



Orwell Bridge High Wind Protocol

Briefing Paper

Date: January 2015

Background

The [Orwell Bridge](#) was opened in 1982 and carries the A14 between junction 56 and junction 57 over the River Orwell just south of [Ipswich](#) in Suffolk.

The bridge has become vital to Ipswich with over 60,000 vehicles using it per day, which is about 83% of its capacity. Traffic using the Orwell Bridge can be susceptible to high winds which may make driving conditions extremely hazardous. When the bridge is forced to close, either due to high winds or accidents, there is a significant impact on the urban road network, bringing many of Ipswich's roads to near-standstill.

The Bridge is operated and maintained for the [Highways Agency](#) by their appointed Asset Support Contractor (ASC) Amey Ltd. covering HA Area 6.

The Highways Agency Traffic Officer Service do not patrol over the bridge and it is [Suffolk Police](#) who are responsible for policing and responding to incidents on and near the bridge with the HA Service Provider providing support.

Purpose and Scope

This document updates and replaces the November 2010 protocol owned by the HA's previous Managing Agent Contractor (MAC), Atkins/Skanska. The review was agreed in collaboration with [Suffolk Local resilience Forum](#) (LRF) following repeated closures of the bridge during the winter of 2013/14.

This document outlines a protocol for the closure of the A14 Orwell Bridge during high winds, with decisions based on escalating intervention levels from wind speed measurements.

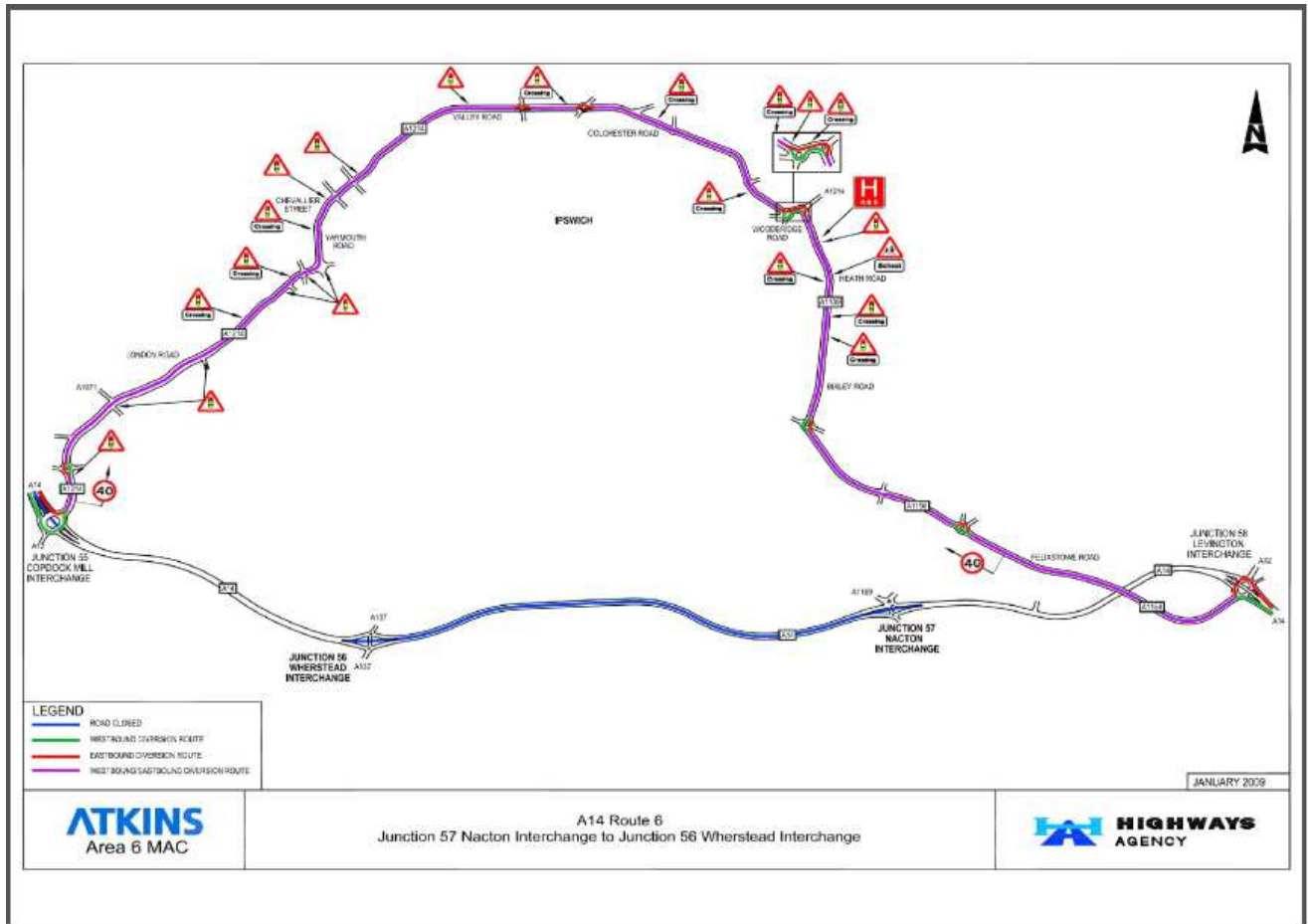
The protocol has been developed by the Highways Agency in consultation with Suffolk LRF as recent experience has highlighted the benefits of a multiagency approach to managing the closure combined with warning and informing the public. Highways Agency and other highways responders are also guided by the ACPO-led [CLEAR](#) initiative.

The aim of this protocol is to put in place a framework that can be used to facilitate planned restrictions and ultimately the temporary closure of the bridge. A structured approach is defined; however small changes in weather conditions can significantly impact on the safety of road users and the escalation method. The approach is therefore not designed to be rigidly imposed and the final decision to implement restrictions will be made jointly by Amey on behalf of the Highways Agency and the Police based on the evidence available. Any final decision to close the bridge will rest with the Police.

Further detail is contained in the Norfolk & Suffolk Constabulary Orwell Bridge Contingency Plan NS053 dated 28/06/13.

Diversion Routes

An off network diversion route (ONDR) has been agreed with [Suffolk County Council](#) (SCC) and Suffolk Constabulary, should closure of the A14 Orwell Bridge be deemed necessary. The route takes vehicles off the strategic road network on to the local road network, following the A1214 and A1156 for an additional 14.5km through Ipswich. The use of this route has the potential to cause considerable congestion on local roads and significant loss of journey time reliability for diverted trunk road and local traffic.



Forecasts for Interventions

A Road Weather Information System (RWIS) standard forecast station has been provided by Vaisala at the western end of the bridge adjacent to the eastbound carriageway. In addition a wind speed instrument is mounted on a 22m high mast to give an approximate wind reading relative to the highest point of the bridge at 49.65m above Ordinance Datum. The Vaisala equipment is operated by EPL for Amey and an automated alert system has been configured so that automated e-mails can be issued when specified limits on both the recorded wind speed and wind direction are exceeded.

As part of the Area 6 Severe Weather Plan preparations, Amey use the Met Office [OpenRoad](#) package for weather alerts. The wind strength forecasts can be used to predict if intervention levels may be exceeded at the bridge. The general synopsis provided by the Met Office includes a region wide forecast covering the period several days ahead.

During official HA Winter Service Period, 1st October to 30th April, the HA National Traffic Operations Centre (NTOC) at Quinton, Birmingham has an embedded Met Office advisor on each shift to supplement its National Incident Liaison Officer service (NILO). These advisors will provide an Agency-wide update on forecast severe weather and will be available for consultation on any significant incident on the Strategic Road Network (SRN).

As a Category 2 responder under the [2004 Civil Contingencies Act](#), the Highways Agency has a duty to collaborate with, and is an active member of, the Suffolk Resilience Forum. Additionally

the HA is part of the East's Multi-Agency Support Group (MASG(E)), ostensibly a forum for Category 2 responders across the region, but with significant wider membership and direct access to a Met Office Civil Contingencies Advisor. It is a matter of routine business for LRF and MASG(E) membership to share information and actions on severe weather warnings.

Intervention Levels

The calculations of wind speeds at which classes of vehicles can make a safe passage across the bridge are expected to vary on each occasion when there is a risk, due to such matters as wind conditions, and other meteorological circumstances such as snow, ice and heavy rain.

Accepted practices across a number of structures in the United Kingdom can be summarised as follows and have been adopted for implementation of the Orwell Bridge High Wind protocol.

Wind Speed	Level	Actions
Below 30 mph	1	No Action
30 – 45 mph	2	Warning to travellers
45 – 60 mph	3	Advisory restrictions
60 – 70 mph	4	Presumption of closure, followed by closure if conditions persist

Level	Activation Criteria	Action
1	Wind speed below 30mph	<ul style="list-style-type: none"> No action to be taken
2	Wind gust speeds 30mph – 45mph	<ul style="list-style-type: none"> 3 consecutive 'e' mails received NCC and Silver Duty officer to liaise CSC remotely set wind socks Eastern Regional Control Centre (ERCC) informed to give early indication of wind speeds Return to level 1 when 3 consecutive 'e' mails received showing wind speed below 30mph NCC to remotely switch of wind socks ERCC to be informed.
3	Wind speeds in the range of 45mph for three or more consecutive readings in the 'at risk' quadrants	<ul style="list-style-type: none"> Silver level incident Wind socks already set as escalation from level 2 Silver duty officer to contact Met Office Wind speeds to remain below 50mph no further escalation Gust speeds expected to exceed 50mph Suffolk Police Force Operations Room (SCCR) Notified ERCC and SCC notified of the likelihood of the bridge closure and the possible implementation of the tactical diversion route SCC asked to confirm any issues along ONDR at present A police resource is to be identified to carry out the closure of the bridge if required ISU despatched to Orwell Bridge to report on conditions Resource identified to implement diversion route signing through Ipswich Sub plates to be put in place indicating alternative route for at risk vehicles Return to level 2 condition on receipt of three consecutive readings of a wind speed below 45mph recorded. During recovery phase sub plates to be removed On return to level 1 condition wind socks to be remotely turned off ERCC, SCC and SCCR informed of change in conditions
4	Wind gust speeds exceeding 60mph for three or more readings in any quadrant	<ul style="list-style-type: none"> Duty officer to contact Met Office to seek further advice Bridge to be closed should forecast deteriorate ERCC and SCC to be informed of the closure ERCC to inform the Highways Agency National Incident Liaison Officer (NILO) Sub plates to be removed, full diversion implemented On arrival of the police, full closure implemented Once closure in place and traffic compliant police can leave the scene On receipt of three consecutive 'e' mails showing wind speeds of 45mph then revert to level three condition ERCC, SCC and SCCR informed that the bridge is opened to restricted traffic Sub plates re instated On receipt of three consecutive 'e' mails showing wind speeds of 30mph then revert to level two condition ERCC, SCCR and SCC informed

Incident Escalation – Multi-Agency Response and Coordination

The following section has been developed following consultation with Suffolk LRF as a result of multi-agency debriefs and workshops resulting from the severe weather of the winter of 2013/14. The preceding sections of this protocol are an updated version of the historical document and those basic actions are not replaced

The primary function of this section is to ease communication between responders and enable swifter and clearer messages to the travelling public and residents of Ipswich when a closure of the Orwell Bridge is likely.

It has been agreed that the Highways Agency will be lead organisation for media messaging when this protocol is invoked and other stakeholders will follow the HA lead in traditional and social media to ensure consistency. Templates for agendas, press releases and media messages are included in the appendices of the protocol

