SHORT (& MEDIUM) TERM MEASURES - EXECUTIVE SUMMARY

MEASURE SET	**Slot scheduling reform**			
MEASURE TITLE	Demand management			
MEASURE SUMMARY	This measure is aimed at improving demand management through improved strategic and tactical/operational slot management.			
MEASURE INVOLVES	☒	Behavioural Change	☐	Infrastructure Change
	☐	Operational Change	☒	Regulatory Change
	☐	Technical Change	☒	Policy Change

WHAT DOES THIS ADDRESS?

In terms of slot allocation, there are three tiers of airport:

- coordinated airports which means any airport where, in order to land or take off, it is necessary for an air carrier or any other aircraft operator to have been allocated a slot by a coordinator
- the schedules facilitated airport which means an airport where there is potential for congestion at some periods of the day, week or year which is amenable to resolution by voluntary cooperation between air carriers and where a schedules facilitator has been appointed to facilitate operations
- other airports which do not suffer congestion and do not require slot coordination or facilitation.

Slot allocation is relevant to slot coordinated airports, which in the UK are: Heathrow, Gatwick, Stansted, Manchester and London City. Slots are allocated as slot series (e.g. for a departure at 14:05 on every Wednesday) twice-yearly on a seasonal basis (summer and winter) airport-by-airport individually based mainly on:

- the airport's hourly capacity declaration (based on the physical capacity of the terminals, parking stands, taxiways, runways and nearby airspace)
- the annual capacity cap where this exists
- other planning and operational constraints (such as night movement quotas, curfews, etc).

Capacity declaration and subsequent slot allocation are done at the individual airport level and do not take network and airspace effects into consideration. Capacity declaration is usually based on maximising the airport's utilisation in when demand is high up to an allowable average level of delay per flight.

Once allocated, slots are subject to so-called grandfather rights, whereby as long as the operator uses more than 80% of the slots during a season, it has the right to retain the slots in the next-like season (e.g. from summer-to-summer). The schedule is compiled by the airlines operating at the airport depending on their allocated slots. The schedule is fixed over the season and does not vary to take into account operational specifics (e.g. weather) when they vary. In some cases, operators choose not to use their slots for periods of the season (whilst making sure that they use 80% of the allocation to retain the grandfather rights); therefore even if all slots are allocated the airport is not operating to its capacity. In this case, the slot coordinator (Airport Coordination Ltd in the UK) may allocate a one-off or ad-hoc slot to offset an unused slot as long as the overall allocation is not above the hourly capacity declaration.

WHAT WOULD BE DONE?

This measure would potentially allow the variation of the planning caps considering: (i) the lowering of the cap which would reduce the number of slots available (slots would probably only reduce slowly over time as it would be difficult to forces airlines to relinquish slots to which they have grandfather rights); (ii) increasing the caps to remove planning constraints on capacity and allow the airports to schedule nearer to their physical capacity; or (iii) leave the caps at their present values.

The capacity declaration process would be modified to distribute slots more appropriately to the demand profile (e.g. more early morning slots); to include resilience as well as capacity as a parameter to consider in the capacity declaration; and to take a system-wide approach. The third component of the measure would be to produce a tactical schedule, based on the seasonal schedule, on the day before operations to take into account specific operational conditions and to ensure that, as far as possible, aircraft operate in sequence to facilitate operations.

MEASURE SET:	Slot-scheduling reform	Short Term	☒
MEASURE TITLE:	Demand management	Medium Term	☐

WHAT IS THE IMPACT?
The impact would likely be: • More efficient, achievable schedules • Higher resilience • Reduced delays, improved punctuality • Lower levels of congestion.

MEASURE SUMMARY

Proposed by:	ABTA, BA ,Gatwick Airport, HACAN, Heathrow Airport, Individuals, LACC/AOC, London First, NATS, South East LEP	
Proposal: SSR-DMA-1 SSR-DMA-2 SSR-DMA-3	This measure is aimed at improving demand management through improved strategic and tactical/operational slot management by: • modification of the airport movement caps • optimisation of the capacity declaration process • operation of an optimised, daily service plan. Both of the latter two proposals are achievable in the short-term. Modification of movement caps would require changes agreed through the planning process – dependent on the time taken for these changes, modification of the caps could also be achieved in the short-term.	
Approach	The approach for each of the proposals is as follows: • three alternatives are proposed for the movement caps: (i) retain the current caps; (ii) relax the current caps to allow more movements to be scheduled; or (iii) constrain the caps, i.e. reduce the number of available slots, at a proportion of the declared capacity to ensure headroom for resilience purposes • modification of the capacity declaration process include: (i) redistribution of slots to: either (a) facilitate more movements early in the morning; and/or (b) produce an optimised schedule for capacity and resilience; and (ii) apply a system-wide approach considering multiple airports within the London airport system as well as airspace • operation to an optimised daily service plan to produce, ensure compliance with and deliver an optimal on-the-day arrival and departure schedule based on accurate predictions of runway throughput rates.	Stated Capital Cost: Not stated Capacity (mppa): Not stated Capacity (atm): Not stated
Benefits	The likely benefits of improved demand management where capacity increases are used within the current movement caps: (i) to enable realignment of the schedule to demand patterns (e.g. more early morning movements); and (ii) provide additional resilience through increase headroom are: • capability to provide additional services and connectivity at valuable, peak times • reduced delays and increased punctuality, both at airports and within congested (London) airspace • better mitigation against and recovery from disruption.	
Issues & Risks	Given the opposition of Heathrow and its main airline to increases in the movement cap at the airport and the lengthy planning and consultation processes associated with any increase, any increase in the short-/medium-term would appear to be difficult. Similarly, given the value of slots at the airport, it is also unlikely that the cap could be reduced. As Gatwick is not yet operating at its cap (246k annual movements compared to 260k cap (to be verified), it is unlikely that Gatwick's cap would be considered for increase. Increase in the number of movements in the early morning period when the majority of London airports are capacity constrained would require either operational improvements to increase capacity and/or earlier opening of the airports. This would also likely increase the risk of disruption, e.g. from low visibility, by stretching the system to its limits with potential knock-on effects throughout the day. It is unlikely that there will be any significant change to the Slot Regulation in the short- to medium-term, therefore changes to the scheduling process would need to be made within the framework of the current Slot Regulation. Optimisation of the schedule, for example to remove the risk associated with change of aircraft gauge and routing bias, both of which can impinge on aircraft spacing and hence capacity, would require greater control on slot use. This would restrict the flexibility that airlines currently have to react flexibly within the scheduling season to commercial prerogatives. This is likely, therefore, to meet resistance from stakeholders in the airports' Coordination Committees, which would be responsible for approving local rules/guidelines to enable this measure. The normal approach to optimising the schedule for resilience is to include so-called firebreaks where slots are allocated below the declared capacity for limited periods of time. The philosophy is that the additional capacity headroom that these firebreaks provide can be used for	

	recovery after disruption. These firebreaks generally exist in the schedules of airports that are not totally full, i.e. everywhere except Heathrow, and are not possible at Heathrow without additional capacity or reduced demand to provide headroom. Resilience can also be achieved through reduction/control of the hourly declared capacity below physical constraints. Although grandfather rights and existing slots can be preserved, this can be used to control demand when slots are handed back and also ensure that capacity is not topped up with short-term demand through the allocation of ad hoc or tactical slots. Application of a system-wide approach to capacity declaration would require consolidation of the capacity declaration processes at the slot coordinated London airports (and possibly others) and would require some change of governance to balance capacity declaration to the system's benefit rather than that of the individual airports. This was achieved as a special event during the London 2012 Olympics.
Mitigations	Potential mitigations against additional early morning noise.
Dependencies	Changing the schedule to enable more early arrivals would require additional capacity at that time in the morning. This is therefore dependent on either operational improvements that enable additional arrivals capacity or earlier opening of the airport. Similarly, an increase in the early morning departure schedule would require operational improvements or earlier opening for departures. Changes to optimise the schedule, either for capacity or resilience, would likely require some form of local guideline/rule approved by the airport's scheduling committee. Operational of an optimised daily service plan has a number of dependencies: • advanced A-CDM tools to generate the plan on the previous day • alignment of airline behaviours to comply with the plan, particularly relating to on-time arrival performance • similarly, alignment of airport air traffic control behaviour at origin airports to ensure flights depart as close as possible to their planned departure time, augmented by narrowing of flow control windows to control take-off times as closely as possible • alignment of en route air traffic control behaviours so that inbound flights adhere to their planned trajectories.

ASSESSMENT SUMMARY	
Strategic Fit	Not stated
Economy	Potential positive impact of additional early morning movements when demand is high and connectivity is of high value. Cost savings due to reduced delay/improved punctuality and better recovery from disruption derived from enhanced resilience.
Surface Transport	Potential increase in early morning demand.
Environment	Temporal redistribution of noise if more early morning movements are enabled. Reduction in GHG emissions and improvement in LAQ arising from improved resilience enabled through use of additional capacity as resilience headroom.

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People	Likely improvement of the passenger experience due to enhanced resilience arising from optimised scheduling. This is likely both in terms of recovery from disruption and reduced delay/improved punctuality. May be increased noise intensity in the early morning if schedules are modified to allow more early morning movements. Within current caps, there would likely be decreased noise at other times of day as the schedule is redistributed.
Cost	Not yet known
Operational Viability	Both the airport and the main airline propose to retain the current movement cap at Heathrow. Given the planning and consultation processes that would be required for relaxation of the cap and the reluctance of any airline to relinquish any slots at Heathrow, given their value, it is unlikely that any option other than retention of the current cap is viable at Heathrow in the short-/medium-term. Increase of the early morning schedule at the majority of the London airports, when they are runway capacity constrained, would require operational performance improvements and/or earlier opening of the airports. Any changes to the scheduling process would likely need to be made within the framework of the current Slot Regulation and would, therefore, likely rely on local rules/guidelines approved by the airports' Coordination Committees and requiring buy-in from the stakeholders.
Delivery	Delivery is dependent on several institutional enablers: • planning procedures to change capacity caps • agreements by airport Coordination Committees to changes in philosophy of slot allocation and to agree to system-wide capacity declaration and tactical scheduling