

Report

Cabinet

Part 1

Date: 18 October 2023

Subject Bassaleg Bridge

Purpose To update Cabinet on the current position related to Bassaleg Bridge and to advise on next steps.

Author Head of Infrastructure

Ward Graig

Summary Bassaleg Bridge connects Caerphilly Road to a small residential development known as Forge Mews, located east of the River Ebbw at Bassaleg. The bridge also facilitates pedestrian movements in the locality including learners at Bassaleg Comprehensive School. The bridge also carries multiple utility services with other utility services in close proximity.

The bridge suffered significant scour damage undermining its support resulting in an emergency closure in August 2021. Following initial closure, works to stabilise the structure were completed in September 2021, which allowed the reopening of the bridge to pedestrians, with the associated implementation of a monitoring system to detect any movement to ensure ongoing safe use of the structure. An emergency vehicle access from the adjacent A467 has been maintained. This method of maintaining access for pedestrians with ongoing monitoring and the maintenance of the access for emergencies will be continued.

Following this initial stabilisation work, the Council's Consultants progressed work to seek to repair and rehabilitate the structure as the preferred option, but it has become clear that this is not viable.

Following this conclusion, the Council has commissioned an options appraisal report from its consultants to consider the future of the structure and options that could be progressed in lieu of repair.

Proposal Cabinet to note the need for a new structure and agree that Option 3 is preferred option. Agree and note the Weltag assessment required to assist in the above and to assist in securing external funding.

Action by Head of Infrastructure

Timetable Immediate
This report was prepared after consultation with:

- Executive Board
- Council's Consultants

Signed

Background

Bassaleg Bridge is a reinforced concrete structure built in the 1940's and carries a two-way single lane carriageway that connects Caerphilly Road to a small residential development known as Forge Mews, being a development of nineteen properties located east of the River Ebbw at Bassaleg. The bridge also facilitates pedestrian movements in the locality including learners at Bassaleg Comprehensive School.

The bridge has suffered significant damage caused by floodwater scour to the western pier, whereby the foundations were washed away. The western pier foundation was found to have detached itself from the structure due to a scour hole beneath, leaving only a small portion of support remaining to the downstream beams. Extensive structural cracking occurred because of the loss of support to the pier.

Following an initial analysis by the Council's Consultants, the structure was found to have no live load capacity and was under significant risk of collapsing under its own weight if further loss of support occurred to the remainder of the western pier. The bridge was deemed to be at risk of failure and a decision was taken by the Council to immediately close the bridge on 6 August 2021.

As the bridge is the only means of access for residents, their vehicles, goods and services, a temporary gated emergency access road was created off the adjacent A467 dual carriageway.

In addition to the temporary closure of the bridge, NCC commissioned significant structural monitoring and pier stabilisation works.

These works were undertaken in two phases, the first to fill the scour hole beneath the pier and the second to grout the void between the pier and the foundation. The stabilisation works were completed in September 2021.

Although the stabilisation works addressed the immediate risk of the pier succumbing to scour and the collapse of the bridge deck under its own weight, these intervention measures alone were not enough to allow the bridge to be re-opened to vehicles.

Subsequently, the bridge was partially re-opened to pedestrians only on the downstream footway with continual monitoring of the structure being provided by apparatus installed onto the bridge structure. This monitoring regime ensures that should any abnormal movement be detected, alarms are triggered, and an urgent assessment of action needed made.

Work to consider the future of the structure has continued and whilst it was initially thought the structure could be repaired, investigations have concluded this is not viable.

In order to consider the options available, an Options Appraisal Report was commissioned from the Council's Consultants and after consideration, an option to replace the bridge offline but in close proximity to the current bridge and in the same form, i.e., an all-user bridge, was identified as the preferred option.

Financial Summary (Capital and Revenue)

The Council's Consultants have produced cost estimates for the options considered, and other likely costs have been incorporated into these estimates. For the offline replacement option, the following cost and timescales have been estimated.

Stage	Estimated timeline	Estimated cost
Weltag lite assessment	3 months	£40K
Design to planning stage	12 months	£763K - £1.1M
Construction	2 years	£4.8M - £7.8M
Total estimated cost		£5.6M - £9M

Funding options

These costs far outstrip the council's resources and as such we have held further discussions with Welsh Government on potential funding streams that they could offer. They have suggested that the scheme may be suitable for a bid to their "Resilient Roads" programme, which they anticipate guidance being available from October. They have advised that any bid would need to include a Weltag Lite assessment. This element of work is being progressed utilising Council funding.

Beyond that, there is no decision made on any further work on progressing any further design, procurement or construction work. As such, the financial commitment at present is an estimated £40K for the Weltag assessment, with other funding to be secured.

Risks

Risk Title / Description	Risk Impact score of Risk if it occurs* (H/M/L)	Risk Probability of risk occurring (H/M/L)	Risk Mitigation Action(s) What is the Council doing or what has it done to avoid the risk or reduce its effect?	Risk Owner Officer(s) responsible for dealing with the risk?
General time and budget related risks	H	M	Any option progressed would be subject to the production of specific risk registers	Head of Infrastructure
Natural Resources Wales requirements related to flood modelling and working in the river	M	M	Engagement with NRW as any scheme is progressed to ensure any action or mitigation is agreed and incorporated into the project.	Head of Infrastructure
Cost estimates and timescales at this early stage	M	M	As any scheme progresses, consideration of costs and timescales will be able to be crystallised.	Head of Infrastructure
Internal resources	M	L	Internal Project Management resource will need to be identified or secured	Head of Infrastructure

* Taking account of proposed mitigation measures

Links to Council Policies and Priorities

Wellbeing of Future Generations (Wales) Act 2015
Corporate Plan
Highway Asset Management Plan

Options available and considered:

Following the information that confirmed the bridge had reached the end of its useful life, consultants Mott Macdonald were employed to produce an options report related to the structure.

After consideration, the following options were included as part of the final draft report: -

1. Demolition of the existing bridge only (no replacement)
2. Online bridge replacement
3. Offline bridge replacement
4. Offline Road bridge with an online footbridge
5. Acquisition of Forge Mews properties with online footbridge
6. Provision of a highway junction on the A467 with an online footbridge

The advantages and disadvantages of these options are detailed in the table below.

Option	Advantages	Disadvantages
Option 1 Demolition with no replacement	<p>The main advantage of this option is that there would be no additional capital or whole life costs associated with the construction of a replacement bridge. Carbon emissions would also be lower than all other options.</p>	<p>The residents of Forge Mews would no longer have access to their properties. A review of local authority obligations and duties has highlighted the following:</p> <p>Removing the existing bridge would also sever pedestrian access between Caerphilly Road and Park View, significantly impeding mobility and connectivity between the two areas. This option would not provide any active travel opportunities.</p> <p>The existing utilities that Bassaleg bridge carries would need to be relocated, e.g., via provision of a service bridge.</p> <p>Removing the existing bridge without a replacement may have adverse effects on flooding to areas downstream, as the structure currently acts as an obstacle that restricts the flow.</p>
Option 2 – Online replacement	<p>A new structure with 120-year design life.</p> <p>Pedestrian and vehicular access arrangements would remain as it was prior to the bridge's closure due to damage, minimising the impact on the adjacent road network.</p> <p>Reduction in the diversion requirements for the existing services, though these would need to be managed during demolition and construction.</p> <p>Flexibility of options for a shorter span bridge which could be achieved by spanning from the existing western abutment to the eastern pier location, where the buried portion of the existing bridge would be removed. Similarly,</p>	<p>Complexity of a phased demolition of the existing bridge and construction of a new bridge, which presents the following challenges:</p> <ul style="list-style-type: none"> – maintaining access throughout the works – diversion of existing utilities and interaction with statutory undertakers – disruption to residents, e.g., noise – management of flood risk <p>Implications on flooding - flood modelling is required to determine measures such as structural levels and profile which will impact the programme;</p>

	<p>the existing western span could be replaced with a culvert to reduce the span length of the bridge.</p> <p>A shorter span bridge would be able to offer flexibility in the form used, e.g., modular systems could be used which may offer capital cost savings. This type of structure could be explored further with a specialist supplier; and</p> <p>This option would be able to provide a cycle route, separate pedestrians from motorists and separate cyclists and pedestrians from motorists, enabling active travel compliancy.</p>	<p>A potentially longer construction programme compared to other options.</p> <p>Higher capital cost compared to other options; and</p> <p>Ecological disruption as there are nearby INNS flora and fauna habitats.</p>
<p>Option 3 – Offline replacement</p>	<p>The construction of a new bridge upstream could be undertaken before the demolition of the existing bridge.</p> <p>Once constructed, the new bridge could be used to facilitate demolition works and reduce the impact on using the A467 dual carriageway as access would only be required for essential plant such as the piling rig for the construction of the new bridge to enter and exit the site through Forge Mews.</p> <p>This option may offer programme advantages as connectivity is restored quicker than Option 2, which requires the existing bridge to be demolished first.</p> <p>Services could be diverted across the new bridge prior to demolition of the existing bridge, however, whilst beneficial for demolition sequencing, it will be costly to implement.</p>	<p>The level of the new bridge would likely need to be above the existing flood protection measures at Forge mews. This would cause challenges in tying into the adjacent road levels of Viaduct way and Forge Mews.</p> <p>Disruption to the existing road and footpath arrangement on Viaduct Way, particularly when considering the installation of new active travel compliant cycle routes.</p> <p>Both pedestrian and vehicular access is redirected to the north of Forge Mews and thus, the original pedestrian connectivity to the A467 footbridge is no longer maintained.</p> <p>Diversion of existing utilities.</p>
<p>Option 4 – Offline Road bridge with online footbridge</p>	<p>This option offers the same advantages as Option 3 whilst maintaining original pedestrian</p>	<p>This option has the same disadvantages as Option 3; however, implementing this</p>

	<p>connectivity with the addition of a footbridge.</p> <p>Some, or all, of the existing utilities may be accommodated by the footbridge, reducing associated diversions.</p>	<p>approach would introduce the following additional disadvantages:</p> <p>Capital and whole life costs would be higher due to the addition of the footbridge.</p> <p>More adverse in terms of ecological considerations.</p> <p>Longer construction programme due to the need to build two bridges; and</p> <p>Carbon intensive as a result of constructing two bridges.</p>
<p>Option 5 – Acquisition of Forge Mews properties with online footbridge</p>	<p>The capital cost of a footbridge will be less than an option which includes the construction of a road bridge.</p> <p>The whole life costs associated with this option are more advantageous compared to other options.</p> <p>Original pedestrian connectivity is maintained.</p> <p>The construction programme associated with a footbridge will be shorter than a road bridge option.</p> <p>This option would be able to provide a segregated/unsegregated pedestrian and cycle route, enabling active travel compliancy should this be viewed as a suitable AT route in future.</p>	<p>The unknown community, social and financial implications of relocating the residents of Forge Mews.</p> <p>True timescale of completing the acquisition is unknown and is a risk to the programme; and</p> <p>Capital costs could be higher than other options due to the acquisition.</p>
<p>Option 6 - A467 highway junction with online footbridge</p>	<p>Lower capital and whole life cycle cost compared to a road bridge replacement.</p> <p>Original pedestrian connectivity is maintained.</p> <p>Vehicular connectivity is restored more quickly than for other options.</p> <p>Reduction in the number of services to be maintained and carried by the new footbridge.</p>	<p>There are significant safety concerns with opening an access to the A467 dual carriageway from Forge Mews e.g., a risk of pedestrians making use of the junction to cross the A467 or the increased risk of road incidents.</p> <p>Not all this land is part of the adopted highway and so use outside of an</p>

	<p>Less complex construction associated with a footbridge replacement; and</p> <p>This option would be able to provide a segregated/unsegregated pedestrian and cycle route enabling active travel compliance.</p>	<p>emergency would require acquisition.</p> <p>The introduction of a speed restriction and a junction on the dual carriageway could have a significant impact on traffic which would require additional considerations, such as traffic counting, modelling, and extensive consultations.</p> <p>A separate footbridge is still required to provide pedestrian access over the Ebbw River.</p> <p>The footbridge may only be able to carry a limited number of services.</p> <p>No vehicular connection to Bassaleg via Caerphilly Road.</p> <p>No visibility of the destination of the junction which may encourage road users on the A467 dual carriageway to use it as a rest stop; and</p> <p>Forge Mews drivers wishing to travel south on the A467 are required to travel 1km north to a roundabout.</p>

In considering any options to be taken forward, factors to be included in decision making include:

- Health and Safety
- Funding - capital and whole life
- Future maintenance liability
- Programme for completion
- Disruption caused to residents, commuters.
- Active Travel and safe routes to school
- Utility apparatus diversions
- Public perception
- Road Safety legislative compliance
- NRW restrictions
- Ecological constraints
- Flood risk current and consequential
- Topographic level issues

Preferred Option and Why

In considering the advantages and disadvantages of the available options, the preferred option is option 3 (the offline replacement of the existing structure).

Comments of Chief Financial Officer

The report sets out several options for resolving the issue with Bassaleg Bridge. An example cost of one such solution is also provided; however, it is understood that a subsequent report will be produced, which will outline a more detailed cost estimate. At the same time a recommended funding solution will also need to be outlined.

Although a request for funding is not being made at this point, it is important to note that any funding solution must be based on external grant funding, most likely from Welsh Government, supplemented by any earmarked resources within the annual sum already allocated for highways maintenance. This position is consistent with the framework set out within the Council's Capital Strategy, which states that external funding should be maximised before internal resources are considered.

The Council currently has limited capital headroom, part of which has recently been allocated to the works required to demolish Millbrook Primary School. Beyond that, a significant proportion of that headroom will be required for the longer-term solution for that school and other potential issues. Therefore, the Council does not have the capacity to commit new funding to these works, hence the need to seek external funding.

Regarding the £40k cost associated with the Weltag assessment, this will need to be met from within existing resources.

Comments of Monitoring Officer

As set out in the report, the existing bridge carries a highway which is maintainable at the public expense which is designated as being open to all traffic (i.e., motor vehicles, pedestrians, cyclists, horses and so on). As such, the Council has a statutory obligation to maintain the highway to enable it to be used by all traffic.

If a replacement bridge is to be constructed in a different location to the current one, the Council would need to take steps to divert the existing highway so that it passes over the new structure. This is likely to require the obtaining of a diversion order. A diversion order is granted by the Court and to obtain such, the Council would have to demonstrate that the old route is no longer necessary or can be diverted so that it is nearer or more commodious to the public.

If the bridge is simply to be removed, it would be necessary to obtain a stopping-up order. As with a diversion order, to obtain this, the Council would need to demonstrate that the highway is no longer necessary or that there is an alternative route which is nearer or more commodious.

Of the options set out above:

- Option 2 has the fewest legal implications, given that the Council would effectively be replacing the bridge "like for like";
- Option 3 would require the Council to obtain a diversion order to enable the highway to be diverted onto the new bridge. However, this may not give rise to significant challenge if the revised route of the highway does not deviate significantly from its current line;
- Options 4, 5 and 6 would also require a diversion order in the same way as with option 3 above. However, there may be a higher level of public objection to this if the road is to be diverted further away from its existing location, particularly if the new route is less convenient for residents. This in turn may make it more difficult to persuade the Court that the stopping-up order should be granted. Consequently, these options are less straightforward in legal terms than options 2 and 3;
- Option 1 is legally problematic. If the Council were to demolish the bridge and not replace it, it would be in breach of its statutory obligation to maintain the highway; it is also likely to be difficult to persuade a Court to grant a stopping-up order in respect of the highway (which would continue to exist in law) where no suitable alternative route is being made available. Even if the Council were to acquire the properties which the bridge serves and demolish them, this would not

address the concerns of others who use the bridge, for example ramblers or those who use it to access Bassaleg School. In addition, as the report acknowledges, relocating the residents of the above-mentioned properties would have considerable and currently unknown financial and logistical implications.

The Council must ensure that the appropriate planning consents are obtained for any replacement structure, whether on the existing site or elsewhere.

The likely impact of any replacement structure on flooding in the locality should be assessed and the outcome of the assessment considered in making any decision to proceed with the favoured option.

Comments of Head of People, Policy, and Transformation

The report seeks to update Cabinet on the current position related to Bassaleg Bridge and to advise on next steps. With significant damage suffered, the bridge was initially closed in February 2020 and works to stabilise the structure completed in September 2021, which allowed reopening to pedestrians. Following work to seek to repair the structure it has become clear that this is not viable, with an options appraisal report commissioned to consider the future of the structure. From the options appraisal report, the preferred option is the offline replacement of the existing structure.

Currently an FEIA has not been carried out, but the report does acknowledge that replacing the bridge would have a positive impact on the community in the long term and that any decision should consider the impact it could have on people in the future sporting the principles of the WFG (Wales) Act. While communication/engagement with stakeholders and the local community will be undertaken alongside a statutory application for planning consent at an appropriate time.

There are no direct HR implications associated with the proposal.

Scrutiny Committees

None

Fairness and Equality Impact Assessment:

- **Wellbeing of Future Generation (Wales) Act**
- **Equality Act 2010**
- **Socio-economic Duty**
- **Welsh Language (Wales) Measure 2011**

The Well-being of Future Generations (Wales) Act seeks to improve the social, economic environmental and cultural well-being of Wales. Public bodies should ensure that decisions consider the impact they could have on people living in Wales in the future. The Council has always sought to engage with residents before taking any decision which may impact upon the delivery of any public service in accordance with the principles of fairness and legitimate expectation. The sustainable development principle and 5 ways of working set out in the Wellbeing of Future Generations Act have been considered as outlined below:-

- **Long term:** the importance of balancing short- term needs with the need to safeguard the ability to also meet long-term needs: The Council with its consultants has determined that Bassaleg Bridge is beyond repair. The option to replace the bridge allows for all user access to be maintained in the area.

- **Prevention:** How acting to prevent problems occurring or getting worse may help us meet our objectives. Bassaleg Bridge is beyond repair, and the replacement and demolition of the existing structure will ensure access is maintained and the existing structure is demolished in a controlled manner.

- **Integration:** Consider how the proposals will impact on our wellbeing objectives, our wellbeing goals, other objectives, or those of other public bodies. This proposal supports the “A prosperous Wales” and

“A Wales of cohesive communities” Well-being Goals and has no adverse effect on any of the other Well-being Goals. • Collaboration: have you considered how acting in collaboration with any other person, or any other part of our organisation could help meet our wellbeing objectives. We have engaged with the community and other specialists in managing and progressing this issue.

- Involvement: The importance of involving people with an interest in achieving the wellbeing goals and ensuring that those people reflect the diversity of the city we serve. The Council will engage with the local community related to the proposal.

A full FEIA has not been carried out at this stage, this will be completed and form the discussions with the local community and updated during communication/engagement with stakeholders and the local community alongside a statutory application for any regulatory consents at an appropriate time.

Consultation

The residents of Forge Mews have been engaged since the Council became aware of the issue with the structure. The residents have been advised of the current position, and how the Council intends to progress this matter.

Communication with stakeholders will be undertaken and statutory requirements such as application for planning consent would be undertaken at the appropriate time.

Background Papers

None

Dated: 11 October 2023