CHESHIRE COUNTY COUNCIL

HOOLE ROAD BRIDGE

PEDESTRIAN IMPROVEMENT AND FOOTBRIDGE FEASIBILITY REPORT

December 2008

FEASIBILITY REPORT

BRIDGE NAME: HOOLE ROAD BRIDGE

CONTENTS

DISABILITY DISCRIMINATION ACT 1995

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DOCUMENT CONTROL

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Client:	Cheshire County Council				
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Hoole Road Bridge

Pedestrian Improvement and Footbridge Feasibility Report

1. EXECUTIVE SUMMARY

The feasibility report considered the following options:

(i) Widening of the south footway
(ii) A separate 2.5m wide footbridge
(iii) A separate 2.5m wide footbridge with widened road
(iv) A separate 3.0m wide combined footway/cycleway

(i) Widening of the south footway

The south footway widened to 2.0m with the north footway reduced to a 0.8m wide verge. The carriageway width would increase from 6.4m to 6.6m only. This option will improve conditions for pedestrians but not for cyclists. We estimate that the cost of this option would be £570,000. In order to carry out the works, the road would need to be closed for 18 weeks or alternatively a single lane closure for 24 weeks.

(ii) Separate 2.5m wide footbridge

A separate footbridge would be provided immediately on the south side of the road bridge. The existing 1.5m wide footways would be converted to cycleways. This option improves conditions for both pedestrians and cyclists. We estimate that the cost of this option would be £1,980,000. Short duration road closures would be required to lift in sections of the footbridge.

(iii) Separate 2.5m wide footbridge with widened road

The same as (ii) above but with the carriageway widened to 7.3m and the footways reduced to 1.0m verges. This would provide a standard carriageway width and greater room for cyclists on the road. We estimate that the cost of this option would be £2,660,000. In order to carry out the works, the road would need to be closed for 18 weeks or have a single lane closure for 24 weeks.

(iv) Separate 3.0m wide combined footway/cycleway

A combined pedestrian/cycle bridge would be provided. The disadvantage of this option is that cyclists heading east out of the City centre would have to cross the road in order to continue their journey. We estimate that the cost of this option would be £2,180,000. Short duration road closures would be required to lift in sections of the bridge.

2. INTRODUCTION

In July 2008 a briefing note was presented to the Environment Executive Committee where it was agreed that a feasibility report would be prepared to look at options for improving pedestrian and cycle safety over Hoole Road Bridge, Chester.

This feasibility report will look into different options of improving safety and access over Hoole Road Bridge. It will consider alterations to the existing footways, carriageway and the provision of a new footbridge.

Hoole Bridge is a vital link into Chester with a high vehicle flow and high pedestrian and cycle use. The main span of the existing bridge carries the A56, a primary route into Chester, over the railway lines to the north of Chester Railway Station. The bridge also spans over the Royal Mail access road and a footpath.

As all of the bridge is owned by Network Rail and the main span crosses the main Chester to Holyhead and Liverpool railway lines, any proposals and alterations would require extensive liaison and agreement with Network Rail.

Within the pedestrian footways over the bridge there are several services and some of these would require diverting or moving in order to accommodate any alterations to the footways.

Chester City has been designated a 'Cycle Town' by Cycle England with the aim of promoting better safer cycle routes, and to also increase cycle use through training and general awareness. Chester has also received National Lottery funding through the Connect2 scheme with cycle bridge routes being investigated over the River Dee at Boughton and Curzon Park. Cycle route improvements are also being made on the Chester to Mickle Trafford disused railway line. An improvement to cycle safety over Hoole Road Bridge would fit in with all the above aspirations.

3. EXISTING SITE

3.1 Existing Bridge Usage

The bridge carries the A56 over 6 No railway lines, an access road to the Royal Mail sorting office and a Network Rail path. The bridge provides one of the main traffic routes to the City centre and the inner ring road. The Annual Average Daily Flow in 2007 was measured to be approximately 21,000 vehicles per day. The flow in the east and west direction is approximately equal. Car usage comprises 87% with light goods vehicles, heavy goods vehicles and passenger vehicles making up the other 13%. This is a high percentage of larger vehicle flow for a route of this type.

Hoole Bridge provides the main route for pedestrians walking from the areas of Hoole and Flookers Brook to the City Centre and the railway station. There are a large number of hotels and visitor accommodation in the Hoole area

with many of the visitors walking over the bridge to the station and the City Centre. The main pedestrian flow over the bridge is on the south footway. From pedestrian counts in 2008, an estimated total 12 hour pedestrian flow is 2800. Only the Old Dee Bridge and Liverpool Road Bridge have higher pedestrian flows in Chester.

The total 12 hour cycle flow over the bridge is estimated to be around 280 cyclists.

3.2 Existing Services

Within the footways over the bridge, there are many statutory services. In the north footway, there are British Telecom services (including fibre optics) within steel ducts, Manweb low voltage electricity cables and street lighting cables. The south footway is occupied with a 300mm diameter gas main, a 225mm diameter redundant gas main and a Manweb low voltage cable.

There are also further services adjacent to the bridge at ground level. These include electricity cables, telecom cables, foul sewers and water mains.

3.3 Existing Bridge Structure

The existing road bridge consists of 15 spans. The main railway span (span No 11) is approximately 32m and spans over 6 No railway lines. This railway span comprises 2No longitudinal steel edge girders with transverse steel girders and brick jack arches. Two other recently renewed spans (Nos 6 and 10) comprise of steel beams encased in concrete with the original cast iron edge girders and brick parapets left in place. Three other steel deck spans (Nos 7, 8 and 9) have recently been filled in to increase the load capacity. The remaining spans are formed with brick arches. The full structure has an assessed live load capacity of 40 tonnes and there are no highway network load restrictions on it.

Span No 6 crosses the Royal Mail access road and span No 10 crosses a Network Rail footpath close to the railway. Span 10 must also be kept clear for any further railway expansion. Several spans on the west side are occupied for small scale commercial use.

As mentioned previously, this bridge is owned by Network Rail.

3.4 Existing Safety Issues

The existing footway widths over the bridge are 1.5m on both the north and south side and the carriageway measures 6.4m. These widths do not comply with current standards. The current widths exist over a significant length of approximately 250m. The minimum width for a footway to current standards is 2.0m and for a carriageway carrying a large number of vehicles the required width would be 7.3m. A new bridge to current standards would also incorporate a 1.5m width at the side of each lane for cycle use. At present, there is no dedicated area for cycle use.

For pedestrians there is just enough width for two pedestrians to be side by side. With a combination of a narrow footway and a narrow carriageway, it may be possible when two pedestrians are side by side, for a wing mirror from a wagon to clip a pedestrian, if the wagon was running very close to the kerb.

The carriageway is too narrow for a cycle to pass at the same time as two cars are passing. At present, the cars have to drive behind the cyclist when cars are approaching in the other direction. Many cyclists use the footway instead of using the road.

Due to the narrow footways, narrow carriageway and lack of cycle provision, we consider that the highway environment is poor for pedestrians and cyclists. It is also compounded by the relatively high percentage of larger vehicles (13%), and many motorists exceed the 30 mph speed limit.

Over the last 10 years there have been 3 recorded injuries to pedestrians over the bridge. However, one of these injuries involved a pedestrian who was accidentally on the carriageway because he was intoxicated.

View over rail span from east side of south footway

View from east side of south footway

3.5 Land ownership

For a footbridge option, a strip of land or the air space above would have to be purchased adjacent to the existing bridge. The purchasing of airspace or land would depend on whether the land beneath a proposed footbridge was usable space to the existing owners. In order to buy the land, there would be a period of negotiation followed by a Compulsory Purchase Order Process and possibly a Public Inquiry if there are objectors.

The land immediately on the south side has four different owners with Network Rail leasing out areas of their land mainly to Arriva Trains (for car park use run by NCP) and Spacia (a division of Network Rail who lease land for small scale business use). The other areas of land are currently used for selling caravans, a garage, a scrap metal business and a builder's yard.

The land immediately on the north side adjacent to the bridge is owned by Network Rail and Royal Mail.

3.6 Network Rail Issues

As the bridge is owned by Network Rail, any alterations to the footway widths and/or carriageway width increases and position, would have to be agreed with NR. From an initial check, we consider that the spans have adequate

load capacity but a more thorough analysis would be required with agreement of the results with Network Rail prior to progressing with this proposal.

The railway lines beneath the main span operate trains to Liverpool, Holyhead and Wrexham.

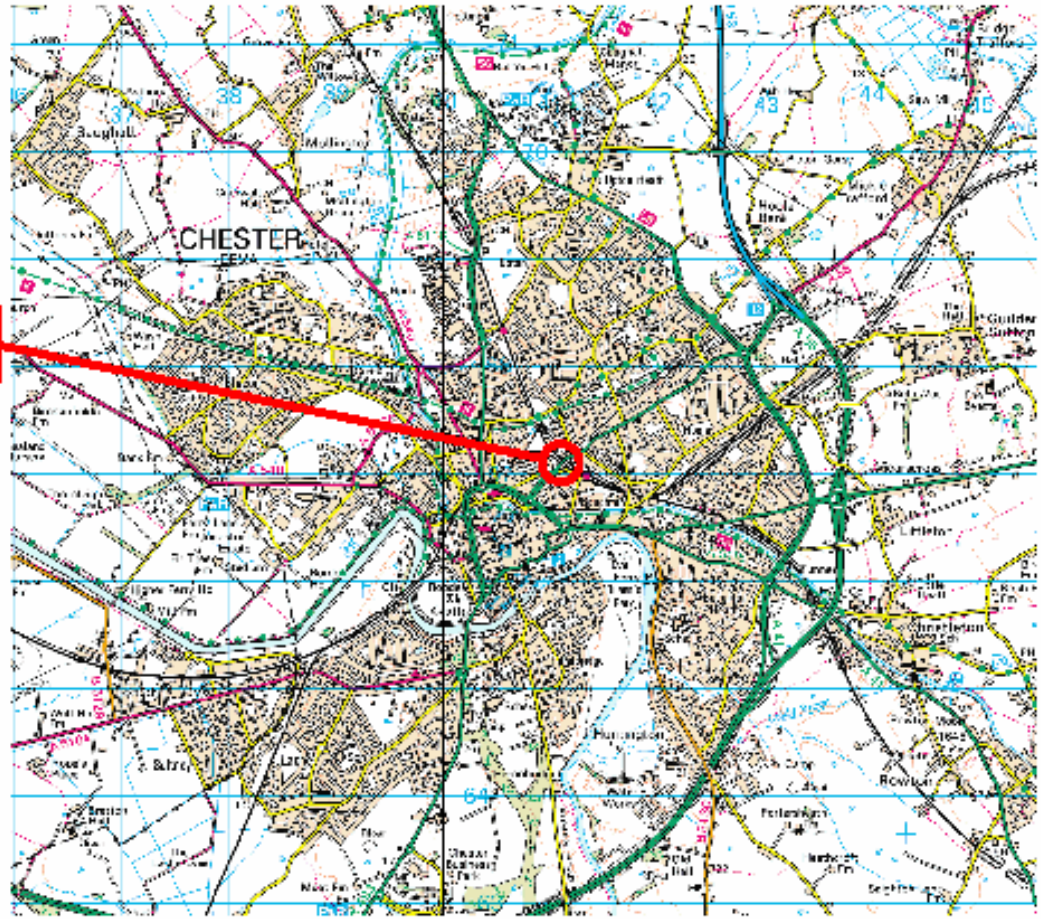
Some of the railway lines have third rail electrification but there is no overhead electrification.

On the south side of the main railway span there is a train signal gantry which rests on the top of the south edge girder. If a footbridge option was chosen to be on the south side of the existing bridge, then the signal gantry would have to be relocated.

Network Rail are also looking into the feasibility of building a multi-story car park on the existing car park site on the south west side of the railway. This car park construction would run close to the road bridge and could clash with the space required for a footbridge. This land issue would have to be discussed with Network Rail if a footbridge option was to be pursued.

View from south side of bridge looking west
(showing signal gantry)

View from south side of bridge looking west



CHESHIRE COUNTY COUNCIL

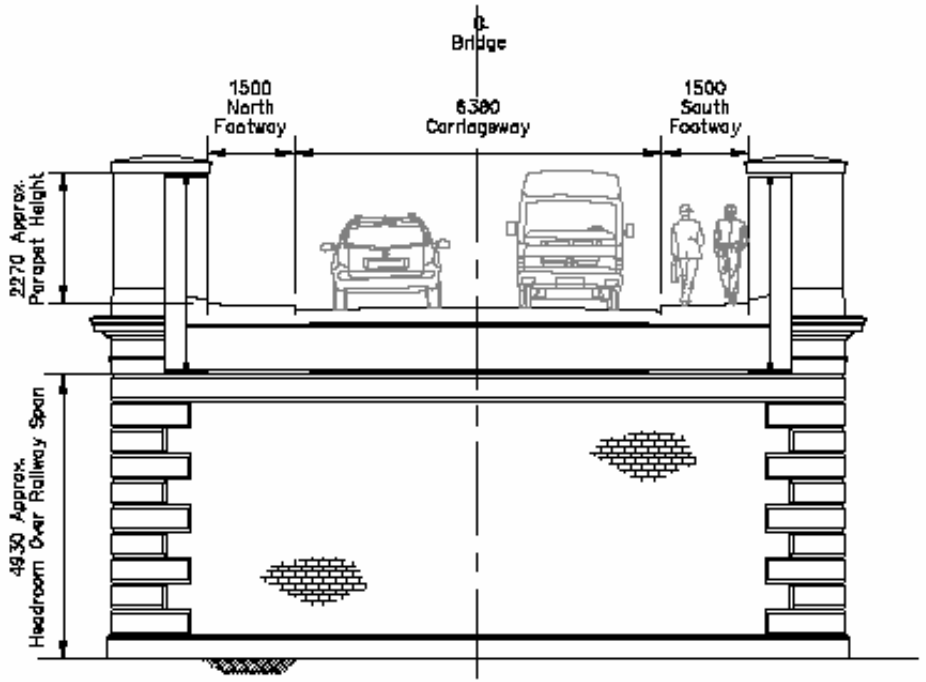
Project:

Hoole Road Bridge

Location Plan

Drawn by: Jon Barton	Checked by: Guy Bolmer
Date: Dec 2008	Scale at A4: As Shown
Drawing No: PB 66504 66 01	Phase/Rev: Feasibility

AutoCAD File Ref: H:\Hoole Road Footbridge\Drawings\PB 66504 66 01.dwg Jan 14, 2009 - 11:14am



Typical Existing Cross Section
at Pier Over Railway Span

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Project:

Hoole Road Bridge

Footbridge Feasibility

Drawn by: Jon Barton	Checked by: Guy Balmer
Date: Nov 2008	Scale at A4: NTS
Drawing No: **PB 89504 BB 02**	Phase/Rev: **Feasibility**

AutoCAD File Ref: H:\Hoole Road Footbridge\Drawings\PB 89504 BB 02 04 05 07 08 09 Rev 1.1.dwg Jan 14, 2009 - 2:41pm

4. OPTIONS FOR PEDESTRIAN IMPROVEMENT

4.1 General Issues

At present, the majority of pedestrians use the south footway over the bridge. It is therefore considered that any pedestrian improvement should be carried out on the south side. This is to co-ordinate with the natural pedestrian use over the bridge as this side receives more usage and is the natural route.

For both options, pedestrian crossing points would need to be improved in order to remove pedestrian flow from the north side.

The two main options for pedestrian improvement are:

1. Widening of the south footway.
2. Provision of a new footbridge on the south side of the road bridge.

5. WIDENING OF THE SOUTH FOOTWAY

5.1 General

The existing south footway could be widened from 1.5m to 2.0m with the north footway reduced from 1.5m to a 0.8m hard verge, governed by the clearance required to existing street lighting columns. This would give a safer south footway width. The road width would be increased from 6.4m to 6.6m. In order to provide a 2.0m width over the full length of the bridge, the kerb lines would need to be repositioned over a length of approximately 270m. The footway construction would need to be widened on the south side and the carriageway construction extended on the north side.

Although this option will improve conditions for pedestrians, it does not improve safety for cyclists using the carriageway.

5.2 Pedestrian Crossings

In order for pedestrians from the north east side to use the south footway, a new pedestrian crossing would need to be constructed on the east side at the end of the bridge. At present, there is a pedestrian crossing approximately 80 metres east of the bridge. However, this is considered to be too far away to be of full use for a south footway widening.

To the west side of the bridge, there is a traffic signal junction with pedestrian crossing facilities. However, for pedestrians to cross from the north to the south side, they have to use four crossing points. This junction would have to be reassessed and improved in order to reduce the number of pedestrian crossing phases. These crossings could also slow down the traffic flows over Hoole Road Bridge.

5.3 Services

The British Telecom services within the north footway consist of four steel ducts with some of the cables being fibre optics. These services are located just behind the kerb and would need to be diverted into the south footway. This diversion would be over a length of approximately 270m. Information from British Telecom has indicated that this diversion work would take 14 weeks although with shift work this duration could be possibly reduced.

Throughout this period, the bridge would have to be closed for the BT diversion work and roadworks in order to provide safe working. A single lane working arrangement is also possible and is discussed below in 4.5.

The south footway has a 200mm diameter redundant steel gas main. This should be removed in order to allow sufficient room for the diverted BT services.

5.4 Network Rail Issues

As the bridge is owned by Network Rail, moving the position of the carriageway on the bridge would need the agreement of Network Rail. From an initial check, we consider that the spans have adequate load capacity but a more thorough analysis would be required with agreement of the results with Network Rail. They will also require addenda to previously agreed bridge load assessment Approval in Principle documents and new certification.

5.5 Construction Timescale and Traffic Management

There would be two traffic management options for carrying out the works. One option would be to close the bridge in order to do the footway/carriageway works and British Telecom diversion works at the same time with work concurrent on both the north and south footways. The bridge would remain open for pedestrian and cycle use. It is estimated that this option would take up to 18 weeks. The main factor for this time period is the 14 week estimate from BT for the service diversions

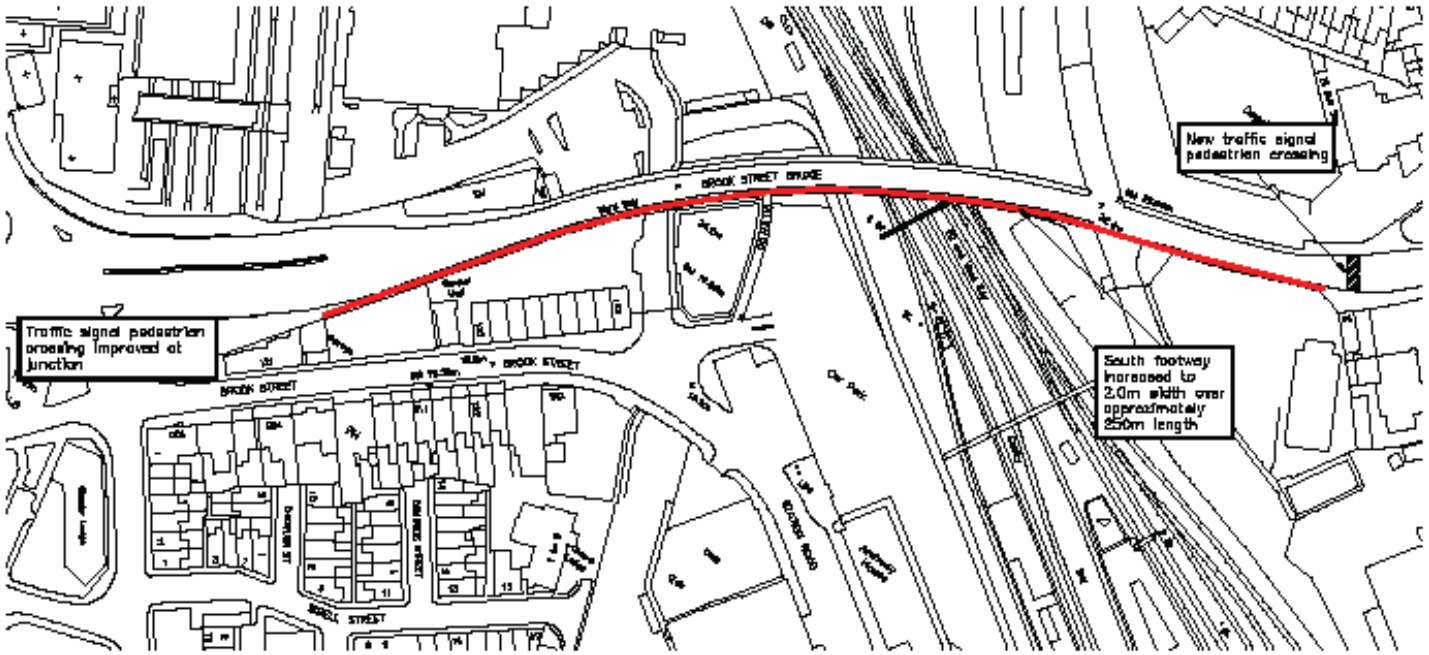
Another option would be to keep one lane open for traffic. However, for this arrangement, only one side could be worked on at any one time and it would restrict carrying out both the footway works and the service diversions at the same time. Therefore for this option, it is estimated that the works would take up to 24 weeks. It may be possible to reduce this time scale during the detailed programming stage by pushing BT to compress their programme using shift work.

It is envisaged that if single lane working was adopted, the traffic flow into Chester could continue with traffic leaving using other routes.

5.6 Estimated Footway Widening costs

Civils roadworks (eg kerbing realignment, carriageway and footway widening, drainage, lining)	£200,000
Diversion of British Telecom services	£150,000
New east side pedestrian crossing and improvement to west junction pedestrian crossing	£100,000
Traffic Management	£30,000
CCC project management costs Liaison with Network Rail, services, drawings, Contract documents, supervision	£40,000
Contingencies	£50,000
Total Cost	**£570,000**

Please note, as stated earlier this would necessitate Hoole Road Bridge being closed for a period of up to 18 weeks or a single lane closure for up to 24 weeks.



CHESHIRE COUNTY COUNCIL

Cheshire County Council Highways Service
Backford Hall, Chester, Cheshire CH1 6EA

Project:

Hoole Road Bridge

Hoole Road Bridge
Plan of Widened South Footway Route

Contact Name: Ray Bakker
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Drawn by: Jon Barton
Checked by:
Date: December 2008
Scales at A3:1:1000 | Sheet 1 of 1
Drawing No: PB 89604 88 03 | Promotion: Feasibility

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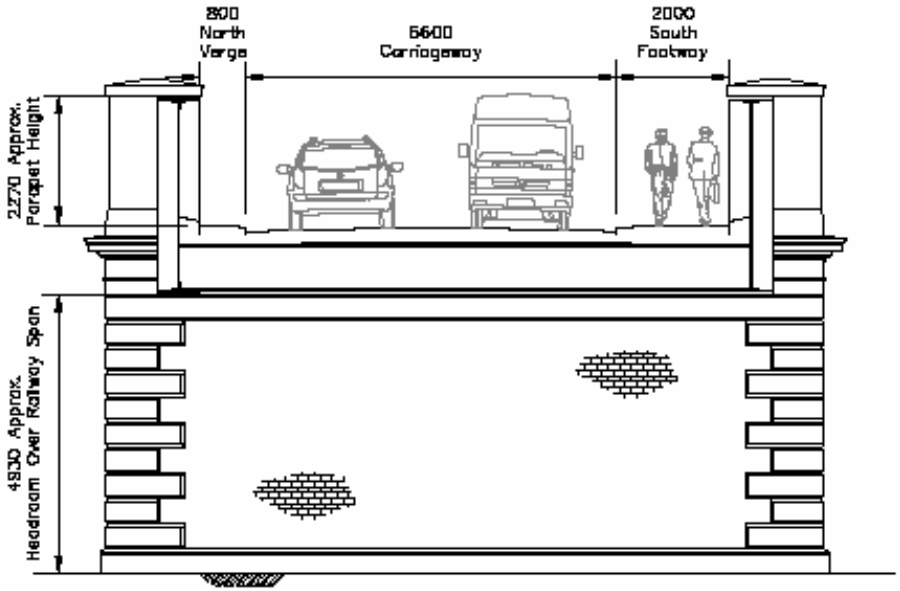


Typical Proposed Cross Section Showing
Widening of South Footway Option

CHESHIRE COUNTY COUNCIL

Project:

Hoole Road Bridge

Pedestrian Improvement

Drawn by: Jon Barton	Checked by: Guy Balmer
Date: Nov 2008	Scale at A4: NTS
Drawing No: PB 88504 88 04	Phase/Rev: Feasibility

AutoCAD File Ref: H:\Hoole Road Footbridge\Drawings\PB 88504 88 02 04 08 07 08 09 Rev 1.1.dwg Jan 14, 2009 - 2:42pm

6. PROVISION OF A SOUTHSIDE FOOTBRIDGE

6.1 General

The only viable option for a proposed footbridge is for it to be sited immediately to the south side of the road bridge. A footbridge on the north side would not be popular with pedestrians and require them to cross the road more often if they were walking from Hoole to the City Centre or the railway station which are the most common routes. It is felt that a north side route would be unpopular and little used with the majority of people looking to use existing routes.

A separate footbridge would also provide options to improve cycle safety. The footbridge could be pedestrian only with cyclists using the existing bridge. However, the carriageway and footways could still be altered to improve cycle safety and they could still walk over the bridge pushing their cycles. Another option would be to provide a wider 3m combined cycle/footway bridge.

6.2 Footbridge Position and Spans

The main span over the existing railway tracks (6 No) would be large at approximately 38m with a skew angle to the railway tracks of 35 degrees. The footbridge piers would have to be a minimum of 4.5m away from the nearest railway track or new piers would have to be attached to the existing piers by extending them because Network Rail requires a pier within 4.5m of a railway track to be able to withstand a train impact. We would anticipate that the other spans would be in the order of 15 - 20m long. One section would span the Royal Mail access road and the other spans on the west side of this would be arranged so that they would not hinder access to the 4 No arches which have current commercial use. The span immediately to the west of the railway span would have to be designed in order to allow for future rail use as this is a NR requirement. To the east of the railway span there is road access into the Chester Enterprise Business Centre. This access would have to remain in use and a proposed footbridge would tie in level with this access road.

A new footbridge immediately south of the existing road bridge would ideally need to be approximately 2m from the back face of the existing parapet wall. This is due to some of the existing piers protruding past the wall and also the space required for future maintenance of the wall and footbridge. It is however envisaged that land issues may prove difficult and that any new footbridge may have to be built very close to the existing parapet wall.

The total length of a new footbridge would be approximately 250 metres.

A stair or ramped access would be provided down to Brook Street/ Station Road in a similar position to the existing stair access. A ramped access for disabled person use should ideally be at a gradient of 1:20 which would result in a total ramp length of approximately 100 metres. Where there are restrictive conditions, the gradient may be increased to 1:12 which would give

a ramp length of 60m. This ramp would have to allow vehicle access beneath to the car park on the north west side of the railway station meaning there would be a minimum headroom requirement. It is therefore envisaged that the disabled route would be via the existing pavement from Station Road at the traffic light intersection with Brook Street.

6.3 Footbridge Types and Construction Issues

The area on the south side of the existing bridge is not particularly attractive at present but partly lies within a conservation area. The type of footbridge that would be most suitable to the surrounding environment and long railway span would be a steel truss. This would blend in with the steel railway bridge and railway environment.

For the railway span, NR require a minimum parapet height of 1.8m and the inside face would require solid steel sheet panelling or a fine strong mesh in order to make it difficult to climb and to protect trains from vandalism. For the steel truss, the edge members/parapets are also the main load carrying members and for a span of 38m, these main members would need to be deeper, approximately 2.0m. For the remaining spans, the parapet height would be 1.3m for pedestrians only or 1.5m to include cyclists. The width of the footbridge would ideally be 2.5m but a 2.0m wide footbridge would be the minimum acceptable. A combined cycle/footway bridge would require a 3m width. The main disadvantage of a cycle bridge is that cyclists heading east out of the City centre would have to cross the road in order to continue their journey.

The main problem with construction of the footbridge, would be lifting in the railway span. A night time railway possession would be required and a weekend closure of Hoole Road Bridge. Careful consideration would also need to be given to the position of the large crane for this operation. Other road closures would be required for lifting in other sections of the footbridge.

The main disadvantage of a steel bridge is the future maintenance painting and especially access over the railway. We would expect the paint system to last a minimum of 30 years but this could be longer in a road salt free environment. Weathering steel could be used, which does not require painting, but with this steel, a light surface rust is formed and people would most likely have a poor opinion regarding its appearance. Nevertheless maximum consideration would have to be given to try to minimise the future maintenance to the footbridge. The supporting piers would be a braced steel frame type.

Another footbridge option, more beneficial for the railway span, would be to use a prestressed concrete beam. However, the appearance of this bridge would not blend in as well as a steel truss. The main advantage of a prestressed concrete beam is that of lower future maintenance, especially over the railway span. The disadvantages are of lifting in a heavier bridge and the foundations would have to be more substantial.

A third option type for the footbridge would be one made of Fibre Reinforced Polymer (FRP). This technology is still relatively new, but several bridges within this country and Europe have now been constructed, although very few with spans of 38m or greater. The main advantages of this form of bridge are of lower future maintenance (no painting or corrosion), a lighter structure, ease of lifting in and lower foundation loads.

Example of a steel truss footbridge
(Parapet panels may need to be solid)

Typical example of a concrete footbridge deck
(Parapet panels would need to be solid or a fine mesh)

6.4 Foundations

From previous ground investigation work, it has been found that the ground conditions are poor with variable depths of made up ground (up to 3m depth). Although the loading from a footbridge is low, some of the foundations would require the use of mini piles. The foundation work adjacent to the railway span may also require work to be carried out during night time railway possession periods.

There are also various services running adjacent to the bridge and hence the foundation locations/ span arrangements would have to be carefully chosen in order to avoid the services. There are telecoms services close to the foundation positions required for the railway span. These may need to be diverted.

6.5 Alterations to Existing Carriageway

If the proposed footbridge is for pedestrians only, then the carriageway layout could be improved for cyclists. At present the carriageway width is only 6.4m which makes it difficult for vehicles to overtake cyclists.

One option would be to change the use of the existing footways to marked cycle lanes with the kerbs remaining in place, but with dropped kerbs at the ends. This would obviously not require any service diversions.

Another alternative option is to widen the existing carriageway to a desirable standard of 7.3m which would give greater road width for vehicles to be able to overtake cyclists. Each footway would then be reduced to a 1.0m hard verge. This option would require the British Telecom services to be diverted to the south verge and would include a road closure of the bridge for up to 14 weeks whilst work was carried out.

6.6 Network Rail Issues

For a footbridge option there are many issues that would need to be discussed and agreed with Network Rail. Immediately on the south side there is a railway signal gantry which rests on top of the edge beam. These signals would have to be relocated. One option would be for a new gantry to be built to the south side of the footbridge location. NR have advised that sight lines would need to be checked in order to confirm the feasibility. Otherwise it may be possible to attach the signals to the footbridge which would need further agreement with NR. Whichever option is chosen, there would be a significant cost in moving the signals.

Network Rail are also currently looking into the feasibility of constructing a multi-story car park on the existing car park site on the south west side of the bridge. Cheshire County Council has been informed that they are looking for it to be constructed within the next 18 months. NR would be looking to construct the car park up close to the south wall of the bridge and in order for the footbridge to ever be feasible the footbridge option would have to be discussed with NR and the land take agreed in advance.

As the existing bridge is owned by NR, the option of widening the carriageway would also have to be agreed with them. NR will require an Approval in Principle process and reassessment of the capacity for the structure to be checked.

For the placement of the main railway span of the footbridge, a weekend night time railway possession would be required. NR has indicated that the normal railway possession periods available are only four hours long. Special longer railway possession periods would be required and they would have to be booked at least 18 months in advance so that main lines could be closed down and the trains diverted for the closure period.

6.7 Land Issues

A footbridge option would require a strip of land to be purchased adjacent to the existing structure. The width of this strip would have to be wide enough for future maintenance of the footbridge and the existing structure. We would estimate that a desired clear gap on each side of 2m would be needed for future maintenance. The outer edges of the footbridge could be up to 3m wide which would result in the requirement of a strip of land 7m wide adjacent to the existing bridge. Purchasing this width of land may prove difficult especially with NR as it will reduce the future car parking capacity.

The land adjacent to the bridge on the south side is owned by the following (from west to east): Trustees of the Omey Pension Scheme: currently used to sell caravans; Michael Jones and Geoffrey Schindler: currently used as various shops, a garage and a scrap metal business; Network Rail: two areas currently let to Spacia and Arriva for car parking and Hoole Bridge Properties: currently used as a builder's merchant.

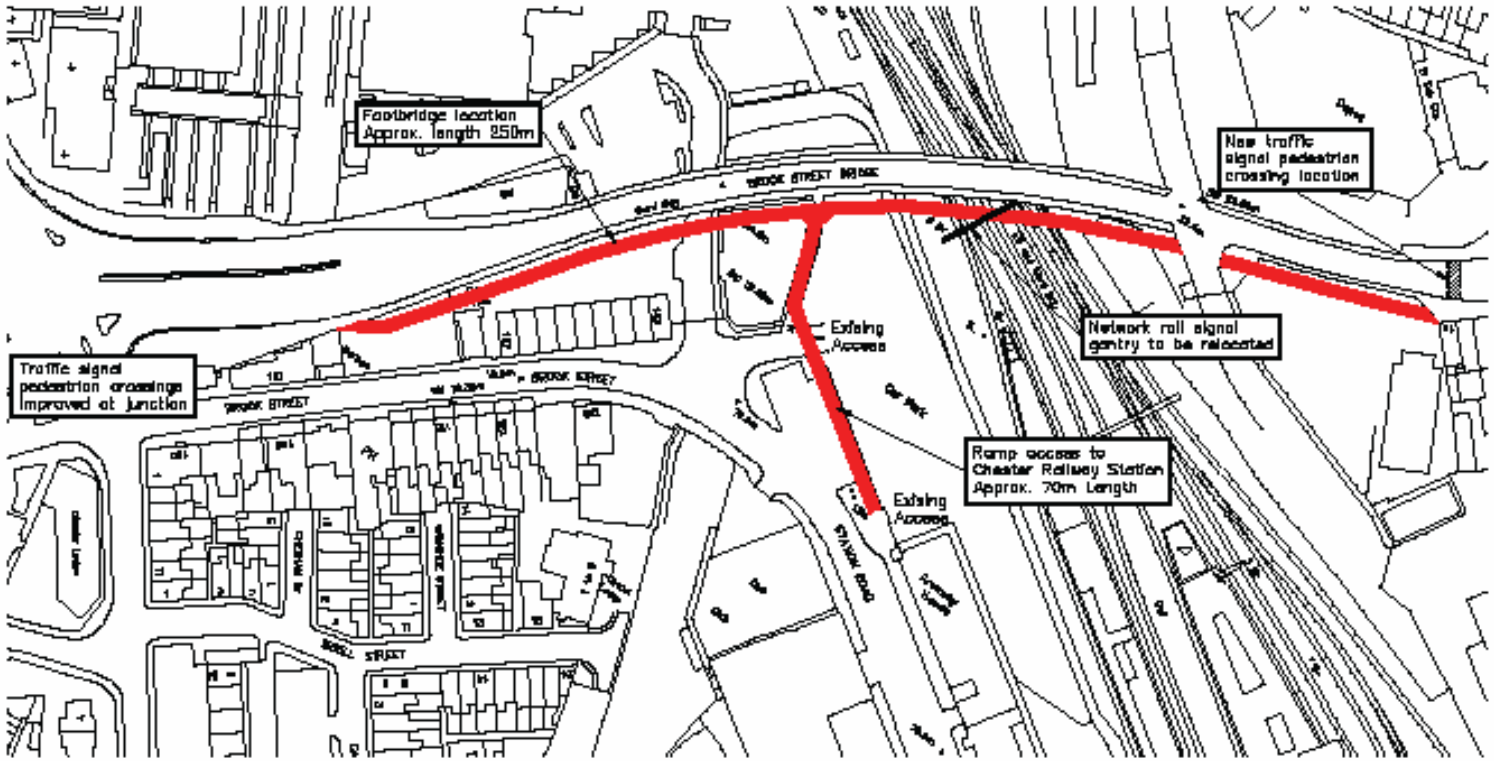
The land or air space would need to be purchased from these owners through agreement and/or the Compulsory Purchase Order process. It may be possible for those businesses occupying the arches on the west side to gain access beneath a proposed footbridge and hence their businesses would remain viable. If there were objectors to the CPO then a Public Inquiry might be required. This could take up to 12 months and have a considerable cost.

6.8	**Estimated Footbridge Option Costs**	**2.5m width**	**3.0m width**
	Footbridge deck and pier costs (250m length) (Design, fabrication and installation)	£750,000	£850,000
	Lighting to footbridge	£30,000	£30,000
	Abutments and pier bases	£200,000	£250,000
	Land costs	£300,000	£350,000
	New east side pedestrian crossing and improvement to west junction pedestrian crossing	£100,000	£100,000
	CCC project management costs Liaison with Network Rail, services, drawings Contract documents, supervision	£60,000	£60,000
	Relocation of railway signals	£300,000	£300,000
	Network Rail project management costs possession costs, supervision costs	£20,000	£20,000
	Traffic Management	£10,000	£10,000
	Further foundation and services investigation	£10,000	£10,000
	Possible Public Inquiry costs	£50,000	£50,000
	Contingencies (approx 10%) (Network Rail issues, poor ground conditions - additional piling, further service diversions)	£150,000	£150,000
	Total Cost	**£1,980,000**	**£2,180,000**

Alternative footbridge arrangement with widening of the carriageway and the disabled ramp access to Station Road

Ramp access to Station Road	£100,000
Diversion of British Telecom services	£150,000
Civils roadworks Carriageway widening, kerbing realignment, lining	£200,000
Additional traffic management costs	£30,000
Total Cost of alternative	**£2,660,000**

Please note this option would necessitate Hoole Road Bridge being closed for a period of up to 18 weeks or a lane closure for up to 24 weeks.



CHESHIRE COUNTY COUNCIL

Cheshire County Council Highways Service
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Project:

Hoole Road Bridge

Proposed Pedestrian Footbridge Route

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Date: December 2008
Scale at A3: 1:1000 Sheet 1 of 1
Drawing No: PB 89604 88 05
Promotion: Feasibility

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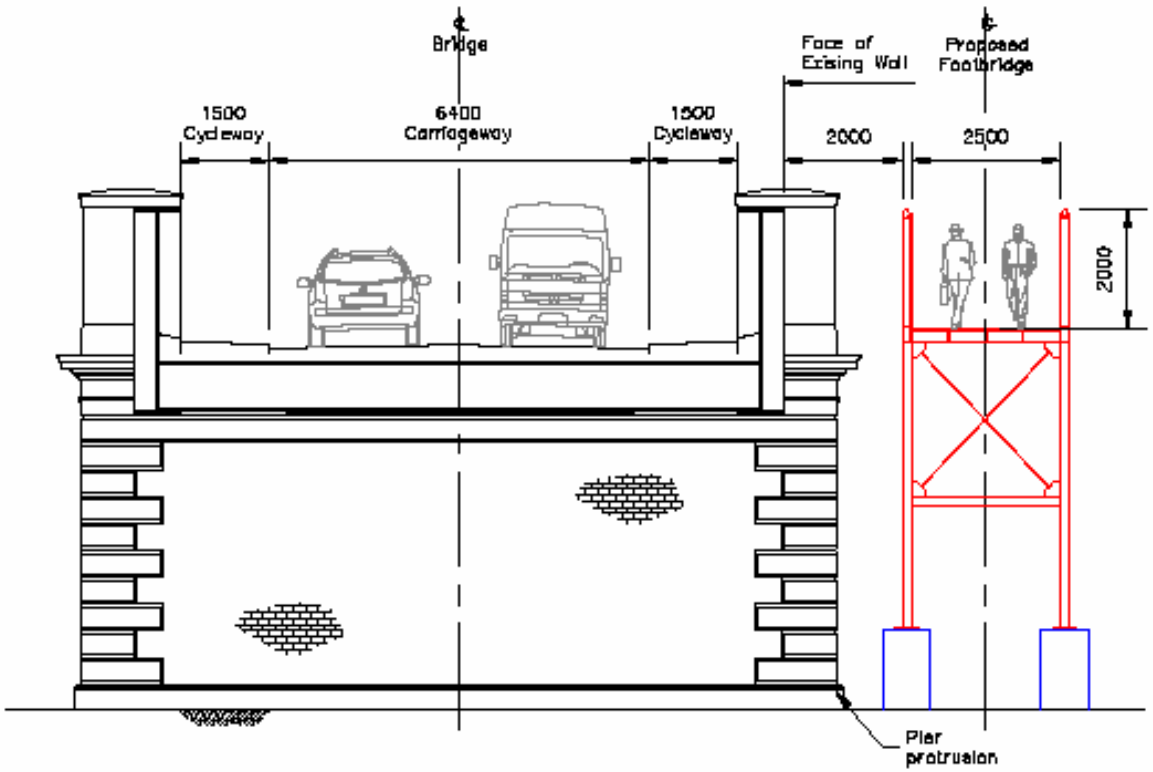

Typical Proposed Cross Section Showing
Steel Truss Pedestrian Footbridge Option

CHESHIRE COUNTY COUNCIL

Project:

Hoole Road Bridge

Footbridge Feasibility

Drawn by: Jon Barton	Checked by: Guy Balmer
Date: Nov 2008	Scale at A4: NTS
Drawing No: **PB 89504 88 05**	Phase/Rev: **Feasibility**

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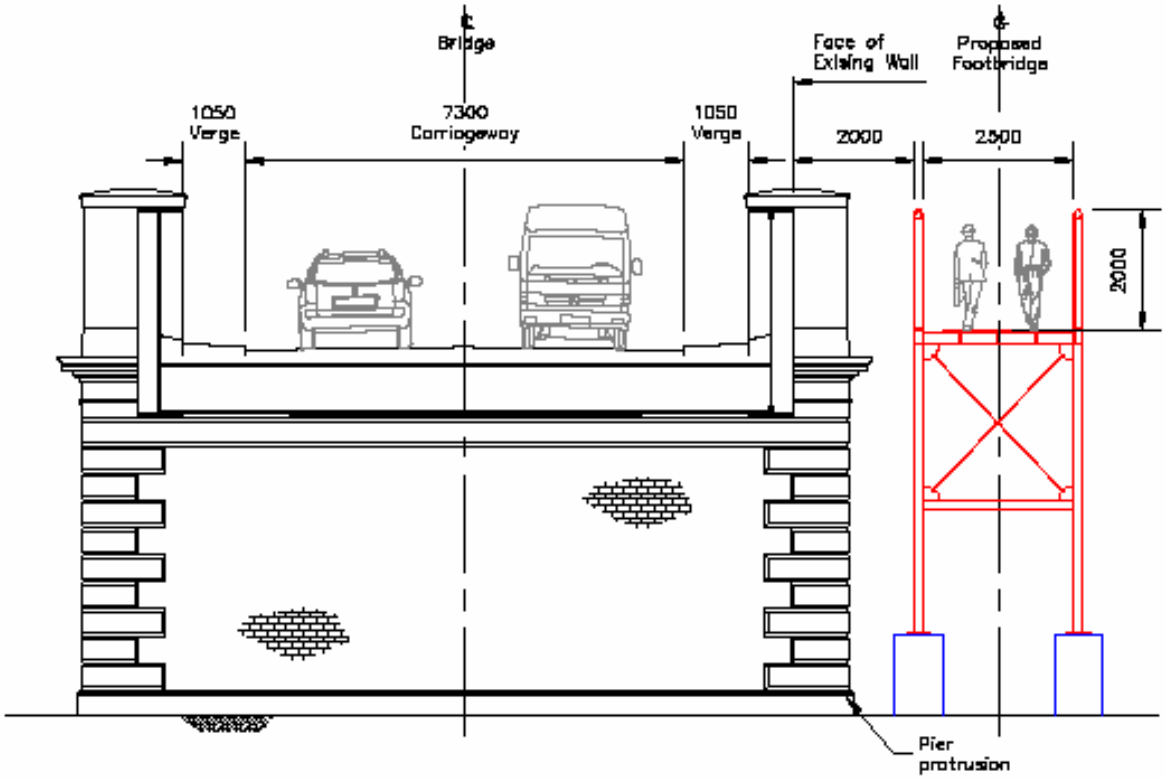


Typical Proposed Cross Section Showing Steel Truss Pedestrian Footbridge and 7.3m Carriageway Option

CHESHIRE COUNTY COUNCIL

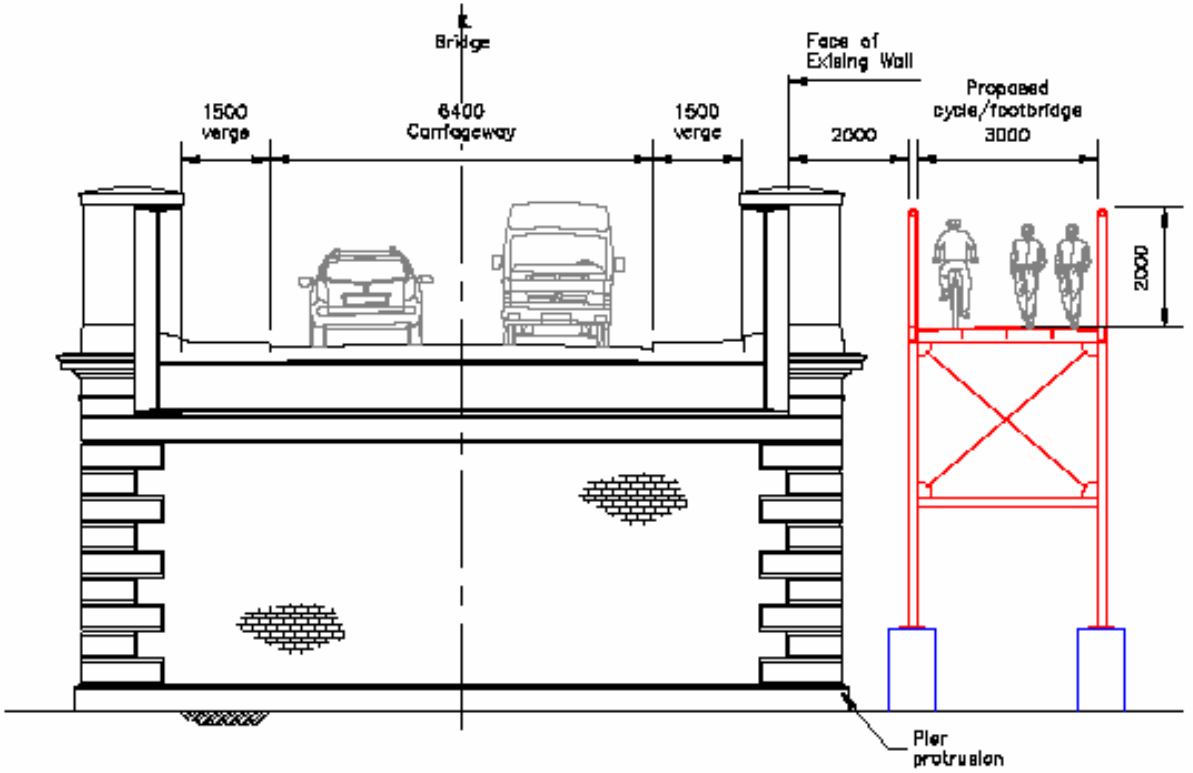
Project:

Hoole Road Bridge

Footbridge Feasibility

Drawn by: Jon Barton	Checked by: Guy Balmer
Date: Nov 2008	Scale at A4: NTS
Drawing No: **PB 89504 SB 07**	Phase/Rev: **Feasibility**

AutoCAD File Ref: H:\Hoole Road Footbridge\Drawings\PB 89504 SB D2 04 08 07 08 09 Rev 1.1.dwg Jan 14, 2009 - 2:43pm



Typical Proposed Cross Section Showing Steel Truss
Cycle/pedestrian Footbridge Option

CHESHIRE COUNTY COUNCIL

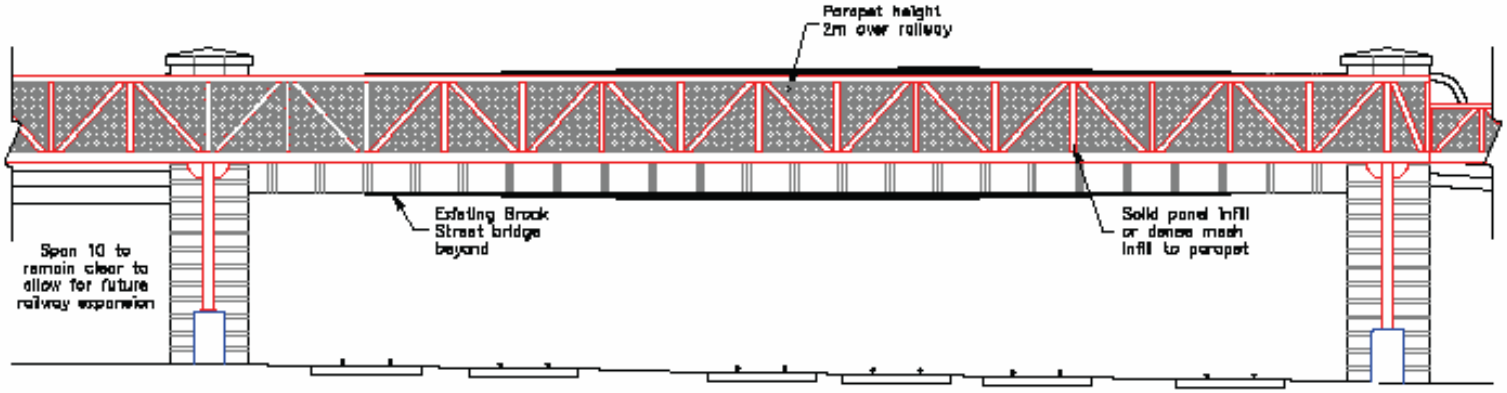
Project:

Hoole Road Bridge

Footbridge Feasibility

Drawn by: Jon Barton	Checked by: Guy Balmer
Date: Nov 2008	Scale at A4: NTS
Drawing No: **PB 89504 BB 05**	Phase/Rev: **Feasibility**

AutoCAD File Ref: H:\Hoole Road Footbridge\Drawings\PB 89504 BB D2 04 05 07 08 09 Rev 1.1.dwg Jan 14, 2009 – 2:43pm



Typical Proposed Elevation Showing Steel Truss Pedestrian Footbridge Option

CHESHIRE COUNTY COUNCIL

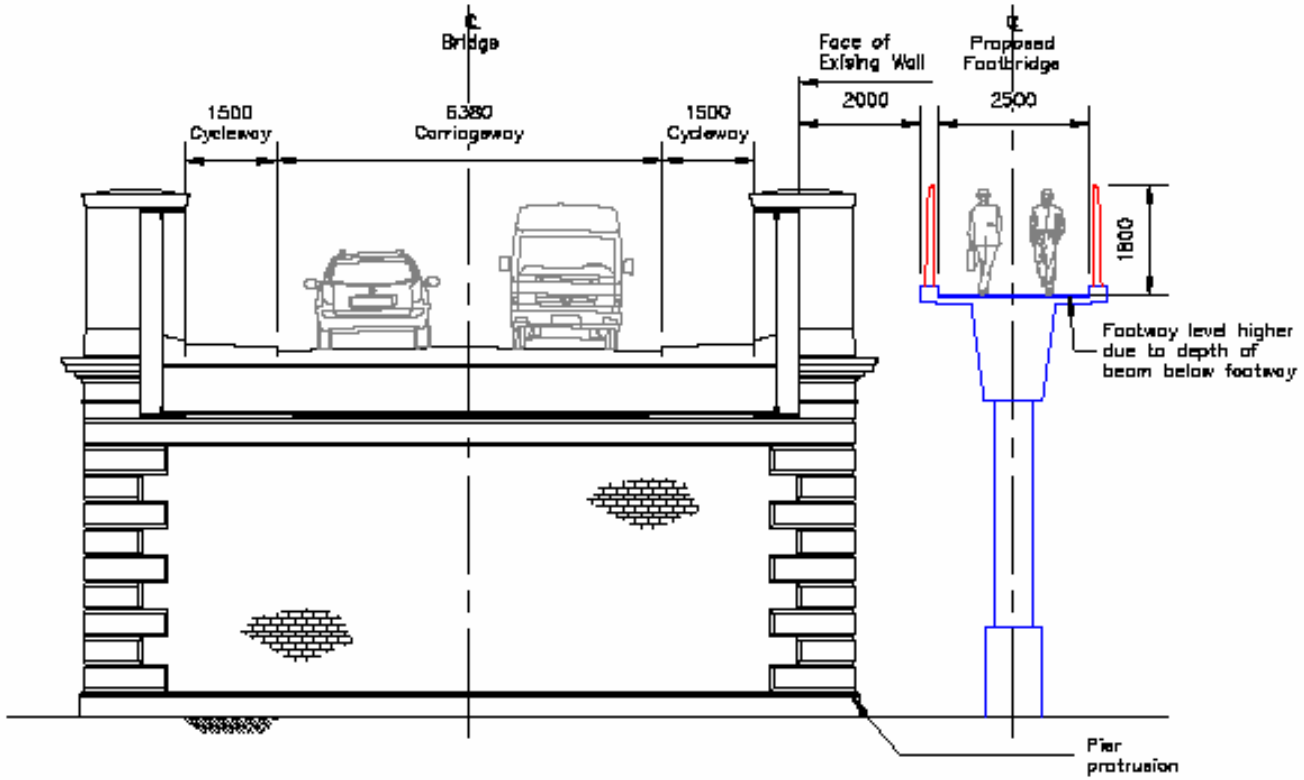
Project:

Hoole Road Bridge

Footbridge Feasibility

Drawn by: Jon Barton	Checked by: Guy Balmer
Date: Nov 2008	Scale at A4: NTS
Drawing No: PB 69504 SK 09	Phase/Rev: Feasibility

AutoCAD File Ref: H:\Hoole Road Footbridge\Drawings\PB 69504 SK 02 04 05 07 08 09 Rev 1.1.dwg Jan 14, 2009 - 2:44pm



Typical Proposed Cross Section Showing Prestressed Beam Concrete Pedestrian Footbridge Option

CHESHIRE COUNTY COUNCIL

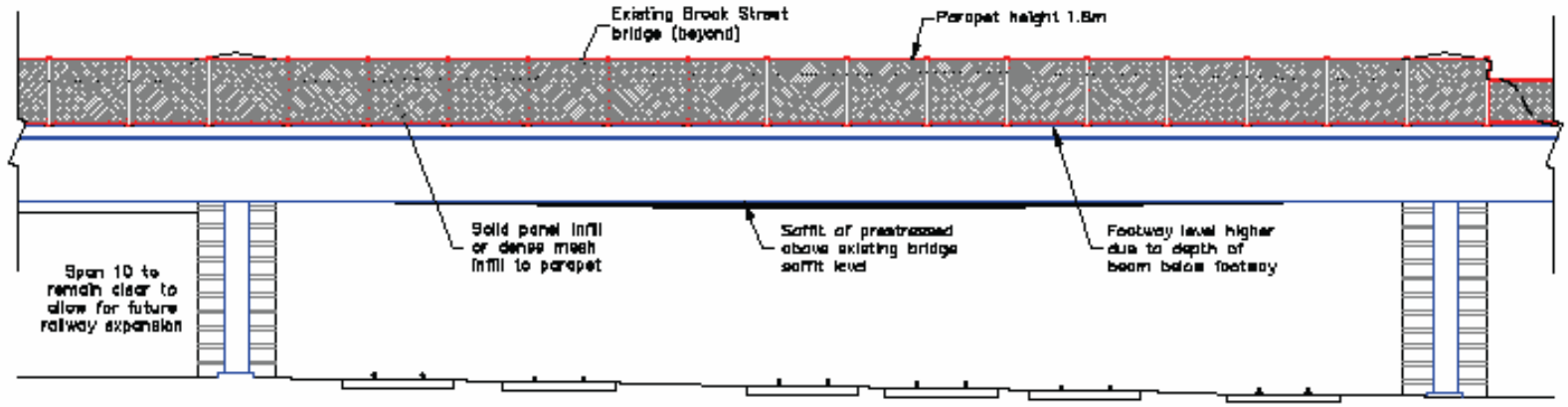
Project:

Hoole Road Bridge

Footbridge Feasibility

Drawn by: Jon Barton	Checked by: Guy Balmer
Date: Nov 2008	Scale at A4: NTS
Drawing No: PB 89504 BB 10	Phase/Rev: Feasibility

AutoCAD File Ref: H:\Hoole Road Footbridge\Drawings\PB 89504 BB D2 04 08 07 08 09 Rev 1.1.dwg Jan 14, 2009 - 2:44pm



Typical Proposed Elevation Showing Prestressed Concrete Pedestrian Footbridge Option

CHESHIRE COUNTY COUNCIL

Project:

Hoole Road Bridge

Footbridge Feasibility

Drawn by: Jon Barton	Checked by: Guy Balmer
Date: Nov 2008	Scale at A4: NTS
Drawing No: **PB 89504 88 11**	Phase/Rev: **Feasibility**

AutoCAD File Ref: H:\Hoole Road Footbridge\Drawings\PB 89504 88 02 04 08 07 08 09 Rev 1.1.dwg Jan 14, 2009 – 2:44pm

7. SUMMARY

Hoole Road Bridge provides a vital link to the city centre and inner ring road. It carries a high number of vehicles, pedestrians, cyclists, and is combined with narrow footways and a narrow carriageway. With this combination, we would consider that the highway environment for pedestrians and cyclists is poor. Although the bridge site does not have a significant accident history for pedestrians, the footways do not provide sufficient width for normal pedestrian flow and pedestrians could be walking very close to the adjacent trafficked lanes.

The south footway widening option to 2.0m would provide a safer pedestrian route but would not improve conditions for cyclists. The roadworks required and diversion of the BT services would result in either the bridge being closed for up to 18 weeks or a single lane closure for up to 24 weeks. The public may perceive this option as a lot of disruption for only a 0.5 metre width increase in the footway.

The footbridge option would provide a safer route for pedestrians and could improve conditions for cyclists. A 2.5m wide pedestrian footbridge with the existing footways converted to cycleways would provide better safety for both pedestrians and cyclists. A 3.0m wide combined pedestrian/cycle bridge would provide greater safety but cyclists heading east would have to cross the road to continue their journey. With both these bridge options, the main issues would be with Network Rail. We would need agreements with NR concerning the purchasing of a strip of their land and the relocation of the signal gantry. As NR are planning the building of a multi storey car park on the south west side, if the strip on land is not purchased prior to this, then the option of a footbridge on the south side would never be feasible.

The remaining land for the footbridge option would also need to be purchased, but any objections by the landowners could result in a Public Inquiry which could take up to 12 months to resolve the issues.

Each of the different types of footbridge construction offer different advantages and disadvantages, but on balance, we would recommend the steel truss option as its appearance would be more suitable to the local environment. It would also be the most economical solution.

The construction of the footbridge alone would cause less disruption to the traffic over the bridge as there would be no alterations to the existing road. Weekend road closures would be required in order to lift in sections of the footbridge. If the carriageway was widened in conjunction with the footbridge construction, then the road bridge would need to be closed or have a lane closure, as with the footway widening option.