



# Managing Bus Service Disruptions: Position Paper

*RTIG Library Reference: **RTIG-PR015-D002-0.5***

January 2015

## Document price:

Foundation Members:	Free
Full Members:	Free
Associate Members:	Free
Non-members:	Free

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# 1 Introduction

## 1.1 About this document

- 1.1.1 This document is RTIG's Position Paper on the principles, processes and tools used to manage disruptions in bus services.
- 1.1.2 This Paper has been developed by the RTIG Disruption Working Group, which has benefited from the expertise of public authorities, passenger groups and the private sector. It encapsulates our current understanding of the state of play as well as some high level guidance for practitioners, as at March 2015.
- 1.1.3 We are grateful for the support of all those who have contributed to this report.

## 1.2 Purpose

- 1.2.1 The existence of bus service information in a variety of forms, electronic and non-electronic, is now well established and widely used by the public. This increasingly includes real time running information, through public signage, query services and journey planners.
- 1.2.2 While day to day operations are still far from perfect, the issues are relatively well understood and local schemes are working hard to improve performance and reliability. A more difficult set of problems is presented in the case that services are not running normally, because of specific disruptions. There are few established "good practices" in existence, and a lot of disruption management is therefore dependent on *ad hoc* efforts on the ground.
- 1.2.3 This document is intended to begin to address this gap, and to assist those who provide information to the public during times of disruption. This is not a technical document. It attempts to capture what passengers want from disruption information as well as the issues which currently exist in providing high quality, timely information.
- 1.2.4 The final section gives general "best practice" guidance to providers for them to meet the needs of the passenger. This will be applicable to Local Authorities, Bus Operators and third party information providers.
- 1.2.5 This document does not attempt to provide a roadmap to achieving the goals set out in this document. As with most goals, there are numerous ways to achieve them, which will depend on local priorities and the resources available. Setting out a particular direction would risk stifling innovation and would stray into attempting to direct public policy. However, we welcome the opportunity to discuss approaches with practitioners as they address these issues.

## 1.3 Definitions

- 1.3.1 Disruption occurs in a wide variety of contexts, but is always assumed to have a describable cause. It is important, both for operational management and for passenger information, to distinguish between an occurrence on the network (the *incident*), its implication for bus services (the *consequence*), and the effect on individual journeys (the *impact*).

- 1.3.2 There is a wide range of incident types, ranging from localised streetworks to network-wide closures. Incidents can be categorized by severity, impact, duration and predictability or a combination of all four. Some incidents may be *planned* such as streetworks or sports matches; in these cases many of the parameters of the incident (particularly time and place) are known in advance. Other incidents are *unplanned* (eg burst pipes, traffic accidents or criminal or terrorist incidents) and the nature and scope of the incident need to be determined in real time.
- 1.3.3 Some incidents, too, have characteristics of both. They may be predicted in general terms but the details not fully known until the incident occurs (for example weather events). Indeed many planned events have an element of uncertainty: public demonstrations, roadworks, or celebrity visits may all be subject to unexpected dynamics.
- 1.3.4 Unplanned events can be fast-moving. They can escalate in seriousness rapidly. Information may come from numerous sources (the police, transport operator, crowd sourced) – and not always reliably. Creating and issuing *good quality, relevant and timely* information can therefore be challenging.
- 1.3.5 The challenge is two-fold: ensuring that a *process* is in place to bring all the information together among the organisations and individuals involved, and ensuring that a technical *mechanism* exists to disseminate the necessary and reliable information to staff and to the public. Passenger trust and comfort depends on having the information which tells passengers what they need and want to know.

## 1.4 Background

- 1.4.1 During 2010 severe weather brought much of the UK to a standstill. Buses and trains were all badly affected. The transport industry was severely criticised for its lack of good quality, consistent and timely information to passengers during periods of severe disruption. A Passenger Focus report commented that “too many passengers experience patchy, inaccurate or conflicting information – and some get none at all”. Similarly, David Quarmby CBE noted in the *Winter Resilience Review* the importance of “comprehensive information and communications to stakeholders and the public at large”.
- 1.4.2 In 2011, RTIG began to address the problem of providing good quality disruption information by looking at the primary issues which face the transport industry and information providers. That document, *Managing Disruptions: the issues involved* (RTIG-PR015-D001) discussed in broad terms the requirements of the passenger and the challenges for information providers.
- 1.4.3 Since RTIG’s document in 2011, Passenger Focus has undertaken research which looked at passengers’ experiences of delays and disruption (*Bus passengers experience of delays and disruption*, April 2013). Their research suggests that from a passenger perspective, information during disruption is still patchy leading to a feeling of powerlessness during their journey.

## 1.5 Status of this document

- 1.5.1 This document is **issued**. We are happy to receive feedback and comment for future revisions; please contact us at [secretariat@rtig.org.uk](mailto:secretariat@rtig.org.uk).

## 2 The passenger perspective

### 2.1 Introduction

2.1.1 This section outlines what passengers want from disruption information. It is heavily informed by work done by Passenger Focus as reported in *Bus passengers experience of delays and disruption*, April 2013, and the expertise of members of the Disruption Working Group.

### 2.2 What passengers say they want

2.2.1 Passengers are the end users of travel information. It is, therefore, important to capture what information passengers want and how they want to receive it. Not all passengers are the same. In particular, bus passengers will treat their journey differently from rail passengers. Understanding the differences will help to ensure that information is directed in the best way to ensure that passengers can make timely and informed decisions about their journeys.

2.2.2 Some disruptions develop rapidly and this may mean that information changes frequently. This can be confusing and give the appearance of conflicting information if different messages follow one another in rapid succession. This should be avoided if possible. For instance, do not repeatedly extend delays in arrivals time, only to cancel the service shortly afterwards.

2.2.3 On buses in particular, passengers say they want information which they don't have to seek out. Bus ridership is a "low engagement" activity and research by Passenger Focus suggests that it generally does not occur to bus passengers to actively look for information on the internet: for some, because they assume it won't be there. Therefore, disruption information should be readily available at stops, preferably on signs. Where it comes through personal devices, notifications are more likely to be read if they are pushed.

2.2.4 Long distance passengers (on rail or coach rather than local buses) tend to put more time into planning their journeys. This is likely because they are longer, more complex and more expensive, and possibly less familiar. They therefore make more use of websites in advance of their travel. However, they also like to have signage at stations once they are on the move.

2.2.5 Sometimes disruption is unplanned and these events can vary from congestion to major weather events. Passengers understand that sometimes disruption will occur, but they want to know:

- **the scale of the problem** – how much of the network is affected? Is it just a route or even only a few stops, or is the disruption more widespread?
- **anticipated duration:** services affected, with dates and times. For instance, if services will be running a different schedule to allow for a clean-up operation, when can they expect service to return to normal?
- **the problem**, or what is happening – potentially including both the incident itself and the management actions being taken; this can influence what they do as a result. It shouldn't be assumed that the passenger will have "figured it out".

- **an estimated impact on journey time** – passengers accept that this may not be precise, but would like to be told when they receive information which is only approximate.
- **the alternatives** – alternative stops or route numbers. Bus stops which are out of use should be well signed at the stop to avoid confusion and directions to any temporary stops should be clear. Passengers also want brief details about any changes to the route (which roads, stops or whole route numbers are out of use). For instance, a diversion the driver will take to avoid a flooded area or congestion around a road accident, or details of an alternative bus to relieve a faulty vehicle.

2.2.6 Passengers want input from drivers and other operational staff (eg at bus stations). They also want both respect and sympathy, not be treated as a nuisance. Information needs to be accurate, timely and relevant, and consistent between sources: not several different answers depending who is asked.

2.2.7 The importance to passengers of human interaction during disruption, particularly serious disruption, is hard to overestimate, but often difficult to manage well. Unless staff are well-informed about an incident then their information to passengers can be confusing and frustrating.

## **3 Current state of the marketplace**

### **3.1 Introduction**

- 3.1.1 Bus passengers primarily access information through at stop displays (both electronic and static), and rely on bus drivers to supplement information during their journeys. Many are unaware of or uninterested in accessing information via apps. They treat journeys as “low engagement” often with a bus frequency which allows them to “turn up and go”.
- 3.1.2 This section looks at how effectively current systems are able to deliver information through these channels, and what options exist.

### **3.2 Challenges in responding to passenger needs**

- 3.2.1 Information does sometimes change rapidly. Passengers want to be kept up-to-date with the most current information. However, this can overwhelm passengers if care is not taken to be clear when changes to information have taken place and when new information supersedes older information.
- 3.2.2 Bus passengers particularly value on-street and in-station signs, where a simple glance gives the information they need. Unfortunately, many LAs are removing on-street RTI signage for financial reasons, preferring to deliver information through websites and apps, which are cheaper to deliver. This disconnect between how bus passengers want their information and how it is provided does need to be addressed. It may be that over time bus passengers will be more willing to use websites and apps while on the move, but current research suggests that this is not the case now. In the meantime, there is scope for investigating how we can get low-cost, on-street real-time signage.
- 3.2.3 In this era of electronic devices, it is easy to forget the value of static, paper signs which give the scheduled information for buses and trains. Passengers do continue to use these, particularly where real-time signage is not available at stops. Paper notifications can also be used effectively to highlight when planned disruption is scheduled to take place. For instance, where planned road works will necessitate a bus route diversion, this can be forewarned on a paper sign. It is important to remember that when the sign is no longer applicable, provision should be made to remove it to avoid confusing passengers with out-of-date information.
- 3.2.4 Not all the information that passengers want may be available. It is usually better to give some information than wait for it all to become available.
- 3.2.5 Bus passengers want drivers to be involved in relaying information. However, drivers are often reluctant to engage directly with passengers, sometimes because of language barriers, sometimes because they genuinely don't know any more than the passenger, sometimes because they think the passenger knows more than they actually do (for example, regarding the full route of the service). If drivers are to take on the role of information provider, then this will involve some training to ensure consistency and accuracy. Inevitably this will come with a price tag and bus operators will need to be convinced that such an investment would result in increased income.

- 3.2.6 Push notifications do not work well for regional information systems because many of the notifications will be irrelevant to individual travellers. By contrast, they do work well for individual routes or journeys where it is easier to ensure that information is relevant. Passengers are unlikely to subscribe to channels where the information is not relevant to them or where they have to sift large quantities of information to get at the information which is relevant to them. It is worth remembering that not all channels are suitable for everything.
- 3.2.7 The information which passengers say they want is difficult to fit on a single RTPI sign. In particular it can be difficult to give estimates of incident scope, alternative options and even prediction reliability in a limited number of characters. This quantity of information is often more easily disseminated via website or app, or even on a static sign (for example, a map to the alternative bus stop).

### **3.3 Where we are now**

- 3.3.1 Recent research (*Bus passengers experience of delays and disruption*, April 2013 and *Disruption and Delays, what do passengers want*, March 2014) suggests that passengers feel there is still work to be done in providing good quality information during disruption.
- 3.3.2 There is some tolerance of day to day disruption and acceptance that this is par for the course in bus travel. However, passengers become frustrated with lack of information when there are serious delays which will impact their journey or arrival. This is particularly problematic when the journey is perceived as important, such as a hospital appointment or a commute to work. Research suggests that they want communication, even if it does not provide actual fact, to reassure them that there is awareness of their problem and to send a signal that the operator cares enough about the customer to communicate.
- 3.3.3 Bus passengers in particular rely on real time information on on-street signs when they are there to confirm that their bus is on time. Most bus journeys are local journeys undertaken by people who are familiar with their route and destination. For the most part, on a normal day for a normal journey, passenger information for these travellers serves to *confirm* what they already know. When bus travel is delayed or re-routed, even the most seasoned bus traveller suddenly needs information to complete the journey.
- 3.3.4 Bus passengers are not conditioned to look for information other than on the at-stop displays. This might in part be overcome by putting relevant web addresses and apps where further information can be found at bus stops so that those with smart technology can access alternative information. This would also help to habituate passengers to seek information from multiple sources.
- 3.3.5 That this remains a live issue suggests that there is a failure in the marketplace to address the needs of passengers. There is also a failure of passengers to recognise where information is to be found. There are a number of reasons why this is likely to be the case:
- The complexity of ensuring that diverse parties coordinate with each other;
  - The need for intensive human resource;
  - The quantity and scale of the data which needs to be managed;
  - Establishing a coherent format to communicate data;
  - Creating a matrix of incident types which cover all types of disruption;
  - Ensuring that information is consistently available in multiple channels;
  - Encouraging passengers to take an active role in seeking out information.



- 3.3.6 The business case for providing disruption information is complicated. Fundamental to the issue of disruption provision is who is responsible for making it available. Historically, bus information has been provided primarily by LAs through real time information systems because LAs paid for the systems to be put onto buses and on streets.
- 3.3.7 This has begun to change as operators have seen the value of using these systems to understand their own operations – but the consequence is that the passenger receives less attention. Some bus operators engage directly with their passengers through social media or through their own websites; other operators engage only indirectly by providing access to data for information providers such as Local Authorities, Traveline or apps developers, who are trusted and expected to process the information and make it available to the public.
- 3.3.8 Historically, a major source of real time information has been signage on streets. Although this still remains passengers' preference, both LAs and operators are discovering alternative ways to engage with passengers during times of disruption:
- LAs increasingly are removing signs because they are expensive to buy and expensive to maintain, in favour of apps which cost very little.
  - Some operators have found that social media offers a good way to interact with passengers: it is perceived as inexpensive, but direct and good for customer relations. There is even a possibility of garnering crowd sourced information from passengers to feed back into operations.

However, while at stop signs are effectively universal, these other channels are limited to those who have the relevant technology, understanding and enthusiasm to make them work. There is therefore a risk that a sizeable fraction of passengers are left out.

- 3.3.9 In summary, information can be provided through a variety of channels, by a variety of different bodies. There is then the challenge of coordinating this information so that it is consistent and reliable across all channels. Every time data is reprocessed, and especially if it requires re-entry, it risks being corrupted. Clearly, the fewer opportunities for the data to corrupt, the better. Automating the process and standardising the formats for data transmission can go a long way towards preventing data entry errors.
- 3.3.10 Conversely, automation can only do so much. There will always need to be an element of human judgement involved in planning for predicted incidents and identifying unplanned incidents to ensure that the process for dissemination is put in train. Messages need to be tuned sensitively to specific circumstances.

# 4 Suggestions for good practice

## 4.1 Introduction

- 4.1.1 This section provides some outline guidance for those who have an operational role in providing information to the public during times of disruption. All guidance is general and will have to be tailored to local circumstances.
- 4.1.2 Not all sections will be useful to everyone, as there may be many different steps in the information cascade. However, the aim should be to use the sections which do apply, in a pick-and-mix fashion.
- 4.1.3 This guidance applies to bus information, but some people will need to consider multimodal information. In this case, they may need to have regard to the definitive guidance for rail: ATOC’s Code of Practice, *Passenger Information During Disruption* (PIDD). The latest issue is available at [http://www.atoc.org/clientfiles/files/ACOP015v3%20-%20PIDD%20\(2\).pdf](http://www.atoc.org/clientfiles/files/ACOP015v3%20-%20PIDD%20(2).pdf) (March 2012).
- 4.1.4 The recommendations below do resonate with those advised for rail operators in PIDD, although there are some significant differences between road and rail (for example, in flexibility for alternative routes). This should make managing multimodal information easier, as well as supporting a “common look and feel” experience for passengers in the information they receive.

## 4.2 Establishing processes

- 4.2.1 The decision to begin the cascade which puts disruption information out to the public, always begins with a judgement by a person. Providing disruption information is resource heavy, on a daily basis, and most particularly when an unplanned event occurs. In a large PTE, dedicated staff scan the network for events that will affect the network; this can be more challenging in a smaller setting.

<b>Do:</b>	ensure sufficient resource is available to meet the needs of providing information at your organisation
	identify the key people and roles in managing information during an incident, and make sure they understand and are happy with their roles
	develop good working relationships with those engaged in the process, both within and outside your organisation: police; LAs; emergency services; local media
	have regular practice exercises to hone the process and roles
	develop protocols to ensure that key personnel talk to each other as appropriate for each type of event
	consider cross boundary issues, especially where you anticipate a large passenger influx from neighbouring authorities
	establish an incident typology to help streamline the process
	establish an out of hours protocol: many incidents are not confined to normal working hours

<b>Do:</b>	ensure that information goes out as quickly as possible to assure passengers that you are aware of the problem
	remember to return the system to normal after the disruption has passed; in particular, to reset RTPI signs to normal service and remove any static signs

4.2.2 During a significant weather event, staff may work extended hours, perhaps without extra pay, collating and disseminating information. While financial pressures are understood, it may be beneficial to find ways of recognising those who have gone the extra mile.

### 4.3 Data

4.3.1 In order to ensure that disruption information is available for buses, an appropriate real time information system – which will almost certainly mean AVL – will be required. This will allow accurate information on the position and movement of buses. However, it is important to remember that there can be other sources of information as well and that these will need to be identified, judged for accuracy and integrated into the “formal” data from RTI systems.

<b>Do:</b>	ensure you have a good understanding of the systems architecture around the recording, processing and distribution of disruption data
	ensure that each system is designed to meet the requirements of its individual user community, whether it applies to public safety, performance monitoring, information publication, “help me” services or social networks
	consider how bus drivers can be used as a source of information for conditions on the road
	consider whether crowd sourced information can be integrated into other sources of disruption information
	be clear on where human intervention is needed to codify, link, translate or validate data, and ensure that these points are reflected in a robust process
	reduce rekeying of data to promote accuracy
	agree standard data formats to improve consistency and reduce the need to rekey
	use automated data transfer where possible
	ensure suitable data sharing agreements are in place
	consider using SIRI-SX as an information exchange protocol between systems

4.3.2 In parallel with this document, RTIG is releasing a guidance note on the use of the SIRI-SX standard. Systems staff and suppliers are recommended to review this, both for their internal data management mechanisms and for business-to-business communication concerning bus disruptions.

#### 4.4 Delivery channels

4.4.1 There are numerous different channels through which disruption information can be delivered to the passenger:

- Some passengers will prefer to use personal mobiles throughout;
- Some will use websites at the planning stage of their journey;
- Some will prefer to engage directly with their provider through social media;
- Many may not have (or not use) their own devices at all, and will rely on at-stop signs.

And of course many passengers will use a mix of channels at different times in their journey.

4.4.2 All of these channels are valuable but must be consistent with one another, otherwise you may risk confusing the passenger or losing credibility. This does not mean the level of detail must be identical; websites for instance can provide much more information than a 3-line display, and can link out to yet more information. The information on each delivery channel should be optimised to make use of the strengths of that channel.

<b>Do:</b>	identify which channels your organisation will disseminate through
	identify which channels will receive data from your organisation, but will not be managed by you, eg Traveline, external website
	provide at stop information wherever possible
	consider the use of Facebook and Twitter to engage directly with the passenger
	dedicate sufficient human resource where social media will be used
	offer subscription channels where possible to allow information to be streamlined to the individual
	use push notifications where possible
	encourage bus drivers to interact with passengers during times of disruption: they offer another channel for information as well as conveying both sympathy and understanding
	train bus drivers to be able to deliver information
	ensure information is consistent across all channels, although the level of detail may vary

#### 4.5 Information content of messages

4.5.1 Fundamental to the success of disruption information is building the trust of the passenger. Passengers need to feel that when they see a message they know that they can believe what it says and can make reasonable decisions about their journey based on it.

4.5.2 Information that vacillates between real time and schedule information is confusing and tends to compromise the credibility of the system as a whole. Building credibility means getting the message right, telling the passenger what they need to know in a clearly and consistently to allow them to make journey decisions in an educated way.

<b>Do:</b>	establish a core set of messages based on your incident typology (see below)
	ensure messages are clear, concise and accurate
	tailor the information to the channel being used
	ensure information is consistent across all channels, although the level of detail may vary
	avoid extending the arrival time only to cancel the service
	give information about planned disruption ahead of the event; for instance, tell passengers in advance of planned roadworks that a route will be diverted
	anticipate unplanned disruption where possible and highlight the need to seek information to passengers; for instance, where a weather event is forecast, urge passengers to check the website or local radio before travelling
	ensure the information is accurate to build trust with the passenger
	give some information rather than none, but be honest about how robust the information is: it is better to update passengers with what information you have, than to give none at all
	include, where possible and space permits, information on the nature of the problem, the duration, impact on journey time, alternative journey choices

#### 4.6 Message structures

4.6.1 To minimise the need for intensive input, information providers will want to establish a message set for disruption events. Much of this can be done ahead by establishing an incident typology. The incident typology categorises different types of incident based on extent, duration, delay and impact. This should allow for some standardisation in the messages so that they are not being created “from scratch” when incidents occur, minimising the level of resource required when the incident occurs.

4.6.2 The table below provides a possible template, describing different types of incident and the effect on the passengers. The final column is for the message which will go out to passengers and may be set as a local standard format. This may need to be broken down further where multiple channels are involved to allow for different levels of detail. For clarity:

- **Incident** means the cause of the disruption;
- **Extent** is how much of the transport network is affected;
- **Duration** is how long the transport network is likely to be affected;
- **Delay** is how long a passenger can expect to be delayed;
- **Impact on Passengers** is a rating of the severity of the impact on passengers generally, rather than individually;
- **Message to Passenger** is for pre-designed messages to be developed for disruption events. We have deliberately left this blank for providers to construct their own messages based on local circumstances.

<b>Unplanned</b>							
<b>Incident</b>	<b>Consequence</b>	<b>Extent</b>	<b>Duration</b>	<b>Delay</b>	<b>Operational Impact</b>	<b>Impact on Passengers</b>	<b>Message to Passengers</b>
Weight of traffic	Congestion	Route/ Corridor	X hours	X mins	None	Low	
Vehicle breakdown, car in bus lane, etc	Congestion	Stop/ Route/ Corridor	X mins	X mins	Possible Diversion	Low	
Traffic signal failure	Slow traffic/Congestion	Stop/ Route/ Corridor	X hours	X mins	Possible Diversion	Low-Medium	
Accident	Slow traffic/congestion	Route/ Corridor	X hours	X mins	Possible Diversion or Curtailment	Low-Medium	
Weather; (fog, rain, wind)	Slow traffic/congestion	Network	X hours	X mins	Proceed with caution	Medium	
Weather (snow, floods, ice)	Some Road closures	Network	X days	X hours	Possibly Not running	High	
Landslides, sinkholes, burst water main, fire)	Complete Road Closures	Route/ Area	X days	X mins	Diversion or curtail vehicles	High	
Civil Contingency (eg bomb)	Network closure	Area/ Network	X hours	X hours	Diversion, Curtailment, Not running	High	
<b>Planned</b>							
Road works	Slow traffic/congestion/diversions in place	Single stop	X days	X mins	Possible Diversion	Low	
Sporting Event	Slow traffic/congestion/diversions in place	Multiple Routes	X hours	X mins	Diversion, curtailment, Extra buses?	Medium	
Strike Action (external)	Extra traffic/congestion	Multiple Routes	X days	X mins	Extra buses?	Medium	
Strike Action (buses)	Extra traffic/congestion	Multiple Routes-Network	X days	X mins	Partial Services-No Services	High	