Shropshire Council

RIVER SEVERN SHREWSBURY SAFETY REVIEW

NOVEMBER 2022

PUBLIC

Shropshire Council

RIVER SEVERN SHREWSBURY SAFETY REVIEW

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CONTENTS

APPENDICES

1

INTRODUCTION

PUBLIC

1 INTRODUCTION

1.1 BACKGROUND

Recent deaths in the River Severn at Shrewsbury and a number of other significant incidents where people have entered the river and been in serious risk of drowning has triggered the need for a safety review of towpaths adjacent to the River Severn around Shrewsbury. The last public safety risk assessment was carried out by Mouchel and published in October 2010.

A change of habits has been observed spurred by the Covid-19 pandemic resulting in increased footfall alongside the river. With the health and environmental benefits which arise from active travel, the River Severn corridor is a valuable and unique asset and the risks which arise from the proximity of people next to open water will need to be balanced and addressed accordingly.

This report has been compiled drawing from the local knowledge and expertise of a number of interested parties including Shropshire Fire and Rescue Service (SFRS), the Royal Life Saving Society (RLSS), Shrewsbury Town Council, Pengwern Boat Club, Shrewsbury BID, and Shropshire Council CCTV surveillance team.

Specialist advice within WSP has been drawn upon with regards to water risk management, behavioral design, street lighting and bridge engineering.

We wish to extend a heartfelt thank you to the bereaved family members who gave their time to share their experiences in the hope that others will not have to suffer the pain and loss that they have endured.

1.2 PURPOSE

This report will highlight the current safety measures in place on the towpaths adjacent to the River Severn in Shrewsbury from the Welsh bridge, downstream to the weir and will provide recommendations for improvement, to help reduce risks and mitigate further incidents in the river in this area.

This report will consider the following:

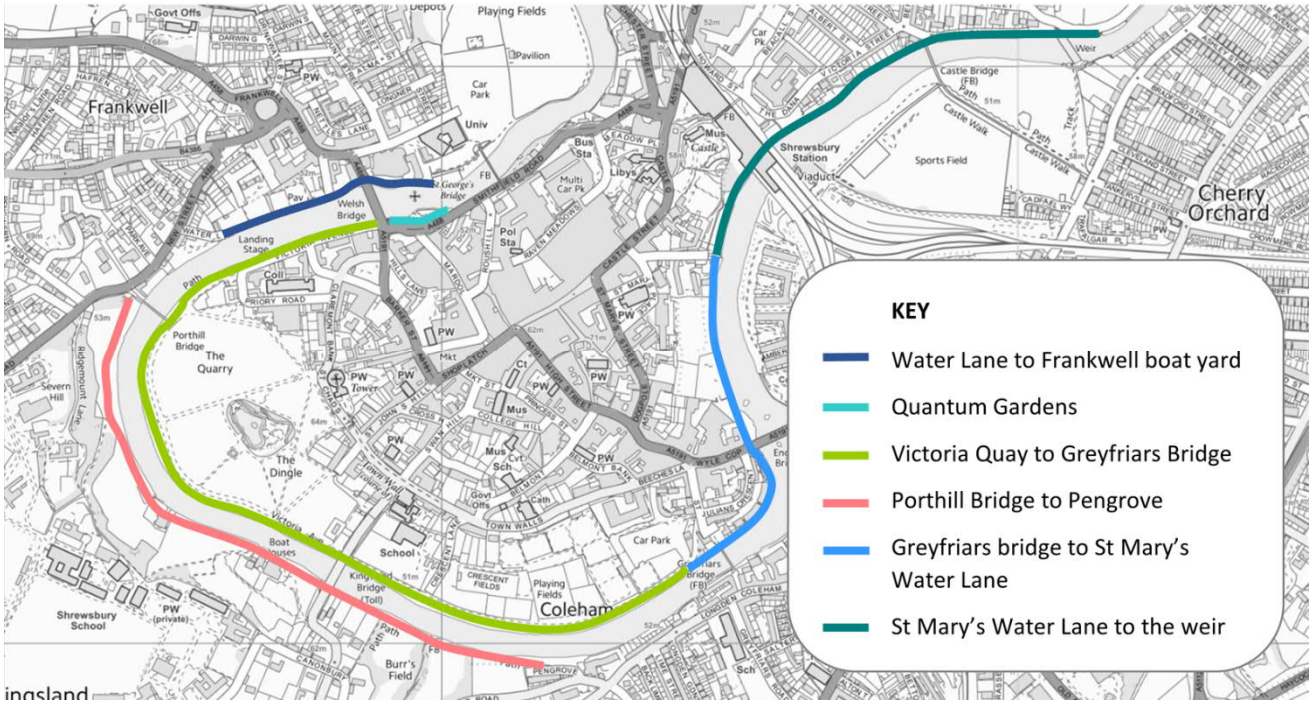
- River fatalities and rescues
- River flood data and riverbed contours
- Landownership
- Riverside characteristics and assets
- Existing control measures
- Future development
- Actions currently in place by other parties
- Investigation of existing best practice
- Recommendations for improvement

1.3 SITE DESCRIPTION

The River Severn meanders around Shrewsbury town centre and therefore forms an intrinsic element to the town. It draws residents and visitors from the town and surrounding areas, as well as further afield, attracting walkers, joggers, cyclists and anglers, providing a green and traffic-free space to enjoy. It is also used for canoeing, kayaking, rowing, and boat trips.

The extents of river paths covered in this review are shown in Figure 1-1 below. Part 3 of this report will look at each section individually.

Figure 1-1 - Extents of Review



1.4 LEGISLATION

This section considers the legislations that place statutory duties on Shropshire Council and Shrewsbury Town Council for the management and maintenance of the riverside paths in order to provide for the safety and wellbeing of users including employees as well as the public.

1.4.1 HEALTH AND SAFETY AT WORK ACT 1974 (HASAWA)

The HASAWA focuses on the activities of employers, employees and the self-employed, and identifies the duties of individuals for the protection of the general public from health and safety risks associated with work activities, as well as for people at work. Actions arising from these duties should be carried out so far as is reasonably practicable and proportionate to the risk.

1.4.2 THE MANAGEMENT OF HEALTH AND SAFETY AT WORK REGULATIONS 1999

These regulations require that adequate and suitable assessments of work-related hazards should be carried out to determine the preventative and protective measures that should be taken.

An Approved Code of Practice (ACoP) has been published to provide practical guidance for these regulations. This includes guidance as to how you should:

- undertake risk assessments
- identify hazards
- reduce the risks where possible (principles of prevention)
- record your thoughts (assessment)
- provide information and communicate
- review and revise your original thoughts periodically (re-assess)

1.4.3 THE OCCUPIERS' LIABILITY ACTS OF 1957 AND 1984 (OLA)

These acts place a duty on the occupier to take such care, as in all the circumstances of the case is reasonable, to see that the visitor will be reasonably safe when using the premises or asset for the purposes for which they are invited or permitted by the occupier to be there (1957 Act). A slightly lesser duty exists on the occupier for trespassers (1984 Act).

An occupier may expect that a member of the public will appreciate and guard against any special risks so far as the occupier leaves him free to do so. An occupier must be prepared for children to be less careful than adults. No duty, however, is extended under the Occupiers' Liability Act to an adult who willingly accepts the risks.

1.4.4 PUBLIC HEALTH ACT 1936

This is an enabling law offering local authorities the power to create byelaws to regulate water uses, for example, to prohibit swimming.

1.4.5 THE HEALTH AND SAFETY (SAFETY SIGNS & SIGNALS) REGULATIONS 1996

These regulations require duty holders to ensure that safety signs are provided (or are in place) and maintained in circumstances where there is a significant risk to health and safety on their premises that has not been removed or controlled by other methods.

They do not place any duty on employers to provide signs to warn people such as visitors, but they are helpful when used to decide how to inform the public of significant obvious risks required by other legislation.

Case law has shown us that only unexpected danger needs to be communicated to the public but even so, a wide range of signs are available. It is important that the correct information is given in an understandable form.

1.4.6 DUTY OF CARE

The Council also has a 'duty of care' responsibility through common law 'to take reasonable care to avoid acts or omissions which can be reasonably foreseen as likely to cause injury'.

A certain level of risk is acceptable, and it is expected that safety measures will be applied 'as far as is reasonably practicable'. In other words, practicable measures have to be technically feasible, and costs in time, money and effort are reasonable. Similarly, users of waterways are expected to share the responsibility for their safe use by not ignoring hazards, abusing facilities or equipment, or exercising ill-judgement.

1.4.7 COUNTRYSIDE ACT 1968

The Countryside Act (1968) requires that when exercising any functions relating to land, there shall be “due regard to the desirability of conserving the natural beauty and amenity of the countryside”. As this requirement may seem to be at odds with the reduction of risk to safety so far as is reasonably practicable, it will mean that when specifying control measures care should be taken such that the overriding natural beauty of the countryside is conserved.

2

BACKGROUND

PUBLIC

2 BACKGROUND

2.1 FATALITIES

The latest figures from the Water Incident Database (WAID)[1] reveal that 76 river deaths were recorded in the UK in 2021 with an average of 70 a year over the last three years. This is out of a total 277 deaths of all drowning incidents.

A total of 41 river deaths have been recorded in Shropshire between 2004 and the present. A table of these can be seen in Appendix A.

16 river fatalities were recorded in Shropshire within the last 10 years, 14 of which occurred in Shrewsbury, with one incident at Bridgnorth and one at Highley. A summary of these 14 fatalities can be seen in Table 2-1 below.

Table 2-1 - River Fatalities Shropshire 2012-2022

Date of Death/ Found	Gender/ Age	Place of Death/ Found	Inquest Verdict/ Conclusion	Average River level Welsh Bridge*
3 Feb 2012	Male, 36	Last seen on Friday 3 Feb 2012 following a night out with friends. Entered water on the Underdale side of the Castle Walk footbridge. Found by the River Tern at Attingham Park	Unascertained (Following a night out)	Not known
21 May 2012	Male, 61	River Severn, Telford Way	Suicide	Not known
27 Oct 2012	Female, 90	River Severn on Frankwell side of footbridge	Natural Cause	Not known
28 Dec 2012	Female, 39	Reported missing 28 Dec 2012. Last seen in Sydney Avenue, Castlefields, near the weir. Found: River Severn, near Atcham	Drowning (Went missing)	2.56m
10 Jan 2014	Male, 62	Found dead in the water between Monkmoor and Atcham in Shrewsbury.	Drowning (Went missing)	2.97m

[1] https://www.nationalwatersafety.org.uk/waid

Date of Death/ Found	Gender/ Age	Place of Death/ Found	Inquest Verdict/ Conclusion	Average River level Welsh Bridge*
19 Mar 2014	Male 19	Went missing Wednesday 19 Feb. His body was recovered from the river opposite the Pengwern Boat Club. CCTV sighting captured of man at Welsh bridge.	Immersion in Water (Went missing)	2.63m (19/02/14)
31 Dec 2014	Male 20	Went missing in the early hours of Sunday 23 Nov 2014. It was probable he had gone through a gate to the River Severn on Dorset Street, Shrewsbury, after getting lost at around 5.30am. Found: River Severn, Cressage	Accidental Death due to immersion in water (Following a night out)	1.9m (23/11/14)
10 Nov 2015	Male, 22	River Severn, Dana Steps, Shrewsbury. Voluntarily lowered himself into the river after being dared to swim to the other side and back.	Misadventure (Flood)	1.60m
07 Sept 2017	Male, 29	Fell in River Severn near to junction Mardol Quay and Smithfield Road early hours of Sunday 3 Sept.	Accidental Death (Following a night out)	0.5m (03/09/17)
03 Dec 2017	Male, 29	Fell into the River Severn in Shrewsbury on Saturday 2, close to Castle Walk footbridge	Accidental Death (Misadventure)	1.02m
27 May 2018	Male, 21	Last seen Monday 21 May 2018. Found in a section of River Severn between Castle Bridge & the weir, Shrewsbury	Entered river in unknown circumstances (Went missing)	0.53m (21/05/18)
24 Oct 2020	Male, 52	Last seen Coleham Row Sunday 27 Sept 2020. Entered River Severn; area of the weir, Shrewsbury; Found: south bank of river close to the Emstry Island, Shrewsbury	Entered river in unknown circumstances (Went missing)	0.52m (27/09/20)
03 April 2022	Male, 31	Entered River Severn: Water Lane, Shrewsbury. 12.40am on Saturday, April 2. Died at RSH	Accidental Death (Following a night out)	0.59m
15 April 2022	Male, 21	Last seen Sunday 27 March at Kingsland Bridge following night out in Shrewsbury. Found: River Severn, Coleham Head, Shrewsbury	Inquest 13 Sept 2022 (Following a night out)	0.62m (27/03/22)

Of the fatalities, the casualties have been predominantly male with twelve deaths compared to two females, a ratio of 86% to 14%. This is broadly in line with WAID's national statistics which find that men are the most at-risk group, accounting for eight in ten of all water deaths.

Figure 2-1 broadly categorises the circumstances behind the recorded deaths in Shrewsbury in the last 10 years, based on the data in Table 2-1. These categories have been determined for the purposes of this study only. It shows that five of the deaths followed a night out on a Friday or Saturday night, all of which were male and between the ages of 20-36. Of the five deaths where the casualty went missing, four of these were male. In at least three of those cases, it was speculated that the casualties may have been in a mentally vulnerable state. The two deaths following misadventure involved the use of drugs.

Figure 2-1 - Cause of river fatalities Shrewsbury 2012-2022

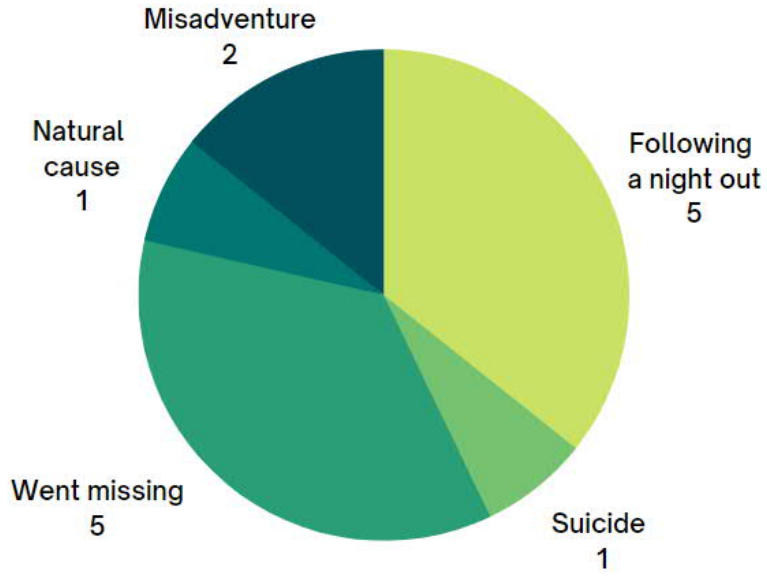
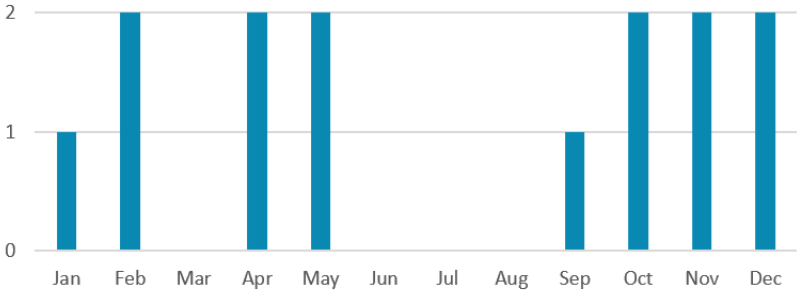


Figure 2-2 shows the months when fatalities occurred (or when the casualty went missing). Nine of the fourteen fatalities (64%) occurred between October and February, when it's darker, colder, and fewer people use the riverside.

Figure 2-2 - River Fatalities by Month 2012-2022



Four of the deaths occurred during times when river levels were above 1.72m, the level above which certain sections of the towpath would be closed off. These fatalities occurred in Dec 2012, January 2014, March 2014 and Dec 2014. It is considered that the fatality in Dec 2014 was attributed to

flooding, however, it is unknown if flooding was a contributory factor in the deaths of the other three because the circumstances behind these deaths are unknown.

Figure 2-3 shows the different fatalities in Shrewsbury from the last ten years on a timeline. It has not been possible to discern particular long-term trends and no clustering is apparent, except to note that the two most recent deaths were close together and both following a night out

Figure 2-3 - Timeline of Fatalities Shrewsbury 2012-2022

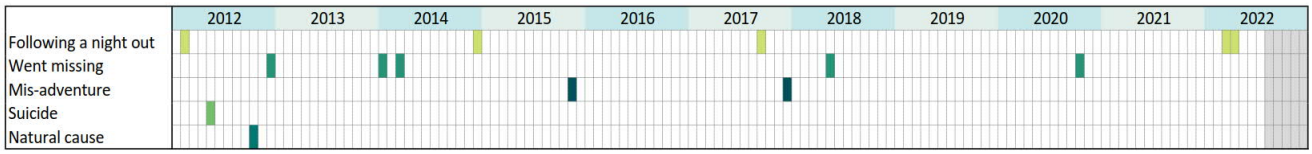


Figure 2-4 shows a greater concentration of deaths following nights out between 2009 and 2011 with four deaths in the space of three years (or five deaths in four years when you include 2012). Most noticably, there was a high incidence of suicides prior to 2008, along with open verdicts. Two cases from 2004 and 2005 have been categorised as 'accidental' because the records obtained do not give enough detail. It would be imprudent to draw conclusions from these trends as there are not enough cases for them to be statistically significant.

Figure 2-4 - Timeline of Fatalities Shrewsbury 2004-2011

2.2 RIVER RESCUES

Data received from a Freedom of Information request from SFRS has provided some limited information about river rescues carried out in Shrewsbury between 2015 and 2022. The data gives dates, times, and location of rescues, which may not necessarily reflect where the casualty entered the water. Information regarding age, gender and ethnicity were not available. For the purposes of this study, flood rescues and animal rescues have not been analysed. The reasons for entering the water are unknown, as are the extents of any injuries acquired, however it has been indicated that a large proportion of rescues were as a result of people seeking to intentionally harm themselves.

A table of the rescues can be seen in Appendix B. A total of 36 incidents were recorded: 29 resulted in a successful life-saving rescue and 7 resulted in fatalities.

Figure 2-5 shows the locations of rescues that were carried out during the last seven years within Shrewsbury. The red markers show successful life-saving rescues, and the black markers indicate locations of where fatalities were known to have entered the water/ last seen.

It can be seen that the two main clusters are in the vicinity of Victoria Quay/ Welsh Bridge, and Castlefields. A third smaller cluster centres around English Bridge.

Figure 2-5 - Locations of SFRS Rescues carried out between 2015-2022 (UK Grid Reference Finder)

Figure 2-6 shows the distribution of incidents by day of the week, which shows that the peak days were Friday, Saturday and Sunday, accounting for 64% of all the incidents.

Figure 2-6 - River Rescues by Day of the Week 2015-2022

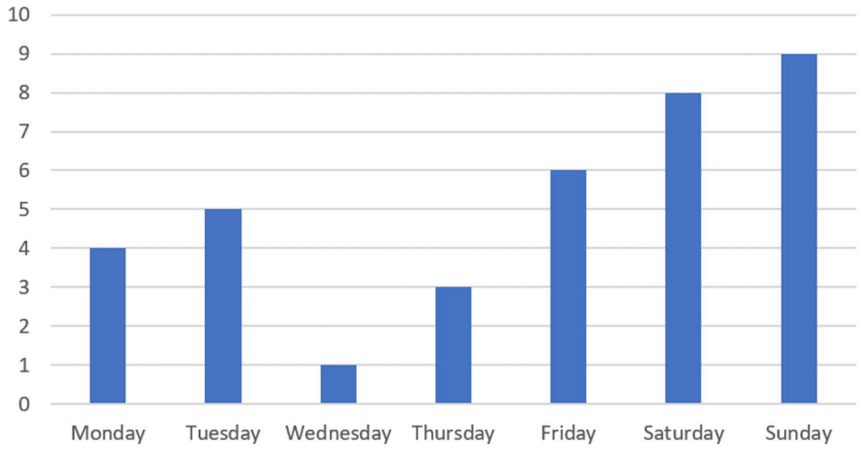
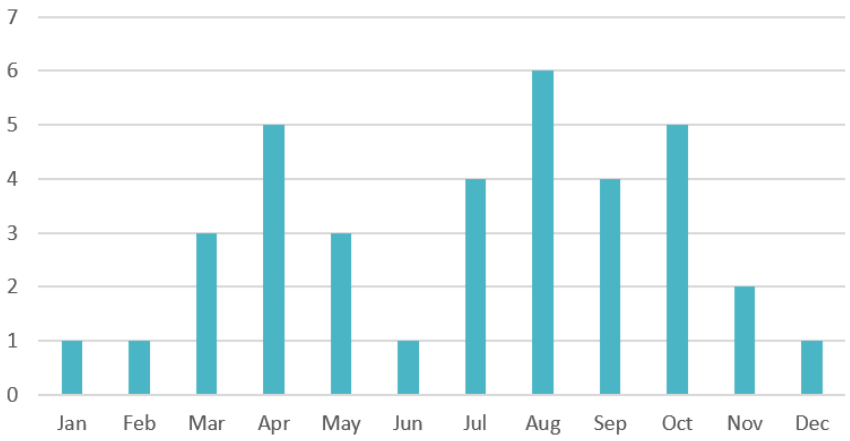


Figure 2-7 shows the distribution of incidents by month, with the peak numbers of incidents occurring in April, August and October. November to February accounted for the lowest numbers, with these four months accounting for only 14% of the incidents. This is notably different to the distribution of fatalities. Whilst the longer daylight hours and milder weather between April and October may account for increased river/ riverbank activity and therefore an increased number of

rescues, this may also increase the likelihood of immersion incidents being spotted. Thus, a reduced level of activity could account for the higher incidences of fatalities in the winter months.

Figure 2-7 - River Rescues by Month 2015-2022



2.3 SUMMARY OF BACKGROUND DATA

Identifying the reasons and exact locations where casualties entered the water has been difficult to ascertain because for most cases the casualty was unaccompanied and some details with regards to the circumstances are anecdotal.

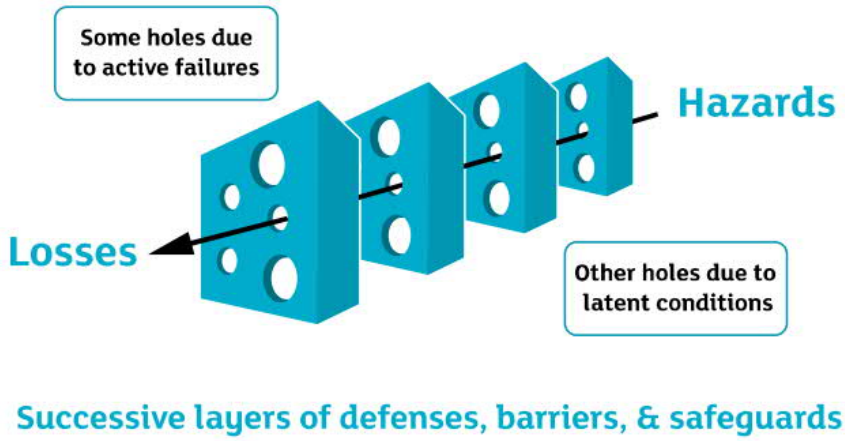
Based on the findings from all cases and following discussions with all relevant parties, several common themes have been identified:

- Drugs/ alcohol and concerns about spiking
- Scarcity of late-night transport, for example taxis, resulting in the use of unsafe routes to walk home
- Use of the river as a place to urinate (at night-time)
- The difficulty of getting out of the river after falling in if alone / unaided
- Concerns about the use of the river for leisure swimming, predominantly by young people
- Observations of people 'tombstoning' from Kingsland Bridge and Porthill Bridge

The 'Cumulative Act Effect' Model promoted by RoSPA as shown in Figure 2-8 is useful when considering accident causation where there are multiple contributory elements such as are evident from the background data above. Each of the levels has various defences in place (for example safety features, rules and regulations). Holes or weaknesses in defences created by latent conditions and errors create "windows of opportunity" for accident trajectories to breach the defences. Accidents occur when the holes line up in a way that allows the accident trajectory to breach each of the defences that are in place.

Latent failures include contributory factors that may lie dormant for days, weeks, or months until they contribute to the accident. Active failures encompass the unsafe acts that can be directly linked to an accident.

Figure 2-8 – 'Cumulative Act Effect' Model[2]



Latent failures could include factors such as substandard barrier heights or lack of egress points, whilst active failures could include walking home alone when drunk at night.

Whilst there are some common themes such as fatalities resulting after a night out, it is evident that each individual case could be attributed to a unique combined set of factors or sequences of events which occurred prior to that fatality.

[2] RoSPA Little book of big ideas about health & safety

3

REVIEW OF EXISTING SITE

PUBLIC

3 REVIEW OF EXISTING SITE

3.1 OVERVIEW

This section considers the distinct sections of the river and their characteristics. In considering each section of the river, reference is made to river levels, riverbed contours, land ownership and, where relevant, National Cycle Route 81. These aspects are discussed in general terms below ahead of more specific consideration under each river section and within the corresponding risk assessments.

3.1.1 RIVER LEVELS

The river levels are monitored at Welsh Bridge by a gauge on Victoria Quay (Figure 3-1). This asset is owned by the Environment Agency. The usual range of the River Severn at Welsh Bridge is between 0.42m and 2.70m[3].

Figure 3-1 - Welsh Bridge Measuring Station at Victoria Quay

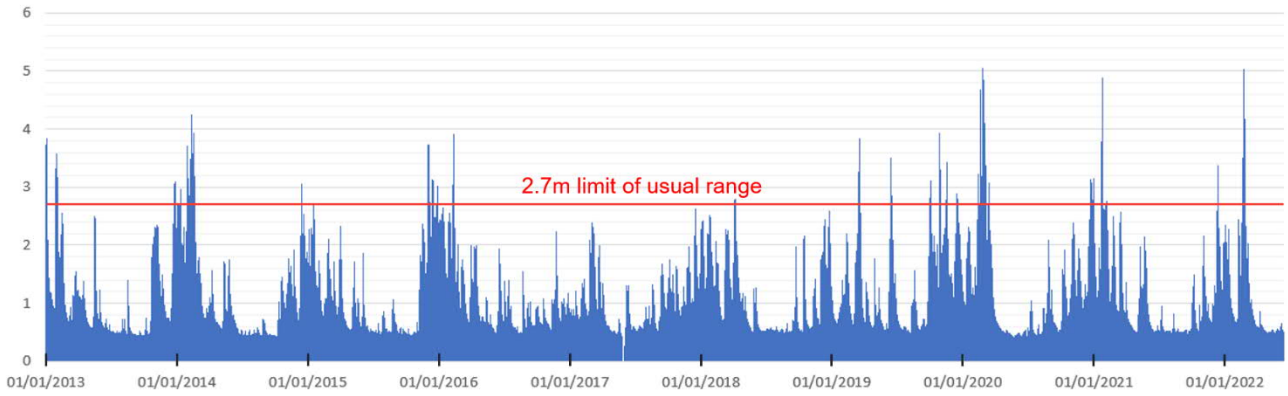
During periods of dry weather, the river levels are maintained at approx. 0.5m high via the Environment Agency's 'Shropshire Groundwater Scheme', pumping in water from Welsh reservoirs and abstraction from an underground aquifer in North Shropshire.

Figure 3-2 shows the varying river levels between Jan 2013 and June 2022. Peak levels are typically reached between the months of December and March, with lowest levels typically during May-September.

[3] https://check-for-flooding.service.gov.uk/station/2036?direction=u

The recorded water level at Welsh Bridge was 0.55m at the time of visiting site in July 2022. This falls within the lower end of the normal range.

Figure 3-2 - Average Daily River Levels, Welsh Bridge 2013- 2022



The towpaths within the town centre have gates which are locked by Shropshire Council when the gauge at Welsh bridge reaches certain levels as shown in Table 3-1.

Table 3-1 - Towpath gates

Location	Closed when River Level at Welsh Bridge exceeds:	Number of days closed between Nov 2012 and July 2022*	Percentage of days closed between Nov 2012 and July 2022*
Weir	1.72m	605	17.3%
Dorset Street	1.72m	605	17.3%
Greyfriars Bridge	1.95m	385	11.0%
English Bridge/ Marine Terrace	1.95m	385	11.0%
Pig Trough	2.4m	220	6.3%

*Between 26 November 2012 and 30 June 2022 (data prior to Nov 2012 was unavailable at time of writing)

The table shows that between Nov 2012 and July 2022 (3500 days), the gates at the weir and Dorset Street would have been closed for 17.3% of the time, with gates at Greyfriars Bridge and English Bridge/ Marine Terrace closed 11% of the time and the gate at Pig Trough for 6.3% of the time. Anecdotal evidence reveals that pedestrians and cyclists have been observed scaling the gates to access the towpaths at times when the towpaths do not appear flooded. However, closing the gates at the levels specified provides a factor of safety to protect the public prior to anticipated rises and potential surges in river levels.

3.1.2 RIVERBED CONTOURS

Appendix C contains plans of the riverbed contours between Mardol Quay and English Bridge. These are derived from Environment Agency bathymetric survey data and adjusted to show water depths consistent with a 1m depth reading at the Welsh Bridge gauge. Depths are shown on six-inch contours and marked in feet. These are based on EA survey data produced in 2016 therefore the major flood events since then are likely to have changed the profile of the riverbed in some places. Contours for the section between English Bridge and the weir were unavailable at the time of writing.

3.1.3 LAND OWNERSHIP

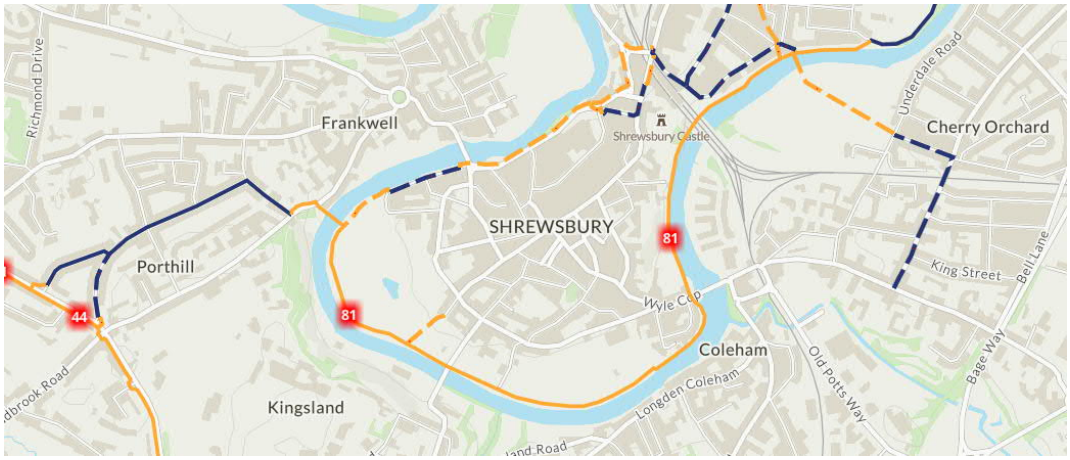
A plan highlighting different areas of land ownership can be seen in Appendix D.

In the vast majority of cases the landowner is responsible for the safety of those using their land. Shrewsbury Town Council are responsible for the towpath through the Quarry up to Greyfriars Bridge, Mardol Quay, Abbey Gardens, and the section adjacent to Coleham Head. Shropshire Council are responsible for Victoria Quay/ Victoria Avenue, and the section from Greyfriars Bridge up to the weir. It is understood that private landowners adjacent to the towpaths in this latter section have riparian rights under common law; this includes such things as the right to access for swimming, boating, and fishing. The freehold for the section south of the river between Porthill Bridge and Kingsland Bridge is owned by Shrewsbury School.

3.1.4 CYCLE ROUTE 81

The river path forms part of the National Cycle Network (refer to Figure 3-3). Route 81 follows the section from the weir, down past English Bridge and alongside the Quarry where it crosses the river via Porthill suspension bridge.

Figure 3-3 - Sustrans Cycle Routes[4]



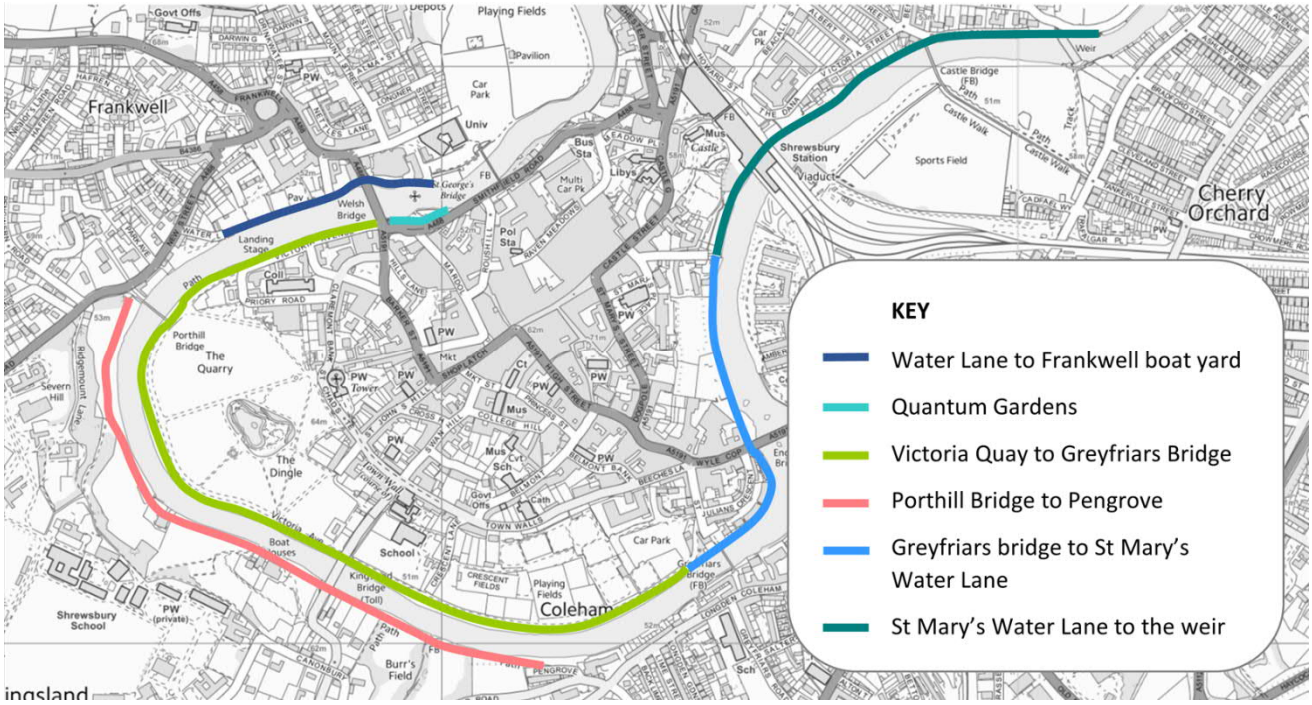
[4] https://www.sustrans.org.uk/national-cycle-network

The section of riverbank which follows route 81 is particularly well used with the path shared between pedestrians and cyclists alike, which may give rise to user conflict at times.

3.2 RIVER SECTIONS

The river has been divided into broad sections as shown in Figure 3-4.

Figure 3-4 - River Sections



Each section has been individually assessed for the risk they pose to the general public. The risks are estimated according to the likelihood of harm occurring and the severity of the harm in accordance with the risk assessment matrix (Figure 3-5).

Figure 3-5 - Risk Assessment Matrix

			Consequence or Severity				
			Trivial	Minor Injury/ First Aid/ Disease	Moderate Injury Beyond First Aid/ Disease	Serious Injury/ Disease	Fatal Injury/ Disease
			1	2	3	4	5
Likelihood	Unlikely	1	Low	Low	Low	Moderate	Moderate
	Seldom	2	Low	Moderate	Moderate	High	High
	Often	3	Low	Moderate	High	High	Extreme
	Frequent	4	Moderate	High	High	Extreme	Extreme
	Certain	5	Moderate	High	Extreme	Extreme	Extreme

The risk assessments for these sections are contained within Appendix E. These are to be read in conjunction with the detailed plans for each section (refer to Appendix F). Each section is briefly described in the following paragraphs.

3.2.1 WATER LANE TO FRANKWELL BOAT YARD

This section of towpath is one of the quieter sections of the river corridor and is most likely to be used by local residents. It varies in width between approximately 3m- 5m and is surfaced with sections of concrete or paving slabs. Between Water Lane and Welsh Bridge, the towpath has a sheer drop of up to 1.75m at the river's edge (consistent with a 0.5m reading at the Welsh Bridge Gauge). This section is largely unprotected by barriers (Figure 3-6 and Figure 3-7)

Figure 3-6 - View of Water Lane section from Victoria Avenue

Figure 3-7 - Water Lane to Welsh Bridge

At the Water Lane end of this section, there is a damaged wooden landing stage (Figure 3-8) and concrete steps down to the river (Figure 3-9).

Figure 3-8 - Damaged Wooden Landing Stage

Figure 3-9 - Concrete steps down to the river

Pedestrian barriers run part-way alongside the path on the approach to Welsh Bridge (refer to Figure 3-10). Figure 3-11 shows the low river level behind the barrier on the approach from Water Lane to Welsh Bridge.

Figure 3-10 - Barriers near Welsh Bridge

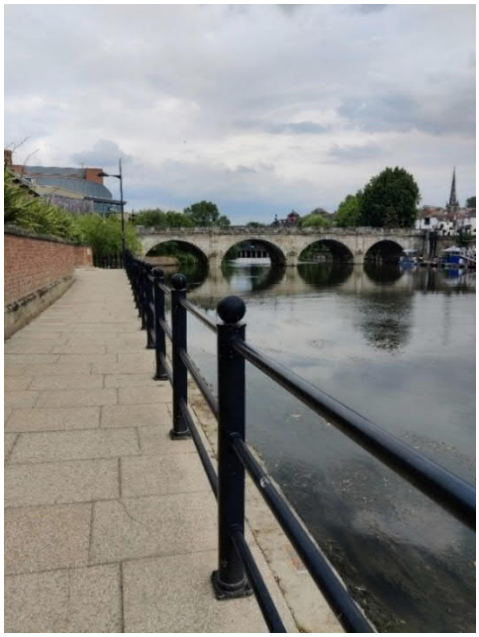


Figure 3-11 - Low river level behind barrier

Between Welsh Bridge and the boat yard, the block-paved footway (Figure 3-12) is separated from the river by a grass/ vegetative verge with a gradual incline towards the river's edge. The verge width varies between 10m and 13m. There is a fishing platform along this section. There is a slipway at the boat yard with a gradual incline towards the river's edge (Figure 3-13).

Figure 3-12 - Path from boat yard to Welsh bridge

Figure 3-13 - Boat yard slipway

3.2.2 MARDOL QUAY

This section is a small, landscaped park area which is fenced off with metal railings with gates that are locked every day from 16:30 onwards. This area is under the responsibility of the town council. It draws relatively small numbers of people, being a place where people may sit with views of the river, as opposed to walking alongside it.

The grassed area on the western half of the gardens is separated from the river by a short concrete wall that extends towards Welsh Bridge (refer to Figure 3-14). Holly has recently been planted in front of this wall which serves to deter people from getting too close.

Figure 3-14 - Short concrete wall with planting

The central hard-landscaped area is separated from the river's edge by a metal barrier, with metal railings at either end to discourage access to the river (refer to Figure 3-15 and Figure 3-16).

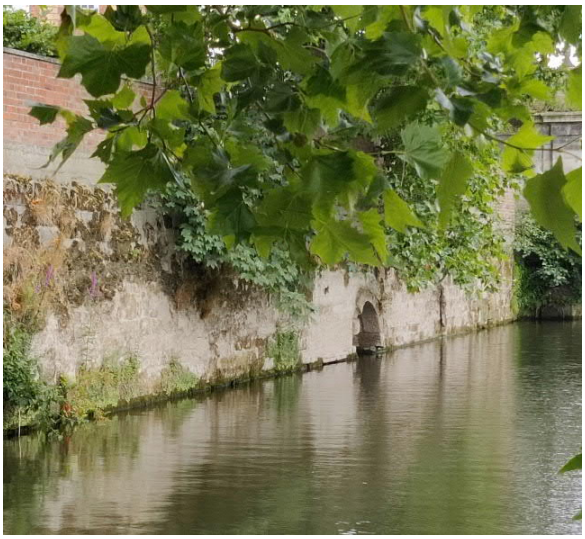
Figure 3-15 - Metal barrier at Mardol Quay

Figure 3-16 - Metal railings at the easten end of the metal barrier

The grassed area to the eastern section of the gardens has metal railings which provide separation from the river's edge (refer to Figure 3-17).

Figure 3-17 - Metal railings at the eastern end of Mardol Quay

Figure 3-18 - Sewer overflow



There is a large diameter Severn Trent combined sewer overflow pipe which discharges close to Welsh bridge. This egg-shaped brick sewer is locally known to draw attention from 'urban explorers' (Figure 3-18).

3.2.3 PORTHILL BRIDGE TO PENGROVE

The path from Porthill Bridge to Pengwern Boat Club is a tarmac drive approximately 3m wide (refer to Figure 3-19). There is a grass/ vegetative verge which separates it from the riverbank which varies between 6m and 22m wide.

Figure 3-19 - Approach to Pengwern Boat Club from Porthill Bridge

Figure 3-20 - Riverbank alongside Pengwern Boat Club

It is understood that the area outside Pengwern Boat Club (Figure 3-20) is leased from Shropshire Council. The path running through the grounds is a public right of way. Observations and discussions with the boat club captain reveal that there is a historic and ongoing issue of

predominantly young people using this area and the pontoon for jumping into the river. Whilst there is signage and CCTV on the premises, this does not appear to discourage the public from using the area for recreational purposes. Figure 3-21 shows the boat club viewed from the river.

Figure 3-21 - Pengwern Boat Club

The public right of way continues beyond the boat club separated from the river with approx. 6m of verge. It then passes through the Shrewsbury School Boat Club, beyond which it passes through Burrs Field nature reserve (Figure 3-22 - Burrs Field). Burrs Field has some fishing platforms alongside the river and is maintained by the town council.

Figure 3-22 - Burrs Field

3.2.4 VICTORIA QUAY TO GREYFRIARS BRIDGE

Victoria Quay is a hard-landscaped area fronted by bars and restaurants (refer to Figure 3-23). The section adjacent to Welsh bridge has a sheer drop to a landing stage which is used by the Sabrina boat tours. This is protected by metal railings; access to the platform is via a ramp which is locked to prevent unauthorised access.

Figure 3-23 - Victoria Quay

Figure 3-24 - Victoria Avenue

The railings continue a short way past these establishments, up to the junction with St Austin's Friars alongside Victoria Avenue (Figure 3-24). Here, the footway is separated from the riverbank by a grass verge with a reasonable incline down. There are numerous trees and in places, dense vegetation at the edge of the river. There are multiple angler's platforms which are accessed via steps, which start at this location and then continue to run alongside the whole length of the section through The Quarry. The fishing platforms are owned by the Town Council. Figure 3-25 shows the typical construction of a fishing platform located in The Quarry. The town council is responsible for the section of towpaths through The Quarry.

Upon entering The Quarry, the footway widens from 2m to approximately 8m. It is separated from the riverbank by a verge of width varying between 10m- 20m wide. There is a canoe/ kayak platform near Porthill bridge from where access can also be gained to the river (refer to Figure 3-26). This also serves as a fishing platform for disabled users.

Figure 3-25 - Typical Fishing Platform- The Quarry

Figure 3-26 - Canoe/ Kayak platform

There is a secondary 2m wide track which extends alongside the length of The Quarry. This provides access to the numerous fishing platforms but is still separated from the water's edge by grass verge (refer to Figure 3-27 and Figure 3-28). During events in The Quarry, the main path is fenced off and all users are diverted on to this narrower path.

Figure 3-27 – Secondary track adjacent to The Quarry

Figure 3-28 - Fishing Platform- view towards Porthill Bridge

Outside the confines of The Quarry, a worn track created by regular pedestrian use runs through the grassed verge area (refer to Figure 3-29). The adjacent river's edge forms a sheer drop in places (Figure 3-30).

Figure 3-29 - Worn track

Figure 3-30 - River's edge adjacent to path

The path changes character on the approach to Greyfriars Bridge, where the riverbank narrows to form a pinch point of 2m (Figure 3-31). This is exacerbated by overhanging vegetation. From this section towards English bridge, the river edge is retained by sheet piling (Figure 3-32)

Figure 3-31 - Pinch-point near Greyfrairs

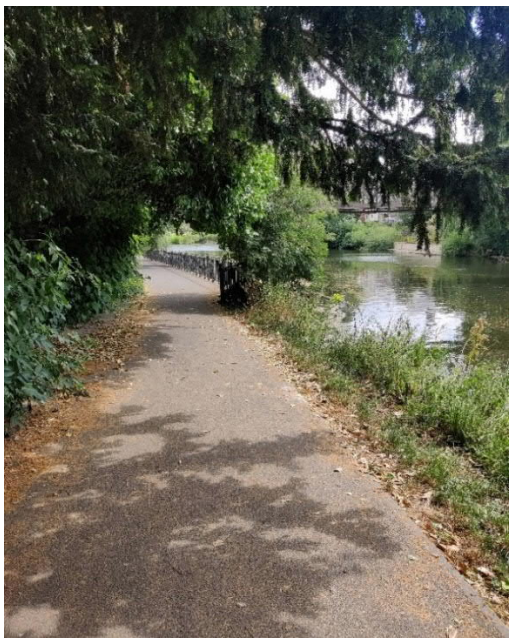
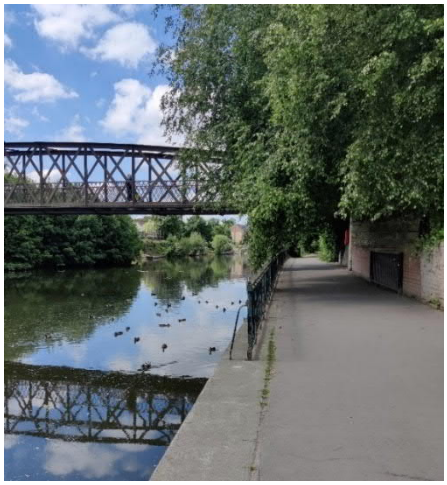


Figure 3-32 - River's edge adjacent to Greyfriars Bridge

3.2.5 GREYFRIARS BRIDGE TO ST MARY'S WATER LANE

The character through this section changes to one where the towpath is predominantly adjacent to a sheer drop to the adjacent water's edge (Figure 3-33).

Figure 3-33 - Path below Greyfriars Bridge



Pedestrian barriers are strategically located alongside parts of this section. The path varies in width between 2.5m- 6m and is heavily used by pedestrians and cyclists alike.

There is a short section approx. 80m in length formed from silt left behind during numerous flooding events (Figure 3-34). This forms a physical separation between towpath users and the river.

As the path approaches English Bridge (Figure 3-35), the edge of the riverside becomes heavily silted, posing a low risk to towpath users when the river levels are normal.

Figure 3-34 - Silted area adjacent to path

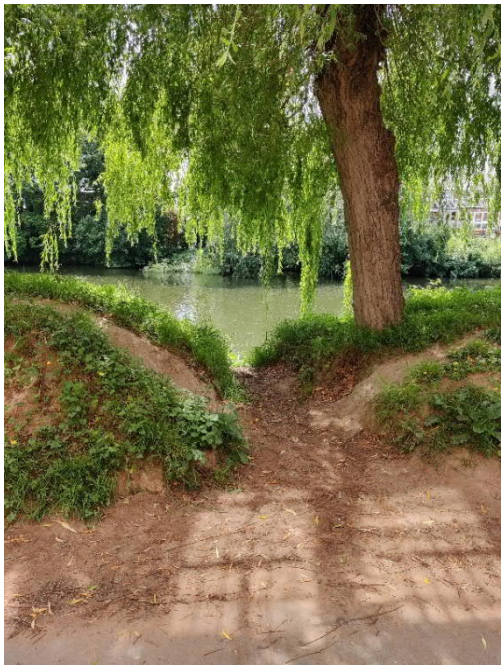


Figure 3-35 - Path approaching English Bridge

The length between English Bridge and St Mary's Water Lane has long sections without any edge protection (Figure 3-36).

Figure 3-36 - Between English Bridge and St Mary's Water Lane

3.2.6 ST MARY'S WATER LANE TO THE WEIR

This section continues with the river's edge at a sheer drop adjacent to the towpath (Figure 3-37). Pedestrian barriers are strategically located alongside parts of this section (Figure 3-38). The path varies in width between 4m- 8m and is heavily used by pedestrians and cyclists alike.

Figure 3-37 - Open towpath

Figure 3-38 - Railings at St. Mary's Water Lane

The paths are generally laid to either tarmac or concrete. The area under the railway bridge is owned by Network Rail and comprises old stone cobbles which can be slippery when wet or icy (Figure 3-39). The final section towards the weir (Figure 3-40) has towpaths which are largely unguarded from the adjacent water.

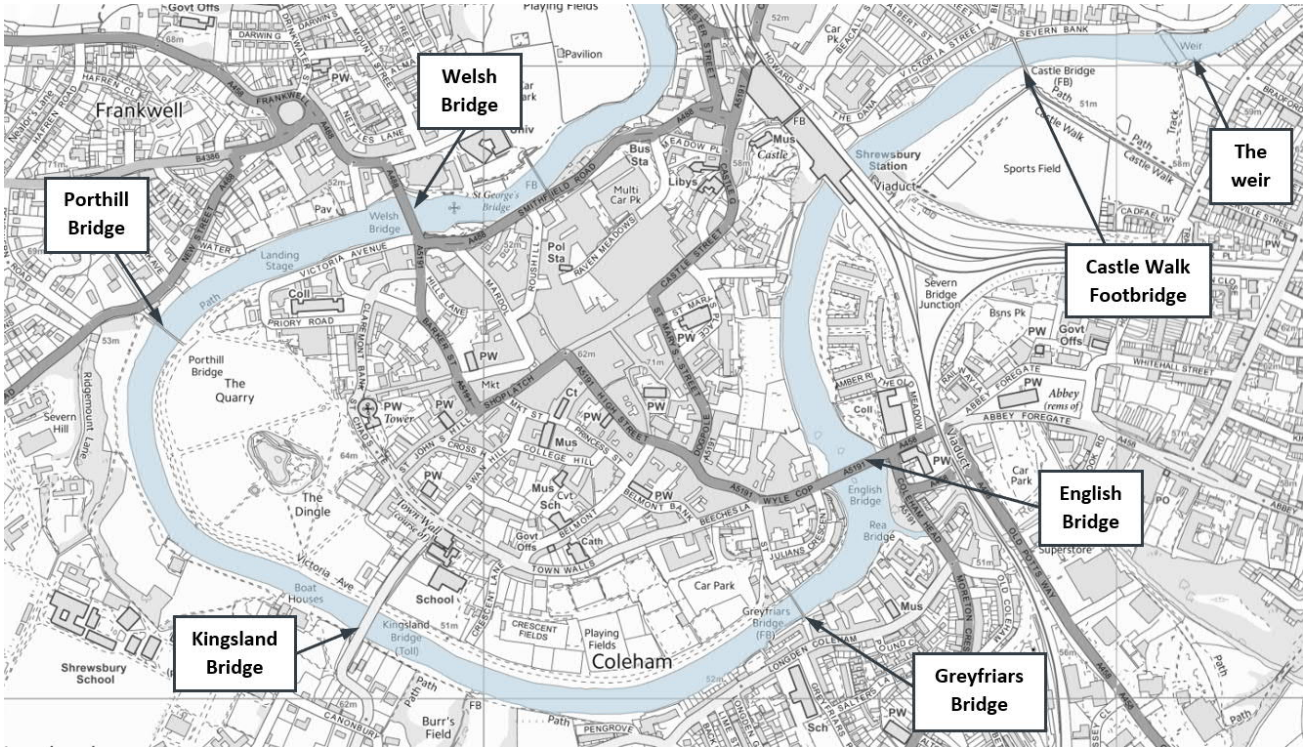
Figure 3-39 - Cobbled stones under railway bridge

Figure 3-40 - Between Castle Walk footbridge and the weir

3.3 SIGNIFICANT STRUCTURES

There are a number of notable structures within the study area, the locations of which are shown in Figure 3-41.

Figure 3-41 - Significant Structures



3.3.1 WELSH BRIDGE

Welsh Bridge is a Grade II listed solid spandrel five arch bridge made of sandstone (Figure 3-42). It is open to vehicular traffic, cyclists and pedestrians and is heavily trafficked. It has parapets comprising stone balusters and coping stones with a combined height of 1200mm (Figure 3-43). DMRB guidance[5] stipulates that the minimum height of vehicle parapets (including combined vehicle/ pedestrian parapets) should be 1000mm. During severe flood events, Welsh Bridge is closed to vehicular traffic.

[5] DMRB CD 377 - Requirements for Road Restraint Systems

Figure 3-42 - Welsh Bridge

Figure 3-43 - Welsh Bridge balusters

3.3.2 PORTHILL FOOTBRIDGE

Porthill Footbridge is a steel suspension bridge connecting Porthill with The Quarry and the town centre and is heavily used (Figure 3-44). It forms part of cycle Route 81 however there is signage requesting that cyclists should dismount. The parapet height is 1150mm (Figure 3-45) however DMRB guidance[6] states that the minimum height of the parapet shall be 1400mm on bridges designed for use by cyclists. A review of this bridge was carried out when it was refurbished in 2012. It was determined that the best course of action was to request that cyclists continue to dismount. Works are planned to replace the bridge deck later this year but there are no plans to increase the height of the parapet.

Concerns have been raised of people 'tombstoning' from this bridge however there are no details of any reported injuries as a result of this activity here. The river depths at this location are approximately 10-11ft (3- 3.3m) consistent with a 0.5m reading at the Welsh Bridge Gauge.

[6] DMRB CD 353 - Design Criteria for Footbridges

Figure 3-44 - The Quarry access to bridge

Figure 3-45 - Porthill Bridge parapet

3.3.3 KINGSLAND BRIDGE

Kingsland Bridge is a Grade II listed privately-owned toll-bridge used by vehicular traffic, cyclists and pedestrians and is relatively lightly trafficked. It comprises cast-iron arches with stone piers (Figure 3-46). The parapet height is 940mm (Figure 3-47). During severe flood events, Kingsland Bridge is the only vehicular access in and out of the town centre. It is privately owned and maintained with no public right of way over it.

Figure 3-46 - Kingsland Bridge

Figure 3-47 - Kingsland Bridge parapets

Concerns have been raised of people 'tombstoning' from this bridge however there are no details of any reported injuries as a result of this activity here. The river depths at this location are approximately 9-10ft (2.7- 3m) consistent with a 0.5m reading at the Welsh Bridge Gauge.

3.3.4 GREYFRIARS BRIDGE

Greyfriars Bridge is an iron truss pedestrian footbridge connecting St. Julian's Friars to Longden Coleham and has a high footfall (Figure 3-48). The parapet height is 1270mm(Figure 3-49).

Figure 3-48 - Greyfriars Bridge

Figure 3-49 - Greyfriars Bridge parapet

3.3.5 ENGLISH BRIDGE

English Bridge is a Grade II listed solid spandrel seven arch bridge made of sandstone (Figure 3-50). It is open to vehicular traffic, cyclists and pedestrians, and is heavily trafficked. It has parapets comprising stone balusters and coping stones with a combined height of 1380mm. During severe flood events, English Bridge is closed to vehicular traffic.

Figure 3-50 - English Bridge

3.3.6 CASTLE WALK FOOTBRIDGE

Castle Walk footbridge is a pre-stressed concrete bridge open to pedestrians (Figure 3-51). The aluminium and galvanised mesh parapet has a height of 1120mm (Figure 3-52). It has a relatively low footfall, linking the northern end of town with Monkmoor. It is owned by Shropshire Council.

Figure 3-51 - Castle Walk Footbridge

Figure 3-52 - Castle Walk bridge parapet

3.3.7 THE WEIR

The Environment Agency have advised that the weir is under the ownership of Shropshire Council, however they do own the fish pass. There are fishing rights at the weir.

The section which includes the weir (Figure 3-53) has pedestrian barriers along its length.

Figure 3-53 - The Weir

3.4 EXISTING CONTROL MEASURES

There are a number of existing measures to reduce the likelihood of people entering the river or features that aim to reduce the consequences should people enter the river. The existing control measures are discussed below. Some of these measures were introduced following the 2010 report; details of these are also considered below.

3.4.1 IMPLEMENTATION OF 2010 REPORT FINDINGS

The recommendations requiring immediate action are summarised in Table 3-2.

Table 3-2 - 2010 Recommendations for Immediate Action

Life Saving Equipment	**Implemented since 2010**
The provision of additional lifebuoys	✓
The relocation of lifebuoys which are currently in unsuitable positions	✓
The clear numbering of all lifebuoys along the riverside paths	✓
The provision of emergency information on lifebuoy housings in case of vandalism, damage etc.	✓
The review of current practice for safety equipment inspections	✓
Provide the emergency services with information on the safety equipment	✓
Grab Chains	
The review of current practice for inspection, repair (if required) and maintenance of the river retaining wall grab chains	unknown
Riverside Paths	
The review of the following current practices for maintenance routines to keep the riverside paths clear of mud, silt, debris and weeds	✓
Maintenance routines to assess the condition of the footpaths the control of works on the riverside paths	✓

These recommendations have been taken on board however it has not been ascertained whether there is an inspection and maintenance routine for the grab chains.

The report highlighted the following for consideration as medium-term actions:

- Planting at river edge
- Grading the water edges where feasible
- Installing new ladders at strategic positions
- Installing throw lines adjacent to the lifebuoys
- The adoption of a drowning prevention strategy

- Upgrading existing safety fencing and consider carrying out a road restraint risk assessment at vehicular permitted areas
- The use of warning signs and 'nags' where appropriate to raise awareness of the dangers
- Reducing the risk from the edge of low-level structures
- Identifying ownership where high structures are unprotected and write to the occupier to inform them of the risk
- The assembly of a group to promote water safety and raise the awareness of hazards
- Adopting a maintenance routine to eliminate rope swings and other dangerous activities

Review the following:

- The current practice for recording and reporting of accidents and near misses.
- Current flooding procedures for access restriction and further restrict access to areas that do not need to be accessed by the public after daylight hours (i.e., slipways) where appropriate
- The winter maintenance routine for the paths

Of these actions, throw lines have been introduced and additional pedestrian barriers have been installed.

The report recommended the following long-term actions:

- The installation of 24-hour manned CCTV
- The installation of emergency telephones at various intervals
- A review of and potential improvement of current lighting levels

Of these recommendations, the lighting has been improved, most notably through The Quarry.

Table 3-3 lists the site-specific mitigation measures that were highlighted in the risk assessments where initial risk gradings were identified as medium or high.

Table 3-3 - 2010 Risk Assessment Measures

Location	Mitigation Measures
Weir	▪ Consider extending safety fencing up stream of the weir ▪ Remove major trip hazards, review lighting levels ▪ Raise awareness of dangers to the public. Consider planting or re-grading bank, consider position of some lifebuoys ▪ Prohibit swimming in the weir area, better clearer warning signs
Between the weir and railway bridge	▪ Review lighting in area, maintain chains, and consider upgrading railings to standard height. Additional ladders to provide exit points. ▪ Remove minor trip hazards ▪ Consider nag signs, review lighting levels ▪ Review procedures during periods of flooding, consider temporary use river level warning signs when river is in flood
Between the railway bridge and St Mary's Water Lane	▪ More lifebuoys needed, review lighting in area, maintain chains, consider upgrading railings to standard height. Additional ladders to provide exit points. ▪ Reconsider the surface under the bridge, remove pigeon mess and improve drainage arrangement from the station. Remove other minor trip hazards

	▪ Restrict climbing access under bridge. More life buoys needed. ▪ Review flooding procedures, consider temporary use river level warning signs when river is in flood ▪ Regular inspections by an arboriculturist
Between St Mary's Water Lane and English Bridge	▪ More lifebuoys needed, review lighting in area, maintain chains, consider upgrading railings to standard height. Consider installing a ladder. ▪ Remove minor trip hazards. ▪ Regular inspections by an Arboriculturist ▪ Review flooding procedures, consider temporary use river level warning signs when river is in flood
Between English Bridge and Greyfriars Bridge	▪ More lifebuoys needed, ladders to escape water, review lighting in area, maintain chains, consider upgrading railings to standard height. Additional ladders to provide exit points. ▪ Remove minor trip hazards and cut back vegetation. ▪ Consider more railings along the footway where it is less than 3m wide and has no existing railings. ▪ Warning signs for the risk of getting stuck in the mud. Hostile planting to deter people from using the embankment. ▪ Warning signs for restricted headroom under English Bridge, particularly for cyclists ▪ Regular inspections by an arboriculturist ▪ Review flooding procedures, consider temporary use river level warning signs when river is in flood
Greyfriars Bridge to Kingsland Bridge	▪ Remove minor trip hazards, fill in potholes ▪ Regular inspections by an arboriculturist ▪ Review flooding procedures, consider temporary use river level warning signs when river is in flood
Quarry Park	▪ More lifebuoys needed. Review lighting in area. Consider vehicle restraint barriers where appropriate. ▪ Remove minor trip hazards ▪ Regular inspections by an arboriculturist ▪ Review flooding procedures, consider temporary use river level warning signs when river is in flood
Victoria Quay	▪ Remove minor trip hazards ▪ Regular inspections by an arboriculturist ▪ Review flooding procedures, consider temporary use river level warning signs when river is in flood
Water Lane to Welsh Bridge	▪ More life buoys needed, review the position of the life buoy covered by vegetation. Review lighting in area. Consider ladders to make getting out of the river easier. ▪ Consider resurfacing the concrete section of the path. ▪ Consider upgrading railings around steps up to standard height. ▪ Regular inspections by an arboriculturist

	▪ Review flooding procedures, consider temporary use river level warning signs when river is in flood
Welsh Bridge to boat yard	▪ Area appears safe with a low risk of vertical drop. Maintain area. ▪ Regular inspections by an arboriculturist ▪ Review flooding procedures: consider temporary use river level warning signs when river is in flood. Provide signing in the vicinity of boat launching slipway, which is directly accessible by vehicles form the car park and road network.

Of the site-specific measures, additional lifebuoys have since been installed and vegetation has been maintained. Additional barriers have been installed.

3.4.2 LIGHTING

The locations of existing lighting columns are depicted in Appendix F.

Currently there is a mixture of lit and unlit sections along the route mainly in the ownership of Shrewsbury Town Council (STC). It has been determined that the STC lighting along the lit towpath sections is LED, 4000k colour temperature, with no dimming regime (illuminated dusk through to dawn). There are a couple of wattages in use: 25 Watt between Greyfriars Bridge and the railway station, and 50 watts from the Castlefields side of the station, along to the weir.

An assessment of the lighting provision during the hours of darkness confirmed a very variable level of lighting provision. It is difficult to ascertain the actual lighting levels which are currently being achieved for the lit sections along the paths without further investigation and calculation but from initial observations taking account of the current varied spacing between existing lighting points, the uniformity (even spread of light) could be vastly improved upon. This is considered to be as important if not more so than the actual levels for a good lighting installation.

There are also lengths of unlit sections between currently lit sections.

Victoria Quay and Victoria Avenue has Heritage style lighting in the ownership of Shropshire Council, but this is mainly targeted for the shared traffic/ pedestrian walkways in front of the restaurants in that section and would provide minimal lighting to the river side due to the distance and level difference from the river section. The lighting then continues into The Quarry which is owned by STC. It is understood that this was upgraded to solar-powered LED in 2019. This is of low lighting levels from initial observations and specifically for the Quarry footway away from the river edge. The secondary track closer to the river currently has no lighting.

English Bridge and Welsh Bridge are currently lit by Shropshire owned lighting assets, but these are for the road sections and not river side or tow path lighting. There is a section running between Welsh Bridge and Water Lane which is currently lit and from first observations is lit to an acceptable standard.

Porthill Footbridge has some flood lighting at both ends but this is mainly targeted at the entry /exit points of the bridge.

Greyfriars Bridge has 3 bulkhead type lights of low output for footway lighting providing some light to the entry and exit points and midpoint along the bridge.

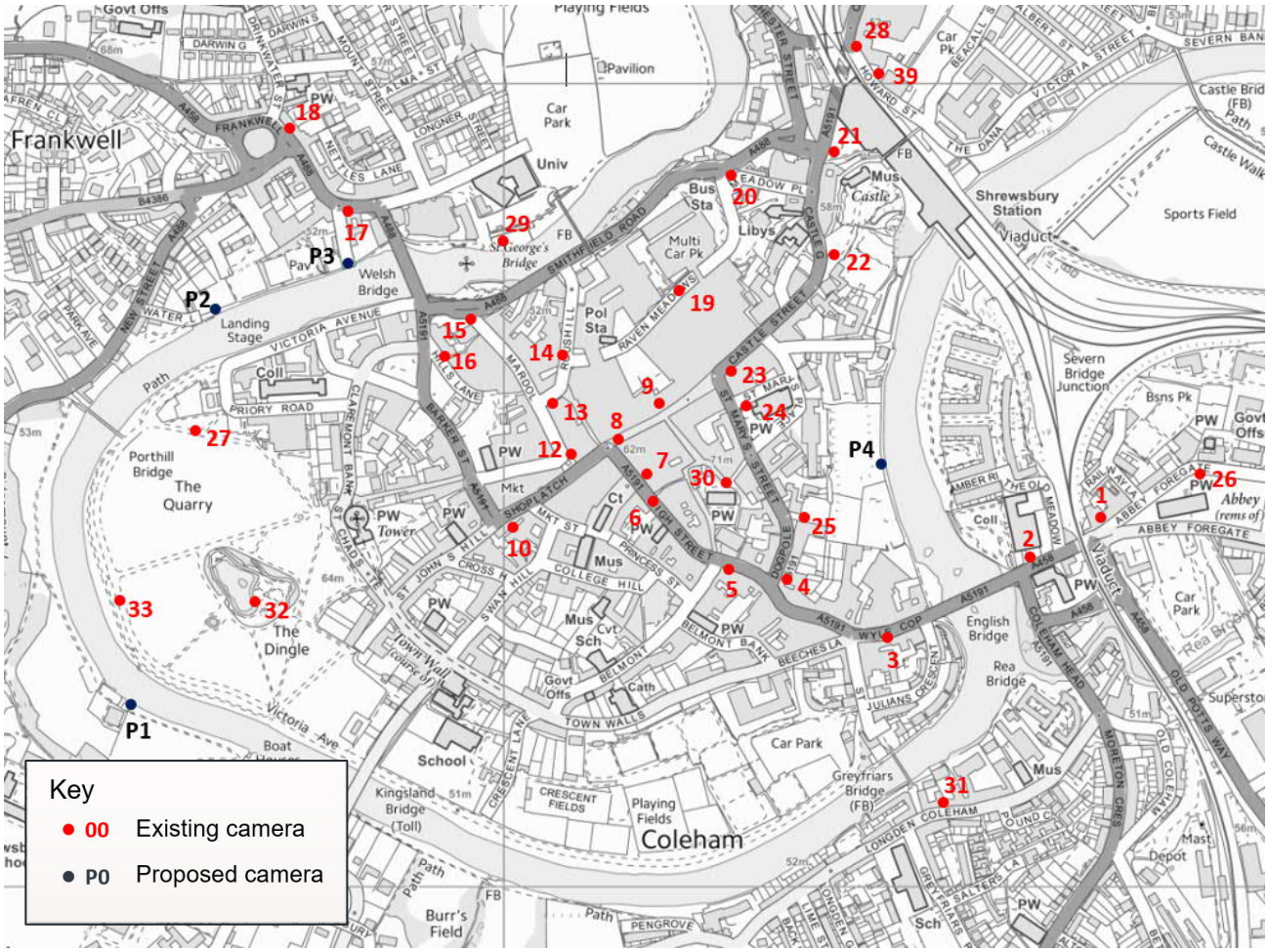
On Castle Walk footbridge there are two pairs of lights at each end of the bridge but none in between on the actual bridge. These are primarily for the bridge area at those locations and would not light much into the bridge deck section.

Kingsland Bridge only has riverside lights on the town side. On the bridge itself there are two pairs of lights at each end and one overhead light in the middle of the bridge. These are specifically for the bridge area and only one of the lights was working at each end. They are not providing the required illumination to the bridge deck due to the current spacing and general layout.

3.4.3 CCTV

Figure 3-54 shows the locations of CCTV cameras around the town centre. These are primarily used to ensure the health and safety of the public, to detect, prevent or reduce the incidence of crime, and to prevent and respond effectively to all forms of possible harassment and disorder. The CCTV is live monitored by Shropshire Council 24/7, 365 days of the year with two operatives based in a small control centre located within Shrewsbury Fire Station.

Figure 3-54 - Plan of CCTV locations



As part of the government's Safer Streets initiative, funding has recently been received for four new infrared CCTV cameras which are indicated on the plan.

3.4.4 WATER EDGE PROTECTION

3.4.4.1 PLANTING

Marginal planting at the river's edge provides a natural barrier which acts as a deterrent to users. The town council have installed coir fibre rolls to build up weak areas of the riverbank within The Quarry; these incorporate planting therefore creating a natural barrier.

3.4.4.2 BARRIERS

Several different types of barriers are used at different points along the river. Refer to Appendix H

Barriers are in place at strategic points along the river, predominantly:

- where the river edge is narrow and at pinch points combined with a higher density of pedestrians/ cyclists
- where other paths or accesses join the river edge path
- where there is a significant height difference adjacent to the river (e.g., Victoria Quay)
- where the path deviates/ changes angle
- where the water is particularly hazardous (for example the weir)

With exception to the barriers in place at Mardol Quay and the weir, most of the barriers in place have horizontal bars making them easier to scale, so they will not prevent deliberate entry into the water. It is found that during flooding, the barriers will trap and collect large debris such as tree branches leading to potential damage and maintenance post flooding. Concerns have been raised that they may hinder attempts to rescue people from the river.

3.4.5 SIGNAGE

HSE guidance states that the use of signage is only appropriate where it can further reduce the risk.

Where signs convey a warning message, it is an individual's perception of the risk and hazard, along with their own experiences and observations that will have a greater influence on whether the signage is heeded. The Royal Society for the Prevention of Accidents (RoSPA) advise that that too many signs or too much information may lead to cognitive overload therefore the message can get lost, and that overuse can lead to 'blindness' to information.

There is a limited amount of personal safety warning signage alongside the river. The Keep Safe signs are A4 in size and are placed sporadically (Figure 3-55). These are very low key and act as a gentle reminder to consider your own safety however they are likely to have limited impact. The Home & Dry signs (Figure 3-56) are also A4 and direct users to the West Mercia Police Online Home & Dry training course. The messaging is not considered to be particularly impactful since the signs require people to have the impetus to take notice and then follow up by visiting the website for more information.

Figure 3-55 - Keep Safe sign

Figure 3-56 - Home & Dry sign

The Throw Line Stations have a warning message to 'Keep out of the Water' (Figure 3-57) however the messaging is lost amongst the informational messaging relating to using the equipment and it is unclear whether this message is targetted at everyone or specifically to those affecting a rescue. It is unlikely to be noticed by passers by and it is unlikely to make any impact.

Figure 3-57 - Throw Line Station warning message

Additionally, there are defibrillator signs located in The Quarry (Figure 3-58). Suicide prevention signage (Figure 3-59) was observed at the end of each of the bridges with the exception of Kingsland Bridge. There appears to be only one sign at each bridge so they could be missed by a vulnerable person if they were to approach a bridge from the other end or opposite side to where the signage is placed.

Figure 3-58 - Defibrillator sign

Figure 3-59 - Suicide Prevention signage

Shrewsbury Town Fisheries and the Environment Agency both have signage in place at the weir (Figure 3-60 and Figure 3-61) which depict and describe the hazards at this location. RoSPA advise that warning signs on their own may not be a sufficient single measure with a non-obvious or significant hazard[7], which is clear in this instance because people still continue to take the risk of bathing in this area.

Figure 3-60 – Shrewsbury Town Fisheries Weir Signage

Figure 3-61 - Environment Agency Weir signage

3.4.6 PERSONAL RESCUE EQUIPMENT (PRE)

The locations of existing PRE are depicted in Appendix F. Appendix G contains a schedule of each item. The buoys were inspected on 15 and 18 July and were all found to be present and in good condition.

3.4.6.1 LIFEBUOYS

The intended operational use of lifebuoys is for rings to be 'dropped' to the casualty rather than thrown horizontally. RoSPA recognises that although lifebuoys are of value, they are not a key risk control measure and can be difficult to throw horizontally any distance because of their shape and weight. However, they advise that in limited circumstances, buoys may afford the victim extra time or support to enable rescue.

Lifebuoys are provided at strategic intervals in positions where they are clearly visible to users. In areas of heavy footfall these are typically spaced no more than 100m apart. Individual lifebuoys are identified by a unique reference number (Figure 3-62) and recorded on plans which are shared with Shropshire Fire and Rescue.

[7] RoSPA Managing Safety at Inland Waters

Figure 3-62 - Typical Lifebuoy Station

RoSPA guidance states that placement of buoys may be seen as creating a permitted swim spot or inducement to swim, i.e., the belief that “this is a safe space to enter”. They also warn that blanket placement may have unintended effects because the tangible, highly visible presence of units can provide a sense that ‘water safety is managed’. This could lead to a false sense of security, that if someone were to get into difficulty that they may then easily be rescued, resulting in more relaxed behaviours.

Lifebuoys may be easily vandalised, lost, or stolen therefore they are inspected weekly by a sub-contractor on behalf of Shropshire Council.

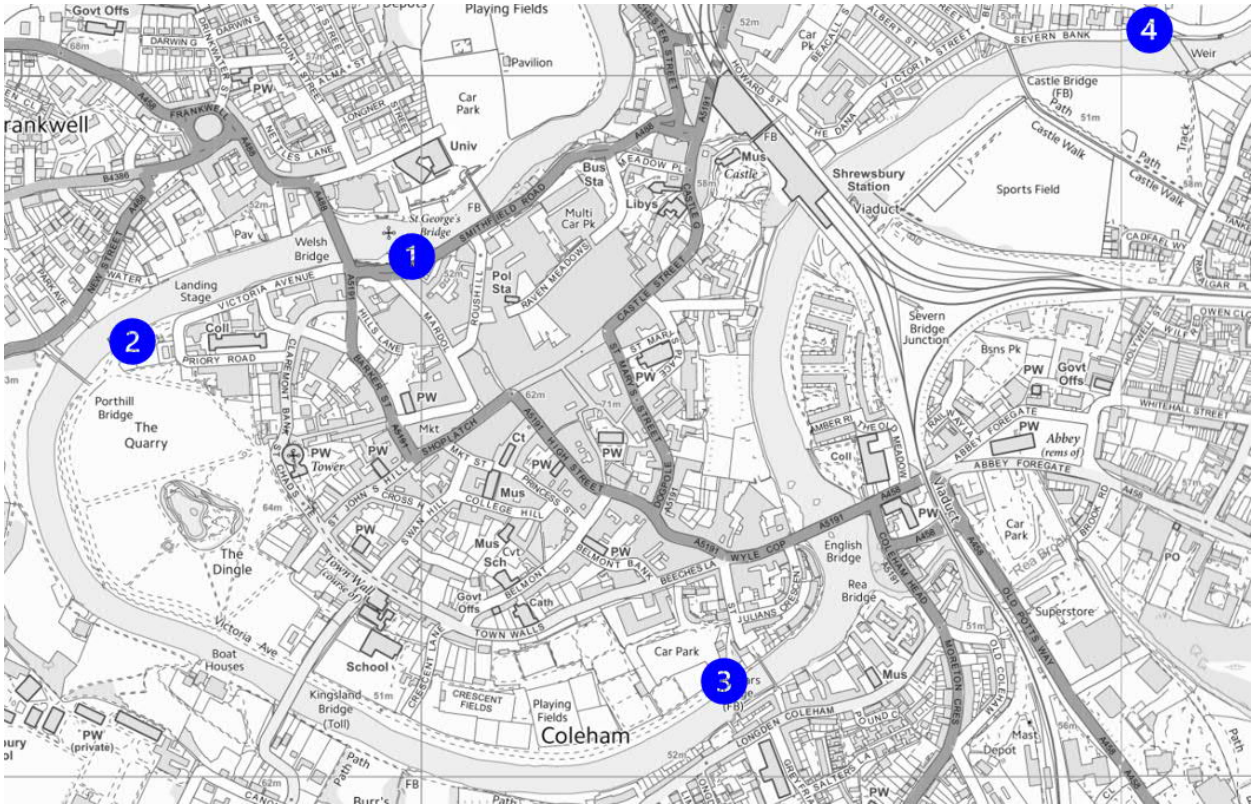
3.4.6.2 THROW LINES

These are designed to affect rescue to a casualty who is at some distance in the water, but these are most effective when the user has received specific training. It is easier to achieve accuracy and distance with these than with a buoy, however the person in the water only has a small head of the device and/or the floating line to hold onto. The equipment is padlocked, which ensures that the emergency services are alerted upfront helping to speed up the rescue effort (Refer to Figure 3-63).

Figure 3-63 - Typical Throw Line Station

There are four of these in total, located at: Mardol Quay, The Quarry, Greyfriars Bridge, and the weir (Figure 3-64).

Figure 3-64 - Location of Throw Lines



3.4.7 RIVER WALL GRAB CHAINS

Grab chains can allow a person who has entered the river to have a hand hold whilst awaiting rescue and may in combination with ladders allow for self-rescue (Figure 3-65). These are installed at most sections along the river where there is a sheer edge and would enable a person in the water to reach them at most water levels. However, some chains are damaged or missing meaning there is a lack of continuity which could prevent an individual from tracking along the chains to the nearest point of egress.

Figure 3-65 - Grab Chains along Water Lane

3.4.8 LADDERS

Two ladders were identified within the study area, these are located in Mardol Quay (Figure 3-66) and at the weir (Figure 3-67). Neither of these provide adequate conspicuity. The ladder at the weir is designed such that it could encourage people to use it to enter the water.

Figure 3-66 - Ladder at Mardol Quay

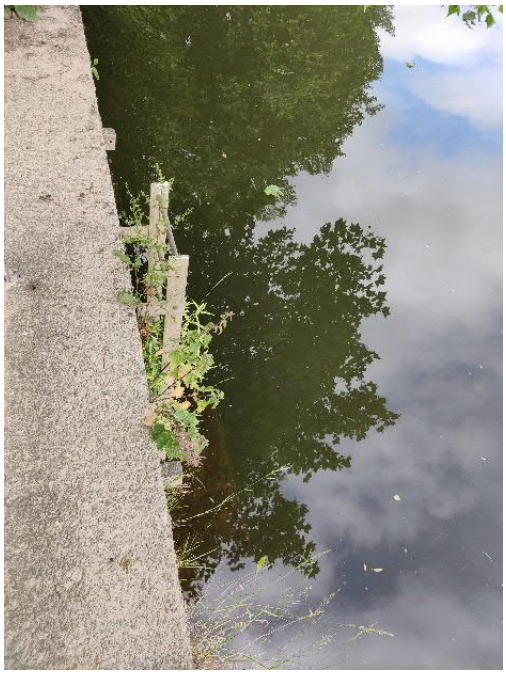


Figure 3-67 - Ladder at the weir

4

FUTURE DEVELOPMENT

PUBLIC

4 FUTURE DEVELOPMENT

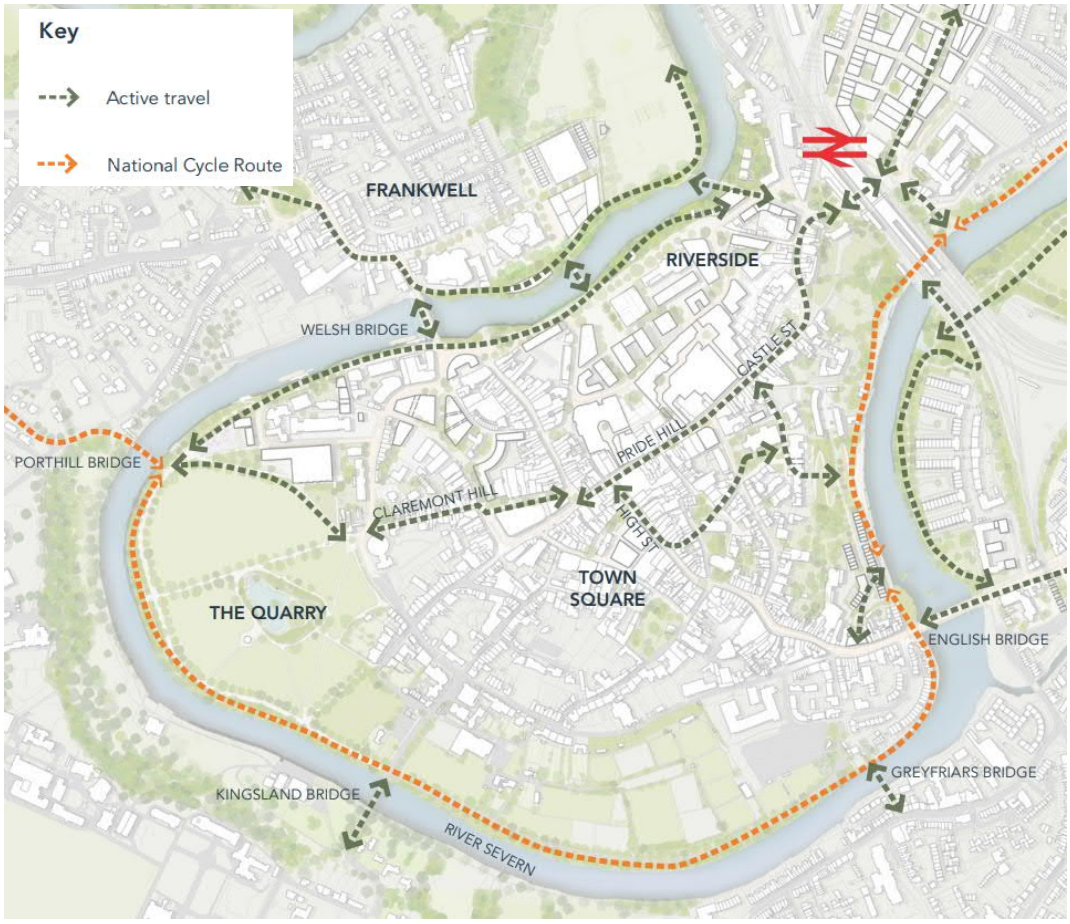
4.1 BIG TOWN PLAN

The river forms a key part of the masterplan vision of the Shrewsbury Big Town Plan. The plans include new links to the river, encouraging the extension of green active transport routes and extending the public realm to the river's edge. These are intended as key drivers for stimulating local economy, tourism, and biodiversity, as well as a means to improving health and well-being and enjoyment of outdoor space.

4.1.1 ACTIVE TRAVEL

The Big Town Plan aims to complete the green river loop through expansion of the park to the Welsh Bridge and linking the pedestrian and cycle route past the proposed Riverside improvement, to the train station as depicted in Figure 4-1.

Figure 4-1 - Active Travel[8]



[8] https://shrewsburybigtownplan.org/wp-content/uploads/2021/01/Shrewsbury-Masterplan-Vision-Jan-2021.pdf

The recommendation for Victoria Quay is to replace the highway and create a public realm which takes on the character of the existing riverside route around The Quarry, with an emphasis on a wide pedestrian and cycle friendly path, with informal surface materials, a lime avenue and green on both sides of the path. The re-routing of traffic from Smithfield Road would enable safer, quality pedestrian and cycle routes along a riverside green park.

It is considered that social and leisure activity along the river will also provide passive surveillance to enhance the safety of the active travel route. It is stated that water leisure activity such as pontoon and river taxis should be encouraged.

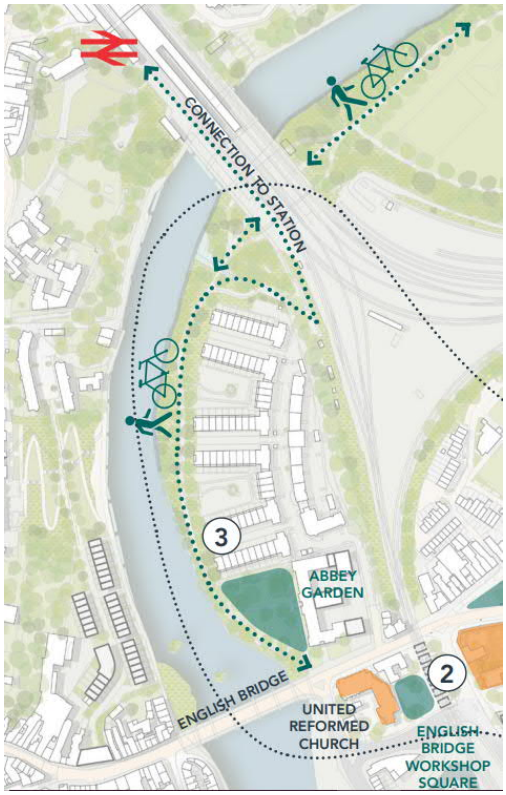
4.1.2 FRANKWELL AND THE RIVERSIDE REGENERATION

The vision is to create an exciting, vibrant 21st Century addition to Shrewsbury combining leisure, living and work in a place that is well connected to the town centre, train station and The Quarry. It aims to make the River Severn the main attraction and the centrepiece. It includes a new low-level accessible footbridge across the river on the existing Frankwell Bridge location which will connect with the new Riverside Square.

4.1.3 EASTERN RIVERBANK

The Plan envisions to extend the green active travel route to platform three of the train station by reviving the eastern riverbank green route, increasing pedestrian accessibility to the station for residents (refer to Figure 4-2)

Figure 4-2 - Eastern Riverbank green route



The riverbank path between the English Bridge and Castle Walk footbridge will be reimagined as a new public park shared by pedestrians and cyclists. Step free pedestrian and cycle access will be provided to the south of the station viaduct up to the platform level to create the link, across the

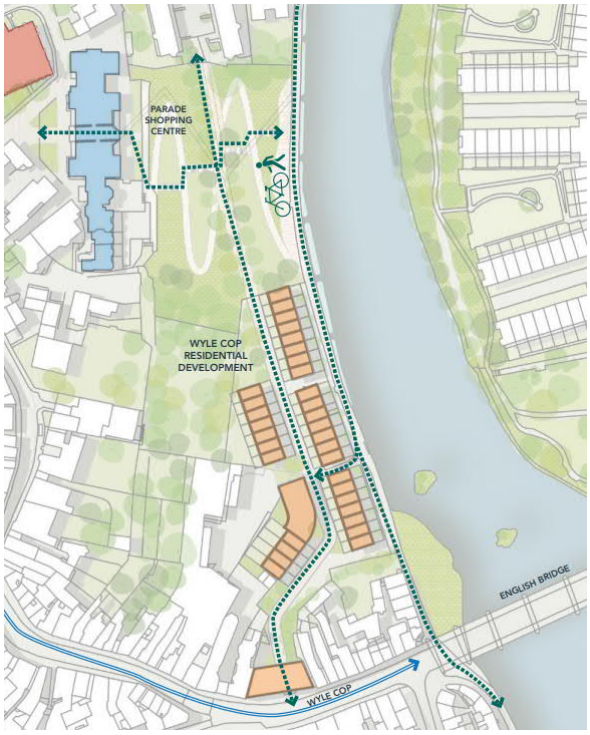
river, to the station along platform three. This intervention will enhance accessibility to the station for many residents, reducing the reliance on private vehicle journeys from the east to the station.

4.1.4 WESTBANK TERRACE GARDENS AND WYLE COP RIVERSIDE

The vision of the Westbank Terrace Garden offers the potential for a public connection between the Parade Shopping Centre to the national cycle route at the river's edge and north/south active travel connection between St Mary's Water Lane and Wyle Cop. It is considered that the character of the expansive green space lends itself to a combination of terracing for urban agriculture and biodiverse riverside greenery to be enjoyed by the residents of the local housing and visitors alike.

This side of the river would be coupled with a new modern riverside living development on the site of the existing NCP Wyle Cop surface car park, creating a direct and level active travel connection between the historic quarter and the green river loop.

Figure 4-3 - West Bank



4.2 CONCLUSION

The proposals set out in the Big Town Plan will give the river greater prominence and will encourage more people to use it for active travel and leisure in the future. The developments at Victoria Quay and at the Riverside are likely to encourage greater numbers of people to gather near the river at night which may increase the frequency of river incidents but may however enhance safety via passive surveillance.

5

MANAGING PUBLIC SAFETY

PUBLIC

5 MANAGING PUBLIC SAFETY

5.1 CASE STUDIES

Similar to Shrewsbury, other towns and cities have to manage the balance between river safety and the significant amenity the river offers to resident and visitors. The following case studies provide some examples of how other bodies have tried to improve river safety.

5.1.1 DURHAM

Durham is a market town which is centred within a meandering section of the River Wear. It is similar in nature to Shrewsbury, with a strong heritage and a town centre which features independent shops, boutiques, cafes, and restaurants. Its river forms a central part of Durham's heritage and draws a significant visitor and resident footfall with some locations along the river being important connective routes (Figure 5-1).

Figure 5-1 - River Wear at Durham (© OpenStreetMap contributors)

Durham has a strong university presence and has a number of bars and pubs which are in close proximity to or overlook the river. Between January 2010 and March 2015, there were 56 water-related incidents recorded, of which five resulted in drowning fatalities. Common factors included being male, being alone at night, being under the influence of alcohol and being a student. The incidents happened in close proximity to the high footfall areas, and the heritage locations.

A safety review was carried out in coordination with Durham City Centre Safety Group and RoSPA in collaboration with other key parties including police and fire services.

Key measures implemented included:

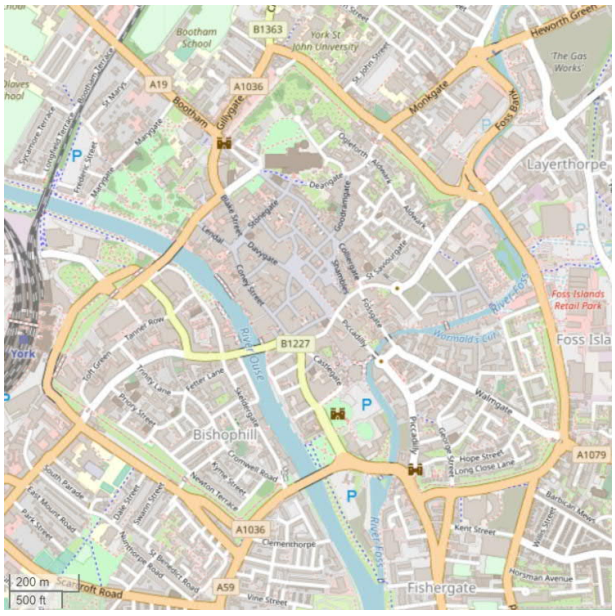
- Improved lighting and safe routing information around the city

- Engineered improvements to key sections of the riverside, considerate of the heritage needs for the location
- Increased provision of public rescue equipment at strategic positions along the riverside
- Improved inspection and monitoring systems and regimes for the key risk areas
- An awareness campaign to highlight new transport and route safety information, as well as alcohol safety awareness messaging and initiatives
- A new policy to ensure that all new builds are planned with water safety in mind.

5.1.2 YORK

The city of York also shares many similarities with Shrewsbury, in terms of heritage and character. The River Ouse and River Foss both run through the city, including the areas bound by the city walls (Figure 5-2).

Figure 5-2 - River Ouse and River Foss at York (© OpenStreetMap contributors)



The North Yorkshire Fire & Rescue Service reported that there were 21 river deaths between 2016 and 2021. Historically the typical profile was young people, aged between 18 and 25, who were entering the water between 10pm and 3am, and usually on weekends. However, it has been noted that the average age of those who have died has increased from 26 in 2004 to 68 in 2021.[9]

The multi-agency York Water Safety Forum was set up and implemented a number of initiatives including:

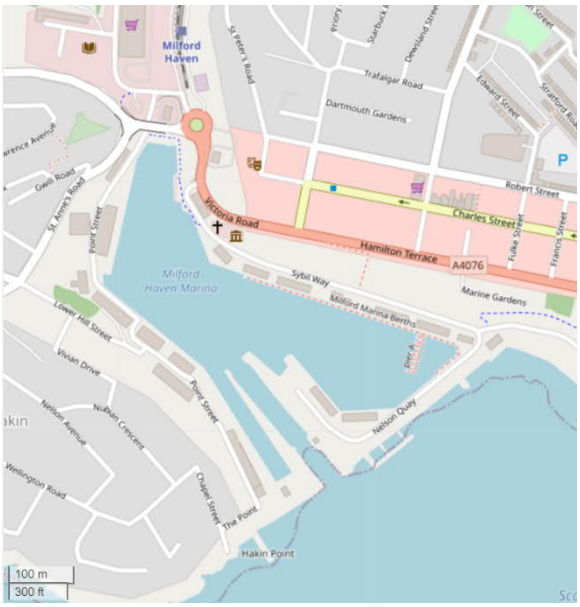
- Painting escape ladders orange to make them more visible
- Installing signs at hotspots pointing people to the help offered by the Samaritans
- Safety messaging given to students via the universities

[9] https://yorkmix.com/there-have-been-21-river-deaths-in-five-years-in-york-but-one-key-factor-has-changed/

5.1.3 MILFORD HAVEN MARINA

Milford Haven is a town situated on the north side of the Milford Haven Waterway, an estuary forming a natural harbour in Pembrokeshire, Wales. Tombstoning is a common concern here, and the risks are highlighted to the public as part of an annual campaign.

Figure 5-3 - MIlford Haven Marina (© OpenStreetMap contributors)



Under the Milford Haven Port Authority Byelaws (Milford Docks Act 1981), jumping or diving into the water and swimming is strictly prohibited (Figure 5-4). Any breach of these byelaws may lead to prosecution and a fine of up to £50, plus a victim surcharge of £30, in the criminal courts.

Figure 5-4 - Milford Haven Prohibition sign[10]

[10] https://www.mhpa.co.uk/tombstoning/

Signs are located around Milford Haven waterfront to raise awareness of the hazards associated with playing in the water (Figure 5-5).

Figure 5-5 - Milford Haven Port signage[11]

During 2017, the Port also collaborated with Cardiff Harbour Authority and Arts & Business Cymru to commission a play about tombstoning called 'Would You Jump?'. The play was performed to almost 1,000 pupils in Milford Haven and Cardiff Bay.

5.1.4 AMSTERDAM

The issues related to water safety are not specific to the UK.

The Dutch publication NL Times reported in 2017 that according to figures from the fire department, over a hundred people end up in Amsterdam canals per year and half of these cases happen in the city centre and over the weekend[12]. They also stated that:

'On average 18 people drown in Amsterdam per year, according to research by municipal health service GGD. In 80 percent of cases, the victim is male. Two thirds of the victims come from the Netherlands. Over the past five years four Poles, two Hungarians, two Britons, two Americans and two Norwegians drowned in the city. In 40 percent of the cases, alcohol and drugs were involved.'

In response to these cases, temporary stairs were installed in canals to enable people who end up in the water to get themselves out again. Amsterdam is currently undergoing renovations to its quaysides which includes building new permanent stairs.

[11] https://www.mhpa.co.uk/tombstoning/
[12] https://nltimes.nl/2017/03/14/amsterdam-install-stairs-canals-reduce-drunken-drownings

It was reported the local daily De Telegraaf in 2012 that between 2009 and 2011, 50 people drowned in the canals of Amsterdam accidentally. It was claimed that '*the vast majority of them involved men, and according to the newspaper ostensibly 'most of them were drunk' when they fell in while trying to pee into a canal*'.[13]

The Amsterdam newspaper Het Parool reported in 2016 that drowning victims are sometimes found with their fly still undone.

It was reported that in May 2018 a 21-year-old British tourist died after falling into one of the city's canals whilst urinating[14]. According to witness reports he lost his balance and fell into the water. Whilst a special diving team managed to pull the man out of the water, he died a short time after arrival at hospital.

In an ongoing effort to reduce the number of drowning incidents, the following measures have been implemented:

- Installation of more public toilets in a number of hot spots.
- An information campaign to alert tourists and vulnerable people to the danger of falling in the water.
- Installation of vandal-proof ladders, stairs, lifeline ropes and grabbing stones
- Removal of existing 20cm high iron fences so that people won't trip over them. These were originally installed to prevent cars from inadvertently driving into the canals

[13] https://www.dutchamsterdam.nl/2152-amsterdam-canals-drownings
[14] https://metro.co.uk/2018/05/21/british-tourist-dies-falling-amsterdam-canal-urinating-7565067/

5.2 SHREWSBURY CURRENT ACTIONS

Prior to the commissioning of this report, there has been an ongoing response to issues surrounding river safety, however in response to the two most recent river fatalities various parties have mobilised to look at what else can be implemented. This section looks at the actions that are currently underway by different parties.

5.2.1 SAFER STREETS FUND

Funding has recently been acquired by West Mercia Police through the Safer Streets Fund which includes measures that will improve river safety:

- Improvement of lighting/signage of rescue throw lines along the river.
- Installation of Safer Routes Signage. Signage along safe routes out of the town centre, these being well lit and covered by CCTV and/or Rangers/Security at key times. Safe routes will seek to deter those who take short cuts by the river.
- Installation of CCTV in key locations to provide complete coverage. Improvements will also be made to the current CCTV-Police communications.
- Shrewsbury Ranger programme. To be a pro-active and visible resource focussed on reducing anti-social behaviour and crime in Shrewsbury town centre.
- Quarry Security and Taxi Marshalls.

5.2.2 SHREWSBURY TOWN COUNCIL

Shrewsbury Town Council have been actively keeping abreast of the issues and investing to address them. Since the 2010 review, this has included working with partners to deliver additional measures such as barriers, lifebuoys and throwlines. They have introduced solar powered lighting alongside the paths within The Quarry. Their Operational staff have also received throw-line training.

5.2.3 WEST MERCIA POLICE

WMP are attending college and University Fresher's Days to deliver water safety messaging and merchandise. They are supporting pubs, clubs, and bars with publicity material such as posters and beer mats.

5.2.4 SHROPSHIRE FIRE AND RESCUE SERVICE

SFRS have worked with the town council to install four throwline stations. Throwline training has taken place with the town council and Street Pastors, businesses, and security staff. Some venues have their own throwlines on the premises.

They have been advertising the National Fire Chiefs Council's 'Be Water Aware' campaign and the West Mercia 'Home & Dry' water safety course.

They are also offering free training of the RNLI waterside response scheme programme to businesses.

5.2.5 WEST MIDLANDS FIRE AND RESCUE

WMFR are continuing to advertise the free online water safety course, which goes to Schools, Colleges and Clubs. They are continuing the river patrols, working with the Street Pastors.

5.2.6 SHREWSBURY BID

Shrewsbury (BID Business Improvement District) is a business led and business funded partnership working for and representing over 500 members in Shrewsbury. They deliver projects and initiatives to benefit the businesses in the local area and give them a voice in how Shrewsbury town centre is promoted, managed, and developed.

They have worked in conjunction with Team Shrewsbury in a poster campaign distributed to pubs, bars, and clubs to highlight the risks of walking home along the river.

There is an internal radio network which connects CCTV operators, Police, Police Community Support Officers (PCSOs), Street Pastors and late-night venues (the scheme requires paid participation of businesses). It can be used to stop anti-social behaviour and alert other parties to vulnerable individuals.

The BID has also been investigating the potential for investing in a night bus because bus services currently finish early in the evening.

5.2.7 PUBWATCH

Pubwatch is a partnership run by members and administered by Shrewsbury BID. Its aim is to make Shrewsbury a safer place to live in and visit. They have been assisting with education by cascading information down to premises about dangers and risks on the river.

They are currently working with a local videographer to create a video to be broadcast in all pubs and shared on social media. This will feature story-based marketing about the river with a focus on looking after your friends.

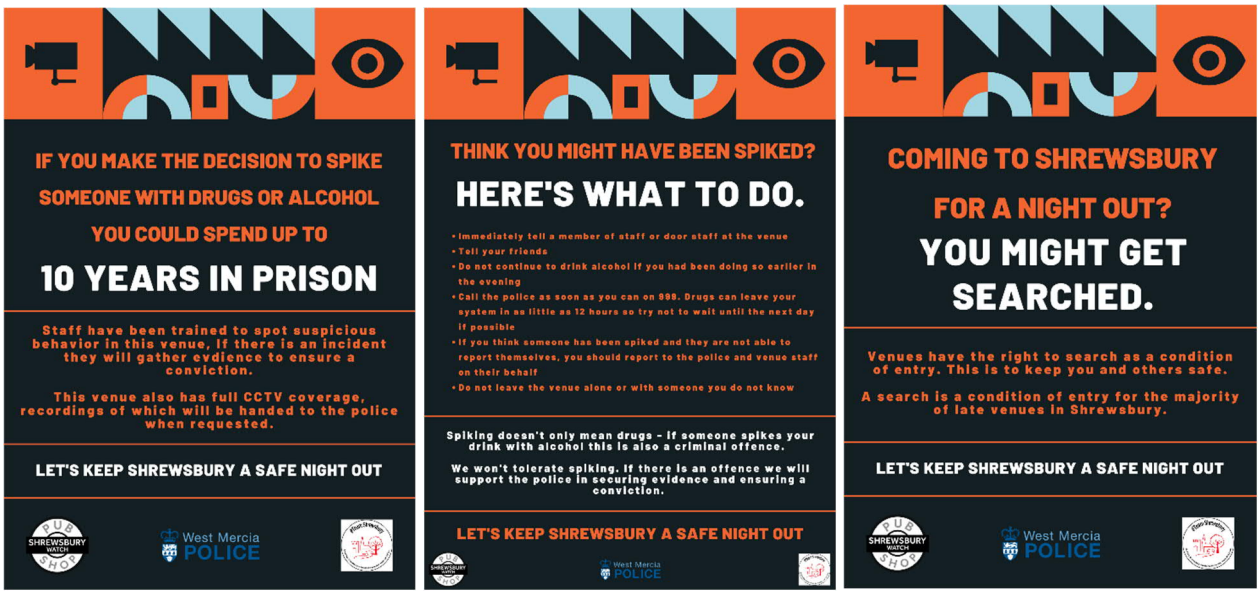
A poster campaign regarding safe walking routes has been implemented (refer to Figure 5-6).

Figure 5-6 – Shrewsbury River Safety Posters

They are also working with businesses to carry out training for over-serving and providing after care linked in with the Samaritans.

In response to the general public concern regarding spiking, an anti-spiking taskforce was set up with partners including the Student Union and police. It has however been hard to get funding because toxicology results from suspected cases have been coming back negative. Funding was provided for drink lids which went out to venues. Additionally, a poster campaign was rolled out (refer to Figure 5-7). Whilst the content of the posters is very informative, there is a lot of information to absorb which could have limited impact. Imagery may help to attract attention.

Figure 5-7 - Shrewsbury Spiking Poster Campaign



West Mercia Police carry out Exploitation and Vulnerability training which has been offered to PubWatch members however it is voluntary. Individual pubs have been working directly with police.

As far as they are aware, following on from these measures the number of reports and concerns appear to have decreased.

5.2.8 STREET PASTORS

Street Pastors are volunteers from several different churches who make themselves available to help people who have become vulnerable in the evening. This may be through the effects of alcohol, or drugs, or relational difficulty and emotional distress.

The Street Pastors operate on Saturday nights from 10pm until approx. 3.30am or 5.30am. They have a support vehicle (named 'The Donkey') which operates to help those who are unwell following drugs or alcohol over-indulgence. It is equipped with first aid equipment, including a defibrillator, and red blankets. They can also provide hot drinks and water. It is registered as a safe place for all to use and can be requested by door staff / police etc. for assistance. Street Pastor volunteers have had throwline training. They are producing posters to promote the Donkey as a safe place.

5.2.9 SAMARITANS

The Samaritans have been educating bar staff with mental health support, providing face to face workshops and a listening workshop with Street Pastors.

5.2.10 ROYAL LIFE SAVING SOCIETY (RLSS)

The RLSS continues to provide education and resources from early years to sixth form college, including class-based water safety education.

5.2.11 MAKE OUR RIVER SAFER FACEBOOK GROUP

Created in 2015, the Facebook community group shares information about river safety in Shrewsbury. They are raising funds to make improvements and are seeking to become a charity.

6

RECOMMENDATIONS

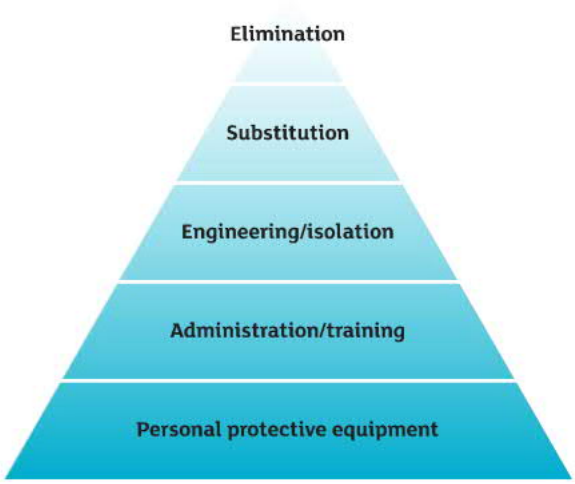
PUBLIC

6 RECOMMENDATIONS

6.1 METHODOLOGY

RoSPA outlines the hierarchy of preferred approaches to risk control as follows:

Figure 6-1 - Hierarchy of Risk Control[15]



The hierarchy highlights the priority and importance of preventative measures over those lower in the hierarchy. However, it is recognised that total hazard elimination may not always be the preferable solution, bearing in mind practical considerations and overall costs. Having measures in place at each level of the hierarchy will provide a holistic approach.

The following recommendations are based upon this hierarchy. They should be read in conjunction with the risk assessments provided in Appendix E which highlight mitigation measures for specific sections of the riverside. Where physical measures are recommended, a designer's risk assessment should be carried out before any are implemented.

6.2 ELIMINATION

In the hierarchy of risk control, elimination is the most effective as it aims to remove the hazard entirely. By this measure it is not possible to eliminate the river or any elements of it.

6.3 SUBSTITUTION

This step aims to provide less hazardous alternatives to the risks posed by certain behaviours.

[15] RoSPA Little book of big ideas about health & safety

6.3.1 OPEN AIR URINALS

Shrewsbury Town Council own public toilets which are located at the weir, The Quarry and in Butcher's Row. These are all locked overnight (varies between facility from 15:30 and 18:00 and dependent upon time of year).

Open air urinals could be installed to reduce the likelihood of men using the river as a place to urinate during evenings and particularly on nights out. These have been used in cities such as Manchester and Chester to alleviate wider issues of urination during the night-time economy. Such facilities are publicly prone to criticism due to their perceived unsightliness, however there are solutions such as Eco urinals used in Amsterdam (GreenPee[16]) and telescopic ones adopted in London (UriLift[17]). Installation of such facilities may raise additional concerns with regards to hand washing provision and lack of alternative provision for women, however these urinals are posed as an alternative to behaviour which is already happening and targeted at men as the high-risk group.

RECOMMENDATION:

Provision of toilet facilities could be facilitated as part of the provision for a safe space in town, through the Safer Streets funding. This could be combined with a renewed campaign within night time venues to 'Go Before You go'.

6.3.2 EVENING TRANSPORT

Solutions to address the lack of public transport and taxis in the evenings is already being considered by the Town Council and partners. Measures to reduce the likelihood of people walking along the river alone at night are welcomed and further investigation would be required into how this could be implemented.

6.4 ENGINEERING CONTROLS

These do not eliminate hazards, but rather isolate people from hazards. Consideration is to be given to the expected level of visitor self-reliance.

6.4.1 EDGE DELINEATION

The risk assessments identified areas where the edges of paths running adjacent to the river's edge could be demarked to create a visual buffer to discourage people from walking too close to the water. This could be achieved using painted markings. Figure 6-2 shows an example of line marking creating an offset from the water's edge. Photoluminescent paint such as GlowLine[18] (Figure 6-3) could be an option to improve conspicuity at night.

[16] https://greenpee.nl/en/
[17] https://popuptoilet.com/en/assortment/urilift-combi/
[18] https://www.wj.uk/glowline/

Figure 6-2 - Line Marking[19]

Figure 6-3 - Photoluminescent marking

RECOMMENDATION:

It is recommended that edge delineation is considered at Water Lane and between Greyfriars Bridge and the weir. Due to the simplicity of this option, it would be considered a short-term action.

6.4.2 BARRIERS

The risk assessments identified that where there is no existing edge protection adjacent to the river, the likelihood of falling in is 'seldom'. Whilst barriers could be considered where there is a high edge above the adjacent water level, mitigation measures such as edge delineation could help to reduce the likelihood of falling in. Barriers will not prevent deliberate entry into the river and guidance by the Inland Waterways Advisory Council states that providing facilities (ladders, ramps) to allow people who fall in to get out of the water is preferable to installing barriers. Thus, providing a means of egress would aid in cases where someone had entered the water either deliberately or otherwise.

In areas which are identified in the individual risk assessments as high risk, provision of barriers may still be appropriate. Consideration would need to be made for access for emergency services and visual impact; these would need to be addressed as part of a designer's risk assessment.

The risk assessments identified areas where barriers have heights lower than the minimum: RoSPA recommend a barrier height of 1100mm[20].

RECOMMENDATION:

It is recommended that barriers with below-standard heights are replaced. A designer's risk assessment would need to be carried out on the replacement sections. Due to the cost of this option, it would be considered a medium-term action.

6.4.3 LIGHTING

The Safer Streets Fund includes investment for improved lighting of the throw line stations.

[19] Guide to Public Safety on Flood and Coastal Risk Management Sites
[20] RoSPA Managing Safety at Inland Waters

RECOMMENDATION:

It is recommended that areas are identified for review of the existing lighting installations and proposed lighting for currently unlit areas where it is deemed to be a requirement and/or assistance in regard to safety for lighting levels being achieved/ required. The type of lighting to be utilised (upgrade of existing lanterns with modern equivalents, low level - bollards, handrail lighting – utilising existing/new handrail sections) needs to be carefully considered to minimise any potential lighting intrusion issues and sensitivities of river side lighting relative to flora and fauna. This could be further managed on a sensor/ time setting by targeting critical time periods of higher usage (weekends, evening pub closure times etc.).

6.4.4 MARGINAL PLANTING

The use of natural vegetation such as reeds could be extended to discourage entry to sections where the river is accessed for bathing. This strategy provides a lower visual and cost impact than barriers and could be used where the risk of falling in is low. This does however require time to become established and needs to be balanced with the risk posed to workers during maintenance.

RECOMMENDATION:

It is recommended that areas are identified where this would prove beneficial. Due to the relatively low cost but time required for plants to establish, this would be a short/ medium-term action.

6.5 ADMINISTRATIVE CONTROLS

Administrative controls relate to the identification and implementation of procedures to manage river safety.

6.5.1 OPEN WATER SAFETY PLAN

The National Water Safety Forum's (NWSF) UK Drowning Prevention Strategy aims to reduce the number of accidental drowning fatalities by 50% by 2026 and reduce risk amongst key populations, groups and communities. One of their key actions is that every community with water risks should have a community-level risk assessment and water safety plan. The NWSF are working towards a standard methodology for communities to work to.

Research published by RoSPA in November 2021 found that only 22% of local authorities had a specific water safety policy for their area[21].

A safety plan should consider matters such as:

- The frequency of routine safety inspections and hazard identification and how these are recorded
- The means by which water safety information is communicated by the council

[21] Local Authority Approaches to Managing Water Safety

- Early engagement at planning stage for new developments along the riverside to ensure where possible risks are designed out and that appropriate safety measures are in place to mitigate any residual risks

RECOMMENDATION:

It is recommended that an Open Water Safety Plan is prepared to ensure that future developments meet a desired standard. Due to the time required for preparation, this would be a medium-term goal.

In the meantime, it is recommended that the plans for the new Riverside Development are scrutinised to ensure that river safety is addressed. This will need to be actioned as soon as practicable.

6.5.2 REVIEW RISK ASSESSMENTS

The river environment is dynamic, and therefore the risk assessments should be updated on a regular basis with interim reviews triggered by specific events.

A number of factors may trigger an early review:

- An incident or near-miss
- Change in or new activities
- Change in visitor profile

RECOMMENDATION:

It is recommended that the river tow path risk assessments are reviewed at least every 2 years, or sooner, according to the factors listed above.

6.5.3 PUBLIC SAFETY RISK ASSESSMENT FOR ASSETS

The Environment Agency provides guidance on carrying out Public Safety Risk Assessments for assets[22]. These are relevant to physical assets and structures such as bridges, fishing platforms, steps, and the weir.

RECOMMENDATION:

It is recommended Public Safety Risk Assessments are carried out on council-owned assets. This will need to be actioned as soon as practicable.

6.5.4 WATER SAFETY ACTION GROUP

Following on from the river safety discussions as part of Team Shrewsbury, this could be formalised by setting up a group of stakeholders to ensure that water safety does not drop off the agenda. This would help to ensure a coordinated approach so that time and resources are applied in the most

[22] Guide to Public Safety on Flood and Coastal Risk Management Sites

appropriate manner. This would also provide an opportunity for the general public to learn about the actions that are being taken by all partners via a website, social media and planned press releases.

RECOMMENDATION:

It is recommended that a Water Safety Action Group is set up. This could be implemented as soon as practicable and continue as a long-term measure.

6.5.5 RESCUE REPORTING

Coordinated reporting on incidents would help to inform improvements in the future. The Association of Inland Navigation Authorities[23] recommends the use of accident investigation reports to collate the following:

Basic Facts:

- what happened (details of incident)
- where it happened (location)
- when it happened (date & time)
- how it happened (immediate causes)
  - facilities or equipment involved
  - the weather
  - the physical characteristics of the site
  - the activity involved
- who was involved
- name and address of the reporting organisation

Evidence:

- any photographs or video recording
- witness statements

RECOMMENDATION:

It is recommended that a system for incident reporting is implemented. This is an action that could be coordinated via the Water Safety Action Group. This would need to be actioned as soon as reasonably practicable and continue as a long-term measure.

6.5.6 EDUCATION

Education is key to changing perceptions of risk and resultant behaviours. This is a preventative measure, by educating people to respect the river and to be aware of the hidden dangers surrounding cold water shock, undercurrents and trapping hazards below the surface.

[23] AINA Good Practice Guide -Managing Inland Waterway Safety Risks

The National Water Safety Forum UK Drowning Prevention Strategy 2016-2026[24] lists the behaviour traits which increase the risk of drowning or being involved in an accident associated with the water:

- Underestimating risks
- Lack of knowledge of the risks
- Lack of competence
- Ill-informed thrill seeking
- Lack of parental supervision of children
- Individuals may also display unsafe behaviours because of group pressures and social norms

The measures which follow affect social behaviours and consideration of risk perception.

6.5.6.1 SCHOOLS

There are a number of opportunities where water safety education could be improved for school-age children:

- It could be added to the road safety education already carried out by road safety officers in both primary and secondary schools throughout Shropshire. This could include campaign material such as #dyingtobecool (Figure 6-4).

Figure 6-4 - Dying to be Cool video[25]

- Via the Summer Holiday Activity Programme[26]
- Annual national campaigns such as Drowning Prevention Week provide an opportunity for schools to make use of educational resources provided by RLSS[27] and RNLI Youth Education[28]
- Launch of a local campaign/ competition asking children to design posters to be used alongside the towpaths or inside night-time venues.

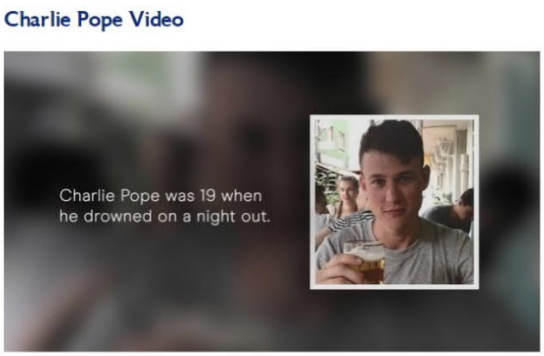
[24] https://www.nationalwatersafety.org.uk/strategy
[25] https://durham.gov.uk/dyingtobecool
[26] https://shropshire.gov.uk/schools-and-education/holiday-activities-and-food-programme-haf/about-the-haf-programme/
[27] https://www.rlss.org.uk/pages/category/schools-community-groups
[28] https://rnli.org/youth-education/education-resources

6.5.6.2 COLLEGES/ 6TH FORMS/ UNIVERSITY CENTRE

Fresher's/ induction weeks provide a good opportunity to educate on matters relating to water safety using (RLSS) material such as #DontDrinkAndDrown and #BeAMate (Figure 6-5) as well as the Canal and River Trust Charlie Pope video (Figure 6-6).

Figure 6-5 - Dont Drink and Drown RLSS

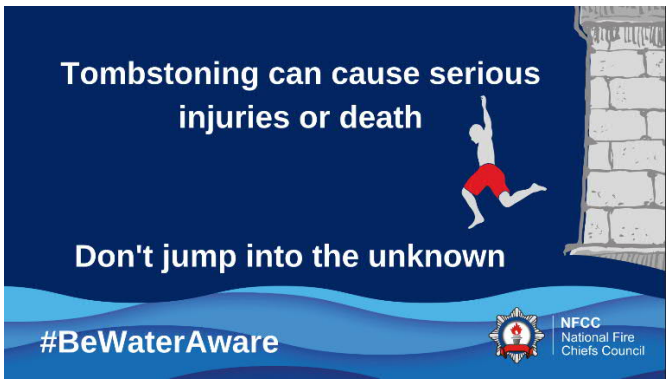
Figure 6-6 - Canal and River Trust Charlie Pope Video[29]



Additional resources include the #GotYaBack video which was produced by students at Bath College[30] and social media material produced by the National Fire Chiefs Council as part of their annual #BeWaterAware[31] campaign each April (Figure 6-7 and Figure 6-8).

Figure 6-7 - #BeWaterAware Alcohol messaging

Figure 6-8 - #BeWaterAware Tombstoning



[29] https://www.rlss.org.uk/charlie-pope
[30] https://scpbath.org.uk/gotyaback/
[31] https://www.nationalfirechiefs.org.uk/Be-Water-Aware

RECOMMENDATION:

It is recommended that education is tailored to tackling the behaviour traits listed in para. 6.5.6. along with tackling peer pressure. This is an action that could be coordinated via the Water Safety Action Group as soon as reasonably practicable and continue as a long-term measure.

6.5.7 NIGHT-TIME ECONOMY

6.5.7.1 ALCOHOL

The effects of alcohol will lead to reduced risk perception which makes rational decision-making more difficult. Behaviours may be geared towards wanting to get home quickly at the end of an evening which could lead to risky behaviour.

Alongside the PubWatch materials already used within establishments, organisations such as the Royal Life Saving Society (RLSS) have their own material to promote different campaigns such as #DontDrinkAndDrown and #BeAMate (refer to Figure 6-9 and Figure 6-10).

Figure 6-9 - RLSS Resources[32] #DontDrinkAndDrown

Figure 6-10 - #BeAMate

Information from such campaigns may not be noticed or retained when people are inebriated therefore wording and imagery needs to be carefully framed. West Mercia Search and Rescue consider the best action to prevent deaths following drinking alcohol is to promote people looking after their own friends so measures to promote this culture change would be welcomed.

[32] https://www.rlss.org.uk/about-dont-drink-and-drown

RECOMMENDATION:

It is recommended that campaign messaging is continuously refreshed to ensure that it doesn't become 'stale'. This is an action that could be coordinated via the Water Safety Action Group. Placement should be considered where it is most likely to be noticed, for example, above urinals. Trials and feedback on poster campaigns would be beneficial alongside counts of people walking down to the river after interventions.

6.5.7.2 DRINK SPIKING

Products such as wristbands are available which allow wearers to test their drinks for the presence of drugs[33]. The use of testing strips was considered by PubWatch in discussions with the police however it was felt that they were of limited use and may give false reassurance to users because they will not identify all recreational drugs. Furthermore, these would be of no benefit where additional measures of alcohol is given or in instances of needle spiking.

RECOMMENDATION:

It is recommended that the topic of spiking is kept on the agenda, for example via the Water Safety Action Group.

6.5.8 WATER-RELATED SELF HARM

The decision for locations of existing suicide prevention signage has not been ascertained but this could be reviewed with the relevant parties to ensure that there is adequate coverage. A balance is required to ensure that they would not provoke a trigger for susceptible or suggestible person.

An alternative to contacting a phone number could be considered, such as 'Text Shout' (Figure 6-11). This may feel like a more accessible option for some individuals.

Figure 6-11 - Text Shout

Suicide awareness training could be beneficial to anyone involved with the night-time economy. The Zero-Suicide Alliance provides a very useful free short online Suicide Awareness Training course[34].

[33] https://www.xantus-drinkcheck.de/en
[34] https://www.zerosuicidealliance.com/suicide-awareness-training

RECOMMENDATION:

It is recommended that the existing signage is reviewed, an action which could be carried out by Water Safety Action Group. This should be carried out as soon as is reasonably practicable and continued as a long-term measure.

6.5.9 CCTV

The area between Castle Walk bridge and the weir has been identified as a high-risk area with numerous incidents identified. This area is currently not covered by the existing network therefore it would benefit from additional surveillance. However, to ensure adequate monitoring, it is understood that additional screens would be required due to the size of the current premises therefore additional space would be required to facilitate this. The provision of additional surveillance equipment around the town centre would also be subject to any restrictions posed by the 4G signal.

RECOMMENDATION:

It is recommended that additional surveillance is considered to cover the area between Castle Walk bridge and the weir. This should be carried out as soon as reasonably practicable.

It is also recommended that the capacity of the existing control centre premises is reviewed.

6.5.10 GENERAL PUBLIC

Alongside continued promotion of the West Mercia Search and Rescue Home and Dry River Course, informational posters which help to educate could be adopted, such as the RNLI 'Float to Live' campaign (Figure 6-12). The latter provides more useful information than the former and more hard-hitting messages could be considered such as the ones used in Milford Haven (refer to para. 5.1.3). A3 size or larger would have greater impact.

Figure 6-12 - RNLI Float to Live

RECOMMENDATION:

It is recommended that clearer information is conveyed to the general public about the risks and what to do in an emergency. This could be actioned by the Water Safety Action Group.

6.5.11 SIGNAGE

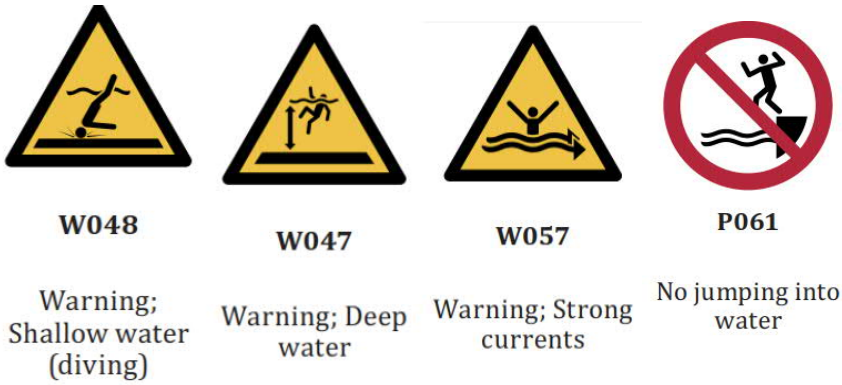
6.5.11.1 WARNING SIGNS

The most appropriate position for warning signs would be at main access points along the river. These could be combined with general information boards which cover topics such as ecology, nature and biodiversity to attract attention with additional information about the specific risks such as depth profile, water temperature, debris, and undercurrents.

These signs could be useful for highlighting hazardous areas and could provide information about the steps to be taken in the event of an emergency. Warnings such as 'no swimming', 'deep water' and 'parents – keep children supervised at all times' could be used however may have limited impact.

The Royal Society for the Prevention of Accidents recommends the use of pictograms on the signs wherever possible to install a clear message to people of any ethnicity. Refer to examples in Figure 6-13.

Figure 6-13 - Warning and Prohibition signage[35]



RECOMMENDATION:

It is recommended that general information boards are considered. This could be a medium-term action.

It is recommended that specific signage is considered for Kingsland Bridge and Porthill Bridge to warn against shallow water. This should be actioned as soon as reasonably practicable.

6.5.11.2 BRIDGE SIGNAGE

To help identify someone's whereabouts in the event of an emergency, signs could be located at each bridge bearing its name, as some of these will not be known to visitors or indeed to many locals.

[35] BS EN ISO 7010 2020+A3 Registered safety signs

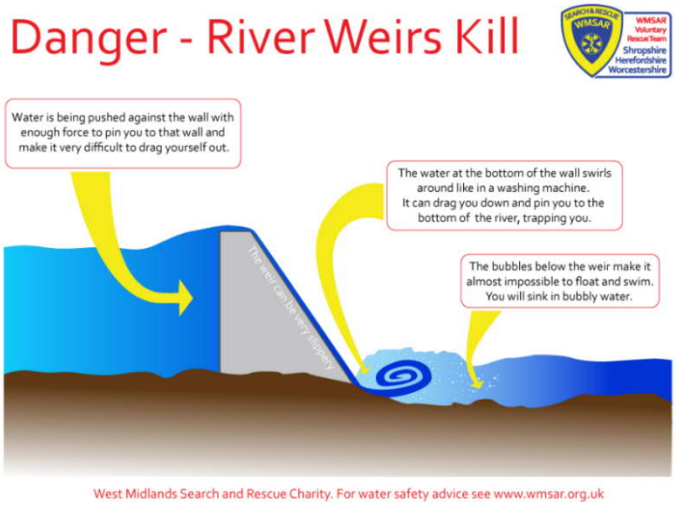
RECOMMENDATION:

It is recommended that permanent signage is added to bridges. Due to the simplicity of this measure this could be implemented as a short-term action.

6.5.11.3 WEIR SIGNAGE

Whilst the existing weir signage conveys information about the hazards associated with it, clearer signage could be added to illustrate the hidden dangers. Figure 6-14 shows an extract from the West Mercia Police Home and Dry Course[36] which could form the basis for clearer messaging.

Figure 6-14 - Weir diagram



RECOMMENDATION:

It is recommended that signage at the weir is provided to better illustrate the hidden dangers. This would be considered a short/ medium-term action.

6.6 EMERGENCY MEASURES

Emergency measures are the last line of safety, if after all the previous measures have been tried and found ineffective in controlling risks to a reasonably practicable level. These are measures to minimise the consequences of a fall into the river (should one occur).

6.6.1 RIVER EXIT POINTS

The risk assessments identified sections where ladders or steps would aid egress where it would otherwise not be possible, for example where there are sheer drops adjacent to the path. RoSPA's Safety at Inland Waters guidance states that ladders and chains are a mitigation measure that does not alter the hazard or likelihood of entry. The Inland Waterways Advisory Council[37] add that

[36] https://westmerciasar.org.uk/course/home-dry-water-safety-course/
[37] Making More Use of Waterway Paths and their Surrounding Corridors

providing facilities (ladders, ramps) to allow people who fall in to get out of the water is preferable to installing barriers.

There is limited guidance in relation to spacings of ladders alongside rivers within towns however whilst it is recognised that the following relates to different contexts, they give an indication of best practice. The Port Skills and Safety (PSS) advise that 'ladders should be provided on any structure at the water's edge from which persons may fall into deep water'[38]. Their guidance states that ladders should ideally form part of the original construction but provides recommended intervals for retrofitted ladders, typically between 30m and 85m, depending on the age of the quay and level of protection afforded against damage from boats. The Port of London Authority (PLA) guidance[39] recommends a spacing of 30m in higher risk areas (for example, where members of the public gather) up to spacings of 100m in lower risk areas.

The PSS also advise that a handhold is required on the river side in front of the ladder, designed such that it does not form a tripping hazard and that it does not collect water, ice or dirt.

Guidance by the Glasgow Humane Society (GHS)[40] recommends the use of rescue ladder signage (Figure 6-15). This would draw the attention of passers-by to the location of a ladder so that they may inform someone who is in the water of their nearest egress point.

Figure 6-15 - Rescue Ladder Signage

The GHS also makes additional recommendations with regard to rescue ladders:

- Ladders should be painted, or powder coated in bright fluorescent/ reflective colours, preferably yellow or orange, to give high visibility to both rescuers and persons in the water needing assistance

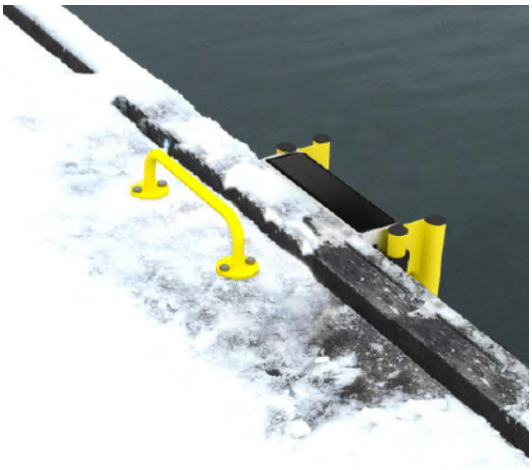
[38] SIP020 – Port Skills and Safety Guidance on Water Safety in Ports
[39] A Safer Riverside Guidance for Development Alongside and on the Tidal River Thames
[40] Water Edge Safety Handbook for Architects Planners and Designers

- There should be a pole erected at the top of the ladders to enable its immediate location by persons on the quay wall. This pole should be painted/powder coated the same as the ladder and have a hook attached to hold a lifebelt
- The pole should have a diffused light, which would shine down onto the lifebelt and ladder. This lighting could be part of the quay wall lighting system or by solar panels

There are products available which provide enhanced visibility such as the LifeLadder[41] safety ladder (Figure 6-16) which is an alternative to traditional galvanised and painted steel ladders. The yellow makes it highly conspicuous, and it also contains a solar-powered light unit which makes it highly visible at night. Figure 6-17 shows the handrail in front of the ladder to aid egress.

Figure 6-16 - LifeLadder safety ladder

Figure 6-17 - Ladder handhold



RECOMMENDATION:

It is recommended that ladders are installed in areas where there is a drop into open water adjacent to the towpath. These must be highly conspicuous with appropriate illumination. The locations of these will require careful design and will be subject to a designer's risk assessment at intervals in accordance with the guidance stated above. In addition to this the existing ladders at the weir and Mardol Quay should be replaced. Signage should be included to inform passers-by of their locations.

The existing grab chains will need to be surveyed, and where required, replaced to ensure continuity is maintained to the nearest egress point.

Consideration should also be given to installing handrails to the concrete steps at Water Lane.

Due to the high risk posed by the absence of suitable egress points for sections along the river, the provision of ladders should be implemented as soon as reasonably practicable.

[41] https://port-safety.com/

6.6.2 LIFEBUOY HOUSING STICKERS

The current labelling on the lifebuoy housings gives more prominence to the reference number of the equipment than it does to the emergency messages. Whilst the reference number provides essential information to the emergency services to identify the location in the event of an emergency, it is not immediately clear that anyone using the equipment is advised to dial 999.

Figure 6-18 shows the signage recommended for the River Thames. Additional information is also provided to give a visual aid to users of how to use the equipment along with messaging on who to call in case of damage and vandalism of the lifebuoys.

Figure 6-18 - River Thames Lifebuoy stickers[42]

RECOMMENDATION:

It is recommended that the stickers on the lifebuoy housings are replaced to give a clearer message to initiate a call to emergency services in the first instance, similar to those depicted in the River Thames safety guidance. The location reference number can still remain prominent but could occupy the lower part of the housing instead.

6.6.3 FLOATING LIFEBUOY LIFELINES

RoSPA guidance states that rescue lines must be buoyant, and that equipment must be visible with reflective tape to aid conspicuousness at night.

[42] A Safer Riverside Guidance for Development Alongside and on the Tidal River Thames

The Port of London Authority (PLA) recommends that consideration is given to a floating line. WSP has been advised that the ropes currently attached to the lifebuoys in Shrewsbury do not float.

RECOMMENDATION:

It is recommended that the lifebuoy ropes are checked to see if they are buoyant and where necessary replaced with floating ropes. Due to the cost and time required to implement, this would be a medium-term action.

6.6.4 THROWLINES

The area around English Bridge/ Abbey Gardens has been identified as one with a high incidence of rescues. An additional throwline should be considered here.

RECOMMENDATION:

It is recommended that an additional throw line is considered near to English Bridge/ Abbey Gardens. Due to the relatively low cost this would be a short-term action.

7

FUTURE CONSIDERATIONS

PUBLIC

7 FUTURE CONSIDERATIONS

The following measures are options which may be considered in the future.

7.1.1 SAFE BATHING FACILITY

In addressing concerns around leisure bathing in the river, it needs to be acknowledged that people will make their own judgements even if measures such as signage were used to discourage such activity. When considering the impacts of climate change, it is likely that the use of the river for leisure bathing will become more habitual and therefore an increase in numbers will increase the likelihood of a fatality in the future. It would therefore be safer to make provision of safe bathing areas, or a designated facility. This would require measures to discourage people from swimming in non-designated areas, with fixed penalty notices (refer to section 6.5.5 which addresses legislation). Other factors would need to be considered such as access and land ownership, liability, additional resources such as lifeguarding and CCTV, as well as water quality.

7.1.2 WATER MISTING FACILITY

During hot weather, high pressure misting could be employed to distribute micro-droplets of water to provide thermal comfort for users. These are already widely adopted in hot cities around the world and are considered economical due to their low consumption of water. This would allow people to cool off without needing to enter the river. Some cities are even adopting mist gardens16 which use multiple misters to create a larger feature in a public space. A mist garden could be used to encourage people to occupy a place away from the river.

7.1.3 LIFEBUOY MONITORING SYSTEM

It is possible to install remote-monitored systems, which alert if the lifebuoy housing unit has been opened. This would have a two-fold benefit in alerting the relevant response in an emergency situation or would reduce the need to carry out manual checks for missing equipment.

7.1.4 LONG REACH RESCUE POLES

Due to the limited application of lifebuoys, telescopic rescue poles would provide a very good alternative piece of rescue equipment. They allow for a more accurate deployment and products are available up to an 18m reach. These would however need to be stored inside local premises.

Due to the current levels of provision covered by life buoys and throw lines, additional PRE is not considered necessary at this stage however, this equipment could be considered as part of future developments such as the Riverside.

8

REFERENCES

PUBLIC

8 REFERENCES

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APPENDIX A

RIVER DEATHS 2004- PRESENT

Public

APPENDIX B

RIVER RESCUES 2015- PRESENT

Public

APPENDIX C

RIVERBED CONTOURS

Public

APPENDIX D

LAND OWNERSHIP

Public

APPENDIX E

RISK ASSESSMENTS

Public

APPENDIX F

LOCATIONS OF EXISTING MEASURES

Public

APPENDIX G

SCHEDULE OF EXISTING SAFETY EQUIPMENT

Public

APPENDIX H

SCHEDULE OF EXISTING BARRIERS

Public

Shirehall
Abbey Foregate
Shrewsbury
SY2 6ND

wsp.com

PUBLIC