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Gloucester & Sharpness Canal
Plans to change bridges from keeper-operated to remote controlled

Public consultation

April-June 2015

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What's the current situation?

Inefficient and costly

- 12 permanent and 18 seasonal staff - on site regardless of whether the bridge needs opening or not
- Annual staff costs are excessive
- Restricted daily opening hours; closed 2 days a week in winter – major frustration to boaters and limits economic potential of canal businesses
- Bridges operate in isolation = no management overview of canal
- Five bridges are slow to operate = delays for canal and road users

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OPTIONS

- ‘De-man’ the bridges and replace with user controlled system, ie pedestal key operation (i.e. similar to other CRT canals)
- ‘De-man’ the bridges and replace with extensive CCTV managed system
- **‘De-man’ the bridges and replace with user controlled system, eg using a hand-held type device = chosen option**
- Reduce bridge opening times further and cut bridge operator numbers
- Charge boaters higher fees to use the G&S canal only, thus, raising income
- Do nothing (status quo)

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What's the new plan?

- Lasers, CCTV, speakers, intercom, enhanced controls and monitoring on the canal and road at each bridge
- Automated road barriers and traffic controls including lights and alarms
- Used by Network Rail at 49 level crossings

- Bridge Control Centre oversees operations. Single point of contact for highways and emergency services, canal and road users
- CCTV records bridges 24/7

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How do bridges work?

Bridges operated in one of two ways:

1. Each bridge's Wi-Fi senses an **app on the boater's smart device**
   Boater triggers the opening sequence, provided no restrictions in place
2. **Bridge Control Centre** operates the bridge if boater makes contact by phone, VHF radio or intercom at each bridge

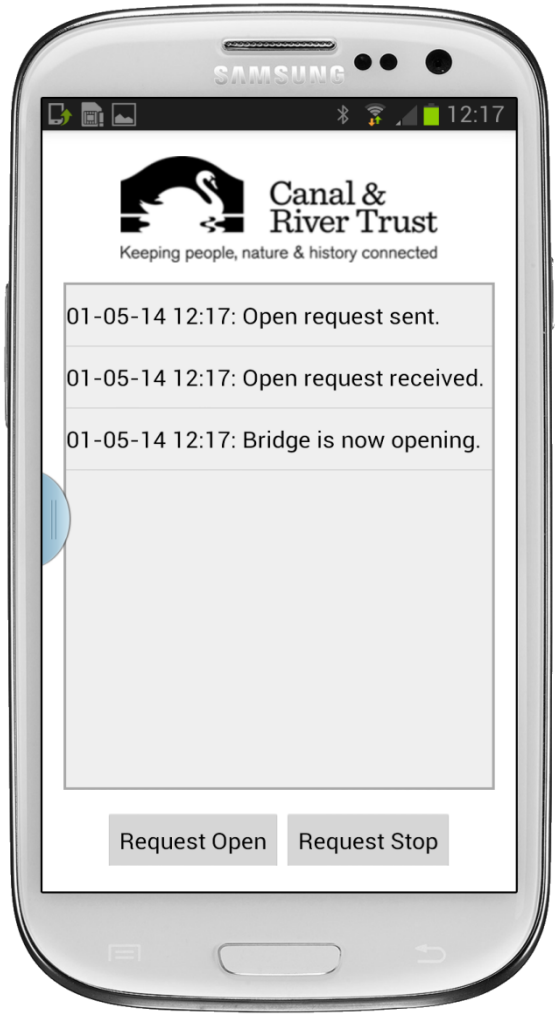
Current restrictions on opening times will remain e.g. traffic peaks; others will be developed using consultation feedback

Bridges can be held closed for emergency vehicles and to ease traffic jams

Canal traffic light system will still be in place

The app for smart-phones and tablets

- ***Only*** **boat licence-holders** can download the app; download to several devices
- App developed for Android, Apple and Windows for **smart-phones and tablets**
- ***No*** **mobile phone signal needed** – the app uses the Trust's Wi-Fi at each bridge
- Boater sends request via app to open bridge which **triggers a preset sequence** – boater cannot intervene or leave bridge open. Triggers from up to 400m away
- **Instant updates of bridge status** e.g. held closed for road priority, ambulance, strong wind



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No smart phone?
Contact the Bridge Control Centre

Contact the control centre by standard **mobile phone** or **VHF radio** from the boat

There'll also be **2-way intercom points** at each bridge like at railway stations

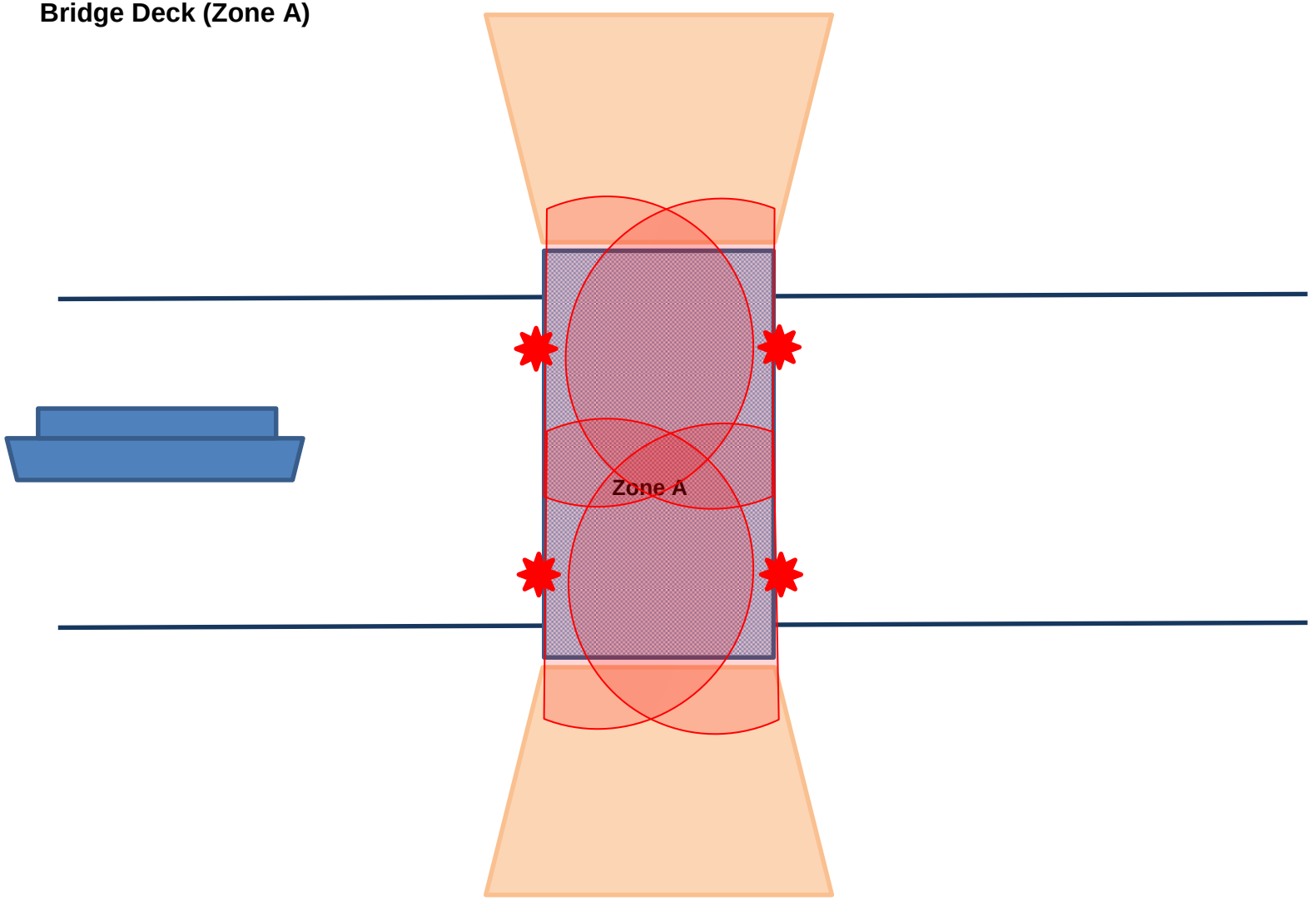
Once contact is made, the control centre will locate the boat on CCTV and operate the bridge

Boaters may experience delays if the team are dealing with other requests

The bridge control centre for Rijkswaterstaat, Holland

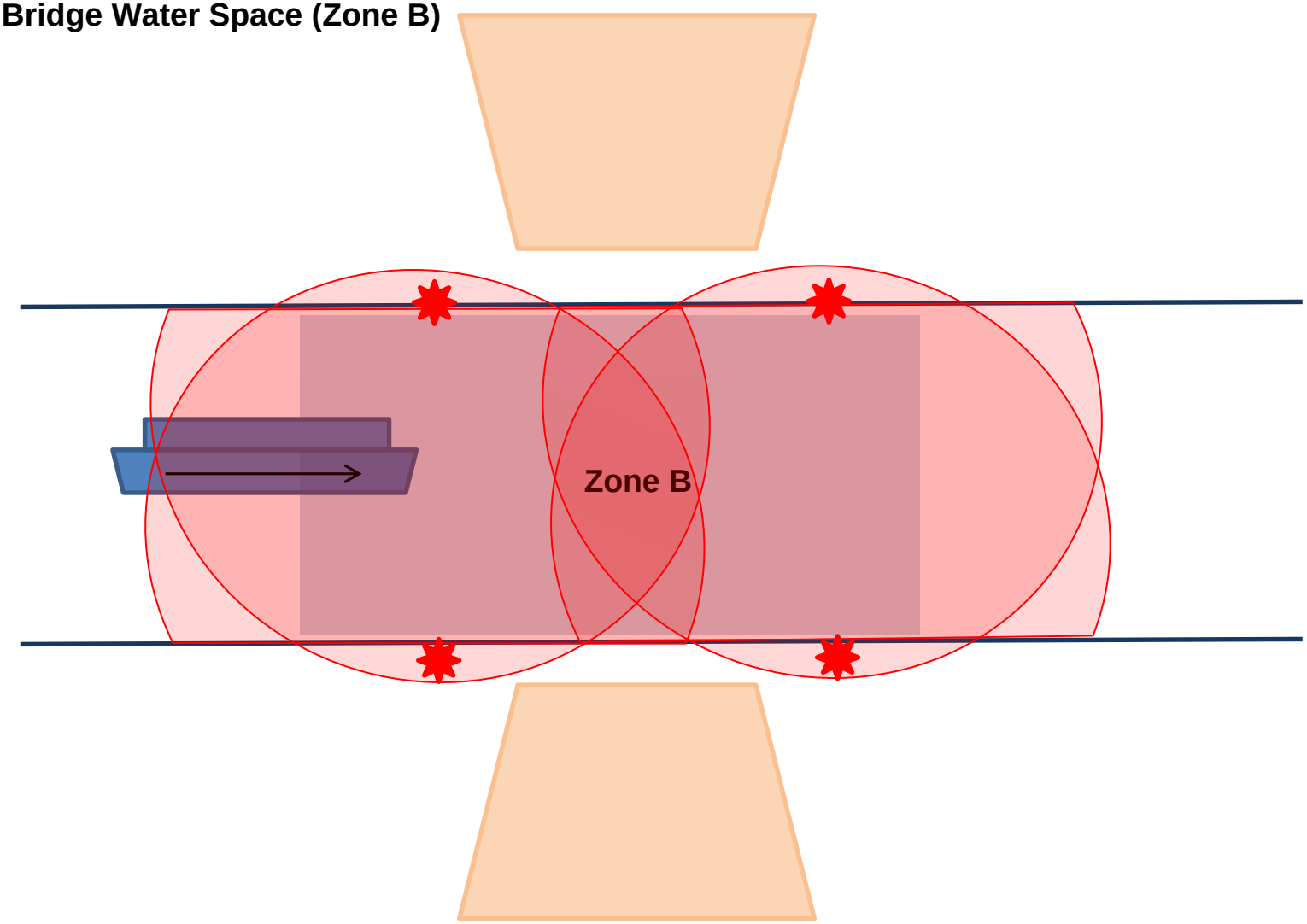
So we do encourage boaters to get a smart device and use the app. Boaters will be able to trigger the bridge opening themselves, minimising delays and greatly reducing demand on the control centre - also reducing the Trust's operating costs.

Lasers on the bridge deck at road level



Lasers under the bridge at water level

Bridge Water Space (Zone B)



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What if ....

... there are people or a car on the bridge when it's about to open?

When the sequence is triggered, alarms alert people that the road barriers are about to lower

If the people/car don't clear the area, the lasers detect them, the barriers won't lower and the control centre is alerted who can give instructions via speakers

CCTV will be recording the bridges

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What if ....

... there's a small boat or canoe under the bridge?

They'll hear the alarms and should move clear.

The lasers detect anything big enough to collide with the bridge

The sequence halts until it has moved clear

If it doesn't clear in time, the sequence would time out and the control centre is alerted

... what if boats take too long passing under the bridge or cluster together?

The laser is preset with a maximum open time, after which the canal light goes to red and the bridge closes. If boats obey the lights, this breaks up clusters.

If the lasers aren't cleared in time, the closing is halted and control centre alerted; they can give instructions over the speakers, and record which boats are causing problems

This provides greater surveillance than currently because the lasers scan multiple zones on and below the bridge

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What about power cuts and break-downs?

Better detection and diagnosis of most faults

The new system enables better detection and diagnosis of most faults, some instantly rather than only when a bridge is opened. Mechanical breakdowns which can't be detected remotely will be dealt with as now, by a mobile diagnostic and repair crew.

Bridges can still be manually operated

In the unlikely event of a power, laser or software failure, a bridge could usually be manually swung by staff and we could install generators

It's extremely rare for a bridge to be stuck in the open to canal position (i.e. closed to road traffic). If necessary we would hold nearby bridges to enable a road traffic diversion.

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What about power cuts and break-downs?

The lasers are protected

In a strong metal box with tamper alarms. A protective shutter opens when the sequence is triggered. CCTV will record bridges 24/7.

Each system operates in isolation

A problem at one bridge doesn't affect others

Bridges can still operate if there's a power cut at the Control Centre

A power cut would cut visual contact with bridges. Whilst each bridge could continue to be operated via the app, we would hold bridges to enable road traffic to pass and send staff to operate bridges as necessary.

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Proven technology and trials

- Our technical team did extensive research into best practice in UK and Europe
- Similar technology is being used successfully at Network Rail level crossings
- Detailed risk assessments undertaken

The system has been trialled at Sandfield Bridge via the bridge keeper's smart-phone

4,500 bridge openings in 7 months at Sandfield

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Operating protocols

Advisory group will include highways, emergency services, road and canal users

Its role:

- Ongoing review of the operation at Sandfield
- Inform the next phase
- Agree individual local bridge operating rules/protocols

Installation at each bridge will include trials with staff in situ until we are fully satisfied

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Why do this?
What are the benefits?

Improved overall management of canal traffic and bridge openings with an overview from the new Bridge Control Centre, CCTV and communications

Significant cost savings of £500,000 which can be spent on improvements to the canals

Extended navigation hours will **boost canal businesses and the local economy**

Improved road safety and traffic control

Control centre provides a new **single point of contact** for highways, emergency services, road and canal users

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Why do this?
What are the benefits?

Faster bridge openings at 5 bridges which will also be upgraded: Sellars, Rea, Splatt, Cambridge Arms and Hempsted Bridges

Instant detection and diagnosis of most faults

CCTV records 24/7
Increases surveillance and security around bridges and roads

Restricts boat licence evasion (only licence-holders can use the app)

Canal maintenance e.g. grass cutting is carried out by contractors and is therefore unaffected

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Which bridges are affected and who uses them?

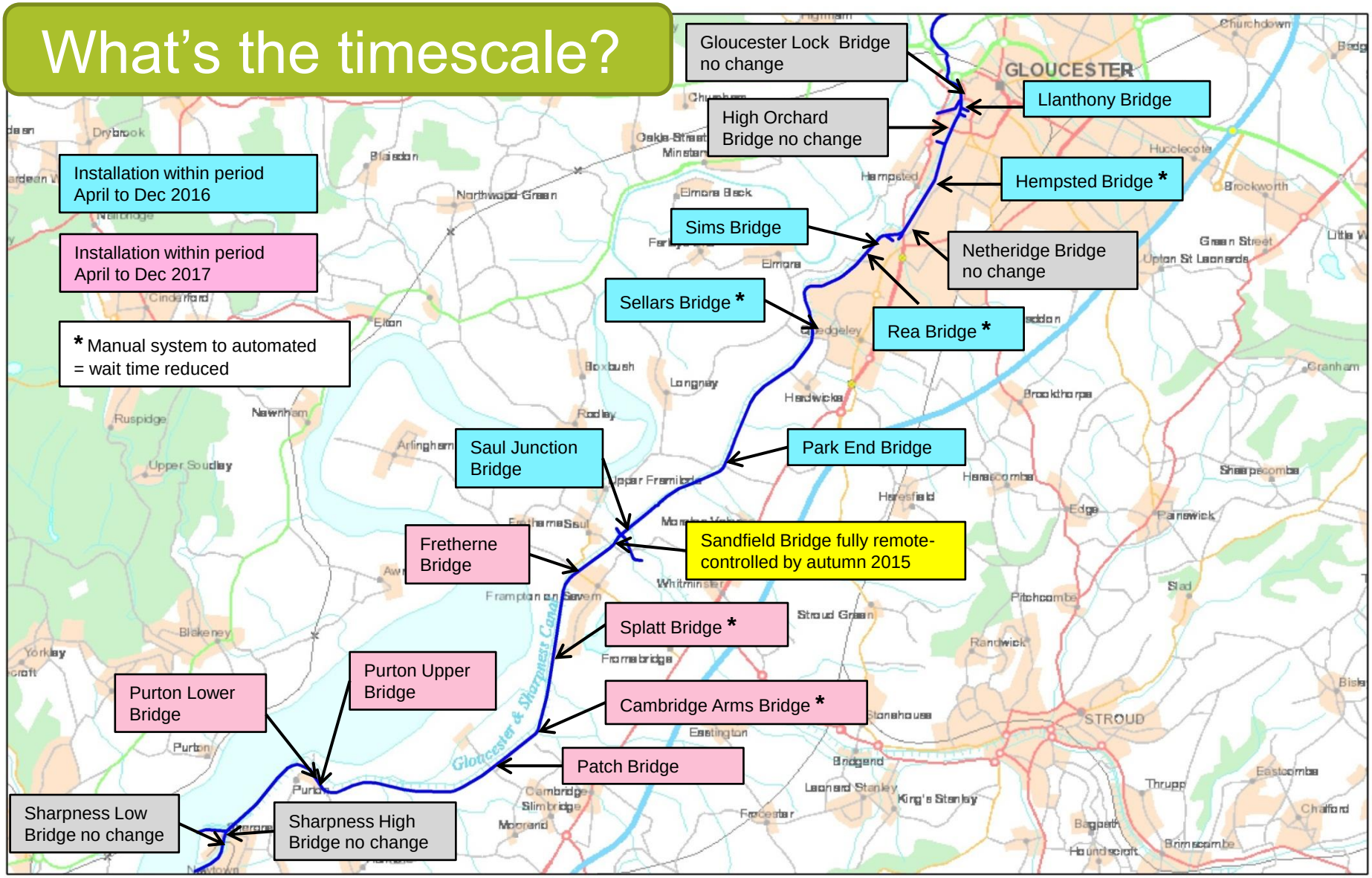
There are 19 bridges on the Gloucester & Sharpness Canal

The proposals relate to **14 bridges**, of which:

- Fretherne, Sandfield, Parkend, Rea and Sellars are the sole access to local villages (Rea and Sellars have high air draft and open less often)
- Patch Bridge serves Slimbridge WWT
- Purton Upper and Lower, Cambridge, Splatt and Sims have few road users
- Saul and Hempsted are footbridges – Saul can be busy

The **five bridges excluded** from remote-control are Gloucester Lock, Netheridge, High Orchard and Sharpness High and Low Bridges

What's the timescale?



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Gloucester & Sharpness Canal Bridges

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What's the timescale?

1. Sandfield Bridge fully remote controlled by Autumn 2015
2. Bridges north of Sandfield phased in between April and December 2016
3. Bridges south of Sandfield phased in between April and December 2017

Plans subject to

- Funding available from the Trust (possible deferral if funds need to be diverted to essential repair work)
- Full public consultation to consider all points raised and ensure no major issues or obstacles

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What about CRT presence on the canal?

We know our bridge-keepers are valued; decision not taken lightly

CRT staff will be in new control centre with a view via CCTV and can communicate via speakers

Others in core maintenance team or mobilised to respond to issues

Growing number of volunteers provide a friendly presence, giving out information and doing other jobs to help improve the waterways

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Public consultation – please give us your views

Full information with questions and answers on our website
www.canalrivertrust.org.uk/gsbridges

Information and comment cards at
Cotswold Canals Trust Visitor Centre, towpath off Church Lane, Saul Junction

Public drop-ins – ask us questions and give us feedback
Thurs 14 May 4pm – 6.30pm Saul Memorial Hall, High St, Saul

Thurs 14 May 6.30pm – 8pm Cotswold Canals Trust Visitor Centre, Saul

Sat 16 May 10am – 2pm Cotswold Canals Trust Visitor Centre, Saul

Online survey – canal users and road users can give their views
1 to 30 June **www.canalrivertrust.org.uk/gsbridges**