



REPORT BY HEAD OF HIGHWAYS – PLANNED DELIVERY

REVIEW OF LESSONS LEARNED

FOR WEST SUSSEX COUNTY COUNCIL MAJOR PROJECTS DELIVERED

2023:

A259 LITTLEHAMPTON AND ANGMERING,

AND A2300 HICKSTEAD TO BURGESS HILL.

January 2024

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Background

1 Background and context

- 1.1 The County Council's Highways Major Projects team has recently completed construction of two Major Projects, being the circa A259 Littlehampton Corridor Improvements Scheme, and the A2300 Dualling at Burgess Hill. The costs of these schemes were circa £29m and circa £25m respectively. Both schemes were successfully delivered during 2020 Coronavirus pandemic, despite the considerable challenges this presented.
- 1.2 The team is responsible for delivering Major Projects – being those that cost more than £500k to construct, or those that are deemed to be complex enough in nature to warrant separate inclusion in the Major Projects Capital Programme.
- 1.3 The Communities, Highways and Environment Scrutiny Committee (CHESC) has asked to see a lessons learned report for these two projects, so they can be confident that knowledge and experience acquired during these projects can be recorded and passed on, and used to assist in the delivery of future schemes.
- 1.4 The key items CHESC asked officers to consider were:
 - Impact of the Consultation Feedback on the Proposed Scheme Compulsory Purchase Order issues.
 - Scope for flexibility in design as standards change.
 - Planning issues.
 - Contractor supervision.
 - Quality of work.
 - Cost and engineering surprises (risk management).
 - Lessons learnt and changes made as a result.

2 Impact of the Consultation Feedback on the Proposed Scheme

- 2.1 For the A259 scheme, out of the 937 questionnaire respondents, 77% stated that they agree with the proposals to improve the A259 in general, while 23% said that they generally do not support the proposed scheme. Support for the scheme was

widespread throughout the local area, especially in Angmering and along the route of the A259. Of those not in agreement, the largest concentration was in Climping.

2.2 To demonstrate the effect that consultation had on the A259 and A2300 schemes the key points are illustrated below with the resultant outcome relating to the final scheme described.

Point raised	Response/Outcome
<p>Ref A259 - Comments regarding the design of the road layout – for example, introducing filter lanes at roundabouts to allow left turning vehicles to do so without having to enter the roundabout.</p>	<p>The scheme as designed was found to offer high value for money, which suggested that further expense to provide upgrades to roundabouts were not warranted. Changes to the footprint at roundabouts would have driven up the cost and required land take that could not be justified in the business case, and therefore could not have been supported at Public Inquiry, at that time.</p>
<p>Ref A259 and A2300 - Comments regarding the extent and type of cycling provision to be included within the scheme, and how cyclists would cross junctions and roundabouts safely.</p>	<p>The level of cycling provision was improved post consultation, with an additional signalised crossing point at Station Road, and the north-side cycleway was reintroduced at the Wick end of the scheme. Cycle priority at junctions was investigated, and it was found to require additional land take, and it would have had a detrimental effect on roundabout performance, neither of which could have been justified. Following the completion of the design the Government has released further guidance on cycle infrastructure provision, which, along with a change in the way schemes are appraised, will provide justification for higher standards of cycle infrastructure in the future.</p> <p>There were requests for additional facilities to be provided for pedestrians and cyclists to cross the A2300 but this was not feasible for various reasons including having a negative impact on the Benefit to Cost ratio impacting the funding award from the Department for Transport.</p>

Point raised	Response/Outcome
Ref A259 - Comments regarding pedestrian safety including, measures such as providing additional over/under-passes of the dual carriageway.	On the A259 scheme an additional signalised crossing point was included east of the Station Road Roundabout. Crossing locations were identified through observation on site during the design phase. The less busy crossing points do not have bridges or signalised crossings. Whilst these are likely to be more difficult to cross the crossing points would not be used enough to justify the additional cost to the scheme associated with an upgrade in facilities.
Ref A259 - Whether the funding should be spent on improving the A27 instead (or whether the A27 should be improved first).	The A27 scheme and its potential improvement is managed by National Highways. Given the identified need for the A259 scheme, the high level of support for it, and its high benefit to cost ratio the Council continued to implement the scheme.
Ref A259 - Scope for improvements to public transport to be prioritised.	Such a large change in scope would have required a significant amount of additional funding and would have had a negative impact on the benefit to cost ratio for the scheme, which could not be justified.
Ref A259 - How much the congestion is caused by factors other than the route itself, e.g. the level crossings which run parallel to the A259 on the south coast line, or the developments along the route corridor.	<p>The level crossings do add to congestion, but the business case for the scheme still shows high value for money, even without resolving these issues.</p> <p>The abundance of development on this corridor is part of the justification for the scheme.</p>
Ref A259 - Whether the improvement works will alleviate congestion on the A259 or simply move it elsewhere – e.g. to adjacent junctions, or rat-running through local communities.	<p>Existing bottlenecks on the rest of the road network will continue to exist.</p> <p>The most significant bottleneck is the A27 Arundel Bypass and Crossbush junction, where improvements have been deferred to National Highways Road Investment Strategy Period 3 (RIS3).</p>

Point raised	Response/Outcome
	<p>Subject to funding being confirmed construction is due to commence in the period 2025-2030.</p> <p>The County Council is also developing a series of improvement proposals for the A259 between Littlehampton and Bognor, and between Bognor and Chichester.</p> <p>The A259 Littlehampton Corridor Improvements scheme was designed to reduce rat-running on roads that run parallel to the improved area, - the other projects mentioned above will help address issues further afield.</p>
<p>Ref A259 - Whether the improvements will make the A259 a desirable alternative to the existing A27 – especially the impact on communities to the west of Littlehampton, e.g. in Climping.</p>	<p>Once the A284 Lyminster Bypass and A27 Arundel Bypass are completed the A27 will be easier to access and will be the road of choice for many more east-west journeys.</p> <p>It is not possible to address comments such as this at a scheme level. Such comments should really be considered as part of any consultation to support the overarching strategy.</p>

2.3 In conclusion, the consultations enabled the County Council to pick up some key points that were incorporated into the design of each scheme and helped to create a wider understanding of the projects and their objectives by the public and other stakeholders.

2.4 Key Lessons learned relating to the Consultation were as follows:

Situation	Lessons Learned
<p>The A259 and A2300 Consultations were carried out in 2015 and 2018 using methods of engagement that were deemed to be appropriate at the time. In each case there was a scheme website, public exhibition, and online questionnaire.</p>	<p>As technology advances more and better ways of targeting interested parties have come about. It is worth using specialist companies to ensure that consultations are effectively targeted. For consultations that have been carried out more recently we have been able to make use of the County Council dedicated consultation website and use targeted advertising</p>

Situation	Lessons Learned
	<p>using mobile phone location data and known interests to target and engage local interested parties via social media.</p> <p>The latest techniques allow us to advertise the consultation to people that make the journeys that will be affected, whereas leaflet drops only allowed us to reach those that live in the affected area. These techniques can be applied alongside standard methods such as posters and leafleting to ensure that we don't miss out those that do not have such technology available.</p>
<p>The preliminary design drawings that formed part of the consultation package included the location of fencing, acoustic barriers and other features which were likely to be subject to change at detailed design. Some members of the public took the details they saw at consultation as a 'promise' by the council to provide such features.</p>	<p>Ensure that the key is clear in stating that such features are indicative and will be subject to change at detailed design.</p>
<p>With the A2300, because of the length of time between early phase consultation and delivery, some residents who moved to the area in the interim were not aware of the scheme.</p>	<p>Consultation must take place during the early design phase to ensure that there is scope to include changes to the design before too much time is spent on the detailed elements. Additionally, the results of the consultation are used in bids for external funding which takes place before the detailed design is completed.</p> <p>To ensure that stakeholders are kept informed about the scheme it is important to have a Stakeholder management strategy and Comms Strategy as the scheme progresses.</p> <p>For both schemes a dedicated web page was very important. A259 scheme received more than 13000 hits in 2019/20 in the lead up to commencement on site.</p>

Situation	Lessons Learned
	The monthly newsletter that was produced for the A259 was well received. We therefore included a requirement for the main contractor to produce one for other schemes, including the A2300.

3 Planning Issues

- 3.1 Neither the A2300 nor the A259 schemes required planning consent - both were built using Permitted Development rights.
- 3.2 Key lessons learned relating to the planning process were as follows:

Situation	Lessons Learned
<p>Both the A259 and the A2300 schemes were required to tie into new roundabouts to be built by third parties as part of consented development, and the A259 also had an interface with the Windroos development at its junction with the A259.</p> <p>The design of the acoustic fence and retaining wall at the A259/Lyminster Bypass (South) was to be carried out as part of the consented Persimmon Homes (PH) roundabout scheme, however, the detailed design information regarding the structure was not available to the A259 designer until after the Contractor had commenced on site. – This is normal practice for structures and geotechnical works. It was therefore not possible to complete the design of the County Council’s adjoining acoustic fence and retaining wall prior to the installation of underground high voltage cables, and so additional work was required to protect the apparatus whilst the County Council’s structure was constructed.</p>	<p>Consult with Development Planning Team to establish whether mechanisms can be put in place to ensure that information regarding detailed design of key structures and geotechnical works at tie-in points can be received at an early stage.</p> <p>Ensure that project specific risk workshops consider the special implications and risks relating to tie-ins with third party structures and geotechnical works, and where possible devise project specific mitigation strategies to counter these risks. Where there are dependencies on third party contractors etc. there should be a clear understanding of risk allocation and which party is responsible for delay, defects etc.</p>

Situation	Lessons Learned
<p>The A2300 scheme tied into a new roundabout delivered by Homes England, and the interface was straight forward because they decided to engage the same contractor as the County Council.</p>	
<p>Despite regular co-ordination meetings between the County Council's A259 team and the developer's Lyminster Bypass team, telecoms apparatus was installed on top of a gas main as part of the developer led scheme. This meant it was not possible to tie in the County Council scheme gas main diversion in the intended position. It was therefore necessary to dig up the new developer roundabout to tie in in a less congested area. This required additional work and took longer to resolve.</p>	<p>Development Planning team to ensure that highway agreements require that consent is sought to deviate from industry guidelines on the layout of utility apparatus at known scheme interfaces.</p> <p>Ensure better lines of communication with the various teams to allow for a united way of working.</p>

4 Scope for flexibility in design as standards change.

- 4.1 The County Council retains the flexibility to apply design standards to its roads in the manner it sees fit. In accordance with Department for Transport (DfT) advice there is a defined process to relax or depart from standards where it is deemed to be the correct thing to do.
- 4.2 Road schemes are usually designed to the set of standards at a snapshot in time when the detailed design commences - this date is normally defined in the design brief. If the standards change thereafter, it is in the gift of the County Council to request that the later standard be used if it is advantageous to do so, although there may be additional design or construction costs involved in moving to the later standard which the council would need to pay as a result. Should there be an impact on cost and hence the Benefit to Cost Ratio, this may have an impact on the viability and funding of the scheme. A decision such as this would be submitted through the appropriate governance arrangements via the Project Board.

- 4.3 Major road improvements often take a great many years to progress from an aspiration into a scheme to be delivered. The A259 scheme has been an aspiration for decades, and land was set aside as an 'improvement line' based upon a footprint that was designed 30 years ago. The design for the scheme as delivered commenced in 2016. In the intervening years design standards have changed, particularly in relation to walking and cycling infrastructure. Similarly, the dualling of the A2300 was already planned when the road was first constructed in 1997 with land set aside for it.
- 4.4 Cycleway width guidance has increased greatly over the years; as a result the land reserved decades ago, that is immediately east of the new roundabout at Toddington was not sufficient for the scheme to be delivered, and compulsory purchase powers were necessary to ensure that the latest width standards could be met. A reduced traffic lane width was agreed to minimise the impact on adjacent landowners. Similarly, several parcels of land were purchased for the A2300 scheme through negotiations.
- 4.5 Following the commencement of the Compulsory Purchase Order process cycleway design guidance changed again (ref LTN1/20), placing greater emphasis on cycle priority at side roads. The scheme was checked against the new guidance and a few minor amendments to signing were agreed. It was not possible to provide cycle priority at side road due to land ownership constraints.
- 4.6 The standards for acoustic fencing changed during the detailed design process, increasing the required design life of the fence, and changing the aesthetics of the fence from that which was consulted on. To fully comply with the latest standards would have been beyond the available scheme budget. The County Council therefore asked for some minor amendments to the design to increase the lifespan of the fence whilst retaining the aesthetics of the wooden fence, though accepting a degree of future maintenance liability.

5 Compulsory Purchase Order (CPO) issues

- 5.1 Key Lessons learned relating to the Compulsory Purchase Order (CPO) were as follows:

Situation	Lessons Learned
Land registry information is based upon inaccurate Ordnance Survey mapping and is only guaranteed down to a width of a metre. Ordnance Survey mapping is based on boundary features so may not be accurate. There is therefore a degree of interpretation necessary to	Check the land survey of residential CPO plots – visit each plot and measure key dimensions to check it matches land survey. Where land is overgrown attempt to arrange clearance by negotiation with landowner to allow surveys to take place in advance of CPO.

Situation	Lessons Learned
<p>establish exact positions of boundaries. It was not possible to access overgrown areas of land to survey them. Errors were subsequently made in the identification of CPO boundaries.</p>	
<p>For the A259 scheme, when the Contractor was due to take possession of one of the CPO land parcels they were delayed by the landowner, who requested that a Licence to be drawn up to ensure their needs were met. The Contractor would not forcefully take possession on the County Council's behalf, and so there was a short delay whilst a licence for access was negotiated with the landowner.</p>	<p>As well as serving legal notice to enter, make individual contact in the months/weeks before to facilitate the process of taking possession including licences for access where necessary.</p>
<p>Two of the CPO plots were occupied by leaseholders. Liaison with the landowner did not allow us to identify accommodation works that were suited to the leaseholders needs, and the fencing design had to be changed to accommodate these.</p>	<p>Ensure that leaseholders are included in negotiations for accommodation works.</p>
<p>A259 - The cost of accommodation works to CPO land was not included in the scheme budget at the outline business case stage.</p>	<p>Ensure an allowance for accommodation works to adjacent CPO properties is identified, estimated and incorporated within the scheme budget at the earliest appropriate stage.</p>
<p>A259 – The risk of being served blight notices and having to purchase entire properties as opposed to parts thereof was not included in the risk register.</p>	<p>Include a risk item for blight purchases including payment of the price, the sellers costs and the payment of Stamp Duty Land Tax due on the purchases.</p>

6 Cost and Engineering surprises (Risk Management)

- 6.1 The A259 scheme cost estimate was originally £15.3m at Outline Business Case stage, before the full scale of engineering and other challenges were known. As the scheme developed more detail was known about the cost of the scheme and these

were incorporated into the cost estimate prior to contract award, resulting in an increase of £10.5m to a total of £25.8m. Report HI09 (19/20) refers. These increases were due to the inclusion of the following: Staff Capitalisation (+£0.5m), Inflation and Brief Clarification (+£2m), Increased land costs (+£1.8m), Increased Utilities costs (+£4.2m), Changes to due to need to rebuild road from foundation upwards, and changes to drainage design (+£4.2m). Following these increases in cost the council commissioned a report by Provelio Consultancy to review processes used to produce cost estimates. Several recommendations were made which have been incorporated into future projects. The Provelio report, titled 'Review of Project Delivery Processes and Lessons Learnt' was presented to the Environment, Communities and Fire Select Committee on 07/11/2019. In response to the Provelio report recommendations a Programme Management Office team was set up to assist with governance and reporting. This ensures that key processes are followed and kept under review and are amended to incorporate best practice.

- 6.2 After the A259 contract award it was necessary to raise the scheme budget due to unprecedented additional costs related to Covid 19 (+£1.9m), and the extremely high levels of inflation that followed (+£1.8m). Report HT11 (22/23) refers. These circumstances were unusual and hence were not deemed to be relevant to the lessons learned exercise.
- 6.3 Each scheme has a scheme specific Risk Register which is compiled through extensive workshops attended by team members with a broad range of experience who have been selected for their expertise.
- 6.4 The risks identified in the register are graded in terms of their likelihood and impact, and mitigation measures are identified and logged. The outputs are then used to create a Quantitative Risk Assessment and assign a budget, known as the Risk Pot to cover these risks.
- 6.5 The Risk Pot provides an amount of float for the scheme to deal with any identified risks that materialise, although it may also be depleted by unexpected events as it is seldom possible to foresee and predict all the events that can occur during a scheme.
- 6.6 It is possible to expend money to establish the likelihood of risks arising, such as by undertaking more detailed ground investigations. However, reducing risk requires early spend, and this drives up our revenue costs. Where schemes do not proceed there can be the perception that this money has been wasted. Activities that reduce risk may also take time to complete, which may not fit within the time constraints of the project. There was a need to meet the A2300 funder (Department for Transport)'s programme requirements which reduced or prevented this investigation work from being undertaken.
- 6.7 Key unforeseen risks that affected schemes were:
 - The extent of poor performance by utility contractors.

- Coronavirus problems – CPO notices not effectively served during lockdown, Utility contractors engaged in emergency work, pressure to close down dependent developer-promoted highway schemes, closure of engineering manufacturing. The construction of the A2300 scheme started in April 2020, and all start-up meetings had to be undertaken virtually instead of the traditional/preferred face-to-face meetings, which would have been more effective.
- Unprecedented inflation.
- Brexit impacts – cost increases, labour, lorry deliveries, semiconductors.
- War in Ukraine – shortage of lenses (used in both rifle scopes and traffic signals), closure of Mariupol steelworks pushed metal prices up, increase in energy costs.
- Changes to legislation –examples on the A259 include changes to red diesel tax (£258k) and the new Health and Social Care Levy of 1.25% on contractor staff salaries totalling£30k). Consideration should be given to accommodating such risks at Corporate or Programme level.

It would not be possible or reasonable to account for such risks within scheme budgets.

6.8 Key Lessons Learned relating to Risk Management were:

Situation	Lessons Learned
A2300 – scheme construction was completed within budget	Lessons were learned from earlier schemes such as A259 cycle scheme and A24/Broadbridge Heath Improvements.
The Strategic Outline Business Case (SOBC) is not sufficient to establish accurate scheme costs at the time that DfT funding is sought. All risk of price rises is carried bythe County Council.	Costings for SOBC to be reviewed by an independent cost consultant and risk allowance to be fully scrutinised.
A number of events occurred that should be used to feed back into future risk workshops.	Include risk items for: <ul style="list-style-type: none"> • Soft spots, • dead trees especially through ash die back and Dutch elm disease, • assume worst case at tie-ins with third party works, • scope creep – with respect to road surfacing limits, • inflation above estimates.

Situation	Lessons Learned
<p>Successive delays affected time-of-year dependant activities, such as power supply switch-offs, tree felling in bird nesting season, and activities that are affected by seasonal weather, such as earthworks, road foundations, surfacing and antiskid surfacing being undertaken during cold or wet weather.</p>	<p>Ensure that risk workshops consider the risk associated with successive delays affecting time-of-year dependant activities.</p>
<p>A259 risk costs tended to be underestimated as the weekly rate for site overheads was not fully understood.</p>	<p>Ensure that site overheads costs of £50k per week (2022 baseline) are allowed for in risk calculations.</p>
<p>Early-stage project cost estimates can miss key risks. Later in the project development this can lead to pressure on Project Managers to minimise required budget increases.</p>	<p>Project Manager to produce detailed budget report with all sources of information referenced at the appropriate gateway reviews. Report to be assessed by an independent cost consultant.</p> <p>Consider presenting a range of figures that better reflect the risk profile of the scheme, rather than a precise one. Take note of the Provelio report titled "Review of Project Delivery Processes and Lessons Learnt" which was presented to the Environment, Communities and Fire Select Committee on 07/11/2019.</p>
<p>The length of time required for internal governance can affect critical activities such as contract award, potentially delaying contract commencement and affect costs due to the resultant delay.</p>	<p>Assess governance timescales and ensure this is fully captured in the scheme programme. Look for opportunities for efficiency and allow a risk budget for this aspect.</p>

7 Contractor Supervision

- 7.1 For both schemes contractor supervision is carried out by the Site Supervisor as appointed under the New Engineering Contract (third edition) (NEC) contract.

7.2 The NEC Supervisor is employed by the County Council and is responsible for witnessing tests and inspections by the Contractor and monitoring the quality of construction works on site. Inspections are undertaken to ensure construction is compliant with the Works Information, the NEC Contract and applicable law.

7.3 Key lessons learned relating to Contractor Supervision were:

Situation	Lessons Learned
From previous schemes we identified that suitably experienced supervisors are difficult to resource, and due to there being discontinuities in workload we are not always able to retain them between schemes.	We included this service within our Client Support Services Framework, which commenced in May 2022 for 4 years.

8 Quality of work

8.1 The A2300 scheme and A259 schemes were design and build contracts. We would expect the quality to reflect the specification documents. If the project is supervised adequately, we would expect quality criteria to be met.

8.2 The NEC form of contract incentivises Contractors to work collaboratively with the Employer, providing work to a high quality and standard. There is a risk in terms of quality of work by sub-contractors, whose contracts may be of a different type.

8.3 Defects with the works are identified as the scheme progresses. The Employer may either require that the defects are rectified, or we may take a pragmatic decision on their rectification considering disruption to the travelling public compared to nature and magnitude of the defect.

8.4 Key lessons learned relating to Quality of Work were:

Situation	Lessons Learned
Defects in road surfacing affecting ride quality were covered by high friction surfacing (HFS) before the underlying road was accepted as defect free. Those deciding whether to accept the defects then had to consider the disruption caused by removing and replacing the HFS and the implications of having joints within the	Ensure that, for future schemes, the specification for HFS requires that the underlying road surface has been tested and has had all outstanding defects rectified or accepted prior to its laying.

Situation	Lessons Learned
HFS. As a result, the Council accepted some minor ride quality defects that we may not have done if the HFS had not been applied.	Seek references for road surfacing sub-contractors, if not known (may need to be gang-specific).
A259 – There was an increased number of quality issues towards the end of the project.	Quality was impacted by increased programme issues toward the end of the project. This was more of a challenge as the programme delays meant that activities such as carriageway surfacing were pushed into the wet winter months. While this was well managed by the contractor it should always be recognised and reviewed when activities move from dryer to wetter months.
The practice and relationships between the contractor and the Supervisor worked very well. The Supervisor proactively worked with the contractor to identify issues and ensure that key sub-contractors were rectifying	Importance that working relationships between Supervisor and Contractor is proactive. Issues are not always easy or in agreement but if all parties are trying to achieve the same thing, then project and quality can be delivered to a high standard.

9 Lessons Learned and changes

- 9.1 Each Scheme has a formalised Lessons learned review following completion, where lessons learned are recorded so they can be made available to Project Managers working on future schemes.
- 9.2 Through this process the following additional lessons learned were identified to be learned that do not fit within the above headings:

a) Design Stage

Situation	Lessons Learned
A2300 and A259 Topographical surveys were not as accurate as they could have been if vegetation clearance	Knowing about such issues does not necessarily give us the ability to reduce costs, but it can help us to manage expectations reputation and plan for additional works.

Situation	Lessons Learned
had taken place in advance. This was a compromise to save time and money.	Investing early can help us to manage works more effectively, but if schemes are cancelled this means we would have expended more. Areas of uncertainty to be identified and where necessary, surveyed following site clearance. Assumptions made at design phase to be checked.
A2300 – The handover from the Preliminary Designer to the Detailed Designer went well.	Allow enough time for handover and review, as errors were identified.
A259-Some County Council specific design requirements not identified at early stages hence changes to the design were required during the construction phase. In particular, how to mark the highway boundary and requirements for maintenance access.	The County Council to develop and communicate specifications for inclusion in major schemes. Schemes in development are using a procurement alternative to Design and Build contracts which ensures that designers are more familiar with County Council requirements.
A2300 – Error in road foundation design detected at build stage.	Consideration on level of independent checks to be carried out on design documentation.
A259 – Early costings for the scheme assumed acoustic fences would be wooden. Metal acoustic fences have a higher initial cost, but lower whole-life costs. Changing specification at a late stage would have resulted in a budget pressure for the scheme and an aesthetic change that may have been unsuitable for stakeholders.	Ensure acoustic fencing designs consider whole life costs at earliest appropriate stage.
A259 - Congested utility apparatus meant that redesign was necessary during construction phase	On schemes where utility apparatus is particularly congested consider using computer aided 3D 'BIM' modelling to avoid clashes.

b) Equality Act

Situation	Lessons Learned
A259 – some aspects of the scheme design were found to be non-compliant with the Equality Act at a late stage and had to be amended by inclusion of an additional signalised pedestrian crossing.	The newly adopted Equality Impact Assessment process should help to address this issue– Lessons to be learned from Safety Audit Process as regards acceptance of Major Project Equality Impact Assessments Include in gateway processes.
A259- Acoustic report did not consider the additional needs of an adjacent special school and reasonable adjustments to design to further limit noise.	As above.

c) Project Management

Situation	Lessons Learned
Need to ensure the appointment of NEC contract support staff is as early as practical in the development of schemes.	Cost consultants and contract NEC Supervisor and Project Manager support now available through Lot 2 consultant framework and are appointed earlier in the process
Need to ensure that County Council staff are trained in effective Project Management	County Council Major Projects PMs have now all been through a programme of training in Prince 2 Project Management Processes such as CAB and Project Board are aligned with good practice.

d) Programme

Situation	Lessons Learned
<p>A2300 – Short delays (around 4 months) due to bad weather and Covid.</p> <p>A259 – Delays due to tie in with third party works, Covid, etc.</p>	<p>It is not always possible to avoid delays. Allow some float in publicly reported programmes.</p>
<p>A259 - The information that was issued to the public was sometimes based on contract data and hence was not always realistic. This caused issues with public expectations later on.</p>	<p>Do not share the contract base programme with the public as this does not account for change which is certain to happen.</p> <p>Ensure that programme information is realistic and includes all scope. Make allowances for over-optimism.</p>
<p>A259- Significant delays due to utilities resulting in significant risks to budget.</p>	<p>In the future the County Council will look to transfer the responsibility of managing and interfacing with utility companies early on through either Design and Build or Early Contractor Involvement (ECI). While this increases the management burden on the contractor it was felt that they understood the risks best and would be best placed to manage the issue. It was further recognised that utility companies are often "unmanageable". The A2300 contractor was responsible for liaising with and managing the utility diversion works, and it was helpful as they were managing the construction programme. Unfortunately, the utility companies did not always see this as their priority and delays still occurred.</p> <p>There was an overarching issue with utility providers delaying the project. Where possible utilities work should be taken off the critical path.</p> <p>Ensure that there is liaison with the contractor at the beginning of a contract to ensure that ownership of risks are fairly allocated between the contractor and the County Council.</p>

e) Contract

Situation	Lessons Learned
<p>A2300 experienced challenges with the performance of the Contractor during the construction stage.</p>	<p>Ensure that contracts are part of a large framework with meaningful consequences for performance challenges. The County Council is using the Hampshire County Council Gen 5 Framework for future major highway projects.</p> <p>Performance Indicators are less meaningful if you have a scheme in a small framework, or a framework that is coming to an end.</p>
<p>Social Value – It was difficult to identify tangible benefits to be built into contract in advance.</p> <p>Covid limited what we could do with schools.</p> <p>A259 The football field car park was extended using the planed-out material that formed the old road construction, and an earth bund was built using excess soil to deter unauthorised vehicular access to the field, all at nil cost. In return the Contractor was able to use the car park for a temporary site office and yard.</p> <p>The A259 Contractor bought a number of footballs for the adjacent football club to remove the need for players to enter the site to retrieve lost balls. They got to keep these once the works were complete.</p> <p>A2300 The contractor visited nearby care homes before Christmas 2020 and gave them food and gifts.</p>	<p>Social Value – Ensure that the benefits that were identified are reported back, so they can be used as ideas for other contracts.</p> <p>‘Win-win’ scenarios are possible and should be sought.</p>
<p>A2300 – There were no archaeology issues as the road was only constructed in the late 1990s and further</p>	<p>Archaeology needs to be included in contract, where possible as part of advanced works.</p>

Situation	Lessons Learned
<p>investigations were also undertaken during design stage to rule that out.</p> <p>A259 – The need for archaeological investigations was identified post tender and needed to be added as an extra after contract award.</p> <p>It was still possible to conduct archaeological investigations as part of the advanced works. This meant that the main works were not delayed.</p>	
<p>Process to feedback lessons learned</p>	<p>Lessons learned to be recorded in log, throughout the life of the project. On completion schemes have a 'lessons learned' review with all the project team. This is recorded on the scheme file and retained for future reference.</p>
<p>Pressure on the County Council legal contracts team</p>	<p>The A259 scheme started under a "limited instruction to proceed" because of delays getting the formal contract in place. There were risks in doing this, since the legal protections provided by the full contract were not in place. With greater legal resource the County Council could reduce the risk of not having contracts in place in time for commencement.</p>
<p>Overuse of amending 'Z' clauses within the contract, with unintended consequences. (Z Clauses are clauses which amend the original wording of the base contract)</p> <p>A2300 and A259- Working Area Overheads clauses didn't work during Covid and had to be amended to take into consideration those working from home. There were numerous unintended consequences which needed to be considered.</p>	<p>New contracts to be based on the NEC4 contract, which resolves many of the problem areas.</p> <p>Overuse of Z clauses to be avoided where possible.</p> <p>There is now more legal resource to support NEC contracts within the Commercial Legal team and Z clauses are used where the outcomes are specific, measurable, achievable, relevant, and time-bound.</p>

Situation	Lessons Learned
<p>A259- A late decision on whether the design phase was to be a Professional Services Contract (PSC) or an Engineering Construction Contract (ECC) under 2 stage award. This led to a delay to contract award resulting in extensive working under a Letter of Intent.</p>	<p>Ensure that Contracts team are aware of the complications of using an ECC under 2 stage award, and that appropriate clauses are fully established in the 'parent contract' when a design and build arrangement is used.</p> <p>This was a legacy issue from the old Highways Framework which has now been resolved through use of the Hampshire County Council Gen4 framework.</p>

f) Utility diversions

Situation	Lessons Learned
<p>Utility companies can be slow to submit and commit to a programme</p>	<p>Arrange meetings with utility companies between contract award and commencement to make sure that they are still able to meet the wider scheme programme requirements.</p>
<p>Insufficient control of utility works under New Roads and Streetworks Act appointments, leading to delay to main works.</p>	<p>In the wider scheme programme, where possible, ensure utilities works are not on the critical path. If utilities can be diverted ahead of time it may be cheaper to do so, but take into account inflation on the job costs and time of year restrictions.</p> <p>Some specific points to feed into other projects:</p> <ul style="list-style-type: none"> - Southern Gas Networks Ltd (SGN) are very slow – Add allowance for extra time in programme and corresponding risk register. - UK Power Networks Ltd (UKPN) tend to overestimate their budget estimates by 10%

Situation	Lessons Learned
	<ul style="list-style-type: none"> - If the opportunity arises, request CVs of Utility Co project managers to ascertain their levels of experience. For high-risk utility works request a project manager with practical 'on the tools' experience.
Utility company costs subject to inflation	Factor inflation into scheme costings
Uncharted services causing delays once discovered	Factor in the potential for delay into the scheme risk register
Utility company designs needed to be changed once diversion the works commenced	Check utility company assumptions in their designs – for example; what would be the result if there is not sufficient slack to slew the cables.
Lane rental charges came in during the construction phase	Although these schemes were exempt from charges, other schemes may not be. Ensure that scheme budgets take this into account.
High voltage cables could not be switched off during the winter (approx. October to May). This can have a significant effect on the programme	Ensure the risks of missing an outage window are understood and logged.
Utility Apparatus was very congested resulting in a need for redesign of drainage apparatus, and difficulties in installing realigned apparatus	Consider need for trial holes where utility apparatus is very congested to locate apparatus, and to confirm clash detection outputs
Railway track possession dates by utilities were not confirmed and were subsequently missed	When working with Network Rail double check track possessions because of potential for Network Rail's lack of project management.

g) Traffic management Lessons

Situation	Lessons Learned
County Council best practice requirements for signing of Road Closures etc. were not included in contract.	Allow for use of Variable Message Signs for significant changes in Traffic Management, Road Closures etc.
Existing Roads were in a poor condition and not suited to narrow lane running.	Pre-emptive advanced surface repairs reduced the need for additional road closures to repair potholes.

h) PR and Comms

Situation	Lessons Learned
Comms assistance, (including approximately monthly progress reports) was added to the A259 contract post-award.	This worked well and should be a model for Major Projects going forwards. As part of the contract, the A2300 contractor was instructed to issue weekly progress update to stakeholders during the 2 years construction which was well received.
There were periods where to the travelling public it appeared that nothing was happening on site due to statutory notice periods for utility outages	Include reasons in advance communications
A259 – The programme used for public information was based on the contractual programme. This will always be subject to extension from compensation events, which raised expectations.	Do not use baseline contract programme dates for public notices. – Consider a formula related to utility diversion, spend, and risk of overrun. For example, where schemes have a lot of utility diversions it may be necessary to add 25% to the baseline contract programme.
A259 - A number of complaints were received regarding road noise in areas where acoustic fencing was not required to mitigate road noise generated by the scheme.	When consulting on designs, be clear in how aspects affecting residents are communicated, including how inclusion of acoustic fencing is explained. For example, stating that fencing limits will be reduced to the minimum required for the acoustic mitigation of the scheme.

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Appendices

None

Background papers

Provelio Report to ECFSC dated 7/11/2019: Review of Project Delivery Processes and Lessons Learnt.

A259 Littlehampton Corridor Improvements – additional capital allocation Repot HT11 (22/23)