

Evaluation Report: Shrewsbury Flaxmill Maltings' Construction Phase

January 2023



Figure 1. An image of the restored Main Mill and Kiln © Steve Baker, Historic England, November 2022

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Introduction

This document provides an overview of the evaluation of the Construction Phase of the Shrewsbury Flaxmill Maltings project. An in-depth project report has also been drafted detailing the Construction Phase of the intervention from start to finish. The preliminary findings of this evaluation report will form the basis for the final impact evaluation in 2025 which will include long-term operational findings.



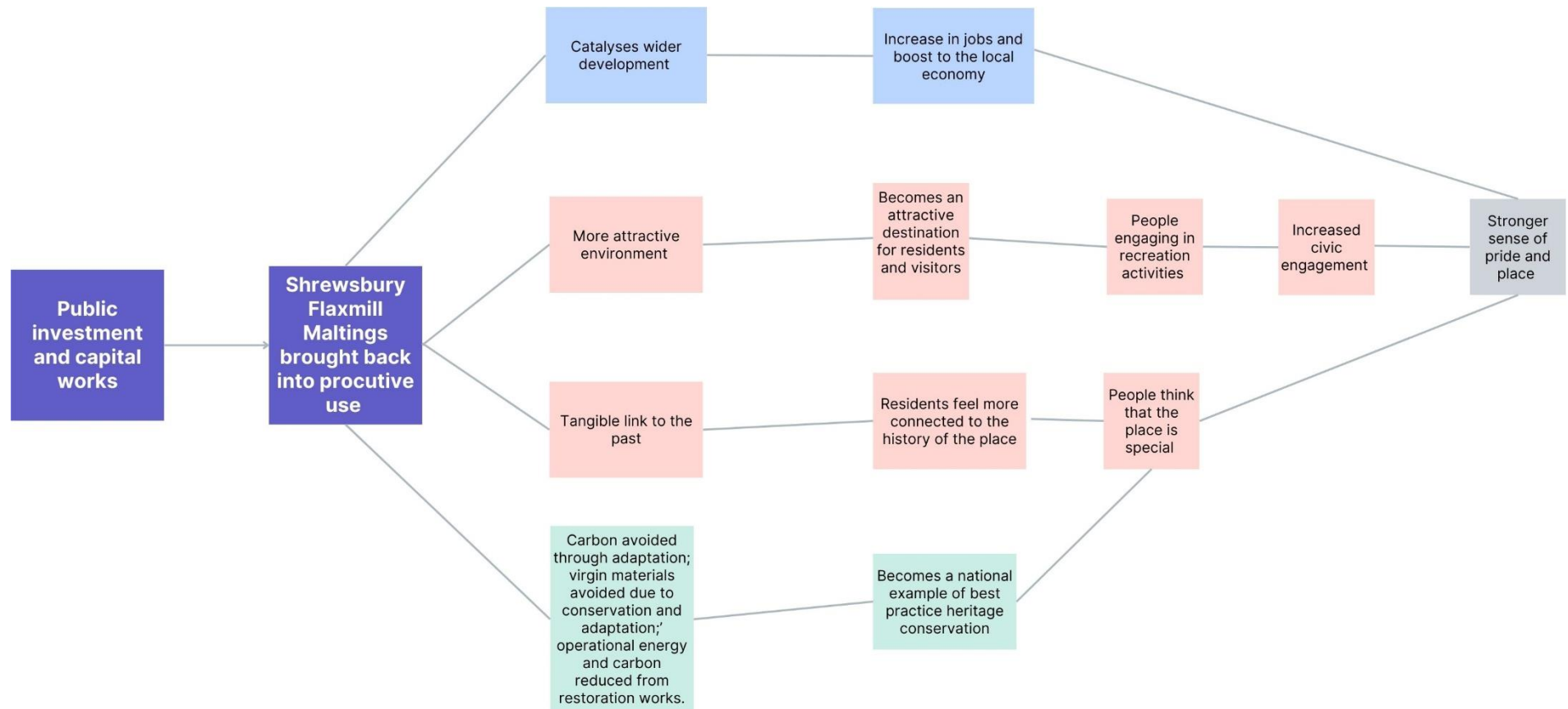
Figure 2: Site plan showing location of historic buildings (©Steve Baker, Historic England, August 2022)

Table 1: Site buildings and current status

Designation Name	Also known as	Grade	Built	Current Status – project stage
Spinning Mill	Main Mill	I	1797	Restored - Stage 2 Heritage Fund project
Cross Building	Cross Mill	I	1803 (destroyed by fire), rebuilt 1812	Partial repairs carried out - Stage 4 - No current timescale for major restoration. Roof structure repaired through Heritage Stimulus Fund (HSF) grant in 2020.
Flax Warehouse	Warehouse	I	1810	Major repairs required - Stage 4 - No current timescale for restoration
Apprentice House	Apprentice House	II*	c. 1810	Major repairs required - Stage 4 - No current timescale for restoration. Some repairs carried out in 2021 through HSF grant.
Dye House & Stove House	Dye & Stove House	II*	1850	Major repairs required - Stage 4 - No current timescale for restoration. Some repairs carried out funded by HE for improved access and meanwhile usage from 2016 to 2020.
Maltings Kiln	Kiln	II	1898	Restored - Stage 2 Heritage Fund Project
Smithy or Workshop and Office	Smithy	II	1804	Restored - Stage 1 European Regional Development Fund (ERDF) project – opened as a Visitor Centre in 2015. Formed part of the wider Stage 2 project.
Stables and remains of Packing Warehouse	Stables	II	1804	Restored - Stage 1 ERDF project – opened as a Visitor Centre/learning facility in 2015. Formed part of the wider Stage 2 project

Theory of Change

A theory of change is a visual framework that outlines the causal relationships between desired outcomes, activities, and external factors, providing a roadmap for understanding and achieving change. Using a theory of change in evaluations is crucial as it provides a clear and systematic way to articulate and assess the underlying assumptions and logic behind a program or intervention, enhancing the accuracy and effectiveness of the evaluation process. This theory of change represents how our investment in the Shrewsbury Flaxmill Maltings generates the outcomes we want to achieve.



Logic Model

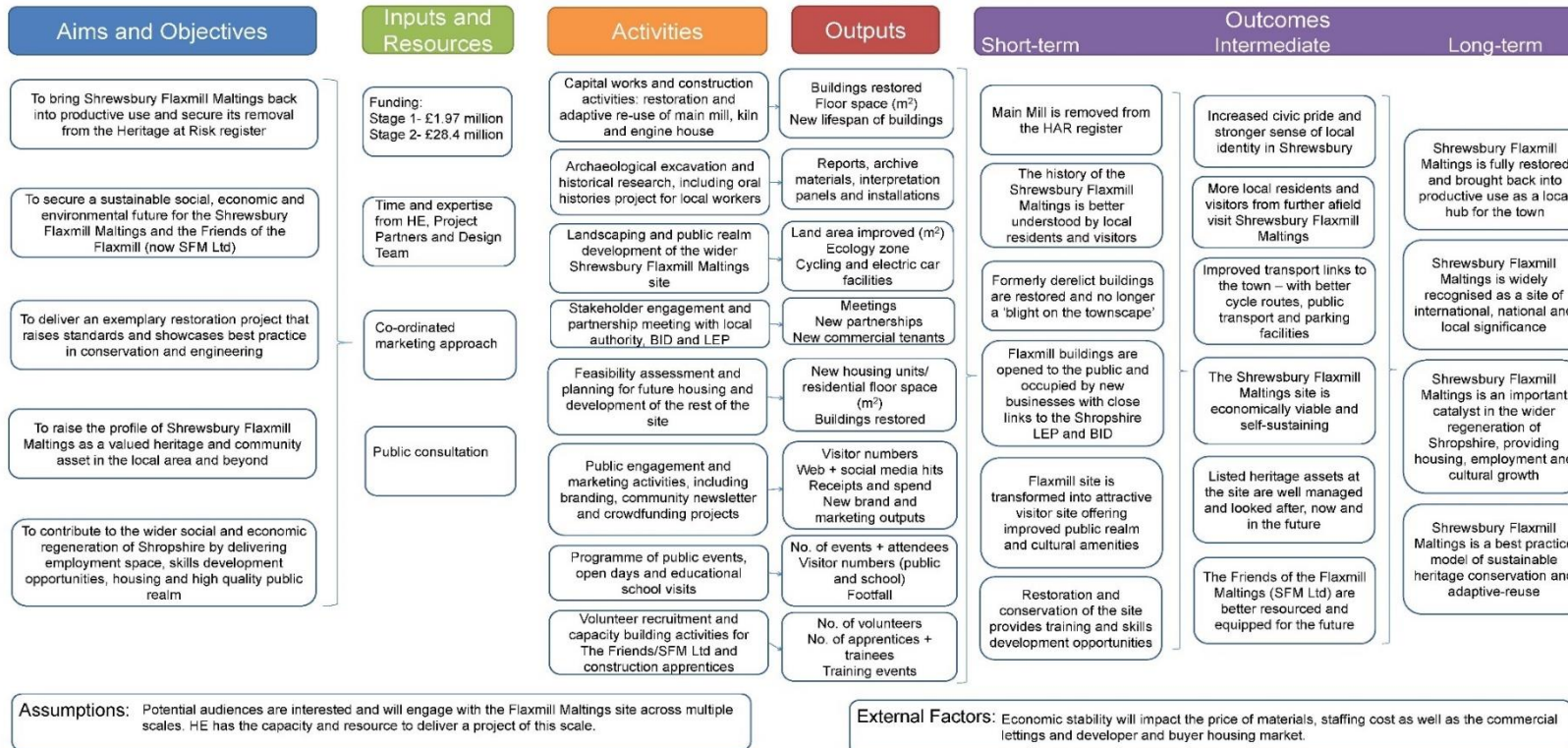
The evaluation was conceptualised using a logic model, which sets out the links between activities, expected outputs and outcomes for key elements of the scheme (see Figure 2). An indicator framework was devised to determine the specific observable evidence needed to indicate if an output or desired change had been achieved.

Shrewsbury Flaxmill Maltings

Logic Model



Rationale: The Main Mill at Shrewsbury Flaxmill Maltings is a Grade I listed building with international significance as the world's first iron-framed building built in 1797. Closure of the mill in 1987 led to a long period of dereliction and uncertainty about its future. Previous attempts to restore the site had been thwarted by a large conservation deficit. The Mill's location slightly outside of the town of Shrewsbury has also affected its viability for restoration and re-use and is also one of the more deprived wards in the area. The local authority is now undertaking a strong drive to regenerate the wider town, with initiatives including [The Big Connection](#), which places an emphasis on local heritage. A high quality restoration of Shrewsbury Flaxmill Maltings now provides an opportunity to transform an eyesore into an iconic landmark, whilst also providing a new focal point and opportunities for the local community.



Evaluation methodology

The mixed method approach to evaluation was taken. The focus of this evaluation is on the Construction Phase, specifically the delivery of key outputs according to the logic model. The associated short-term outcomes and the contribution to some of the long-term outcomes will also be assessed as part of this evaluation.

Shrewsbury Flaxmill Maltings and the National Lottery Heritage Fund Evaluation Framework

The Stage 2 project commenced on site in 2017 and as such, HE was advised to follow the National Lottery Heritage Fund's guidance from the time ('Evaluation: Good-practice guidance', August 2017), whilst paying attention to any changes made in later iterations of this guidance.

In 2017, the outcomes for the National Lottery Heritage Fund were split into three elements, as shown in table 2 below. Details have been provided as to when these outcomes will be fully evaluated and reported upon.

Table 2: National Lottery Heritage Fund's outcomes, August 2017

Outcome Category	Individual Outcome	Evaluation Timetable
Outcomes for Heritage	Heritage will be better managed	Construction Phase
Outcomes for Heritage	Heritage will be in better condition	Construction Phase
Outcomes for Heritage	Heritage will be better interpreted and explained	Construction Phase and Operational Phase
Outcomes for Heritage	Heritage will be identified/recorded	Construction Phase
Outcomes for People	People will have learnt about heritage	Construction Phase and Operational Phase
Outcomes for People	People will have developed skills	Construction Phase and Operational Phase
Outcomes for People	People will have changed their attitudes and/or behaviours	Construction Phase and Operational Phase
Outcomes for People	People will have had an enjoyable experience	Operational Phase
Outcomes for People	People will have volunteered time	Construction Phase and Operational Phase
Outcomes for Communities	With our investment, environmental impacts will be reduced	Construction Phase
Outcomes for Communities	More people and a wider range of people will have engaged with heritage	Operational Phase
Outcomes for Communities	Your local community will be boosted	Operational Phase
Outcomes for Communities	Local area/community will be a better place to live, work or visit	Construction Phase and Operational Phase
Outcomes for Communities	Your organisation will be more resilient	Construction Phase and Operational Phase

Embedding a Cultural Heritage Capital (CHC) Approach in evaluation

The aim of the CHC Framework is to better articulate and capture the value of heritage within an economic framework focusing on capturing the broader benefits that heritage generates based on the unique characteristics of heritage from which additional cultural, social, economic and environmental benefits emerge.

The CHC approach is based on best practice from the natural capital approach which considers a stock, flow and benefit approach. In this approach it is considered that the value of heritage investment will emerge as culture and heritage assets (stock) produce services (flows) that drive human well-being through the benefits they deliver to individuals, communities and places.

Table 3: Limitations of the Evaluation

Limitation	Mitigation
Gaps in monitoring and baseline data	Comprehensive review of data and evidence interviews with key stakeholders.
In-house evaluation	An evaluation framework and logic model were developed to guide the evaluation. An external evaluator will be commissioned to undertake an ex-post evaluation.
Project has not had sufficient time to achieve its medium- and long-term outcomes	Final impact evaluation will review the medium- and long-term outcomes that are beginning to emerge as a result of this research.

Shrewsbury Flaxmill Maltings Timeline

1779 State of the art steam powered Flaxmill is built, to process flax to make into linen yarn and thread. The business is successful for the better part of a century and becomes Shrewsbury's biggest employer.

1887 The flax mill lies empty for a decade after closure due to a fall in the demand for linen (eclipsed by a rising preference for cotton).

1897 Buildings on the site are converted and come into new use as a maltings; new buildings including the Kiln are also constructed for this purpose.

1933 The maltings business onsite goes into administration as the traditional methods it uses cannot compete with new technologies and purpose built maltings elsewhere.

1945 Some parts of the site see use during the Second World War as storage facilities and temporary barracks for the Light Infantry. The floors previous used for the malting business become sleeping areas for the soldiers.

1948 The building is taken over by new management, Ansell's Brewery, who also build two new concrete grain silos in the 1950s-1960s.

1987 The site closes as a maltings and lies empty, falling into disrepair.

2005 Historic England buys the site in 2005, with the aim of saving it for the future. The buildings have primarily been unused since the maltings closed, until this point. Much of the building is supported by scaffolding.

Project Context

Context frames an intervention and so is crucial for evaluating the impact of the project. The Flaxmill Maltings narrative is one of resilience, throughout its history the building is continuously adapting to meet the needs of its occupants.

Location

Shrewsbury Flaxmill Maltings is located within the Shrewsbury Town Centre Conservation Area, approximately a mile from Shrewsbury train station and the town centre. The site is in both the Castlefields and Ditherington wards – some of the most deprived localities within the Shropshire Council area, which fall into the second and fourth most deprived deciles nationally (with one being the most deprived, according to the Index of Multiple Deprivation (IMD) 2015 and 2019, Department for Communities and Local Government). This project directly supports the government's Levelling Up agenda by investing in an area of demonstrable need to address spatial inequalities.

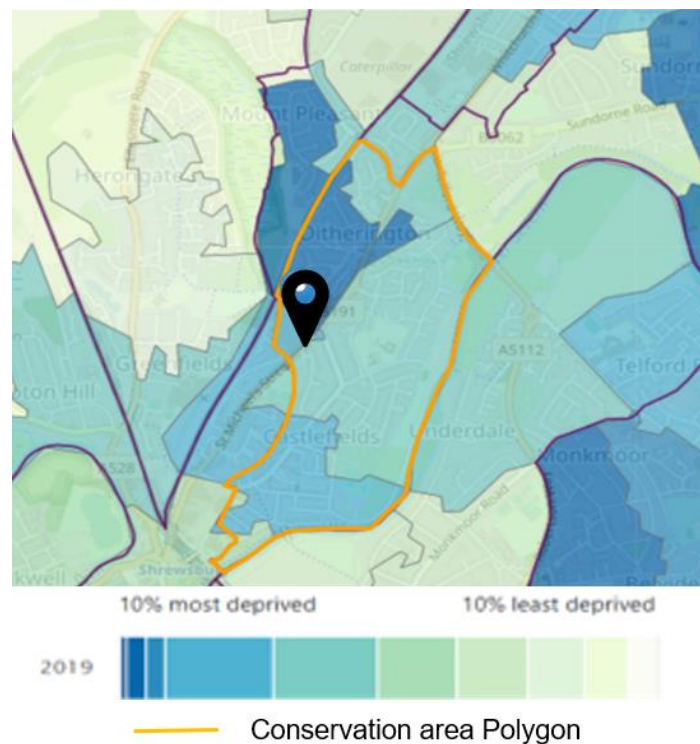


Figure 3: Map of Shrewsbury Flaxmill Maltings and Conservation Area according to IMD deciles, Contains public sector information licensed under the Open Government Licence v3.0.

Discussion: Historical Context and the Evaluation

Environmental value:

The site's long history of obsolescence and revival demonstrates the durability and adaptability of the site. Within this context, the extensive environmental value of the site lies in the carbon that is avoided through reuse and repurposing the site. Evidence shows by re-using existing assets rather than replacing them with new can reduce carbon emissions by up to a third of the emissions of a new development (Carrig, 2019).

“The greenest building is the one that is already built.” (Carl Elefante)

The assets of Shrewsbury Flaxmill Maltings have been in use for over two centuries and are by large constructed using local, durable materials contributing to the sustainable merits of the site.

Economic value:

Shrewsbury Flaxmill Maltings has remained in active use over large parts of its history, accommodating various industries and businesses, acting as an important local employment hub. Over its nearly 230 years, the site has functioned as one of the area's largest employers providing generations of local populations with jobs and incomes.

Place value:

Shrewsbury Flaxmill Maltings is a unique site of national and international significance that has gone on to shape the urban environment as we know it today. Acknowledged to be the grandparent of the modern-day skyscraper, the site's pioneering engineering and architectural history allowed buildings to be built taller using a fireproof structure.

It is this historical context that partially explains the public value of the site both in terms of its use value (as an employment, community and residential site) and in terms of its non-use value (generating benefits through place attachment and civic pride by telling the unique story of the evolution place, technology and local collective identities).

The Restoration: Summary

There are eight listed buildings at Shrewsbury Flaxmill Maltings – all of which were in a state of disrepair upon purchase of the site by Historic England in 2005. Due to the scale of the restoration and its complex nature, the programme of works for the Flaxmill Maltings restoration has been split into different project stages. These are explained in the following table:

Table 4: Shrewsbury Flaxmill Malting Restoration Project Phases

Stage	Phase	Funders	Description	Cost (total)	Dates
1		ERDF, HE (part of the wider Stage 2 project - permission to spend by Heritage Fund).	Office, Stables and Public Realm – creating visitor centre and educational space within Office (Smithy) and Stables, demolish 1950's concrete grain silo to create public realm space between Office and Stove House	£1.97m	Sept 2014 – Dec 2015
2	1	Heritage Fund, HE, Shropshire Council, Friends of the	Conservation and repair work to the Main Mill – roof, windows, facades, structural strengthening	£28.4m	April 2017 – 30 Dec 2018
2	2	Flaxmill Maltings, Trusts,	Remaining structural work to Main Mill, Kiln and Jubilee Tower		Feb 2019 – March 2020
2	3	Foundations and Individuals.	Refurbishment of Main Mill and Kiln, infrastructure, landscaping and car park, interpretation, ground floor and first floor fit out.		April 2020 – Sept 2022 (visitor areas), May 2023 (Kiln & offices)
2	Operations	Heritage Fund and generated income	Two to three years of ground floor operations.		Sept 2022 – 2025 (tbc)
3		Marches Local Enterprise Partnership (LEP), HE	Enabling works to development land - construction of bat house, upgrade of roundabout, and construction of access road, landscape improvement works.	£2.4m (£2m from LEP)	Sept 2018 – March 2022. Housing output to follow
3		Heritage Stimulus Fund (HSF, round 2)	Landscape improvement works – line of the former canal, access ramps and repairs to north-east access stairs	£350,000* (full HSF2 grant, incl. Apprentice House repairs)	June 2021 – March 2022
3			New build development		Marketing to start autumn 2023
4		HSF, round 1	New roof to Cross Mill and stabilising repairs to a brick retaining wall	£650,000	Nov 2020 – March 2021
4		HSF, round 2	Repairs to internal ceilings and external doors on Apprentice House	*See above	June 2021 – March 2022
4		HSF, round 2	Restoration of remaining historic buildings (see building information profiles)		

The following programme puts into context when the different of stages of work have, or are scheduled to take place:

Table 5: A timeline showing when each phase of the Shrewsbury Flaxmill Maltings' restoration works is scheduled to take place

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Stage 1 Office & Stables												
Stage 2 Main Mill & Kiln												
Phase 1												
Phase 2												
Phase 3												
Operations												Ongoing, but this is date of Grant Completion
Stage 3 Wider Site												
Enabling work												
Landscape improvement												
New build												ongoing
Stage 4 Remaining historic buildings												
Cross Mill repairs												
Apprentice House repairs												
Remaining buildings												tbc

Impact Assessment: Emerging Evaluation Findings

From the Logic Model (table 2), Outcome Indicators and Heritage Fund Outcomes (table 3), there are a number of elements that can be assessed from the Construction Phase of the project, and a large number that can't be evaluated until completion of the project's operating phase, and even beyond that.

This section of the evaluation report examines those outputs that have been completed as a result of the construction work, and then views the Heritage, Economic, Social and Environmental aspects of the Construction Phase highlighting some emerging impacts.

Logic Model

The following table pulls out the Construction Phase related elements out the Logic Model and provides high level results:

Table 6: Construction Phase objectives, activities, outputs and outcomes from the logic model, and the recorded results

Aims and Objectives	Activities	Outputs	Outcomes	Results
To bring the Flaxmill Maltings back into productive use and secure its removal from the Heritage at Risk register	Capital works and construction activities – restoration and adaptive reuse of the Main Mill and Kiln	Buildings restored; floor space created	Main Mill is removed from Heritage at Risk register	<ul style="list-style-type: none"> Main Mill to be removed in 2023 (HaR published in autumn) 3,320m² of restored space created in the Main Mill and Kiln (3,477m² if including the Stables and Smithy)
To secure a sustainable social, economic and environmental future for the Flaxmill Maltings and the operating company	Archaeological excavation and historical research, including oral histories project for local workers	Reports, archive material, interpretation panels and installations	The history of the site is better understood by local residents and visitors	<ul style="list-style-type: none"> Archaeological watching brief held through all works Finds restored and included within exhibition Community Archaeology project held in Cross Mill (will be in later report) Reports created (HE internal) Full exhibition explaining history of site Ground source heat pump fitted to aid sustainability Oral histories captured by the Friends (later report)
To deliver an exemplary restoration project that raises standards and showcases best practice in conservation and engineering	Landscaping and public realm development of the wider Flaxmill Maltings site	Land area improved, ecology zone, cycling and electric car facilities	Former derelict buildings are restored and no longer a 'blight on the townscape'	<ul style="list-style-type: none"> Line of former canal saved and landscaped for public use Ecology zone with bat house, badger set and wildflowers Ten EV charging points included within Railway Triangle car park Award nominations for the project – won Diaphorus Award at Georgian Society Awards 2022

National Lottery Heritage Fund Outcomes

The following lifts out those Heritage Fund outcomes that have been demonstrated because of the Construction Phase of this project:

Table 7: National Lottery Heritage Fund Outcomes

Category	Outcome	Timetable	Delivered and for follow up evaluation
Outcomes for Heritage	Heritage will be better managed	Construction Phase	Buildings have dedicated Facilities Manager, Main Mill and Kiln have maintenance plan in place, cyclical maintenance programmes continuing for other buildings. The later report will be able to assess the success of the works in terms of maintenance, upkeep and any issues that have occurred.
Outcomes for Heritage	Heritage will be in better condition	Construction Phase	Main Mill scheduled to be removed from Heritage at Risk Register (only for Grade I and II* buildings). Main Mill and Kiln brought back into public use. The later report can assess success of works and consider any successes in terms of national recognition for works completed.
Outcomes for Heritage	Heritage will be better interpreted and explained	Construction Phase and Operational Phase	Construction phase had explanatory hoardings and onsite signage explaining the works underway. Full exhibition now open, with associated website and social media for the public to view.
Outcomes for Heritage	Heritage will be identified/ recorded	Construction Phase	Archaeological work took place underway, new findings have been recorded and written up. New artefacts conserved and included within exhibition. Articles published in magazines and journals.
Outcomes for People	People will have learnt about heritage	Construction Phase and Operational Phase	Construction Training Activity Programme allowed people to understand and participate in elements of the restoration work. The exhibition tells visitors about the history of the building and site.
Outcomes for People	People will have developed skills	Construction Phase and Operational Phase	Construction Training Activity Programme enabled people to be involved in the restoration of the building, through placements, CPD and training opportunities.
Outcomes for People	People will have greater wellbeing	Construction Phase and Operational Phase	Those involved in the Construction Phase of the project reported an increase in wellbeing. Early evidence suggests that the amenity value of the restored Shrewsbury Flaxmill Maltings will increase wellbeing in the local area. Wellbeing will be examined in more detail during the final evaluation.
Outcomes for Communities	With our investment, environmental impacts will be reduced	Construction Phase	Two derelict buildings brought back into active use. Calculations have been carried out linked to carbon outputs. A ground source heat pump reduces reliance on gas central heating. An ecology zone has been installed to encourage wildlife. Electric car charging points have been installed along with cycle pathways.
Outcomes for Communities	Local area/ community will be a better place to live, work or visit	Construction Phase and Operational Phase	Four floors of commercial office space created. Job opportunities created as a result of the project. Café created with aim of becoming a community hub. Public realm space created along the line of the canal. Two derelict buildings brought back into use.
Outcomes for Communities	Your organisation will be more resilient	Construction Phase and Operational Phase	Historic England resource expanded throughout the course of the project. Had financial ability to carry out several funded projects at the same time.

Heritage Impacts

Evaluation evidence suggests that the heritage impact of the Flaxmill Maltings project is one of the overall successes.

A building of international heritage significance has been saved

Stakeholders interviewed repeatedly mentioned the core and unwavering goal of the Flaxmill Maltings project during the Construction Phase was to save the derelict site. A driving force behind that goal has been its historical significance at a national level.

"So that's been important, I think, you know, nationally as well, it would have been, you know, been a disaster if this building had just been left to crumble, and it had fallen down, I think it, it was important that this place was saved, and that's its story." **HE Interview 8**

Saving the Flaxmill Maltings and making the building publicly accessible is a success for heritage at both a national and international scale.

The restoration work has been delivered to an exemplary standard

Evidence from desk-based analysis and stakeholder interviews underlines that the quality of the conservation work was to a high standard. When commencing the project Historic England was placed in a unique position shifting from funding body, to delivering the construction project. This was a learning curve for HE and there was a feeling of external pressure to deliver a heritage led regeneration project that would act as an exemplar for the heritage sector.

"I'm think I mean, overall, it's been, you know, as we've said the rescue of a hugely important historic building at risk. And then, you know, larger than that one building and building the site. That being having, we very much hope, a real sort of exemplar of heritage led regeneration because of the size and scale of it." **HE Interview 9**

What has been reported in interviews with external stakeholders is high quality project practices spanning conservation, construction, ecology. This is further evidenced in 2022 when the project was awarded the Diaphoros Prize at [the Georgian Group Architectural Award](#), which celebrates 'exemplary conservation and restoration projects in the UK'.

The project will have a lasting legacy

The heritage legacy of this project can be seen in both the heritage sector and beyond. As outlined, the high standard of heritage conservation that was central to the Construction Phase functions as a best practice for the heritage sector. Furthermore, at the core this project has been focused on restoring the Main Mill building for generations to come and the Construction Phase of the project has achieved this aim. The legacy of both of these heritage impacts will be explored as part of future research.

Economic Impacts

An essential part of this evaluation is considering the economic impacts of the Construction Phase. Importantly, many of these impacts are still emerging some have been identified and will be explored in this section.

£29 million of public funding invested

As of May 2023, the estimated cost of Stage 2 capital works was approximately £25 million, not including Design Fees or Staff wages. The construction project is estimated to have a net Gross Value Added (GVA) impact of £29 million localised to Shrewsbury. In total, through direct and indirect impacts of the project has been estimated to support £64 million to the UK economy disregarding any impacts of displacement, leakages and substitution.

The net FTE jobs that this project supported over the duration of the Construction Phase was approximately 283, with 154 being associated directly to construction of the site and 300 indirectly through supply chains. In total, not considering the impacts of displacement, leakages and substitution the Construction Phase of the SFM project support over 550 FTE jobs, with over 250 being directly involved in the project and 300 in the supply chains.

1,906m² office space has been created

If the entire office space is fully occupied (some 1,906m² of offices, not meeting rooms or circulation space), the Flaxmill Malting is expected to generate an annual net contribution of £5m-£8m to the economy of Shrewsbury through its supported business activities. This economic impact is equivalent to creating 78 to 109 full-time jobs. In total, the economic activity that Flaxmill Malting can support through commercial activity is approximately £12m a year, the economic equivalent of creating 167 jobs full time jobs.

Around 92% of the estimated contribution is expected to come from the occupancy of office space. However, it is important to note that the net figure considers the possibility that some of the jobs created may have existed even if the Flaxmill Maltings did not exist. For example, the increase in office occupancy at the Flaxmill Maltings could result in a decrease in office occupancy outside the site (displacement). Therefore, the net figure reflects the actual impact that the Flaxmill Maltings has on job creation and the economy of Shrewsbury. The extent of displacement that may occur due to a development project can vary significantly and depends on various factors such as the project's location, scale, and the prevailing market conditions. Therefore, estimating the level of displacement accurately can be challenging. This is especially true as at the time of writing, only the first floor was ready for occupation, with the other floors vacant.

A more comprehensive assessment of the potential displacement impact should be conducted by a commissioned evaluation team with expertise in the relevant field after the office space has been filled.

Catalytic Impacts: investment in the area has sparked additional change

Catalytic impacts relate to how the intervention being evaluated (in this instance the restoration of the Main Mill and Kiln) affects outcomes, whether these effects are intended or unintended. Whilst too soon to assess whether catalytic impacts will be measurable due to the project only just finishing its Construction Phase, they have been picked up anecdotally through stakeholder interviews.

"Well, I think, as in terms of evidence, there are housing developments happening now between the Flaxmill and Shrewsbury Town Centre, which are probably about 25 grand above the... house prices in the area. So, you're already seeing people are watching this development and saying, "oh, right, now's the time to get in if we're going to have something on the market when that thing opens". I've seen that on countless projects." **HE Interview 4**

Beyond the scope of this report focusing on the Construction Phase of the project, catalytic impacts are to be expected as a result of the investment the scale of which are still to be researched but could potentially be expressed, in part, hedonically thought changes to the surrounding housing market.

The academic evidence supports the qualitative evidence of the influence of cultural heritage on residential property. For example, a study by Ahlfeldt and Holman (2017) suggests that buildings with heritage listings and areas designated for conservation can generate value due to distinctiveness, attributable to their cultural significance. This distinctiveness, in turn, contributes to an increase in property values. Their study suggests a one standard deviation increase in their 'distinctiveness' index could enhance property values by 6.6% (£16,000). Similarly, Create Streets (2017) highlights properties nearer to historical amenities may see valuation increases between 4.4% and 10.3% due to the aesthetic appeal and prestige of these structures. Additionally, heritage indirectly boosts property values by promoting tourism and community cohesion.

Van Dijin et al. (2016) provide evidence of a positive impact from the redevelopment of industrial heritage, with negative externalities not existing after redevelopment (-2.55%) and local house prices rising (3.22%).

Historic England applies the findings from Van Dijin et al. (2016) studies to the redevelopment of Shrewsbury Flaxmill Maltings. URPN data reveals approximately 7,362 properties within a 1km radius of the Flaxmill, averaging a house sale price of £227,000 in 2022. Using Van Dijin et al. (2016)'s findings, Historic England illustrates that should property value respond similarly to this literature, on average house prices could increase in the immediate area from between £4,700 to £9,950 surrounding the Flaxmill, equating to a total property value rise between £35 million and £73 million.

Environmental impacts

With a project of this scale, it is increasingly important to review the environmental impacts for the Construction Phase.

Carbon avoided by reuse

Embodied carbon refers to the amount of emissions that are released during the production, transportation, and construction of building materials and products. Embodied carbon considers the carbon footprint of all the materials used in a construction project, from the extraction of raw materials through to their manufacturing, transportation, and installation.

By reducing embodied carbon, the construction industry can help to mitigate the environmental impact of buildings and reduce the overall carbon footprint of the built environment. One method of saving embodied carbon is retrofitting existing historic buildings as this is often less energy intensive than building something new.

In the case of the Flaxmill Maltings Construction Phase, there was reportedly an initial negative impact to the environment as construction work began. This is to be expected, especially as the site had been in a state of disuse meaning the environmental impact was extremely low. That being said, without HE intervention the structure would have eventually collapsed or been demolished resulting in a loss of embodied carbon. Instead, the project was able to save the embodied carbon and give the building a new life.

There is a Social Cost of Carbon (SCC)

The Department for Energy Security and Net Zero (DESNZ) calculates the Social Cost of Carbon (SCC) as an estimate of the economic damages that would result from emitting one additional tonne of greenhouse gases into the atmosphere. The SCC can then be used to assess and monetise the environmental impact of projects and policy changes, providing a monetary measure of their carbon footprint. The SCC for 2020 ranges from £120 - £361 per tonne of carbon, reflecting the wide variety of potential impacts and the inherent uncertainties in predicting long-term environmental effects. These social costs increase year-on-year. These costs are estimated based on climate models and economic data, and they consider factors such as sea-level rise, changes in agricultural productivity, and human health impacts, among others.

The restoration has an associated carbon footprint

The restoration of the Main Mill and Kiln buildings utilised new materials which resulted in approximately 475 tonnes of carbon emissions. This footprint represents the carbon cost associated with sourcing and using these materials for the renovation process. Using DEZNZ estimate this would come at a cost of £57,000 to £171,000 using the social cost of carbon in 2020.

The building has an operational carbon cost

Over the course of the restoration project, 700 tonnes of carbon were saved. Projecting over a 30-year period, it is estimated that the operational carbon cost will range from £113,400 to £340,340 in 2020 prices. This translates to an average annual operational carbon expense between £3,780 and £11,344. This considers that the social cost of carbon increases in real terms each year.

Embodied carbon retained

The restoration efforts resulted in 900 tonnes of embodied carbon savings. Applying the social cost of carbon, the estimated value of embodied carbon retained within the building is between £108,000 and £324,900. This estimate represents the carbon emissions that would have been incurred if equivalent materials were used for a like-for-like replacement in the present day.

Comparative analysis indicates a carbon emissions cost saving

For comparative purposes, a new building of similar size would emit around 4,000 tonnes of carbon, according to data from Feilden Clegg Bradley Studios. Given these figures, we can derive that by opting for restoration over new construction, the project has resulted in a significant reduction in carbon emissions.

Using DESNZ, Historic England estimates that the restoration of this building, as opposed to new construction, has resulted in a carbon emissions cost saving ranging from £420,000 to £1.27 million using 2020 prices and Social Cost of Carbon.

A ground source heat pump was built into the project to further reduce operational carbon costs

An important sustainable change to the project was the inclusion of a ground source heat pump. The ground source heat pump is expected to reduce CO2 emissions from 45 tonnes per annum to 23 tonnes per annum, providing an estimated 69% of energy usage for the Main Mill and Kiln. Shrewsbury Flaxmill Maltings will be regarded as a leading example in the heritage sector for the adoption of this system. Learning from this project has documented as a [case study](#) on HE's website, enhancing the knowledge of the sector.



Figure 4: Underfloor heating on ground floor © Steve Baker, Historic England, March 2021

Sustainability was increasingly prioritised throughout the project

Whilst the project commenced with certain sustainable features, many of these were included for economic reasons rather than environmental – for instance, having natural ventilation was much more cost effective than including air conditioning, and by reusing construction rubble as hardcore saved on the cost of transporting tonnes of material off site. Stakeholder interviews indicate that there was a shift in priorities during the Construction

Phase with an increased emphasis on sustainability, which link to the objective that heritage will be better managed.

“I think that the kind of climate or the urgency of climate project and the role that heritage, like we certainly just in the year that I've been at Historic England seems to have really bubbled up a lot more. And so, it's kind of, maybe it's a bit of, of the fact that actually, three, four years ago, it wasn't quite so hard the agenda as it is now.” **HE Interview 7**

As the international climate change agenda became an increasing priority, sustainable practices were prioritised during the Construction Phase of the project. This manifested in a number of ways, as outlined below.

Sourcing of local materials and reusing existing materials was prioritised during the Construction Phase

Throughout the Construction Phase of the project interviewees report the use of local materials and labour to minimise negative environmental impact:

“Obviously, then you're... playing into the whole environmental thing of buying things locally, you're buying slate from Wales, you're buying bricks from North Gloucestershire, you're getting things repaired by metalworkers in Shrewsbury or in Wolverhampton. So, it sets up a good environmental footprint for both where your materials are coming from, and you're transporting materials and even the workforce, obviously, a local workforce are traveling every day to the site and... that all cuts that down by making it something that the local industry can support and also benefit from obviously, too.” **HE Interview 4**

This approach is reflected within the building, for instance the reuse of flax era floor tiles that had been reused once to block windows in maltings phase and then used again for all window sills.

The building is naturally ventilated

Typically natural ventilation works well in heritage buildings due to their architectural design, which incorporates features like high ceilings, large windows, and strategic airflow pathways, facilitating the effective exchange of fresh air and maintaining a comfortable indoor environment.

This is true in the case of the Flaxmill Maltings. The building successfully incorporates cross ventilation with large openable windows on both sides. The first floor has been compartmentalised with a design that facilitates air flow across the floor while also providing noise reduction.

Unlike typical office spaces, air conditioning is not included as Shrewsbury Flaxmill Maltings is not a traditional new-build office. The building features thick walls, concrete vaults, and a significant thermal mass that provides natural insulation.

The original design of the building and its orientation also means that individual task lighting can be used on the upper floors, rather than having to rely on overhead strip lighting. The Main Mill was purpose built to allow for long working days reliant on natural lighting, and modern software predicted that light levels would be equal to or above those set out within British Council for Office guidelines.

Biodiversity has been protected

Middlemarch Environmental consultancy were engaged to oversee ecological planning issues and provide advice during the project. Their role included wildlife monitoring and designing mitigation strategies to protect the wildlife onsite.

They identified three main groups of protected species on site and worked with Historic England to ensure the Construction Phase made as little impact as possible.

Swifts

Swifts were identified as nesting in the airvents of the Flaxmill Maltings. Swift nests were carefully removed during their migration period and reinstated before they returned to the country.

Badgers

Badgers were identified as living around the construction site and made a home or set in the foundations of the Warehouse. A new set was created for them to move in a safe distance from the construction work.

Bats

Ecological reports had identified bats using the Shrewsbury Flaxmill Maltings site as a place for hibernation. A multi-phase plan was developed to ensure the bats onsite would always have a place to live. During construction the Apprentice House was enhanced to host the bats before they could move into a purpose built bat house at the edge of the site. Specific external lighting was implemented during both Construction Phase and afterwards to minimise the impact on the bats flight routes.

The Construction Phase of the project had a temporary negative impact on the wildlife in the area due to the construction work and moving of nests. That being said, habitats have been enhanced from the concrete area that was being used previously and connectivity between homes and foraging sites has been carefully considered and maintained.

Green infrastructure enhanced

Beyond the Flaxmill Maltings itself, green infrastructure was an important element planned into the wider site.

Public realm improvements including urban greening enhance the beauty of the site, making it a more desirable place to visit. A green space at the entrance to the Main Mill was funded by LEP and HSF grants. This space is publicly accessible and will remain in-situ. The green space was historically a canal route that enhanced transportation of materials and goods to and from the site. Although there are no plans to reinstate the canal HE have agreed to protect the line for the former canal to ensure it remains a viable option for the future.

Sustainable connectivity was also an important aspect of the Construction Phase of the project:

“So, looking at well other walking groups, you know cycle routes and what have you, how accessible could it be without needing to be on a car? Could there be bus stops close by, you know, all of that kind of thing was considered as well as the energy efficiency within the building” **HE Interview 11**

New public transport routes and cycle lanes increase connectivity to the Flaxmill Maltings site sustainably. Through the funding received from the Marches LEP/Midlands Engine, and negotiation with Shropshire Council, the site has been added to the Harlescott Park and Ride bus route (<https://www.shropshire.gov.uk/public-transport/park-and-ride/park-and-ride-shrewsbury/>), linking site users with approximately 600 parking spaces to the north of the town centre.

Cycle routes have been added across site, primarily improving the cycle and pedestrian path along the Railway Triangle car park, and by adding a section of path along the line of the former canal – enabling the site to link with existing Shrewsbury cycle paths. Overall, increasing connectivity between the site and Shrewsbury town centre and promoting active travel.

Social Impacts

The social impact of the Flaxmill Maltings spans multiple themes and scales. In order to provide a fuller understanding of the implications of the completion of the Construction Phase, it is first important to have a contextual grounding in what the site and wider area was like before the project began.

Pre-existing perceptions of the site were negative

When talking about the site, multiple stakeholders described the site as derelict before HE intervention.

“But just emotionally, the site looked rubbish.” **HE Interview 3**

“The perception before was that because it was such a huge derelict site and massively publicly visible, it was right next to one of the main roads leading into Shrewsbury from the less desirable it has to be set sort of end of town [sic.]. But nonetheless, there it was a huge site sitting derelict, evidently not going anywhere wrapped up in scaffolding, and what the hell is going on with that, and doesn't it look awful, and this whole, really blighting that neighbourhood?” **HE Interview 9**



Figure 5, left: External view of the site, before restoration works began © Historic England, circa 2005 and Figure 6, right: a section of the boarded up and scaffolded mill © Historic England, December 2016

Shrewsbury Flaxmill Maltings was not an attractive place to visit

The physical presence of a site of such scale in a state of abandonment, is reflective of wider feelings of the area. Focus groups and surveys with local residents illuminated the sense that the location of the Flaxmill Maltings felt separated from the rest of the town.

“There's loads of stuff we never talk about, because it's not part of like the “true town of Shrewsbury.” It's a shame because there is a lot and especially [SFM's] side of town, because the Tudor side is the posh end. Whereas this side is more like the industrial side, the factory workers.” **Morris Hargreaves McIntyre (MHM) Focus Group Interview**

This is partly a reflection of the Flaxmill Maltings' immediate neighbourhood being less affluent and, as one resident put it, “It's an area where people sort of walk through quite fast” (MHM survey to residents).



Figure 7: A view of the scaffolded Mill and tower, left, and boarded up Kiln, right © Historic England, December 2016

Change to how people perceive the Shrewsbury Flaxmill Maltings Site

The strongly held idea that the Flaxmill Maltings site was emotionally segregated, and a forgotten part of Shrewsbury was almost directly challenged by Historic England's intervention as a national body investing in the regeneration of the Mill.

"Well, I think one of the key benefits is from a local area point of view and Shropshire point of view... People always said that nothing would ever happen with this site. You know, when we were going for funding, it was always you never going get the money. Nothing's going to change. It's always going to be there...And people actually wanted it demolished." **HE**

Interview 11

A consequence of investing in the Flaxmill Maltings site, is investment into the local area and the community challenging these long-established perceptions. The Friends of the Flaxmill Maltings acted as a foundational point to build a case for investment. The solidification of such - manifested in the Construction Phase of the project - demonstrated that the local area is worth investing in.

Community surveys and stakeholder interviews evidence a high level of excitement around the completion of the Construction Phase and the reopening of the site.

"It was just this old shell on the on the landscape. So, it was terrific to see it starting get back opening. And there's been a lot of excitement as that's been going on." **MHM Focus Group**

"I think it's really positive. And I think people are really, we're really excited that it was being restored. And I think people are really pleased that it's, it's opened, there's been lots of really, and we're focusing on the restoration side of things. But there has been lots of really positive feedback that people have just kind of messaged me personally and said, Oh, we had a great time when we went and did the activities that are half term." **HE Interview 8**

A survey of 821 people, conducted by HE's Shrewsbury Flaxmill Maltings' project team, highlights the level of public support for the project. 89% agreed or strongly agreed that the restoration of Shrewsbury Flaxmill Maltings is a positive thing for the town of Shrewsbury.



Figure 8: An image of the restored Main Mill and Kiln © Steve Baker, Historic England, November 2022

Improved sense of pride in place

Evidence from MHM's research underlines that local residents are proud of the Flaxmill Maltings. The theme of civic pride featured prominently in stakeholder interviews, across various strands of work.

"I think it stands there as just, you know, just a really, really powerful message. To say that this is this is this is so many benefits in terms of cultural capital, and sort of pride in that community as they drive past that building." **HE Interview 4**

"But at its core, it was, you know, this is something that, you know, that the Shrewsbury community should be really proud of, and preserving just kind of local pride is probably the biggest and the kind of the core thing that drove a lot of donations, I'm sure. And, you know, it's not particularly nuanced or clever, but that's, you know, that's what it is." **HE Interview 7**

Emerging analysis from visitor surveys further evidences the increase in pride in place. One visitor reported:

"Made me really proud, it's a great space and looks amazing." **Visitor Feedback**

Further research should be conducted to measure how the restoration of the site has impacted levels of pride beyond qualitative evidence from stakeholders.

Learning opportunities

Another important social benefit to represent is related to the learning opportunities offered during the Construction Phase. These impacts are explored in more detail in the Earthen Lamp evaluation of the Construction Training Activity Programme. However, it is important to briefly mention the wide-ranging learning opportunities that emerged during the project, for local people, heritage specialists and internal HE staff. Including but not limited to:

- 20 Work Placements
- 24 Behind the Scenes tours (243 attendees)
- 209 Training Opportunities

- 309 CPD Opportunities
- Total of 781 opportunities

With the opening of the Flaxmill Maltings to the public, the expectation is that the knowledge and learning opportunities available will increase through the delivery of an activity programme.

“I was gonna say like, there are a lot of community benefits to the exhibition, of course, as well, we should say, it's a great kind of STEM teaching tool and a great source of local pride. And there's lots of good things about it.” **HE Interview 7**

Reduction in crime

Using data from Police.uk and the Department of Justice, HE Economists were able to analyse the impact of the Construction Phase of the Flaxmill Maltings on crime in the local area. This was done by reviewing crime statistics recorded by the West Mercia Police from 2011 and comparing the area surrounding the Flaxmill Maltings with the town of Shrewsbury.



Figure 9, above: Railway Triangle car park during construction © Steve Baker, Historic England, October 2020 and Figure 10, right: Finished car park, September 2022 – view from bat house © Rebecca Reeves, Historic England

This area had been the site of several reported criminal activities, including abandonment of a stolen car and drug-related usage.



This analysis suggests that in 2022 crime rates within the Flaxmill Maltings area have fallen relative to the wider Shrewsbury area. Incidents of crime were down by approximately 27% in the area surrounding the Flaxmill Maltings compared to the Shrewsbury average between 2011 and 2021. The 2022 rate for the Flaxmill Maltings area is down 42% from the peak crime rate recorded in 2017.

It is hypothesized that this peak is related to the beginning of the Construction Phase, potentially as valuable construction equipment was being brought onto site, and stronger perimeter fencing was being installed. It could be argued that due to more personnel being on site and having a vested interest in the site's security, that more crime was subsequently reported.

Crime has an economic cost which may encompass several aspects such as the value of damage caused, physical and emotional harm inflicted on victims, expenses related to

health services, victim services, police costs, justice costs, and the loss of economic output. On average, the Home Office (2018) estimates the cost of police time for a non-violent crime is between £40 - £2,030 in 2015/16 prices. Moreover, the social and economic costs associated with non-violent crime are estimated to be much higher, between £870 - £11,320.

Historic England has estimated that the reduction in crime could save police costs of around £40,000 a year if crime remains at this lower level in the area surrounding Shrewsbury Flaxmill Maltings. When considering cost of anticipation of crime, cost as a consequence of crime and cost in response to a crime there could be a social and economic saving of £520,000 annually.

The quality of the built environment can impact people's sense of safety (Austin et al., 2002). Research indicates that when there is observable disorder in the physical environment, perceptions of social disorder increases (Hinkle & Yang, 2014). Consequently, this contributes to reduced feelings of safety (Mouratidis, 2021). Maintaining historic buildings can play an important role - run down/derelict buildings in town centres and high streets reduces feelings of safety, whereas well maintained public spaces convey feelings of safety and belonging (Cattell et al 2008; Hall et al 2022). This evidence is illustrative of the potential social benefits of the Shrewsbury Flaxmill Maltings restoration. While this analysis is not exhaustive, with further data required and more advanced modelling, it provides a general idea of the potential positive social and economic impacts associated with the project.

Conclusion

The aim of this evaluation was to provide an overview of the evaluation of the Construction Phase of the Shrewsbury Flaxmill Maltings project. Furthermore, this report is to outline preliminary findings that will form the basis for the final impact evaluation in 2025.

The report outlined emerging findings across Heritage Impacts, Economic Impacts, Environmental Impacts and Social Impacts. The key findings from these sections are:

- **Heritage Impacts:** evidence underlines the priority on delivering a high-quality restoration project utilising best practice conservation techniques. A key project success lies in saving the building for the public, now and in the future.
- **Economic Impacts:** £29 million of public funding was invested which in turn is expected support £64 million to the UK economy disregarding any impacts of displacement, leakages and substitution. Catalytic impacts are still emerging and are challenging to conceptualise at this time.
- **Environmental Impacts:** the project has an associated carbon footprint of 475 tonnes of carbon emissions, however, the restoration efforts resulted in 900 tonnes of embodied carbon savings. The project also has an associated operational carbon cost this has been minimised as much as possible but prioritising innovative approaches such as introducing a ground source heat pump or reusing existing materials.
- **Social Impacts:** social impacts are newly emerging and require further investigation. That being said, data from stakeholder interviews, market research and visitor feedback suggest a perception shift toward the site, reported increases of pride in place and a reduction in crime.

What has not been reviewed in this evaluation is the relationship between Historic England and the Friends of Shrewsbury Flaxmill Maltings. This is deemed to be an essential piece of key learning and, thus, should be delivered impartially by an external consultant.

A Lessons Learnt report has been compiled by the Shrewsbury Flaxmill Maltings team as guidance to use on current and future Historic England projects. This will be appended to the final report when completed. This report, alongside the Lessons Learnt report, will form the basis for the final impact evaluation in 2025 which will include medium and long-term operational findings.