populations would disappear from these patches and eventually from the larger area. Landscape scale extinction would then occur.
- 6.40 The interruption of these large and secure populations in the Mid Arun Valley is likely to have very real cumulative impacts on regional populations. The area will likely become impoverished in comparison to its current status.

PLANNING POLICY

- 6.41 Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation (ODPM, 2005) states that:

The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those interests, local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm. In the absence of any such alternatives, local planning authorities should ensure that, before planning permission is granted, adequate mitigation measures are put in place. Where a planning decision would result in significant harm to biodiversity and geological interests, which cannot be prevented or adequately mitigated against, appropriate compensation measures should be sought. If that significant harm cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused.

- 6.42 There are five Section 41 Habitats of Principal Importance that cannot be replaced; ancient deciduous woodland, wet woodland, chalk streams, stream fed / spring fed ponds and lowland fen. In addition, the veteran trees will take 100's of years to replace and so should be deemed irreplaceable.
- 6.43 Some of these habitats found within the Mid Arun Valley are quite unique to the area such as seepage wet woodland, spring fed ponds, chalk streams and lowland fen contributing disproportionately to the unique biodiversity of the area.
- 6.44 Under PPS9, Local Planning Authorities have the following responsibility
- ‘to ensure that Internationally, Nationally, Regionally and Locally Important Sites, Ancient Woodlands, other Important Natural Habitats and Networks of These Habitats are not lost or degraded as a result of development unless the need for and benefits of the development outweigh the impacts that it is likely to have. Local Planning Authorities should use conditions and/or planning obligations to mitigate harm and ensure conservation/enhancement of the site's biological or geological interest’.
- 6.45 Minimal surveys (with the exception of invertebrates) over the last two years have shown that the area is incredibly diverse and has concluded that it is possibly of Regional Importance and likely holds Nationally Important groups of certain species.
- 6.46 This survey and a consideration of the requirements of protected species has shown that mitigation will not be possible for all groups and that Options 3 and 5A cannot be achieved without a severe negative impact upon this biodiversity.
- 6.47 Widening of the existing carriageway will have notably less impact than one of the ‘green’ routes (i.e. a route that traverses unspoilt countryside). The road is already in place and has been for some time. It will require the following:
- Felling of fewer trees and those that would require felling are along the edge of the road and therefore do not generally constitute good quality habitat.
 - Less land grab – much of which would be existing road verges and poorer quality habitat.
 - Less severance of habitat and habitat corridors / flight lines.
 - The loss of irreplaceable habitat would be restricted to the edge of ancient woodland and possibly some veteran trees.
 - The Binsted Woods Complex LWS would remain the biggest block of woodland to the south of the A27 and would be able to function in an integrated way with its surrounding habitat.
- 6.48 All the Options will have considerable negative impacts, however, the online Option is ecologically by far the least damaging option, and planners are legally obliged to take this into account when making their decisions.

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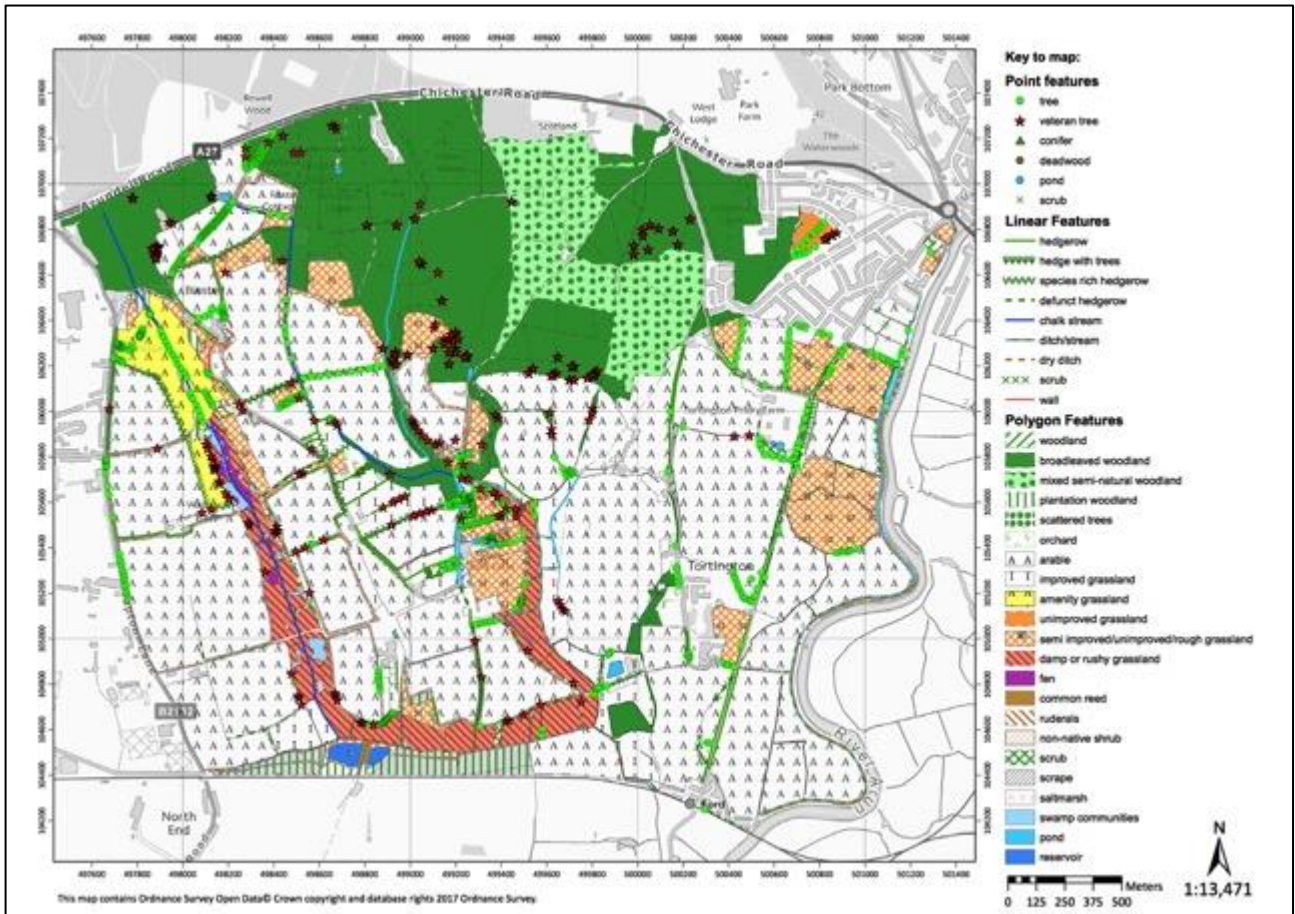
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APPENDIX 1 – PHASE 1 HABITAT MAP



APPENDIX 2 – PRIORITY HABITATS

Habitat	Description
Arable field margins	The field margin is the area between the crop and the field boundary providing a vital haven for the many farmland species that have declined over recent years due to agricultural intensification. Tall vegetation offers cover for a range of species such as small mammals and birds, and the flowering plants provide a nectar source for a range of invertebrates.
Chalk stream	A chalk river or stream is a watercourse that flows across chalk bedrock, and/or is influenced by local chalk geology. All chalk rivers are fed from groundwater aquifers, which means they have clean, clear water and relatively stable water temperatures. These unique conditions support a rich diversity of wildlife including important fish populations such as Brown Trout, native Crayfish and many other specialist species. Binsted Rife is a chalk stream.
Coastal and floodplain grazing marsh	Grazing marsh is periodically inundated pasture, with ditches that maintain the water levels, containing standing brackish or fresh water. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities. This habitat is important for wading birds and the drainage ditches support a wide range of flowering plants and invertebrates as well as a number of fish species. Mammals such as Water Vole and Otter may use the ditches. The aims of the Sussex Biodiversity Action Plan for this habitat include maintaining the condition and the extent of the existing resources of coastal and floodplain grazing marsh in Sussex with no net loss.
Lowland fen	Lowland fens are permanently waterlogged wetlands, which receive water and nutrients from soil, rock and groundwater as well as rainfall. This habitat supports a wide diversity of flowering plants and associated invertebrates, as seen along Binsted Rife. It has declined dramatically.
Hedgerows	The UK Biodiversity Action Plan (2007) defines a hedgerow as any boundary line of trees or shrubs over 20 m long and less than 5 m wide, and where any gaps between the trees or shrub species are less than 20 m wide. All hedgerows consisting predominantly (i.e. 80 % or more cover) of at least one woody UK native species are included in this Section 41 Habitat. Specific aims for S41 Habitat include maintaining the net extent of hedgerows and the numbers of hedgerow trees.
Lowland mixed deciduous woodland	Lowland mixed deciduous woodland now only covers 1-2 % of its original range and has declined by around 40 % since 1935. These woodlands are home to almost half of the world's Bluebells and are important for wide range of birds including Nightingales and Spotted Flycatchers as well as hibernating amphibians and reptiles. It is also the main stronghold of the protected Dormouse, once widespread, but now extinct from around half of its former haunts. Sussex is one of the most wooded parts of lowland Britain with ancient woodland covering approximately 10 % of the county. Much of this woodland is ancient in origin with a continuous woodland cover since at least 1600 AD. Such woodland has a wealth of features of historical and archaeological importance little altered by modern cultivation or disturbance. The soils retain their ancient features such as mycorrhizal fungi and the diversity of fungi, bryophytes, plants and invertebrates can be exceptionally rich. The BAP mainly focuses on the protection, expansion and restoration of woodlands in Sussex.

Habitat	Description
Wet woodland	Wet woodland combines elements of many other ecosystems and as such is important for many taxa. The high humidity favours bryophyte growth. The number of invertebrates associated with Alder, birch and willows, is very large. Even quite small seepages may support craneflies such as <i>Lipsothrix errans</i> and the endemic <i>Lipsothrix nervosa</i> . Wet woodland provides cover and breeding sites for otters <i>Lutra lutra</i> .
Lowland heathland	Heathland is a largely open landscape occurring on impoverished, acidic soils and is often a mosaic of bare ground, acid grassland, gorse, bracken, bog and scattered trees. A diversity of invertebrates is found with rare species including wasps, beetles and spiders. Several uncommon birds thrive on heathland including Nightjar and Stonechat.
Lowland Meadow	Unimproved neutral grassland, including hay meadows, known under the National Vegetation Classification system as MG5 grassland, was once the ubiquitous type of old meadow and pasture in the English lowlands. Since the late 1960's it has sustained large losses due to drainage, ploughing and re-seeding and from the use of high rates of fertilisers. There is now less than 6,000 ha remaining in England. The fields at Steward's Copse are this NVC type.
Ponds	Ponds are important because they have declined in number, and yet they are home to over 1000 native species. Priority ponds are those that have habitats or species of high conservation importance, or they may be recognised for their age, rarity or type.
Reedbed	Reedbeds are amongst the most important habitats for birds in the UK. They support a distinctive breeding bird assemblage including 6 nationally rare Red List Birds including Bittern, Marsh Harrier, Cetti's Warbler and Bearded Tit. They provide roosting and feeding sites for migratory species and are used as roost sites for several raptor species in winter. Five GB Red Data Book invertebrates are also closely associated with reedbeds including Red Leopard Moth <i>Phragmataecia castanaea</i> and a rove beetle <i>Lathrobium rufipenne</i> .
Saltmarsh	Saltmarsh vegetation consists of a limited number of halophytic (salt tolerant) species adapted to regular immersion by the tides. Saltmarsh constitutes an important resource for wading birds and wildfowl.
Traditional orchard	Traditional orchards are areas of land on which a range of fruit trees are managed in a low intensity way. The bark is suitable for a wide range of bryophytes and lichens and the dead and decaying wood is important for invertebrates and fungi. Holes and crevices in old trees provide habitat for bats and nest sites for birds such as Redstart and Bullfinch.
Wood pasture and parkland / veteran trees	Many parks were established in medieval times for aesthetic reasons, to provide grazing for farm animals or deer and to provide wood from pollarded trees. In later centuries, new landscaped parks were created from these medieval parks or by enclosing ordinary farmland. Typically wood pasture consists of veteran trees with wide, spreading crowns growing in a matrix of grazed grassland. The trees have often been pollarded; this management technique extends their life and creates rot holes and crevices, which are used by bats, hole-nesting birds and invertebrates. Rotten wood within ancient tree trunks supports saproxylic invertebrates (those that rely on dead wood for all or part of their life cycle) and are amongst the most threatened group of species in Europe.

APPENDIX 3 – WILDLIFE POLICY

The Wildlife and Countryside Act 1981 (as amended)

Schedule 1

Applies to all wild birds where it is an offence:

- to take, damage or destroy a nest whilst it is being built or in use
- to kill, injure or take any wild bird (subject to certain exceptions)
- to take or destroy the egg of any wild bird.

It is also an offence to disturb any wild bird listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)

- while it is nest building
- at a nest containing eggs or young
- to disturb the dependant young of any such bird.

Schedule 5

For animals fully protected under Schedule 5 which includes, the hazel dormouse, great crested newt, all bats, water voles, otters, smooth snake, sand lizard and natterjack toad. It is an offence:

- to intentionally kill or injure or take these species
- to intentionally or recklessly damage or destroy or obstruct access to any structure or place which a species uses for shelter or protection, at any time even if the animal is not present.
- to intentionally or recklessly disturb whilst it is occupying a place which it uses for shelter or protection.

Adder, grass snake, common lizard and slow worm are protected from being killed or injured and the white-clawed crayfish is protected from being taken.

Schedule 8

Specific species of plants listed in Schedule 8 are protected. It is an offence: to intentionally pick, uproot or destroy a wild plant listed in Schedule 8.

Schedule 9

Invasive non-native species are listed under Schedule 9. It is an offence:

- to plant or otherwise cause to grow in the wild.
- If soils are contaminated by invasive non native plant species it becomes classified as
- 'controlled waste' under the Environmental Protection Act 1990 (England, Wales & Scotland),
- and must be disposed of accordingly.

The Conservation of Habitat and Species Regulations 2010

Schedule 2 applies to all European Protected Species (EPS) which included all bat species, great crested newts, dormice, otters, sand lizards, smooth snake and natterjack toad. The protection afforded is overlapping but separate from the Wildlife and Countryside Act 1981 (as amended)

The Protection of Badgers Act 1992

Under this Act it is an offence to intentionally or recklessly interfere with a badger sett by:

- a) damaging a sett or any part of one
- b) destroying a sett
- c) obstructing access to any entrance of a sett
- d) disturbing a badger when occupying a sett

Where interference with a badger sett cannot be avoided during development, a licence from Natural England should be applied for.

The Natural Environment and Rural Communities Act 2006 and The Biodiversity Duty

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 40 of the Act requires all public bodies to have regard to biodiversity conservation when carrying out their functions. This is commonly referred to as the 'biodiversity duty'.

Section 41 of the Act requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity.' This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

The UK BAP

This was published in 1994 to comply with obligations under the Convention on Biological Diversity (The Biodiversity Treaty, 1992). It described the UK's biological resources and committed to developing detailed plans to conserve these resources i.e. Habitat Action Plans and Species Action Plans. The most up to date targets and actions, including latest progress reports, for UK HAPs and SAPs can be viewed on the DEFRA website¹⁷. Running parallel to this, Local Planning Authorities (LPAs) promoted habitat and species conservation at a county and district/borough level through their development of Local BAPs (LBAPs).

Since the publication of these BAPs, new strategies and frameworks have resulted in the devolvement of biodiversity issues and changes in the terminology used to describe these habitats and species in England. This has been brought about through the replacement of the previous England Biodiversity Strategy with Biodiversity 2020: A Strategy For England's Wildlife and Ecosystem Services (2011) and the replacement of the UK BAP itself with the UK Post-2010 Biodiversity Framework (2012).

All previous UK BAP species and habitats are still of material consideration in the planning process but are now referred to as Habitats and Species of Principal Importance for the Conservation of Biodiversity in England as listed in Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The promotion of priority habitats and species in LBAPs are also of material consideration in the planning process.

In addition to the now redundant national BAP, BAPs were also produced at the county level. The Sussex BAP is managed by the Sussex Biodiversity Partnership. The aims and objectives of the Sussex BAP are to reflect national targets for habitats and species of principal importance, translate them at a local level and to integrate the needs of species and habitats within landscape-scale delivery.

Red Data Book (RDB)

The IUCN RDB criteria reflect the level of threat of extinction that a species faces and are based on population declines (in contrast to the previous RDB criteria, which were based on restricted distribution) (Cheffings and Farrell 2005). Those species that fall into the top categories of CR (critically endangered), EN (endangered) and VU (vulnerable) all have a high risk of extinction in the wild and declining population size of >80% over last 10 years for CR, >50% for EN and >30% for VU.

National status

Species highlighted in the survey as notable species were selected because they fall into one of the following categories:

- Nationally Rare is defined as species that are found in 15 or fewer hectads.
- Nationally Scarce (also termed Nationally Notable) relates to species that occur in between 16 and 100 10km squares throughout Britain.
- Nationally Notable A are species found in 16 to 30 hectads.
- Nationally Notable B are species found in 31 to 100 hectads.
- Local is a status sometimes used for species found in 101 to 300 hectads.
- Sussex Rare Species Inventory (SxRSI) lists species that are rare in Sussex or those that are declining locally.

Birds of Conservation Concern

Every five years the population statuses of the 247 species of bird that are regularly found in the UK are reviewed. There are three lists – Red, Amber and Green - into which each species is placed. The status decisions are based on several factors which include: the species' global and European conservation status; recent and historical decline; whether it is a rare breeder; if it is only confined to a few sites in the UK; and if the species is of international importance.

- Red List species are those that are Globally Threatened according to IUCN criteria such as those whose population or range has decline rapidly in recent years.

- Amber List species are those with Unfavourable Conservation Status in Europe such as those whose population or range has declined moderately in recent years; rare breeders; and those with internationally important or localized populations.
- Green List species do not fit any of the above criteria, although some are still protected by law.

Document Information

Report title:	The Mid Arun Valley 2015 – 2017 Three road Options assessed using current data
Client:	MAVES
Document ref:	WS10/MAV/2017
Author(s)/Surveyor:	
Report date:	10 October 2017

Wildlife Splash Limited has prepared this report, with all reasonable skill, care and diligence within the terms of the Contract with the client.

Surveys and research have been conducted to the best of our ability during the given timeframe. However, no method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. We disclaim any responsibility to the client and others in respect of any matters outside the reasonable scope of works.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

ACKNOWLEDGEMENTS

Whilst the concrete front of development advances through the Sussex Countryside, members of MAVES, locals, Arundel residents and those from further afield continue to discover and document the amazing diversity of wildlife that makes the Mid Arun Valley hum with life. Without knowing what life we have we cannot fight to protect it.

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A big thank-you to all the landowners of the Mid Arun Valley area who have given us all a free reign over the area at all times of day and night.

We would like to thank all those who have very generously made donations to MAVES in order to fund this very important work:

- South Downs National Park Authority
- Brooklands
- Woodlands.co.uk
- Noor Wood
- The Woodland Owners of Tortington Common
- Arundel Agenda 21



**National
Trust**

Highways England
BY EMAIL ONLY

16 October 2017

Dear Sir or Madam

Consultation on Options for A27 Arundel Bypass, West Sussex

Thank you for the opportunity to review the options for the upgrading of the A27 at Arundel in West Sussex.

The Trust has reviewed the options and does not consider that any of them will have an impact on our interests or ownership at the Slindon Estate, to the west of Arundel and therefore does not have a view on the acceptability or otherwise of the three options put forward.

The Trust would, however, like to take this opportunity to express that we hope that in taking forward one of the options Highways England will explore opportunities to improve the ecology and landscape quality of the areas around the new road and in particular would like to see options for land bridges explored to link existing areas of semi-natural ancient woodland which are currently severed by the existing road.

Yours sincerely

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Date: 16 October 2017
Our ref: 222211



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A27 Arundel Bypass

Natural England welcomes the opportunity to provide comments on the A27 Arundel Scheme and to provide continued advice as the scheme progresses. At present all three road scheme options will have a major impact on ancient woodland, biodiversity and the South Downs National Park. This is of significant concern to Natural England.

We advise that in order to meet the tests set out in government policy regarding impacts on National Parks and biodiversity, we consider that there should be full consideration of alternative options that avoid or minimise these impacts.

We further advise that at present the evidence provided in support of the scheme is not sufficient in detail or scale to provide a reliable base from which to appraise the three options which have been put forward for consultation. Our concerns are explained further as follows:

Introduction

The location of the proposed options for the Arundel scheme area lies within, and in the setting of, the South Downs National Park. The area also supports a suite of interconnected habitats of high biodiversity value, including irreplaceable ancient woodland, which together form a functioning ecosystem on a landscape scale. As currently proposed, the road scheme options will have a major impact on the National Park, as well as major adverse impacts on biodiversity.

In order to meet the tests set out in government policy regarding impacts on National Parks and biodiversity, we consider that there should be full consideration of alternative options that avoid or minimise these deleterious impacts. We advise that a full appraisal of both the benefits and the impacts of the Arundel A27 bypass scheme can only be undertaken if options that seek to avoid and minimise the scheme's impacts are included for consideration.

Such an approach would be in accordance with government policy. Paragraph 118 of the National Planning Policy Framework (NPPF) sets out a requirement to follow a decision-making hierarchy when considering impacts on biodiversity. Only if significant harm to the environment cannot be avoided, and alternative approaches have been exhausted, should compensation be considered, as a 'last resort'. This 'avoid, mitigate, compensate' approach is also supported in Paragraph 109 of the NPPF which states that the planning system should contribute to the natural environment by '*...minimising impacts on biodiversity...*'

Furthermore, with regard to National Parks, the NPPF states in paragraph 116 that '*Planning permission should be refused for major developments in these designated areas except in exceptional circumstances*', and that the consideration of such applications should include an

assessment of *'the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way.'*

In addition, the three options which have been put forward for public consultation all include significant direct loss of ancient woodland, of between 5.5 and 24 hectares. Ancient woodland is a key component of the South Downs landscape, and paragraph 118 of the NPPF recognises that ancient woodland and veteran trees are irreplaceable habitats. Once lost, their ecological value is permanently removed from our national biodiversity resource. The NPPF states that planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, *'unless the need for, and benefits of, the development in that location clearly outweigh the loss.'*

Given the significant biodiversity impacts which would result from the three options being forward, we would also expect Highways England to be able to demonstrate how it is fulfilling its biodiversity duty under section 40 of the Natural Environment and Rural Communities (NERC) Act 2006. This places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity.

Government planning practice guidance (PPG) on the natural environment¹ states that *'A key purpose of this duty is to embed consideration of biodiversity as an integral part of policy and decision making throughout the public sector, which should be seeking to make a significant contribution to the achievement of the commitments made by government in its Biodiversity 2020 strategy.'*

Biodiversity 2020 states that the challenge is to halt the decline in biodiversity *'for the benefit of this and future generations.'* Paragraph 19 further states that *'We need to ensure biodiversity is taken into account by decision-makers within sectors which have the greatest direct influence on our biodiversity, and we need to reduce direct pressures on our biodiversity.'* Specifically with regard to planning and development, Biodiversity 2020 states that government *'will retain the protection and improvement of the natural environment as core objectives of the planning system.'*

The need to fully consider impacts on biodiversity is also contained within Highways England's biodiversity plan (*'Our plan to protect and increase biodiversity'*), published in 2015. Recognising the declines in biodiversity and the potential for roads to compromise the quality of the environment, the plan states that *'a well managed road network can make a significant contribution to the protection and enhancement of biodiversity in England.'* We would encourage Highways England to demonstrate that this scheme can make a significant contribution to biodiversity, by ensuring there is consideration of alternatives to the three options which have been put forward at this stage.

Scheme Context

This area contains a suite of interconnected habitats including hedgerows, wetlands, ditches scrub and ancient woodland. The landscape is both directly within, and within the setting of, the South Downs National Park. The value of this area in terms of landscape and biodiversity is exceptional. The introduction of a road and supporting infrastructure into this highly diverse network of natural habitats will have a severe impact on biodiversity, the impacts of which will be realised on a landscape scale. We are concerned that Highways England has not included a landscape-scale biodiversity assessment on the impacts of this scheme. This should include the consideration of severance and isolation of habitats.

The scale of Impact and lack of supporting evidence

We consider that a scheme of this nature within a rich and sensitive landscape merits bespoke consideration in order to duly reflect the highly complex nature of the existing area and the

¹ <https://www.gov.uk/guidance/natural-environment>.

scheme's impacts upon it. Impacts here will need to be evaluated at the appropriate scale in order for any avoidance and mitigation measures that will be required to be fit for purpose. We are concerned that to date the scheme has not provided substantive and robust information from which to assess the options. In the absence of this information we consider a clear evaluation and comparison of the options is not possible. Our key concerns are as follows:

1) Ancient woodland

Of great concern to Natural England is that the remaining three options include significant direct loss of ancient woodland (between 5.5 and 24 hectares). We consider this is contrary to the biodiversity commitments of Highways England to secure *No Net Loss by 2020* and *Net Gain by 2040*. Ancient woodland is irreplaceable, and once lost, its ecological, historic and cultural value cannot be recovered.

The value of ancient woodland

As recognised in the National Planning Policy Framework (NPPF), ancient woodland and veteran trees are irreplaceable. These areas are incredibly rich in wildlife, with associations which have established over hundreds of years. Many rare and threatened species are associated with this habitat. They are also important for their historical context, their contribution to the landscape and for recreation. Attempts to compensate cannot replace the habitat lost which has established over centuries.

Compliance with NPPF

Due to their irreplaceable nature ancient woodland and veteran trees are afforded protection under paragraph 118 of the NPPF:

'Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland unless the need for, and benefits of, the development in that location clearly outweigh the loss.'

Paragraph 118 of the NPPF also sets out a requirement to follow a decision-making hierarchy when considering impacts on biodiversity. Only if significant harm to the environment cannot be avoided, and alternative approaches have been exhausted, should compensation be considered, as a 'last resort'. This 'avoid, mitigate, compensate' approach is also supported in Paragraph 109 of the NPPF which states that the planning system should contribute to the natural environment by *'...minimising impacts on biodiversity...'*

We consider therefore that Highways England will need to demonstrate how the mitigation hierarchy set out in the NPPF has been followed, and how impacts have been avoided or reduced (via alternative schemes) before compensation is considered as a last resort.

Alternative schemes

Alternatives for this scheme have been previously included. Option 5B for example presented an alternative location for this scheme which we understand would deliver the scheme's objectives but is not being pursued. Furthermore, we have been made aware of an alternative "purple" route which would avoid substantial carriageway development and the associated impacts on ancient woodland and biodiversity.

The biodiversity value of the area is exceptional and requires particular consideration from Highways England. The impacts of this scheme on established habitat networks will occur at a landscape-scale. In the absence of alternatives which seek to avoid and minimise the considerable impacts we consider that a full appraisal of both the benefits and the impacts of the Arundel scheme cannot be undertaken. To enable an informed consultation and for the assessments required by the

NPPF to be undertaken we consider that all potential options should be included at this stage.

Cost: benefit of the options

We advise that Highways England ensures that the scheme cost: benefit ratios are a true reflection of the costs which would be associated with ancient woodland loss, such as a requirement for green bridges, and substantial compensation planting.

Currently Highways England's value for money and cost: benefit ratios omit the value of Natural Capital, and ecosystems services. The value of these services are considerable in this location and should be included when evaluating the in this highly sensitive landscape.

Further Information

The Consultation report states that ancient woodland can be offset. We would advise that ancient woodland is exempt from offsetting metrics due to its irreplaceable nature.

2) Biodiversity loss and severance of habitats-Landscape scale impacts

It is our advice that all the options include major adverse impacts to biodiversity via the loss of and damage to a suite of valuable habitats including a number of priority habitats and associated species. Priority habitats and species are of particular importance for nature conservation and included in the England Biodiversity List published under section 41 of the Natural Environment and Rural Communities Act 2006.

Natural England has advised that the biodiversity impact of this scheme will be realised at a landscape-scale and that the assessment of the scheme's effects should reflect this in order to provide reliable evidence. It is disappointing therefore that the scheme does not yet include information regarding an assessment of the landscape-scale impacts of this scheme. We advise that an examination of the individual habitats within the scheme area in isolation is not an appropriate method for assessing impacts on a functioning ecosystem. The impact of this scheme will be far greater than the sum of its parts.

For example, Table 8.5 within the ESA is of particular concern as we consider it provides a misleading summary of the scheme's impacts and recommendations. The table evaluates impacts to scrub habitat as *insignificant* due to the method of assessment adopted. This looks at the significance of impacts with regard to the conservation status of individual habitats. We advise that scrub plays a vital role in linking up habitats, for example, and its loss would contribute to the severance of the functioning ecosystem. Of further concern is that recommendations within this table all pertain to ancient woodland regardless of the habitat affected. This is of concern as a robust and considered assessment will be required and the evidence included will need to give due weight to the severity of the various impacts of this scheme.

Furthermore, the assessment/evaluation of impacts to species is also of concern. For example, we advise that the presence of a Barbastelle bat maternity roost should be considered in the context of this species' status as a European Protected Species under the *Habitats Regulations*.

Assessment of mitigation and compensation

We further advise that mitigation compensation and enhancement within the ESA do not appear to have been correctly interpreted. It is of key importance that these measures are correctly incorporated in order for the mitigation hierarchy required by NPPF for be appropriately followed. We would be happy to advise Highways England further on this aspect. Examples include:

- *Translocation and/or exclusion of species (under appropriate licences/agreements) where required from the scheme option footprint to pre-prepared receptor sites to minimise impacts of habitat loss and species mortality;*

- We advise that translocation to receptor sites is compensation, not mitigation, which is to remove or reduce an impact.
- *Re-establishing connectivity between habitats affected by road construction and incorporation of features within the detailed design which would restore connectivity for protected species whose habitat has been fragmented by the road;*

Again, we advise that this is a compensatory measure, not mitigation as the impact of the road has caused severance.

- Section 8.69 of the ESA cites the use of dormouse rope bridges, for example, as enhancement. The introduction of a road into a habitat complex has significant impacts for wildlife. We advise that averting the fragmentation of dormouse populations and severance of bat commuting routes is not an enhancement, but compensation for the impact of severance.

We would welcome the opportunity to work with Highways England to provide advice on mitigation/compensation and enhancement measures.

Monitoring

We advise that a monitoring and aftercare plan of 5 years post-construction is insufficient for a scheme of this nature.

The scheme traverses a number of water courses and the impacts on these have not yet been clearly assessed. Assessment should include changes to the existing hydro-geological regime of the area (via water quality and quantity changes) and associated biodiversity impacts. Assessment should also include construction and operation as well as long-term safeguarding of the aquatic environment. This is of key importance as water quality in the environs of the A27 is declining. We advise that impacts should not be limited to flood risk.

Severance

The deleterious impact of severance has not been included in the assessment of impacts. Severance is a permanent impact on multiple habitat networks and is of serious concern. The severance, fragmentation and isolation of established networks (woodlands, wetlands, ditches and hedgerows) would affect the remaining habitats' resilience into the future. Deleterious impacts of fragmentation include, for example, isolation, the viability of species, their ability to adapt to climate change, and vulnerability to disease. We advise that the impact of fragmentation should be fully considered in a scheme of this nature.

Scheme design

Whilst the impact of severance is clearly significant, there is insufficient evidence at this stage to adequately assess the impact of the road design itself on biodiversity. For example, a raised road will have differing impacts on landscape and biodiversity to a scheme adopting an embankment and bunds. The introduction of an embankment across the scheme footprint would sever existing networks and habitats, with further impacts to the wetlands and streams. In the absence of more detail regarding the schemes design we cannot provide a full assessment of the impacts here for either biodiversity or landscape.

Highways England Design Panel

We understand that this project has been discussed at the Highways England Design Panel, and would recommend that the Panel's advice is considered in any decisions regarding options to be taken forward. Given the sensitivity of the location we would advise that the scheme is referred back to the Panel for a discussion on the options.

3)Landscape Impacts

Of key concern to Natural England is that all three options currently lie within the South Downs National Park and include extensive and widespread landscape impacts through the river valley. We advise that the route should be revised to avoid this nationally important landscape. At present, as for ancient woodland, no options remain which avoid direct impacts within the National Park. We would refer you to the provisions of the NPPF with regard to National Parks:

Paragraph 116 states that *'Planning permission should be refused for major developments in these designated areas except in exceptional circumstances'*, and that the consideration of such applications should include an assessment of *'the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way.'*

We advise that alternatives need to be sought in order to comply with this policy. We further advise that the South Downs National Park should be fully consulted for their views on this matter.

Summary

Should Highways England adopt any of the remaining three options the implications for biodiversity, ancient woodland and the South Downs landscape would be severe. All of the options put forward in this consultation would have a direct impact on ancient woodland and the National Park. Given the irreplaceable nature of ancient woodland, and the high level of protection afforded to National Parks, we advise that there is a clear requirement for options to be included that enable an assessment of the impacts on biodiversity and the National Park to be made in accordance with the avoid/ mitigate/ compensate hierarchy set out in the NPPF.

We advise that alternative, less damaging options are sought by Highways England and opportunities for enhancement are fully captured. We would welcome the opportunity to work with Highways England to help you achieve this.

Yours sincerely



Rescue

The British Archaeological Trust

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Office hours: Tuesday and Friday mornings.
Otherwise please leave a message on the
answerphone.

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www.rescue-archaeology.org.uk

By Email

26th October 2017

I am writing on behalf of Rescue the British Archaeological Trust to express our concern about an apparent misconception that Highways England has in regards to ancient woodland. It appears that you believe that it is possible to recreate ancient woodland as part of the mitigation works associated with the new A27 by-pass at Arundel. Whilst we are pleased to see that you have committed to planting new trees, we would like to emphasize that this can in no way replicate the ancient woodland lost. Its high level of biodiversity established over centuries cannot simply be recreated, but of greater concern to Rescue is the complete absence of any recognition of the archaeological value of these woodlands which hold evidence of past centuries of use. No matter how welcome the new planting the archaeological evidence can never be restored. That lost woodland is irreplaceable, and whilst it might suit everyone's conscience to talk in terms of recreation, no new woodland, regardless of how desirable such an action may be, can possibly be described as 'recreating' it and to use such terms serves only to obfuscate the truth of the destruction that is or has taken place.

I would be grateful if you could advise me that Highways England has now understood and revised its understanding concerning the actual value and significance of ancient woodland, and especially in the context of the proposed Arundel Bypass.

Yours sincerely

RESCUE The British Archaeological Trust is an independent non-political charitable trust dedicated to supporting archaeology and the historic environment in Britain and abroad. As a charitable trust, RESCUE does not receive any state support, being entirely reliant on the contributions of subscribing members to support the organisation's work.



31 October 2017

SDNPA Response to HE proposals for A27 Arundel

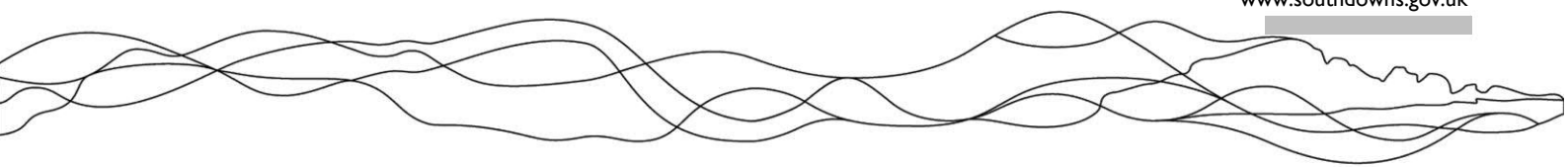

To Highways England,

Please find attached the SDNPA response to the consultation for the proposals at Arundel for the A27.

You will see that the SDNPA has objected to all three options for the reasons given in the response and based on our evidence provided (sent separately) which backs up HE's own view contained within the HE Consultation Document that all three schemes will be harmful to the SDNP.

We look forward to continuing to work with HE on the details of options as HE looks to make a decision on the preferred route.

Yours sincerely,



SDNPA response to the Highways England Consultation – Arundel A27 Oct 2017

Parliament lays down two statutory purposes for National Parks in England. Highways England, along with all public bodies and utility companies, when undertaking any activity which may have an impact on the designated area, has a duty to have regard to these purposes:

Purpose 1: To conserve and enhance the natural beauty, wildlife and cultural heritage of the area

Purpose 2: To promote opportunities for the understanding and enjoyment of the special qualities of the National Park by the public

There is corresponding social and economic duty upon National Park Authorities – to be considered when delivering the two purposes: to seek to foster the social and economic wellbeing of the local communities within the National Park

This reciprocal arrangement is designed to ensure a high degree of mutual cooperation, avoiding the risk either that the needs of National Park residents and businesses will be ignored, or that others will ignore its purposes when undertaking activities.

The SDNPA is not the Planning Authority for this scheme, it is a consultee and is looking to provide information to the decision makers, Highways England and, ultimately, the Planning Inspector and Secretary of State, to help them make a decision after balancing local, regional and national priorities

The SDNPA response is therefore around its remit to consider the impacts on the purposes for which the National Park was designated

It is understood that the planning application for any A27 Arundel Scheme, based on the preferred option, will be made through the National Infrastructure Planning process which is undertaken by the Planning Inspectorate (PINS) on behalf of the Secretary of State. The National Park Authority would be considered to be a 'relevant' Local Authority in this process and will be invited to produce a *Local Impact Report* to submit to PINS for their consideration during the application process.

Based on the route options brought forward for public consultation, and the level of evidence provided about each option, the SDNPA response is as follows:

1. The SDNPA notes that proposals for mitigation measures to address the likely significant adverse impacts on the natural beauty and recreational opportunities provided by the National Park, its Purposes and special qualities, and proposals for compensatory woodland planting for the loss of ancient woodland which is irreplaceable and therefore cannot be mitigated, have not formed part of the Highways England consultation at this stage.
2. Notes that the Highways England consultation mentions alternative routes, which avoid the National Park and Ancient Woodland completely, but excludes these from the consultation on the grounds of cost and value for money.
3. Notes that on the basis of the information currently made available from HE, in the absence of clear mitigation and compensatory measures as part of the routes proposed, and the exclusion of alternative routes as mentioned above, the Authority's opinion is that an Inspector could not be satisfied that the Major Development test (Paragraph 5.151 of the National Policy Statement on National Networks, which mirrors Paragraph 116 of the National Planning Policy Framework) could be properly applied.

4. Therefore concludes that all three route options, as currently presented by Highways England, would represent major development, would have significant adverse impacts on the natural beauty and recreational opportunities provided by the National Park, its Purposes and special qualities, **and therefore objects to all three options.**
5. The SDNPA will ensure that Members and appropriate officers continue to be engaged with the specific consultation and technical groups that Highways England have set up, to ensure National Park purposes are fully represented, including appropriate mitigation and compensatory measures as the project moves forward through the different Stages.

In support of 1 above

The level of supporting evidence supplied by Highways England does not, in our view, provide a sufficient basis for an Inspector to apply the above Major Development test and determine whether the process of getting from route options to a preferred route is robust. In determining whether major development should be allowed in a National Park, our understanding is that an Inspector will need to be clear that both exceptional circumstances and public interest – exist. This means being satisfied that all options have been properly considered and that sufficient and comparable information was provided about the design and construction and costs for these routes. In addition, the package of mitigation measures proposed should be clear, along with the level of compensation for any residual impacts. Considerable uncertainty applies to all of these factors, for example:

- Assessment of landscape, biodiversity and cultural heritage impacts cannot be satisfactorily completed as there is a high degree of uncertainty about proposed design and construction methods for routes. For example, lack of clarity about the structure (earth embankment or concrete viaduct) which would form the valley crossing for route options 3 and 5a in terms of design, costings and buildability - both options having significant but quite different impacts;
- In assessing biodiversity impact, no account has been taken of the recent judgement in regard to the Ashdown Forest SPA, which requires an assessment of the in combination impacts of traffic emissions from proposed development. SACs and SPAs within the National Park and near the routes include the Arun Valley SPA ;
- Modelling of induced traffic impacts does not in our view provide definitive evidence that building a new road would reduce the overall impact of traffic (pollution and noise) upon the National Park, as has been suggested. Rather, it would move traffic around from one route in the Park to another;
- Due to the process followed the level of mitigation proposed for each route option is unclear, for example the extent to which green bridges, cut and cover tunnels or other methods would be used on each route. Without this, it is not possible to complete a comparative assessment of the impact of each upon the National Park;
- The degree of compensation proposed is also unclear and subject to a huge degree of variation. For example, in the specific case of ancient woodland, the level of compensation informally suggested varies between like for like and thirty hectares for every one destroyed. Whilst ancient woodland is of great significance, all routes proposed would impact upon other habitats and protected species.

The list above is not definitive but illustrates the reasons why we believe that it is not possible, on the basis of the evidence so far provided, for a full objective assessment to be made as to whether an option for an Arundel bypass could be chosen which would fulfil the major development test. The SDNPA has gathered extensive evidence leading to its current view that all three routes would be likely to have significant adverse impacts, but will of course update this analysis if more information is forthcoming from Highways England about these or any other route options.

In support of 2 above

The HE Public Consultation document mentions (p40) that options 4 and 5b which run outside of the National Park were discarded because, 'they give no additional benefit compared to the more cost effective options taken forward'

Costings for the different options, below, are copied from HE documentation provided in Sept 2017 and contained in PCF Stage I – Technical Appraisal Report Aug 2017, sect 23 – 'Detailed Cost Estimate' p 147

Range Estimate			
Option	Minimum	Most Likely	Maximum
Option OA	£27.92m	£39.22m	£73.91m
Option 1	£96.09m	£134.47m	£250.17m
Option 3	£207.54m	£260.00m	£853.18m
Option 5A	£199.76m	£249.34m	£722.48m
Option 5B	£259.66m	£330.33m	£889.62m

This table shows that options exist outside of the Park (5B, and 4 (no costing in the table, but described as 'broadly similar to 5A but outside the SDNP on page 40 of the HE public consultation document) where the wide range of costs allows the possibility for an option to be built outside the NP that could end up being cheaper than options taken forward for consultation. Therefore options outside of the NP should have been included in the consultation.

In support of 3 above

All three routes, on the basis of the evidence so far presented, are considered to have the potential to have a serious impact on the natural beauty and recreational opportunities provided by the National Park, and therefore to constitute major development as set out in Paragraph 116 of the National Planning Policy Framework. This states that "*in National Parks, the Broads and Areas of Outstanding Natural Beauty, planning permission should be refused for major development except in exceptional circumstances and where it can be demonstrated to be in the public interest;*

In addition to the Purposes and Duty outlined in the opening paragraph there are other Policy Guidance which is relevant and these are set out below for clarity this includes;

National Policy Statement for National Networks I (NNNPS)

This is the planning policy document which sets out planning guidance for the development of national significant infrastructure projects on the road and rail networks. The Secretary of State will use the NNNPS as the primary basis for making decisions on development consent applications for National Infrastructure projects.

Paragraph 1.18 of the NNNPS highlights that the National Planning Policy Framework (NPPF) is also an important consideration in the decision making of nationally significant infrastructure projects. The relevant paragraphs in the NPPF are set out in more detail below.

The following paragraphs of the NNNPS specifically refer to development within National Parks and are particularly relevant in the decision making process for any A27 Arundel Scheme:

Para 4.26 Refers to the assessment of alternatives for schemes within a National Park.

¹ <https://www.gov.uk/government/publications/national-policy-statement-for-national-networks>

Para 5.148 Assessment process refers to the need for applicants to adhere to the requirements of the Government circular 2010 on the 'English National Parks and the Broads'² or successor documents.

Paras 5.148-5.155 Sets out the approach to the tests for major road schemes within National Parks.

National Planning Policy Framework (NPPF)

In light of paragraph 1.18 of the NNNPS, it is considered that the following paragraphs of the National Planning Policy Framework (NPPF) are also relevant:

- *Paragraph 17 sets out the broad planning principles in plan and decision making. These encourage the delivery of multiple benefits from land use in both rural and urban areas including reference to ecosystem service functions such as flood mitigation, carbon storage and provisioning services such as food and fuel.*
- *Paragraph 109 recognises that value and wider benefits of ecosystem services and requires that the planning system contribute to their enhancement and protection.*
- *Paragraph 114 requires that Local Plans should take a strategic approach and plan positively for the creation, protection, enhancement and management of networks for biodiversity and green infrastructure.*
- *Paragraph 115 states that great weight should be given to conserving landscape and scenic beauty, wildlife and cultural heritage in National Parks, the Broads and Areas of Outstanding National Beauty*
- *Paragraph 116 planning permission should be refused for major development except in exceptional circumstances and where it can be demonstrated to be in the public interest*
- *Paragraph 117 states that planning policies should contribute to the promotion of coherent ecological networks.*
- *Paragraphs 126- 141 set out the approach to the conservation and protection of heritage assets*

Therefore, the 3 proposed Options would need to meet the requirements of paragraph 116 of the NPPF and paragraph 5.151 of the NNNPS which state that the Secretary of State should refuse development consent in these areas (i.e. National Parks) except in exceptional circumstances and where it can be demonstrated that it is in the public interest. Consideration of such applications should include an assessment of:

- The need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
- The cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and
- Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

In support of 4

The evidence collected by the SDNPA, summarised in the impacts on the National Park Special Qualities report, and contained in the full reports show that all three options have the potential to

² <https://www.gov.uk/government/publications/english-national-parks-and-the-broads-uk-government-vision-and-circular-2010>

have significant adverse impacts on the natural beauty and recreational opportunities provided by the National Park, its Purposes and special qualities,

Conclusion

The SDNPA welcomes the opportunity to comment on the schemes put forward but finds that it is unable to consider the merits of the schemes due to a lack of information sufficient to properly consider the impacts of the finished schemes on the Special Qualities

The SDNPA considers that all three schemes as presented have the potential to cause severe adverse impacts on the natural beauty and recreational potential of the SDNP

The SDNPA considers that it is not possible to say that the major development test has been properly taken into account due to the lack of information provided



SUSSEX ORNITHOLOGICAL SOCIETY

Registered charity 256936

www.sos.org.uk



16 October 2017

By e-mail only

Highways England (A27 Arundel Bypass Consultation)



Dear Sirs,

The Sussex Ornithological Society (SOS) is one of the largest county Bird Clubs in Great Britain with over 1900 members. We record the birds seen in Sussex and have a database of over 3 million records of birds in the county. We publish the 250-page *Sussex Bird Report* annually and periodic avifauna documenting the state of birds in Sussex. Our Recorder and the SOS Records Committee determine whether records of designated "description" (rare) species that are not handled by the British Birds Records Committee should be accepted or considered not proven.

We have looked at the three route options being put forward for the A27 Arundel by-pass. We object to Options 3 and 5A as they will create the maximum disturbance to a wide range of breeding birds. Option 1, being an enlargement of the present A27, will, we feel, be more acceptable.

Yours sincerely,





Sussex
Wildlife Trust

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E-mail: swtconservation@sussexwt.org.uk

Date: 12/10/17

By email only

A27ArundelBypass@highwaysengland.co.uk

Dear Sir/Madam

The following objections are made on behalf of the Sussex Wildlife Trust in relation to the A27 consultation - Arundel Bypass.

1. Consultation Process

1.1 In 2003, the then Secretary of State did not support the Arundel Bypass proposal due to the significant environmental impacts. The Sussex Wildlife Trust asks why almost identical proposals are back on the table. **What has changed?**

1.2 Having viewed the available information on the 2017 consultation webpage, the Sussex Wildlife Trust does not believe that the process has considered all options available to improve access around Arundel and the wider A27 network.

The Sussex Wildlife Trust calls for a holistic approach to the issue of access. We ask Highways England (HE) to provide clear information of how the **Sustainable Transport Hierarchy**, introduced by the Sustainable Development Commission and adopted by the Department for Transport (DfT), has been worked through. HE must operate within Government Policy and therefore must ensure that all reasonable options to minimise demand, widen travel choices and improve efficiency have been considered before moving to the final option of increasing capacity through the provision of new infrastructure schemes.

The A27 corridor feasibility study: stage 1 evidence report states that *'Following the 2013 Spending Review, the Government announced its plans for the biggest ever upgrade of the strategic national roads network...'* this includes the A27 Corridor. Therefore, the scheme is fundamentally flawed from the outset, as the driver is to upgrade the trunk road network, not to address or find optimum solutions to the wider access problems in the A27 Corridor as per the Transport Hierarchy.

1.3 In 2002, the South Coast Multi Modal Study (SoCoMMS) was published and formed a part of the DfT's programme of Multi Modal studies. The SoCoMMS recommendations included enhancements to the Strategic Road Network to tackle congestion, alongside **measures to improve access to public transport and transport hubs, and to manage predicted growth in travel demand alongside balanced choices for transport users.** SoCoMMS outputs provided a framework for considering future transport investment decisions in the study area.

Improvements to public transport have not been adequately addressed in this process. The A27 corridor feasibility study: stage 1 evidence report states in section 1.4.3 that the *'the rail network is*

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close to capacity with no significant improvements planned. It then goes on to say *'consultation with the various Local Authorities along the corridor indicates that no major road-based public transport investment is anticipated'*. The Sussex Wildlife Trust asks why this is when the 2002 study clearly makes recommendations for improvements to these areas.

- 1.4 The steps needed, in terms of public services and public transport, to make a fundamental change to how growth is planned in the West Sussex A27 Corridor are repeatedly missed. This means public transport improvements will not be prioritised, or even considered, as part of a solution to congestion. Given the Government's **commitment in the 2008 Climate Change Act** and to pursuing sustainable development, this lack of strategic cross-departmental planning is not acceptable.

2. Access to information

- 2.1 We raise concerns about the **availability of information** during the consultation process. For considerable periods, over the consultation period it has been impossible to access information on the consultation website, in particular the Environmental Study Report. The Sussex Wildlife Trust had to lodge a number of requests for this document as it disappeared from the consultation webpage on multiple occasions. Having requested the document via email on the 10th September we did not receive a response or the documentation until 26th September. This is not an acceptable way in which to run a public consultation of this significance.

3. Justification for the proposal of a Bypass

- 3.1 The public consultation brochure states that there are six high-level objectives which the Arundel Bypass scheme aims to meet. **The Sussex Wildlife Trust cannot see that any of the options being consulted on meet these objectives.** The Technical Appraisal Report (TAR) states that it assesses the options that have been developed in order to meet the scheme objectives, but does not relate this back to the objectives. In particular, it is not clear to us how these proposals can *'minimise environmental impact'* or *'enhance the quality of the surrounding habitat'*, as per objective 5.

All of the options involve significant loss of ancient woodland, an irreplaceable habitat, and therefore cannot be said to carry out the consultation objective to *'work in harmony with the environment to conserve natural resources and encourage biodiversity'*.

- 3.2 Paragraph 118 of the National Planning Policy Framework states that planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, unless the **need for, and benefits of the development in that location clearly outweigh the loss.**

Highways England has failed to demonstrate that any of the three options put forward are needed or that they will produce the benefits claimed in the consultation document. Evidence has demonstrated time and time again, that road building induces traffic, rather than reducing it. In particular we direct you to the conclusion of CPRE's 2017 report – The end of the road? Challenging the road-building consensus, this states:

From examining road-building over the past 20 years, the researchers found clear evidence that road schemes:

- *induce traffic, often far above background trends over the longer term*
- *lead to permanent and significant environmental and landscape damage*
- *show little evidence of economic benefit to local economies*

The Environmental Study Report easily demonstrates in chapter 8; table 8.4 that all the options proposed will result in losses to ancient woodland. The loss of irreplaceable habitat for a maximum time saving of 8 minutes (options 3 & 5A) is not acceptable, particularly when other options to reduce congestion through the implementation of the Transport Hierarchy have not been considered. Without investment in the Transport Hierarchy or genuine examination of the environmental impacts of the proposals this statistic of an 8 minute time saving is meaningless, merely a sound-bite.

4. Evidence Base

4.1 Having viewed the Environmental Study Report (ESR) and Preliminary Ecological Appraisal (PEA), it is clear that the information provided at this stage is **too limited to adequately understand the full ecological impact of the proposed options**. That said, what information is available through the desk based evidence and limited field surveys, already demonstrates that the impacts to biodiversity from all options are extreme and cannot be justified.

4.2 The ecological assessments undertaken by HE are **not appropriate** for a proposal of this scale. For example the desktop data is from 2005 – 2015 and therefore does not utilise the most recently available data. The Phase 1 Habitat Survey was carried out at a sub optimal time, three days in January 2016, and covers only 20% of the survey area. We also note that the target notes for the survey, found in appendix D, do not appear to match the survey, they reference Kings Lynn and there are only 5 notes. **The full target notes must be made available**.

The PEA described the Extended Phase 1 Survey in section 3.3.8 as providing a '*general assessment of potential nature conservation value*.' Given the concerns we have about the quality of the information presented, this statement is rather generous.

4.3 It is unacceptable that there is an **absence of targeted species surveys**. The PEA states in section 4.2.38 that the '*Survey Area has the potential to support various protected and notable species*', however that '*no targeted species surveys have been undertaken*'. There are numerous points in the PEA and ESR where further surveys for a wide range of protected species are suggested, however they have not been presented with this consultation. This is despite there being a full 18 months between the Phase 1 Habitat Survey being carried out and the publication of this consultation.

We note that the Technical Appraisal Report states '*In the absence of detailed protected and notable species survey data, it is not possible to accurately determine the impacts resulting from each of the Scheme Options. Further survey and assessment will be undertaken at PCF stages 2 and 3 in order to accurately determine the impacts and magnitude of impacts for protected and notable species*'.

This approach of leaving the protected species surveys until the preferred route is selected will not enable a fair analysis of the most suitable or sustainable option. The true impact on the environment of each possible option, including employing other methods to improve access, must be established at this consultation stage to enable a fair comparison.

5. Mitigation principles

5.1 The mitigation hierarchy is clear that **all efforts to avoid negative impacts must be exhausted before mitigation and then compensation is proposed**. The lack of detailed environmental information at this stage means that options to avoid impacts cannot be properly considered. It is not acceptable to leave this until a preferred route is chosen as appropriate avoidance may include selecting a different route or method of reducing congestion. It is also not acceptable to make mitigation recommendations as in sections 1.1.4 and 1.1.5 of the PEA based on such a poor level of information.

5.2 The TAR states: '*where loss of ancient woodland is unavoidable it may be possible to partially compensate for the loss of ancient woodland through a combination of techniques including soil and vegetation translocation, new woodland planting and enhancement and restoration of existing woodland areas*'. The destruction of ancient woodland cannot be mitigated or fully compensated for and there is no evidence that stable climax communities, such as ancient woodland, can be recreated through habitat translocation. **This will clearly result in a loss to biodiversity and should be stated as such**.

5.3 The lack of detailed environmental information presented in this consultation results in the costs and extent of mitigation being impossible to calculate. Not only is the habitat impacted by these proposals not accurately reported on, but **the value of the impacted landscape in providing ecological connectivity** is not discussed.

This is unacceptable given that the National Planning Policy Framework is clear that pursuing sustainable development involves **moving from a net loss of biodiversity to achieving net gains for nature**. In addition, the Government expects HE to support the objectives of Biodiversity 2020 as stated in Highways England's Biodiversity Plan.

6. Summary

6.1 In summary, this consultation is not acceptable due to the following:

- There has been no consideration of the Transport Hierarchy
- The ecological information provided is not appropriate or sufficient for a proposal of this impact
- The suggested benefits of the options do not justify the severe environmental damage

Therefore, the Sussex Wildlife Trust:

- **Objects** outright to options 3 and 5A
- **Objects** to option 1 in its current form

7. Recommendations

7.1 The Sussex Wildlife Trust sees that the only viable way forward is to undertake a new consultation that uses the Transport Hierarchy to identify the appropriate solutions to access and associated congestion for the wider A27 corridor. This approach would ensure that concerns are properly addressed and the environment impacts are valued appropriately.

7.2 We recommend that any future consultation involves considered and detailed assessment relating to the impacts on biodiversity, so that a robust and professional decision about the acceptability of proposals can be made.

7.3 We suggest that a consultation of this scale takes a progressive approach when assessing its impact on the natural environment and produces a Natural Capital Assessment. The latest report from the Natural Capital Committee in January 2017 makes a clear recommendation that the National Infrastructure Commission should incorporate natural capital, including its maintenance, restoration and recovery, into long term infrastructure plans. It also makes a direct recommendation that Local Authorities and major infrastructure providers should ensure that natural capital is protected and improved, consistent with the overall objective of the emerging Defra 25 Year Environment Plan.

7.4 Any future consultations should reinforce existing environmental duties of public bodies, including those enshrined under Section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the purpose of conserving biodiversity, including restoring or enhancing species populations and habitats.

The Sussex Wildlife Trust would be happy to discuss any of the points raised within our consultation response.

Yours sincerely,



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FREEPOST A27 ARUNDEL

16th October 2017

Dear Sir/Madam

A27 Arundel Bypass – Public Consultation

Thank you for the opportunity to comment on the A27 Arundel Bypass consultation.

As the UK's leading woodland conservation charity, the Trust aims to protect native woods, trees and their wildlife for the future. Through the restoration and improvement of woodland biodiversity and increased awareness and understanding of important woodland, these aims can be achieved. We own over 1,000 sites across the UK, covering around 24,000 hectares (59,000 acres) and we have 500,000 members and supporters.

Ancient woodland is defined as an irreplaceable natural resource that has remained constantly wooded since AD1600. The length at which ancient woodland takes to develop and evolve (centuries, even millennia), coupled with the vital links it creates between plants, animals and soils accentuate its irreplaceable status. The varied and unique habitats ancient woodland sites provide for many of the UK's most important and threatened fauna and flora species cannot be re-created and cannot afford to be lost. We aim to prevent damage, fragmentation and loss of these finite irreplaceable sites.

The Woodland Trust **strongly objects** to the proposed route options on the basis of damage and loss to significant amounts of ancient woodland surrounding Arundel and the A27. The following woods would be subjected to damage or loss from the three proposed options:

- Option 1 (5.5 hectares of loss):
 - Steward's Copse/Tortington Common (grid ref: TQ002071)
 - The Waterwoods (TQ009071)
- Option 3 (24 hectares of loss):
 - Goblestubbs Copse (SU989075)
 - Stringer's Piece (SU989073)
 - Paine's Wood (SU992073)
 - Tortington Common (SU999067)
- Option 5A (6 hectares of loss):
 - Little Danes Wood (SU973068)
 - Hundredhouse Copse (SU978069)
 - High Wood/Barn's Copse (SU980069)

– Lake Copse (SU990059)

Planning policy

National Planning Policy Framework, paragraph 118, states that "planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss."

The Housing White Paper published on 7th February 2017 further shows the government's intent to improve planning protections for ancient woodland. This revised protection reinforces the approach set out in paragraph 118 (as set out above) to restrict development of ancient woodland as to do so would be contrary to the National Planning Policy Framework presumption in favour of sustainable development (as set out in paragraph 14).

The National Policy Statement for National Networks (NNNPS) largely follows NPPF wording in its protection for ancient woodland. Paragraph 5.32 states: "Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. The Secretary of State should not grant development consent for any development that would result in the loss or deterioration of irreplaceable habitats including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the national need for and benefits of the development, in that location, clearly outweigh the loss. Aged or veteran trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Where such trees would be affected by development proposals, the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons for this."

Natural England's standing advice for Ancient Woodland and Veteran Trees¹ states: "Trees and woodland classed as 'ancient' or 'veteran' are irreplaceable. Ancient woodland takes hundreds of years to establish and is considered important for its wildlife, soils, recreation, cultural value, history and contribution to landscapes."

Keepers of Time, a statement of Policy for England's Ancient and Native Woodland jointly written by Defra and the Forestry Commission states that "the existing area of ancient woodland should be maintained and there should be a net increase in the area of native woodland." One of the objectives set out in Keepers of Time is to "take steps to avoid losses of ancient woodland and of ancient and veteran trees and to sustain the total extent of other native woodland (ensuring that gains exceed losses)."

South Downs National Park Authority's 'Local Plan: Preferred Options' document has not been adopted as of yet though has been approved by the authority's members. In relation to

¹ <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>

ancient woodland this document states in 'Strategic Policy SD12: Biodiversity and Geodiversity':

"(iii) Irreplaceable Habitats (including ancient woodland and the loss of aged or veteran trees found outside ancient woodland:

Planning permission will be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss."

The Arun District Local Plan states the following in relation to ancient woodland in 'POLICY GEN28 Trees and Woodlands':

"Development will not be permitted if it would damage or destroy one or more trees protected by a tree preservation order, identified as ancient woodland or in a conservation area unless:

- the removal of one or more trees would be in the interests of good arboricultural practice; or
- the benefits of the proposed development outweigh the amenity value of the protected trees."

The Department for Transport's Road Investment Strategy states that Highways England will demonstrate "... its commitment to the environment by working to halt the loss of biodiversity, with the aim that activity in the next Road Period delivers no net loss of biodiversity." As ancient woodland is an irreplaceable habitat then any loss means that "no net loss of biodiversity" cannot possibly be achieved. By destroying so much ancient woodland as part of this proposed scheme Highways England will be entirely contradicting this aspiration and in turn the Department's KPI of better environmental outcomes.

Highways England's Biodiversity Action Plan also recognises the above aspiration:

"Biodiversity is entrenched within the Government's Road Investment Strategy and Highways England's Strategic Business Plan. In particular, the Road Investment Strategy states that by 2020, the company must deliver no net loss of biodiversity, and that by 2040 it must deliver a net gain in biodiversity."

Impacts of proposed options

The three proposed options as part of this consultation would all result in varying levels of loss to the ancient woodland around Arundel and the A27. Most of the woodland south of the A27 is referred to collectively as the Binsted Wood complex, whereas the woods north of the A27 are referred to as the Rewell Wood complex. Option 1 would consist of largely online road improvements with a short section of new road, affecting both the Binsted and Rewell Wood complexes. Option 3 would result in some work to the existing A27 but would feature a large new offline section of road that would directly sever the ancient Binsted Wood complex south of the A27. Option 5A, like Option 3, will feature some existing works to the A27 but

largely consists of a new offline section of road that would again result in direct loss to the Binsted Wood complex.

Ancient woodland

Ancient woodland is irreplaceable and its loss cannot be mitigated for. Evidently these proposed options would cause lasting, significant damage and impact on the integrity of the woodland complexes. Any development that adversely impacts and results in the destruction of ancient woodland is highly inappropriate and in direct contravention of a number of national and local planning policies.

Development in ancient woodland can lead to long-term changes in species composition, particularly ground flora and sensitive fauna, i.e. nesting birds, mammals and reptiles. Majorly adverse impacts would occur as a result of the removal of valuable ancient woodland to make way for the construction of this proposal. Many indirect impacts are also likely to occur as a result, with dust, soil compaction, spillages and waste largely affecting the woodland, particularly during the construction phases. These impacts will largely be irreversible and permanent in their nature.

The production of dust is an inevitable part of construction activities. Flora within ancient woodland is particularly sensitive to dust. Dust deposition within the woodland will damage the ancient woodland on site and likely cause continual reduction of the habitat quality.

Traffic through/adjacent to ancient woodland will have a detrimental impact through a large increase in emissions. In the UK, nitrogen oxides are produced primarily by vehicle emissions. Increasing nitrogen can alter the outcome of competitive interactions, changing the character of woodland vegetation, largely in terms of species composition. There is evidence from woods across Britain that species increasing in cover are more likely to be associated with high nutrient status conditions. Some species have shown consistent increases (e.g. nettle (*Urtica dioica*), rough meadow grass (*Poa trivialis*) and pendulous sedge (*Carex pendula*)) or decreases in abundance correlated with modelled nitrogen changes.

Wildlife

The Environmental Study Report identifies a rich diversity of fauna and flora within the ancient woods surrounding the A27, a number of which are rare and protected species. This includes nightjar, lesser spotted woodpecker, brown long-eared and barbastelle bats, Duke of Burgundy butterfly, adder and hazel dormouse.

Local faunal populations will likely be affected by noise and light pollution generated from the construction of roads during both their construction and operational phases. The loss and fragmentation of habitats appears to be an inevitable consequence of the two proposed options, which would likely cause much stress to local populations, potentially impacting wildlife in the wider environment of the area.

Noise associated with road developments and construction comes from a range of sources, including construction vehicles and high-level traffic activity. Noise levels will be elevated and likely remain constant over time. They are likely to limit the distributions of animal species that are intolerant of noise and negatively affect their reproductive success near to woodland edges. This may be beneficial at some sites if, as a result, deer pressure is reduced but bird diversity has been found to be lower in noisier sites.

Light pollution for such schemes will likely be apparent during both construction and operational phases. Light associated with road schemes is typically generated from roadside lighting and vehicle lights, and can result in chronic illumination, unexpected changes in light levels and direct glare. Artificial illumination reduces the visibility of the moon and the stars, affects species orientation differentially and may serve to attract or repulse particular species. This affects foraging, reproduction, communication, and other behaviour, consequently disrupting natural interactions between species. Light pollution near to ancient woodland is, therefore, likely to substantially affect the behaviour of species active during dawn and dusk, and twilight/nocturnal species, such as moths, bats, and certain species of birds, resulting in the decline of some species.

Ancient woodland and veteran trees host an abundance of invertebrates that provide good foraging for bats and birds. Veteran and over mature trees, which are also often associated with ancient woodland are particularly important and have high potential attributed to cavities and deadwood within the canopies. It is therefore essential that these habitats are not subjected to damage or loss.

The proposed options would result in severe fragmentation of the ancient woodland landscape due to the roads being sited directly through areas of ancient woodland. This would result in severance of the woodland habitat and the creation of a clear physical gap. The Trust has been made aware of a Bat Survey carried out by 'Animal Ecology & Wildlife Consultants' Ltd that identifies numerous bat species as using the woodland, including the particularly rare Bechstein's bat. The severance of the ancient woodland could heavily impact local bat populations by destroying the habitat features bats would follow. The impact of fragmentation will likely be exacerbated by artificial lighting that may line the route and deter bats. Should bats attempt to cross where they have previously done (despite the gap and any lighting) there is the risk of collision.

Ancient and veteran trees

Ancient and veteran trees are a vital and treasured part of our natural and cultural landscape. Ancient and centuries old veteran trees in the UK represent a resource of great international significance. Veteran trees are the ancient trees of the future and in turn notable trees are our future veterans. It has been estimated that the UK may be home to around 80% of Europe's ancient trees. They harbour a unique array of wildlife and echo the lives of past generations of people in ways that no other part of our natural world is able.

A 'veteran tree' is usually in the second or mature stage of its life and has important wildlife and habitat features including; hollowing, decay fungi, holes, wounds and large dead branches. It will generally include old trees but also younger, middle aged trees where premature aging characteristics are present.

It is of the utmost importance that any ancient or veteran trees are fully taken into consideration in the routeing of the options and are identified going forward to ensure they are appropriately protected. We suggest that the root protection area for any ancient or veteran trees should be 15 times the trunk diameter or 5 metres beyond the crown of the tree, whichever is greater. This view is supported by the Ancient Tree Forum. The Trust is concerned that if the protection area is limited, future risk assessments may determine that the tree needs to be felled on the basis of safety issues.

Conclusion

As an irreplaceable habitat, ancient woodland cannot simply be re-created once it has been destroyed. The consultation offers up three potential options designed to alleviate traffic but each would have devastating impacts on the area's ancient woodland, with the most impactful resulting in 24 hectares of loss.

The proposals being put forward for consultation are completely unacceptable. Destroying so much precious and irreplaceable habitat for the purposes of a new bypass is inappropriate, particularly considering that options have been previously assessed where there would be no loss of ancient woodland. It is alarming that alternative options that wouldn't impact on areas of ancient woodland are being discounted on account of budget constraints, while the environmental costs are undeniably devastating.

It is therefore essential that alternatives are fully explored and considered to avoid the unacceptable damage and destruction of ancient woodland. Tunnelling, junction improvements, and public transport investment are just some options that must be considered.

The Woodland Trust **strongly objects** to the three proposed options on the basis of the above. The destruction of ancient woodland proposed as part of these three options entirely contravenes national and local planning policy, and goes against the Government's commitment to better the natural environment with no further loss of biodiversity.

We hope you find our comments to be of use to you. If you are concerned about any of the comments raised by the Woodland Trust then please do not hesitate to get in contact with us.

Yours sincerely,

██████████

██

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.



A27

Arundel Bypass

Report on public consultation

Spring 2018
Appendix D5 – Stakeholder responses
Business groups and businesses

To Highways England

Re:-Arundel Bypass

ARUNDEL CHAMBER OF COMMERCE SUPPORTS..... [OPTION 5A](#)

Dear Sirs

Overwhelmingly, Arundel Chamber of Commerce supports the Arundel Bypass

Option 5A.

This is the official policy of the Chamber of Commerce and it has the full support of our membership of over 70 businesses.

What I would like to stress is that we do not want the Arundel bypass to end up being delayed/cancelled (as per the Chichester one) due to lack of action.

Access to the town is already affected by long delays and queues all year round ,(not just at peak times) for those who wish to visit our unique town.

Visitors and customers frequently state that they are currently put off or cancel coming to the town, due to all too frequent access problems getting into the town, with long queues on the A27 in either direction !

Additionally the A27 trunk route needs be able to allow non-visiting traffic to flow past without causing more local congestion and pollution, especially as the volume of traffic using the A27 trunk road is so heavy.

The town is already used as a 'rat-run' at peak times

It is our opinion that the bypass **Option 5A** must go ahead without delay and also that it does not divide the town with a major through road along the current A27 route, as would occur with the worst option....

Option 1 .

This is an ideal opportunity to more unite the 'geographical' two halves of the town. Furthermore every effort should also go into encouraging visitors to use public transport links to the town,.....but for road users the bypass must be built and its earliest implementation encouraged.

From a business point of view Arundel cannot afford to be isolated and labelled 'a town to avoid' due to delayed and congested access !!

We fully understand the need for conservation and protection of rural areas, and it is unfortunate that sometimes sacrifices have to be made,for the greater good.

However , if you offset this against the current pollution from queues of cars constantly crawling along the A27 from Croosbush and often way beyond that , and to the Western side of Arundel , often as far as the Binstead turn , then it has to be seen as a 'fair trade'.

We are fortunate to have so much protected open space around us with the South Downs National Park etc,so we believe that the by-pass route **Option 5A** is a small price to pay to enhance our local environment.

The proposed route **Option 5A** is overwhelmingly our preferred choice and will make Arundel more accessible, united and less polluted as it won't have the current A27 Trunk Road separating the two sections of our beautiful town.

Please endorse the Arundel Bypass Option 5A

Sincerely,



Chairman

For and on behalf of Arundel Chamber of Commerce Members.

antiquitiesarundel.com

@antiquitiesarun

+44 01903 884355

Bognor Regis Regeneration Board

130 Manor Way
Aldwick Bay
Bognor Regis
West Sussex
PO21 4HL



9th October 2017

Dear Sir

Re: Response to A27 Arundel Consultation

I am writing to you on behalf of the Bognor Regis Regeneration Board regarding the above Highways England project.

The Board was established in 2007 to act as an independent advisory body, bringing together leading representatives from the key public, private and community stakeholders in Bognor Regis.

The Board has three key objectives:

1. To collectively promote Bognor Regis as a great place to live, work, visit and invest
2. To consider, give opinion and comment upon how and to what extent planned and proposed developments contribute to:
 - the town's growth and development
 - addressing and overcoming the town's socio-economic challenges; and,
 - maximising benefits and opportunities for the town.
3. To consider and evaluate strategies which impact upon the economic growth of Bognor Regis and offer comment, opinion and where appropriate modifications.

Board membership is drawn from the major local private and public organisations including the University of Chichester, West Sussex County Council, Arun District Council, Butlins, Sime Darby London and Landlink Estates.

The case for the A27 Arundel Bypass

The Board supports the A27 Arundel Scheme as an integral part of the strategically important A27 improvements in Highway England's Road Investment Scheme. The Arundel scheme is capable of being implemented independently and is critical for the economic prosperity of Bognor Regis and Coastal West Sussex. Future growth will

result in demand further exceeding capacity through Arundel, and this section of the A27 will act as a constraint to the planned growth in housing and employment in the area. The single carriageway section and junctions through Arundel do not cope with existing traffic. This often results in long queues of traffic approaching Arundel. Due to congestion, some longer distance traffic diverts away from the A27 to alternative routes which are less suited to high volumes of traffic and larger vehicles.

Highway England's 'Traffic Forecasting Report' identifies that improving the A27 at Arundel would bring the following benefits:

- Considerably reduce the existing queues and delays
- Improve journey times, air quality and road safety
- Remove traffic from less suitable routes within the South Downs National Park
- Help businesses to reduce their cost, support expansion and provide new employment opportunities
- Support the growth of tourism

Concluding that: 'It is clear from modelling results that a Bypass is required to provide the network improvements and reduce delay and improve travel time'. This view is supported by the Board.

Preferred Option


The Board has studied the options put forward by Highways England and has concluded that Option 5A is the preferred solution to ensure that the A27 Arundel Bypass will bring the benefits outlined above. The advantages of Option 5A over Option 3 which was the other considered alternative are:

1. The route has the best average peak hour journey time savings in both directions
2. The benefit to cost ratio is 2.6 compared to 2.0 for Option 3 also with Option 5A costing £10m less at £250m.
3. The impact of the route on the Ancient Woodland to the north of Binsted village is limited to 6 hectares compared to 24 hectares at Tortington Common for Option 3.
4. Option 5A reduces the impact of rat-runs through the South Downs National Park by 36% (4399 vehicles per day) compared to 23% under Option 3 (3,300 vehicles per day).

The A27 is an integral element of the economic infrastructure in West Sussex, the South East and nationally. The Board urges the Secretary of State to recognise the importance of the Arundel Bypass by approving the improvement programme.

Yours faithfully




www.bognorregisregenerationboard.com

Coastal West Sussex Partnership
2nd Floor, Portland House
Richmond Road
Worthing
BN11 1LF

3rd October 2017

Dear Colleagues,

As the Chair of the CWS Partnership Board, I welcome the opportunity to be able to comment on the scheme proposals to improve the A27 at Arundel. This response has been sent on behalf of the CWS Partnership Board and it is requested that Highways England give due consideration to its contents before making its recommendations to the Secretary of State.

The Coastal West Sussex Economic Partnership brings together leaders from business, education and the public sector to work collectively on economic issues that affect the coastal strip. Geographically it covers the areas of Chichester, Adur, Arun and Worthing. Both the CWS Partnership (and its Executive Board) aim to add value and focus on the key "larger than local" issues that impact on our coastal economy whilst supporting business development and promoting sustainable economic growth across the area.

The A27 is the main arterial route along the West Sussex coast and as such, it is the most important transport connection between Portsmouth and Brighton so it is imperative that the A27 works effectively for the benefit of both the local, regional and national economy.

In considering the options being proposed for the A27 at Arundel, we were delighted to see that there are 2 options being promoted that offer dualling solutions, both of which would be supported by the CWS Partnership. However, in looking at the detail, **Option 5A** would appear to be the favourable option because it offers:

- A better Benefit to Cost ratio with less significant implications for the various National Policy Statements therefore making delivery of the scheme far more achievable.
- The route has the best average peak hour journey time savings in both directions
- The impact of the route on the Ancient Woodland to the north of Binsted village is limited to 6 hectares compared to 24 hectares at Tortington Common for Option 3. 4.
- Option 5A reduces the impact of rat-runs through the South Downs National Park by 36% (4399 vehicles per day) compared to 23% under Option 3 (3,300 vehicles per day).

However, the CWS Partnership would also like to encourage Highways England to consider any potential modifications that would:

- Further reduce the impact on local residents particularly around Binstead
- Consider a full junction option for Ford Road because of the increasing levels of commercial and residential traffic

- Create appropriate cycle routes that promote commuter opportunities but that also support more leisure cycling and open routes along the River Arun to connect the coastline to Arundel.

The dualling options being proposed for the A27 at Arundel are very welcome but we also recognise that there are other obvious bottle necks along the A27 in West Sussex. The CWS Partnership would like to encourage Highways England to take a more holistic and joined up approach to deliver improvements along the whole stretch of the A27 in West Sussex as this would have a much greater and more positive impact on the economy and yield greater economic return in the longer term.

Any infrastructure investment into this area needs to deliver:

- Improved journey times - East to West along the whole stretch of the A27 from Brighton to Portsmouth
- Improved journey time reliability and resilience against unplanned incidents
- Removal of choke points and stop/start traffic with the consequent high levels of roadside pollution
- Improve the attractiveness of the area as a place to do business by improving connectivity to/from the West Sussex coast
- Better access for visitors to both the coast and the South Downs National Park
- A broader recruitment pool for businesses located in the area by improving connectivity to/from urban areas
- Improvement in the journey times and access for businesses and residents to the north and south of the A27
- Complement improvements to other transport investment that is already being made; eg A284 Lyminster bypass and the A259 corridor improvements at Littlehampton, because unlike other areas there are few acceptable alternative routes for users to use at times of congestion on the A27.

Improving the competitiveness of the West Sussex coastal economy to bring it into line with the regional average has the potential to bring significant economic benefits to the national economy.

We look forward to hearing the announcement of the preferred route later in the year.

Best wishes,



Chair, CWS Partnership Board, VP Operations,
Bowers and Wilkins



[Faint, illegible signature or stamp]

13th October 2017



Re. A27 Arundel bypass consultation

Many thanks for your recent letters regarding consultation on proposed routes for the A27 bypass. Littlehampton Harbour Board (LHB) is a Statutory Harbour Authority (SHA) with a responsibility for maintaining an open port and safety of navigation within its jurisdiction from the sea along the course of the River Arun to Arundel. I have been able to discuss the proposals further with the Board who have asked me to respond to you with the following points:

Utilisation of Littlehampton Harbour

The LHB would like to highlight the potential use of the harbour to support construction activity. Import by sea, utilisation of quay space in Littlehampton and onward transport to site by barge of construction material are all worth consideration as potentially cost effective and environmentally sound options during construction phase regardless of scheme adopted.

Bridge Height

The LHB would request that any new river crossings did not lower the minimum air draft currently afforded by existing road and rail crossings. Reducing the available clearance beneath bridges would have an impact on leisure use of the River Arun and onward access to the South Downs National Park by water.

Port Connectivity

The LHB would like to highlight the regional strategic importance of maintaining good links from the port to the A27. A junction with the Ford Road is considered necessary for the harbour to remain a viable import/export hub for national and international cargos and will avoid forcing commercial traffic through the Littlehampton built up area if option 5a were to be progressed.

Importance of the A27 bypass project

Finally, the LHB would like to stress its strong support for the A27 Arundel bypass project. While options 3 or 5a would be preferred to option 1, whichever option is progressed the LHB believes that the scheme should be considered as a standalone project necessary in its

own right and not be dependent on the progress of similar schemes at Worthing/Lancing or Chichester.

I would of course be happy to discuss any of the points raised above further and could facilitate a familiarisation trip on the river if at any stage you thought that would be worthwhile.

Yours sincerely,



Harbour Master, Littlehampton
On behalf of the Littlehampton Harbour Board

Dear Sirs

A27 Arundel Bypass Public Consultation response

For many years I have campaigned for the provision of an Arundel Bypass – until now!

I have always seen an Arundel Bypass as "enabling infrastructure" to enable the delivery of government housing and employment policies in the Arun District and, in particular, to assist the regeneration of Bognor Regis and Littlehampton – both of which have serious pockets of deprivation, amongst the bottom 10% in the country.

The council has planned most of its strategic housing development to the south and south east of Chichester – at Bersted (2,500), Pagham (1,200), and Barnham, Eastergate & Westergate (2,300) with only a relatively modest number of houses at Ford (1,500).

The Secretary of State for Transport, Chris Grayling cancelled the A27 Chichester improvement scheme. At the same time the Minister made it clear that the Arundel Bypass would go ahead as planned. The council was aware of this when it voted on its Local Plan.

So, in essence, the council's strategy is to locate a majority of its strategic housing where the A27 WILL NOT be improved and a relatively small part of its strategic housing where the A27 WILL be improved.

The strategic housing provision and infrastructure improvements are in different parts of the district! The housing and infrastructure investment MUST be aligned.

As things stand, the proposed A27 Arundel Bypass contributes little or nothing towards the delivery of government housing and employment policy, nor does it contribute towards the regeneration of Bognor Regis and Littlehampton.

Landowners at Ford are no longer promoting a new settlement of 5,000 houses and have withdrawn most of their land from consideration in the Arun Local Plan. This means that there can be no large scale new settlement or employment hub at Ford.

If the proposed Arundel Bypass does not contribute to the delivery of government housing and employment policy then can an investment of £250 million be justified to bypass a small town of only 3,400 inhabitants?

To attract inward investment to the Arun District we must first recognise that businesses need easy access to the Strategic Road Network (SRN) which, for Arun, means the east/west bound A27 and the north/south routes of the A3 and M3 in the west and the A24 and A23 in the east – all of which are largely dual carriageway and can support commercial traffic.

The exclusion of a grade separated junction on the Ford Road eliminates any opportunity to link Bognor Regis to the Strategic Road Network (SRN) in the east by creating a link road from the accident black spot at Comet Corner, bridging the railway line near Ford, and linking to the Arundel Bypass.

Note: an additional route would distribute local traffic more evenly and reduce congestion on existing routes (more beneficial than the realignment of an existing route).

Ford cannot now be developed to its full potential. As things currently stand, all other communities in the district must suffer the housing pressure, whilst Arundel (and through traffic) benefits from the infrastructure improvement.

Against this background how can an investment of £250 million be justified?

In July 2017, I put the following public question to the leader of Arun District Council;

"In a recent letter the Secretary of State for Transport makes it clear that the delivery of the A27 Arundel Bypass should continue as planned – according to Highways England work is due to commence in March 2020 and is scheduled for completion in 2022.

How does the council plan to capitalise on the government's proposed £250 million investment in an Arundel Bypass?"

The response is minuted as:

"The Leader of the Council, Councillor Mrs Brown responded by stating that the Council was working very closely with Arundel Town Council to promote the positive benefits of providing an Arundel By-Pass. Only last week, she and Arun's Chief Executive had met with the Chief Executive of Highways England, alongside a Member of Arundel Town Council and the Leader of West Sussex County Council. However, the proposed consultation document had yet to be published. When it was, the Council would formulate its detailed response."

It's clear from her response that the leader of the council could not provide an explanation as to how the council plans to capitalise on this investment. I am concerned that the council's failure to utilise this long awaited infrastructure for the delivery of housing or employment puts this investment at risk.

At the same time, it is becoming increasingly clear that potential solutions at Chichester and Worthing are weak and underfunded.

Should the investment be diverted to where it can be used to genuinely assist the delivery of government housing and employment policy? Or should Arun's Local Plan be adjusted to utilise this important infrastructure? (The EiP is taking place as I write this submission).

As things currently stand, and for the reasons stated above, I cannot support any of the three options.

The River Arun is the second fastest flowing river in the country. As part of the Eco Town proposals Ford Enterprise Hub suggested that consideration be given to incorporating river powered electricity generation into the design of an Arundel Bypass to provide renewable energy, which could power lighting on the bypass etc.

If the government decides to go ahead with an Arundel Bypass then please consider this opportunity – which would be relatively inexpensive too!

See https://www.youtube.com/watch?v=ob_ftabABZg

Yours sincerely



Ford Enterprise Hub (former promoter of Ford Eco Town)



Harbour Park Ltd.

Windmill Road, Seafront
Littlehampton, West Sussex BN17 5LH

Tel: 01903 721200 Fax: 01903 716663

Email: admin@harbourpark.com

Website: www.harbourpark.com

 [harbourparkuk](https://www.facebook.com/harbourparkuk)  [@harbourpark](https://twitter.com/harbourpark)



Where the fun never sets!

FREEPOST
A27 ARUNDEL

26th September 2017

Dear Sir / Mme

A27 Arundel Bypass Improvement Scheme

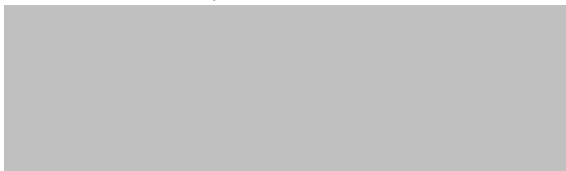
Having considered your public consultation document on the above scheme we have completed the questionnaire which accompanies this letter.

Our feeling is that Option 5a achieves the necessary aims of the scheme with the least impact upon residents and environment. We note this is subject to further and more detailed surveys being conducted.

To improve the economic wellbeing and accessibility to and from communities existing and proposed, south of the Crossbush junction we would encourage Highways England and local authorities to dovetail the proposed Lyminster Bypass construction with this scheme.

Harbour Park would encourage Highways England to support through their 'Designated Funds' the creation of a cycleway between the South Downs National Park via Arundel to Littlehampton along the River Arun.

Yours Sincerely



Managing Director
(Arun Resident)



Registered Office: Harbour Park, The Seafront, Littlehampton, West Sussex, BN17 5LL, UK
Directors: Gary Smart BEM (Chairman); Westley Smart BSc Hons (Managing); Ashley Smart BA MA
Company Secretary: Katherine Smart
Registered No. 1333980 VAT No. 194 1588 34



IAAPA



BALPPA

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A27

Arundel Bypass

Report on public consultation

Spring 2018
Appendix D6 – Stakeholder responses
Transport and users groups

Bilsham Manor
Bilsham Lane
Yapton
Nr Arundel
West Sussex
BN18 0JX
Tel: 01243 582443



Highways England
FREEPOST A27 ARUNDEL

Dear Sirs

Re: Response to Facilities for Walking, Cycling and Horse Riding (Non-Motorised Users) on Behalf of Arun & Chichester Districts Bridleways Group

Please find enclosed considered response from the Bridleways Group to the three options outlined in the Consultation Documents.

A copy was sent as an email link on 3rd October, this is the hard copy.

Yours faithfully

[Redacted Signature]
Committee Member



COMMENTS BY ARUN & CHICHESTER DISTRICTS BRIDLEWAYS GROUP

ON A27 ARUNDEL BYPASS CONSULTATION

The Arun & Chichester Districts Bridleways Group represents the interests of horse riders from the West Sussex Coastal Plain south of the A27. We have carefully considered the document "A27 Arundel Bypass Facilities for Walking, Cycling and Horse Riding (Non-Motorised Users)" by Highways England and associated computer video mock-ups of the three schemes, and comment as follows:

OPTION 1

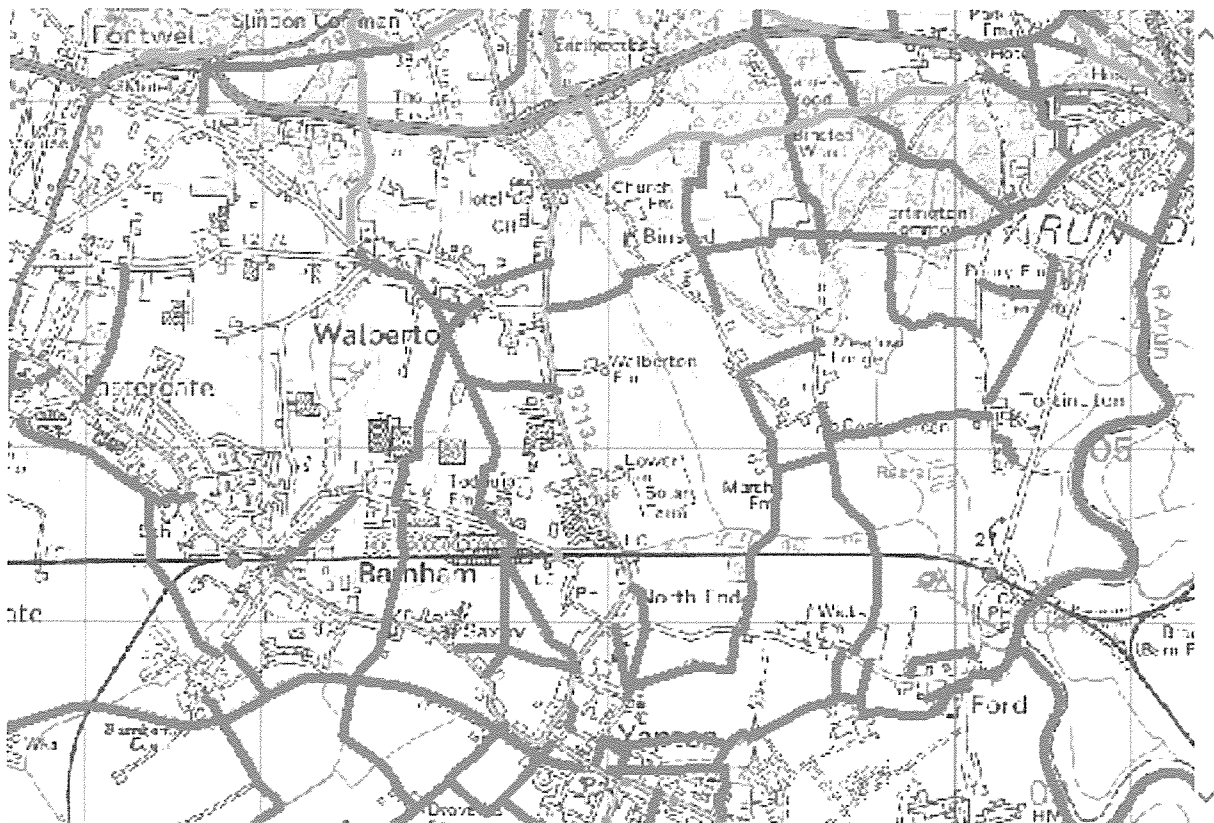
For **equestrians south of the A27** which this Group largely represents, Option 1 means that the section between Arundel and east to Fontwell remains as a total block to equestrians trying to access the South Downs National Park north of the A27. Of the **only three** bridleways available between the A27 and the A259 to the south, **two: BW 336 Barns Copse** <https://www.youtube.com/watch?v=Oa5hPqEvER4&sns=em> and **BW 392 Potwell Copse** <https://www.youtube.com/watch?v=2f7x-f8lu0c&sns=em> are located along the dual carriageway section between Arundel and Fontwell. Since the A27 was made into a dual carriageway they have been left in a disgracefully **dangerous and unusable** condition with at grade crossings.

The only other bridleway, Old Scotland Lane – a very historic route – now appears to be about to be hijacked as a signed cycle route. Not surprisingly riders from the coastal plain are becoming increasingly angry at the lack of consideration and provision for their needs and appreciation of their considerable input into the local economy. Whilst solely concentrating on walking and cycling projects, Local Authorities are in danger of "sleep walking" into the loss of a major contributor to the

local rural economy on the West Sussex Coastal Plain, when enhancement of provisions for horse riders could play a significant role in coastal plain regeneration.

To make it clear to see, reproduced below is a section from the WSCC PROW IMap, indicating the problem of bridleway provision south of the A27. In green are bridleways – these are BW 336 Barns Copse (Binsted), BW 392 Potwell Copse (Walberton) and BW 338 Old Scotland Lane (Binsted). There is no other provision for riders from the other villages to the south, who also have significant numbers of horses – these riders have no option but to ride on the roads. It is most important to procure enhanced crossing points on the A27 at BW 336 and BW 392 in order to have any chance of improving the situation for coastal plain riders going forward. This will hopefully be able to be achieved by upgrading some of the footpaths (shown in purple).

The West Sussex Rights of Way Improvement Plan highlights that **the total area of the West Sussex Coastal Plain has only 28 miles of bridleway** compared to 506 miles in the South Downs area north of the A27.



Below is a map taken from the WSCC ROWIP document – reiterating previous remarks concerning Bridleway provision in the West Sussex Coastal Plain compared to the South Downs.

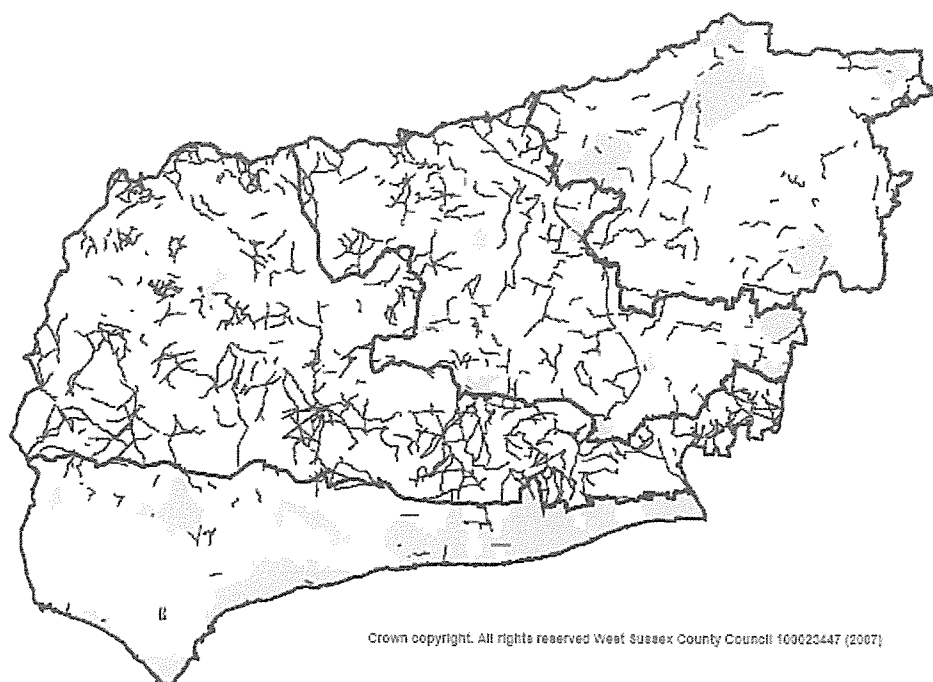


Figure 6. The bridleway network

Policy

The Consultation document does not mention that HE have consulted the WSCC Rights of Way Improvement Plan (ROWIP) 2007-2017 in its deliberations. The ROWIP highlights the extreme lack of bridleway provision in the West Sussex Coastal Plain (only 28 miles in total, compared to 506 miles in the South Downs) and the fact that riders largely have to ride on the roads as a result. The bar to accessing the South Downs north of the A27 is highlighted, as is the fact that many riders are forced to transport their horses in order to do so.

There is also no mention of reference to the Walberton Neighbourhood Development Plan 2015-35, a very relevant document since it encompasses three communities immediately affected by this scheme: Walberton, Binsted and Fontwell. Walberton Parish has an estimated **200 horses**.

The Arun District Local Plan 2014-2024 highlights the deficiency in bridleway access between the coast and the South Downs, and also says a core strategy is to make the District a fantastic place for things that are best off road like cycling and horse riding.

This means that going forward the **core aim for equestrians** is to secure more bridleways from the coast northwards and to be able to **easily and safely** access the South Downs north of the A27. The connections provided by Bridleways 336 and 392 are therefore **totally essential** if there is to be any chance of the present situation resolving in the future in this part of the coastal plain. This is because there is little point in securing bridleways up from the coast only to find that crossing to the South Downs to access the plentiful riding opportunities there is so dangerous it is impossible.

Core policies referred to may be found in Appendix 1 at the end of this document.

The livery yards close to Walberton centre report that **the tunnel at Fontwell is too far** for daily riding – it takes them too long to get to it, make a ride and get back (min. 2 hours) and, as a result, many have to make a circuit round Walberton's roads. Consideration needs to be given to the time taken to care for a horse, often around riders' employment, and the problem in the winter of shorter daylight hours. Alternatively, in order to access Binsted, riders from Walberton have to negotiate the very busy and narrow main Street. It is full of parked cars and has poor visibility. They then have to ride down Yapton Lane which has fast moving traffic and HGVs, and turn across a blind bend to Hedgers Hill.

Solution

1. The Bridleways Group request a solution to the danger, and severance, caused by the current situation with bridleways 336 and 392, by underpasses or bridges as appropriate.
2. An upgrade of FP 350 to BW status to assist all NMUs to access Binsted without having to use Yapton Lane would be an enhancement. The path has been walked and would be very suitable.
3. If the path/Lane running west from Potwell Copse immediately south of the A27 could be confirmed as a bridleway or restricted byway that would also be appreciated as riders like to use it to make a short ride and at present its status is unclear. It would appear to be the remainder of the old Chichester to Arundel Road.

Walk/Cyclepath North of A27

The Bridleways Group thinks that the section west from Ford Lane roundabout should be available to horses as well as it would connect bridleways and stables where horses are kept. Negotiation with landowners to provide a further NMU multi user path immediately north of the A27 to the vicinity of Shellbridge Road would enable current dead end bridleways to be reconnected. Both these options would provide an enhancement of the current network for **all NMUs**.

Bridge over River Arun

Horse riders will petition to be included on any path along the River Arun – the route is after all the old towpath which was for use by **horses** and their handlers. The policy of Arun District Council is to include horses "wherever possible". It should do so for reasons of equity due to its historic purpose, and to comply with its own policy regarding the deficient bridleway access between the coast and the South Downs. The over bridge should therefore accommodate equestrians. The Arundel Neighbourhood Plan may be considering that Arundel is amply provided with bridleways, but this is of course not the case for the villages south of the A27 as previously demonstrated.

OPTION 3

Solution to Dangerous BWs 336 and 392

The Group's previous comments about this also apply to Option 3.

Walk/Cyclepath North of A27

From Ford Road roundabout west this should be provided for the use of **horse riders as well** as it would link all those bridleways effectively rendered a dead end by the A27 (BWs 415 and 386) and provide surety of access. There should be plenty of available space to do this if the road is being downgraded from dual carriageway to a local road. A Pegasus crossing, perhaps at the point where Tortington and Binsted Lanes meet on the other side, would ensure a safe crossing point. As currently drawn in the Consultation, however, the walk/cyclepath on the south side of the downgraded road into Arundel makes little sense. It should be on the **north side** where it would connect many current dead-end footpaths and bridleways and provide an enhancement to the network.



Picture on previous page taken by a member of the Bridleways Group whilst on a break in East Sussex – apparently East Sussex have miles of multi user access paths like these.

Bridge over River Arun

We reiterate our comments about the Group petitioning to allow horses on this proposed route and the bridge being suitable for this to happen.

OPTION 5A

Solution to Dangerous BWs 336 and 392

What is proposed for BW 336 under this scheme is not exactly clear. A bridleway alongside a road/bridge with traffic containing HGVs etc and having to cross three slip lanes does not sound at all suitable if that is what is proposed. The noise of the road and massive elevated structures would be a frightening place for a horse. Additionally, a link for BW 392 would still be required. Unless a clear and safe option is demonstrated, the Bridleways Group still think dedicated underpasses or bridges for both these Bridleways is imperative.

Walk/Cyclepath

From Ford Road Roundabout west, the Bridleways Group requests that this is for horse riders as well as it would provide connectivity for Bridleways 415, 386 and 397 and provide surety of access and more route options for riders and all other NMUs. However, it has again been drawn in the Consultation document on the south side of the road which to us makes no sense. Surely it should be on the north side

Bridge Over Footpath 342

Footpath 342 is likely to be the subject of a Definitive Map Modification Order by a member of the Bridleways Group in the near future as there is evidence it is wrongly recorded and should be a bridleway. In any event, it would make a fantastic multi user route as it is wide and it goes from the centre of Arundel to Binsted Church and, if FP 350 could be upgraded as well, possibly even as far as Yapton Lane. We do not wish to lose the chance of this route becoming such a valuable multi user route in the future, so we request this bridge is **suitable for all users** from the outset – even if labelled a footbridge in the meantime. Please note the map on page 2 of this document showing how little bridleway provision there is south of the A27 in this region, and this route would be very beneficial therefore. The lack of bridleway provision and problem for horse riders on the coastal plain is highlighted in the West Sussex Rights of Way Improvement Plan and the West Sussex Transport Plan. Route 5a is very damaging to the beautiful countryside around Binsted and you should be taking any measures possible to ensure connectivity is not affected to the remaining area for all users – and especially those users like horse riders and cyclists who are already suffering from a lack of access to the countryside in the area south of the A27. The upgrade of Footpath 342 would provide nearly 2 miles of extra bridleway to the coastal plain which has in total only 28 miles. **Please do not scupper our chances of securing this therefore.**

Bridge over River Arun

We reiterate the comments made under Options 1 and 3.

SUMMARY

We are very disappointed at the current lack of provision for horse riders' needs in the Consultation documents and lack of consideration and design in to existing equestrian paths. It is to be hoped that Highways England will take steps to rectify this and ensure riders are not treated as inferior.

The **current situation regarding BWs 336 and 392 needs a resolution**. Both bridleways are required to deliver current policy objectives. Both are also valuable as ancient routes which give a sense of history and place. There needs to be an understanding that **one underpass in the north east at Fontwell is not sufficient** for horses from this entire area of the coastal plain, due to the difference in time taken to ride a horse to it compared to, say, a cyclist. **The underpass/bridge options I have outlined would resolve the current safety issue, increase connectivity, and "future proof" access options**

The Group requests any **bridge for footpath 342 is suitable for multi user**, because the coastal plain cannot afford to miss an opportunity to gain an extra 2 miles of bridleway. I know you would normally say you can only deal with the situation on the ground at the time, but I do think this situation warrants a special case, because the coastal plain has so little bridleway provision.

The proposed **walk/cyclepaths west from Ford Lane Roundabout should be for horses as well** to deliver best value for public money. A lot of County Councils make all such paths available to all NMUs as standard. The path should be on the north side of the road as this would allow connection of paths and bridleways which are currently dead ends delivering an overall enhancement to the network. Consideration, if space allows, to a landscape area between traffic and non motorised users would increase a feeling of safety, and provide something of a barrier to noise and spray in wet weather.

Options 3 and 5a should also provide a **suitable crossing point to Binsted** on the section downgraded to a local road **which has a "Pegasus" crossing**. If the road is quiet enough riders can cross at will, if it becomes very busy – during events at Arundel like the Festival for instance - riders can use the Pegasus crossing.

The Group requests any **overbridge over the River Arun is suitable for equestrians** on the River Arun path, for reasons previously explained. If the overall height poses an insurmountable problem, riders could dismount and lead their horses under the bridge, if mounting blocks were provided at each end.

Going forward there needs to be a greater understanding between HE and WSCC regarding exactly who is responsible for what in terms of **maintainance** on the edges of the trunk road network in the vicinity of PROW. We have had the situation where visibility is completely obscured by undergrowth and the person trying to report it is "sent all round the houses" whilst everyone denies that they are responsible.

Please refer to Appendix 1 for all Policies relevant to the above comments.

17 September 2017



APPENDIX 1

RELEVANT EXTRACTS FROM LOCAL POLICY DOCUMENTS

WSCC TRANSPORT PLAN 2011-2026

Taken from Part 1 Long Term Strategy

1.4.5 Equestrianism in West Sussex (page 32)

Equestrianism is important to the economy of West Sussex as it provides jobs and attracts business. Not only are there numerous private and commercial riding schools and their supporting ancillary businesses, but there are also major tourist attractions such as the Goodwood racecourse, the All England Jumping Course, and the South of England Showground at Ardingly.

In a predominately rural county, a large percentage of which is located within the SDNP, horse riding (and to a lesser extent horse carriage driving) is a popular and growing leisure pursuit. As a result, equestrians form a significant but vulnerable road user group which we will support and seek to protect.

The key aspects of our approach to equestrianism are:

Maintaining Equestrian Facilities - maintaining multi-use routes such as bridleways to a good standard.

Constructing Equestrian Facilities - investigating opportunities to improve public rights of way through our RoWIP and providing specific equestrian facilities, such as pegasus crossings where need can be demonstrated.

Designing for Equestrians - ensuring that equestrian needs are considered wherever possible in highway and maintenance schemes.

Promoting Skills Training - helping to promote, publicise and encourage Equestrian Road Safety Training offered by the British Horse Society and The Pony Club.

Regarding A27 Generally

A27 issues (pages 28 – 29)

The A27 is the most unreliable all purpose trunk road in England and experiences significant amounts of delay along the length of the route. In West Sussex, the most significant problems are at Chichester, Arundel, Worthing and Lancing where bottlenecks cause congestion, high accident rates, severance and diversion onto unsuitable routes. The A27 fails to meet the current needs of the area which is also in need of regeneration in the coastal towns.

We have long held aspirations to improve the section of the A27 at Chichester and the remaining unimproved sections at Worthing and Arundel. Successive studies, including the South Coast Multi Modal Study and the more recent West Sussex Coast Delivering a Sustainable Transport System (DaSTS) Study have highlighted the problems which exist on the A27. Delivery of effective improvements is something that we, stakeholders, local businesses and residents consider a high priority.

At Chichester, high traffic levels are responsible for an AQMA. A key problem is the conflict between high levels of A27 traffic and high levels of north-south traffic wishing to cross or join the A27. This leads to extensive peak period congestion and is made worse in the summer when tourist traffic adds to the problem. This congestion seriously impedes daily travel (private and public transport) for the population of settlements to the south of the bypass throughout the year.

Arundel experiences congestion during peak hours on weekdays and is a honey-pot destination at weekends, causing off-peak congestion on the edge of the SDNP. The unimproved section of the road was designed to be used by around a third of current traffic flows, the majority of which is through traffic. In addition to causing significant congestion at Arundel, this also leads to heavy traffic flows through nearby villages as vehicles divert to avoid the queues.

The town is severed by the alignment of the A27 which passes through the south of the town with few crossing points. This has led to a number of casualties, including some killed or seriously injured, which have contributed to a poor safety record on this section.

Vision (page 4)

- Improve path links so that the countryside is accessible directly from where people live, work and visit, to provide circular routes, and to link between communities
- Improve links to create safe routes for both leisure and utility journeys, by minimising the need to cross and use busy roads
- Provide a path network that enables appropriate access without barriers for as many people and different types of users as possible

5.7 Claims for rights of way to be added to the Definitive Map (page 26)

5.7.1 Most, if not all Definitive Maps countrywide are incomplete, since not all routes for which there is historic or user evidence have been recorded. The County Council's Legal Services Unit deals with the research and investigation of claim applications made for new rights of way to be added to

the Definitive Map, or for the status of existing paths to be changed (e.g. footpath to bridleway). The claim process is based on evidence (user and/or historical) and is an important, though time consuming, means of developing the rights of way network. Applications have to satisfy strict legal tests, and when Definitive Map Modification Orders (DMMOs) are made they are very often contentious, leading to public inquiries. There is a backlog of claims awaiting investigation.

5.7.2 To try to ensure 'lost ways' are recorded on the Definitive Map, the CRoW Act 2000 set a deadline of 1st January 2026 to register omitted 'historic' routes. The introduction of this cut-off date is aimed at bringing certainty to users of the countryside and landowners and managers about those rights that actually exist. There is currently no way of knowing how many such routes may exist in West Sussex, but it is expected to be a long and time consuming process to get them correctly added to the Definitive Map.

6.2 Horse Riders (Pages 29-30)

6.2.2 Horse ownership and riding is a growing and popular activity in the county with many commercial stables and private paddocks in existence, often concentrated on the urban fringe. Many do not have direct access to off-road routes. In parts of the South Downs there is good connectivity of routes but elsewhere in the county it can be difficult to complete a circuit without using significant lengths of road. Virtually all horse riding is undertaken as a recreational activity and not for accessing services.

6.2.3 Horse riders are, perhaps, the most vulnerable users due to the unpredictable nature of their mounts. This is particularly emphasised when using or crossing roads where they are close to vehicles.

6.2.4 Survey results show that the majority of riders have no access to horse transportation, so are limited to riding locally. The number of people who do 'box' and travel with their horses is greatest in the Coastal Plain, which reflects the poor provision of bridleways in that area and the fact that getting to the riding network in the Downs is extremely hazardous without transport. In an attempt to reduce illegitimate or unlawful use, some car parks have had barriers installed that prevent box access making it difficult for riders to find areas suitable for unloading their horses.

ARUN LOCAL PLAN 2011-2031

Of specific note regarding the bridge over the River Arun is the following – there is nothing in this policy that indicates the route is to be solely a walk/cyclepath. Whilst no specific mention is made of horses, there are plenty of references to other recreational interests and multi-users:

Policy T SP2

Littlehampton to Arundel Green Link (page 232)

A new strategic Green Link is proposed between Littlehampton and Arundel, along the River Arun which is shown on the Policies Map. The main aim of the route is improved access between Littlehampton and Arundel and access to the River Arun which links the coast and the National Park.

The route will carefully balance increased recreational access to the water and banks of the river with the protection, enhancement and creation of habitats including the creation of wetland

habitats to the north of Littlehampton. Opportunities will also be taken to ensure that enhancements to and creation of habitats also provide opportunities for more sustainable management of water resources such as the capture and storage of flood water.

Linking multi-user paths to both Arundel and Ford Stations should also be promoted to encourage more integrated travel (such as cycling) and recreation and use of the corridor as both a commuter and recreational route. Cycle hire should be encouraged at stations to provide opportunities to access a bicycle at key transport interchanges along the corridor. Information and signage will also be key to ensuring a high level of accessibility along the route is achieved.

Other opportunities for informal recreation should be created along the route along with promoting more formal activities on the water such as sailing and canoeing where these do not interfere with the enhancement of biodiversity. Good landscape management practices should be promoted throughout the link, particularly where it meets the coast.

Policy T DM1 Sustainable Travel and Public Rights of Way (page 231)

d. Contribute towards the provision of a joined up cycle network and Public Rights of Way network, taking into account the aspirational cycle network, which provides convenient, accessible, safe, comfortable and attractive routes for pedestrians and cyclists and; where appropriate, horse riders, both within the development and in the form of links between the development and:

- i. Places of work, education, leisure and food retail
- ii. The South Downs National Park; ...

15. Transport

15.2.5 (page 229) Research undertaken for the Arun Leisure Strategy 2012 identifies that opportunities for walking and cycling in the South Downs was rated highly by residents. The draft strategy also identifies off road cycling facilities as one of the main services that residents would like to see upgraded, and one of the strategic priorities of the draft strategy is "to make the District exceptionally good for cycling and other activities that are best off road like horse riding, running and cycling". As well as being a highly popular leisure activity, the promotion of cycling and walking, as an alternative mode of transport, can play a significant role in reducing the number of cars on the road and therefore can reduce congestion on the District's roads.

WALBERTON NEIGHBOURHOOD DEVELOPMENT PLAN 2015-35

3. The Parish Today (page 11)

The Parish has no notable tourist attractions, although Fontwell Park racecourse, just outside the Parish, draws large crowds to race meetings and other events, and is a meaningful local employer.

3.1.2 Fontwell (page 13)

The village is well-known for its Racecourse, which regularly stages National hunt races and other events attracting large crowds; unusually, the Racecourse harbours a Site of Nature Conservation Interest, for reasons related to Fontwell Meadows, described later. The Racecourse has stimulated professional and amateur equine activity around the village.

3.5 Getting Around

3.5.1 Roads (page 17)

Walberton village and its narrow main street will also be adversely impacted by growth in traffic volumes, when precisely the opposite change is needed.

3.5.2 Footpaths, Cycle Routes and PROW (page 17)

West Walberton Lane is also dangerous and a safe link between Walberton and Fontwell is desirable; the lane leads to the SDNP with its leisure uses. WSCC has the connection of coastal communities with the SDNP as a long-term project.

3.6.2 Employment (page 19)

In the Parish there are approximately 200 horses stabled, and in part this is due to the presence of the SDNP. There are other bridleways but to reach the SDNP it is necessary to cross the A27. This is now best accomplished by using the underpass accessed off the Old London Road in Fontwell, which caters for horses, walkers and cyclists.

Riders reach it by way of Wandleys Lane because Fontwell Avenue is too dangerous, while riders from the Eastergate Lane stables use West Walberton Lane to get to the underpass. To access Binsted Woods, these riders pass through Walberton village and up Yapton Lane, a busy road used by lorries and they then cross over on a blind bend to the quiet lanes in Binsted. The local equestrian businesses serve amateurs and professionals, and cater for visitors as well as parishioners. They have a combined estimated turnover in excess of £750,000 p.a.*, and the sector is a significant contributor to the local economy. It augments the Fontwell Park racecourse activity.

Copse Lane provides an important link up to the A27 for Walberton villagers, but it is unmetalled, and in most winters it is all but unusable due to lack of drainage.

3.7.8 Enjoyment of the Countryside (page 22)

Horse riding – quite a large number of horses are kept in the Parish and, again, there is a good local provision of bridleways but access to them is not always easy. Safe access to the much larger network north of the A27 is only practicable through the underpass at Fontwell.

*This is based on an average of £3,750 per horse. The Bridleways Group assesses that this grossly underestimates the cost of keeping a horse in DIY livery in the South East of England. The table below, taken from Equine World, much more closely resembles costs that a detailed analysis undertaken by the Group revealed earlier this year. On this basis Walberton's local riders combined estimated turnover is more likely £897,000 - £1,320,000.

Summary Of Cost Of Keeping A Horse

The table below gives a summary of the regular costs mentioned above of keeping a horse on an annual basis.

Item	Horse or Pony at Grass Livery	Horse or Pony at DIY Stabled Livery	Horse or Pony at Full Livery
Livery	£1,040-£1,300	£1,560-£2,080	£5,200-£7,800
Hay, Straw and Shavings	£140-£220	£1,040-£1,560	Normally included in livery fee.
Feed	£120-£240	£260-£520	Normally included in livery fee.
Vet's Fees	£70	£70	£70
Insurance	£240-£480	£240-£480	£240-£480
Farrier	£225-£765	£225-£765	£225-£765
Dentist	£50-£70	£50-£70	£50-£70
Worming	£40-£105	£40-£105	£40-£105
Extras	£1,000	£1,000	£1,000
Total	£2,925-£3,630	£4,485-£6,660	£6,825-£10,300

A27 ARUNDEL BYPASS PROPOSALS



ARUNDEL A27 BYPASS PROPOSALS

Objection to Option 1

From: The Trustees of Arundel Group Riding for the Disabled Association

The Trustees of Arundel Group Riding for the Disabled Association (Arundel Group RDA) would like to object to Option 1 of the proposed A27 Improvement Schemes as the plan threatens the future of Arundel Riding Centre at which we are based.

Arundel Riding Centre has for over 38 years freely given its ponies and facilities to us enabling Arundel Group RDA to provide riding for children and adults with disabilities who would otherwise be unable to ride.

Arundel Group RDA is supported by a large group of volunteers and a professional instructor. Some young riders require the assistance of three people to support them on their pony, plus an instructor to guide the lesson. Most of our riders are children and young people but participants range in age from 4 to 63 years. All volunteers undertake RDA safety, handling and horse management training. The high standards of the group were recognised when the Princess Royal, patron of RDA National, honoured us with a visit on our 35th anniversary in 2014.

The therapeutic benefits of riding are evidenced by the Group's long association with the Lavinia Norfolk Centre at The Angmering School. Riders come weekly from this specialist centre with staff support. Representatives of Arundel Group RDA meet with staff to agree developmental goals and consider how their physical, social and emotional needs can be supported. The movement of the horse can reach muscles nothing else can and for wheelchair users it is the best way they can feel movement through their spine. The recognition of the physical benefits is recognised by local paediatric

physiotherapy centres that make, or suggest to parents to make, an application to the Group. Sadly we have a long waiting list.

However, the best evidence of the benefits and enjoyment of riding is the reactions of our riders themselves (see photos and comments).

The impact of Option1 on Arundel Riding Centre would be devastating; likely to force closure. The loss of access to fields, increasing dangerous road crossing to the Downs, increased traffic on the approach and the position of the footbridge would force out this traditional family business of 57 years. The British Horse Society approved Arundel Riding Centre is a local employer and a supporter of training for young people studying for a career in the equine industry. The Centre is an asset to the historical and natural environment of Arundel. In its long standing support of Arundel Group RDA it demonstrates its inclusiveness and commitment to the community.

From:

The Trustees of Arundel Group Riding for the Disabled Association
(Charity Registration No: 1074378)



% Arundel Riding Centre, Park Place, ARUNDEL, West Sussex.
BN18 9BE

www.arundelrda.org.uk

arundelrda@gmail.com



What some of our riders say:

Adult rider Linda "After my stroke I never thought I would ride again - you have given me my life back"

Mother of teenage rider Ethan "Arundel RDA is the only place where Ethan is just Ethan and not a problem"

7-year old Callum is a boy of few words but he so loves riding Bertie that when he goes to the supermarket with his mum he tells the trolley to "walk on"

Teenage rider Daisy "horse riding has helped me build my comfordence (sic)"

Mother of teenage rider Grace "Grace loves riding and it was the only thing that kept her going when she was unwell in hospital. It's the first thing she asked her neurosurgeon - when can I ride again?"

Quote from Chloe Age 8 in her own writing

What Arundel RDA Means to me -
Arundel RDA is a fun place to be
Because I love watching the other people
and dogs.



16 October 2017

BY EMAIL TO A27ArundelBypass@highwaysengland.co.uk

A27 Arundel bypass consultation

Dear Highways England,

I am responding to this consultation on behalf of Bricycles, the Brighton and Hove Cycling Campaign and as a Cycling UK campaigner.

We believe that the scope of the A27 Arundel bypass consultation i.e. *"The replacement of the existing single carriageway road with a dual carriageway bypass, linking together the two existing dual carriageway sections of the road."* is wrong from first principles because it lacks any wider, holistic, multimodal and public transport consideration.

The prescribed approach means that three expensive and environmentally damaging road upgrades have been put forward. There needs to be a more sustainable option which is not centred around destructive increases in road space for motor vehicles, but prioritising instead improvements to public transport and infrastructure for cycling and walking, and reducing the need to travel.

Bricycles participated in the South Coast Multi Modal Study (SoCoMMS) consultation which reported in 2002. Recommendations concerning public transport and demand management for transport choice have not been implemented. The 2015-2020 Road Investment Strategy is mistaken. We need sustainable transport for people in the 21st century, not a bigger road network.

The question to the public in this consultation is only "Which road upgrade do you prefer?". It is a wasted opportunity for sustainable transport improvements for Arundel and the wider area.

We dispute the assumption that a few minutes saving in journey time for motor vehicles is worth the massive expenditure and the enormous environmental cost.

We object to all 3 routes (options 1, 3 & 5a) because of the irreversible damage they would cause to the South Downs National Park and ancient woodland. **A smaller scale Option 1 modified** to a single carriageway with accompanying measures to reduce traffic and co-ordinated investment to enable greater use of public transport, walking and cycling would be closer to what we support.

We are extremely opposed to option 5a which would cut through Binsted Wood and Tortington Common.

Highways England's own assessment of the likely impacts of the three route options is that all three would have a major adverse impact on the environment, nature conservation, the South Downs National Park and its special qualities and cultural heritage, with options 3 and 5a being worse for the landscape and water environment.¹

Greater value must be accorded to the natural environment and the benefits that derive from it whether these are in terms of healthy activities such as walking and cycling, reducing carbon dioxide or economic growth through sustainable tourism.

Whatever is agreed, we strongly support improved facilities for walking and cycling. A good cycle path is urgently needed from Arundel Station to Arundel and District Community Hospital and beyond. It is absolutely essential to provide walking and cycling facilities along the length of the A27 and to provide frequent crossing points and linkage to existing infrastructure and to also address cyclists' and walkers' desire lines for travel.

It is essential that all cycling infrastructure is built to the highest standards. Cycling infrastructure should be direct and continuous, with adequate widths. It should not bring cyclists into conflict with pedestrians and motor vehicles. Cyclists and pedestrians should also not have to give way frequently to motor vehicles. Acknowledged standards for infrastructure are described in the London Cycle Design Standards, the Manual for Streets and Manual for Streets 2.

More effort needs to be made to distinguish the different needs of people walking and cycling. Though they have some common requirements, they prefer separate facilities. Separation can also more easily allow greater future growth of the modes.

We note your comments about congestion causing drivers to divert away from the A27, thus making local roads dangerous for walking and cycling, but we disagree that this is a justification for a big road scheme.²

We would certainly like to see measures to reduce traffic and to stop dangerous driver behaviour on local roads e.g. at Storrington where we frequently ride, but we do not see building bigger roads as a solution, because they simply encourage more traffic. Where rat running is an issue, measures to prevent motorised vehicles using local routes should be put in place now, without delay.

All motorised journeys start somewhere whether in towns, suburban or rural areas, Motor vehicles do not just stay on trunk roads. Government policy should encourage modal switch to public transport, walking and cycling by investing in these modes, introducing demand management and co-ordinating transport and land use planning so that large amounts of parking are not made available, and that new developments are located near to good public transport links, thus reducing the need to travel.

Research shows that road-building schemes are devastating the environment while failing to provide the promised congestion relief and economic growth.³

We note that you intend to maintain current walking and cycling routes and where possible incorporate better walking, cycling and horse riding access. With the budget of up to £250 million, there must surely be plenty of money for excellent improvements in infrastructure for NMUs.

In the "Facilities for walking, cycling and horse riding (non motorised users)" Figure 1 does not show cyclists' current use of the road network which is surely important.

Was the Propensity to Cycle Tool⁴ used?

The itemisation of existing facilities for cyclists and pedestrians in "Facilities for walking, cycling and horse riding (non motorised users)" Figure 1, needs to be made much clearer using standard definitions e.g. those from

¹ https://highwaysengland.citizenspace.com/he/a27-arundel-bypass/supporting_documents/S170141_A27%20Arundel%20Consultation_v2_spreads.pdf p. 28-29.

² As above, page 5, point 4 "Why we need this scheme".

³ <http://www.cpre.org.uk/resources/transport/roads/item/4543-the-end-of-the-road-challenging-the-road-building-consensus>

⁴ <http://pct.bike/m/?r=west-sussex>

Transport for London⁵ which distinguish between segregated and unsegregated tracks and cycle lanes etc. The term used in the consultation “Cycle / Pedestrian Path” is an unclear category. The facility could be segregated or unsegregated, a cycle path or a pedestrian path etc.

In this context, we note that in the Technical Appraisal Report, Appendices A-C⁶ that there is a feature listed in the key as: “Shared segregated pedestrian and cycle lane”, which is a confusing description i.e. whether a cycle lane or track, shared by pedestrians and cyclists (unsegregated) or segregated.

The “Facilities for walking, cycling and horse riding (non motorised users)” document mentions another document the bottom of page 5 where it says: “ www.highways.gov.uk/a27arundel the Non-Motorised Users Context Report provides further details.” But we were unable to find it at that location.

The 2015 Road Investment Strategy said of cycling and walking that “Too often the Strategic Road Network often acts as a barrier to these activities” and this is particularly true of the A27 which is a major barrier to cycling and walking across the south east. From Brighton and Hove, anyone riding more than a few miles finds their journey limited by fast cars/lorries and dangerous crossing points where motor vehicles assume total priority. Inevitably, there are deaths and serious injuries.

We note that the A27Arundel Stakeholder Workshop Report May2016 records that the “Cycle Touring Club” did not attend. The correct title for the national organisation was in fact the “Cyclists' Touring Club” until it became Cycling UK in April 2016 (prior to the workshop). I would be interested to check the details you use to contact that organisation. Bricycles is affiliated to Cycling UK.

We have read that you will discuss proposals with cycling, walking and equestrian groups. Please ensure we are included in any developments and keep us informed of any updates.

Thank you very much for the opportunity to put our views.

Yours sincerely,



Campaigns Officer & News Editor, Bricycles, the Brighton and Hove Cycling Campaign



Cycling UK campaigner, Brighton and Hove www.cyclinguk.org/

⁵ <http://content.tfl.gov.uk/lcds-chapter4-cyclelanesandtracks.pdf>

⁶ https://highwaysengland.citizenspace.com/he/a27-arundel-bypass/supporting_documents/Technical%20Appraisal%20Report_Appendices_AC.pdf Appendix C-4, OPTION 0A NMU PROPOSALS, Indicative NMU proposals along existing A27 for option OA, drawing HE551523 - WSP - HGN - A27AR - DR - D - 0110 ref 70019688



12 October 2017



Concern about impact of A27 Arundel proposals on national assets

We, the undersigned, are writing as a group of transport and conservation organisations with a combined member / supporter base of over 3 million people. We are extremely concerned by the options put forward by Highways England for a dual carriageway bypass of Arundel.

We recognise the challenges of addressing issues concerning traffic volume and the A27 but must advise that all three options in the current public consultation would involve unacceptable development within the South Downs National Park and the loss of a significant amount of ancient woodland. No option has been presented which avoids this significant harm which is a major oversight and in contradiction of the RIS 1 objective of delivering no net loss of biodiversity by 2020.

We are concerned that this sets a dangerous precedent and goes against Government guidance to avoid major development in National Parks and to avoid routing traffic through them. It is in stark contrast to the announcement on the A27 East of Lewes where a Selmeston bypass was recently dropped not least because of its impact on the South Downs National Park.

We are concerned by an assessment of the options that appears to conclude that the benefits of the road are great enough to justify its construction in a protected landscape, but not so great as to justify effective mitigation, such as by placing it in a tunnel.

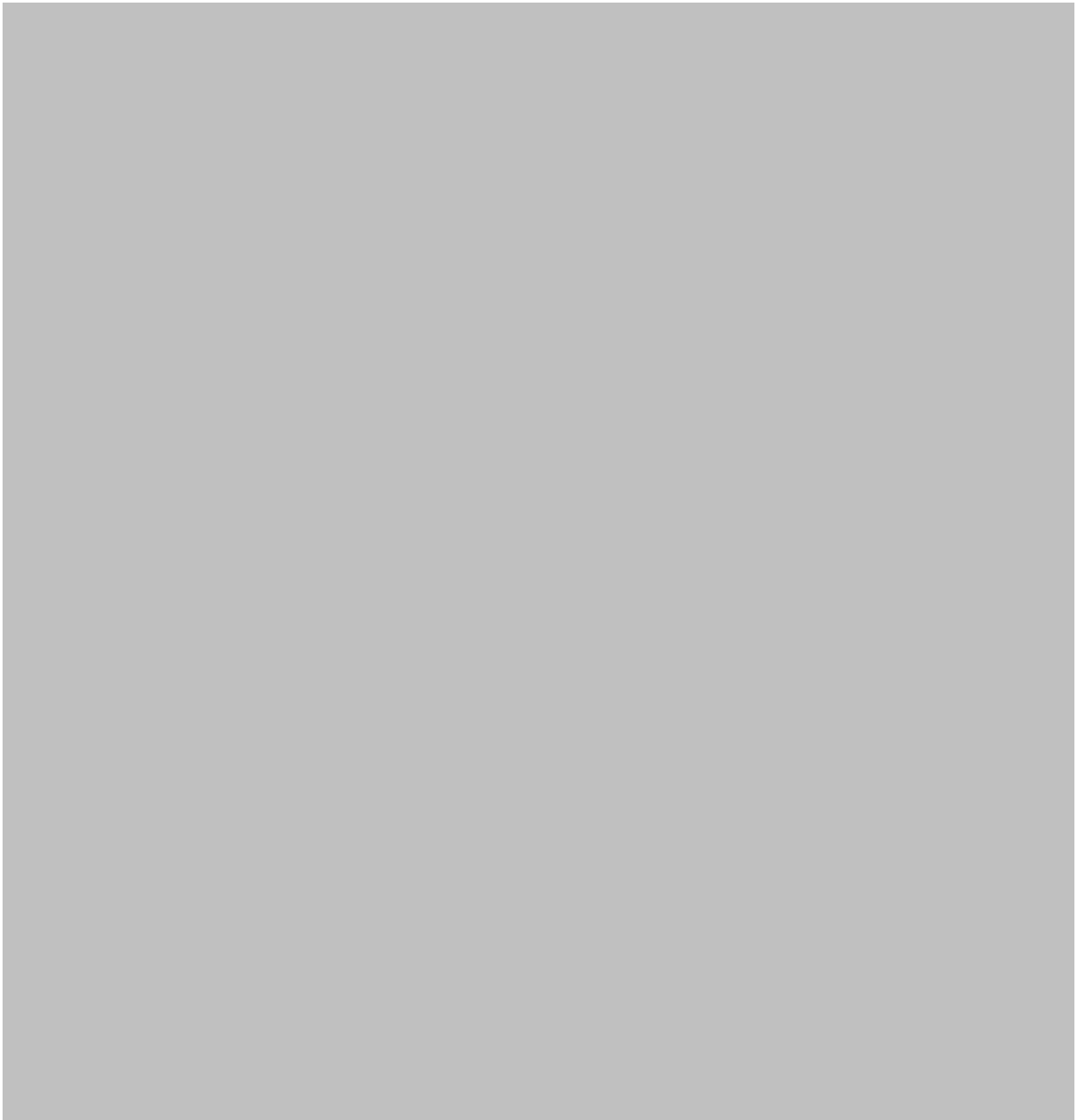
A national asset should be protected for its own sake: appropriate mitigation must be an integral requirement of any major development affecting it. If a road proposal brings insufficient benefit to justify the cost of this mitigation, then it should not go ahead.

As a Government committed to leaving the environment in a better state than we inherited it, we are sure that you will understand and share our concerns.

We believe there is a positive alternative way forward and this should be explored. We understand that local groups in and around Arundel are working to identify alternative options that would relieve the worst bottlenecks on the A27, while protecting priceless national assets.

We would urge you to instruct Highways England to expand the options on offer to include much less damaging alternatives and for the Department for Transport to provide strategic solutions to travel along the Sussex Coast which are less roads focussed.

Yours sincerely,





Dear Highways England

The Freight Transport Association (FTA) welcomes the opportunity to respond to the current consultation into the A27 Arundel Bypass.

Further to previous consultations responses on the A27, the FTA believes improvements to the A27 are vital as it is the most important road connecting the south coast. It acts as the key road link in the area with no other suitable alternatives for freight traffic to transport goods from Portsmouth to Pevensey.

Following consideration of the three proposals FTA supports option 5A. The anticipated journey times savings are greater and it will improve capacity, reduce congestion and connectivity.

Delays and congestion cost hauliers and the economy money and the FTA is supportive of measures which seek to address this important problem. Capacity across the road network is also major problem and FTA supports Highways England in its efforts to improve the situation along this stretch of the A27.

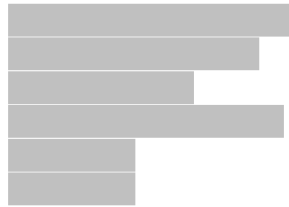
As the FTA's Policy Manager covering the South East area I would be more than happy to discuss our policies further if that would be helpful.

Regards,

[Redacted]

Policy & Public Affairs Manager
Freight Transport Association

[Redacted]
www.fta.co.uk



Email: A27ArundelBypass@highwaysengland.co.uk

15 October 2017

Dear Sirs

Response of the Road Haulage Association to the A27 Arundel Bypass Public consultation

Thank you for giving me the opportunity to respond to the A27 Arundel Bypass public consultation.

Background about the RHA

The Road Transport Industry is a dynamic, business critical sector upon which the UK economy depends. The Road Haulage Association (RHA) is the UK trade association dedicated to the needs of UK road transport operators. It is the voice of the road haulage profession, a champion of its interests and a respected partner to the broader logistics community.

We represent approximately 7,000 member companies who commercially operate near to 100,000 lorries nationally and internationally. Companies range in size from those working with a single truck to those with thousands of vehicles.

Largely taken for granted, these companies provide an essential service on which the people and businesses of the UK depend. The food we eat, the clothes we wear, the houses we live in, and the places where we work all depend upon road haulage working to get goods to where they need to be.

General Comments

The RHA and its members are active supporters of health, safety and welfare in the Road Haulage Sector. We are keen on exploring alternative traffic management systems for our member's vehicles and see the A27 road network as key to enabling the sector to be able to operate efficiently and productively.

We will continue to work with Highways England and local authorities to promote safer roads for the benefit of all road users and pedestrians.

I am responding to the consultation with this letter, which includes answers to the consultation questions. However before replying to the survey consultation questions I intend to make a number of points that that are of particular relevance to the road haulage industry.



I would like to take this opportunity to stress the significant contribution the haulage industry makes to life in West Sussex and surrounding area; the road haulage and logistics industry creates employment in the region and is in the position to offer more job opportunities to local people given the current shortage of heavy goods vehicle (HGV) drivers.

The haulage sector also supports the wider business community, as well as the public sector by delivering essential goods. For all these reasons we ask that the interests of road hauliers are kept in mind as the Scheme is developed.

Economy

The A27 Arundel bypass is included in the government's 2015 – 2020 Road Investment Strategy, and acknowledges that England's strategic road network requires upgrading and improving to ensure it can deliver the performance needed to support the nation in the 21st century. The A27 Arundel bypass scheme is part of that programme and aims to improve capacity and support the growth of regional economies.

Given the increase in commercial vehicle traffic resulting from a welcome rise in economic activity, and with no evidence to suggest that there will be any significant switch from road to rail along the A27 corridor, the RHA urges the council to take steps to promote additional growth by making sure the region is adequately connected by road, and that sub-standard routes are upgraded.

We believe the improvements to the A27 will make Arundel and the surrounding area more attractive to the transport industry, and to be a major contributor to the local economy, providing many jobs and supporting many others.

We look forward to the improved connectivity that improvements will bring.

Consultation questions and answers:

Existing issues

A1. How concerned are you about the following issues on the A27 at Arundel?

Journey times or journey reliability	Very concerned
Congestion or delays at junctions	Very concerned
Road safety	Very concerned
Accommodating extra traffic from future housing and Economic development without further congestion on the A27	Very concerned
The effects of the A27 traffic on the environment	Slightly concerned
Ease of turning onto or off the A27 from local roads	Slightly concerned
Difficulty crossing the A27 on foot or cycle	Slightly concerned
The displacement of traffic onto local roads to avoid the A27	Slightly concerned
Connections along the coast and to other parts of the country	Slightly concerned



A2. What would you say is the single biggest problem currently affecting the A27 at Arundel?

Congestion, caused by the single carriageway section and junctions through Arundel. This section of the A27 is already operating at 100% capacity having to cope with through-traffic and local traffic

A3. What specific local issues do you feel we should be aware of, in developing our options for the A27 at Arundel?

The competitiveness and productivity of Arundel and surrounding area depends on having a road system that supplies efficient and predictable movement of goods (and people). To minimise the environmental costs associated with the transporting of goods it is essential that road haulage operators are able to use the most productive and efficient vehicles for the goods to be moved.

While we understand why the Council wishes to divert truck traffic away from the centre of Arundel, I must make the point that provision must be made for commercial vehicles needing to access the area in order to service local businesses and to deliver to households.

We note that restrictions may be placed on HGV traffic elsewhere on the network in order to ensure that trucks use the A27 Bypass road. However, while understanding the reasons for the measure, I would ask the Council to continue consulting the haulage industry as the scheme is implemented to ensure that traffic management changes do not damage the transport sector by negatively impacting the efficiency of haulage operators.

Given that transport issues are being looked at across the region we hope that all plans are properly integrated so that imposition of height and weight limits in one area, or a low emission zone in another, does not result in the displacement of trucks onto unsuitable roads in another area.

A4. What type of journeys do you use the A27 at Arundel for most often?

Longer distance (more than 10 miles trip)

A5. How often do you currently use the A27 at Arundel?

RHA members will use the A27 at Arundel Every day, Weekdays and Weekends at any time peak and holiday periods.

A6. Do you agree or disagree that there is an overall need for a scheme to upgrade the A27 at Arundel to a dual carriageway?

Strongly agree

B1. Do you believe the proposed options will meet the scheme objectives?



Improve capacity of the A27 whilst supporting local planning authorities to manage the impact of planned growth

Option 1 No Option 3 No Option 5A Yes

Reduce congestion and travel times and improve journey time reliability along the A27

Option 1 No Option 3 Yes Option 5A Yes

Improve the safety of travellers along the A27 and across the wider local road network

Option 1 No Option 3 Yes Option 5A Yes

Improve accessibility for all users to local services and facilities

No Opinion

Deliver a scheme that minimises environmental impact and seeks to protect and enhance the quality of the surrounding environment through its high quality design

Option 1 No Option 3 No Option 5A Yes

Respect the South Downs National Park and its special qualities

All options have significant environmental constraints and will require plans to reduce the likely impact

B2. Please tell us which option(s) you support for improving the A27 at Arundel and explain the reasons for your choice below.

Option 5A

RHA consider that any solution must involve continuous free flow on the A27 with the least number of roundabouts as possible. Option 1 at Ford Road roundabout would not solve the problem of queuing traffic at the controlled junctions and consequently counterproductive in reducing congestion and adding to the poor air quality. We believe Option 5A would have a more positive impact on reducing traffic using other routes through the South Downs National Park .We believe it will allow for greater flow of traffic and a reduction in accidents along the A27.

Moreover, the improvements should not be looked at in isolation. HGV traffic is forecast to increase by an average of 22% between 2014 and 2041, which will put increasing strain on the already congested east-west route.

In considering any proposals Highways England will need to be mindful that the current state of congestion on sections of the A27 creates secondary impacts on routes within the locality – for example pollution from stationary queuing vehicles or diversion of traffic onto smaller roads within the boundary. Where feasible, the primary impacts of any new schemes must therefore be objectively assessed alongside the potential secondary impacts.



RHA believes Option 5A will: Improve road safety, improve congestion and improve regional connectivity and has the least adverse environmental impact.

B3. Thinking about your response to Question B2 only, please say if you have any outstanding concerns that are not sufficiently addressed in your preferred option for the A27 at Arundel

Connections to other parts of the region. Very concerned.

Other concerns

Covered elsewhere within the response

B4. Do you have any other comments on the options?

None

B5. Having read the brochure, and taking into account the constraints and past study conclusions, please share your views on any alternative improvements we should consider that would meet the scheme objectives.

The A27 was supposed to be the Folkestone – Honiton Trunk road and is little more than a country lane in many parts. Piecemeal improvements will relocate traffic problems. The A27 needs to be looked at as a strategic route along the south coast, one of the most densely populated regions in Europe. Let's route traffic around our towns and cities but still be realistic and find ways of reducing congestion, especially where people live.

B6. How do you think we can improve provision for people who wish to walk, cycle and horse ride as part of the scheme?

The A27 Chichester Bypass has a poor safety record, being among the worst 10% of UK roads for casualties. (Source: the South Coast Central Route Strategy Evidence Report April 2014). The RHA supports efforts to enhance road safety and would welcome the opportunity to work with Highways England, the local council and any other relevant agencies in order to help implement road safety measures.

Looking at proposals to create cycle friendly infrastructure, we acknowledge that the existing UK roads infrastructure has not been designed to accommodate cycling as an integral and significant part of the transport system and look forward to working with Highways England to develop road safety measures that improve provision for cyclists, but which also accommodate trucks.



B7. Do you have any other comments on the proposed scheme?

Taking some issues of particular concern to the haulage industry, the RHA would like account to be taken of the needs of the sector for adequate facilities en route. It is also essential that drivers should have easy access on long journeys to refreshments and bathroom facilities. If such facilities are not available, then drivers may stop at inappropriate locations that cause inconvenience to local residents and other road users. We would like to emphasise that the tachograph laws require drivers to take regular rest breaks and so provision of comprehensive facilities can only be of benefit to the haulage industry and local residents alike. The lack of secure facilities en route also means that drivers and their loads are at greater risk of crime, as high value loads have to be parked at the roadside.

In addition drivers often need to await delivery slots in key logistic areas and need a suitable lay-by or truck stop close by. Any new industrial development or logistics park should cater for new lorry parking capacity as part of the planning policy.

I would also like to highlight the importance of good traffic management and in particular the positioning of road signs. Good signage helps drivers to find correct places to park and load, but also to avoid the risk of trucks, for example, hitting low bridges because signs are in the wrong place or because the bridge sign gives insufficient notice for the driver to divert before approaching the bridge.

Given that transport issues are being looked at across the region we hope that all plans are properly integrated so that imposition of height and weight limits in one area, or a low emission zone in another, does not result in the displacement of trucks onto unsuitable roads in another area.

About the consultation

C1. We continually look at using the most effective means of communication. How did you find out about the A27 Arundel Bypass consultation?

Local community group

C2. Please indicate if you are commenting as:

Other – on behalf of the Road Haulage Association

C3. Have you found the consultation materials useful in answering your questions?

To a certain extent

C4. This questionnaire and information about the scheme is available online and at the exhibitions. Have you or do you intend to visit one of our public exhibitions?

No – not able to attend any of the public exhibitions. Therefore question C5 not applicable

C6. How do you usually travel through this area?



Other - We are responding as the main trade association representing the road haulage and logistics sector, from one-vehicle operators to the UK's largest fleet who drive on local roads to places inside and outside the Arundel district every day.

C7. Other - see above

Conclusion

The three options which Highways England has been presented for consultation will have wide ranging transport, economic and environmental effects. The options will have both positive and negative effects on users of the A27 and the local road network as in most options, the benefits will not be equally distributed across the area. The options also have the potential to; affect the way that Arundel and surrounding areas develop in the future; influence choices about where to live and work; and influence how and when to travel.

As the A27 already operates over capacity during peak periods and the options include improvements to the existing junctions, the delay and disruption likely to be caused by construction of the scheme for a lengthy period of time is a concern as this could have a detrimental effect on air quality, safety and the economy. There are very few alternative routes to bypass sections of the A27.

In considering any proposals Highways England will need to be mindful that the current state of congestion on sections of the A27 creates secondary impacts on routes within the National Park and its communities – for example pollution from stationary queuing vehicles or diversion of traffic onto smaller roads within the boundary. Where feasible, the primary impacts of any new schemes must therefore be objectively assessed alongside the potential secondary impacts

I hope you find these comments helpful and I look forward to the RHA being consulted further as work on the A27 Bypass plan progresses.

Yours faithfully



Manager Infrastructure, Security & Business Affairs

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West Sussex Local Access Forum



11 October 2017

Sent by email to:
A27ArundelBypass@highwaysengland.co.uk

Dear Sir / Madam

WSLAF response to A27 Arundel Bypass Improvement Scheme

I am responding to the above consultation on behalf of the West Sussex Local Access Forum (WSLAF).

West Sussex Local Access Forum (WSLAF) is an independent advisory body, established under the Countryside and Rights of Way Act 2000, to give access advice to local authorities, statutory organisations and non-government organisations. In giving that advice, the Forum's main objective is to ensure the existing network of public rights of way (PRoW), as well as the wider access network, is protected and where possible enhanced. The Forum has a balanced membership of knowledgeable and experienced users (walkers, cyclists, horse riders and carriage drivers), landowners and other interests (including conservation, disabled access, landscape). For further information about the Forum please visit www.wslaf.org.

Forum Members have for very many years raised particular concerns about the severance caused to PRoW and access routes by the A27. Whilst appreciating that relieving traffic congestion is the primary reason for Highways England (HE) Arundel Bypass Scheme proposals, WSLAF is firmly of the opinion that this Scheme, whichever Option is chosen as the preferred route, must also provide significant benefits for vulnerable road users (walkers, cyclists and equestrians) and other PRoW users.

Members welcomed the publication in May 17 of the revised [DMRB 42/17 Walking, Cycling & Horse Riding Assessment and Review](#), which encourages the consideration of non-motorised users (NMU) within all schemes, with a shift in focus towards identifying opportunities for improvements to facilities, and maximising these.

The DMRB requires early assessment of existing NMU provision in the Scheme area. HE designers should, therefore, be aware of the lack of multi-use (available to walkers, cyclists, and equestrians) routes on the West Sussex Coastal Plain to the south, and the lack of north south and east west linkages across and alongside the present A27, which makes this road a barrier to access for NMUs.

This situation is highlighted in the [West Sussex Rights of Way Improvement Plan \(RoWIP\)](#), at present being reviewed. Page 37, para 7.5 addresses the issue of "Safety using the countryside including using and crossing busy roads to link off-road access".

The present RoWIP was produced 10 years ago, but even then “representatives of all user groups felt that having to cross or use certain sections of road presented such a barrier to using rights of way, that only the daring, or foolhardy, would consider using some paths even where they could form a significant link in the network.”. Over the last 10 years the traffic on our roads has increased greatly, and everyone will be aware of how much worse the situation is now. Future development planned in the area, will bring even more vehicles onto the roads, both local and the A27, making it essential that Schemes such as this build for the future, and provide all PRow users, including the disabled, with facilities to navigate across and alongside new and existing roads safely, as it would be difficult and costly to do so in the future.

In the document A27 Arundel Bypass Facilities for walking cycling and horse riding (NMUs), the Forum notes that no new facilities for horse riders are shown in the scheme drawings, but that HE welcomes comments on this topic. WSLAF is of the opinion that wherever safe off-road routes/links are provided in the Scheme for walkers and cyclists, these facilities should also be made available to horse riders, with the provision of appropriate signage, width and surfacing.

SCHEME OPTIONS

Regardless of which of the three Options HE eventually chooses to take forward, the Forum would like to see a multi-use path, or bridleway, along the northern edge of the present A27 from Ford roundabout to BW 397. This would provide connectivity with all PRow to the north, which are at present cul-de-sac routes, and would provide all NMUs with the opportunity to use circular routes.

In order to take full advantage of this facility, safe north south crossings are required for all NMUs in the vicinity of Tortington Lane (east), and Barn’s Copse (west). Members appreciate that in Options 3 and 5A, Scheme plans are to downgrade part, or all, of the existing A27 to a local road. However, there are many ‘local’ roads in the county that are difficult and dangerous for NMUs to cross, and the Forum believes this will likely be the case here in future years when all the planned future development on the Coastal Plain is completed.

In Option 5A, Members feel the proposed bridge crossing at the western end junction is a totally unsuitable route for NMUs to use, requiring them to cross three slip roads. If this is eventually chosen as the ‘preferred’ Option, this will need to be looked at again. A bridge catering solely for NMUs, which could be combined with the “green bridges”, alluded to in Options 3 and 5A, would be a much safer option.

Two A27 crossing points are just outside the Scheme area, but they are both very important for walkers, cyclists and equestrians. Poling Crossroads, used by all NMUs from Lyminster, Poling and west of Angmering, gives access to Blakehurst Lane, the old A27 through Crossbush, and the PRow network to the north in the South Downs National Park (SDNP).

Potwell Copse, a direct bridleway (walker, cyclist, equestrian) crossing, giving access to Slindon, and the PRow network in the SDNP, is the most convenient and accessible crossing for Walberton NMUs.

The Forum would like to see these crossings, and safe NMU routes to them also improved, as part of the Scheme, and we understand this could be possible with an application for Delegated Funds, a route which WSLAF Members will discuss and explore at our next meeting.

The Forum looks forward to hearing in the New Year which of the three route Options HE intends to progress as the preferred route. At this time WSLAF would welcome the opportunity to be involved in a more detailed design of the route, so that all possible improvements to NMU facilities can be highlighted.

This letter constitutes formal advice from the West Sussex Local Access Forum. Highways England is required, in accordance with section 94(5) of the Countryside and Rights of Way Act 2000, to have regard to relevant advice from this Local Access Forum in carrying out its functions.

Yours sincerely



West Sussex Local Access Forum

Copy for information to: All WSLAF members

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.

