Oundle North Bridge Repairs

28th September 2018

Summary

Oundle North Bridge has been allowed to deteriorate over several years and is now in need of significant repair.

Northamptonshire Highways have not budgeted for either the preventative maintenance or repair of the bridge.

A proposed width constraint on the bridge has been opposed for the following reasons:-

1. There is no easy alternative route into the town
2. Delivery van traffic will use villages to the North of the town as short cuts
3. Car drivers will use villages to the North of the town to avoid queues caused by the proposed width constraints
4. Traffic management through the town will significantly increase due to the need for a one way system.

A change from a 3 tonne width controlled limit to a 7.5tonne limit will alleviate all of the above concerns. Northamptonshire Highways have been unwilling to discuss the above option and unable to provide any supporting evidence for their 3 tonne vs a 7.5 tonne limit.

We have been unable to engage with Northamptonshire Highways in any meaningful discussion on the proposals. We want to be part of the solution, not the problem.
The Bridge.

There has been a North Bridge recorded in Oundle since the 14th century. The medieval bridge was largely destroyed by flooding in 1570 and rebuilt in 1571. That bridge was itself rebuilt in 1835 and again rebuilt and widened in 1912. The North Bridge is listed Grade II in recognition of its special architectural and historic interest.
Known repair History

1983 report summary. No evidence of repair being carried out

2005 repairs. Structural repair to two arches


We can find no evidence of a drain inspection for cracks and leaks ever being carried out.
A survey was carried out in 1983.
1983 compared with 2018 Reports
2005 Planning Application

ELEVATION - NORTH FACE
SCALE 1:50

SPAN 4 - NORTH ELEVATION
SCALE 1:50

SPAN 6 - NORTH ELEVATION
SCALE 1:50
2018 Current Application.

No specific locations have been shared. The following pictures are taken from a document that Highways put on a social media web site:

The latest report described water coming out of the cracked brickwork. The question has to be asked as to how this water is getting into the structure, since the top surface is all tarmacked and paved. Several of the drains on the bridge
are blocked and there is no evidence that the drains have ever been inspected for cracks. The most likely source of the water in the structure is a broken drain.

For the past 4 years Northamptonshire Highways have been aware of the need to reduce heavy traffic on the bridge but have taken no action until March this year. Over this period of time thousand of very heavy vehicles have crossed the bridge.

“Oundle North was assessed, to determine its load carrying capacity, in October 2014. The bridge assessment concluded that 7 of the 13 arches of this Listed Grade II structure were deficient in their loading capacity; the viaduct was assessed to have a capacity of 3 tonnes.”
Weights

It has been estimated that the weight of a single suspended arch of the bridge is 400 tonnes.

A 7.5 tonne vehicle is less than 2% of this weight, about the same as two 3 tonne vehicle passing each other. The latter being a frequent occurrence, the chance of two 7.5 tonne vehicle passing is very low because there are so few of them.

In the Highway's report they say that they could not even detect the difference between the vehicles using the bridge. “We have also used a remote camera to detect the type and size of vehicles causing the movement, however this has found to be unreliable.” So it hard to accept that the bridge knows the difference between two 3 tonne vehicles and one 7.5 tonne.

The occasional transgression by a heavy vehicle, whereas not good, cannot been seen as catastrophic, if it was we would have stopped them from using the bridge 4 years ago, or two years ago when we had the second report, or 6 months ago when we got the notification for Highways, or now.
Traffic Management Proposals and Objections.

Northamptonshire Highways are proposing a width controlled weight limit of 3 tonnes on both ends of the bridge. These barriers are very intimidating and result in cautious drivers proceeding very slowly. The only design considered is a cheap industrial concept, not in keeping with the main entrance to a historic town. Highways response to objections is to move the same structure to a place where we are not allowed to object.

Whereas this method of control is extremely effective it’s use where there is no easy alternative route should only be considered when there is strong evidence that a relaxation to 7.5tonnes will have minimal detrimental effect.

Since it has been 4 years since the first report recommended a 3 tonne limit, and no traffic management action has been taken, we can only assume that the reports are over cautious.

Extract from:-
Highway Structures: Inspection and Maintenance Assessment. The Management of Sub-Standard Highway Structure

2.8 Load Mitigation Interim Measures must be imposed on any Sub-standard Structure, unless agreed with the TAA and/or Overseeing Organisation and/or the Structure Owner where relevant that the imposition of Load Mitigation Interim Measures is likely to cause excessive disruption to traffic or incur disproportionate costs, and it can be shown to be a Monitoring Appropriate Structure (see Clauses 5.9 – 5.11), in which case Monitoring Interim Measures alone or with Load Mitigation Interim Measures must be imposed.

We have been unable to engage in the above type of review.
Additionally, we are not convinced that sufficient consideration has been given to vehicles reversing when they cannot get through the narrow barrier. This is most concerning on the A605 end of the bridge. Any vehicle making a mistake will very quickly get queue of traffic behind it, which will need to reverse into the A605 roundabout to provide clearance for the offending vehicle.

A mandatory 7.5 tonne limit may not be 100% enforceable, but should give enough reduction in very heavy traffic to achieve a significant reduction in bridge load. Additionally by restricting traffic flow onto the bridge with “Give Way” single lane islands we can slow traffic down enough for our volunteer group to periodically photograph any offending heavy vehicles. Oxfordshire County Council have successfully used Trading Standards Regulations to prosecute offending vehicles which cross one of their weight restricted bridges.

In anticipation of a 3 tonne limit Oundle Town Council looked at two possible one way schemes and passed them on to Northamptonshire Highways. Both schemes cause considerable disruption in the town, and significantly increase the residential traffic movement. There is a several fold increase in heavy vehicle movement across the town due to delivery vans not be able, or willing, to use the bridge. (Note Some Vans would fit into the below 3tonne category, but drivers would be reluctant to use the bridge for fear of accidentally scratching their vehicle, and getting fined by their employers)

With a 7.5 tonne limit a much easier, voluntary, traffic flow could be used for the very heavy vehicles.
The following is an extract from a study paper presented to Northamptonshire Highways:

North Bridge Weight Restrictions Traffic Flow Options

• Van and HGV Traffic flow from South Bridge to the North and East of the town will be considerably heavier than today
• There will be a five fold increase in this disrupted traffic caused by not allowing 7.5 tonne vehicles to use North bridge. (80% of vehicles are ‘Transit’ sized vans, many making home deliveries.
• Two options are considered. Option 1 is a large one way system around the town; option 2 is a smaller system on selected roads
• Contra flow cycle lanes will be needed where safe.
Option 1: Large one way system:
- Milton Road
- Blackpot Lane
- East Road
- South Road

Note.
No traffic lights needed on North Street

Option 2: Small one way system:
- Blackpot Lane
- North Street
- Market Place

All buses and HGVs
Option 1 Advantages

- Keeps heavy traffic out of town centre. Safer for all the people using the centre especially the school children. And the elderly
- We don’t have to worry about closing the market square.
- The 7.5 tonne weight limit would be far more effective
- Bikes could be accommodated with extra parking places and the centre overall would be a much safer place
- North Street residence would be able to unload and tradesmen able to work.
- Approved by the business community

Option 2 Advantages

- Less interruption for residents
- Two way flow kept on most roads
- Quieter town centre. No contra flow problems around delivery vehicles
A 7.5 tonne limit alternative could look like this:

Location to give max queuing traffic space, whilst keeping stationary traffic off weak part of bridge

Additional signage on A605, in both directions, and from Polebrook.