

A27 Worthing – Lancing Improvement Consultation West Sussex County Council Consultation Response

Executive Summary

In July 2017, Highways England began consulting on proposals to improve seven junctions on the A27 between Durrington / Salvington in Worthing and Lancing. 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 without improving the A27 at Worthing and Lancing, this will increase congestion at peak times and result in greater rat-running and 'peak spreading'. Accessibility to coastal areas, which are in need of regeneration in some places, will also continue to deteriorate as queues on the local roads approaching the A27 become longer.

In reaching its view, the County Council has carefully listened to local stakeholders, including local councillors and MPs, who have reached a conclusion to object to the Highways England proposals in favour of seeking a more substantial improvement to the A27 at Worthing and Lancing. The County Council, however, consider that the delivery of the proposals is in the best interest of the West Sussex community. This is because the County Council's assessment of the proposals indicates that the performance of the proposals against Highways England's objectives is positive in all cases, albeit the scale of the benefits is relatively modest. Accordingly, the County Council is concerned that these benefits will be eroded quickly over time and that further improvements will be needed in the medium-term. Therefore, the County Council is very keen to work with Highways England to explore whether more substantial improvements could offer good value for money as a basis for seeking additional funding in a future RIS. Highways England should also ensure that the implementation of these proposals will not preclude the delivery of more substantial improvements in the medium to long term.

It is the County Council's view that the proposed sustainable transport measures are unlikely to meet the Government's ambition for sustainable transport measures as set out in RIS1. The County Council consider there are potential opportunities to improve public transport, walking and cycling infrastructure in this area that could be complementary to the A27 improvements and help to prolong the benefits of the proposals. Opportunities that should be investigated for use of Highways England's Designated Funds include foot/cycle bridges in the vicinity of the Lancing Manor and Grove Lodge junctions.

The County Council consider that greater effort should be made to develop a realistic construction phasing plan that minimises the duration and impacts of construction at the next stage of the project. Also, if the consultation proposals are not implemented, then alternative (smaller scale) proposals will still need to be delivered at some junctions to mitigate the impacts of development-related traffic over time. In determining a Preferred Route for this scheme, Highways

England should take account of the cost of disruption associated with constructing alternative developer-funded improvements.

As there will be localised adverse environmental impacts, including loss of mature trees, semi-natural woodland and hedgerows, a package of detailed mitigation and compensation measures will need to be developed at the next stage of the project.

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 Worthing and Lancing. In July 2017, Highways England began consulting on proposals to improve seven junctions on the A27 between Durrington / Salvington in Worthing and Lancing.

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. This technical work has informed the development of the proposals, but decisions about design and the selection of the proposals 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 been approved by the Cabinet Member for Infrastructure and Highways. In preparing the Consultation Response, it is understood that feedback from local stakeholders will inform decisions about how to proceed with the project. The draft Consultation Response was scrutinised by the Environmental and Community Services Select Committee at its meeting on 7 September 2017, where councillors from the area affected by the proposals argued against this scheme. The County Council acknowledges that many local stakeholders, including the local MPs object to the proposals and are seeking more substantial improvements to the A27 at Worthing and Lancing. It is requested that due consideration be given to the contents of all Consultation Responses 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) and the Environment Study Report (ESR). 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:

- reduce congestion on the Worthing and Lancing section of the A27;
- manage the impact of planned growth and support the wider economy;
- minimise impacts on, and where possible seek opportunities for, enhancing the environment;
- provide safer roads and more reliable journeys by reducing travel delays; and
- improve accessibility for all users.

6. The following sections of the report address a range of transport, economy and environmental issues associated with the proposals. Comments on construction issues and alternative options are included at the end of the response.

Transport

Summary of the County Council's response:

- the 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;
- Highways England should understand the cumulative impact of all the improvements to the A27 (including those at Lewes, Arundel, and Chichester) before the selection and design of the Preferred Route for the scheme for Worthing-Lancing;
- the proposals will have a positive impact on traffic flow in some areas during peak hours, notably on A259 east of Worthing as the proposals provide additional capacity on the A27 to cater for east – west journeys that currently use the A259 route to avoid congestion;
- the proposals will exacerbate rat running on some local roads, including eastbound on Manor Road, West Street Sompting and Sompting Avenue which is undesirable and must be carefully managed through the detailed design of the scheme;
- although the introduction of additional traffic signal controls will be beneficial at peak times, it will also extend journey times in the inter-peak period which is unwelcome and Highways England should seek opportunities at the detailed design stage to reduce the impact on travel times in this period; and
- the proposed sustainable transport measures will improve accessibility for Non-Motorised Users (NMU) but the proposals are unlikely to meet the Government's ambition for sustainable transport measures as set out in RIS1.

7. Highways England have used the West Sussex County Transport Model (WSCTM) as the basis for its 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. Although every local road is not represented in the model network, the most significant local roads in Worthing and Lancing and the immediate surrounding area that could be affected by the proposals 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.
9. In RIS1, the Government committed to improve the A27 at Chichester, Arundel, Worthing and Lancing towards the end of Road Period 1 (2015-20). The Government has subsequently cancelled the A27 Chichester scheme, although the County Council is continuing to work with local stakeholders to identify an acceptable solution, and an additional scheme has been included for A27 east of Lewes. The individual merits of each scheme should be appraised by Highways England to ensure that they are independently deliverable and we expect them to be delivered separately. However, Highways England should also understand the cumulative impact of all the proposed improvements to the A27 to ensure they are complementary.

Traffic impacts

10. The traffic impacts of the proposals are 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.
11. The traffic impacts are calculated by comparing the performance of the proposals 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.

12. The County Council have assessed the information presented in the EAR, LMVR and TFR in addition to supplementary traffic modelling data provided by Highways England during the consultation.
13. The objectives that are relevant to this section are;
 - *"to reduce congestion on the Worthing and Lancing section of the A27; and*
 - *to provide safer roads and more reliable journeys by reducing travel delays."*

Overall scheme performance

14. When compared to the Do Minimum scenario, the proposals result in a small overall travel time saving across the highway network during AM and PM peak periods. The travel time saving equates to a -1% improvement across the network during each of the peak periods. This is slightly offset by a 1% increase in travel time during the Inter-Peak (IP) period that is probably a consequence of introducing new traffic signal controls at the Lancing Manor, Offington Corner and Durrington Hill junctions. A summary of network performance of the proposals in 2023 and 2041 is included in table 1.

Table 1. Network performance summary

Performance compared to 'Do Minimum'	Unit	2023			2041		
		AM	IP	PM	AM	IP	PM
Total travel time	pcu hrs	-1%	1%	-1%	-2%	0%	-1%
Total delay	pcu hrs	1%	5%	2%	1%	3%	4%
Total travel distance	pcu km	11%	0%	0%	1%	0%	1%
Average speed	km/h	2%	-1%	1%	2%	1%	2%

15. The proposals are generally welcome because they will help to manage the increase in traffic in the short-term but their overall impact is relatively modest and are unlikely to meet ambitions of some local stakeholders. They will attract some traffic to use the A27 route rather than less suitable parallel routes but in isolation, the proposals are unlikely to have a transformational impact on the operation of the highway network over the period to 2041. It would appear that a more substantial scale of improvements would be necessary to significantly reduce congestion on the A27 to 2041. As the majority of traffic on the corridor is local, there is potential to improve the overall benefits of the proposals by delivering complementary transport measures such as public transport, walking and cycling improvements that could attract some

short distance trips to be made by other modes of transport for at least part of the journey.

16. Introducing new traffic signal controls at Durrington Hill, Offington Corner, Halewick Lane, Grinstead Lane and Manor Road may help to manage traffic flows effectively and provide benefits during peak times but will cause delays for users during the IP period. Through the detailed design of the scheme, Highways England should seek ways to reduce the negative impact on traffic during the IP period, which appears to be the result of introducing new traffic signal controls that would slow the movement of traffic that currently flows freely in the IP period.

Traffic flow changes by route

17. The proposals will affect traffic flows on some routes in Worthing and Lancing as changes to journey times cause traffic to choose different routes. On the majority of routes, the change in traffic flow is forecast to be less than 5%. However, there are a number of exceptions where larger increases and decreases are experienced. These are now described in terms of two-way flows, although it should be noted that the changes are not always uniform by direction of travel. The analysis has been undertaken for the 2023 forecast flows; the 2041 flows show broadly similar patterns of increases and decreases.
18. When compared to the Do Minimum scenario in the 2023 AM peak, the proposals are forecast to cause A27 flows between Worthing and Shoreham to increase by between 15% and 20%. In the IP, the A27 flows are forecast to increase by between 8% and 9% and in the PM peak, flows are expected to increase by between 13% and 25%. These effects are the result of providing additional capacity at the seven A27 junctions on the corridor, which is welcomed. The effects of this additional capacity should include less peak spreading and rat-running on some less suitable parallel routes. However, as the junctions are expected to operate close to capacity, these issues will return as traffic flow grows over the medium/long-term.
19. The most pronounced positive effect of the proposals on traffic flow is a reduction in flow on A259 between Shoreham and Worthing, as traffic is able to use the A27 instead. When compared to the Do Minimum scenario in 2023, the proposals are forecast to cause the traffic flow on A259 between South Lancing and Shoreham to reduce by -25% in the AM peak, -34% in PM peak and -17% in the IP.
20. The proposals are also likely to be effective in reducing flows on Offington Avenue which is currently used as an alternative to the A24 Warren Road. In the AM peak, Offington Avenue flows are forecast reduce by -227 pcu/hr¹ and by -223 pcu/hr in the PM peak and -92 pcu/hr in the IP compared to the Do Minimum scenario in 2023. This effect is welcome as it will reduce amenity impacts on local residents on Offington Avenue, which is a well-established rat-run.

¹ Pcu/hr: Passenger Car Units per hour (1 PCU = 1 car)

21. The proposals are also forecast to have a number of negative effects on some local roads, including a significant increase in traffic flow on the A2025 Grinstead Lane through Lancing. When compared to the Do Minimum scenario in 2023, the proposals are forecast to cause the traffic flow on A2025 to increase by 34% in the AM peak, 28% in the PM peak and 7% in the IP. In North Lancing, the proposals are forecast to result in a significant increase in traffic flow eastbound on Manor Road approaching the A2025 junction of 179 pcu/hr in the AM peak, 223 pcu/hr in the PM peak and 92 pcu/hr in the IP peak. In Worthing, the proposals are forecast to result in a significant increase in traffic flow eastbound on Sompting Avenue approaching Newlands Road.
22. These effects are unwelcome as these are largely residential roads and will need to be carefully managed through the detailed design of the scheme. It is possible that these effects could be addressed by, for example, revising signals timings to reduce 'green time' for Grinstead Lane and Manor Road at their junctions with A27. If not, then it may be necessary for the County Council to investigate ways to mitigate the impact on local residents, which could include introducing traffic calming measures on Manor Road for which sufficient funding would need to be provided by Highways England.
23. It is disappointing that the scheme is not forecast to provide a significant reduction in traffic flow on West Street in Sompting, which is currently used by traffic seeking to avoid congestion at the Lyons Farm junctions. The proposals are expected to result in no significant change in traffic flows during the AM peak, a 4% increase in the PM peak and a 14% increase in the IP. Through the detailed design of the scheme, Highways England should consider ways to reduce traffic flows on the West Street in Sompting, possibly through adjusting the signal timings at the Lyons Farm part 2 junction or other traffic management measures to ensure local residents in this area will be likely to see a material benefit from the scheme.
24. 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. The County Council considers that the proposals for the Durrington Hill junction could lead to an increase in use of Salvington Hill and Bost Hill to access A24, particularly if the Offington Corner junction remains congested. As the proposals include restricted movements at Lyons Farm, this could cause rerouting effects on residential roads south of the junction. These effects would be unwelcome and should be investigated further at the detailed design stage and if necessary, mitigation measures should be included to reduce amenity impacts on local residents in these areas.
25. 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. There is very little information

within the proposals about how Intelligent Transport Systems could be incorporated into the design of the scheme and how they will contribute to delivery of a route-wide traffic management system. Such a system could help to improve the management of seasonal traffic flows and the effects of local events.

Junction delays

26. 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, particularly at Offington Corner and Grove Lodge as these are shared with A24 (which is part of the County Strategic Road Network).
27. The improvements at the Offington Corner, Grove Lodge and Lyons Farm junctions will increase traffic flow on the single carriageway links between these junctions. Also, the improvements at the Lancing Manor and Busticle Lane / Halewick Lane junctions will deliver significantly greater traffic flow approaching the Lyons Farm junction. The limiting factor on the effectiveness of these junction improvements will be the ability for traffic exiting the junctions to clear. Highways England should consider whether there are further improvements that can be made to these links to improve traffic flow, particularly for traffic exiting these junctions, which could be included in a future improvement scheme that would require additional funding over and above that currently allocated to the scheme in RIS1.
28. The junction proposals appear to provide some welcome net reduction in average delay at the Offington Corner, Grove Lodge, Busticle Lane and Lancing Manor junctions. Unfortunately, the proposals to improve the Lyons Farm junctions are not forecast to provide a net reduction in delay. It is acknowledged that it will not be easy to significantly improve the operation of the Lyons Farm junctions without additional investment, but the County Council consider that Highways England should view this as a priority for further investment in the future.

Road safety impacts

29. The objective that is relevant to this section is "*to provide safer roads and more reliable journeys by reducing travel delays.*" The South Coast Central Route Strategy (2014) identifies that A27 in Worthing and Lancing has a poor accident rate within the top 10% on the SRN.
30. 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, 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.

31. The proposals are expected to result in 138 fewer accidents over the 60 year appraisal period generating benefits worth £5.6m. As with the traffic impacts, the proposals provide a modest but positive impact on road safety compared to the Do Minimum scenario where the total cost of accidents is forecast to be £313.5m over the same appraisal period. As the proposals will improve road safety and reduce the cost of accidents, the County Council consider that the road safety objective will be achieved by the proposals, albeit to a fairly limited extent. The County Council recognise that there is a need to balance competing objectives (e.g. traffic flow and safety) through the design of the scheme but consider that opportunities should be explored to enhance the casualty reduction benefits associated with the scheme.
32. To improve the design of the scheme from a road safety perspective, the County Council recommend that appropriate central reservation widths should be provided at all junctions to accommodate non-motorised users. At Busticle Lane, Lyons Farm part 1 and Grinstead Lane, the signal aspect positioning for the three lane approaches may increase late braking/inappropriate manoeuvres; therefore, it is recommended that Highways England consider gantry mounts for signal aspects on 3-lane approaches at these junctions. Also, due to the proximity of the realigned Halewick Lane and Manor Road arms to the A27, there is potential for A27 traffic to be distracted; therefore, consideration should be given to the use of anti-dazzle screens on the north side of A27 in these locations to reduce the risk of distraction. There may also be other opportunities to further enhance facilities for sustainable modes of transport that could enhance road safety benefits.

Sustainable modes of transport

33. The objective of the scheme that is most relevant to this section is *"to improve accessibility for all users."* The A27 currently acts as a barrier to communities that need to cross the road to access local services and it discourages use of sustainable modes of transport by making these journeys less direct and convenient.
34. 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. However, these facilities are fairly limited in scope and fail to show how they will connect into the wider network of routes. Therefore, it is the County Council's view that these measures are unlikely to meet the Government's ambition for sustainable transport measures as set out in RIS1.
35. As outlined elsewhere in this response, the performance of the proposals in reducing congestion is relatively modest and unlikely to solve the existing congestion issues on this stretch of A27. However, as many trips on the corridor are local, i.e. start or end in the Worthing and Lancing

area and car is the dominant mode of transport, this suggests there is scope to encourage a transfer of some short distance trips to sustainable modes of transport. This would require significant upgrades to sustainable transport infrastructure and services. The County Council consider there are potential opportunities to improve public transport, walking and cycling infrastructure in this area that could be complementary to A27 improvements and help to prolong the benefits of Highway England's proposals. However, this would require central funding and a more collaborative approach from Highways England involving information sharing with the local authorities, which has been limited to date.

36. The facilities proposed for NMUs at junctions on the corridor are welcomed and, in general, will improve accessibility for all users. However, there is a need to show how the proposed facilities for NMUs will connect into the surrounding network (including Public Rights of Way) and desire lines. These facilities must be designed to provide coherent connections and take account of the stress that NMUs experience in crossing the trunk road. Locations where connections are particularly important include Durrington Hill.
37. The NMU summary that has been published as one of the technical reports seeks views on a proposal for a parallel cycle route using local roads between Offington Corner and Lancing. This is expected to be a mostly signed on-carriageway route that gives very little priority and segregation to cyclists, parts of route are also used by rat-running traffic seeking to avoid congestion on A27. In order for such a cycle route to be acceptable and successful at attracting users, it would need to be designed in line with the design principles of the West Sussex Walking & Cycling Strategy and it is currently unclear whether this can be achieved on the proposed corridor. The County Council would welcome the opportunity to develop proposals for non-motorised users in more detail, which could potentially include a shared cycleway alongside A27 between Offington Drive (joining an existing facility) and Lyons Farm if carriageway widening cannot be achieved at this time.
38. Crossing the A27 as a pedestrian or cyclist is problematic and discourages access to the South Downs National Park. Although the introduction of pedestrian / cycle phases at traffic signal controlled junctions will make provision for NMUs, these cause delays to traffic and can lead to road safety issues. The County Council consider that opportunities to provide foot/cycle bridges should be investigated and, if feasible, they should be included within the design of the scheme. These could be good candidates for use of Highways England's Designated Funds (that are currently available for such schemes). Priorities that should be investigated include in the vicinity of the Lancing Manor and Grove Lodge junctions due to the level of demand from NMUs in these areas, particularly for education journeys. As traffic flow on the link between Lyons Farm and Halewick Lane is forecast to increase, this will reduce gaps in the traffic that currently allow NMUs to cross at-grade. Therefore opportunities to improve the crossing facilities for NMUs in this area

should also be investigated as this is a desire line for access to the South Downs National Park that is severed by the A27.

39. The proposals require changes to existing bus stop locations and it is not clear from the design drawings where some of these bus stops will be relocated, notably at the Offington Corner and Lancing Manor junctions. The relocation of bus stops should be discussed with the bus operators and the County Council at the detailed design stage and ensure they will provide adequate facilities for buses and waiting passengers.

Economy

Summary of the County Council's draft response:

- The initial technical work on wider economic impacts is welcome, but there is a need to show how the impact on GDP, which is estimated between £12-20m, has been calculated;
- The EAR indicates that benefits of the proposals largely accrue from travel time savings, which will improve business productivity by reducing time lost due to delays but there will still be opportunities for significant further improvements to increase travel time savings, thereby improving productivity and regional connectivity in the medium/long-term;
- The proposals will help to ensure the impacts of development on the A27 are mitigated and deliver a modest improvement in traffic conditions. However, the lack of spare capacity to accommodate additional traffic will not help to address the reasons why planned development does not meet the objectively assessed need for housing across the sub-region.

40. 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 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.
41. 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.
42. At this stage in the scheme development process, only a summary note of the wider economic impacts has been provided. This is welcomed and indicates that the wider economic impact of the scheme is expected to contribute to an overall increase in GDP ranging from £12-20m. However, there is a need to set out how these wider economic impacts are expected to be realised in more detail at the next stage of the project. The County Council also consider that Highways England should investigate whether

the scale of wider economic impacts could be increased by delivering more substantial improvements to the A27 at Worthing and Lancing.

Productivity and access to markets

43. 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.
44. 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 2). The proposals are estimated to generate benefits worth £69m over the 60 year appraisal period compared to the Do Minimum scenario, largely as a result of time savings that the proposals will provide. These benefits are welcome as they will improve business productivity and access to customers and employees to support business growth.
45. The junctions are expected to be saturated (i.e. traffic flows will exceed capacity) leading to congestion. Although average journey times will be slightly improved compared to the Do Minimum scenario due to an increase in highway capacity, there will still be a need for significant further improvements to increase travel time savings, thereby improving productivity and regional connectivity in the medium/long-term. Opportunities that should be explored include widening the existing remaining single carriageway sections and more substantial junction improvements at Lyons Farm and Grove Lodge, potentially in a future RIS. However, it is acknowledged that further improvements (with minor modifications such as those suggested in this response) are unlikely to be possible within the budget available in RIS1.

Table 2. Summary of Economic Benefits

Present Value of Benefits from accident and travel time savings (PVB) (a)	£69m
Cost	£69m
Present value of cost (PVC) (b)	£45m
Benefit to Cost Ratio (BCR) (c=a/b)	1.53
Wider economic impact	£12-20m increase in GDP

Supply of housing and employment floorspace

46. 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 Worthing Core Strategy 2011 and emerging Adur Local Plan are not dependent upon the proposals being delivered, the proposals would help to ensure the impacts of development on the A27 are mitigated and also deliver a modest improvement in traffic conditions.

47. If the consultation proposals are not implemented, then alternative (smaller scale) proposals will need to be delivered at some junctions to mitigate the impacts of development-related traffic over time. The Worthing Local Plan is currently being reviewed and technical work is currently underway to investigate what mitigation measures will be necessary on the A27. The Lancing Manor junction will need to be improved to mitigate the impacts of planned development in Adur District. However, these improvements will only provide mitigation for development-related traffic based on levels of development assumed in Local Plans, rather than significant improvements to pre-existing congestion issues or to accommodate levels of development that are higher than planned. They will be largely funded by developers and will come forward incrementally as development takes place. The County Council consider that Highways England should explicitly highlight that, if the consultation proposals are not implemented, incremental (and disruptive) improvements to A27 will still be necessary to mitigate the impacts of development as these are included in the Do Minimum scenario. The cost of disruption associated with delivering these improvements should be taken into account in determining the Preferred Route for this scheme.
48. 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 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.
49. As the performance of the proposals does not provide significant additional capacity to cater for development other than that which is planned, the proposals will not significantly assist in narrowing the gap between planned and the objectively assessed need for housing. It is disappointing that the proposals are unlikely to enable local stakeholder aspirations for economic growth to be achieved. The County Council

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.

considers that greater wider economic benefits, notably including the delivery of housing, could be achieved through a greater level of investment in the A27 Worthing – Lancing area than is currently achievable within the budget available in RIS1.

Environment

Summary of the County Council's draft 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;
- The landscape impact assessment of the Busticle Lane improvements is queried as this does not include the impact of the proposal to realign the end of Halewick Lane partially through the SDNP;
- It is disappointing, but not unexpected, that the proposals will not positively affect air quality in a declared AQMA or noise in NIAs on the route but the impacts on parallel routes should also be taken into account;
- The ESR does not include the design of mitigation measures. Although this is broadly acceptable, as none of the impacts are significant adverse, more detailed assessment and design of mitigation measures is necessary at the next stage of the project.

50. The objective that is relevant to this section is "*to minimise impacts on, and where possible seek opportunities for, enhancing the environment.*" In assessing the extent to which the objective is 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.
51. 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.
52. The ESR assesses the environmental impacts of the proposals but, at this stage in the scheme development process, does not include the design of mitigation measures. As none of the impacts are significant adverse, this is broadly acceptable but more detailed assessment and design of mitigation measures is necessary at the next stage of the project.

Landscape

53. 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.

54. The proposals would result in the removal of some sections of grass verge and mature trees to accommodate the junction improvements. Given the focus on the junctions and not the connecting roads, in general, the existing tree-lined character of the A27 would be retained. During construction, the proposals are expected to have large adverse temporary impacts on local landscape areas and setting. During operation of the scheme, it is expected that impacts would be neutral to moderate adverse for junctions in more visually intrusive areas where it will not be possible to mitigate impacts. Visual effects are expected to be predominantly slight adverse with localised areas of moderate adverse.
55. The Salvington Hill junction improvements are expected to have moderate adverse landscape impacts and a moderate adverse visual impact on adjacent properties that cannot be mitigated. All other landscape impacts are neutral or slight and can be mitigated, which reflects the small scale of the proposals.
56. The landscape impact assessment of the improvements to the Busticle Lane junction conclude that the proposals will have a negligible adverse impact. This conclusion is queried as it does not take account of the proposal to realign Halewick Lane through an area that is partially within the South Downs National Park. This assessment should be reconsidered before a Preferred Route is selected to ensure any landscape impacts on SDNP are taken into account in the decision-making process.
57. The landscape impact assessment of the improvement to Manor Road junction concludes that the proposal will have a minor adverse impact. The ESR describes only slight damage to residential properties. However, the proposals require land acquisition from Lancing Manor Park and Leisure Centre resulting in the removal of all the trees along this section of the highway and within the leisure centre site. Land acquisition must include sufficient land to mitigate this impact through replacement planting.
58. The County Council recognises that there are a limited number of feasible ways to improve the A27 in Worthing and Lancing. Due to the proximity of the A27 and SDNP, the County Council recognises that some landscape impact is likely for any improvements and also that alternative routes such as bypass options, which were ruled out as part of the DfT's A27 Corridor Feasibility Study, would have significantly greater landscape impacts than the current proposals. As the impacts of the alternatives would be significantly greater and the impacts of the proposals are slight adverse to moderate adverse in localised areas, the County Council concludes that the objective of the scheme has broadly been met in relation to landscape impacts, subject to the allocation of sufficient space for landscaping and detailed design of mitigation measures at the next stage of the project.

Nature conservation

59. 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 DMRB 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.
60. The assessment concludes that the proposals will not have any direct impacts on statutory designated ecological sites. However, there could be direct impacts on two non-statutory designated sites, Offington Cemetery and Worthing and Hill Barn Golf Courses Local Wildlife Sites, both of which lie immediately adjacent to the A27. Additionally, there may be indirect impacts from dust, noise, vibration, and lighting on nearby nationally designated sites, such as Cissbury Ring SSSI. The proposals will also see the loss of small areas of semi-natural broadleaved woodland, isolated trees, areas of scrub hedgerows, and amenity grassland. This may result in the loss of invertebrate, reptile and bat habitat.
61. Detailed Ecological Impact Assessment (EcIA) will be required at the next stage of the project to better understand the impacts on ecology. The assessment will be used to determine a robust package of mitigation and compensation measures to reduce the ecological impacts to an acceptable level. This will 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.

Air quality

62. 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.
63. In Worthing, an Air Quality Management Area (AQMA) has been designated between Grove Lodge and Lyons Farm due to exceedance of air quality standards for NO_x, principally due to traffic. Although the impacts on air quality in this AQMA have been considered in the ESR, the proposals may also affect traffic flows in AQMAs on A259 Shoreham High Street and A270 Old Shoreham Road in Adur District and Storrington High Street. As the operational effects on these AQMAs may be positive, further assessment of the air quality impacts should also take account of construction and operational impacts on these locations.

64. The proposals are expected to affect air quality during construction and operation of the scheme. During construction of the scheme, this is expected to result in a small magnitude of impact with a medium risk. During operation of the scheme, this is expected to result in some improvements to congestion but this positive impact is expected to be of neutral significance.
65. The County Council agree with the overall conclusions of the air quality assessment in so far as it relates to areas immediately adjacent to the proposals. However, as the junction widening at Grove Lodge and Lyons Farm junctions will bring traffic closer to adjacent properties, there is potential for this to exacerbate air pollution issues at a very localised level and affect a very small number of properties at the Lyons Farm and Grove Lodge junctions. Highways England should be mindful of such localised impacts, which could easily be missed as part of an area-wide level assessment, and seek to mitigate any issues that are forecast to occur through the detailed design of the scheme.
66. Although the County Council consider that it is disappointing that proposals are unlikely to result in the removal of the AQMA, it is recognised that there are no easy solutions and there is a need to weigh up air quality impacts alongside other scheme benefits. The failure of the proposals to significantly improve air quality in the AQMA 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 Air Quality Action Plan for Worthing AQMA, including potential to use 'Designated Funds' to deliver improvements away from the A27, such as installation of electric vehicle charging infrastructure.

Noise

67. The proposals have the potential to affect the noise and vibration levels experienced by nearby noise sensitive receptors due to road widening and junction improvements along the A27 at Worthing and Lancing. Only a qualitative assessment of operational noise has been carried out at this stage, which is appropriate for the current stage of the project.
68. Detailed noise surveys and the identification of mitigation measures is required at the next stage, with particular focus on Noise Important Areas (NIAs). It will be important to understand the scope for noise mitigation measures and the extent of residual impacts in NIAs. It is disappointing that the proposals are unlikely 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.

69. 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

70. The ESR includes a simple level assessment of the impact of the proposals on the historic environment which makes use of relevant local information. 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.
71. The assessment concludes that the proposals are likely to have a moderate or large adverse impact on one known below-ground heritage asset; a World War II defence line around Worthing from Goring-by-Sea (MWS10696) that is of regional importance. As the proposals include minimal changes to the existing road layout, no impacts are expected on designated assets. The County Council concur with this assessment of the impacts the historic environment.
72. Detailed assessment of construction impacts on the historic environment is required at the next stage of the project. The below-ground archaeological impacts of new construction upon known and unknown heritage assets may adequately be mitigated by means of archaeological investigation and recording before and during construction works.

Drainage

73. The effect of the proposals on surface water is expected to be neutral. This may change when the two excursions at Busticle Lane and Manor Road junctions are considered, both of which will increase the impermeable surfacing. As the majority of the junctions in the proposal currently suffer from various degrees of surface water flooding, this scheme would be an opportunity to address these issues and ensure the infrastructure is resilient to future increases in flood risk. 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.

Construction issues

Summary of the County Council's draft response:

- The construction schedule should seek to minimise the amount of traffic switching to other parallel routes. However, the temporary impacts of construction are outweighed by the benefits of the proposals when viewed over the longer term.

74. Construction of the proposals will result in temporary increases in journey times and driver stress as a result of disruption. This issue is particularly important for local residents and businesses that will be experience significant disruption for a relatively short period of time, in return for benefits over the longer term.
75. The construction impacts have been incorporated into the economic appraisal of the proposals, which is a satisfactory approach. However, at this stage in the scheme development process, no construction phasing plan was available to inform the technical assessments. Therefore, the EAR takes account of a worst case scenario involving closing a single lane of traffic and reducing the speed limit down to 30mph for the entire length of the proposed scheme during the full two year construction period. The cost of construction is calculated to be -£13.2m, which is comprised largely of increases in journey time during the two year construction period and a much smaller proportion from costs associated with longer travel distances (as some traffic will take longer routes).
76. Although this is a pragmatic approach to inform the EAR and ensure that the scheme offers good value for money in the 'worst case' scenario, this approach does very little to promote the benefits of the proposals. The County Council expects Highways England to use innovative construction techniques to minimise the impacts of construction and would like to see more effort given to developing a realistic construction phasing plan that minimises the duration and impacts of construction at the next stage of the project. It is also unclear how the cost of constructing the improvements identified in the Do Minimum scenario have been taken into account.

Other options

77. In developing the proposals for A27 Worthing – Lancing Improvement scheme, Highways England identified a wide range of options including those that have been previously considered. In 2013, a County Council Task and Finish Group developed an A27 Route Strategy and Action Plan that identified similar measures. Therefore, the County Council agree that, although it is disappointing that only one option could be presented for consultation, the proposals (with fairly minor modifications such as those set out in this response) are likely to be the only options that are deliverable within the budget range of £50-100m set out in the Government's 2015 Road Investment Strategy. However, they will not provide a comprehensive, 'future-proofed' solution (i.e. capable of catering for forecast change over time) to the problems on this corridor and are unlikely to meet the expectations of all local stakeholders. Therefore, the County Council would like to work with Highways England to explore whether or not more substantial improvements could offer good value for money as a basis for seeking additional funding in a future RIS.

Conclusions

78. 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 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 improving the A27 at Worthing and Lancing, this will increase congestion at peak times and result 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.

79. The County Council consider that greater effort should be made to develop a realistic construction phasing plan that minimises the duration and impacts of construction at the next stage of the project. Also, if the consultation proposals are not implemented, then alternative (smaller scale) proposals will need to be delivered at some junctions to mitigate the impacts of development-related traffic over time. These are included in the 'Do Minimum' scenario, so 'doing nothing' should not be viewed as a genuine alternative. These improvements will not significantly address pre-existing congestion issues, and will still be disruptive when they are built. In determining a Preferred Route for this scheme, Highway England should take account of the cost of disruption associated with constructing alternative developer-funded improvements.
80. 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 to use Intelligent Transport System technology (e.g. Variable message Signs) and cater for NMUs; 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 to identify and deliver the proposals, some of this work should take place before a Preferred Route is announced (because major changes to the scheme design will be less likely at the next stage of the project).
81. Highways England have stated the 'objectives' for the scheme are to:
 - reduce congestion on the Worthing and Lancing section of the A27;
 - manage the impact of planned growth and support the wider economy;
 - minimise impacts on, and where possible seek opportunities for, enhancing the environment;
 - provide safer roads and more reliable journeys by reducing travel delays; and
 - improve accessibility for all users.
82. The County Council's assessment of the proposals indicates that while the performance of the proposals against each of these objectives is positive in all cases, the scale of the benefits is relatively modest. The County Council is concerned that these benefits will be eroded quickly over time and further improvements will be needed in the medium-term. The County Council would like to work with Highways England to explore

whether or not more substantial improvements could offer good value for money as a basis for seeking additional funding in a future RIS. Highways England should also ensure that the implementation of these proposals will not preclude delivery of more substantial improvements in the medium to long term.

83. As there will be localised adverse environmental impacts, including loss of mature trees, semi-natural woodland and hedgerows, any scheme will require a package of detailed mitigation and compensation measures that will be developed at the next stage of the project.
84. Opportunities should also be sought to future-proof the scheme for technological changes over time. This could include greater use of Intelligent Transport Systems to manage traffic on the A27 route, as a whole, which would help to improve the management of seasonal traffic flows and the effects of local events.
85. The County Council consider there are potential opportunities to improve public transport, walking and cycling infrastructure in this area that could be complimentary to the A27 improvements and help to prolong the benefits of the current proposals. However, this would require central funding and a more collaborative approach from Highways England involving information sharing with the local authorities, which has been limited to date. Opportunities that should be investigated for use of Highways England's Designated Funds include foot/cycle bridges in the vicinity of the Lancing Manor and Grove Lodge junctions.

West Sussex County Council
19 September 2017