Department for Transport

# Structures Fund template

This template is for local authorities proposing schemes for investment from the Structures Fund. Before completing the template, local authorities should read the Structures Fund guidance and associated documents. Alongside the template, local authorities must also complete the economic toolkit for the proposed scheme.

## Part 1 – Details of the Structure Being Promoted

### 1.1 Scheme Information

This section captures the key information on the scheme that is being proposed to the Structures Fund.

a) Local highway authority (LHA) name: Cheshire West and Chester Council

b) Scheme / structure name and LHA bridges number: Nicholas Street Viaduct / CB194

c) Location (OS Grid Reference) of the scheme/structure (to identify location on map):

Easting: 340204

Northing: 366771

d) Name of Project Manager: Click or tap here to enter text.

e) Email address: Click or tap here to enter text.

f) Phone number: Click or tap here to enter text.

g) What type of eligible structure would your scheme address? (select all that apply)

| | | | |
|---|---|---|---|
| ☒ | Bridges | ☐ | Cutting/embankment |
| ☒ | Fly-overs | ☐ | Tunnels |
| ☐ | Retaining walls | ☐ | Local highway repairs due to landslip |
| ☐ | Culverts | ☐ | Local highway repairs due to collapse |
| ☐ | Other structure type (please specify): Click or tap here to enter text. | | |

h) Provide an overview of the structure proposed for intervention and the nature of the problem. (Maximum 250 words)

*This could include, for example, the age, construction type, feature carried and feature crossed of the relevant structure and if the structure has listed heritage status.*

Nicholas Street Viaduct is a 13-span structure carrying the A5268 Chester Inner Ring Road over public highways, the Shropshire Union Canal and the North Wales Main Line (NWML). It carries approximately 22,000 vehicles per day, diverting traffic from the city centre and forming a key link in the borough's transport network.

Constructed circa 1965, each span comprises two structurally independent, continuously spanning post-tensioned concrete decks supported on abutments and pairs of reinforced concrete piers. The piers above the railway are founded on post-tensioned concrete box beams spanning between the retaining walls of the railway cutting. This highly unconventional arrangement has little inherent redundancy and presents a significant risk to both highway and rail operations in the event of local structural failure.

The viaduct requires urgent repair and refurbishment as a critical intervention. A deck-bearing monitoring scheme has identified numerous partially seized bearings, generating unintended torsional forces and contributing to crack propagation within the box beams. In addition, the deck drainage system is inadequately detailed, resulting in silting, poor performance and chloride-induced deterioration of bearing shelves.

Without immediate intervention, continued deterioration is expected to require weight restrictions, lane closures or full closure of the viaduct and the strategically important cross-border transport corridors it spans.

## i) Provide an overview of the proposed intervention and how the works will address the problem.

*This should set out the method of resolving the issue that is to be addressed.*

The proposed intervention comprises a coordinated programme of refurbishment and safety enhancements to Nicholas Street Viaduct to address asset deterioration, improve standards compliance, and extend operational life. The scheme will restore structural integrity and reduce the risk of further degradation, unplanned restrictions, or closure, which would significantly impact the strategic road network and interfacing rail and canal corridors.

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The project is structured across three stages. Stages 1 and 2 are fully funded by Cheshire West and Chester Council (CWCC), with Stage 3 dependant on Department for Transport (DfT) funding.

**Stage 1 (site investigation)** is completed and included a Post-Tensioned Special Inspection (PTSI) and Principal Inspection (PI), undertaken in response to the 2024 CS465 risk management plan. These confirmed the need for intervention and further detailed investigation.

**Stage 2 (scoping and feasibility)** is ongoing and includes detailed investigations and development of a preferred repair strategy. Specialist inspections are being undertaken by Balvac, with Amey progressing technical analysis, specification, and preliminary design. Key outputs are expected in August 2026, a pre-construction report has been provided.

**Stage 3 (detailed design and construction)** will deliver the refurbishment works informed by earlier stages. Measures include replacement of deteriorated bearings, targeted concrete repairs to piers/deck, and drainage improvements, incorporating waterproofing, joints and resurfacing, to mitigate water ingress. Grouting of voided post tensioning ducts will reinstate tendon protection.

Collectively, these interventions will enhance safety and resilience, extend asset life, and reduce the risk of disruption or closure of all three vital transport corridors (road, rail and canal).

## j) Is any part of the relevant structure owned by a third-party (e.g. the Canal and River Trust or Network Rail)?

There is no third-party ownership of Nicholas Street Viaduct although access for maintenance and or refurbishment of the structure will impact the operation of the North Wales Main Line and the Shropshire Union Canal, both of which the viaduct spans. Access to two privately owned car parks beneath the

structure will also be required. Consultation is ongoing with Network Rail, the Canal and River Trust and the car park operators regarding access arrangements.

Without the scheme, the structure will require more frequent reactive maintenance, with access arrangements disrupting travel on the rail and canal networks beneath. If the viaduct needs to be closed to all traffic for safety reasons, this will also risk closure of the North Wales Main Line Railway and Shropshire Union Canal which would have major transport, social and economic impacts both regionally and nationally.

k) If the structure is on a diversion route for the SRN provide a clear description/commentary.

The structure is not on a diversion route for the SRN however it forms a vital link in A5268 Chester Inner Ring Road, which plays an important local distributor role within Chester.

### 1.2 Understanding the Condition of the Structure

Please set out the current condition of the structure in this section.

a) Provide evidence that the relevant structure is in need of repair either now or by the end of the 2029/30 financial year. (Maximum 250 words)

*Provide details of the process used for determining whether this structure is in need of repair and the timescale in which the repair is needed..*

A CS465 Risk Review, Risk Assessment and Risk Management Plan was completed in April 2024 as part of CWCC's programme for managing post-tensioned bridges. This recommended a PTSI to assess the condition of the prestressing system.

PTSI, PI, and bearings special inspections have been ongoing since late 2025. Defects were identified across multiple elements. At deck level, issues include poor-quality historic repairs and exposed reinforcement, arising from previous over-milling. Defects were also noted at deck ends associated with earlier expansion joint replacement works.

More widely, the structure exhibits evidence of shortcomings in original detailing, particularly around joints, drainage paths, and bearing arrangements, which have increased susceptibility to water ingress and hindered long-term performance.

Significant concerns were identified with the bearings, including corrosion, deterioration, and evidence of partial seizure, resulting in restricted movement. Additional defects include ungrouted post-tensioning tendons and concrete deterioration affecting the deck, piers, and post-tensioned box beams over the railway. Evidence of moisture ingress, particularly within post-tensioned box beams, is contributing to prolonged exposure and localised deterioration, including spalling at pier tops.

A remote bearing monitoring system has been installed at most piers to enable continuous movement monitoring. A CS451 structural review has also been undertaken, recommending a full assessment to evaluate capacity impacts arising from deterioration, prestress defects, bearing restraint, and increased loading.

While defects are currently subject to monitoring, the absence of timely remediation will accelerate deterioration, with weight restrictions anticipated by 2029 and potential closure thereafter, resulting in significant transport, economic, and social impacts.

b) Please indicate if the relevant structure is **currently** subject to traffic restriction as a result of its condition.

*Reference should be made to closures, weight limits, width restriction, limits on use.*

The structure is not currently subject to traffic restrictions because of its condition. However, temporary traffic management (TTM), including lane closures and contraflow, is required to support inspections and investigations, alongside associated rail possessions and access constraints. These measures already

introduce disruption across the transport network but are precautionary rather than due to structural capacity limitations.

c) Please indicate if the relevant structure is **not currently** but **by the end of the 2029/2030 Financial Year is expected** to be subject to traffic restriction as a result of its condition.

*Reference should be made to closures, weight limits, width restriction, limits on use that are anticipated.*

Without timely intervention, the structure is highly likely to become subject to significant traffic restrictions, with a credible risk of full closure by the end of the 2029/2030 financial year. Ongoing deterioration, driven by seized bearings, cracking in post-tensioned beams, and ineffective drainage, will continue to reduce the structural reliability and capacity of the bridge.

As condition worsens, progressive restrictions will be required, including weight limits, lane closures, and speed restrictions, to manage increasing safety risks. The frequency, extent, and duration of temporary traffic management will escalate, leading to severe and sustained disruption for road users, as well as compounding impacts on rail and canal operations beneath the structure.

Failure to intervene will ultimately result in a full closure of this critical transport link, with significant consequences for network resilience, journey times, freight movement, and regional connectivity. There is also a material risk that closure of the bridge would necessitate concurrent closure of the railway and canal corridors below, magnifying the wider economic and societal impacts.

d) If the answer to c) above is yes, then please estimate the likelihood of this occurring: (select box that applies):

☐ Low confidence in restriction occurring
☐ Medium confidence in restriction occurring
☒ High confidence in restriction occurring

e) Please indicate if the relevant structure is **currently** subject to other temporary measures to manage risk.

*Reference should be made to measures such as propping, etc.*

The structure is currently subject to active monitoring measures to manage identified risks. The bearings, which have been assessed as having insufficient capacity, are being remotely monitored as part of an ongoing risk management programme. In addition, a focused monitoring regime is in place for the cracking identified in the high-risk post-tensioned beams.

f) Please indicate if the relevant structure is **not currently** but **expected by the end of the 2029/2030 Financial Year** to be subject to temporary measures to manage risk.

*Reference should be made to measures such as propping, etc. that is anticipated.*

The results from the bearing and beam monitoring, together with findings from the ongoing PI, PTSI, and structural assessment, will inform whether additional risk management measures are required. This may include the implementation of interventions in accordance with CS470 (Management of Substandard Structures), such as operational restrictions or other measures to ensure the continued safe use of the structure.

There is also a consequential risk that restrictions on the bridge could necessitate closure of the railway and canal beneath on safety grounds, resulting in significant wider transport and economic impacts.

g) If the answer to f) above is yes, then estimate the likelihood of this occurring:

☐ Low confidence in temporary measures being required
☐ Medium confidence in temporary measures being required
☒ High confidence in temporary measures being required

h) If available and applicable, what is the current Bridge Condition Indicator score (average and critical) of the relevant structure?

*BCI Crit: Viaduct: 58.0, Railway Beam 1: 31.0, Railway Beam 2: 81.0, Railway Beam 3: 81.0*

*BCI Ave:* Viaduct: 68.3, Railway Beam 1: 81.7, Railway Beam 2: 90.9, Railway Beam 3: 92.1

i) Which elements of the structure are negatively contributing to the BCI scores and how has this changed in the last 5 years.

*Reference should be made to recent inspections and highlight the type and extent of the defects.*

Concrete defects in the deck and piers, deteriorated bearings and a deteriorated drainage system are the main contributory factors in the structure's poor BCI scores. From various GI reports, it appears that there has been progression of a number of defects (especially around bearings and drainage).

j) Submit, alongside this submission template, the most recent, dated copy of the structural inspection proforma or a report summarising this.

The most recent PTSI, Principal Inspection of the main viaduct and the three post tensioned box beams and the Bearing Monitoring Technical Note have been submitted as Appendix 1.2.

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## Part 2 – Understanding the Case for Investment

### 2.1 Strategic Case

This section of the template captures the wider need for the scheme and how it aligns to the objectives of the Structures Fund.

a) Provide a summary of how this scheme contributes to the Government's economic growth mission (Maximum 250 words)

*Describe how the proposal will support economic growth (e.g. by creating jobs, attracting investment, improving productivity, or enabling new business activity) and set out the mechanisms through which these benefits will be delivered.*

Nicholas Street Viaduct is a critical component of the A5268 Chester Inner Ring Road, a key arterial route enabling the efficient movement of people and goods around Chester and providing essential access to the city centre. The corridor connects key economic locations, including Chester city centre, Chester Business Park, and Chester Business Quarter, and provides access to the city's principal bus and rail interchanges, supporting labour market accessibility and business productivity.

The viaduct spans two strategically significant transport corridors: the North Wales Main Line (NWML) and the Shropshire Union Canal. The NWML is a nationally important cross-border route, facilitating passenger and freight movements between England and Wales, with onward international connectivity via the Port of Holyhead. The canal forms part of the UK's inland waterway network and plays an important role in supporting the regional visitor economy.

Together, these corridors form an interdependent, multi-modal transport system that underpins connectivity, resilience, and sustainable travel. Maintaining their functionality is essential to economic activity and the reliable movement of people and goods.

Chester lies at the heart of a growing sub-regional economy, supporting a visitor economy exceeding £2.5 billion within a wider £4 billion tourism market, attracting tens of millions of visits annually and sustaining over 20,000 jobs.

Investment in the viaduct supports the Government's economic growth mission by preventing asset failure and avoiding severe disruption. This protects productivity, sustains economic activity, and supports investor confidence. Without intervention, loss of connectivity and reduced resilience would adversely impact regional and national growth.

b) Explain how the scheme supports other Government policy objectives. (Maximum 250 words)

*Provide a summary of the scheme's alignment to UK Government policy objectives as represented by the remaining missions.*

The scheme directly supports the fund's mission of avoiding route closures and diversions that increase emissions and worsen air quality. The viaduct carries approximately 22,000 vehicles per day and forms a critical section of the A55/A483 corridor. Without intervention, restrictions or closure would divert traffic through Chester, increasing congestion, journey times, fuel consumption and vehicle emissions. The structure also interfaces with the North Wales Main Line, and disruption could encourage a shift from rail to road travel, contrary to the objectives of the Transport Decarbonisation Plan (DfT, 2021). The scheme will also improve climate resilience by addressing deterioration that could be exacerbated by more frequent extreme weather events.

The scheme supports the fund's mission to create healthier and safer communities by protecting active travel and public transport connections. The viaduct provides access to Chester Bus Interchange and Chester railway station and crosses the Shropshire Union Canal towpath and National Cycle Route 45, maintaining sustainable travel choices and supporting the objectives of Gear Change: A Bold Vision for Cycling and Walking (DfT, 2020). Without intervention, traffic displacement would increase congestion,

noise and air quality impacts within the AQMA, creating a less attractive environment for walking, cycling and public transport use.

The scheme also supports the mission of breaking down barriers by maintaining reliable access to employment, education, healthcare and transport hubs. The viaduct is a critical link connecting communities, including areas of relative deprivation such as Lache and Blacon, with opportunities in Chester city centre and the wider region.

c) Explain why this scheme is a local priority. (Maximum 250 words)

*Provide a summary of the scheme's alignment to local priorities and policies.*

The Nicholas Street Viaduct scheme is a clear local priority, maintaining a critical component of the A5268 Chester Inner Ring Road that underpins economic activity, connectivity, and long-term resilience.

The scheme aligns strongly with local policy objectives to protect and maximise the value of existing infrastructure. It supports the Local Development Plan (LDP) by safeguarding a key strategic corridor essential for delivering economic growth and enabling access to major developments, including Chester Market and Northgate Phase 2. The route provides vital connectivity between residential areas and key employment locations such as Chester Business Quarter, Chester Business Park, and Sealand Industrial Estate (identified LDP priorities) highlighting its importance to the local economy.

The scheme is also consistent with Local Transport Plan 4 (Core Policy 5), which prioritises maintaining and optimising existing assets while promoting an inclusive and accessible transport network. By ensuring continued access to the city centre, bus interchange, and rail services, the scheme supports connectivity for all users, particularly those without access to a car, helping to reduce transport-related social exclusion.

In addition, the scheme aligns with the Chester One City Plan and the emerging Chester Movement Strategy, both of which emphasise the need for a resilient and well-connected transport system. By preventing deterioration and potential closures, the scheme avoids significant disruption, protects active travel routes (including NCR45), and supports safer, healthier streets.

d) Summarise engagement with local stakeholders, any joint-owners, levels of support for the scheme and explain any controversial elements. (Maximum 250 words).

*Summarise support from relevant stakeholders such as the Local MP, Elected Members relevant combined authorities, National Highways, Network Rail, neighbouring LHAs, or important utility providers.*

Extensive stakeholder engagement has been undertaken throughout scheme development. Key infrastructure stakeholders, including Network Rail and the Canal & River Trust (CRT), have been involved from an early stage to inform the design, programme and construction methodology.

Letters of support have been received from Network Rail, the Canal & River Trust, local MP Samantha Dixon MBE, the Chester One City Plan Connecting Group and the Cheshire and Warrington Combined Authority. These are included in Appendix 2.1. Network Rail supports the scheme subject to the necessary asset protection and access agreements, while the Canal & River Trust has confirmed support for temporary towpath restrictions and use of land beneath the viaduct where required.

Engagement has also been undertaken with residents, businesses and landowners directly affected by the works, including occupants of Raymond Street, Canal Street, Hunters Walk, Sanctuary Housing, iPark, private car park operators and Council service areas. Feedback has been broadly positive, with stakeholders recognising the need for refurbishment and highlighting the importance of maintaining access, parking provision and effective communication during construction.

The principal area of concern relates to temporary occupation of land and parking areas beneath the viaduct. Discussions are ongoing to minimise impacts and agree access arrangements, although no objections have been raised to the scheme. Overall, stakeholder support is strong, with no significant issues identified.

A stakeholder management and communications plan will support ongoing engagement and regular project updates throughout delivery.

e) Provide a summary of the local approach to prioritisation of structural maintenance work. (Maximum 250 words)

*Set out any weighting, scoring or other methodology which explains why this scheme has not been subject to work prior to this point.*

Cheshire West and Chester Council maintain a comprehensive Corporate Asset Register, within which all highway structures are assessed and assigned a priority risk rating to identify those requiring structural maintenance.

In line with the 'Well-Managed Highway Infrastructure Code of Practice', the Council adopts a risk-based approach to asset management. This includes a prioritised review of all highway structures using CS450, supplemented by locally defined risk factors such as traffic volumes, diversion length, community connectivity, environmental impact, strategic route importance, and engineering judgement.

Through this process, Nicholas Street Viaduct has been identified as a very high-risk structure, ranking third overall within the Council's stock and therefore a priority for intervention. It also has one of the lowest BCI critical scores across all structures, indicating that key elements, particularly the central box beams spanning the railway, are in poor condition and may contain serious defects requiring urgent remedial works.

To support its prioritisation approach, the Council is delivering an accelerated programme of principal inspections, structural assessments and scour reviews across its asset base over the next three financial years.

f) Provide a summary of why this scheme has been selected for this application to the Structures Fund. (Maximum 250 words)

*Provide a brief summary of the specific need for this structure is advanced to the Structures Fund.*

The Council's Asset Management Register identifies the viaduct as a very high-risk asset requiring priority maintenance, ranked third overall. It shares the lowest BCI critical score in the portfolio (with Winsford Station), indicating poor condition and serious defects requiring urgent intervention to restore structural integrity, extend service life, and ensure safe operation.

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Although not the single highest-risk structure, its selection reflects several factors:

- **Strategic importance:** The viaduct is critical to the functioning of the city-wide road network.
- **Affordability:** Estimated scheme costs of £31.6M (exclusive of risk) significantly exceed the Council's £2.35M annual maintenance budget, making delivery unviable without government funding.
- **Deterioration risk:** Without intervention, asset condition will continue to decline, requiring progressively greater maintenance. Incremental bearing replacements and waterproofing works are forecast to cost approximately £1.5m by 2049 and are not affordable within the existing structural maintenance budget.
- **Safety implications:** Failure to replace substandard bearings risks partial deck failure or collapse. Mitigation would require progressive weight, lane, and speed restrictions, with full closure likely by 2029/2030.

- **Deliverability:** Surveys, assessments, and preliminary design are well advanced, enabling delivery by December 2029.
- **Procurement readiness:** The principal designer-Amey, principal contractor-Balvac and project management support-Cantidad are already engaged, avoiding lengthy procurement delays and ensuring continuity of specialist expertise.
- **Interfaces:** The scheme also interfaces with two nationally significant transport corridors, the North Wales Main Line and the Shropshire Union Canal, meaning the consequences of inaction extend beyond the local highway network.

g) Summarise the impacts of not delivering this scheme (Maximum 250 words).

*The response should consider the impact of not delivering the scheme, such as community severance, lengthy diversion routes or impacts on other infrastructure.*

Failure to deliver the Nicholas Street Viaduct scheme would create severe and escalating impacts on connectivity, safety, and network resilience across multiple transport modes. Continued structural deterioration would increase the likelihood of weight, speed, or lane restrictions, reducing capacity on a critical Inner Ring Road link carrying approximately 22,000 vehicles/day.

In a worst-case scenario, partial or full closure on safety grounds would result in significant rerouting onto the wider highway network, including the A55/A483 strategic corridor and the southerly part of the A5268 through the city centre. This would lead to substantial increases in congestion, journey times, and unreliability, with knock-on impacts for residents, businesses, and bus services, intensifying community severance and impacting on road safety.

The consequences extend far beyond the local highway network. The viaduct spans the North Wales Main Line, a nationally important rail corridor linking England, North Wales, and the Port of Holyhead, a key freight and passenger gateway to Ireland. Structural failure or emergency intervention could necessitate rail possessions or closure, severely disrupting passenger services and strategic rail freight movements, with potential modal shift to road exacerbating congestion and emissions. The scale of intervention required in such a scenario would carry exceptionally high costs and liabilities, presenting a significant financial risk to the Council.

Active travel would also be affected, with likely disruption to NCR 45 and the canal towpath, removing a key traffic-free corridor.

Overall, failure to act would result in significant local and regional severance, with major economic, transport, and financial consequences.

h) If applicable, explain how the scheme helps prevent the likelihood of community severance for all transport modes and the impact that this severance would have or already has. (Maximum 250 words)

*Answers should explain the impact on connecting local people to facilities, services, employment, education and local communities. The response should also summarise the extent of diversions for communities, which modes are impacted and how. Applicants may wish to use the guidance in TAG A4-4 Social Impact Appraisal.*

Without the scheme, there would be a moderate adverse severance impact arising from the ongoing deterioration and maintenance requirements of Nicholas Street Viaduct, affecting both active travel users and strategic rail connectivity.

The viaduct spans the Shropshire Union Canal and towpath, including National Cycle Route 45, a strategically important traffic-free corridor linking communities in north-west Chester with the city centre, as well as providing longer-distance connections to Ellesmere Port and beyond. In the absence of intervention, increasing maintenance requirements would raise the likelihood of temporary restrictions or prolonged closures, severing this route. This would force pedestrians and cyclists onto longer, less direct routes with

higher traffic levels, reducing accessibility to employment, education, services and local communities, including for nearby student accommodation. It would also disrupt regional movements along NCR 45.

The viaduct also carries the highway over the North Wales Main Line, a key rail corridor linking North Wales to the rest of the UK. Without the scheme, deterioration increases the risk of disruptive interventions affecting the railway below, potentially resulting in restrictions or closures. This would impact passenger connectivity and rail freight movements, creating wider regional severance and affecting economic activity and access between communities.

By addressing the structure's condition, the scheme prevents these outcomes, maintaining continuous, reliable connections for active travel and rail, and avoiding both local and wider regional severance effects.

i) Summarise the volumes of traffic by mode that are impacted as a result of any community severance (Maximum 250 words).

*Explain the impacts on non-motorised and motorised traffic flow. Describe how diversions may differ by mode.*

Closure of Nicholas Street Viaduct would affect over 22,000 vehicles/day. Local traffic would divert via the inner ring road, increasing flows through constrained city centre routes, while strategic through traffic would re-route via the A55, resulting in longer journeys and additional congestion.

The A5268 is Chester's primary cross-city bus corridor, serving over 40 routes and 100 daily bus movements, including key links to the Bus Interchange and Park and Ride services. Closure would require services to divert via the southerly A5268 route. While maintaining network coverage, this would remove direct access along Nicholas Street and St Martin's Way, requiring passengers to walk up to 10 minutes to alternative stops.

Closure of the North Wales Main Line would sever a key cross-border corridor between England and Wales, affecting around 182 passenger services and 30 daily freight movements. Over 10,000 passengers would be displaced, with freight diverted to road, increasing congestion, costs, and emissions. This represents a nationally significant impact on connectivity, resilience, and access to key economic centres and port infrastructure.

Navigation beneath the viaduct would also be affected, disrupting the Shropshire Union Canal. This would sever through-cruising routes, impacting leisure boating and the wider canal economy, including tourism and local businesses reliant on visitor activity.

### 2.2 Economic Case

This section sets out the assessment for Value for Money of the project. Applications must use the provided economic toolkit, but if alternative methods have also been used to support the economic case, this section provides the opportunity for the results to be reported.

a) Set out the key sources for the economic benefits (e.g. journey-time savings, carbon, etc.) of the scheme. (Maximum 250 words)

*Describe the main benefits the scheme is expected to deliver.*

**£130m** (2023 values/prices) of benefits are forecast over the 60-year appraisal period. The majority arise from **journey time savings (£84.8m; 65%)** reflecting the diversionary routing and reduced network performance if the viaduct were unavailable. Without the scheme, closure would divert over 22,000 vehicles per day onto longer, lower-capacity routes through the city centre, resulting in increased delays, lower speeds, and reduced network efficiency.

**Vehicle operating cost savings (£17.0m)** further reflect reduced travel distances and improved traffic conditions. Additional user benefits include **safety improvements (£13.4m)** from avoided accident risks associated with congestion and diversion routes.

Environmental benefits are also generated, including **greenhouse gas savings (£5.3m)** and smaller improvements in **local air quality (£0.4m)** and **noise (£1.1m)**, driven by reduced congestion and smoother traffic flow. These benefits are partially offset by **infrastructure carbon impacts (-£0.2m)** associated with delivery of the scheme.

Overall, the scheme delivers a **Present Value of Benefits of £130.0m**, against **Present Value Costs of £22.0m**, resulting in a **very high value for money BCR of 5.9**. The benefits are therefore driven primarily by transport economic efficiency gains, complemented by safety and environmental improvements, and underpinned by maintaining a critical piece of network infrastructure.

These monetised benefits exclude the significant wider national and regional impacts associated with maintaining connectivity of the North Wales Main Line and the Shropshire Union Canal, as discussed in Section 2.2e. These non-monetised benefits relate to safeguarding a critical cross-border rail corridor and an important inland waterway, supporting network resilience, regional economies, tourism, and sustainable transport.

b) Summarise the estimate of the present value of costs and benefits (in 2023 present values, market prices) and the benefit cost ratio of the scheme from the economic toolkit.

| | |
|---|---|
| Present Value Costs (PVC) | £22,017,427 |
| Present Value Benefits (PVB) | £130,028,836 |
| Benefit to Cost Ratio (BCR) | 5.9 |

c) Explain assumptions used in the economic toolkit to estimate the present value scheme costs. (Maximum 250 words)

*Describe the basis of the costs input to the economic toolkit and provide justification for the risk and optimism bias values that have been used.*

The refurbishment of Nicholas Street Viaduct is structured across three stages. Stages 1 (site investigations) and 2 (scoping and feasibility) are complete or nearing completion and are fully funded by the Council; as such, these costs are treated as sunk and excluded from the Economic Case. The advanced stage of development provides a robust evidence base for cost estimation, programme definition and risk identification, including third-party requirements such as Network Rail possessions and compensation for temporary land use

Delivery costs for Stage 3 have been derived using a bottom-up approach based on quantified elements of work (e.g. waterproofing, concrete repairs, bearing replacement and drainage upgrades). Unit rates have been informed by comparable schemes and framework rates, and uplifts applied to a 2026 price base. Allowances for third-party costs have been incorporated based on current stakeholder engagement.

Risk has been assessed through a structured Quantified Risk Assessment (QRA), supported by Monte Carlo simulation, capturing identified scheme-specific uncertainties. An overall risk allowance of 25% has been applied, reflecting the complexity of the asset and interface constraints.

An Optimism Bias of 28% has been applied, consistent with TAG guidance for schemes at an advanced design stage where significant investigation and contractor involvement has already reduced uncertainty.

The early contractor involvement of Balvac, who have undertaken detailed inspections, and produced a comprehensive Pre-Construction Report, provides increased confidence in cost accuracy. The report includes a detailed cost estimate, programme, construction methodology and risk considerations. Ongoing work will further refine cost estimates, programme, and risk.

d) Explain the sources of data and assumptions used to complete the Scheme Details section of the economic toolkit. (Maximum 250 words)

*Provide details of the source of all data and associated assumptions (e.g. provenance, data checks, etc).*

The Scheme Details section of the economic toolkit has been informed by a combination of primary survey data, appraisal guidance, and scheme-specific assumptions.

Traffic demand data has been derived from 24-hour Manual Classified Turning Counts undertaken at ten locations in February 2026. These surveys provided vehicle flows by class (cars, LGVs, HGVs and PSVs), resulting in an estimated total daily flow of 22,000 vehicles on the affected network. This dataset forms the basis for estimating affected users and vehicle mix within the appraisal.

All diverted traffic has been assumed to follow the shorter A5268 secondary local diversion route, which, although more urban in nature, is still an A road and can accommodate all vehicle types. Google Maps was used to obtain journey times. This provides a realistic and conservative estimate of increased journey times and vehicle operating costs.

Congestion levels have been estimated in line with DfT TAG Unit A5.4, using standard capacity assumptions for an urban A-road (1,100 pcu/lane/hour). Observed flows were compared against this capacity to calculate volume-to-capacity ratios, leading to the application of Congestion Band 2. This approach reflects standard practice where detailed modelling is not available.

Cost assumptions include scheme capital costs (£20.4m inclusive of inflation) phased over four years; alongside long-term Operating, Maintenance and Renewal (OMR) costs derived from typical inspection, maintenance and intervention activities over a 60-year appraisal period. Future costs were adjusted using TAG Databook inflation assumptions, and a 28% optimism bias has been applied in line with DfT expectations.

e) Describe significant non-monetised impacts of the scheme. (Maximum 250 words)

*Consider any economic, environmental and social impacts that have not been monetised to fully describe the impacts of delivering the scheme.*

The most significant benefit of the scheme is maintaining connectivity across a strategically important transport corridor. Nicholas Street Viaduct carries approximately 22,000 vehicles per day and forms a key link between the Chester Inner Ring Road, city centre, employment areas and wider regional transport network. Without intervention, continued deterioration could result in weight restrictions, lane closures or full closures, causing substantial disruption to road users, bus services, pedestrians and cyclists. The scheme also safeguards the operation of the North Wales Main Line and the Shropshire Union Canal, maintaining regional connectivity and network resilience.

The scheme also delivers significant safety and asset resilience benefits by addressing deteriorating bearings, cracking associated with seized bearings, drainage defects and deterioration of post-tensioned elements. By extending the operational life of the structure, it reduces the risk of unplanned restrictions, emergency repairs and future disruptive interventions.

A further benefit relates to the townscape and historic environment. The viaduct is a prominent structure on the edge of Chester's historic centre, and its refurbishment will improve its appearance while helping keep through-traffic away from sensitive historic streets and heritage assets.

Environmental benefits are anticipated through drainage improvements, waterproofing and reduced water ingress, improving long-term surface water management and reducing the risk of pollutants entering the adjacent canal. The scheme also preserves future transport choices by maintaining access to National Cycle Route 45, the canal corridor and the rail network. As a maintenance scheme, no significant transport security impacts are anticipated.

f) Where an alternative economic assessment has been undertaken to support a case for investment, please summarise the data used, the assumptions made and the results obtained (in 2023 present values, market prices). (Maximum 250 words)

*Some schemes may have been subject to economic assessment to support previous cases for investment. Summarise the key details of these here, including details of the data, assumptions and results (e.g. present value of costs and benefits and benefit cost ratio).*

Without the scheme, there is high confidence that traffic restrictions will be required on the viaduct, although there remains uncertainty regarding the timing and extent of these measures. To reflect this, a sensitivity test has been undertaken using the DfT appraisal tool.

While it is considered likely that the viaduct would ultimately require full closure to all traffic (with potential impacts on the rail and canal corridors beneath), this has not been assumed. Instead, a conservative scenario has been tested in which progressively stricter vehicle restrictions are introduced over the 60-year appraisal period, without full closure:

The assumed restrictions are as follows:

- **2029:** Permanent prohibition of HGVs
- **2039:** Extension to include PSVs
- **2059:** Further restriction to include LGVs, HGVs and PSVs
- **Cars** remain permitted throughout.

This represents a lower-bound scenario, reflecting retained but reduced functionality.

The sensitivity test results indicate a **PVB of £10.9m** against a **PVC of £22.4m**, giving a **BCR of 0.5**, a significant reduction from the core scenario. This reflects the assumption that cars continue to use the viaduct, reducing journey time and decongestion benefits.

Despite this, the sensitivity provides a robust downside case, highlighting that scheme value depends on the severity of restrictions. Importantly, it excludes full closure and wider impacts, including disruption to the rail and canal corridors. As such, it understates total benefits, and the core scenario, reflecting likely asset closure, remains the most realistic basis for decision-making.

| | |
|---|---|
| Present Value Costs (PVC) | £22,444,561 |
| Present Value Benefits (PVB) | £10,856,241 |
| Benefit to Cost Ratio (BCR) | 0.5 |

To enable the assessment of the economic case, please submit the supporting information listed below to StructuresFundTAB@dft.gov.uk

- Economic Toolkit
- Any supplementary reports which support the economic case

### 2.3 Commercial Case

This section captures information on the commercial viability and procurement strategy for the planning and delivery of the scheme being promoted.

a) Explain the LHA capacity and experience delivering comparable schemes. (Maximum 250 words)

*Where capacity is challenging for local authorities, explain how any capacity gaps may be addressed to ensure delivery of the scheme.*

A gap analysis of Cheshire West and Chester Council's (CWCC) capability to deliver structural maintenance schemes identified resource shortfalls in specialist project delivery capacity. These gaps have been addressed through compliant procurement of project management, design, construction and specialist supplier support, including Amey, Balvac, Cantidad, HTA and Mabey.

CWCC retains overall responsibility for scheme governance and delivery through an experienced in-house team. Strategic oversight is provided by the, Director of Transport and Highways, and Head of Highways and Infrastructure, both of whom have extensive experience overseeing the delivery of highway and bridge infrastructure projects. Delivery is led by an Engineer with significant experience managing bridge maintenance and structural renewal schemes across the highway network.

The lead is supported by an experienced project delivery team, who provide specialist project management, commercial and NEC contract management expertise.

The wider delivery team has extensive experience of post-tensioned structures, bridge strengthening, bearing replacement and works over live railway infrastructure. Comparable schemes delivered or currently being delivered within CWC include A51 Stamford Bridge (2020), Winnington Bridge Business Case (2022), Soot Hill Wall Repairs (2023), Chester City Walls (2024–ongoing), and the ongoing post-tensioned structure inspections of Nicholas Street and Winsford Bridges (2025–ongoing).

Construction contracts are being delivered under NEC4 Contract incorporating Option X22, using a two-stage approach, providing early contractor involvement, risk management and confidence in programme delivery.

b) Explain the delivery plans and procurement strategy for the scheme. (Maximum 250 words).

*This section should include explanation of the various stages of the scheme that are required for completion. This may include design, consents and construction processes.*

CWCC has adopted a phased delivery strategy to de-risk the scheme and ensure it is ready for delivery upon receipt of DfT funding. Stage 1 has been completed and comprised a Post-Tensioned Special Inspection (PTSI) and Principal Inspection (PI), which confirmed the need for intervention and identified areas requiring further investigation. Stage 2 is underway and includes detailed investigations, structural assessment, development of the preferred repair strategy, preliminary design, stakeholder engagement, cost planning and programme development. Stage 3, subject to funding approval, will complete the detailed design and deliver the construction works.

The scheme has been split into two construction phases. Phase 1 comprises drainage improvements, waterproofing, resurfacing, expansion joint replacement and deck concrete repairs. Phase 2 comprises bearing replacement, remedial grouting of post-tensioning ducts, rail beam strengthening, asbestos removal, concrete repairs and access improvements to support future inspection and maintenance.

CWCC has secured design, site supervision and technical support through Amey Consulting, together with programme management support through compliant frameworks. Balvac Ltd (Balfour Beatty Civil Engineering Ltd) has been appointed as Principal Contractor through the SCAPE Civil Engineering Framework under a multi-stage contract incorporating Early Contractor Involvement (ECI). This has enabled detailed construction planning, temporary works development, stakeholder engagement, risk management and robust cost estimates to be developed ahead of the funding submission as detailed in the Nicholas Street DfT Submission report in Appendix 2.1 The strategy avoids lengthy future procurement exercises and provides a seamless route into construction following funding approval.

c) Describe the delivery risks associated to the project delivery. This should include risks which may challenge the end date for the Structures Fund.

*Explain what risks have been identified and how might these be mitigated.*

The principal delivery risks relate to the bearing replacement and associated repairs to the post-tensioned railway beams located directly above the North Wales Main Line. These works require Network Rail approvals, possessions and access arrangements. Early engagement with Network Rail is underway and the construction methodology has been developed to utilise standard Saturday night possessions and phased working to minimise disruption to railway operations. Programme allowances have been included to accommodate approvals, possessions and contingency requirements.

A further risk relates to the ongoing development of the permanent works design and the associated temporary works required for bearing replacement. Changes to bearing loads, articulation arrangements, or structural assessment findings could affect the temporary works design, construction methodology and programme. This risk is being mitigated through Early Contractor Involvement (ECI), collaborative working between Amey and Balvac, and engagement of specialist temporary works designers and bearing suppliers at an early stage.

Other key risks include restricted access to third-party land, delays in securing Canal & River Trust consents, road space bookings, procurement lead times for bearings and temporary works components, and the discovery of previously unidentified defects, asbestos, services or deterioration during construction. Mitigation measures include ongoing stakeholder engagement, early procurement activities, comprehensive inspections and the inclusion of programme float and risk allowances within the cost estimate.

Additional risks include adverse weather affecting waterproofing and concrete repairs, ecological or archaeological constraints, and the condition of inaccessible structural elements such as the buried box beam. A comprehensive risk register has been developed, identifying £6.32 million of client-held risk allowance, and will continue to be actively managed and refined throughout design and delivery to ensure the scheme remains achievable within the Structures Fund programme.

d) Explain whether liaison with any applicable third-party organisations present a particular risk to delivery and whether those organisations have agreed to support the scheme's delivery. (Maximum 250 words)

*In this section set out if the scheme requires support from other organisations, and the nature of any engagement undertaken to date.*

The scheme interfaces with several third parties, with the most critical dependency arising from works to the viaduct crossing the North Wales Main Line, where beams are supported over the operational railway.

Network Rail and the Canal & River Trust have both been engaged throughout scheme development and have provided formal letters of support. Their operational and asset requirements have informed the proposed construction methodology, programme and access arrangements. This introduces programme risk due to the need for detailed technical submissions, possessions, and compliance with asset protection requirements. However, this is a well-established process, and the risk is mitigated through ongoing coordination and programming aligned to rail constraints.

The scheme also requires access to adjacent private land to support construction activities. A cooperative relationship is already in place, and previous access agreements were secured during earlier project stages. While a negotiated agreement is expected, statutory powers provide a fallback position, meaning this does not represent a significant delivery risk.

Engagement with the Canal and River Trust has not identified any constraints that would impact delivery. Consents are anticipated to follow standard procedures and are not expected to affect the programme.

Overall, third-party risks are typical of infrastructure schemes of this nature. The key interface with Network Rail is recognised and actively managed, with no indications at this stage that it will prevent or materially delay delivery.

## 2.4 Financial Case

a) Provide estimated outturn costs (£million) for the scheme in the table below. The table should be completed with total costs, requested DfT investment, LHA contribution and third-party contributions. Only capital funding costs should be included in the table.

To note, the prospectus sets out that:

- schemes should be delivered by end-2029/30.
- schemes with early delivery (i.e. in 2026/27) may be prioritised.
- schemes should not be affordable from existing LA budgets.
- local contributions are required for proposed schemes.
- preference will be given to schemes with higher local contributions and/or those where there is a high percentage of local contribution.
- preference will also be given where the local contribution is:
    - not from other central government funding sources.
    - partially funded from other third-party sources.

| | 2026/27 | 2027/28 | 2028/29 | 2029/30 | Total |
|---|---|---|---|---|---|
| Requested DfT investment | £0.35 | £12.81 | 8.64 | £2.78 | £28.42 |
| LA contribution | £0.04 | 1.42 | £0.96 | £0.31 | £3.16 |
| Other contribution | N/A | N/A | N/A | N/A | N/A |
| Total costs | £0.39 | £14.24 | £7.35 | £3.09 | £31.58 |

b) Outline how the LHA has sought to manage this scheme from existing budgets and why that has been unsuccessful.

*Explain the local approach to managing the existing DfT contribution across its highway assets and what specific challenges have meant that this structure was not repaired earlier.*

Senior leaders and politicians within the Council appreciate the risk associated with these structures and as such the Council has already invested significant budget from its own capital resources, above and beyond the DfT's Maintenance allocation, to carry out specialist inspections to these highway structures. However, the estimated costs of the required repairs are significantly more than the DfT Maintenance allocation and the capital funds the Council has available, therefore the works cannot be carried out without external funding.

c) Describe the whole life costs anticipated without the proposed scheme. Explain how the proposed scheme mitigates costs from a whole life perspective. (Maximum 250 words)

*Explain maintenance considerations for maintaining the structure and compare these to the scheme cost to demonstrate the financial benefit of delivering this scheme.*

**OMR Costs (with scheme)**

Following the refurbishment of Nicholas Street Viaduct, future maintenance requirements will be limited to predictable, routine inspection and cyclical activities. These include General Inspections every two years, Principal inspections every six years, annual cyclic maintenance, re-waterproofing every 20 years, and minor concrete repairs every five years. These activities have an estimated whole life maintenance cost of £13.2M at 2026 prices (inclusive of inflation). A optimism bias of 28% has been applied, reflecting the reduced uncertainty and risk associated with a structurally sound asset.

**OMR Costs (without scheme)**

In contrast, without the proposed scheme, the asset would continue to deteriorate, resulting in intensive maintenance interventions. This would lead to a significant escalation in costs, to a level that would be unaffordable for the Council. These have been predicted to cost £42.7M in operating and maintenance costs across the appraisal period. A higher optimism bias of 55% has therefore been applied to reflect the substantial uncertainty, increased risk of failure, and likelihood of unplanned remedial works.

Major interventions such as incremental bearing replacement would rapidly become prohibitively expensive if deferred yet have been included within the appraisal to enable a like-for-like comparison of whole life costs and to capture OMR savings identified through the economic toolkit.

d) Summarise how the cost estimate for the scheme has been developed.

*Set out the basis for the estimate. For example, is it based on an estimate from similar work, developed by a quantity surveyor or a contractor quotation*. *Describe the inflation assumptions used and the rationale for these.*

The Tier 1 contractor, Balvac, have completed a detailed review of the proposed works and prepared a robust construction programme and cost estimate. This contractor-led estimate has informed the scheme costs presented within this business case and includes consideration of site-specific construction requirements, third-party costs, rail possessions, access arrangements, and other delivery constraints. The contractor's input provides increased confidence in the forecast scheme costs and programme. Appropriate allowances for risk and optimism bias have been included in accordance with TAG Unit A1.2

e) Explain the financial risks that have been considered and factored into the estimate and what contingency is allowed for.

*Explain the key risks and their impact on the cost and programme, including how these link to the overall contingency allowed for in the estimate.*

The estimate includes a project-specific contingency informed by Balvac's Pre-Construction Report and project risk register. Key risks relate to Network Rail approvals and possessions, access to third-party land and construction compounds, bearing manufacture and procurement lead times, changes to the permanent works design, adverse weather affecting waterproofing and concrete repairs, ecological and archaeological constraints, unidentified services, asbestos, latent defects, and the condition of inaccessible structural elements including the buried box beam. These risks have the potential to affect both programme and cost and have been considered in the development of the estimate.

Allowance has been made for third-party costs, including rail possessions and associated Network Rail interface requirements, canal-related constraints and approvals, and access arrangements affecting adjacent private car parks and land beneath the viaduct. The estimate also reflects the risk of quantity variation, as the full scope of repairs will only be confirmed once investigations, detailed design and opening-up works are complete. This may affect the extent of concrete repairs, bearing works, drainage renewal, waterproofing, joints, tendon grouting and associated temporary works.

A further risk is that the programme may extend beyond that currently anticipated due to possession availability, third-party approvals, restricted access windows, weather-sensitive activities and unforeseen defects encountered during construction. If this occurs, there would be corresponding increases in preliminaries, supervision, traffic management, possession costs and inflation exposure.

Overall, the contingency included within the estimate is intended to cover these defined risks and will be refined as design, pricing, programme and third-party agreements are developed.

f) Provide details of the local and other contributions, including the relevant funding sources and the certainty of whether these contributions are available. (Maximum 250 words)

*Describe the various sources of funding and their availability.*

Nicholas Street Viaduct is a key asset within the Council’s highway network, requiring timely intervention to avoid escalation of maintenance needs and associated disruption.

Cheshire West and Chester Council has committed to contribute 10% of the estimated refurbishment cost through its capital programme. This contribution demonstrates a clear local commitment to the scheme and reflects its prioritisation within the Council's asset management strategy.

As the viaduct is wholly owned, operated and maintained by the Council, there are no viable opportunities to secure third-party or private sector contributions towards the capital or delivery costs. The scheme is therefore reliant on a combination of Council funding and central government support to enable delivery.

### 2.5 Management Case

Outlines how the project will be delivered and managed effectively.

a) Select the option which best describes the current stage of the project:

- ☐ No design, benchmarked against other schemes only
- ☐ Design concept only, no supplier yet engaged
- ☒ QS estimate / early supplier engagement, stable design

b) What is the anticipated start date for construction for the scheme?

March 2027

c) What is the anticipated end date for construction for the scheme?

October 2029

d) Summarise the approach to the management of the delivery of the scheme. This should be from the current point of development to completion.

*This should include the management of resources, including the supply chain, to ensure delivery and an explanation of any evidence that provides certainty of delivery within the timescale.*

The Scheme will be delivered through a structured and integrated approach from the current design stage to completion, building on strong progress to date. The project team has been procured via the Council's established frameworks, ensuring capability, continuity, and efficient mobilisation. Key roles are established, with Amey as Principal Designer/Designer, Cantidad Ltd as NEC4 Project Manager, Balvac as Principal Contractor, and Cheshire West and Chester Council acting as Technical Approval Authority. Delivery is managed under a two-stage NEC4 ECC contract incorporating Option X22 (Early Contractor Involvement), enabling contractor input during design to improve buildability, reduce risk, and enhance cost and programme certainty ahead of construction. Governance is provided through a PRINCE2-based framework, with a Project Board overseeing delivery supported by clear roles, responsibilities, and reporting arrangements. Design development is progressing alongside site investigations, with completion targeted for October 2026 to enable a seamless transition into construction. Resources are managed through a coordinated, multidisciplinary supply chain with proven experience in post-tensioned structures and construction over live railway environments. Certainty of delivery is evidenced by completed investigations, advanced design development, early contractor engagement, and established contractual arrangements. The programme is aligned with rail possession requirements and stakeholder constraints, providing strong confidence that the scheme will be delivered within the required timescales.

e) Explain the key delivery risks and challenges and how the local authority intends to address them. Answers should also explain any financial risks and how any cost overruns will be addressed by the local authority. (Maximum 250 words)

*Explain how key financial risks are being managed and mitigated. Explain how other risks are being managed (e.g. are there any points of complexity or requirements regarding planning or land ownership?).*

Key delivery risks arise from working over third-party assets and the complexity of the structural interventions. The scheme interfaces with the North Wales Main Line Railway and the Shropshire Union Canal, requiring approvals for temporary and permanent works and coordinated rail possessions. These present programme risks, mitigated through early and ongoing engagement with Network Rail and the Canal & River Trust, with their requirements embedded in the design and construction approach. Significant temporary works are required to support the deck during bearing replacement, particularly where piers interact with post-tensioned box beams. The large number of piers results in a repetitive and extensive programme, compounded by restricted access and geometric constraints at abutments. These risks are being managed through Early Contractor Involvement, enabling the contractor to develop buildable, efficiently sequenced solutions and optimise construction methodologies. Traffic management is also a key risk, with likely contraflow arrangements on a heavily trafficked route. This is being addressed through early coordination with the local highway authority to minimise disruption and ensure network resilience. Financial risks, including cost escalation from temporary works, rail possessions and phasing, are managed through a two stage NEC4 ECC contract. This allows costs, risk allowances and contingencies to be progressively refined as design and investigations advance. The Council's commitment to underwrite cost overruns provides funding certainty and supports programme delivery.

f) Describe the key project controls that will be employed by the local authority to ensure that schemes are delivered on time and in budget. (Maximum 250 words)

*Provide details of the methods that the authority uses to ensure timely delivery within budget.*

CWCC will apply its established project delivery governance procedures to ensure the scheme is delivered on time and within budget. A structured governance framework is in place, centred on a Project Board providing strategic oversight, supported by defined reporting lines, escalation routes and regular performance reviews. This is complemented by formal gateway review stages at key milestones to assure readiness to progress and to validate cost, programme and risk positions. Delivery is underpinned by NEC4 contract management, with clear allocation of roles, responsibilities and risk ownership. The NEC4 Project Manager function is undertaken by Cantidad Ltd, providing a dedicated and experienced client-side project management team responsible for programme control, cost management, change control and contract administration. Compensation events, early warnings and risk reduction meetings will be actively managed to ensure transparency and proactive issue resolution. Contract management is supported by the FastDraft platform, providing a robust digital environment for managing communications, contractual processes, document control and audit trails. This ensures timely decision-making, clear record keeping and strong commercial governance. Cost performance will be monitored through regular reporting cycles, including earned value-style tracking, risk-adjusted forecasting and periodic cost reviews. The integration of Early Contractor Involvement supports realistic programming and cost certainty, with buildability and sequencing risks addressed early. Collectively, these controls, combining governance, contractual discipline, digital tools and experienced resource, provide a comprehensive assurance framework to maintain programme certainty, manage risks effectively and ensure delivery within the approved budget.

g) Set out if the scheme requires permission from other bodies, and how this permission can be obtained to ensure delivery.

*Provide details of the permission required, the likely timescale for obtaining permission and any potential barriers to obtaining that permission.*

The scheme requires approvals from several external bodies due to its direct interface with critical third-party infrastructure. The viaduct spans the North Wales Main Line and the Shropshire Union Canal, necessitating approvals from Network Rail and the Canal & River Trust (CRT) for both temporary and permanent works. For the railway interface, requirements include possession planning, asset protection agreements and technical acceptance of proposed works. These approvals are governed by established industry processes and lead-in times, particularly for rail possessions, which must be secured well in advance. For the canal interface, consents are required to manage access, maintain safe navigation and

approve works affecting canal assets or operations. These processes present programme risks, particularly in aligning third-party approvals with the construction programme. However, risks are being mitigated through early and ongoing engagement with Network Rail and CRT. This has enabled key constraints and requirements to be identified and incorporated into the design, methodology and programme at an early stage. Additional agreements are required with third parties, including operators of adjacent privately operated car parks beneath the structure, to secure access for construction. Engagement is underway, and access arrangements are expected to be formalised through commercial agreements. Overall, proactive stakeholder engagement, early identification of consent requirements and integration of third-party constraints into the delivery strategy provide confidence that all necessary approvals can be secured within required timescales, supporting successful scheme delivery.

j) If applicable, explain how the scheme development has included consideration of climate adaptation and ensures the future resilience of the highway network (Maximum 250 words).

*Describe how climate related risks (e.g., flooding, heat, extreme weather) have been assessed and incorporated into design measures to improve the long term resilience of the highway network. This may include evidence of risk assessments, adaptive design features, and how the scheme will maintain network performance under future climate conditions.*

Climate adaptation has been embedded within the scheme development, with a particular focus on addressing risks associated with increased rainfall intensity, flooding, and long-term deterioration driven by climate change.

A key component of the scheme is the comprehensive upgrade of the existing drainage system, which is currently ineffective and contributing to water ingress and structural deterioration. The drainage design will be informed by hydraulic modelling that explicitly considers projected increases in rainfall associated with climate change. This will ensure that the upgraded system has sufficient capacity to manage future peak rainfall events, reducing the risk of water accumulation at critical structural elements such as bearings and deck interfaces.

Improved drainage will directly mitigate deterioration mechanisms, including corrosion, concrete spalling, and bearing seizure, thereby enhancing the durability and reliability of the structure. In addition, the scheme incorporates refurbishment measures such as waterproofing, joint replacement, and targeted concrete repairs, which collectively improve the structure’s resistance to water ingress and environmental exposure.

These interventions will reduce vulnerability to extreme weather, prolong asset life, and minimise the need for reactive maintenance. By addressing known climate-related risks and embedding adaptive capacity within the design, the scheme will maintain reliable performance of this critical transport link under future climate conditions. This supports the long-term resilience of both the highway network and the nationally significant rail and canal corridors it spans, ensuring continued connectivity and serviceability.

h) Explain the considerations have been made or will be developed to account for the management of carbon for the development of the scheme.

*This may include development of a carbon management plan dealing with whole life carbon (e.g. using low carbon construction measures to deliver the scheme or reducing emissions though reducing vehicle miles).*

Carbon management has been a key consideration in the development of the Nicholas Street Viaduct refurbishment scheme and is embedded throughout the project lifecycle through a dedicated Carbon Management Plan (Appendix 2.5) developed in accordance with the principles of PAS 2080. The plan considers whole-life carbon emissions associated with design, construction, materials, maintenance and future operation of the asset, whilst promoting collaboration between Cheshire West and Chester Council, Amey, the contractor and the wider supply chain. The most significant carbon reduction measure is the decision to retain and refurbish the existing viaduct rather than undertake full structure replacement. The scheme focuses on targeted interventions, including bearing replacement, concrete repairs, drainage improvements, waterproofing renewal, expansion joint repairs and localised strengthening works. This

approach maintains the existing asset, extends its operational life and significantly reduces the embodied carbon associated with constructing a replacement structure. A preliminary whole-life carbon assessment has been undertaken using One Click LCA software, establishing a baseline carbon footprint of approximately 775t $CO_2$e over a 60-year assessment period. This assessment will be refined as the design develops and construction information becomes available. A live Carbon Reduction Register will be maintained throughout scheme delivery to identify, monitor and record carbon reduction opportunities and savings. The scheme will seek to reduce embodied carbon through optimisation of material quantities, minimisation of concrete breakout, reuse of temporary works where practicable and the specification of lower-carbon materials. Opportunities will be explored to utilise concrete containing cement replacement materials, high recycled-content steel and products supported by Environmental Product Declarations (EPDs). Material selection will consider whole-life performance, durability and maintenance requirements to achieve the lowest practical lifecycle carbon impact. Construction-stage emissions will be managed through efficient logistics planning, use of local suppliers where feasible, Stage V compliant plant, anti-idling controls, telematics monitoring, energy-efficient welfare facilities and consideration of hybrid or low-carbon power solutions. Fuel, electricity, water consumption and waste generation will be monitored throughout construction to support continuous carbon reduction and reporting. By improving the condition and resilience of this critical section of Chester's Inner Ring Road, the scheme will also reduce the risk of future restrictions, emergency repairs or prolonged closures that could result in increased congestion, diversionary traffic and associated transport-related carbon emissions.

i) What statutory undertakers affect the proposed scheme? Has any engagement been undertaken and how has this been accounted for within the delivery approach?

*Set out the relevant statutory undertakers, the impacts they may have on the programme – including planning – and how this part of the programme will be managed. If applicable, describe how deterioration of the structure has or may impact utilities services and the extent of this disruption.*

Statutory undertaker enquiries (C2) were undertaken at an early stage of scheme development to identify the presence of utility assets within and adjacent to the structure. These enquiries have confirmed the location of key utilities, including power and telecommunications apparatus, and have enabled the identification of potential clashes with both permanent and temporary works proposals. The outputs from these enquiries have been incorporated into the design development process, allowing potential conflicts to be avoided or mitigated through design refinement, construction sequencing and development of appropriate temporary works solutions. Where required, allowances have been made within the programme and cost estimates for protective measures, temporary diversions, or isolation of services. Engagement with relevant statutory undertakers will continue as the design is progressed, including detailed coordination, agreement of protection measures, and the issue of any necessary notices (e.g. C3/C4) in advance of construction. This structured approach will ensure that utility interfaces are fully understood and managed, reducing the risk of unforeseen delays during delivery. The deterioration of the structure has not currently resulted in disruption to utilities; however, ongoing water ingress and drainage defects present a risk to the long-term condition of embedded or adjacent services. The proposed refurbishment, including drainage improvements, will mitigate these risks by reducing exposure to moisture and improving the overall resilience of both the structure and associated utility infrastructure. Overall, early identification, proactive engagement, and integration of statutory undertaker requirements into the delivery strategy provide confidence that utility-related risks will be effectively managed within the scheme programme.

## Part 3 – Governance and Declarations

### 3.1 Equality Analysis

a) Has analysis of the equality impacts of the scheme been undertaken by the LHA in line with the Public Sector Equality Duty? Select below:

☒ Yes

☐ No

b) Explain how the equality impacts of the scheme have been considered or will be considered. Identify the relevant affected groups with protected characteristics, and any planned measures to mitigate these impacts. (Maximum 250 words)

An Equality Impact Assessment (EQIA), included in Appendix 3.1, has been undertaken in accordance with the Public Sector Equality Duty. As a maintenance and asset renewal scheme, it is not expected to have adverse impacts on people with protected characteristics. Instead, it will help maintain a safe, reliable and accessible transport link on Chester's Inner Ring Road, supporting access to employment, education, healthcare and other essential services.

Particular consideration has been given to people with disabilities, older people and those with limited mobility, who may be disproportionately affected by infrastructure deterioration, restrictions or closures. By maintaining the viaduct in a safe condition, the scheme will preserve accessibility and network resilience for all users. Accessible routes will be maintained wherever practicable during construction.

The Equality Analysis identified no differential impacts relating to race, ethnicity, sex, gender reassignment, religion or belief, sexual orientation or carers. The scheme is also expected to have wider social benefits by supporting continued access to opportunities and services for people living in areas of deprivation, contributing positively to health, wellbeing and social inclusion.

During delivery, temporary traffic management and construction activities will be designed to minimise disruption and maintain safe access for all users. Stakeholder engagement will continue throughout the project to identify and address any emerging issues. The Equality Analysis will be reviewed as the scheme progresses and updated where necessary, with mitigation measures implemented should any adverse impacts be identified. The appointed contractor will comply with all applicable equality legislation through the SCAPE procurement framework.

### 3.2 Public Sector Transparency

When LHAs submit proposals for funding to DfT, as part of the Government's commitment to greater openness in the public sector under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004, they must also publish a version excluding any commercially sensitive information on their own website within two working days of submitting the final proposal to DfT.

a) Please specify the weblink where this proposal will be published.

Nicholas Street Viaduct inspection | Cheshire West and Chester Council

### 3.3 Declarations

Senior Responsible Owner declaration

As Senior Responsible Owner for [Nicholas Street Viaduct], I hereby submit this request for approval to DfT on behalf of [Cheshire West and Chester Council] and confirm that I have the necessary authority to do so.

I confirm that [Cheshire West and Chester Council] will have all the necessary statutory powers and other relevant consents in place to ensure the planned timescales in this proposal can be realised.

a) Name: Click or tap here to enter text.

b) Signed:

c) Date: Click or tap here to enter text.

d) Email: Click or tap here to enter text.

Section 151 Officer declaration

As Section 151 Officer for [Cheshire West and Chester Council], I declare that the scheme cost estimates quoted in this proposal are accurate to the best of my knowledge and that [Cheshire West and Chester Council]:

- has allocated sufficient budget to deliver this scheme on the basis of its proposed funding contribution.
- accepts responsibility for meeting any costs over and above the DfT contribution requested, including potential cost overruns and the underwriting of any funding contributions expected from third parties.
- accepts responsibility for meeting any ongoing revenue requirements in relation to the scheme.
- accepts that no further increase in DfT funding will be considered beyond the maximum contribution requested and that no DfT funding will be provided after 2029/30.
- confirms that the authority has the necessary governance and assurance arrangements in place and that all legal and other statutory obligations and consents will be adhered to.

e) Name: Click or tap here to enter text.

f) Signed:

g) Date: Click or tap here to enter text.

h) Email: Click or tap here to enter text.