REPORT

Darley Abbey Mills River Crossing – Option Assessment Report

Client: Derby City Council

Reference: PC6285-RHD-MI-OA-RP-TP-0002

Status: Final/0001

Date: 9 December 2025

by Haskoning

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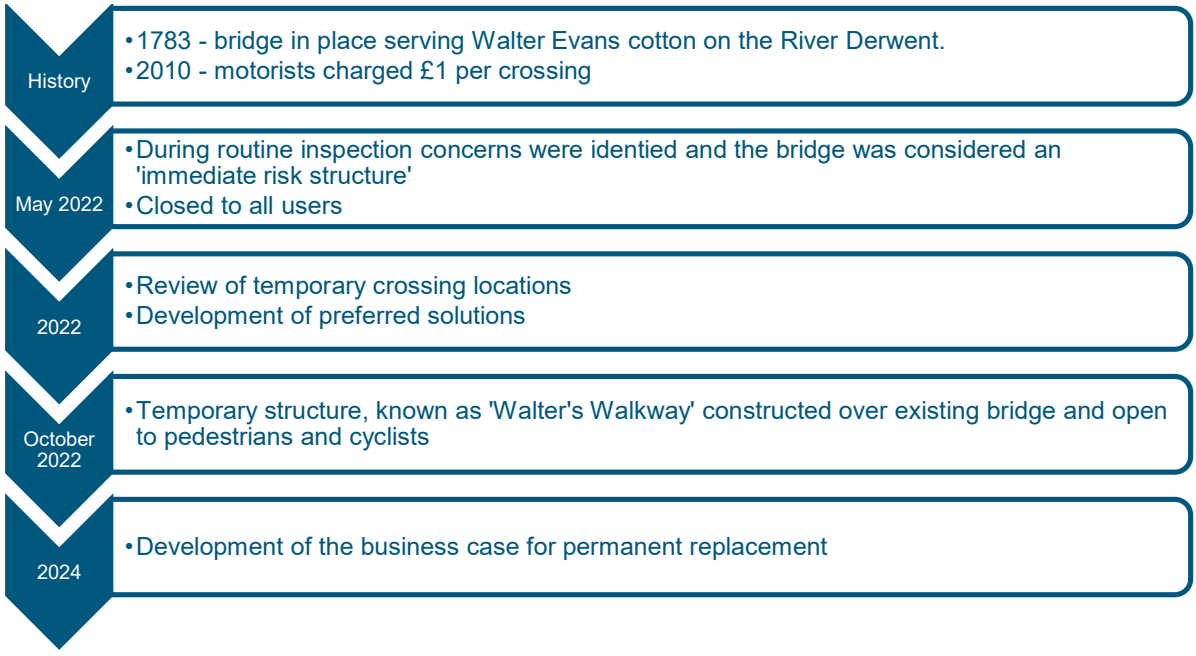
1 INTRODUCTION

Integrated Transport Planning (ITP) / Haskoning UK Ltd (Haskoning) have been commissioned by Derby City Council (DCC) to develop a Strategic Outline Business Case (SOBC) for the Darley Abbey Mills Bridge.

This Options Assessment Report (OAR) forms the first deliverable of the study and sets out the background context against which the study will develop. This will be followed by a completed Strategic Outline Case setting the case for investment to the recently formed East Midlands Combined County Authority (EMCCA).

Figure 1-1: Summary of work to date



1.1 Study Area

Darley Abbey Mills is a UNESCO World Heritage Site located approximately 2.5km from Derby City Centre. It is a collection of historic mill buildings dating back to the 1700s[1]. The Mills have undergone significant regeneration and now houses over 50 vibrant and varied businesses including bars, restaurants and a wedding venue.

The Mills complex is also surrounded by various leisure and sports activities, including Midland Canoe Club, Rugby Club and the Darley Barn Outdoor Centre. A popular pedestrian and cycle route follows the River Derwent, connecting the Mills to the City Centre, train station and other key destinations via a green corridor.

A bridge has historically connected the Darley Abbey Mills development to Darley Abbey Village since the 1800s. This bridge previously carried motorists and, under private ownership, has imposed a £1 toll charge per trip for vehicles.

[1] *About Darley Abbey Mills - Darley Abbey Mills*

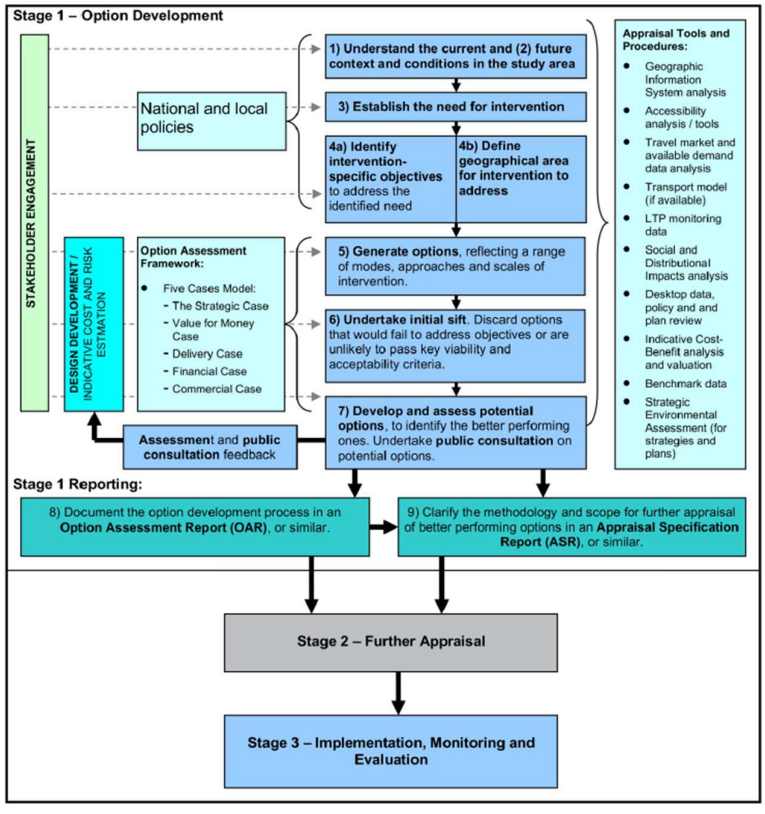
Today a temporary bridge in this location, known as 'Walter's Walkway', carries pedestrians and cyclists only across the River Derwent. Darley Abbey Mills Bridge is a privately owned structure and is not part of the public highway network, but the temporary Walters Walkway was delivered by DCC.

1.2 Report Purpose and Structure

This report documents the context and need for intervention in this area as well as the option generation and shortlisting process. The structure of this report follows the 'Stage 1 – Option Development' process defined in the Department for Transport's Transport Analysis Guidance (TAG) document, 'The Transport Appraisal Process (May 2018), with steps 1 to 7 covered across the following chapters:

- Chapter 2 – understanding the current situation including policy review;
- Chapter 3 – understanding the future situation;
- Chapter 4 – establishing the need for intervention;
- Chapter 5 – setting scheme objectives;
- Chapter 6 – generating options for consideration;
- Chapter 7 – sifting process and multi-criteria analysis;
- Chapter 8 – shortlist option development; and
- Chapter 9 – overview of next steps.

Figure 1-2: Stage 1 Transport Appraisal Process (DfT, 2018)



2 CURRENT SITUATION

This chapter details the current situation in the study area, and is split into the following sections:

- A review of key policies (local, regional, and national) relevant to the project.
- Demographic characteristics of the location.
- Existing transport and connectivity, relating to active travel provision and demand and safety.
- Land use and considerations of the bridge beyond transport, including heritage, environment and utilities.
- A summary of this understanding in the form of a SWOT analysis, which highlights any opportunities and constraints.

2.1 Policy Context

2.1.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) was last updated December 2024 and sets out the government's planning policies for England and how these are expected to be applied[2]. The NPPF must be taken into account is a material consideration in the determination of planning applications.

Paragraph 8 states that *"achieving sustainable development means that the planning system has 3 overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):*

- ***an economic objective** – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;*
- ***a social objective** – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and*
- ***an environmental objective** – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

Paragraph 96 sets out the aim for planning decisions to achieve healthy, inclusive and safe places and beautiful buildings which:

(a) ***Promote social interaction**…for example through…street layouts that allow for easy pedestrian and cycle connections within and between neighbourhoods;*

(b) ***Are safe and accessible**…for example through the use of beautiful, well-designed, clear and legible pedestrian and cycle routes…which encourage the active and continual use of public areas; and*

(c) ***Enable and support healthy lifestyles**…for example through the provision of…layouts that encourage walking and cycling.*

Paragraph 104 states that ***"**Planning…decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails."*

[2] *National Planning Policy Framework - Guidance - GOV.UK (www.gov.uk) https://www.gov.uk/guidance/national-planning-policy-framework*

Paragraph 150 states that *"local planning authorities should plan positively to enhance [the green belt's] beneficial use, such as looking for opportunities to provide access; to provide opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; or to improve damaged and derelict land."*

Paragraph 157 states that *"the planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure."*

It includes guidance on Heritage Sites and their protections under the planning system, for World Heritage Sites this is outlined in Paragraph 026, stating that *"Effective management of World Heritage Sites involves the identification and promotion of positive change that will conserve and enhance their Outstanding Universal Value, authenticity, integrity and with the modification or mitigation of changes which have a negative impact on those values."*

Paragraph 203 states that *"in determining applications, local planning authorities should take account of:*

(a) the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;

(b) the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and

(c) the desirability of new development making a positive contribution to local character and distinctiveness."

Paragraph 204 states that "*in considering any applications to remove or alter a historic statue, plaque, memorial or monument (whether listed or not), local planning authorities should have regard to the importance of their retention in situ and, where appropriate, of explaining their historic and social context rather than removal."*

2.1.2 Transport Decarbonisation (2021)

The UK's Transport Decarbonisation Plan sets out the government's commitments and the actions needed to decarbonise the transport system in the UK[3]. The plan has three strategic principles:

- accelerating modal shift to public and active transport;
- decarbonising road transport; and
- decarbonising the movement of goods.

It includes the headline target **of ending the sale of new petrol and diesel cars and vans by 2030**. The strategy aims to decarbonise transport to improve air quality, reduce emissions and support jobs and growth.

Transportation contributes notably to carbon emissions, accounting for nearly one-third (31%) of Derby's total greenhouse gas emissions[4] and is therefore an important sector to address as part of meeting the Cities net zero target. This strategy aligns Derby City Council's aim to become a decarbonised city, by cutting greenhouse gas emissions and achieving net-zero carbon status by 2035[5].

[3] *Decarbonising Transport – A Better, Greener Britain (publishing.service.gov.uk)*
[4] *This figure relates to emissions from the use of petrol or diesel in vehicles and equipment and does not include the electricity consumed by electric vehicles. Derby's carbon emissions, Derby City Council, 2024*
[5] *Leading the charge to net zero: A year in review, Derby City Council, 2024*

2.1.3 Gear Change (2020)

Gear Change presents a vision for the transformation of the UK transport system, emphasising the importance of active travel for developing healthier, happier, and greener communities, safer streets, and more convenient and equitable travel options. It sets out a vision for cycling and walking to be the natural first choice for many journeys.

> **England will be a great walking and cycling nation**
>
> Places will be truly walkable. A travel revolution in our streets, towns and communities will have made cycling a mass form of transit. Cycling and walking will be the natural first choice for many journeys with half of all journeys in towns and cities being cycled or walked by 2030.

Four key themes shape the approach of the strategy:

- Better streets for cycling and people;
- Putting cycling and walking at the heart of transport, place-making, and health policy;
- Empowering and encouraging local authorities; and
- We will enable people to cycle and protect them when they cycle.

As part of this strategy, Active Travel England was established (as an executive agency sponsored by the Department for Transport) and has been tasked with delivering the government's objective of ensuring **50% of trips in England's towns and cities are walked, wheeled, or cycled by 2030**. By making everyday journeys simple, easy, and fun, Active Travel England is working to give people the choice to leave their car at home.

The Strategy is supported by Local Transport Note 1/20, which sets out the Cycle Infrastructure Design Guidance (2020) to be employed. It has five core design principles which represent the essential requirements to achieve more people travelling by cycle or on foot, based on best practice both internationally and across the UK. This set out that networks and routes should be coherent, direct, safe, comfortable and attractive[6].

Derby wants to see **double the number of people cycling regularly**, this is based on the 2013/14 baseline of 9.6% and aiming to increase to 19.2% by 2030[7]. Derby City Council aim to meet this target and revitalise active travel by across the city by extending the city's walking, cycling, local bus and Park and Ride networks to improve travel choice and journey reliability to key destinations[8].

2.1.4 Fairer, Greener, Stronger: A Strategic Transport Plan for the Midlands (Midlands Connect, 2022)

The plan outlines the action that must be taken to secure a fairer, greener and stronger Midlands:

- **Fairer**: The Plan notes *that "Locally, there is a need to … focus on the role that an integrated transport network can play in helping resolve issues such as economic isolation, poor social mobility and deprivation that are hindering people's opportunities".*
- **Greener**: In the Midlands, the vast majority of transport carbon emissions (96%) come from road-based transport[9]. In a survey of public views on climate change in 2021, Midlands Connect found

[6] *Cycle Infrastructure Design (publishing.service.gov.uk)*
[7] *Our Ambition, Derby City Council, 2024*
[8] *The Derbyshire Cycling Plan 2016-2030, 2015*
[9] *Midlands Connect Transport Carbon Baseline Tool, Midlands Connect, 2019*

that 70% didn't think we are doing enough, while 41% of people were willing to use public transport more[10].

- **Stronger**: Listing 'visitor and rural economies' as a key element of this, the plan sets ambitions to drive better integration of regional and local transport networks and work to develop solutions to rural transport challenges.

2.1.5 East Midlands Combined County Authority

The East Midlands Combined County Authority (EMCCA) was formed in March 2024. It is led by an elected Mayor and covers the four local authority areas of Derbyshire, Nottinghamshire, Derby and Nottingham. The current mayoral term runs from May 2024 until May 2028.

The Mayor has responsibility for transport, skills and adult education, housing and land, net-zero and economic development. Within transport key areas have been identified to include:

- Upgrading the quality of our road network;
- Developing a comprehensive strategic plan and investment programme to deliver improvements to local rail, buses, roads and active travel;
- Working with bus companies to enhance services, routes, ticketing and passenger information
- Promoting a greater switch to electric car use;
- Targeting investment in better transport connections across the region;
- Building on our strong reputation for transport innovation; and
- Giving the East Midlands a more powerful voice and influence in national and cross-regional transport decisions.

Initial indications from EMCCA illustrate any transport strategy will be developed to prioritise Climate, Economic Prosperity and 'Levelling up'. These aim to deliver improvements for the environment and reductions in carbon dioxide emissions, enhancements for active travel, public transport, considerations of travel patterns and highway issues and the economy as well as life outcome and opportunities.

Emerging EMCCA Strategic Goals focus on areas of:

- Inclusive economy;
- Connected communities;
- Vibrant places;
- Public transport;
- Net zero;
- Improved environment; and
- Resilient networks.

2.1.6 Local Transport Plan

Derby's current Local Transport Plan (LTP) covers the period 2011 – 2026[11]. It is due for a refresh and will be replaced by the EMCCA plan which is emerging. The EMCCA vision is:

"We will make our region more prosperous, sustainable, and fairer, helping our people and businesses to create and seize opportunities"

[10] *Public views on climate change 2021: Midlands Connect Survey of 5,000 people*
[11] *Planning - transport policy - Derby City Council*

The Derby LTP3 highlights a vision of providing for people living and travelling within Derby. There are five transport goals listed:

1. *"Support growth and competitiveness, by delivering a reliable and efficient transport network,*
2. *To contribute to tackling climate change by developing and promoting low-carbon travel choices,*
3. *To contribute to better safety, security and health for all people in Derby by improving road safety, improving security on transport networks and promoting active travel,*
4. *To provide and promote greater choice and equality of opportunity for all through the delivery and promotion of accessible walking, cycling and public transport networks, whilst maintaining appropriate access for car users,*
5. *To improve the quality of life for all people living, working in or visiting Derby by promoting investment in transport that enhances the urban and natural environment and sense of place."*

2.1.7 Local Cycling and Walking Infrastructure Plan (LCWIP)

The D2N2 Local Enterprise Partnership for Derby, Derbyshire, Nottingham and Nottinghamshire has developed a Local Cycling and Walking Infrastructure Plan, published in April 2021.

The D2N2 LCWIP is a long-term approach to developing comprehensive local cycling and walking networks across the D2N2 area. The plan identifies a prioritised list of cycling and walking improvements for future delivery in the short, medium and long term (up to 15 years from 2020).

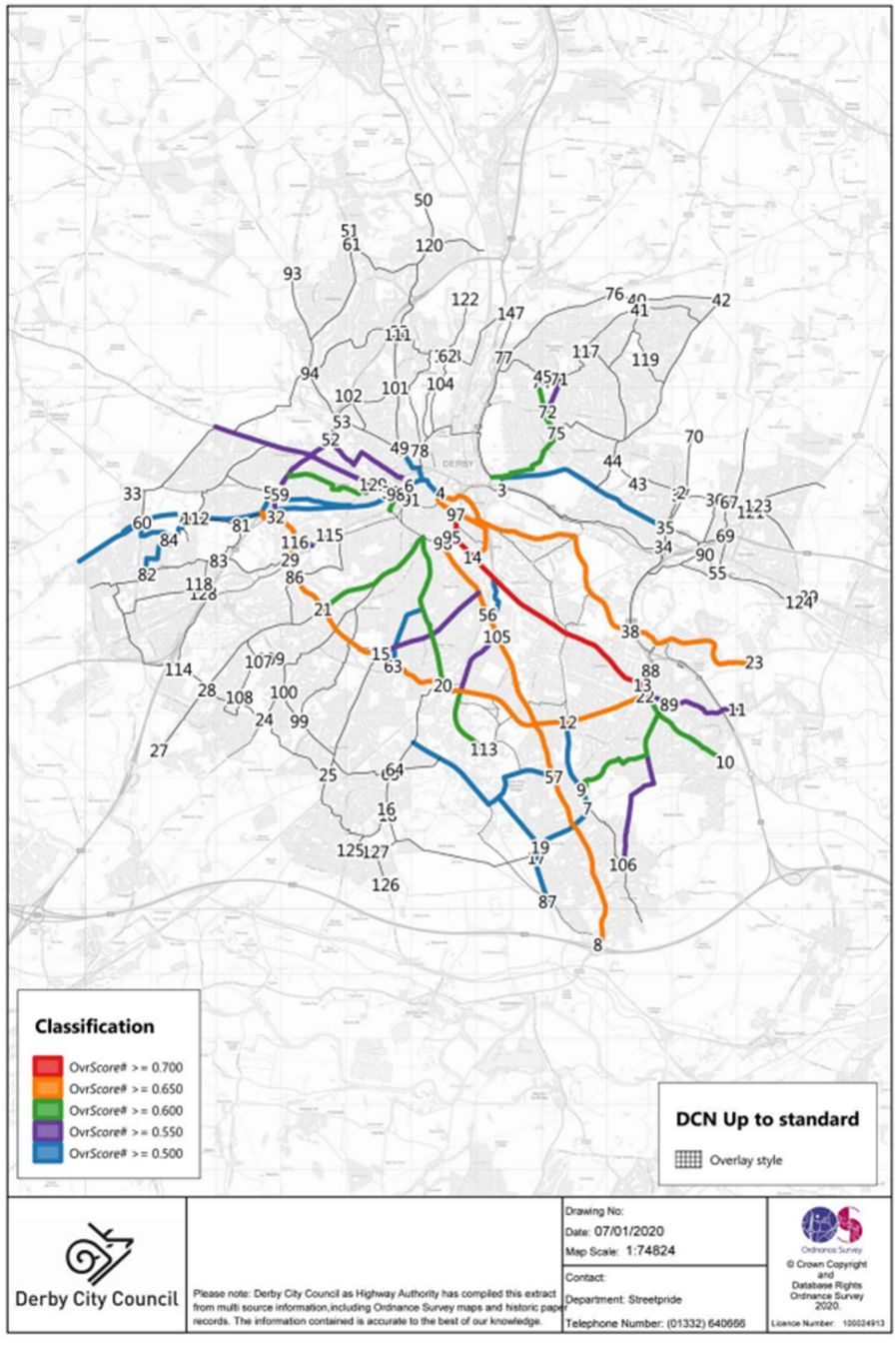
The 6 programme objectives of the LCWIP are noted below:

- Support Economic growth.
- Support tourism and the visitor economy.
- Constrain Traffic Congestion.
- Address Climate Change and Improve Air Quality.
- Address Health Deprivation to improve quality of life, health and wellbeing.
- Increase the mode share for Cycling and Walking across D2N2 area by increasing the number of cycling and walking trips and promoting mode switch from the car to these active modes.

Darley Abbey Mills Bridge forms part of the local and regional cycle network, as highlighted in the later section on Transport and Connectivity.

Figure 2-1 presents the authorities priority for cycle network proposals.

Figure 2-1: Derby City Cycle network priority



The D2N2 LCWIP notes that a significant proportion of housing growth in Derby will be situated outside of the City boundary, presenting a connectivity challenge to ensure that existing cycling and walking routes still provide a viable travel option for these future residents. Therefore, the LCWIP focuses on how Derby City Council may deliver strategic routes with neighbouring authorities to link these new housing growth areas into the local cycle route network.

2.1.8 Bus Service Improvement Plan (2021)

In March 2021, the Government published its vision to support the recovery of bus services in their Bus Back Better national strategy. Derby City Council created a Bus Service Improvement Plan (BSIP) covering the City of Derby Local Transport Authority (LTA). Looking to the future, Derby City Council will work towards a 'Greater Derby' area, allowing improvement activity to capture new and planned developments adjacent to the current boundary.

Derby City Council do not currently support any bus services financially, with all routes running commercially.

The Derby City BSIP was awarded an £323,606 allocation in 2023 for BSIP Plus alongside a £7m allocation in 2022. The Derby City BSIP focuses on *"two major strands:*

- *Strengthening our understanding of bus service in the context of our public transport system and our economic, social and environmental aims,*
- *Building on our existing local partnership activities and interventions to enhance and accelerate these appropriately to raise their ambition and impact."*

Progress of BSIP schemes to date can be found in the Bus Service Improvement Plan Monitoring Report - October 2023. This includes bus priority infrastructure on Duffield Road / Broadway, highlighted in

Figure 2-2. This is approximately 800m from the study location. The report noted that feasibility reports have been completed, with preferred option selection currently taking place. The next steps noted are to complete the detailed design of the preferred option.

Figure 2-2: Bus infrastructure improvement locations

2.1.9 Climate Change Action Plan (2022 – 2024)

Derby City Council's climate action plan highlights their objective of **becoming net zero by 2035**[12]. Both direct and indirect emissions from Derby City Council estimate at 25,000 tonnes per year. To reach this target, the council has outlined several pivotal measures, including enhancing the energy efficiency of buildings, transitioning from diesel and petrol vehicles to electric or other low-emission options, and encouraging colleagues to consider the climate in their day-to-day roles and decisions.

A Climate Change Action Plan Programme Board has been created to support and raise the profile of the actions and to oversee any progress which is made. A group of Climate Champions meet every couple of months to help ensure this issue is understood and owned by each political party.

Key actions set out in the plan cover council assets, processes, planes and culture. These actions include:

- 1.5b - Look for opportunities to integrate renewable energy opportunities in the Council's main regeneration projects and capital schemes;
- 2.1c - Promote ecology and biodiversity plans and 10% enhancement in applications;

[12] Council climate actions - Derby City Council

- 2.1f - Build net zero objectives into the brief for Council funded major projects where we directly deliver and work with partners to encourage net zero ambitions in partnership projects / externally funded projects; and
- 3.2n - Further extend river corridor environmental improvements for flora and fauna benefits.

2.1.10 Air Quality

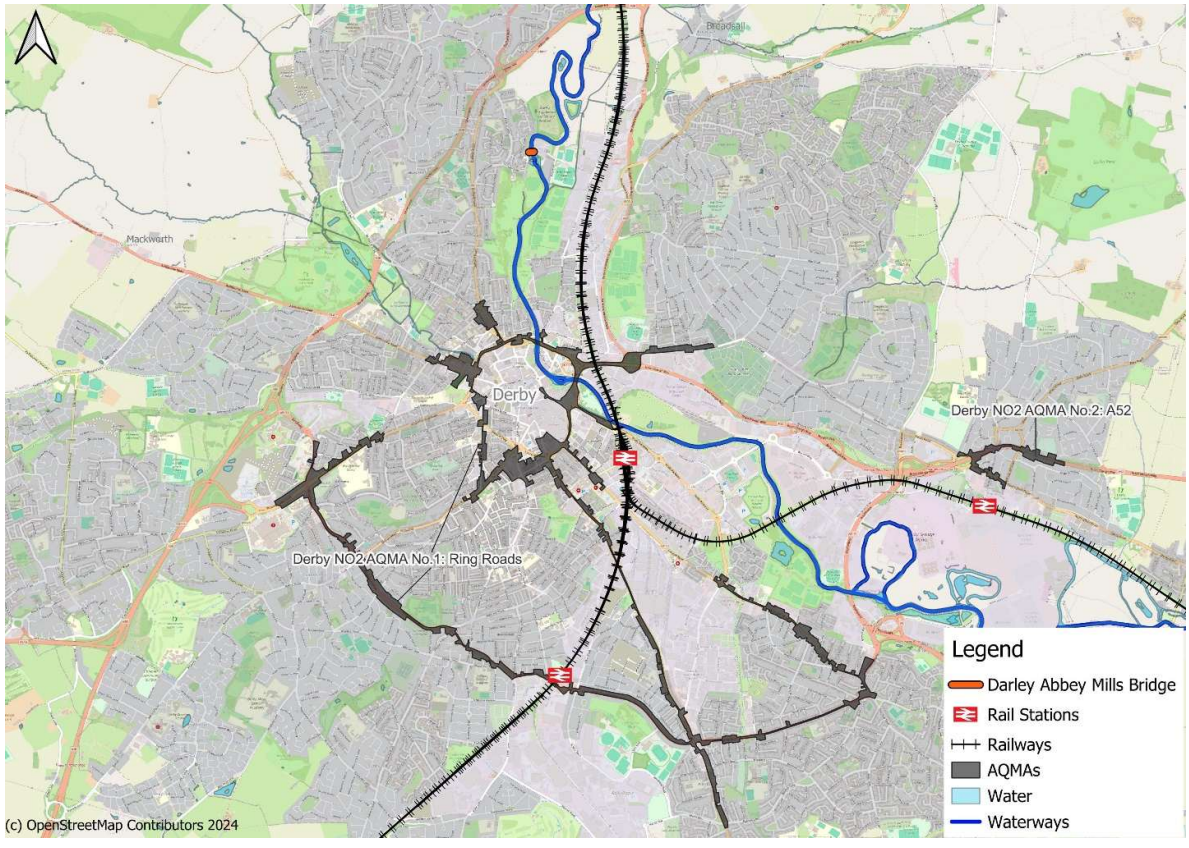
Derby City Council has two declared Air Quality Management Areas (AQMAs) because of exceedances in the annual mean nitrogen dioxide (NO_2) objective, predominantly due to road traffic emissions.
The main air pollutants of concern in Derby continue to be nitrogen dioxide (NO2) and fine particulate matter (PM2.5). Derby City Council does not currently monitor PM2.5, however annual mean concentrations of NO_2 show a decreasing trend across Derby, although concentrations are still higher than figures from 2020.

When comparing 2022 data with pre-pandemic data from 2019, there was only one exceedance of the annual mean NO2 concentration during 2022, compared to five exceedances in 2019. This has decreased from two exceedances in 2021[13].

Figure 2-3 shows the AQMA encompassing the Inner and Outer Ring-Roads in the city, (as well as some sections of radial roads and the entire length of Osmaston Road). Darley Abbey Mills Bridge is located around 1,500m north of this AQMA. Alongside this, the second AQMA of Derby is located to the east, which includes sections of the A52, Derby Road and Nottingham Road in Spondon.

[13] Air Quality Annual Status Report 2023 (derby.gov.uk)

Figure 2-3: The AQMA encompassing the Inner and Outer Ring-Roads in the city



2.1.11 Regeneration Strategy (2013)

The Darley Abbey Mills Regeneration Strategy is part of the Derwent Valley Mills World Heritage Site started in November 2013 and was completed in summer 2014[14]. This strategy was set out to provide a way of realising the full tourism and economic potential of the area to secure its long-term future.

The Strategy was initiated by Derby City Council, funded by the European Regional Development and the East Midlands Development Agency's Single Programme. A Project Team, comprising members from Derby City Council and the Derwent Valley Mills World Heritage Site Partnership oversaw its development. Consultations with English Heritage, the Environment Agency and EMDA were conducted ow throughout the Strategy's development phase.

The aims of the Strategy were to:

- Outline a sustainable way forward for the Darley Abbey Mills Complex that will support their long-term repair and conservation;
- Identify a viable way forward for the Darley Park Stables to enable their repair, conservation, and re-use;
- Ensure that the outstanding universal value of the World Heritage Site is conserved and communicated to current and future generations;
- Promote improvements in the immediate environs that can support the regeneration of the Mills and Stables and deliver local benefits;
- Establish a direction for realising the full tourism and economic potential of the area to secure its long-term future;
- Provide opportunities for public access and engagement with the World Heritage Site; and
- Ensure that proposals deliver economic benefits for Darley Abbey, the City and World Heritage Site.

The Mills are now thriving with a number of businesses housing a business centre in the day and a relaxed hospitality venue at night. The occupants include restaurants and bars, gyms, insurance brokers, IT companies and wine merchants. Regeneration has allowed the combination of the heritage of the site with the modernity required for today's businesses.

2.1.12 World Heritage Site Management Plan (2020-2025)

The Derwent Valley Mills World Heritage Site (DVMWHS) stretches 15 miles (24 km) along the river valley from Matlock Bath to Derby. The Mills and surrounding landscape were inscribed as a World Heritage Site by UNESCO in 2001[15].

The Site Management Plan aims to ensure that the preservation, enhancement and promotion of the site is sensitively and appropriately managed. It sets out the priorities of the DVMWHS Partnership, on behalf of HM Government, who are ultimately responsible for the Property. It sets a clear direction for protection, enhancement and promotion over the plan period.

The Purpose of the Derwent Valley Mills World Heritage Site Inscription is to: *"Maintain the Outstanding Universal Value of the Derwent Valley Mills World Heritage Site by protecting, conserving, presenting, enhancing and transmitting its culture, economy, unique heritage and landscape in a sustainable manner."*

[14] Darley Abbey Regeneration Strategy - Derby City Council

[15] Derwent Valley Mills Management Plan 2020–2025 (https://managementplan.derwentvalleymills.org/)

The Vision for the 2020-2025 Management Plan is to: "*Create and promote a local, national and international understanding and identity for the Derwent Valley Mills World Heritage Site as a cohesive and coherent whole, based on its global significance for all of humankind."*

The seven key aims within the plan are:

1. (Conservation and Planning) – Protect and conserve the Outstanding Universal Value of the DVMWHS to ensure its transmission to future generations. This aim is paramount, and all other aims must not conflict with it.
2. (Engagement) – Promote public awareness and engagement with the DVMWHS by presenting its Outstanding Universal Value through formal/informal learning, volunteering, events, interpretation and encouraging research.
3. (Development and Tourism) – Promote the sustainable development (Environmental, Economic and Social) of the DVMWHS to provide a world-class destination where people are proud to live, work, visit and invest.
4. (Communities) – Enhance the social wellbeing of the DVMWHS communities and maximise the benefits of the site's cultural value at a local, regional, national and international level.
5. (Transport and Accessibility) – Develop an integrated and sustainable approach to meeting and promoting the transportation and accessibility needs of the DVMWHS and its users.
6. (Spatial Priorities) – Promote a cohesive and coherent understanding of the DVMWHS by identifying its differing spatial needs and priorities.
7. (Monitoring) – Monitor the Derwent Valley Mills World Heritage Site to the standard required by UNESCO, and encourage appropriate site-wide data gathering to support the delivery of the above aims.

Specifically in relation to Darley Abbey the plan includes an action (ACT 1.6.5) to *"Assist in the production of a public realm strategy for the Darley Abbey Mills site that protects its historic character and significance. This should incorporate an assessment of access via the river."* The bridge is an important part of access to the Mills and impacts views of the listed buildings and river at this location.

Most notable under the Transport and Accessibility aim is objective 5.6 – to Encourage the development of alternative transport options for exploring the DVMWHS. Actions under this objective include:

- ACT 5.6.1 - Promote the existing cycle routes in the DVMWHS and encourage the development of new routes that do not impact on its Outstanding Universal Value or adversely impact on other existing user routes.

- ACT 5.6.2 - Work with partners to explore the viability of an e-bike scheme – with charging points across the WHS, particularly between key attractions and transport hubs.

- ACT 5.6.3 - Support the initiative to introduce a river boat at Derby, running between the Silk Mill and Darley Abbey, which does not impact on the listed weirs and can be used by visitors or locals during the high season, with embarkation points at Derby Silk Mill and Darley Abbey.

The bridge is a key link for cycling, and therefore it's continued function as a link for this is important in any future solution. While this study does not directly relate to any e-bike scheme, preserving the cycle route across the river would support future delivery of such a scheme. Likewise, possible options for a bridge is unlikely to exclude any boat service, but could be considered an opportunity / factor to consider in the location and design of a new permanent structure.

2.1.13 Summary

Review of these policies, strategies and studies has highlighted some key themes, as summarised by the word cloud seen in Figure 2-4: Word cloud of policy, strategies and studies key themes.Figure 2-4. Four key areas have been identified from this review.

Figure 2-4: Word cloud of policy, strategies and studies key themes.

Active Modes: There should be a focus on ensuring the river crossing balances demand, providing a suitable and attractive walking and cycling link. There is a local and national policy and strategy impetus for supporting active travel in the area. This supports, health and wellbeing as well as climate change, decarbonisation and air quality plans.

Environment and climate resilience: With Derby City Council's aim to become net zero by 2035 and the national strategy, there is a need to consider environmental impact of any changes, including promoting low carbon travel as part of this.

Heritage: Ensuring that the value of the World Heritage Site is conserved and communicated to current and future generations is key. It will be important that the solution preserves and enhances cultural heritage and value to communities of the Mills development, Darley Abbey village and the wider Derwent Valley heritage site.

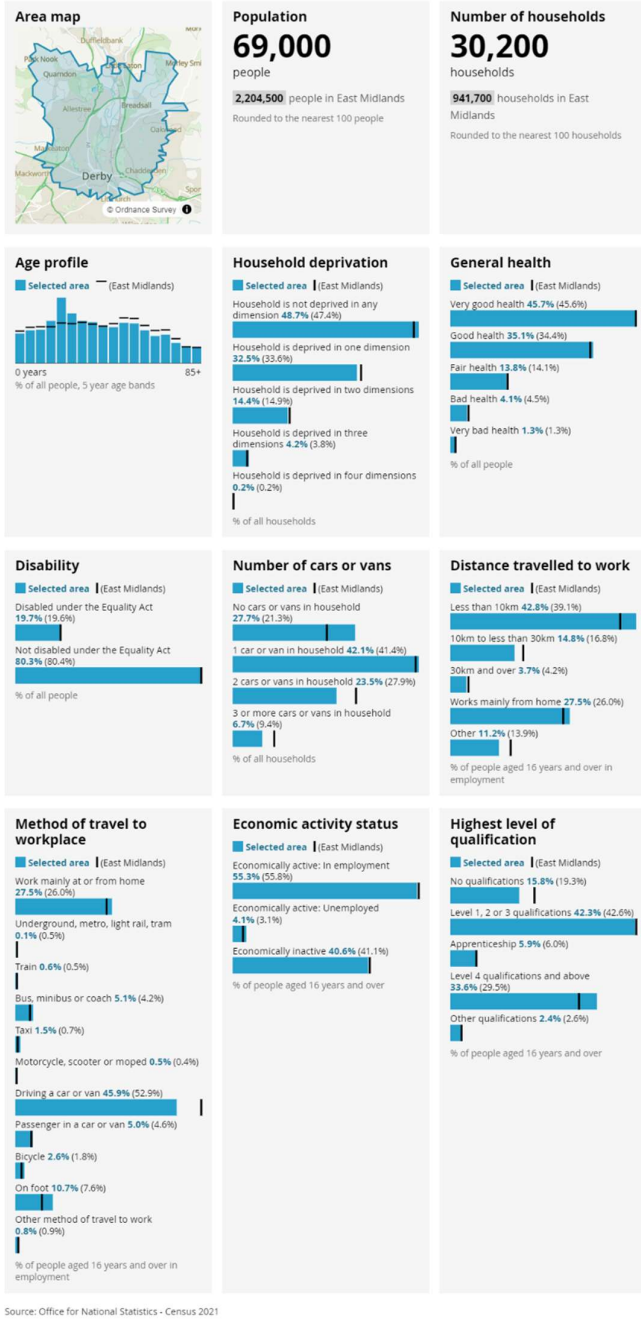
Economy: While the strategy for the East Midlands Combined County Authority is still developing, emerging headlines suggest that economic opportunity and community connectivity will be important themes. The bridge supports the vibrancy of the local area and provides a key active mode connection – elements that can be highlighted within a business case as the study develops and will form key elements in the case for funding.

Safety: When deciding on the crossing option, it is crucial to prioritise safety. As per the National Planning Policy Framework emphasising public areas needing to be designed to be safe and accessible for all users. As well as structural integrity and longevity, consideration of various safety aspects, such as visibility and lighting will be essential. This will also support Derby's LTP3 vision by contributing to improved safety, security, and health for all people in Derby by improving road safety and security on transport networks and promoting active travel.

2.2 Demographics

The ONS have developed a custom profiler tool to analyse 2021 Census results across a user-defined study area[16]. Figure 2-5 shows the demographic outputs for an area encompassing a 3km radius from the Darley Abbey Mills bridge and compared to the rest of the East Midlands Combined County Authority. This includes the area to the south of the bridge to the City Centre and north to Little Eaton.

Figure 2-5: ONS study area profile

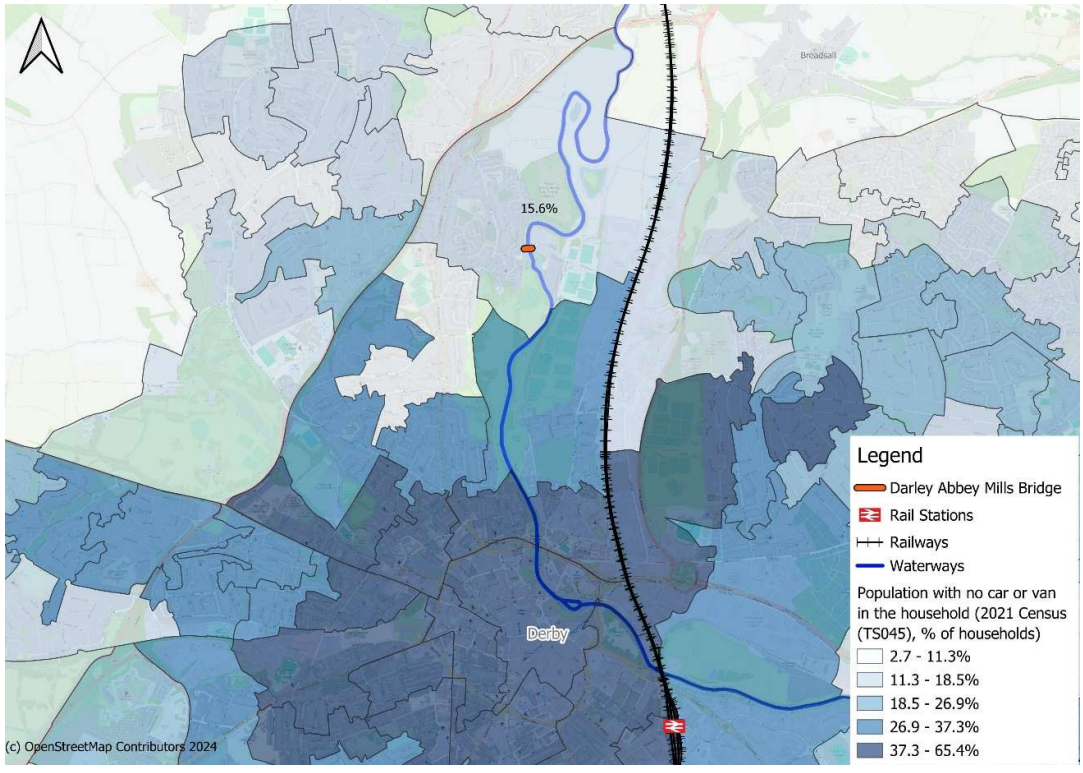


[16] *Source: Office for National Statistics - Census 2021 (Build a custom area profile - Census 2021, ONS)*

The study area has above East Midlands average numbers of people aged 20 to 24, reflecting the student population. Levels of household deprivation is very similar to the rest of the EMCCA area, with over 50% of household deprived in one or more dimensions. The study area also reflects the rest of the EMCCA are in terms of proportions of people in bad or very bad heath (5.4%) and those classed as disabled under the Equality Act (19.7%).

A higher proportion of households in the study area do not have access to a car or van (27.7% compared to 21.3% for the EMCCA area). This highlights the importance of maintaining car free connectivity. While there is a low proportion of households in the immediate vicinity of the bridge without access to a car, shown in Figure 2-6, the route along the river connects to communities where car ownership is a lot lower.

Figure 2-6: Local car ownership data (2021)



Travel statistics as part of the most recent census have been affected by the COVID-19 pandemic and associated travel restrictions. But the study area shows similar figures in relation to distance travelled to work as the wider EMCCA region, with 27.5% working from home and 42.8% travelling under 10km. A lower proportion of people drive to work in the study rea (45.9%) compared to the EMCCA area (52.9%). 13.3% walk or cycle to work (9.4% in the EMCCA area). Again, highlighting the importance of active mode connectivity.

The unemployment rate in the study area is slightly higher than the EMCCA average at 4.1% compared to the regional 3.1% (of people aged 16 years and over).

Over 20% of Derby's residents utilised outdoor space for exercise and health reasons, higher than the rate for England. When compared to the average for England in 2022/23, seen in Table 2-1, Derby saw 7 percentage points fewer physically active adults, as well as 6 percentage points more inactive adults. This lower percentage of active individuals extends to children and young people in Derby, with 8.9% being less physically active than the average for England.

However, in terms of traveling, the percentage of adults who walk and cycle at least three days a week in 2019/20 are both higher than England's average. 19.9% of adults walked at least 3 times a week (4.8% higher than England's average), and 3.6% of adults cycled at least 3 times a week (1.3%) for travel. Of those who were age 15 in 2014/15, 14.8% were physically active for at last one hour per day which is only 0.9% higher than England's average and those with a sedentary time in the last week over 7 hours per day was 71.1% which was 1% lower than the average.

Table 2-1: Percentage of physical activity in Derby compared to England's average

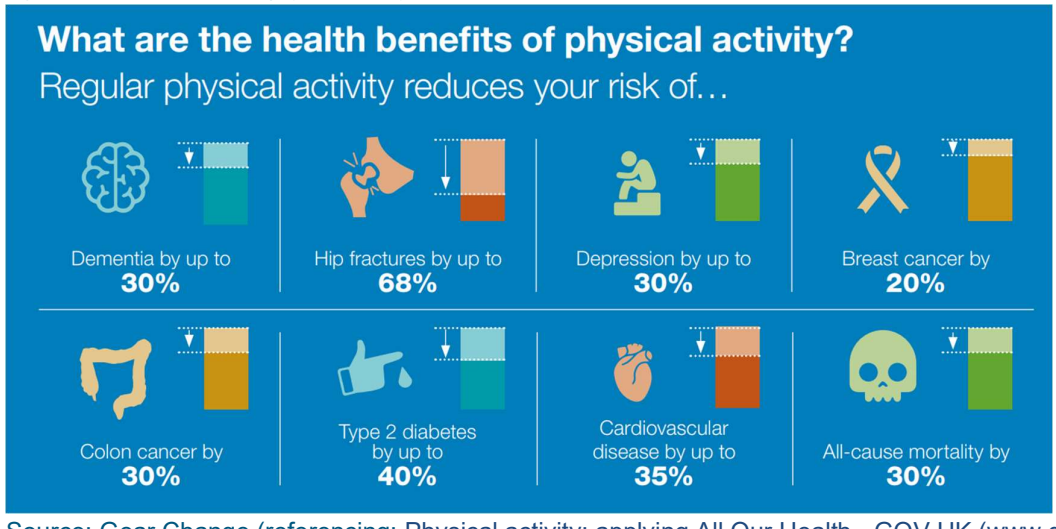
Indicator	Period	Derby (%)	England (%)
Percentage of physically active adults (19+)	2022/23	60.0	67.1
Percentage of inactive adults (19+)	2022/23	28.5	22.6
Percentage of physically active children and young people	2022/23	38.1	47.0
Percentage of adults walking for travel at least three days per week	2019/20	19.9	15.1
Percentage of adults cycling for travel at least three days per week	2019/20	3.6	2.3
Percentage physically active for at least one hour per day seven days a week at age 15	2014/15	14.8	13.9
Percentage with a mean daily sedentary time in the last week over 7 hours per day at age 15	2014/15	71.1	70.1
Utilisation of outdoor space for exercise or health reasons	2015/16*	20.7	18.5

*March – Feb

Source: Physical Activity - Data - OHID (phe.org.uk)

There is a strong relationship between heath, wellbeing, and physical activity (Figure 2-7), which highlights the importance of maintain well connected and high-quality spaces for people to enjoy locally.

Figure 2-7: Health benefits of physical activity



Source: Gear Change (referencing: Physical activity: applying All Our Health - GOV.UK (www.gov.uk))

2.3 Transport and Connectivity

2.3.1 Temporary Structure

In September 2023 the Council approved the purchase of a prefabricated bridge and access ramps at a value of £0.266m. This structure, known as 'Walter's Walkway', maintains pedestrian and cycle access above the failing structure.

To maintain the crossing in the bridge's existing location meant that ramps had to be engineered within a limited amount of space. The ramps in particular have a significant visual impact on the area and negatively impact the value of the heritage asset of the mills. The properties and businesses nearest to the structures bear the brunt of this impact.

Figure 2-8: Current Access ramps (Left: west bank, Right: mills side)

Figure 2-9: Current Access ramps (mills side)

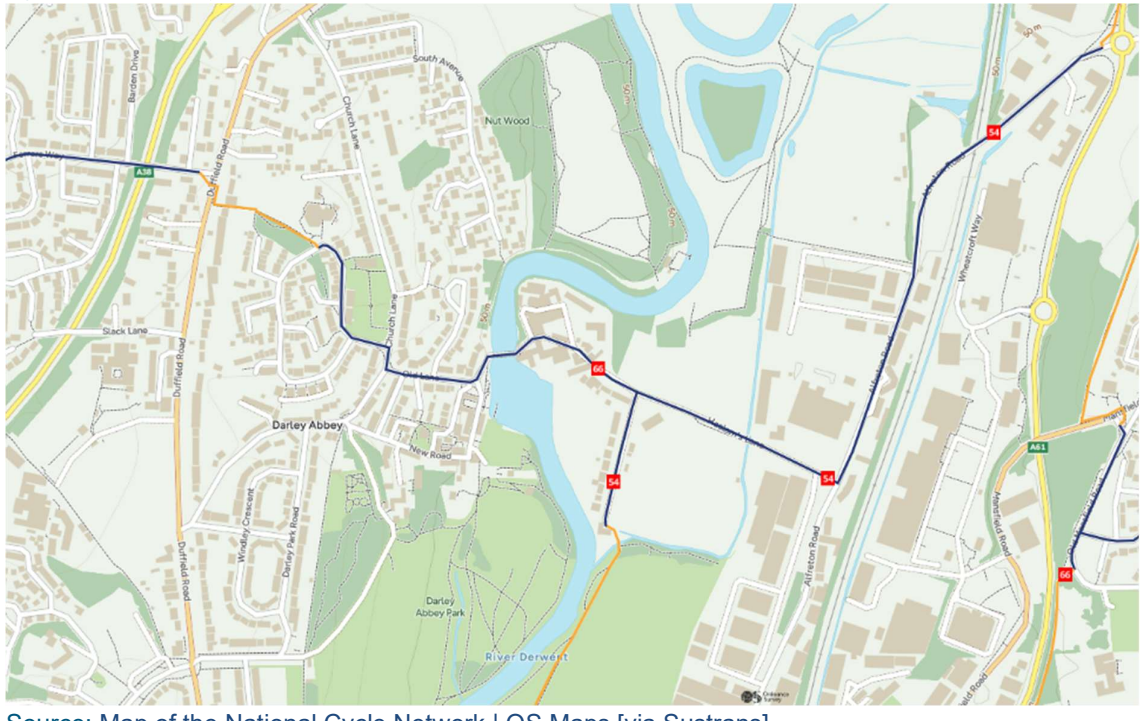
2.3.2 Walking and Cycling

Active Mode Routes

The Darley Abbey Mills bridge itself forms part of nationally recognised cycle routes, with the orbital route 66 running across the river Derwent. It also provides a link to national cycle route (54) as shown in Figure 2-10.

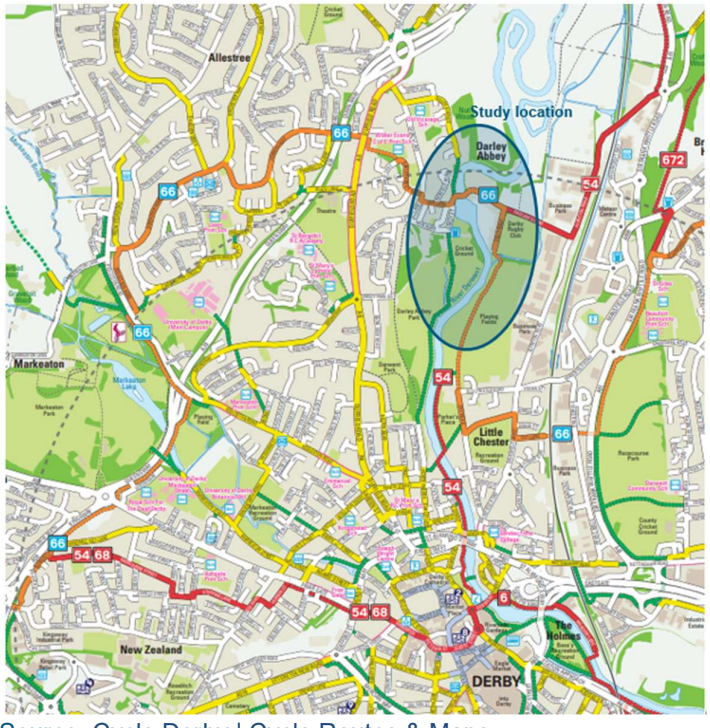
It also connects to Derby City and to local riverside leisure routes as part of the Deby City network. A section of the Active Travel Map from Cycle Derby is shown in Figure 2-11, with the grey dashed circle representing an estimated 10 minute cycle from the centre of Derby.

Figure 2-10: National cycle route



Source: Map of the National Cycle Network | OS Maps [via Sustrans]

Figure 2-11: Derby Cycle Routes



Source: Cycle Derby | Cycle Routes & Maps

The area of Darley Park is a well-used traffic free leisure route with defined walking/ running trails and cycle wayfinding signage directing users to key destinations such as the city or Darley Abbey Village.

Figure 2-12: Darley Park – active modes sign

Figure 2-13: Route through Darley Park (west bank) and Darley (east bank)

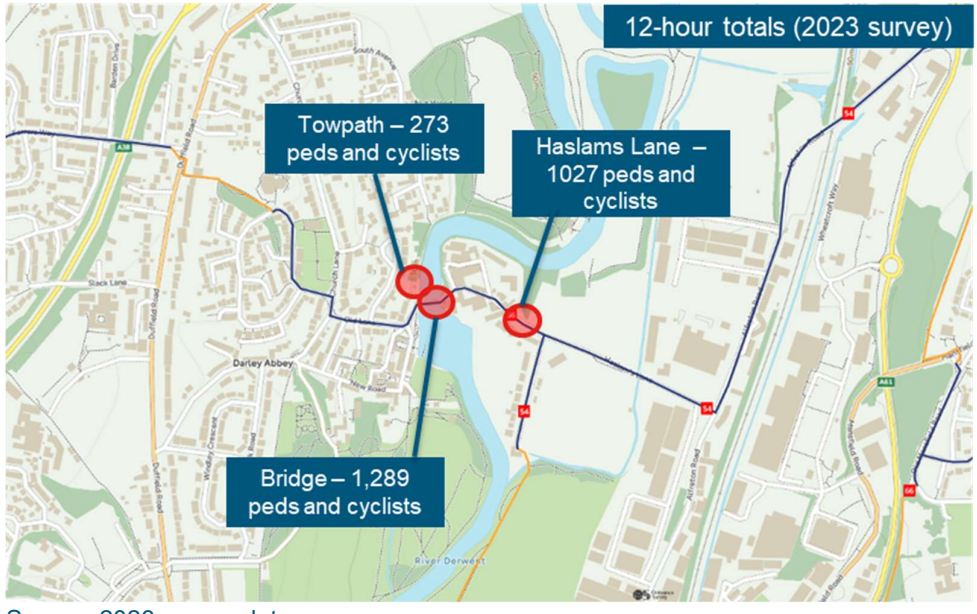
These routes pass through the mills complex, where pedestrians and cyclists share the road with traffic. Sections of the route are not adopted highway and are very constrained in width. Some traffic calming is in place, with speed humps restricting speeds. No physical segregation of pedestrian facility is possible on the narrowest sections through the mills, some sections have painted lines to distinguish modal use.

Figure 2-14: Route through Darley Abbey Mills – view of the old site toll booth

Active Mode Usage

Pedestrian and cycle usage of the bridge has been surveyed to understand the demands. Figure 2-15 shows the number of users in a twelve-hour period in 2023.

Figure 2-15: Active mode survey data (2023)



Source: 2023 survey data

Table 2-2: Number of pedestrians and cyclists per hour (2023 survey)

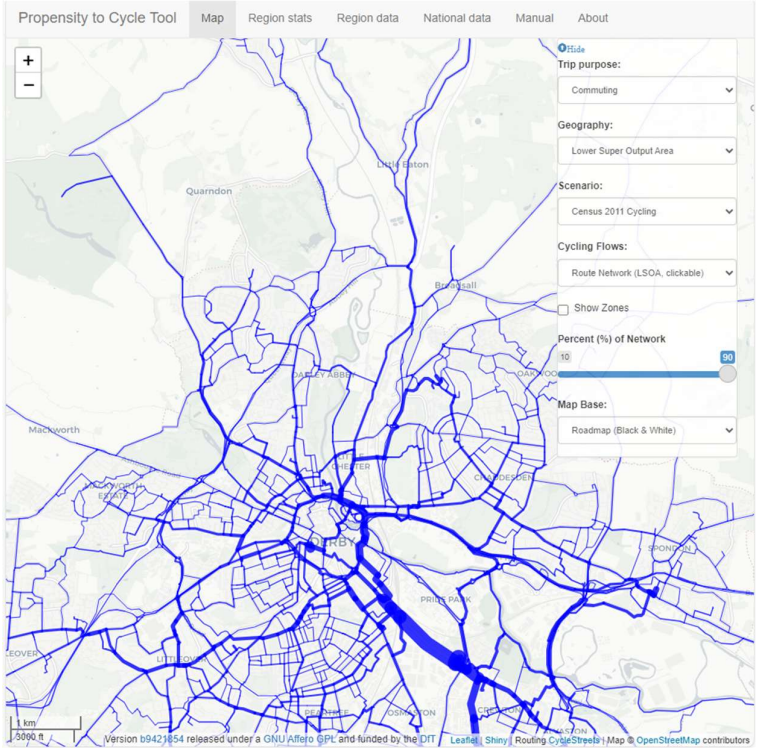
Start time	Site 1- Haslam Lane			Site 2 – Darley Abbey Bridge			Site 3 - Canal Path		
	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total
07:00	45	11	**56**	57	12	**69**	20	10	**30**
08:00	86	2	**88**	97	2	**99**	23	5	**28**
09:00	59	15	**74**	70	12	**82**	23	0	**23**
10:00	103	3	**106**	98	1	**99**	12	0	**12**
11:00	104	1	**105**	135	1	**136**	13	1	**14**
12:00	84	2	**86**	110	2	**112**	12	2	**14**
13:00	80	2	**82**	86	6	**92**	16	5	**21**
14:00	60	7	**67**	95	5	**100**	16	4	**20**
15:00	57	11	**68**	91	8	**99**	29	6	**35**
16:00	55	19	**74**	87	19	**106**	15	10	**25**
17:00	84	17	**101**	136	14	**150**	21	10	**31**
18:00	112	8	**120**	138	7	**145**	18	2	**20**
Total	**929**	**98**	**1027**	**1200**	**89**	**1289**	**218**	**55**	**273**

This provides a useful snapshot of all active mode journeys using the bridge at this time. It does not provide information on why people may be travelling nor where their journey may be taking them from/ to.

The Propensity to Cycle uses data from the 2011 census[17] to estimate the cycle usage on the network. This calculates around 113 trips per day using the bridge for commuting purposes. This helps to understand the proportion of users who might be using the bridge for travelling to work. The census limitations are on non-work trips.

[17] *The 2021 census travel data is affected by COVID-19 pandemic travel restrictions*

Figure 2-16: Propensity to Cycle (2011 census)

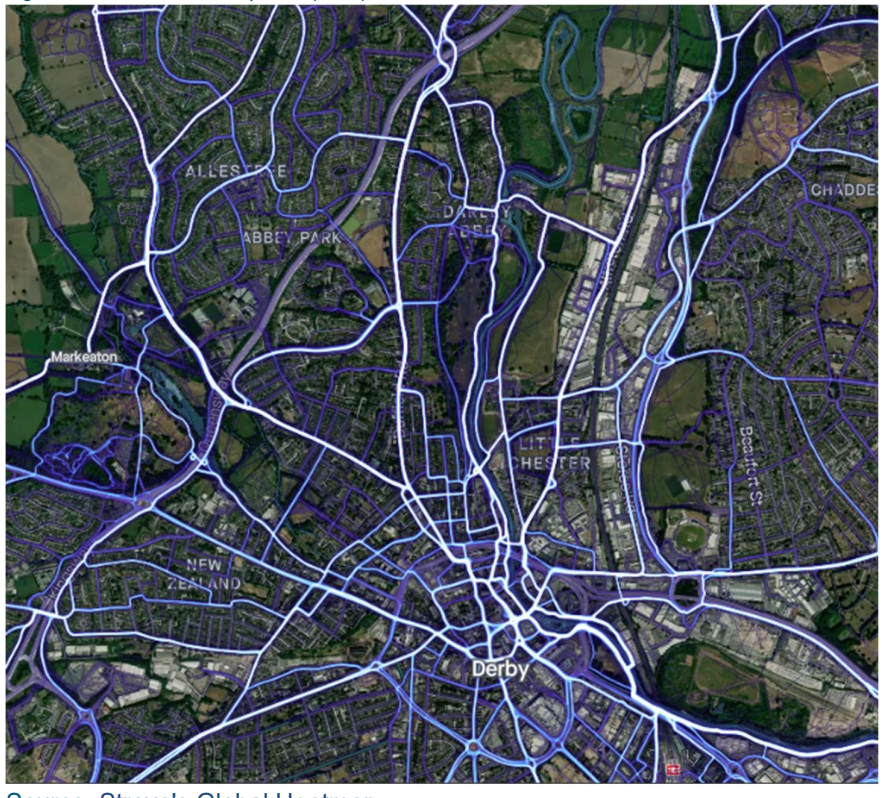


Source: Welcome to the Propensity to Cycle Tool (PCT)

Figure 2-17 shows cycle journeys as recorded on Strava are shown for the area north of Derby City centre. This presents a comparative heatmap of route options. It highlights the importance of the route through the mills and across the River Derwent as a key part of local cycle journeys.

'All Cycle Sports' data from Strava (accessed July 2024) shows demands following the NCN 54 route to the east of the site, with flows along Alfreton Road reflecting the NCN route in this area when travelling northbound from Haslams Road. To the west, there are strong demands south from the Darley Mills bridge through Darley Abbey Park, and more dispersed travel around the roads of Darley Abbey, not necessarily following Darley Abbey Drive to connect to Ferrers Way for example.

Figure 2-17: Strava heatmap data (2024)

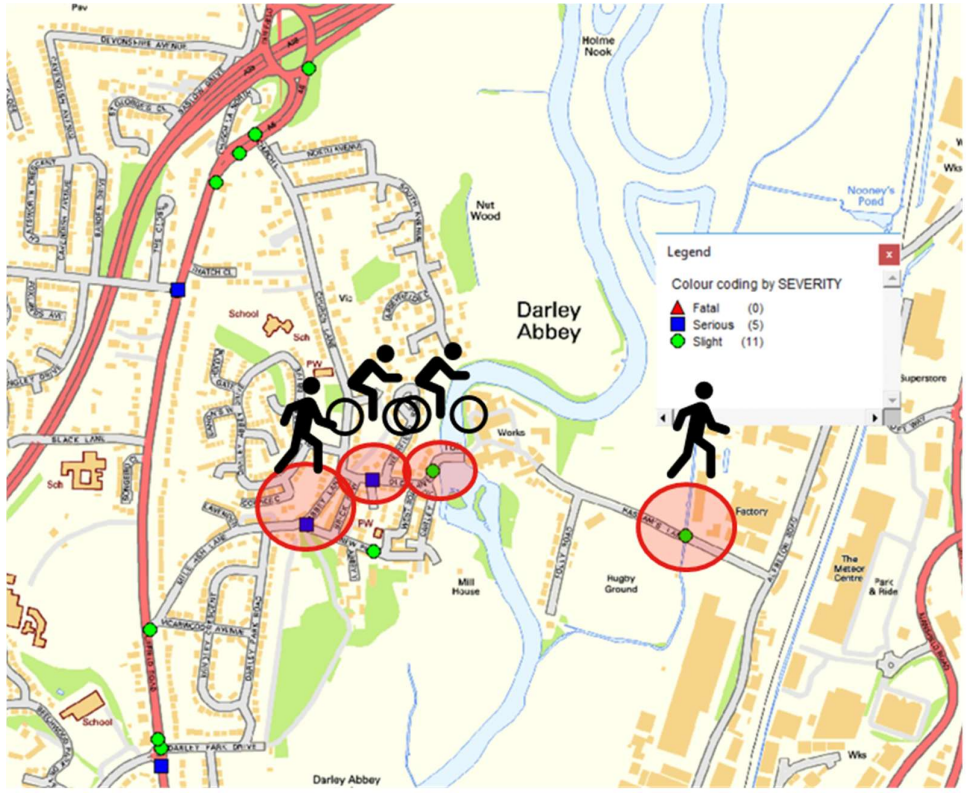


Source: Strava's Global Heatmap

2.3.3 Road Safety

A review of road traffic incident data considers the safety of road users of the bridge. Reported incidents over five years (1/11/2018 – 31/10/2023) show that slight and serious incidents have occurred within the core study area. A number of these, particularly those in the vicinity of the bridge, involve vulnerable road users (pedestrians and cyclists) using the route.

Figure 2-18: Road Safety data



Source: Stats19

2.3.4 Bus Links

While no public transport vehicles operate within the core study area, some bus routes serve on radial routes out of the city (Alfreton Road and A6 Duffield Road). Primary operators are Trent Barton and Notts & Derby. These services deliver frequencies up to half hourly for some services (peak weekday).

Figure 2-19: Local bus routes

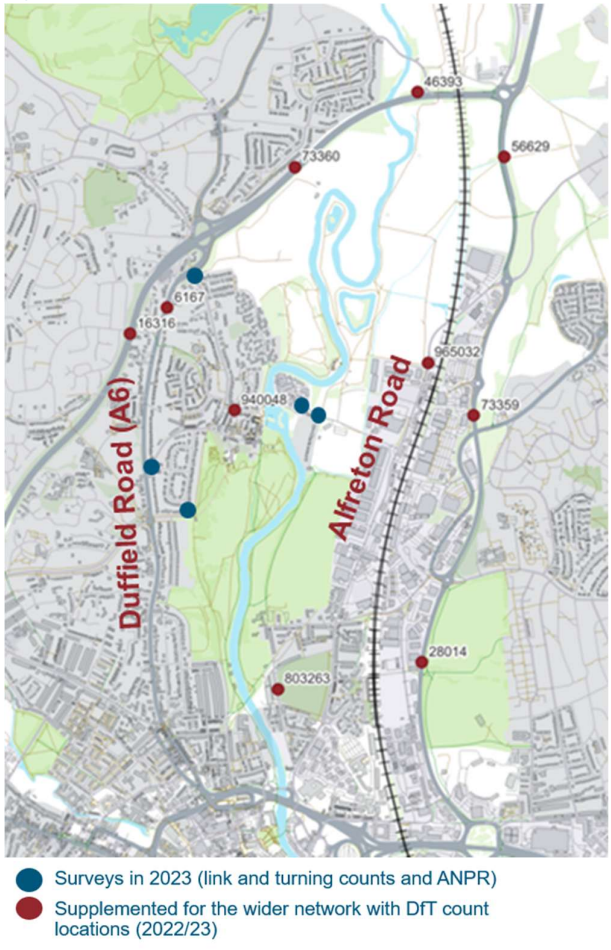
2.3.5 Traffic

Traffic flows within the study area have been collated from a variety of sources over time. The locations of these counts are mapped in

Figure 2-20 overleaf and include:

- A 2017 survey, when the bridge was open to traffic which found:
  - average of c. 700 two- way trips over the bridge between 7 AM and 7 PM during a weekday.
  - peak usage at 8 AM to 9 AM and 6 PM to 7 PM.
- A 2023 survey, when the bridge was closed to vehicles, which included:
  - active mode link counts on the bridge.
  - traffic counts on Church Lane on approach to A6 Duffield Road junction, Mile Ash Lane on approach to A6 Duffield Road junction, Darley Park Road near to the 'no entry' sign and Haslams Lane.
  - turning counts at the junction of Haslam Lane with Folly Road.
  - ANPR survey - Church Lane on approach to A6 Duffield Road junction, Mile Ash Lane on approach to A6 Duffield Road junction and Darley Park Road near to the 'no entry' sign.
- DfT counts on highways, including manual count on the A38, Between Palm Cresent Island (A6/ Duffield Road) and A61, west of Ford Lane in 2023.

Figure 2-20: Traffic count locations



A survey in May 2017 showed that an average of approximately **700 two-way vehicle trips over the bridge** between 7 AM and 7 PM during a weekday, the morning peak was 8 AM to 9 AM and 6 PM to 7 PM.

A report published in October 2023, when the bridge was close to traffic, found that **over 1289 people used the bridge** in the surveyed 12-hour period (7am – 7pm). Of these, 1200 were pedestrians and 89 were cycles.

The above survey was recently repeated in 2024 and published in January 2025, which showed that **over 986 people used the bridge** in the surveyed 12-hour period (7am – 7pm). Of these, 964 were pedestrians and 22 were cycles.

The surveys suggest that 90% of vehicles travelling along Haslams Lane are visitors or services at the Darley Mills.

Table 2-3: Haslam Lane with Access Road and Folly Road Total Junction Flow (2023 survey)

Total Junction Flow						
Time	Cars	LGV	OGV	M/C	Cycle	Total
07:00:00	84	14	0	0	27	125
08:00:00	118	17	3	1	14	153
09:00:00	134	29	0	0	22	185
10:00:00	92	27	6	0	5	130
11:00:00	81	23	4	0	7	115
12:00:00	89	20	4	1	12	126
13:00:00	81	25	2	4	5	117
14:00:00	69	20	0	0	8	97
15:00:00	79	14	0	1	17	111
16:00:00	88	8	0	0	32	128
17:00:00	148	8	0	1	26	183
18:00:00	156	5	0	0	18	179
Total	**1219**	**210**	**19**	**8**	**193**	**1649**

Source: 30194918-ARC-GEN-XX-RP-CE-00002 – Darley Abbey Traffic Survey Report

Table 2-4: Pedestrian and cycle counts (2023)

Start time	Site 1- Haslam Lane			Site 2 – Darley Abbey Bridge			Site 3 - Canal Path		
	Peds	Cyclists	Total	Peds	Cyclists	Total	Peds	Cyclists	Total
07:00	45	11	56	57	12	69	20	10	30
08:00	86	2	88	97	2	99	23	5	28
09:00	59	15	74	70	12	82	23	0	23
10:00	103	3	106	98	1	99	12	0	12
11:00	104	1	105	135	1	136	13	1	14
12:00	84	2	86	110	2	112	12	2	14
13:00	80	2	82	86	6	92	16	5	21
14:00	60	7	67	95	5	100	16	4	20
15:00	57	11	68	91	8	99	29	6	35
16:00	55	19	74	87	19	106	15	10	25
17:00	84	17	101	136	14	150	21	10	31
18:00	112	8	120	138	7	145	18	2	20
Total	**929**	**98**	**1027**	**1200**	**89**	**1289**	**218**	**55**	**273**

The survey indicates a similar number of pedestrians and cyclists crossing the bridge and Haslam Lane. Further to this, the times at which pedestrian and cyclist movement peak are very similar. The canal path data suggest that in comparison, much fewer pedestrians and cyclists use this route and that it may only be those accessing the Midland Canoe Club, South Avenue or using the towpath for recreational purposes.

2.3.6 Parking

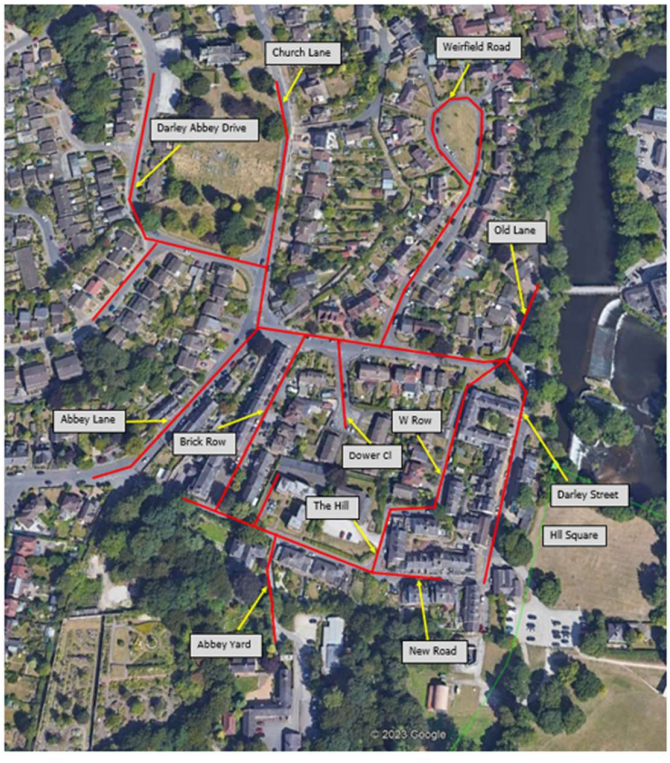
Automatic number plate recognition (ANPR) surveys found that of all vehicles entering and leaving the area between 7 AM and 7, only 14% dwell for more than 3 hours, and the majority of them (86%) dwell for less than 3 hours.

The 2023 study also surveyed parking levels in the area and found that, within the study area, there was a maximum parking utilisation of 33%, with approximately 195 legal spaces available during the survey day.

32% parking accumulation was calculated at 7 AM. It was found that parking accumulation on most streets reduced after 7:30 AM and remained lower for most of the day, peaking again after 5 PM, suggesting that parked vehicles on-street are residents.

A parking accumulation survey at Darley Street Car Park found that during the morning peak time the car park was at 34% occupancy and during the evening peak was 68%. The maximum accumulation was 88% or 36 vehicles parked at one time, occurring twice, at 10:30 AM and 12:30 AM. The parking patterns indicate they are associated with activities at Darley Park, rather than commuting.

Figure 2-21: Scope of parking beat survey (2023)

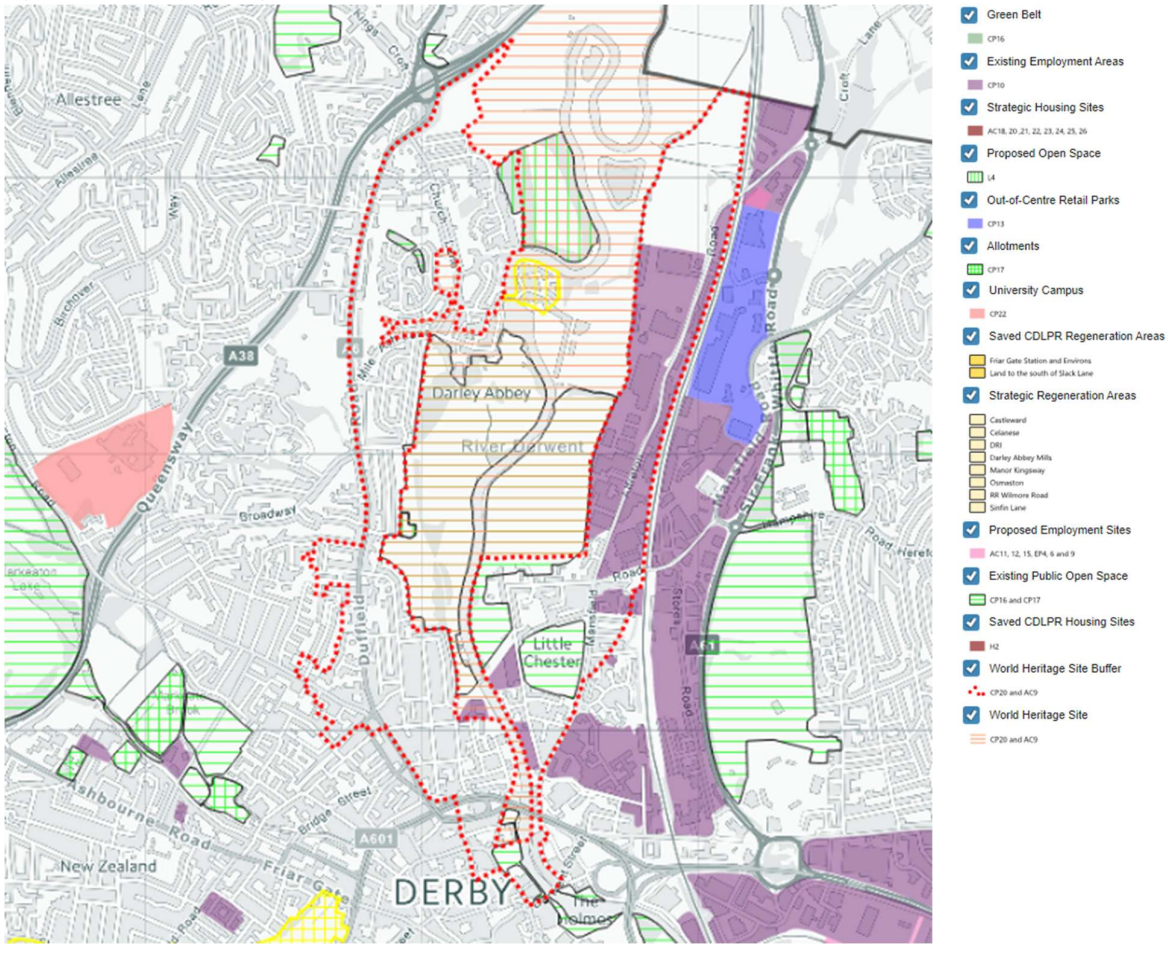


Source: Darley Abbey Mills - Survey Analysis Report, October 2023

2.4 Land Use

Figure 2-22 shows the planned land use around the study area from the current adopted local plan from 2017. Preparing of a new Derby Local Plan is planned for adoption in 2026. Until the new plan is adopted, decisions on proposals will still be made using the policies of the adopted local plan.

Figure 2-22: Local Plan Designations

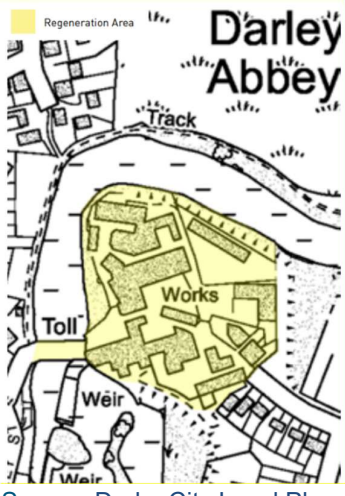


There are significant green wedges to the north and south of the site, which *"enhance the City's urban structure, maintain the identity of the different residential neighbourhoods, provide an uninterrupted link to the countryside, form part of the wider green infrastructure network and play an important role in climate change adaptation."*

The purple areas to the east of the site represent existing employment land, such as Northedge Business Park, and Eagle Park off Alfreton Road. On the other side of the railway line lies an out-of-centre retail park.

Darley Abbey Mills is a regeneration area (as set out in Policy AC10 of the Local Plan), and a conservation area. The area of Darley Abbey to the west is an Archaeological Alert Area and Derwent Valley Mills a World Heritage Site.

Figure 2-23: Darley Abbey Mills : Policy AC10

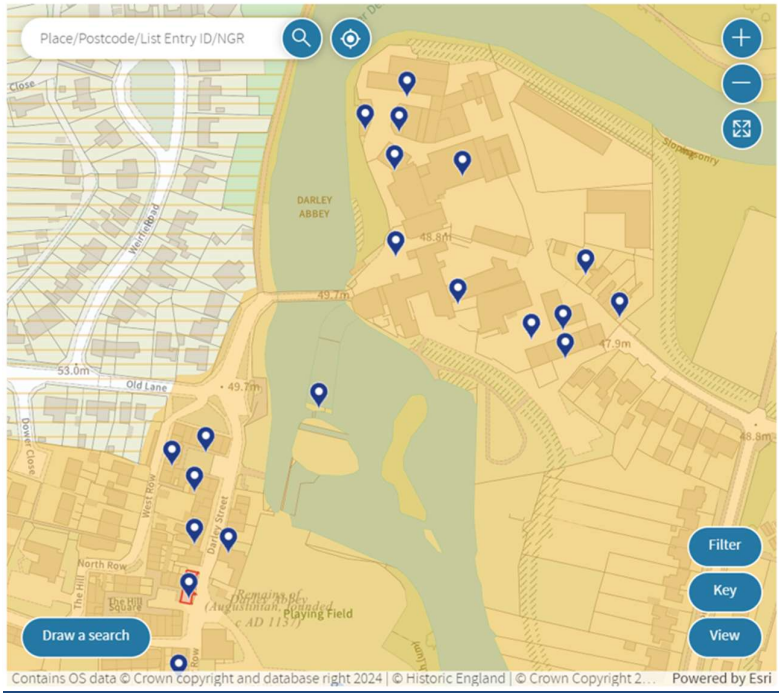


Source: Derby City Local Plan - Part 1 Core Strategy, January 2017

2.5 Heritage

While the bridge itself is not a listed structure, it is located within the DVMWHS area. The Darely Abbey Mills complex and buildings within Darley Abbey Village are listed, along with the weir structure close to the bridge. This listing states a strong group value for these structures and building including the Darley Abbey Mills South Complex (Grade I), Darley Abbey Mills North Complex (listed at Grade II & II*), associated mill workers' housing to the west (Grade II), and the Derwent Valley World Heritage Site[18].

Figure 2-24: Heritage listings



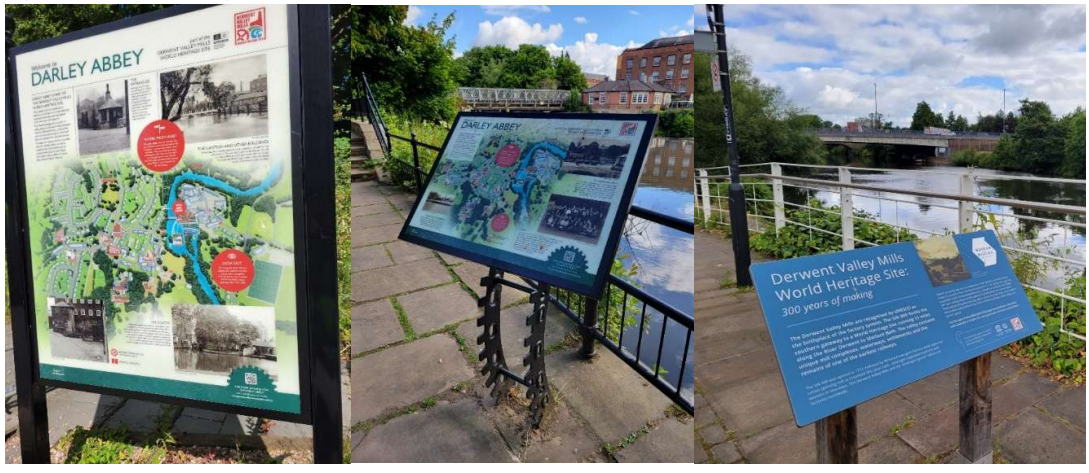
Source: Historic England - Championing England's heritage | Historic England

[18] *The List Search Results for darley abbey | Historic England*

Darley Abbey Mills and Village are linked to the wider heritage of the Derwent Valley Mills World Heritage Site[19]. The site links 15 miles of river valley from Matlock Bath to Derby, connecting:

- Cromford Mills and Cromford Canal;
- Strutt's North Mill and Belper River Gardens; and
- The Museum of Making at Derby Silk Mill.

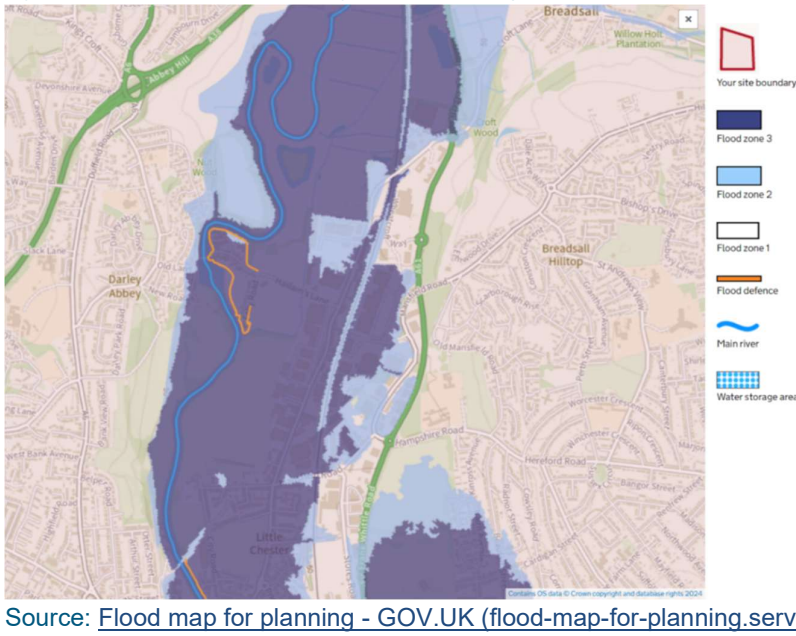
Figure 2-25: Local heritage boards



2.6 Environment

The Mills and land around them lie in a flood risk area. Locations in flood zone 3 have a high probability of flooding. In any year land has a 1% or more chance of flooding from rivers. Recent 'Our City Our River' scheme to deliver flood defences / embankments within the study area.

Figure 2-26: The mills and surrounding land flood risk map



Source: Flood map for planning - GOV.UK (flood-map-for-planning.service.gov.uk)

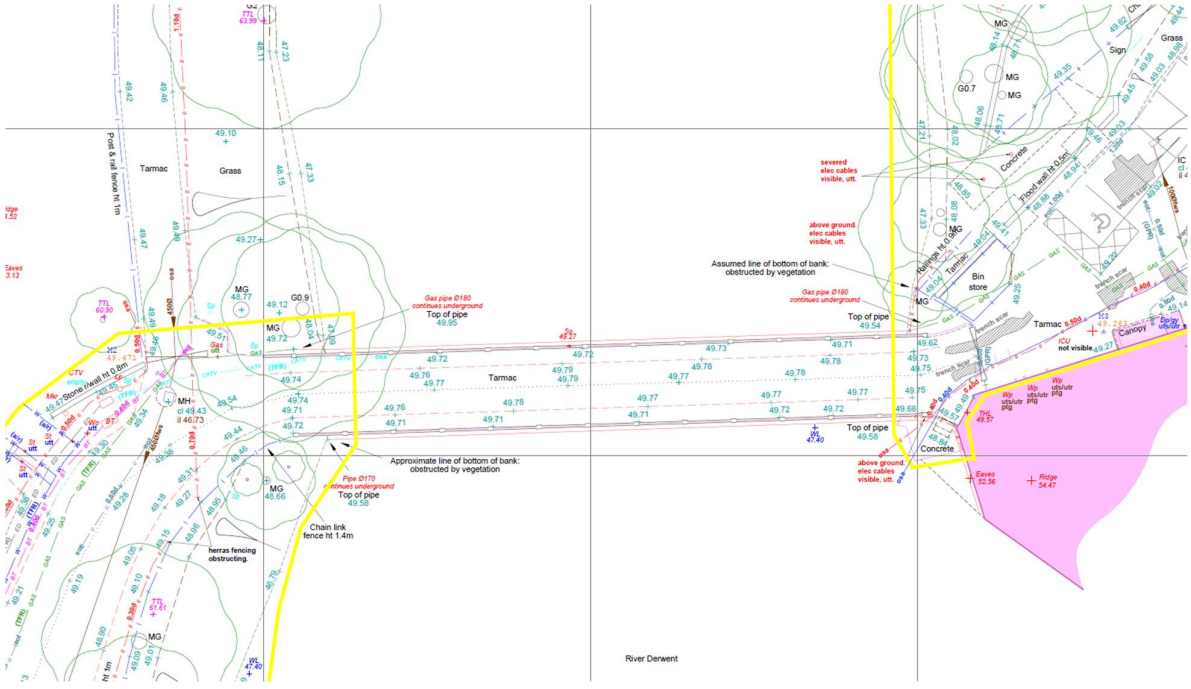
[19] *Home - Derwent Valley Mills*

2.7 Utilities

As well as being a vital connection for, visitors and local residents, the bridge also carries gas and electricity connections for the occupants of Darley Abbey Mills. While there are known to be alternative utility connections that are or could be put in place (connecting to the east), those carried by the bridge currently provide additional resilience to the Mills.

Changes to the bridge could impact utilities including electricity connections, gas mains, Virgin media telecoms and mains sewer. Stakeholders from relevant organisations.

Figure 2-27: Utilities Plan



2.8 Summary

A summary of the existing context of the bridge and its surroundings has been collated in the form of a strengths, weaknesses, opportunities and threats are shown in Table 2-5. This brings together elements set out above and has been developed with a wider stakeholder group to include a range of views and specialisms. These included representatives from a range of council teams from DCC as well as local councillors and organisations representing heritage, environment, utilities and emergency services.

Table 2-5: SWOT of current situation

Strengths	• An important link historically and function as a local leisure route • Key part of the regional and local cycle network, with high existing usage • Part of the only UNESCO WHS in the East Midlands • Historic link between the mills and the millworkers community that serviced them • Bridge and access to the river in this location enables easy removal of blockages due to stagnations • Provides access for water rescue services to cross the river quickly and safely • Bridge enables security of electric supplies / access to two electric substations to the Darley Mills and surrounding area and provides resilience to access should Haslams Lane flood • Vibrant area with a range of land uses – including businesses, residential and leisure uses in and around the study area
Weaknesses	• The old bridge was not really suitable for a modern mix of traffic. There were often issues where traffic had to reverse off the bridge while pedestrians are on the bridge which is not ideal • Limited access through Darley Mills due to lack of available space and narrow sections of road • Location in a flood risk area • Bridge stagnations collect all river debris, reducing conveyance and increasing worries to residents • Currently no through access for vehicles – negatively impacts those who are unable to walk/cycle • Bridge was unsuitable for any Fire Service vehicle in its original form (fire appliances are currently around 14000kg) • UNESCO has indicated that they would be concerned if there was no link between the mills and community - might threaten inscription
Opportunities	• Potential to make the bridge fully accessible for disabled people / adaptive bikes etc • Improve road safety for vulnerable users, where active modes are prioritised • Develop a more cost-effective long-term solution for the council, removing reliance on a temporary structure • Potentially reduce flood risk and provide additional resilience to access for local communities • To enhance the character of the mills and World Heritage Site • Chance for a more sympathetic design to complement the historic mills
Threats	• Potential for conflicts between different road users on the bridge and surrounding network • Potential for increased flood risk if design is not appropriate and doesn't tie in appropriately with current defences • Financial costs of constraints in the area • Availability of funding • Challenging access, land ownership and highway rights • Any bollards/barriers need to be wide enough apart for adapted cycles and mobility scooters • UNESCO are encouraging reinstatement of the bridge in the current form • Having no bridge could contribute to threatening our World Heritage status

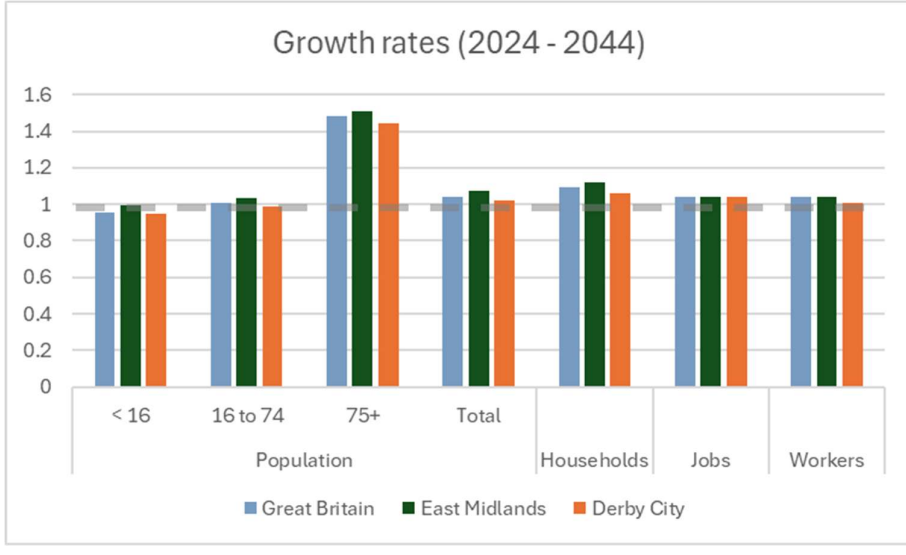
3 FUTURE SITUATION

There is not expected to be substantial levels of land use (housing or employment) development in the immediate vicinity of the study area.

Population growth for Derby City is forecast to be at a slower rate than the national average between 2024 and 2044. The most significant growth rate is for population over 75 years, where The National Trip End Model TEMPro (v8) forecasts a 44% growth in population in Derby City from 2024-2044, lower than the national and regional rates. A 0.5% growth in workers is forecast for Derby City over the same period, where the East Midlands area is 4%.

No major committed schemes are known in the immediate vicinity of the study area that will impact the river crossing in the future.

Figure 3-1: Growth rates



Source: TEMPro NTEM 8.0 – Core Scenario

4 NEED FOR INTERVENTION

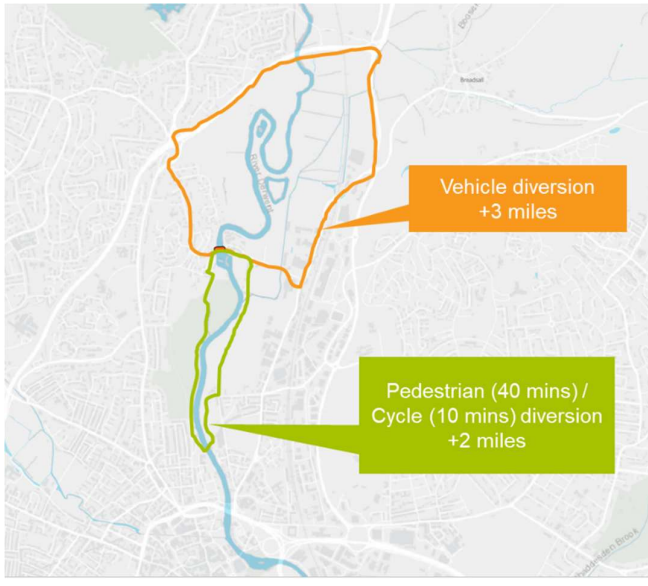
Without intervention the historic link between Darley Abbey Mills and Darley Abbey village will be severely threatened. The link between the Mills and the Village is part of the Derwent Valley UNESCO World Heritage Site and is part of the historic development of the area. The bridge links the employment and regeneration area of the Mills with the communities in Darley Village, reflecting the historic bridge purpose.

This link now functions as a key part of our local and regional cycle routes and off-road leisure routes around the green spaces in Darley Park. This is a destination for leisure users is a popular traffic-free link along the river into the City. It connects local sports destinations including the Rugby Football club, Cricket Club and Midland Canoe Club.

This historic location operates as a thriving local centre for businesses and is home to over 50 vibrant and varied businesses including bars, restaurants and a wedding venue. Anecdotal evidence (gathered at part of stakeholder engagement for this study) suggests that businesses lost customers during the closure of the bridge to users from the structural surveys in 2022. The limit of direct access across the Derwent at this location influences footfall through the mills and has potential to impact the economic vibrancy of the area.

The bridge structure currently remains beneath the temporary crossing but is not sound to function as a safe crossing for users. If no temporary structure was funded, the crossing would have to be closed to access for all users. This would leave local communities with a diversion using alternative crossing further up and down stream to access the other side of the river. For pedestrians and cyclists, use of Handyside bridge to the south adds a two-mile diversion (an average duration of 40 and 10 minutes respectively) (Figure 4-1). Vehicle traffic could use the A38 route to the north, resulting in a three-mile diversion. Depending on origin / destination of the journey, vehicles could also travel further south towards Derby City and use crossings on the A601 or St Mary's bridge.

Figure 4-1: Diversion routes



No access point at the mills would mean that the businesses and residential communities to the east of the river, including Folly Road, would rely on access via Haslams Lane. This single point of access could compromise safety in the event of emergency blockage of this route.

The temporary structure delivers some connectivity but compromises the visual and heritage value of the surrounding area. The ramped temporary crossing is a functional structure, providing step free access to the bridge crossing, but is very restricted in width, limiting safe, user friendly crossing for wheelchair users, cyclists, or people with pushchairs. The nature of the link is not sufficient for the importance of the connection for leisure routes as well as part of our regional cycle network. The ramps also take up a lot of space on both sides of the river, affecting access to businesses in the Mills. Therefore, it is an unsuitable link to maintain in the longer term, notwithstanding the significant on-going costs to the council of providing the structure.

These diversion routes have shaped the definition of the study area:

- **Wider study area** – capturing the alternative route for road traffic river crossings and impacts on air quality management area; and
- **Core study area** – considering local impact of crossing, including active travel, heritage and construction impacts.

Figure 4-2: Study areas definitions

5 IDENTIFYING OBJECTIVES

The scheme objectives have been developed to reflect the opportunities and challenges of the study area and policy context. They have been shaped by stakeholders to reflect the multi-disciplinary nature of the scheme and are set out in Table 5-1.

Table 5-1: Scheme Objectives

Theme	Scheme Objectives
Active modes	Enhance **cycling and walking safety and connectivity**, supporting active and sustainable trips, linking with existing local networks and wider regional routes
Economy	Assist local residents and businesses **to maintain access to the regeneration area** of Darley Abbey Mills
Resillience	**Maintain resilience** against extreme weather and emergency conditions
Heritage	**Enhance the sense of place**, supporting the heritage and environmental offer of the local area
Safety	Provide a **safe crossing for users**

Objectives should be things that can be SMART, specific, measurable, achievable, realistic and time bound. Some measurable indicators have been identified to support monitoring and evaluation of the scheme objectives:

- Number of users of the bridge and connecting routes;
- DfT tools to value safety, active mode and public realm impacts;
- Impact and disruption from extreme weather event / emergencies;
- Minimise impacts on journey times for sustainable travel; and
- Potential to engage with local businesses to provide existing data to support proposals.

6 GENERATING OPTIONS

The previous sections formed the baseline evidence gathering required for developing required understanding of the project area and definition of scheme objectives. This was undertaken as per Step 5 in the DfT Stage 1 Transport Appraisal Process (DfT, 2018) shown in Figure 1-2.

This chapter will detail the option generation process, with subsequent chapters detailing the sifting / shortlisting of options.

6.1 Crossing Function

A long list of options for the future river crossing has been generated with the project team and stakeholders. These represent multimodal approaches to river crossings and consider 'do nothing' and low-cost alternatives, as comparative options and according to the TAG process. Definitions of these options are outlined below.

1. **Removal of crossing**

This option provides a view of the situation were no funding to be obtained and the existing unsafe crossing be removed or remain closed to users. This would mean no crossing facilities were available to any user, with traffic using alternatives such as the A38 bridge to the north and pedestrians and cyclists detouring to Handyside bridge to the south. This presents the counterfactual against which alternative options can be compared.

2. **Continuation of temporary structure**

This option considers the costs and impacts of maintaining the current temporary structure on top of the old bridge. This would provide access for cycles and pedestrian via the scaffold ramp structures that are currently in place, with no option for any vehicle crossing. This would perpetuate high operation / hire costs for the council to continue cycle and pedestrian crossing for a number of years. This forms a low capital cost alternative to long-term structural replacement/restoration.

3. **Restoring bridge structure**

This option involves work to make the existing bridge structurally safe. This would involve significant capital costs and on-going maintenance costs to make the bridge suitable to operate as previously (for vehicles as well as active mode access). Further discussions with structural specialists are required to determine information on the extent of what this would entail.

4. **Building a new structure – active modes only**

The option for installing a new river crossing would involve removal of the temporary and old bridge structure and establishing a new crossing (with associated capital cost). This option considers this crossing to be for pedestrians and cyclists only, providing no vehicle crossing facility. Construction costs for this option have been estimated by the engineering team at the council and their advisors.

5. **Building a new structure – active mode + vehicle access in emergency only**

One option for the design and function of a new bridge crossing would involve the facilitation of vehicle traffic in an emergency. This could be for emergency vehicles to access the mills from the west or for local traffic to exit though the mills to Darley Abbey should access via Haslams Lane be restricted. Vehicle access could be enforced though measures such as removable bollards, CCTV / ANPR to primarily provide access to active modes only day-to-day. Construction costs for this option are likely to be significant.

6. **Building a new structure – active mode + all vehicle access**

An option for a new bridge to facilitate traffic at all times would provide an all modes crossing. Construction costs for this option are likely to be the most significant of the options listed as the bridge would need to accommodate vehicles and active modes and works to enable this access at both sides of the river would be required.

6.2 Crossing Location

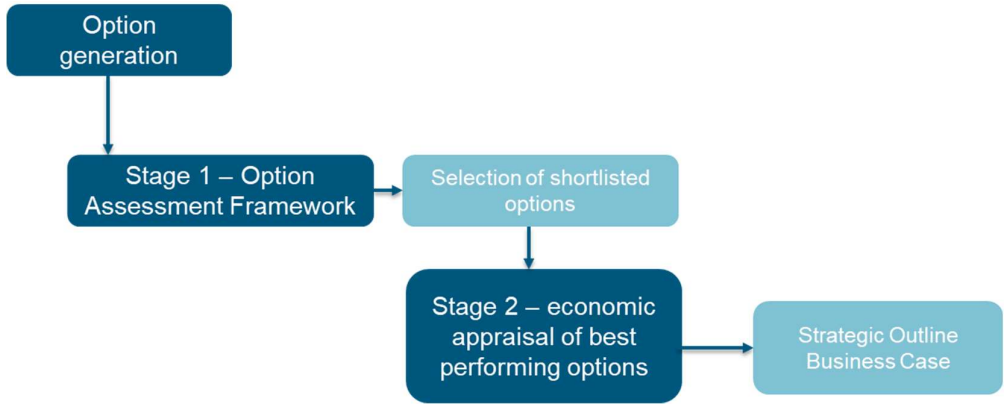
Previous work was undertaken on locations for a crossing in May 2022. There was some discussion to look at the potential to relocate the crossing to another location. However, during the stakeholder engagement discussion this was not widely supported. There are also various access infrastructure and environmental impacts which would occur with a new location. As such, this study has focussed on the existing bridge position, in order to avoid these potential impacts as well as facilitate a rapid and efficient construction timeline.

7 OPTION SIFTING

The previous sections formed the baseline evidence gathering required for developing required understanding of the project area and definition of scheme objectives. This was undertaken as per Step 6 in the DfT Stage 1 Transport Appraisal Process (DfT, 2018) shown in Figure 1-2.

This chapter will detail the option assessment / sifting process used to select a shortlist.

Figure 7-1: Options Assessment process



7.1 Option Assessment Framework

An options assessment framework (OAF) is a structured approach used to evaluate and compare different options or solutions to address a specific situation. Options were scored on a five-point scale, with -2 being a largely negative impact and +2 would be a largely positive impact on various criteria. This was designed to highlight the differences between options at an early stage in relation to the context setting work which has been done. Table 7-1 shows frameworks criteria and scoring. This was developed to reflect standard DfT criteria, local and scheme priorities and was shaped by stakeholder input during an interactive workshop session.

Table 7-1: Multi-criteria analysis metrics

Theme	Metric			0	+	++
Strategic Case	Enhance cycling and walking safety and connectivity, supporting active and sustainable trips, linking with existing local networks and wider regional routes	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial
	Provide a safe crossing for users	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial
	Assist local businesses and economic vibrancy by maintaining access to the regeneration area of Darley Abbey Mills	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial
	Maintain resilience against extreme weather and emergency conditions	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial
	Respect and enhance the local heritage and historical character and environmental value of the area	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial
Acceptability	Impact on environment	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial
	Impact on flood risk	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial
	Stakeholder opinion	Majority negative		Neutral / polarised view		Majority positive
Deliverability	Practical feasibility	Significant Challenges		Not known		No Issues
	Impact of construction	Significant disruption		Some disruption		Limited / no disruption
	Legal complexity	Significant Challenges		Not known		No Issues
	Land acquisition requirement	Land acquisition required		Potential for land acquisition		No additional land required
	Technological barriers	Significant Challenges		Not known		No Issues
	Implementation timescales	Over 2 years	Within 2 years	Within 1.5 years	Within 12 months	Within 6 months
Affordability	Capital Cost (high level estimate)	Very high				Very low
	Operational cost	Very high				Very low
	Estimated Value for Money (scheme life)	Very poor value for money	Low value for money		Medium value for money	Very high value for money
	Funding sources	No expectation of funding	Limited expectation of funding	Some potential for funding	Good potential for funding	Funding identified and secured

7.2 Option Assessment Scores

Results from the scoring exercise are summarised in Table 7 2. More rationale behind these scores can be found in Appendix A.

Table 7-2: Multi-criteria analysis scores table

		Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
	Metric						
Strategic Case	Enhance cycling and walking safety and connectivity, supporting active and sustainable trips, linking with existing local networks and wider regional routes	-2	1	1	2	2	1
	Provide a safe crossing for users	0	0	-2	2	1	-1
	Assist local businesses and economic vibrancy by maintaining access to the regeneration area of Darley Abbey Mills	-2	-1	0	1	1	2
	Maintain resilience against extreme weather and emergency conditions	-2	-1	-1	1	2	2
	Respect and enhance the local heritage and historical character and environmental value of the area	-2	-1	2	1	0	-1
Acceptabili	Impact on environment	-2	-1	0	0	-1	-2
	Impact on flood risk	-1	-2	0	1	2	2
	Stakeholder opinion	-2	-2	-1	0	1	0
Deliverability	Practical feasibility	-2	1	-2	1	-1	-2
	Impact of construction	-1	2	-1	-1	-1	-2
	Legal complexity	-1	0	-1	-1	-1	-1
	Land acquisition requirement	2	2	2	1	1	-1
	Technological barriers	0	0	0	0	-1	-1
	Implementation timescales	1	2	-1	-1	-1	-2
Affordability	Capital Cost (high level estimate)	1	2	-1	-1	-1	-2
	Operational Cost	2	-1	-2	-1	-1	-2
	Estimated Value for Money (scheme life)	-2	-1	-1	1	1	-1
	Funding Sources	-1	-2	-1	1	1	1

7.3 Assessment Results

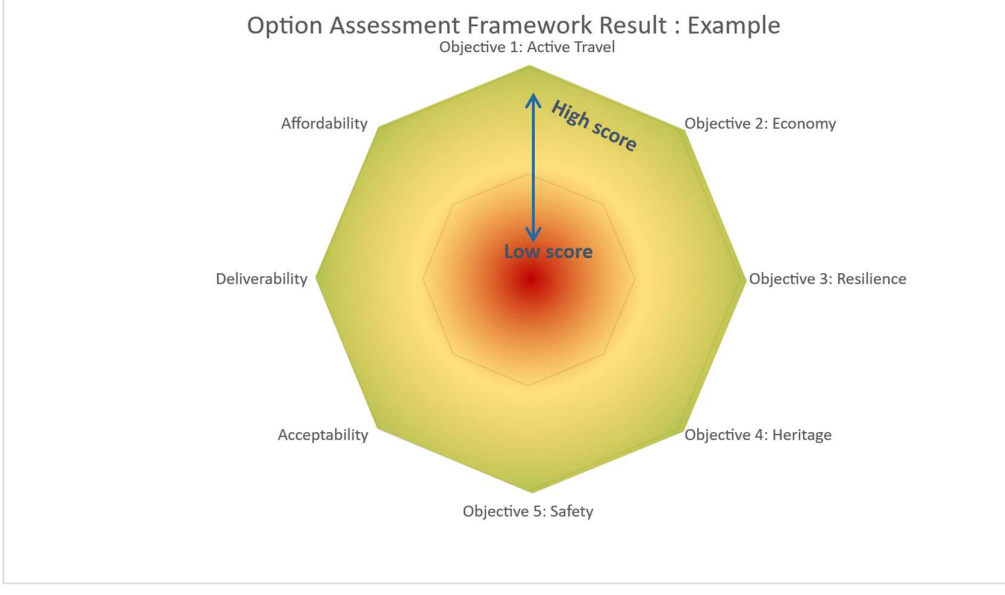
The scores above have been summed to provide an overarching position of each option. This enables them to be ranked according to the scoring framework. Two options present a net positive score, highlighting them as options to take forward to further development.

Table 7-3: Option assessment rankings

	Do nothing - Removal of Crossing	Do minimum - Continuation of Temporary Structure	Restoring Bridge Structure	Building a New Structure – Active Modes Only	Building a New Structure – Active Mode + Vehicle Access in Emergency Only	Building a New Structure – Active Mode + All Vehicle Access
	-14	-2	-9	7	4	-10

A radar is a graphical method used to display multivariate data in the form of a two-dimensional chart. These have been used to highlight the key objectives of each option and allow comparison, as it provides a clear visual representation of strengths and weaknesses in different areas. An example can be seen in Figure 7-2.

Figure 7-2: Radar chart example



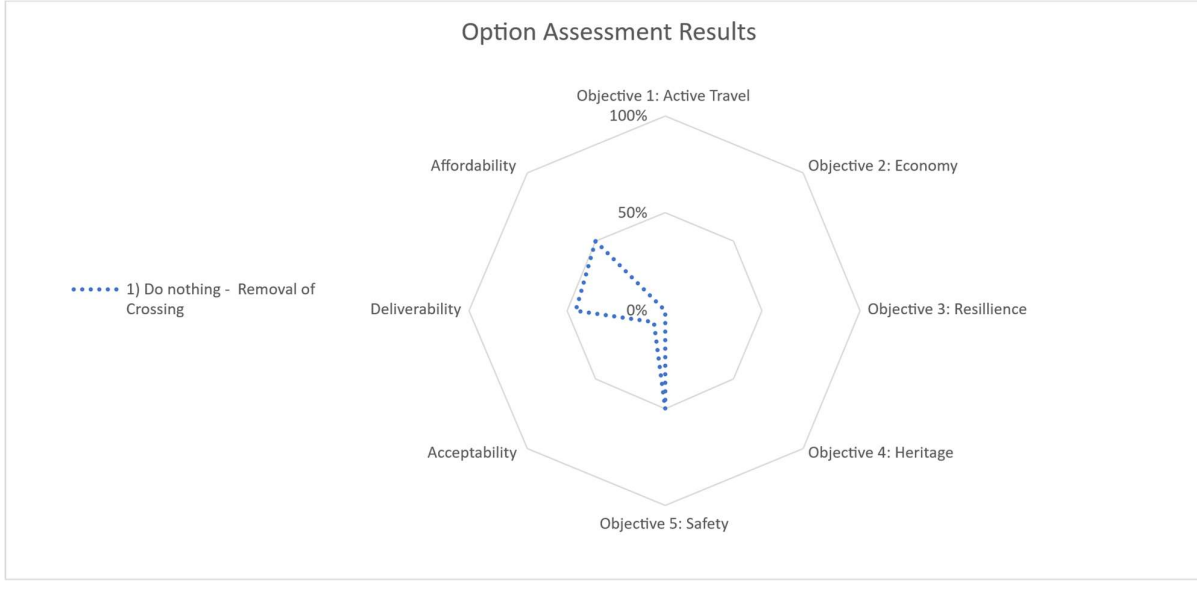
Option 1 – Do nothing: Removal of Crossing

Option 1 scores poorly against most criteria. Removing the structure completely would eliminate all cycling, wheeling and walking access, removing links with existing networks and routes. While it would remove the need for ongoing maintenance costs and only incur the cost of safely removing the bridge, it would remove all benefit of having a crossing at Darley Abbey.

This not only threatens the area as a leisure and active travel destination, but also the protected heritage status of the area, given the importance of the link between residential and employment areas. Having no bridge would take away from the original mill heritage as it is part of its history.

The removal does not offer any safety benefits, in fact it causes increased risk in the case of a flood due to having no access from one side of the mill for emergency services or refuge.

Figure 7-3: Do nothing - removal of crossing radar chart

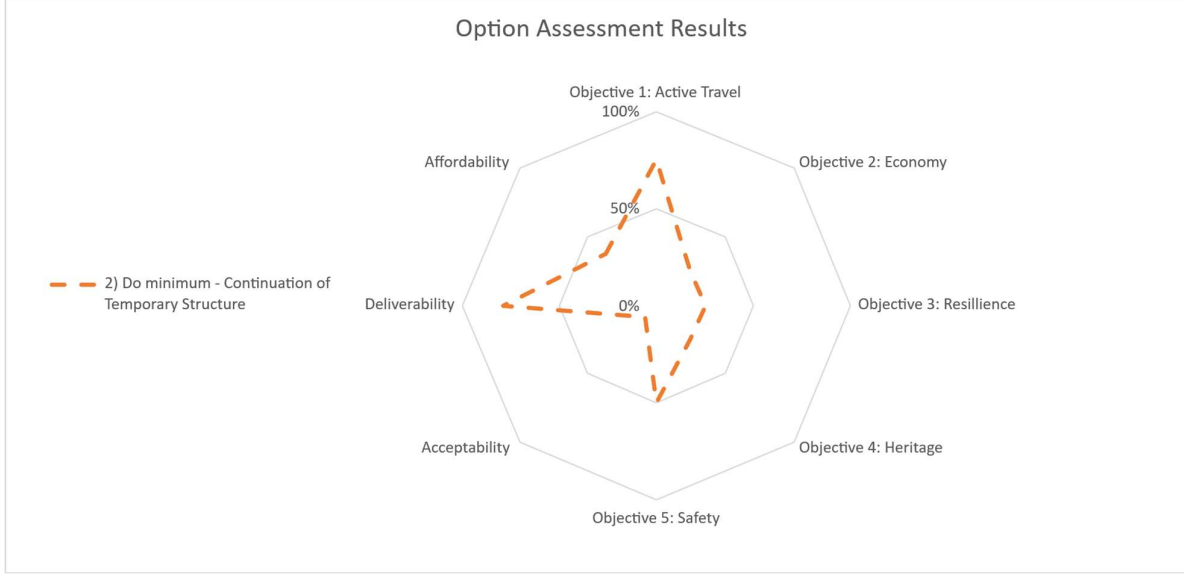


Option 2 – Do minimum: Continuation of Temporary Structure
Although this option includes a crossing, it performs poorly against several criteria. The temporary structure, being on a rental basis, incurs high operational costs and would likely require revenue funding rather than capital and it is unclear where funding would come from.

From a safety perspective there is a significant risk of the original structure collapsing underneath, potentially causing further damage. This option provides some access (although not vehicle), offering access options if one side floods or if there is an emergency. However, as it is only temporary, it will have limited benefits in extreme weather conditions.

The visual impact on the protected heritage status of the area would be negative, as the structure does not harmonise with the surrounding environment or the historic architecture.

Figure 7-4: Do minimum: continuation of temporary structure radar chart



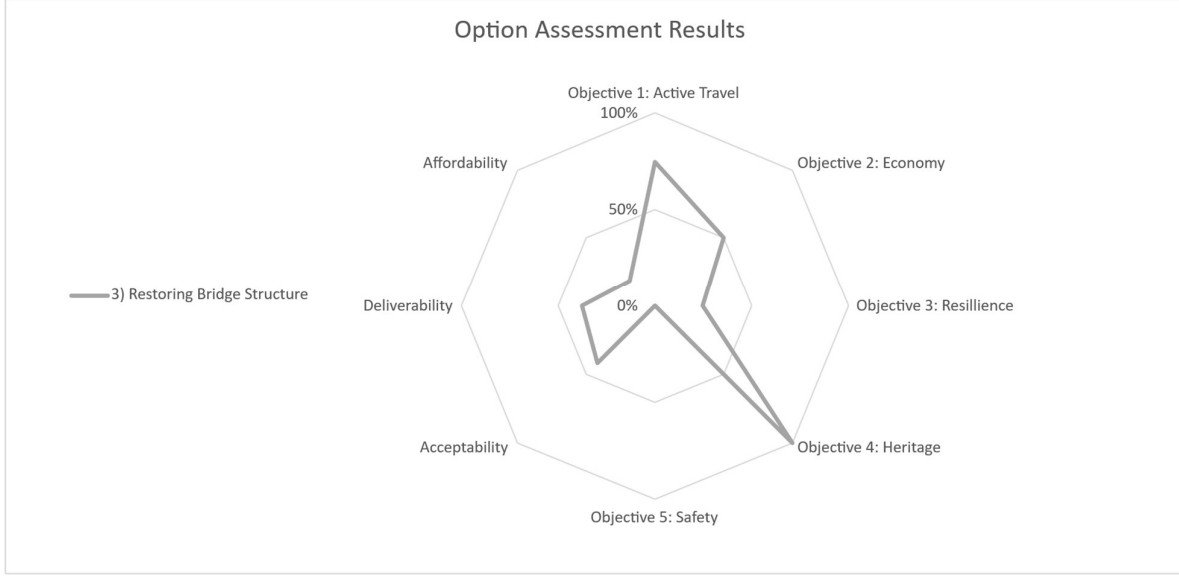
Option 3 – Restoring Bridge Structure

Restoring the original structure would preserve the historic connection between the mills and residences, ensuring that the visual heritage remains unaffected. Additionally, it will facilitate access for pedestrians and cyclists. However, previous safety concerns regarding incidents involving vulnerable pedestrians and cyclists with vehicular traffic would continue, as traffic would be permitted to use the crossing, increasing traffic on connecting roads.

Access from both sides offers refuge in the case of flooding or if there is an emergency. However, the identified safety concerns due to the structural conditions would limit the benefits due to imposed speed and weight restrictions. As well as this, the previous bridge had known structural safety concerns due to its infrastructure conditions, which have been assessed by the engineers as posing a significant dangerous status if the asset was simply to be restored.

Given the numerous issues with the current structure, the implementation period is expected to be relatively lengthy and will incur significant capital expenditure. Furthermore, due to the structure's age, maintenance costs are anticipated to be higher compared to those of a new structure.

Figure 7-5: Restoring bridge structure radar chart



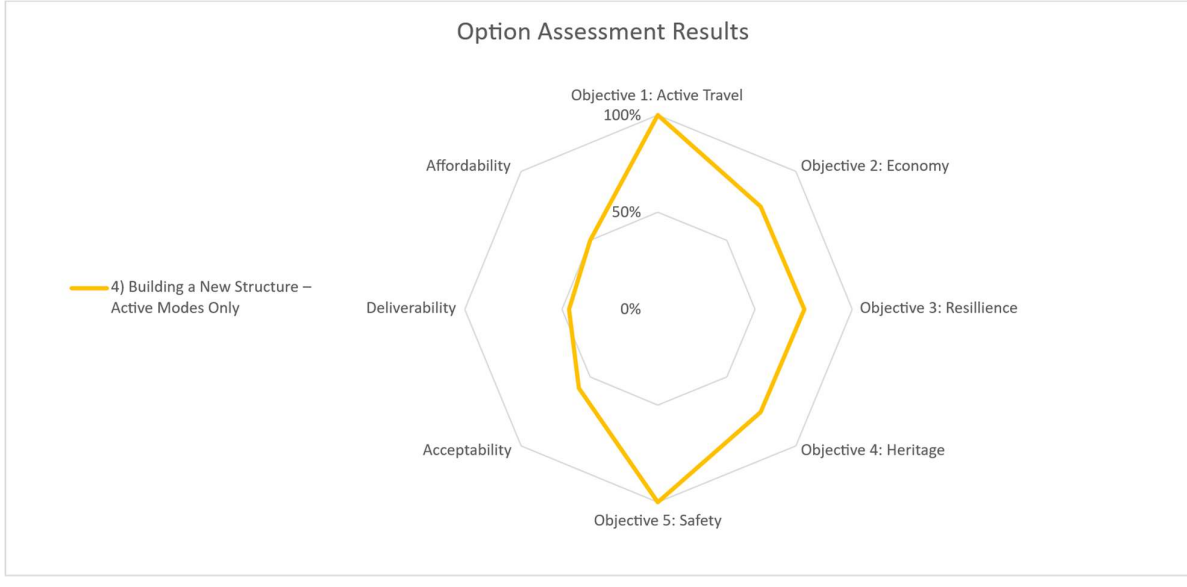
Option 4 – Building a New Structure: Active Modes Only

Constructing a bridge exclusively for active modes scored highest in the framework. This option will provide safe access for walking and cycling and keep the link to existing local networks and wider regional routes. Providing a modern crossing would alleviate structural safety concerns. In addition, providing a bridge designed only for active modes would support the standards of LTN1/20.

The structure would be a new, potentially larger structure which could have an impact on the historic character of the area, however, this could be mitigated by constructing the crossing to stay in keeping with the original character of the crossing.

The primary drawbacks include the lack of access for emergency services from this side of the mill, which could pose a problem if the other access route becomes obstructed. Additionally, the area would experience disruption during the removal and reconstruction of the bridge; however, this issue would be common to all options.

Figure 7-6: Building a new structure - active modes only radar chart

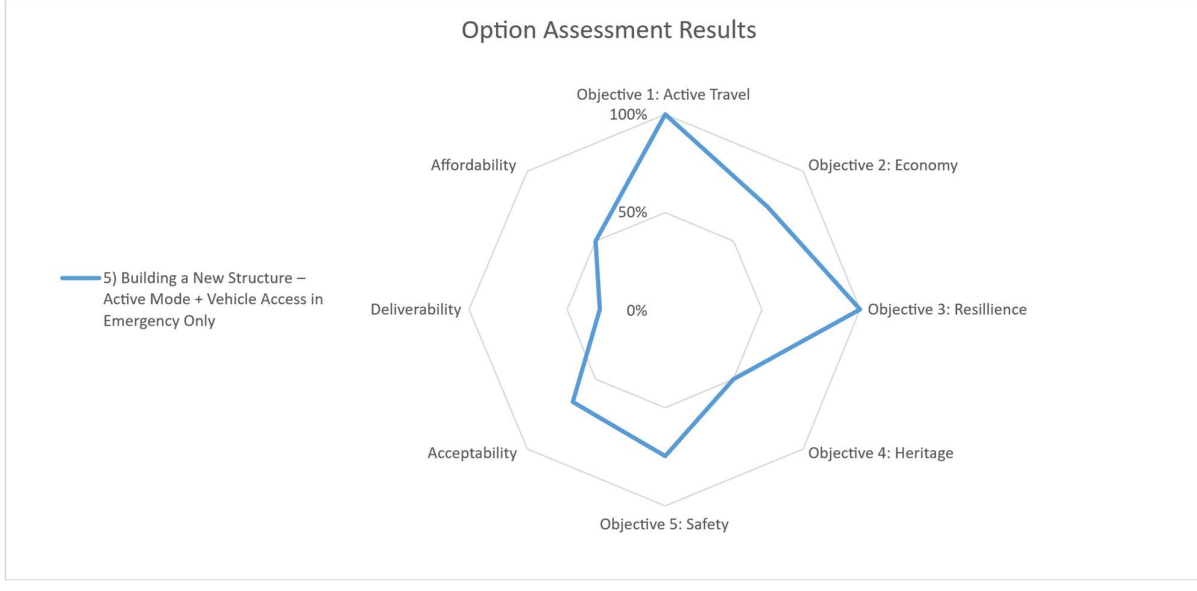


Option 5 – Building a New Structure: Active Mode + Vehicle Access in Emergency Only
This option scored second highest in the framework. It will provide safe access for walking, wheeling and cycling and keep the link to existing local networks and wider regional routes, which is a key desire shared across stakeholders.

The vehicular traffic being restricted to emergencies is also favoured in case of floodings or the other entrance to the mill being blocked. There is also potential for constructing a structure designed to mitigate flood risk, with the opportunity to raise the deck level of the actual structure and allowing access for emergency services. With the structure designed to accommodate the size and weight of emergency service vehicles, it is more likely to be larger and require access rights for construction.

There would be a need to enforce vehicle access restrictions through measures such as automatically removable bollards, CCTV / ANPR. This could come with technological issues when installing measures or ongoing maintenance.

Figure 7-7: Building a new structure - active mode and vehicle access in emergency only radar chart



Option 6 – Building a New Structure: Active Mode + All Vehicle Access

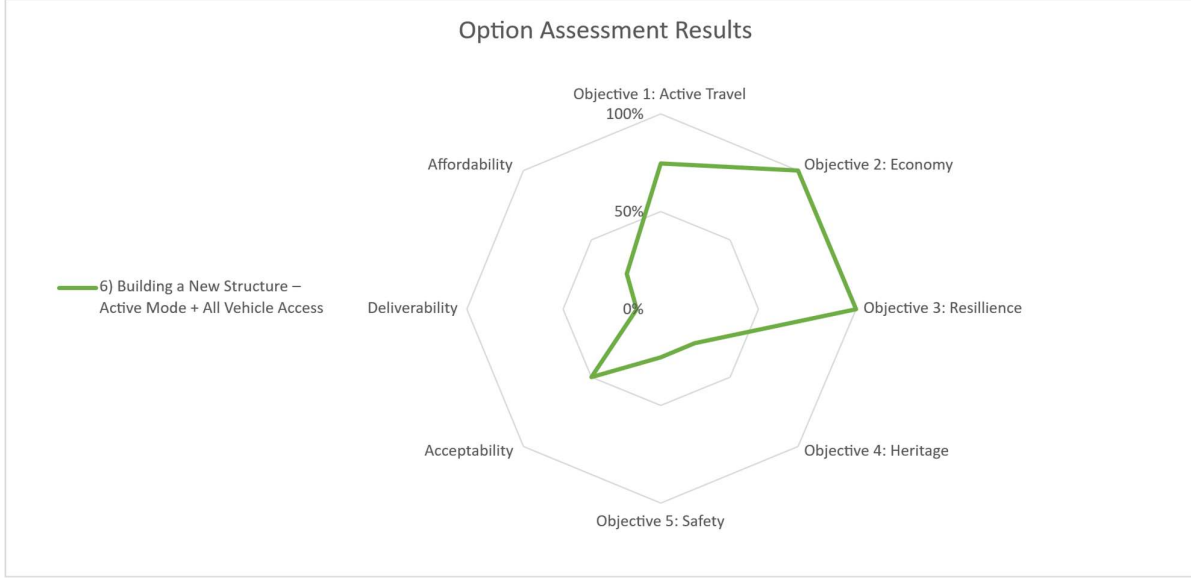
This option will provide access for all modes of transport to local businesses from both sides of the mills, thereby supporting economic vibrancy. There is also potential for constructing a structure designed to mitigate flood risk, with the opportunity to raise the deck level of the actual structure.

The framework highlighted low scores relating to financial costs, as the expense of removing the existing structure and installing a larger structure and vehicle connections either side would be costly. Due to the need to accommodate vehicles, more space may be required to accommodate the size of the structure and landing arrangements. Introducing a crossing which allows all vehicle access will contribute negatively to air and noise pollution.

Also, a larger structure has potential to remove existing habitats/vegetation. This would also have visual impacts, resulting in a very low on score on environmental impact for this option. Any land acquisition and construction following the deconstruction of the original structure would likely be a lengthy process.

As for the local heritage and historical character of the area, this option scored low due to being a much larger structure with a larger footprint. In addition, the bridge would likely be made of a different material to withstand the weight of full vehicle access. This could be somewhat out-of-keeping with the heritage of the site.

Figure 7-8: Building a new structure - active mode and all vehicle access radar chart

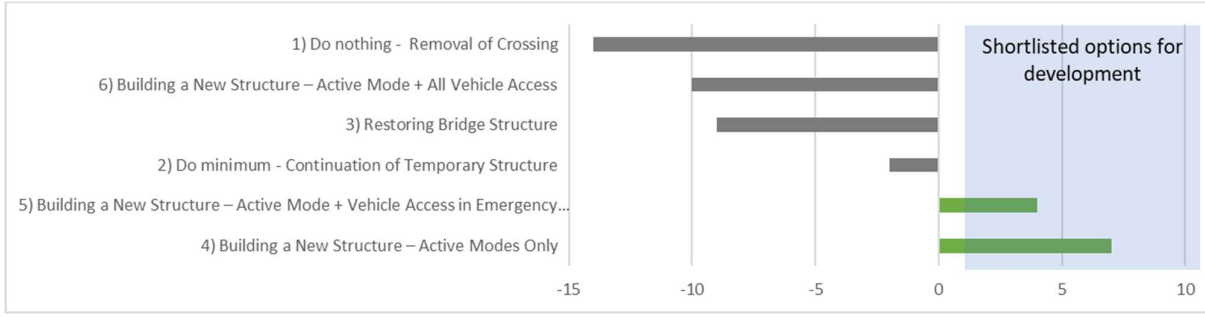


7.4 Conclusion

Options which have been shortlisted for further development are:

- Option 5 – Building a new structure – Active mode and vehicle access in emergency only; and
- Option 4 – Building a new structure – Active modes only.

Figure 7-9: Options Shortlisted for Further Development



The option assessment framework is a useful way of filtering out poorly suited options but does not provide a detailed quantified appraisal of options. The next stage will seek to better quantify the potential benefits against the costs to enable a more precise assessment of potential solutions. These will be compared against a counterfactual, or business as usual case to estimate the impact of the change.

8 OPTIONS ECONOMIC APPRAISAL

8.1 Shortlisted Options

Following the wider options appraisal, the shortlisted options were examined by Arcadis to derive their engineering feasibility and cost estimates[20]. Six options to provide a solution for the river crossing were considered with the respective merits of each solution addressed through a multi criteria analysis. Further details can be found in the design options assessment produced by Arcadis for the design specification details for each of these:

1. Removal of crossing;
2. Continuation of temporary structure;
3. Restoring bridge structure;
4. Building a new structure – active modes only;
5. Building a new structure – active mode + vehicle access in emergency only; and
6. Building a new structure – active mode + all vehicle access.

As a reminder, a description of each of the above shortlisted options can be summarised as follows:

1 Full demolition of the existing structures (disused bridge crossing and footbridge) including full removal of the existing piers and local reinstatement at the bridge approaches.

2 Maintain the existing footbridge arrangement as a medium-term solution with future demolition of the disused bridge to prevent uncontrolled collapse.

3 Remove medium-term structure and demolish disused existing bridge. Re-construct the existing concrete bridge deck and substructure on the same horizontal alignment to match the current carriageway and footway width.

4 Full demolition of the existing structures including removal of the existing piers and reconstruction with a single 48m span steel 4m wide (trafficked width) pedestrian and cyclist footbridge on a new alignment.

5 Full demolition of the existing structures including removal of the existing piers and reconstruction with a single 48m span steel 4m wide (trafficked width) accommodating pedestrians, cyclists and emergency vehicles on a new alignment.

6 Full demolition of the existing structures including removal of the existing piers and reconstruction with a multi-span concrete 8m wide (trafficked width) highway bridge comprising a 4m wide combined footway/cycleway on a new alignment.

Architectural variations for Options 4 and 5 were also investigated by the engineers and designers. From this, two sub-options (known as 2 and 3b) were also further examined. Some of these sub-options include reduced complexity for design and construction and/or do not require a submerged section of the bridge which would increase future maintenance and impact on river flows.

Arcadis also estimated the costs of each option, including maintenance expenditure for the next 20 years of each option lifecycle. These are summarised in Table 8-1 overleaf.

[20] *Options Engineering Report for Darley Abbey Mills Bridge (Document Ref: 30194918-ARC-SBR-ZZ-TR-CB-00005), Arcadis Consulting (UK) Ltd, May 2025*

Table 8-1: Costings for the Shortlisted Options

Options	Future Maintenance & Inspection Cost (£)	Capital Cost (£)	Overall Whole Life Cost (£)
1	0	3,081,756	3,081,756
2	2,414,967	0	2,414,967
3	187,785.30	15,156,785	15,344,570
4 (2)	164,223	10,180,045	10,344,268
4 (3b)	164,223	10,449,361	10,613,584
5 (2)	164,223	10,220,442	10,384,665
5 (3b)	164,223	10,489,759	10,653,982
6	272,422	21,576,870	21,849,292

Note: all values exclude VAT

The following assumptions and exclusions were considered in the capital costing evaluation:

1. The capital costs do not include allowances for the diversion of utilities, the use of private land or remediation works land, permits/consents/licenses, consultations, planning permissions and business case preparation/funding bids.
2. The capital costs do not include any survey cost required during the design stage (e.g. ground investigations, environmental and ecology surveys, topographical surveys, flooding analysis/surveys, archaeology, diving inspections, building/bridge condition and structural surveys).
3. The capital costs do not include optimism bias and costing of project risks has also been excluded.
4. Costings assume the works will commence for each option in April 2027.
5. Whole-life costs include inspection costs based only on time-charge estimates for inspections and scheduled routine maintenance for key infrastructure elements (e.g. joints and bearing replacement, bridge deck resurfacing, re-waterproofing and parapet replacements). However, other associated costs such as traffic management, access equipment hire, and site transportation hire (inspection team hire car, or public transport) costs are not included.

The values supplied by Arcadis are discounted 'Present Values' (PV). This is the current value of a future sum of money. The reporting of future maintenance costs after discounting is in accordance with the methodology supplied within DMRB CD 355: Application of Whole Life Costs for Design and Maintenance of Highway Structures. The discount factors used year-on-year are obtained from the UK Treasury 'Green Book'. Discount rates are applied in accordance with CD 355 and The Green Book and are as follows: Years 0 to 30 = 3.5% pa, and Years 31 to 60 = 3.0% pa (note: CD 355 provides a maximum evaluation period of 60 years only for future maintenance events).

8.2 Engineering Feasibility Appraisal

Arcadis have reviewed the shortlisted options from an engineering feasibility point of view. Their report advises the following:

- Option 1 removes many of the benefits afforded by a historic fixed link in the area and reduces connectivity to Darley Abbey Mills over the River Derwent. This reduction in connectivity is considered to impact negatively on the local community.
- Option 2 involves prolonging the use of the current footbridge as a medium-term solution and would incur significant future costs as the existing disused structure deteriorates further and will eventually require demolition. Since this option has a negative visual impact on the world heritage site and will incur significant future costs, Arcadis recommend limiting the ongoing use of this existing arrangement as far as possible.
- Of the four 'construction' options it was found that the multi-span vehicle access options, 3 and 6, were significantly more expensive than the single span steel options 4 and 5. This is due to the requirement for significant volumes of additional pier construction in the watercourse with the

associated environmental impacts, complexity of construction and health and safety risk. The estimated programme for these options – 206 and 234 weeks respectively, would lead to significant prolonged disruption for the local community.

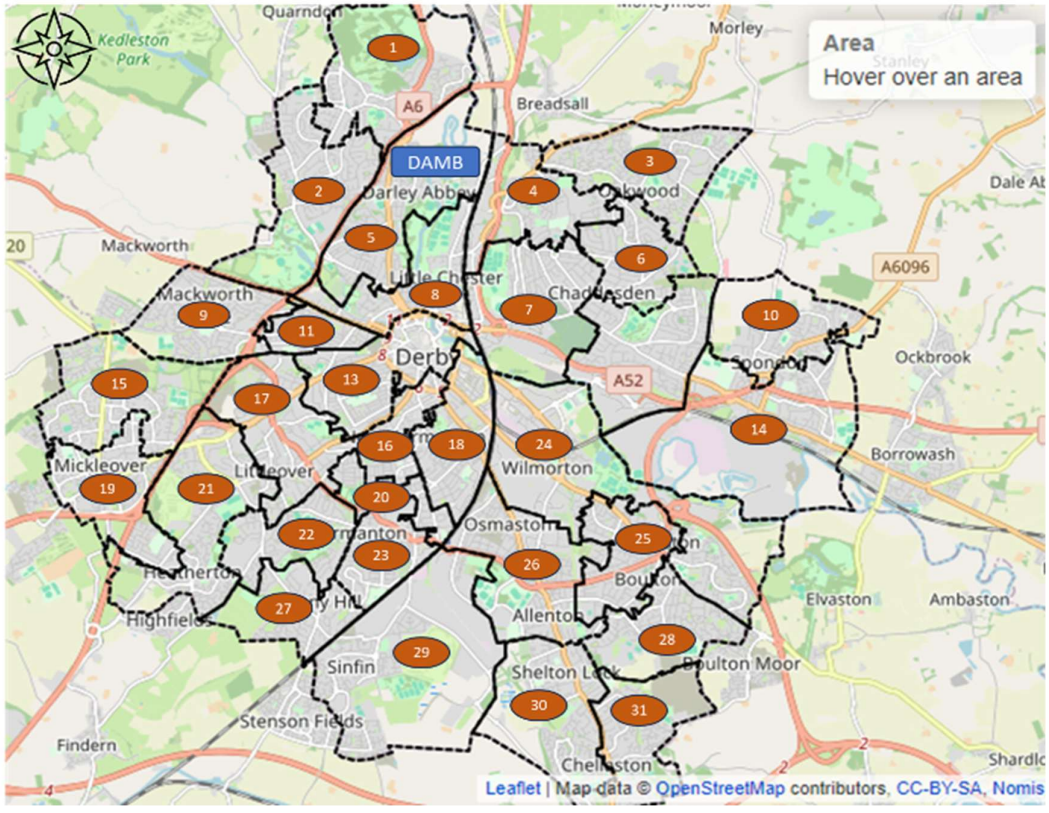
- Option 3 would restore the previous bridge crossing but would not improve pedestrian and cycling facilities or allow Fire Engines to cross the river. Option 6 is the most expensive option and provides dedicated pedestrian and cycling facilities while also providing full one-way vehicle access, but the long approach ramps needed represent a significant design challenge at this constrained site and may not be feasible. Allowing vehicles to regain access to the bridge also creates traffic and parking related environmental impacts for local residents.
- Options 4 and 5 which would be primarily formed from steel were found to be the most cost-effective. This was due to these options being single span only and therefore eliminating the requirement for extensive construction in the watercourse. Both options are structurally alike, but Option 5 has the added benefit of providing emergency vehicle access and is not significantly more expensive than Option 4. The preferred option is therefore recommended as Option 5 by Arcadis.

8.3 Trip Forecasting

8.3.1 Pedestrian Trips

The forecasting of pedestrian trip rates across the DAMB following the implementation of the proposed new crossing was done using an analysis of journey-to-work mode shares recorded in the 2011 census. This is the latest dataset suitable for use, as travel behaviour was impacted by the Covid-19 pandemic during the 2021 census. In total, there are 31 Middle Layer Super Output Areas (MSOAs) surrounding the DAMB, reflected in Figure 8-1 below.

Figure 8-1: Total MSOAs Surrounding the Study Site Area

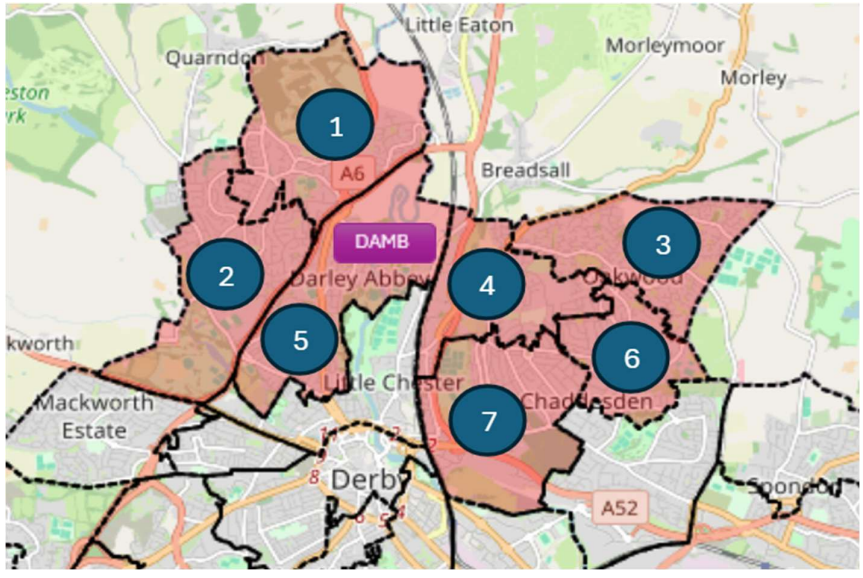


For this forecasting estimate, seven MSOAs were chosen as representing the relevant catchment area for trips using the new bridge. These were classified as either ‘East’ or ‘West’, depending on their position in relation to the DAMB crossing. These are shown in Table 8-2 and Figure 8-2 below. Zones one to five, shown in Figure 8-2, represent MSOAs East and West of the bridge, and all the MSOAs outside this were classified as external locations.

Table 8-2: MSOAs Chosen for Forecasting Active Travel Trips

MSOA	Side of DAMB
E02002796 : Derby 001	West
E02002797 : Derby 002	West
E02002798 : Derby 003	East
E02002799 : Derby 004	East
E02002800 : Derby 005	West
E02002801 : Derby 006	East
E02002802 : Derby 007	East

Figure 8-2: Chosen MSOAs for the DAMB Catchment



The number of journeys to work between each pair of MSOAs, disaggregated by travel mode, was obtained. From this, the proportion of journeys to work within the study area which are primarily on foot was calculated. This figure was calculated for MSOA pairs classed as internal trips and for pairs classed as crossing trips. This showed the mode-share of walking for internal trips as being 30.4% and for crossing trips as being 6.4%, as shown in Table 8-3.

Table 8-3: Observed Walking Flows for Internal and Crossing Trips

2011 Commuting Mode Share	Walking %age
'Internal' Walking Mode Share	30.4%
Crossing Walking Mode Share	6.4%

The above analysis showed that internal trips had a much higher proportion of journeys to work completed on foot than crossing trips that involved travelling to the other side of the crossing.

The survey counts from the Darley Abbey Mills Survey Analysis Report 2024 were used to work out the total growth for all MSOAs[21]. From this survey, there were 12-hour counts for both pedestrians and cyclists, which were used to calibrate the above baseline analysis. The survey counts were expanded from 12-hour counts to 24-hour counts using an expansion factor of 1.25, as per the TAG Databook[22]. From this, a baseline of circa 1,205 pedestrians per day was provided, which was reflected in the crossing flows. The resultant baseline crossing movements are shown in Table 8-4.

Table 8-4: Calibrated Pedestrians Crossing Flows based on Expanded 2024 Surveys

O/Ds	East	West	External	Total
East	0	26	312	338
West	28	0	331	359
External	207	302	0	509
Total	235	327	643	1,205

The walk-based connectivity across the bridge is expected to increase under the proposed options. Therefore, for the options that involve the improvement of active travel facilities to meet LTN 1/20 standards, the potential increase in pedestrian trips across the new DAMB crossing was forecasted by uplifting the baseline pedestrian flows towards the values that would be achieved if the walk-based mode share for crossing trips increased towards the level of walk-based mode share of internal trips.

However, to allow a degree of conservatism in the forecasts, the walking trips were uplifted to half the level of that observed for internal trips. This was based on professional judgement and to reflect a degree of severance that will still remain under the new DAMB crossing, meaning walking mode shares for crossing trips are unlikely to rise to the same level as internal trips.

The forecast growth in pedestrian flows was applied to the baseline movements shown in Table 8-4 above.

8.3.2 Cycling Trips

The overall cycling mode share for MSOA pairs which were on either side of the DAMB was calculated. This showed that 4% of journeys to work by bike, travelling within the Derby City area, were considered likely to cross the DAMB for the selected MSOAs (see Table 8-5).

Table 8-5: Observed Cycle Flows for Internal and Crossing Trips

2011 Commuting Mode Share	Cycling %age
'Internal' Cycling Mode Share	4.1%
Crossing Cycling Mode Share	4.4%

The 2024 survey data was not used as the survey report noted that the surveys were carried out on the 21st of November 2024 and that this was a cold day, having snowed overnight and experienced negative temperatures for part of the day. Therefore, this may have influenced how people cycle and travelled that day. Consequently, cycling survey data from 2023 was used in this analysis as this was not impacted by abnormal weather conditions.

[21] *Arcadis, Jan 2025, Darley Abbey Mills Survey Analysis Report 2024*
[22] *TAG data book - GOV.UK*

Using the analysis process as per the cycling forecasts described earlier and an expansion factor of 1.25, growth targets for cycling were calibrated. From this, it provided a baseline of 113 cyclists per day, reflected in Table 8-6 below.

Table 8-6: Calibrated Cyclists Crossing Flows based on Expanded 2024 Surveys

O/Ds	East	West	External	Total
East	0	24	12	36
West	49	0	12	61
External	12	4	0	16
Total	61	28	24	113

Forecasts of future cycling trips following the scheme's completion were produced using the forecast scenarios presented in the Propensity to Cycle Tool (PCT)[23].

For each MSOA pair, the PCT provides forecasts of potential journey-to-work mode shares under various scenarios. The PCT presents modelling of the DfT's target to double cycling in England between 2013 and 2025. Specifically, the PCT's "Government Target (Near Market)" scenario uses sociodemographic and geographical characteristics, such as age, gender, ethnicity, car ownership, and area-level deprivation, of MSOAs to model how a national doubling of cycling to work would be distributed between different areas[24].

Under the "Government Target (Near Market)" scenario modelled in the PCT, the cycling mode share of crossing trips would increase for the selected MSOAs. Table 8-7 represents an uplift compared with the observed mode share.

Table 8-7: Total Growth for all Selected MSOAs

Observed Current Cycle Trips	Gov PCT Growth Targets	Forecast New Trips
113	2.86	324

Although the scenario's target date of 2025 is becoming outdated, bias in the data collected for the 2021 census during the pandemic means there are limited sources for which such forecast scenarios could be made. This scenario provides a reasonable forecast of the potential for growth in cycle mode share, considering the local sociodemographic characteristics and geography.

8.3.3 Emergency Trips

DCC provided historical data on recent historical flooding events when the existing bridge was impacted by excessively high water levels at the river and was used as access by vehicles for emergency trips. This data included the date and time of the first instance when the water level was above 1.7m and the last instance when the water was above 1.7m. The information showed there was a total of 22 events when the water was above 1.7m between October 2019 and January 2025.

The information provided was processed and showed the average number of flooding incidences per annum is equal to 4.2 with an average time of closure per incidence of 1,321 minutes or 22.0 hours.

[23] https://lida.leeds.ac.uk/research-projects/propensity-cycle-toolkit-pct/
[24] Health, environmental and distributional impacts of cycling uptake: The model underlying the Propensity to Cycle tool for England and Wales - ScienceDirect

The 2024 surveys report included a manual classified turning count (MCC) survey at the junction of Haslams Lane with Folly Road. This showed the following vehicles from 0700 to 1900 hrs:

- 1,254 cars;
- 170 vans; and
- 10 lorries.

The above equates to a total of 1,434 vehicles over the 12-hour main period of the day. The surveys also show that the predominant movement at that junction is along Haslams Lane east and west with approximately 90% of the movement for most of the day. This suggests that the majority of vehicles travelling along this junction are visitors or servicing to the Mills. Hence, applying the observed expansion factor of 1.10 from the surveys, this gives a baseline of 1,577 vehicles per day who would potentially use the new DAMB crossing if a flooding emergency was to happen.

Applying the average number of incidents per annum derived earlier over the identified average duration, based on a pro-rata of the full day, this gives an average annual number of emergency trips using the new DAMB of 6,080 vehicles/annum.

Vehicle diversion routes were presented in Figure 4-1 in Chapter 4 of this report. This showed the average journey distance is 4.82 km. Assuming an average speed of 48 km/h it was possible to estimate the average journey time saved from the highway network by using the new DAMB crossing. Multiplying the above vehicle estimates by the annual journey time saved and the average value-of-time (VoT) from the TAG Databook[25] gives an annual journey time economic benefit of £5,967 per annum. This was used in the economic appraisal described later in this chapter.

8.3.4 Vehicle Trips for the Fully Open DAMB Crossing

Option 6 provides the reconstruction of a multi-span concrete 8m wide (trafficked width) highway bridge comprising a 4m wide combined footway/cycleway on a new alignment. This provides full access to motorised vehicles throughout the year.

To estimate the annual vehicle flows, a similar process was followed as the steps to calculate the emergency trips. This included multiplying the average daily vehicles by the annualization factor of 253 obtained from the TAG Databook (i.e. the number of working days per year of 365 minus weekends minus public holidays). This gave an average annual number of vehicles using the full new DAMB crossing of circa 399,082 vehicles per annum.

Using the same vehicle diversion route, average journey distance, average speed of travel and average VoT value from the TAG Databook, the annual journey time economic benefit was calculated to be circa £391,685 per annum. This was used in the economic appraisal described in the following section.

8.4 Economic Appraisal

The DfT's Active Mode Appraisal Toolkit (AMAT) was used to estimate the benefits and impacts of the potential new bridge options. This helps to ensure compliance with TAG's criteria for future funding opportunities and also 'future proof' the modelling results for future business case stages.

[25] *From TAG Table A1.3.1 and Table A1.3.4*

Given the new bridge crossing would be developed in line with LTN1/20, the appraisal has been undertaken over a 40-year appraisal period.

Scheme costs were entered into the AMAT model in line with TAG Unit A1.2. Since the capital costs prepared by Arcadis do not include Optimism Bias (OB), an uplift value of 55% was applied in AMAT as per the current level of the business case (based on TAG Unit A1-2 cost estimation values). All costs entered into AMAT were in nominal prices (see section 3.6 in TAG Unit A1.2 for further guidance).

Scheme benefits were calculated by forecasting pedestrian and cyclist growth resulting from the scheme. Under the core scenario, pedestrian growth was calculated by adjusting the 2011 commuting mode share for the relevant MSOAs. For 'external' trips, journeys that occurred between MSOAs on opposite sides of the River Derwent, mode share was uplifted to calibrate with 'internal' trips, those journeys that took place on the same side of the river. This applied a growth factor of 4.75. To ensure a conservative forecast and robust AMAT, 50% of this figure was adopted. Cycling growth was estimated using the Propensity to Cycle Tool (PCT). Across the scheme MSOAs, the cycle growth factor was calculated as 2.86. This was determined by applying a 'Go Dutch[26]' scenario in the PCT and taking 50% of this value to give a conservative figure.

To provide robustness to the appraisal results, low and high sensitivity tests were calculated in addition to the core scenario. These scenarios assumed different levels in the increase of users crossing the bridge that might result from each intervention. These scenarios and the assumptions behind them are described below:

- **Low Uptake Scenario –** assumed the core scenario for pedestrian growth. For cycle growth, the adjustment was based on achieving cycling growth in line with Government targets, rather than the Go Dutch scenario; and
- **High Uptake Scenario –** assumed 75% of pedestrian growth, representing a 25-percentage point increase from the core scenario. Cycle growth assumed the same as the core scenario (50% of Go Dutch value).

For those options which include journey time benefits for motorised users, the annual estimates of journey time economic benefits predicted in the traffic analysis (described in Sections 8.3.3 and 8.3.4 above) were applied over a 40-year appraisal period and discounted for the year-on-year equivalents. Discount rates were applied in accordance with HMT's Green Book and are as follows: Years 0 to 30 = 3.5% pa and Years 31 to 40 = 3.0% pa. The resultant Present Value of the Benefits (PVB) for journey time savings are as follows:

- Option 5: PVB of JT Benefits = £71,001; and
- Option 6: PVB of JT Benefits = £4,660,706.

The outcomes of the economic appraisals are presented in

[26] *The 'Go Dutch' scenario is taken from the PCT Tool and uses Dutch likelihoods of cycling trips, applying this to an English context. It provides an ambitious scenario, implying that infrastructural and cultural barriers to cycling have been overcome, and would likely require significant investment in high quality cycling infrastructure.*

Table 8-8, Table 8-9 and Table 8-10. The table shows the various benefits versus costs of each of the shortlisted options, culminating in the standard TAG performance indicators including the Present Value of Benefits (PVB), the Present Value of Costs (PVC), the Net Present Value (NPV) and the Benefits-to-Cost Ratio (BCR). In particular, a BCR of greater than 1.0 indicates a positive return.

Table 8-8: Economic Appraisal Results for all Shortlisted Options (Core Scenario)

Transport Economic Impacts	Option 1	Option 2	Option 3	Option 4 (2)	Option 4 (3b)	Option 5 (2)	Option 5 (3b)	Option 6
Congestion benefit	-780.92	0.00	206.44	1,441.88	1,441.88	1,441.88	1,441.88	1,441.88
Infrastructure maintenance	-3.75	0.00	0.99	6.93	6.93	6.93	6.93	6.93
Accident	-130.10	0.00	34.39	240.22	240.22	240.22	240.22	240.22
Local air quality	-3.75	0.00	0.99	6.93	6.93	6.93	6.93	6.93
Noise	-8.66	0.00	2.29	15.99	15.99	15.99	15.99	15.99
Greenhouse gases	-46.84	0.00	12.38	86.49	86.49	86.49	86.49	86.49
Reduced risk of premature death	-11,883.51	0.00	2,754.63	19,567.57	19,567.57	19,567.57	19,567.57	19,567.57
Absenteeism	-2,992.05	0.00	657.90	4,707.92	4,707.92	4,707.92	4,707.92	4,707.92
Journey ambience	1,387.42	0.00	4,771.72	8,930.18	8,930.18	8,930.18	8,930.18	8,930.18
Highway journey time savings	0.00	0.00	0.00	0.00	0.00	71.00	71.00	4,660.71
Indirect taxation	-22.62	0.00	5.98	41.77	41.77	41.77	41.77	41.77
Investment costs	5,154.06	0.00	22,867.31	16,612.70	16,951.17	16,663.47	17,001.94	30,935.87
Operating costs	0.00	1,435.83	123.76	97.64	97.64	97.64	97.64	161.97
Private contributions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Present Value of Benefits (PVB)	-14,481.04	0.00	8,446.74	35,038.94	35,038.94	35,109.94	35,109.94	39,699.64
Present Value of Costs (PVC)	5,157.81	1,435.83	22,990.08	16,703.42	17,041.88	16,754.19	17,092.65	31,090.91
Net Present Value (NPV)	-19,638.85	-1,435.83	-14,543.35	18,335.52	17,997.05	18,355.75	18,017.28	8,608.74
Benefits-to-Cost Ratio (BCR)	-2.81	0.00	0.37	2.10	2.06	2.10	2.05	1.28

Table 8-9: Economic Appraisal Results for all Shortlisted Options (Low Uptake Scenario)

Transport Economic Impacts	Option 1	Option 2	Option 3	Option 4 (2)	Option 4 (3b)	Option 5 (2)	Option 5 (3b)	Option 6
Congestion benefit	-780.92	0.00	206.44	1,193.81	1,193.81	1,193.81	1,193.81	1,193.81
Infrastructure maintenance	-3.75	0.00	0.99	5.74	5.74	5.74	5.74	5.74
Accident	-130.10	0.00	34.39	198.89	198.89	198.89	198.89	198.89
Local air quality	-3.75	0.00	0.99	5.74	5.74	5.74	5.74	5.74
Noise	-8.66	0.00	2.29	13.24	13.24	13.24	13.24	13.24
Greenhouse gases	-46.84	0.00	12.38	71.61	71.61	71.61	71.61	71.61
Reduced risk of premature death	-11,883.51	0.00	2,754.63	17,392.77	17,392.77	17,392.77	17,392.77	17,392.77
Absenteeism	-2,992.05	0.00	657.90	4,307.85	4,307.85	4,307.85	4,307.85	4,307.85
Journey ambience	1,387.42	0.00	4,771.72	7,518.20	7,518.20	7,518.20	7,518.20	7,518.20
Highway journey time savings	0.00	0.00	0.00	0.00	0.00	71.00	71.00	4,660.71
Indirect taxation	-22.62	0.00	5.98	34.58	34.58	34.58	34.58	34.58
Investment costs	5,154.06	0.00	22,867.31	16,612.70	16,951.17	16,663.47	17,001.94	30,935.87
Operating costs	0.00	1,435.83	123.76	97.64	97.64	97.64	97.64	161.97
Private contributions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Present Value of Benefits (PVB)	-14,481.04	0.00	8,446.74	30,736.69	30,736.69	30,807.69	30,807.69	35,397.40
Present Value of Costs (PVC)	5,157.81	1,435.83	22,990.08	16,704.61	17,043.08	16,755.38	17,093.85	31,092.10
Net Present Value (NPV)	-19,638.85	-1,435.83	-14,543.35	14,032.08	13,693.62	14,052.32	13,713.85	4,305.30
Benefits-to-Cost Ratio (BCR)	-2.81	0.00	0.37	1.84	1.80	1.84	1.80	1.14

Table 8-10: Economic Appraisal Results for all Shortlisted Options (High Uptake Scenario)

Transport Economic Impacts	Option 1	Option 2	Option 3	Option 4 (2)	Option 4 (3b)	Option 5 (2)	Option 5 (3b)	Option 6
Congestion benefit	-780.92	0.00	331.56	2,079.79	2,079.79	2079.79	2079.79	2079.79
Infrastructure maintenance	-3.75	0.00	1.59	9.99	9.99	9.99	9.99	9.99
Accident	-130.10	0.00	55.24	346.50	346.50	346.50	346.50	346.50
Local air quality	-3.75	0.00	1.59	9.99	9.99	9.99	9.99	9.99
Noise	-8.66	0.00	3.68	23.07	23.07	23.07	23.07	23.07
Greenhouse gases	-46.84	0.00	19.89	124.75	124.75	124.75	124.75	124.75
Reduced risk of premature death	-11,883.51	0.00	3851.48	31,142.09	31,142.09	31142.09	31142.09	31142.09
Absenteeism	-2,992.05	0.00	859.68	7,794.28	7,794.28	7794.28	7794.28	7794.28
Journey ambience	1,387.42	0.00	5483.85	9,687.62	9,687.62	9687.62	9687.62	9687.62
Highway journey time savings	0.00	0.00	0.00	0.00	0.00	71.00	71.00	4,660.71
Indirect taxation	-22.62	0.00	9.61	60.25	60.25	60.25	60.25	60.25
Investment costs	5,154.06	0.00	22,867.31	16,612.70	16951.17	16663.47	17,001.94	30,935.87
Operating costs	0.00	1,435.83	123.76	97.64	97.64	97.64	97.64	161.97
Private contributions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Present Value of Benefits (PVB)	-14,481.04	0.00	10,616.56	51,268.34	51,268.34	51,339.34	51,339.34	55,929.05
Present Value of Costs (PVC)	5,157.81	1,435.83	22,989.48	16,700.35	17,038.82	16,751.12	17,089.59	31,087.84
Net Present Value (NPV)	-19,638.85	-1,435.83	-12,372.92	34,567.99	34,229.52	34,588.22	34,249.75	24,841.20
Benefits-to-Cost Ratio (BCR)	-2.81	0.00	0.46	3.07	3.01	3.06	3.00	1.80

The above results show the best performing options under all three scenarios are:

- Option 4(2) has a BCR between 1.84 and 3.07 – an active travel only replacement bridge; and
- Option 5(2) has a BCR between 1.84 and 3.06 – a replacement bridge for active travel users with provision for emergency vehicle access.

8.5 Preferred Options

Two options scored positively against the key success criteria outlined in the multi-criteria analysis. These 'top performing' options were also confirmed during the economic appraisals when assessed against the counterfactual. Those options identified as the best performing were Option 4 (an active travel only replacement bridge) and Option 5 (a replacement bridge for active travel users with provision for emergency vehicle access).

From the engineering analysis by Arcadis, the best performing design option was identified as Option 5(2). This is the perforated U-beam single-span bridge deck formed in weathering steel. This option allows for pedestrian/cyclists and emergency vehicle access only and is considered to provide the best balance of engineering feasibility, value-for-money, connectivity, aesthetic value in keeping with the surrounding Grade I and II heritage environment and usage requirements. This option also has reduced complexity for design and construction, compared with the sub option 5(3b). Furthermore, it does not require a submerged section of the bridge which would increase future maintenance and impact on river flows.

With reference to Table 8-1 and the costs presented within, Option 5(2) has the lowest capital and whole life cost, compared with the sub option 5(3b). With reference to economic appraisals, it has a BCR value of 2.10 which is the joint highest result.

Appendix A: Option Assessment Framework

Long list scoring (unweighted)

Latest update *29/11/2024*

							Idea No	1	2	3	4	5	6
							Idea Description	**Do nothing - Removal of Crossing**	**Do minimum - Continuation of Temporary Structure**	**Restoring Bridge Structure**	**Building a New Structure – Active Modes Only**	**Building a New Structure – Active Mode + Vehicle Access in Emergency Only**	**Building a New Structure – Active Mode + All Vehicle Access**
Theme	**Metric**			**0**	**+**	**++**							
Strategic Case	Enhance cycling and walking safety and connectivity, supporting active and sustainable trips, linking with existing local networks and wider regional routes	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial		-2 Removing the structure completely would eliminate all cycling and walking access, removing links with existing networks and routes.	1 Will maintain access for walking and cycling, keeping the link to existing local networks and wider regional routes but the quality (width and steepness) of the route are not very user friendly in the long term.	1 Will provide access for walking and cycling and keep the link to existing local networks and wider regional routes. Previous safety concerns with incidents between vulnerable pedestrians / cyclists and vehicle traffic would return as traffic is able to use the crossing also.	2 Will provide safe access for walking and cycling and keep the link to existing local networks and wider regional routes.	2 Will provide safe access for walking and cycling and keep the link to existing local networks and wider regional routes. Vehicular traffic is restricted to emergencies.	1 Will provide safe access for walking and cycling and keep the link to existing local networks and wider regional routes. Potential conflicts with vehicular traffic could compromise safety.
	Provide a safe crossing for users	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial		0 Removing the bridge does not provide any safety benefits	0 Continuation of the current arrangements does not change the safety conditions	-2 The previous bridge had known structural safety concerns due to its infrastructure conditions, which have been assessed by the engineers as possing a significant dangerous status if the asset was simply to be restored	2 Providing a modern crossing would alleviate structural safety concerns. In addition, providing a bridge designed only for active modes would support the standards of LTN1/20	1 This is similar to Option 4 but providing vehicle access reduces the benefits of LTN1/20 conditions	-1 This option mixes all types of vehicles with active modes and hence does not meet LTN1/20 standards. It does provide an opportunity to alleviate the known structural safety concerns of the original bridge
	Assist local businesses and economic vibrancy by maintaining access to the regeneration area of Darley Abbey Mills	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial		-2 No crossing doesn't allow access from residential side of the mills which could deter people from visiting, having a negative impact on local businesses	-1 Link is in place but road arangements/conditions limit access to businesses	0 This will keep the same circumstances from before the bridge was assessed. There would be no further incremental changes and hence impacts	1 This will provide access to local businesses from both sides of the mills, supporting economic vibrancy	1 This will provide access to local businesses from both sides of the mills, supporting economic vibrancy	2 This will provide access for all modes of transport to local businesses from both sides of the mills, supporting economic vibrancy
	Maintain resilience against extreme weather and emergency conditions	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial		-2 No access for emergency services if floods occur	-1 Access from both sides of the bridge offers refuge if one side floods or if there is an emergency. However, as it is only temporary, it will have limited benefits in extreme weather conditions	-1 Access from both sides offers refuge if one side floods or if there is an emergency. However, the identified safety concerns due to the structural conditions would limit the benefits due to imposed speed and weight restrictions	1 Access offers refuge if one side floods or if there is an emergency (albeit not for vehicles). Although the bridge is intended for active modes only, it could still be used for emergency and fire services but not for vehicles.	2 Allows access from both sides for emergency vehicles to help when floods or emergencies occur and allows refuge from both sides if one direction gets flooded or other road blockages	2 Allows access from both sides to help when floods or emergencies occur and allows refuge from both sides if one direction gets flooded or other road blockages
	Respect and enhance the local heritage and historical character of the area. Impact on heritage includes visual and surrounding impacts	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial		-2 Removing the crossing could threaten the protected status of the area, given the importance of the link between residential and employment areas. Having no bridge would take away from the original mill heritage as it is part of its history	-1 Visually the temporary structure does not respect and enhance the local heritage and historical character. It does not have environmental value impact	2 Historical character and local heritage would be retained, as the structure would be restored	1 The structure would be new, but can be constructed to stay in keeping with original character of crossing	0 The structure would be new, potentially larger structure. This could be mitigated using specific construction and design methods	-1 The structure would be new, and a much larger structure with a larger footprint. In addition, the bridge would likely be made of a different material to withstand the weight of full vehicle access. This would be somewhat out-of-keeping with the heritage of the site
Acceptability	Impact on environment	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial		-2 Removing the current bridge abutments and riverbank connections would require in-filling of the soil/ground conditions and hence there would be displacement and environmental impacts	-1 Keeping the temporary structure will involve scaffolding and have visual impact and there could be other environmental impacts due to the nature of the structure	0 Restoring the bridge will have limited impact on the environment	0 Allowing no car access from one side of the mills would support reducing emissions. However, this is considered to be cancelled out due to the fact that the structure could have some limited impact on environment/habitats	-1 The larger structure needed to accommodate vehicles would require removal of existing habitats /vegetation. This would also be visual impacts	-2 Introducing a crossing which allows all vehicle access will contribute negatively to air and noise pollution. Also, the larger structure has potential to remove existing habitats/vegetation. This would also be visual impacts
	Impact on flood risk	Large adverse	Slight adverse	Neutral	Slight beneficial	Large beneficial		-1 No access for emergency services if floods occur	-2 There would be a risk of the structure falling down and causing more damage and having no emergency service access	0 This would maintain emergency vehicle access, but there would not be the possibility to raise the deck level	1 Potential for building a structure which is planned for flood risks and opportunity to raise deck level for actual structure. But does not have access for emergency services	2 This has the potential for building a structure which is planned for flood risks and could provide an opportunity to raise deck level for actual structure	2 This has the potential for building a structure which is planned for flood risks and could provide an opportunity to raise deck level for actual structure
	Stakeholder opinion	Majority negative		Neutral / polarised view		Majority positive		-2 Opinion is negative due to having no access to businesses, impacting them economically. Also, having no refuge when flooding occurs and the access to the mills is blocked. There will also be no access for emergency services from both sides of the mill	-2 Opinion is negative due to not keeping the heritage of the site and also having no emergency service access	-1 A costly option over time for a traffic bridge which maintains the limitations of existing structure	0 Enhances cycling and walking and keeps the crossing. But does not allow access for emergency services	1 Enhances cycling and walking and keeps the crossing as well as allowing access for emergency services	0 Polarised views in terms of allowing access for all types of vehicles
Deliverabi		Significant Challenges		Not known		No Issues		-2 Significant challenges in removal the bridge and staying with a lack of crossing	1 Few issues as the temporary structure is already in place. However, there would be significant on-going maintenance burdens placed on the public sector resources	-2 Significant challenges in restoring the structure. There would also be significant on-going repairs with impacts to the public sector resources	1 Limited issues expected if built to LTN1/20 standards	-1 Limited issues expected if built to LTN1/20 standards. However, there is likely to be challenges with the larger structure	-2 Significant practical challenges involved with implementing the larger structure
		Significant disruption		Some disruption		Limited / no disruption		-1 There would be disruption during the removal of the current structure, with likely road closures and noise disruption	2 This would not involve any construction as the structure is already in place	-1 There would be disruption during the renovation of the current structure, with likely road closures and noise disruption	-1 There would be disruption while the bridge is being removed and re-built. Residents would have limited access and there would be a lot of noise disruption during construction	-1 Area would have a high level of disruption while the bridge is being removed and re-built. Residents would have limited access and there would be a lot of noise disruption during construction. The surrounding roads would also need amendments to accommodate emergency vehicles	-2 Area would have a high level of disruption while the bridge is being removed and re-built. Residents would have limited access and there would be a lot of noise disruption during construction. The surrounding roads would also need amendments to accommodate emergency vehicles
	Legal complexity	Significant Challenges		Not known		No Issues		-1 Potential for some challenges and environmental legal issues	0 Continuation of existing situation. Legal complexity due to bridge structure concerns	-1 Potential for some challenges and environmental legal issues	-1 Potential for some challenges and environmental legal issues	-1 Potential for some challenges and environmental legal issues	-1 Potential for some challenges and environmental legal issues
	Land acquisition requirement	Land acquisition required		Potential for land acquisition		No additional land required		2 This would not require any land acquisition as the bridge would not be reinstated	2 This would not require any land acquisition as the structure is already there so no additional land needs to be purchased	2 This would not require any land acquisition as the bridge would not need to be bigger than the original structure	1 This would not require much more land acquisition as the structure is a smaller size	1 Structure needs to accommodate emergency services, but limited requirements for access rights for construction	-1 Due to the level of traffic which would be able to access this bridge, more space may be required to account for size of structure and land arrangements
		Significant Challenges		Not known		No Issues		0 No technologicial issues expected	0 No technologicial issues expected	0 No technologicial issues expected	0 No technologicial issues expected	-1 Vehicle access could be enforced though measures such as automatically removable bollards and CCTV/ANPR. This could come with technological issues when installing measures or ongoing maintenance	-1 If fully open to traffic then no technological infrastructure would be needed to control or filter different types of traffic
	Implementation timescales	Over 2 years	Within 2 years	Within 1.5 years	Within 12 months	Within 6 months		1 Would only take a short period as structure is only being removed and there is no need to build another	2 This would not take any time as the structure is already in place	-1 Based on the number of issues with the current crossing, the time scale to repair could be quite lengthy	-1 Having to remove the current structure and build another would be a lengthy process	-1 Having to remove the current structure and build another would be a lengthy process	-2 Having to remove the current structure and obtain additional land as well as build another bridge would be a lengthy process
Affordability		Very high				Very low		1 There would only be a cost to remove the structures but no further cost as nothing is being built	2 There would be no capital cost to keep the temporary structure as nothing is being taken down or built	-1 Cost of repairing the structure would be high, especially with all the previous damage and structural concerns	-1 Cost of removing the structure and building in a new one would be moderate due to the fact it is only for active modes	-1 Cost of having to remove the existing structure and providing more land as well as having to use stronger materials to withstand weight of emergency service vehicles over time would be significant	-2 Cost of having to remove the existing structure and providing more land for a larger footprint as well as having to use stronger materials to withstand weight of all types of vehicles over time would be very high
	Operational Cost	Very high				Very low		2 As there is no crossing, there will be no operational costs	-1 Ongoing cost of rent will be a long term cost along with maintenance costs	-2 Cost of maintaining the original structure will be high. Due to the age, potential risk of higher maintenance cost as it is not a new structure	-1 Due to no vehicle access, operational costs should be low	-1 Due to only being constructred for limiter emergency vehicle access, operational costs should be low. There are also technical maintenance cost due to the movable bollards and CCTV/ANPR	-2 Due to construction materials for all types of vehicles, operational costs are expected to be significant
	Estimated Value for Money (scheme life)	Very poor value for money	Low value for money		Medium value for money	Very high value for money		-2 The removal of the crossing would be a cost which provides no return-value	-1 Costly maintenance / renting of structure throughout its life would provide a potential VfM impact	-1 Continual maintenance and significant costs could undermine the VfM	1 The cost likely be outweighed by the benefits of a new crossing	1 The cost likely be outweighed by the benefits of a new crossing	-1 The cost is not expected to outweigh the benefits of a new crossing
	Funding Sources	No expectation of funding	Limited expectation of funding	Some potential for funding	Good potential for funding	Funding identified and secured		-1 The cost to remove the structure would be a cost which comes with no benefit, so funding opportunities may be limited	-2 The cost to continue renting the temporary structure would be expensive and would likely require revenue funding rather than capital and unclear where funding would come from	-1 Some potential funding sources, although likely to be costly and require additional miniatous throughout its life	1 Good potential for funding	1 Good potential for funding	1 Good potential for funding