



# Heathrow Winter Resilience Programme

Programme update, September 2011

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# Foreword by Normand Boivin, COO of Heathrow

The Heathrow Winter Resilience Enquiry examined Heathrow's preparation and planning for severe winter weather. The Report of the Enquiry made recommendations on how Heathrow Airport, working with airlines and air traffic control, could improve the ability of the airport to support passengers during severe weather.

This report, which comes six months after the publication of the Enquiry Report, is an update on the progress made so far. The whole airport has come together to implement the Enquiry's recommendations. Much has been done, but there is much work still to do.

I know the difficulties of operating an airport in snow and ice. It is not possible to operate an airport safely in all weather conditions, and Heathrow faces particular challenges because almost uniquely among major hub airports it operates at full capacity.

There will be lots of attention on Heathrow next time it snows heavily. We won't be perfect but we will be better, and we will improve each time we practice our new response plans.

There will still be times of disruption at Heathrow, but the work detailed in this report means disruption should happen less often and that the whole airport community responds better when it does. The work that has been done will help us to serve passengers better at Heathrow on days when there isn't snow just as much as on those rare occasions when there is.



**Normand Boivin**  
Chief Operating Officer,  
Heathrow Airport  
September 2011



# Introduction

Following the severe winter weather of December 2010, Heathrow established a Winter Resilience Enquiry to examine how the airport could respond more effectively to future severe weather events. The Enquiry was chaired by Professor David Begg and included a panel of global aviation experts, airport stakeholders and passenger representatives.

In March 2011 the Enquiry made 14 recommendations on how Heathrow, working with the airline community, NATS and the CAA, could improve the airport's resilience to disruption and deliver better passenger welfare and experience.

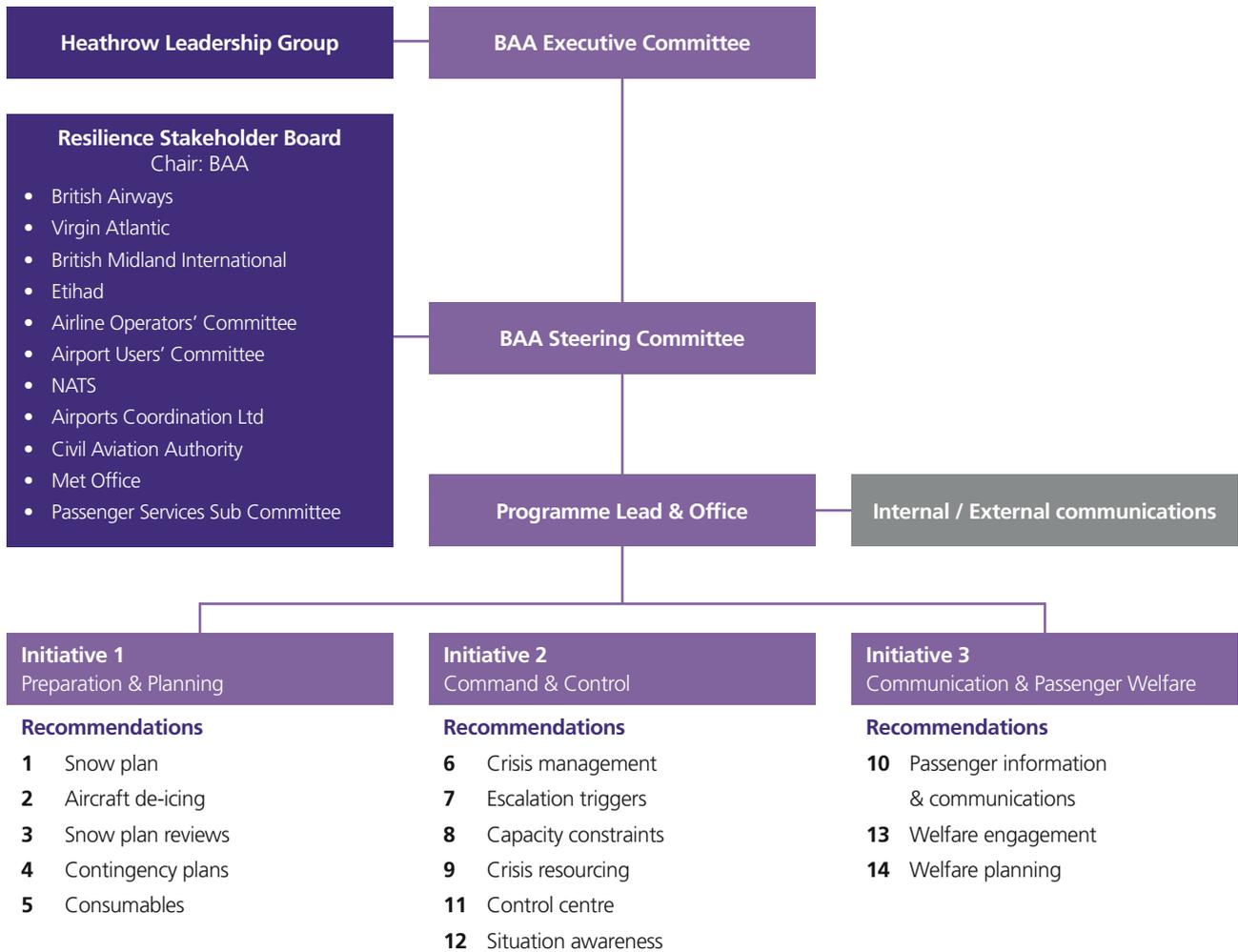
## **The 14 recommendations of the Heathrow Winter Resilience Enquiry were:**

- 1 Enhance snow plan**
- 2 Review aircraft de-icing processes**
- 3 Regular snow plan review**
- 4 Early collaboration on contingency planning**
- 5 Dynamic management of consumables**
- 6 Strengthen crisis management process**
- 7 Define clear escalation triggers**
- 8 Strengthen capacity constraints group**
- 9 Sustainable crisis resourcing**
- 10 Enhance flight information and passenger communications**
- 11 Establish a single airport command/control centre**
- 12 Improve situational awareness**
- 13 Jointly strengthen current welfare arrangements with airlines and CAA**
- 14 Routinely plan and test welfare arrangements**

Heathrow accepted all the recommendations of the Enquiry and immediately announced a programme to implement the recommendations in full.

This report, which comes six months after the publication of the Enquiry Report, is an update on the progress made so far.

## Heathrow Winter Resilience Programme Governance



# Approach to implementing the Enquiry recommendations

Implementing the recommendations of the Heathrow Winter Resilience Enquiry has been a major undertaking. After the Enquiry was published in March, 57 specific activities were identified to implement the 14 recommendations in full.

The Winter Resilience Programme has been led by BAA's Chief Information Officer Philip Langsdale, who has served as Programme Director. A dedicated Programme team was established to manage the work. In total, more than 150 members of staff have been involved in the Programme between March and October.

The programme has been organised around three initiatives and there is a separate chapter for each in this report. They are:

**Initiative 1** addresses snow preparation and planning. It implements recommendations on snow plans, de-icing aircraft, storing de-icer and weather forecasting.

**Initiative 2** focuses on command and control. It implements recommendations on crisis management, crisis planning, airport control centres, early warning indicators and temporarily reducing the capacity of the airport during disruption.

**Initiative 3** addresses passenger information and welfare. It implements recommendations on passenger information and communications and passenger welfare.



## Madrid Barajas Airport's recently opened state-of-the-art Crisis Management Centre



# Approach to implementing the Enquiry recommendations (continued)

The programme has been delivered with four guiding principles:

## **1 Passenger interests have top priority**

The programme has aimed to manage the impact on passengers during periods of extreme weather by ensuring that we prepare carefully for any adverse weather; inform passengers constantly and consistently of the status of the airport; and that – working with airlines – we look after the needs of any passengers who may be affected by the weather.

## **2 We have worked in collaboration with other airport stakeholders**

A fundamental part of the Enquiry recommendations was that Heathrow, in order to respond better at times of extreme weather, needed to work actively with other airport stakeholders, including airlines, NATS, the Civil Aviation Authority and passenger representatives. Only when every part of the airport works together in a planned, integrated and coordinated way do passengers experience a good journey. That is even truer during disruption, when the plans of many different organisations need to change together to support passengers. All parties need a common understanding of what's happening so that action in one area doesn't inadvertently conflict with another area.

The Winter Resilience Stakeholder Board was established to oversee the programme's implementation and negotiate a way through difficult issues. The board has included senior representatives from British Airways, BAA, British Midland International, Virgin Atlantic, Etihad, the Airline Operators' Committee (AOC – representing all Heathrow airlines), the Airport Users' Committee (AUC – representing Heathrow ground handlers), the Civil Aviation Authority, NATS, Airport Co-ordination Limited (responsible for slot allocation), the Passenger Services Sub-Committee (representing passengers) and the Met Office.

These stakeholders have also been represented on six project working groups within specific initiatives, and there have been regular briefings of other interested stakeholders including the Department for Transport, Transport for London, London Underground Limited, and airline station managers in each Heathrow terminal.

## **3 Our plans integrate best practices and recommendations from some of the best performing airports in the world**

The Winter Resilience Programme has been subject to extensive quality assurance and expert peer review. We learned from airports (such as Minneapolis-St. Paul, Madrid and Dallas Fort Worth) which have strong reputations for snow clearance, airport operations centres and passenger welfare. We have asked these airports to peer review our plans and test whether they hit the mark or need further work.

Additionally the CAA, as part of the Stakeholders Board and initiative-specific working groups, has been involved in reviewing the content and delivery of the programme.

## New snow equipment purchased since 2010



*Heathrow has invested significantly in new equipment to reduce the time taken to clear the airfield (including runways, taxiways, stands, and airside roads) and dispose of the collected snow and ice. As a result of this investment, Heathrow now has a fleet of 185 pieces of equipment (72 newly purchased this year) that are involved in the clearance and disposal of snow from the Airside areas of the airport. Compared to 2010 levels, this investment represents more than a three-fold increase in equipment available to bring the airport back to full operational status.*

# Approach to implementing the Enquiry recommendations (continued)

## 4 We are drilling and testing all new procedures

New procedures arising from the resilience efforts have been, and will continue to be, subject to a rigorous test programme. Desktop exercises have been conducted in key areas such as command and control and aircraft demand management, while physical drills have been conducted to test both the airside and landside clearing procedures. Over the next two months, a series of computer-aided simulations will test airport coordination with complex and challenging scenarios that will also include the active participation of non-BAA airport stakeholders.

## Financial update

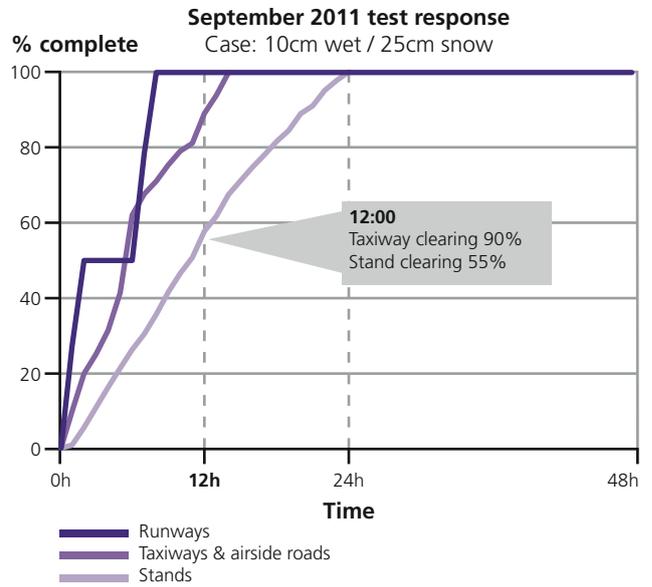
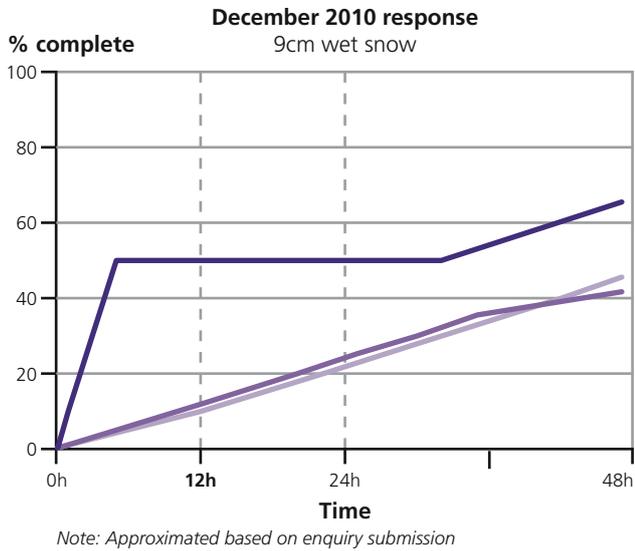
When we responded to the winter resilience enquiry we estimated that the total investment needed to deliver the recommendations would amount to around £50 million. So far we have committed to expenditure of £32.4 million in implementing the recommendations. A breakdown of where this investment is being made is below.

Snow equipment	£11,180,000
Integrated storage and maintenance facility for equipment	£5,990,000
Increased storage capacity for runway de-icer	£1,980,000
Integrated landside grit and vehicle storage	£980,000
Increased storage capacity for aircraft de-icer	£950,000
IT improvements for situational awareness including airfield CCTV	£4,650,000
Initial IT equipment for temporary command and control centre	£200,000
Fit out of integrated operations centre	£3,700,000
Winter 2012 enabling works	£2,800,000
<b>Total committed to date</b>	<b>£32,430,000</b>

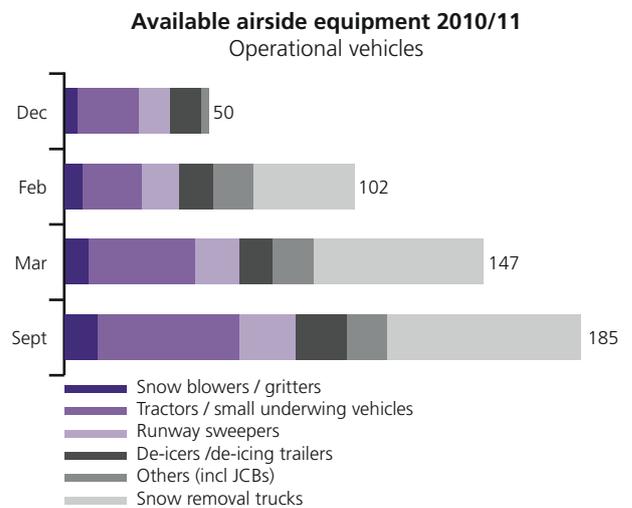
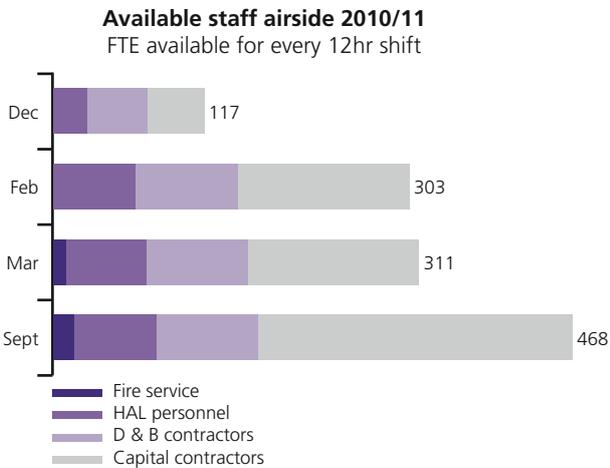
## Potential further areas of investment

- Aircraft de-icing pads
- IT equipment and implementation for command centre
- Incident and Resource Management Systems

## Significant improvements in response levels



## Availability of staff and equipment has also improved



## Physical drills have been conducted to test both the airside and landside clearing procedures.



# Initiative 1

## Heathrow Snow Plan

### Work done so far:

- **Assessment of snow operation best practice**

We looked at 13 airports across the world with reputations for operating during extreme winter weather and snow. We assessed what they did differently from Heathrow to help develop a model of best practice for the UK. Airports include Chicago, Denver, Frankfurt, Detroit, Toronto, Boston, Minneapolis-St.Paul, Amsterdam, Brussels, Milwaukee, Montreal, Stockholm and Ottawa.

- **Optimising the deployment of our resources during snow**

We conducted modelling and analysis to assess the most effective way of deploying staff and equipment during snow. We ran many different scenarios to come up with the ones which allow the greatest number of flights to operate as quickly as possible.

- **New snow vehicles and other equipment in place**

We have purchased 72 additional snow clearing vehicles which alongside contractor vehicles, takes the total number of snow clearing vehicles available to 185 today.

- **More staff available to clear snow on the airfield and on airport roads**

The total number of staff available to clear snow has increased from 117 per shift in December last year to 468 per shift for this winter. New standby and mobilisation procedures have been put in place to make sure that we always have cover and can call on extra contractor support at short notice.

- **New agreement with airline ground handlers on jointly working to clear aircraft stands**

We have agreed with airlines and their ground handlers a new way of working together to prepare aircraft for departure during snow. New plans are in place to work to clear more stands more quickly and efficiently. For example, by coordinating effectively with airlines and ground handlers, aircraft can be moved out of the way so that snow ploughs can clear whole rows of stands at once. We have also run trials to test some of these new procedures.

- **Assessment of aircraft de-icing capacity**

De-icing aircraft is the responsibility of airline ground handlers rather than the airport authority. We have worked with them to conduct an assessment of the current collective operational capacity of the nine de-icing providers that supply direct to airlines at Heathrow. This is the first stage of an ongoing project with airlines and ground handlers to consider whether there is a better way of de-icing aircraft at Heathrow. One of the problems during severe winter weather is that space to park arriving aircraft becomes very scarce because of the time it takes to de-ice departing aircraft on parking stands.

- **New snow disposal plans**

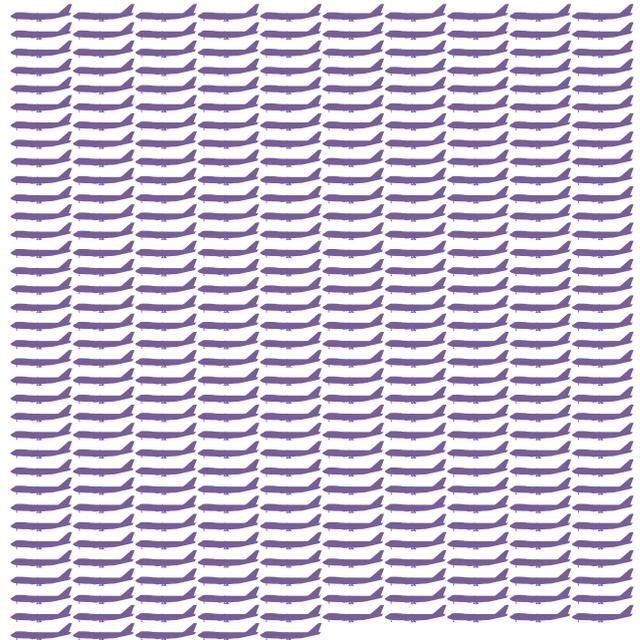
One of the more surprising problems that we encountered in modelling major snow falls at Heathrow is where to put all the snow. A snowfall of 10cm - similar to last year - would produce 48,000 cubic metres of snow which would have to be disposed of. This is equivalent to about 4000 average lorry loads. In addition, any snow that is contaminated by de-icer has to be disposed of carefully and drained through the airport's pollution control system. Short term storage will be available on the airfield, including the use of three aircraft stands. Once these have been filled, snow will be transported to Heathrow property offsite.

## Snow disposal – the challenge

10 cm of snowfall  
across Heathrow  
= 60,000 tonnes of  
snow to clear  
= **48,000m<sup>3</sup>**



Equivalent to the volume of eighty  
three-bedroom houses...



...and equivalent to the weight of 345  
unloaded Boeing 747 Jumbo jets

## Minneapolis-St. Paul International Airport review and feedback



*Heathrow's new Snow Plan has been peer reviewed by the staff of Minneapolis-St. Paul International Airport (MSP), a large hub airport in the US Midwest.*

*With an average snowfall of 133 cm over a year, fast reaction is essential. MSP aims to clear a runway of snow and to provide multiple exit points in a time frame of between 20 minutes and 30 minutes depending on runway length.*

*Aircraft de-icing is carried out at 19 de-icing pads at five end-of-runway locations. While the airport has responsibility for clearing stands, it works closely with airline operations personnel when doing so.*

# Initiative 1

## Heathrow Snow Plan (continued)

- **Consumables usage and storage plan**

We have new processes for monitoring the use of consumables such as grit, and airfield de-icer and additional facilities for storage.

- **Appointment of a full-time Winter Operations Manager**

We have appointed our first Winter Operations Manager who will be responsible for Heathrow's winter readiness going forward, including regular review and refinement of our plans. Tim Etches joins Heathrow from an operational logistics career in the RAF.

### Work in progress

- **Absorbing external expert review of our Snow Plan by Minneapolis-St.Paul International Airport**

The operations team at Minneapolis-St. Paul International Airport (one of the world's best when it comes to snow operations) has reviewed and provided feedback on the airside plans to ensure they reflect best practice.

- **Covered grit and off-site de-icer storage capacities increased.**

We are building more capacity for storing grit and de-icer close to Heathrow so that we are less dependent on deliveries by roads that may be closed by the weather. This will give us 1.3 million litres of liquid de-icer on or near site - three times that available last year. Solid de-icer stocks have been increased from 130 tonnes to 235.

- **Increased on-site storage for aircraft de-icer**

We are also increasing aircraft de-icer storage on the airfield with new tanks holding one million litres.

- **Full testing of airside and landside snow plans**

We are conducting large-scale exercises from late September to November to ensure winter readiness.

- **Multiple weather forecast providers in place**

The Met Office plus one additional forecast provider will be in place for this winter.

- **Climate change forecast study completed by Met Office**

A climate change study has been commissioned from the Met Office to assess long-term implications for Heathrow's winter resilience needs; its findings will be built into long-term plans.

### Longer term projects underway

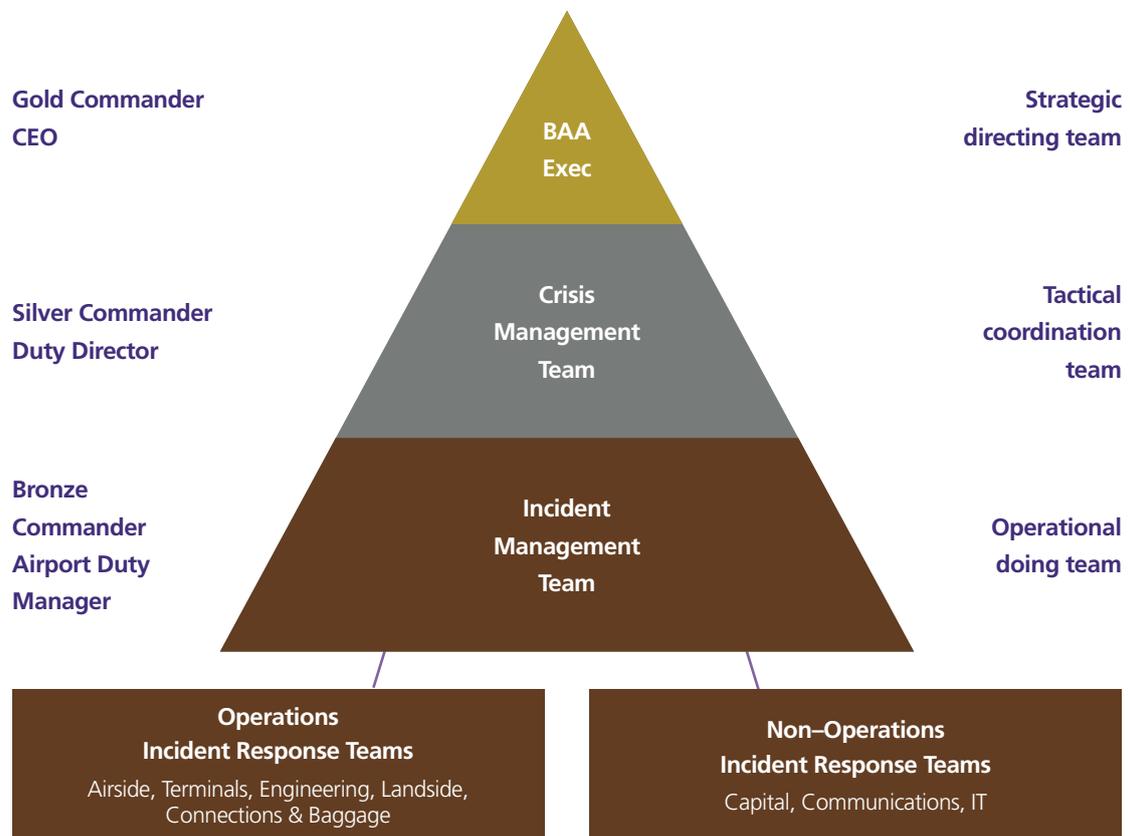
- **Potential facilities for centralised de-icing**

A final recommendation on Heathrow's long-term de-icing strategy will determine what additional facilities will be put in place to enhance aircraft de-icing operations.

- **Fully enhanced snow base with covered vehicle storage maintenance and staff welfare facilities**

Improvements will be made to Heathrow's specialist snow vehicle depot to accommodate extra vehicles and staff. This will eventually include de-icer storage tanks.

## Heathrow Crisis Response Structure



### Command and Control – levels of response

Alert level	Incident scale
<b>Gold</b>	An incident/accident or escalating event of proportions that requires strategic guidance and management from Executive level. Impact is pan airport/pan business.
<b>Silver</b>	An event or situation causing (or likely to cause) major disruption affecting one or more operational units requiring high level of coordination and control. Coordination of other agencies' activity required.
<b>Bronze</b>	Actual or potentially disruptive event/situation requiring coordinated intervention to drive containment and business recovery.

# Initiative 2

## Command and Control

### Work done so far:

- **Aligned our crisis response structure to the Gold/Silver/Bronze model used by the emergency services**

We have adopted the three level command structure used by government and emergency services in responding to a crisis. This clearly defines different roles and responsibilities and helps ensure that the right people are making decisions and that Heathrow can respond to major incidents in a more coordinated and controlled way.

- **Clear and communicated escalation triggers for snow and other events**

Specific triggers or early warning indicators have been defined for snow and other events so that crisis response teams can be established early, and that planning and preparation can be effectively initiated for forecast events.

- **Capacity constraints policy agreed - Heathrow Air Traffic Management Demand and Capacity Balancing (HADACAB)**

One of the biggest problems during the December 2010 snow was being able to provide our passengers with accurate and timely information about whether their flight would depart or not. If passengers know their flight is cancelled it is better for them if they can rebook at home or a hotel rather than come to the airport. In order to communicate timely information to passengers and ensure that the greatest possible number of flights can depart, Heathrow has a new agreement in place with airlines, ACL, and NATS for making the necessary reductions to the flight schedule in advance of, during or following major disruptions. We aim to be proactive in reducing the number of flights operating in advance of a forecast event to improve the resilience of the airport and provide timely information to passengers.

- **HADACAB process demonstrated during recent ash and UKBA preparations**

The threat of a second volcanic ash cloud in May together with the UK Border Agency strike in June threatened disruption to flights. The HADACAB process was brought into action and while reductions in flight schedules were not needed, the new procedures were tested.

- **Enhanced communications**

Improved processes are in place for communication across the Gold/Silver/Bronze response levels and with stakeholders at each level, including pre-agreed early warning indicators for escalation.

- **Bronze command and control structures finalized**

Bronze-operational levels have been enhanced across all parts of the business areas involved in crisis response measures, including staff rotas, roles and responsibilities.

- **Staff trained on new crisis management response**

By mid-September over 400 staff had been trained on the enhanced crisis management structure.

- **Agreement on control centre strategy and location (Compass Centre - East Wing)**

Planning and starting building work for the new Airport Operating Centre in BAA's Heathrow Offices (targeting completion after this winter).

Transponders fitted to vehicles involved in snow clearance will display status and location



New mobile flight information display units have been developed for use in marquees



# Initiative 2

## Command and Control (continued)

### Work in progress

- **Airport Operating Centre (APOC) implemented for airside on interim basis**  
While the full APOC is being built, key aspects of the control centre will be available for the airside operations team this winter.
- **Creation of Non-Operations Incident Response Teams (e.g. IT, Capital)**  
Teams are being established for non-operational areas, to support the main crisis management structure.
- **Enhanced situational awareness, including:**
  - **Vehicle Tracking:** transponders fitted to vehicles involved in snow clearance, which will display status and location
  - **Extra CCTV views:** more CCTV across the airport to extend visual coverage for incident response teams.
- **Desktop exercises, drills and simulations of crisis response protocols**  
An integrated testing programme has been developed to guide drills and exercises over September, October and November. We are developing computer-based simulations that test processes and command structures in ways not found in traditional desktop exercises and drills.
- **Evaluation of mobile flight information displays**  
New mobile flight information display units have been developed by Heathrow IT to provide better and clearer information to passengers.
- **Rostering and resourcing for all crisis response levels**  
Detailed rotas for staff in place covering the entire Gold / Silver / Bronze response structure.

### Longer term projects underway

- **Full pan-airport Airport Operating Centre commissioned and operational**  
The new airport control centre is being scoped for implementation after this winter.
- **Annual resilience exercise and drill programme from 2012 onwards**  
A regular programme of resilience testing beyond this winter will be introduced as part of normal operating procedures.
- **Launch Incident Management system (IMS) across airport**  
An Incident management system will provide Heathrow with a clear, real time view of operations across the airport, that will help identify early warning indicators and enable the coordination of decision making across all key stakeholders. This is currently being developed for implementation after this winter.

*Up to 950 Reservists will provide additional help to passengers*



*Information supply will meet a new standard – delivered by staff at the airport, the internet, by phone and by flight information displays and public address announcements*

*Meal vouchers will be made available during major disruption*

# Initiative 3

## Passenger Welfare and Communications

### Work done so far:

- **We have completed a passenger research study and assessed international best practice for passenger welfare provision**

A detailed survey of passengers was completed to ensure a clear view of what they expect from their airport and airline during times of disruption. More than 20 leading airports around the world were also interviewed to understand how passenger welfare is handled during airport disruptions and crises elsewhere.

- **We have improved understanding of Regulation EC261**

European law (Regulation EC261/04) requires airlines to provide assistance to passengers during delays. This includes catering, communications and overnight accommodation if necessary.

Heathrow held discussions with airlines and the CAA, on what EC261 means in terms of an airline's obligations to its passengers in times of major disruption. We have also conducted sessions with a number of airline partners to better understand their current welfare plans. The outcome was used to agree protocols for what support will be provided by airlines during disruption and what will be provided by BAA as the airport operator.

- **We have developed a new standard for airline and airport passenger welfare support at Heathrow**

A new Heathrow passenger standard has been developed, which sets out what the airport will do and what airlines will do to support passengers in four key areas:

– **Passenger information** – from staff at the airport, the internet, by phone and by flight information displays and public address announcements

– **Passenger provisions** – basic food and drink, meal vouchers, family supplies (such as nappies), sleeping supplies (such as mattresses and cots), retailers extending opening hours, free wi-fi and internet access

– **Passenger facilities** – shelter from the elements, sufficient space, a quiet and clean environment

– **Passenger hotels and rebooking** – hotel arrangements, transport to hotels, baggage repatriation, support with rebooking flights.

- **We have improved BAA passenger information**

A new role of 'Reservist' has been created, using non-operational staff to support terminal operations during mass disruption. We are currently training staff to provide support to passengers. We have also put in place new arrangements with third-party contractors to provide support to passengers at short notice. Staff in terminals will have mobile devices including laptops and iPads to provide passenger information.

- **We have put in place a full welfare duty team – on call 24 hours a day**

The duty team is trained in coordinating BAA's welfare response and activating reservists.

*A computerised booking system for mobilising support staff and allocating shifts has been tested and put in place*



*Hotel Hoppa services will help to move passengers*



*Heathrow Express can be used to provide a fast and free service to London hotels*

# Initiative 3

## Passenger Welfare and Communications

(continued)

- **We have planned for passenger provisions and contingency stocks**  
Enhanced stocks of emergency passenger provisions (e.g. blankets, mattresses, water) have been established together with agreements with airlines, clearly stating what is to be provided by whom and when. We have pre-agreed plans for providing vouchers to passengers during disruption so that they can buy food or drink, and we have new agreements in place with airport retailers to extend opening hours and maintain key supplies such as baby food and basic medical supplies.
- **We have improved passenger facilities during disruption**  
We have started work on redesigning heated marquees that are sometimes used to provide extra space if terminals become congested. These are the temporary rigid structures often used for large exhibitions and which have facilities such as catering and power. We have also agreed that free wi-fi facilities may be provided for passengers during disruption so that it is easier for people to contact friends and family or rebook online.
- **We have improved onward travel arrangements for passengers**  
We will make the Heathrow Express a free service to London if needed and mobilise free 'Hotel Hoppa' buses to transport passengers around the airport when there is congestion. Following on from the arrangements put in place during snow and volcanic ash we have developed a process so that people who are using official Heathrow Airport car parks are not charged for overstays in the event of major disruption
- **Reservist Management System in place**  
In order to manage Reservists and deliver the welfare support programme, a computerised booking system for mobilisation and shift allocation has been tested and put in place.

### Work in progress

- **External expert reviews of key content**  
Arrangements have been made with airport welfare experts at Dallas-Fort Worth International Airport – an operation recognized as best in class for looking after passengers – to review and advise on Heathrow's passenger welfare plans.
- **Further refinement of the integrated plans between airlines and the airport**  
This includes testing the plans in simulated exercises and refining the plans once tested in a future disruption at the airport.
- **Improved marquee plans**  
Arrangements for deployment and kitting out – such as catering, power, and mobile flight information display screens – of marquees in times of mass disruption.
- **Training of Heathrow staff for welfare deployment:**  
Up to 950 non-operational staff are being trained in Reservist roles, due to be completed by the second week in November. All reservists will have uniforms and welfare packs including key information for their roles and passengers

*Crisis response staff will be equipped with iPads to supply passengers with up-to-the-minute information*



# Initiative 3

## Passenger Welfare and Communications

(continued)

- **Airline flight information process improvement**

We are improving the speed at which flight information is updated to ensure consistency and that the airport community puts out one unified and clear message.

- **Facilities to support airline rebooking**

Additional space and tools (e.g. mobile phones, internet access) to help passengers in terminals rebook disrupted flights.

- **Reservist iPads and Blackberries customized and available**

Additional tools for crisis response staff, to ensure better situational awareness on the day including BlackBerrys with up-to-date flight information and language translation apps and iPads for rebooking.

### Longer term projects underway

- **Contractually binding welfare protocol in place and enforceable under the airport's Conditions of Use**

Following stakeholder consultation, the new welfare recharge and protocols can be considered for incorporation into operators' conditions of use.

## Appendix - Begg Enquiry – Heathrow actions to deliver the 14 recommendations

Recommendation	Rec. part	Heathrow action
1	1aa	Work with airlines, NATS & the CAA to agree an enhanced snow plan
	1bb	Ensure that Heathrow never closes for circumstances under its control, except for safety or other emergency situations
	1cc	Adopt a systems approach
	1dd	Define for a broad range of expected snow events, the tasks, priorities, resources and operating standards that should apply
	1A	Tailor to the Heathrow environment recognising the high occupancy levels, capacity constraints and stand configurations
	1B	Address a broader range of snow and cold conditions than the current plan, taking into account current scientific advice on future climate
	1C	Describe the sequence of clearance for specific weather & runway use scenarios, the direction of vehicle movements, giving priority to runway clearance, then taxiway & stand clearance
	1D	Define the processes, specialised equipment, resources and logistical requirements that are needed to achieve these plans
	1E	Define the locations for storing and, if possible, recycling media from contaminated snow
	1F	BAA should use multiple weather forecasts and should routinely assume the worst forecast
	1G	Establish an operating instruction that specifies clearly the role of ground handlers, airlines and BAA in cold weather and defines the standards for aircraft de-icing clearing operations from stands
2	2A	Work with airlines, NATS and other relevant stakeholders to review and invest in the aircraft de-icing processes and infrastructure to ensure the airport can maintain its flow rate in inclement weather
	2B	Review the slot procedure in conditions of freezing precipitation to support remote de-icing procedures
3	3A	Establish processes continuously to review snow plans through regular review, external review, benchmarking, desk and field rehearsals and post-event reviews
	3B	Establish the level of contingent resources required for the execution of the snow plan that are needed to supplement permanent airport staff and other airside workers
	3C	Work closely with the Met Office to understand better the expected impact of climate change on the airport
4	4A	In advance of forecasted event, hold a Snow Contingency Meeting with airlines, their ground handlers, NATS and the AOC to plan an effective response & contingencies
5	5A	Dynamically maintain anti-icing / de-icing media at levels that are driven by the forecast weather, expected rate of use, reliability of supply, and other factors
	5B	Dynamically maintain emergency supplies at levels that are driven by the forecast weather, expected rate of use, reliability of supply, and other factors
6	6	Adapt BAA's approach to emergency planning response & recovery to better align with best practice
	6A	Simplify BAA's Crisis Management process to the standard three tier process, used by central, regional and local government and the emergency services across the UK
	6B	Train BAA staff and stakeholders in the new structure and the different roles they play in it
	6C	Automatically invite key stakeholders (e.g. airlines, Met Police etc.) at the appropriate level as members of the new "Gold" "Silver" and "Bronze" crisis teams
	6D	Wherever practical, and where time permits, make decisions critical to airport status (e.g. flow rate restrictions) in consultation with key Heathrow stakeholders
	6E	Automatically include in the "Silver" command team BAA representatives from Communications and IT and a representative dedicated to Passenger Welfare
	6F	Use an advanced web-based Incident Management System for all crisis teams to record decisions, events and communicate with other teams
	6G	Make sufficient resources available to support the crisis management process
	6H	Establish a formal, disciplined communications structure with clear interfaces between BAA, airlines, NATS and other appropriate parties
	6I	Make the BAA Crisis Management Process the responsibility of the CEO, to be reviewed at least annually with the Board
	6J	Test all the above processes regularly with relevant stakeholders
7	7	Define triggers for escalation that are clear and ensure early deployment of the higher level command and control structures. Any forecast snow event of a material size should automatically trigger:
	7A	The implementation of the snow contingency process, including holding a snow contingency meeting, the mobilisation of the "snow cell" with BAA, airlines and their ground handlers, NATS and ACL representation. The snow cell, once activated should remain fully operational and functional until the event is over and operations have normalised. The snow cell should not be deactivated without a closing debriefing with stakeholders
	7B	The notification of non-operational staff and contractors that may be called up (subject to prior contractual agreement)
	7C	The invocation of the Bronze, Silver or Gold Command depending on the nature and expected severity of the event
	7D	The mobilisation of the Capacity Constraints Group as soon as it is clear that Heathrow is expected to have an extended period of constrained capacity (see below)

Recommendation	Rec. part	Heathrow action
7 (continued)	7E	The planned and rehearsed terminal congestion response (referred to later), including the early erection of marquees, and the procurement of heating, hot food, water, phone chargers, and computers for rebooking
	7F	Accelerated clearance (with prior DfT agreement) of access rights for any staff or contractors expected to work airside
	7G	A constant review of the level of escalation by the "Gold Commander"
8	8	Strengthen the Capacity Constraints Group (CCG) and formally recognise as the preferred mechanism for establishing an emergency timetable in times of crisis
	8A	Form the CCG as soon as it is clear that Heathrow is expected to have an extended period of constrained capacity and that its authority to maintain an emergency timetable be recognised explicitly in the Conditions of Use. As part of an airline's Condition of Use, include an obligation to operate under the agreed emergency timetable and implement this through its own operational systems so that passengers get a consistent status.
	8B	Charge the CCG with restoring flow rate to the airport as quickly as possible given the current status of the airport and the need to operate safely
	8C	Chair the CCG with a dedicated BAA official who should be designated as the lead to drive joint decision-making with NATS, airlines, the AOC and ACL
9	9A	BAA and airlines should take steps to ensure that every crisis response team has sufficient on-call dedicated resources rostered to enable it to function 24 x 7 for a sustained period.
	9B	Ensure staff are trained and competent, and have the necessary leadership skills, to do that role in the event of a crisis
10	10	Review the process through which airport status changes and capacity constraint agreements are converted into updated airline flight schedules, and subsequently published on the websites of airlines and BAA, and on terminal flight information display screens
	10A	Establish a clear agreement between BAA and the airlines serving Heathrow on the manner in which decisions concerning flight status will be taken and communicated to passengers, media, governments and the public at large
	10B	Ensure BAA has the authority to control flight information in terminals during emergencies for a single authoritative source of information
	10C	Encourage airlines to increase their website and rebooking capacity at times of disruption
	10D	Work with airlines and NATS to improve the clarity and accuracy of global media communications
11	11A	Establish a physical control centre for the management of major incidents (at "Silver" level), where parties can convene to combine situational awareness with face-to-face communications.
	11B	Give immediate consideration to co-locating the CST and STAR rooms;
	11C	Centralise HAL's communication infrastructure under one unified Airport Communication and Control Centre that utilises advanced technology to optimise situational awareness, facilitate informed decision-making, and enhance communication with key stakeholders
	11D	Ensure technology includes real-time video displays of the airfield (including aircraft and vehicle locations), terminals and landside areas. Hardware technology should be supported with software analytics, including advanced incident management systems to facilitate improved communications. logging and better problem resolution and to normalise operations as soon as possible
	11E	Establish an improved control centre for the Bronze Airside LBRT that provides improved CCTV, stand status reporting, and weather telemetry
12	12A	Plan for new systems that use real-time digital CCTV and telemetry to create a real-time and integrated visualisation of airport status and a forward picture of airfield performance
	12B	Make available the status of the airfield, terminal and landside areas to key BAA and stakeholder executives through a secure, web-based system that can be readily accessed from remote global locations
	12C	Make available a real-time incident management system to all stakeholders that tracks and supports decision making
13	13A	Based on the CAA Inquiry, establish how responsibilities under EC Regulation 261/2004 will be enforced and what rights and obligations are placed on an airport in the event of relevant parties failing to comply with those responsibilities
	13B	Together with airlines and the CAA, seek to strengthen the current informal agreement to ensure that passengers do not experience distress at times of emergency and that the respective roles and responsibilities of all parties are clear
14	14	Together with airlines and retailers, prepare and routinely test a sustainable welfare plan that can be triggered immediately in the event of an emergency. Engage all airlines in this plan and commit to working together in order to have adequate resources on site. The plan needs to:
	14A	Ensure that sufficient persons from BAA, airlines and their agents, and retailers are available at Heathrow to support welfare and hotel booking, manage congestion and support rebooking
	14B	Mobilise BAA staff to the terminal for which they have been trained
	14C	Mobilise resources and supplies to retail outlets and provide extra resources to maintain hygiene facilities
	14D	Provide systems which give all staff timely, accurate and authoritative information on flight and airport status
	14E	Enable easy and clear communications to passengers in terminals on airport status
	14F	Allow passenger communications in a number of languages
	14G	Terminal messages need to be coordinated with airline stakeholders to ensure consistency and clarity



*Over £11million has been spent on new vehicles during 2011*

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