Airports Commission Senior Delivery Group

Delivery Report #1

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Heathrow BRITISH AIRWAYS Gatwick easyJet NATS Civil Aviation Authority MINISTRY OF DEFENCE Department for Transport

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Foreword

The Government set up the Airports Commission to examine the need for additional UK airport capacity and to recommend how this can be met in the short, medium and long term. The Airports Commission published an interim report in December 2013 that includes recommendations to improve the use of existing runways and airspace in south-east England as part of an 'optimisation strategy'.

The Secretary of State for Transport asked the Civil Aviation Authority (CAA) to lead a Senior Delivery Group (SDG) of board level representatives from key industry players to develop and drive forward the optimisation strategy. The SDG agreed its terms of reference at the first meeting in March 2014. The second meeting in May 2014 concentrated on the measures included in the optimisation strategy and the activities needed to deliver them.

There is a strong consensus among SDG members that a set of short and medium term optimisation measures should be progressed as a priority because of their potential to improve the operational efficiency of the airspace system, and at the same time offer benefits to local communities. The optimisation strategy will be shaped by economic, political, environmental, regulatory, and technical considerations. It's the SDG's ambition to work within the bounds of these considerations to maximise the performance improvements that can be delivered in the next 2 to 5 years, in advance of any decision on a long term solution for additional capacity, which is a matter still being examined by the Airports Commission.

The SDG is overseeing the delivery of an ambitious set of measures concentrating on improvements to the airspace system. The current system was developed over forty years ago. Since then, the demand for aviation has increased one hundred fold.

The technologies now common in modern aircraft, airport operations and air traffic management create the potential to optimise the system. The measures overseen by the SDG are the cornerstone of the UK's Future Airspace Strategy (FAS), which is about the need to coordinate the implementation of new technologies and operating procedures across the UK. The SDG's optimisation strategy features three sets of measures:

1. Operating to schedule
2. Tactical responses to traffic overloads
3. Investments in the route infrastructure

The SDG will oversee the deployment of the measures and initiate work to track the benefits and community impacts in order to strike the balance between operational and environmental improvements.

I'd like to take this opportunity to thank my fellow group members for their commitment to this important initiative. As Chair of the SDG, I'm encouraged by the start we have made and the scope of the optimisation strategy described in our first delivery report. Successful deployment of the optimisation strategy will require significant industry collaboration and Government support to tackle the challenges that have prevented changes being made in the past.

I look forward to setting out the progress made by the time our second report is published at the end of 2014.

Andrew Haines, Chair of the Airports Commission Senior Delivery Group.

1. Membership and function of the Senior Delivery Group

The SDG is made up of leaders from the key organisations involved in optimising current runway and airspace capacity in south-east England. Although the membership of the SDG may evolve, for the first phase of delivery it is envisaged that a small group of key stakeholders will be able to prioritise activities and resolve issues most effectively. At its inception the SDG is comprised of:

- Andrew Haines (Chair) – Chief Executive, Civil Aviation Authority
- Mark Swan – Director of Safety and Airspace Regulation, Civil Aviation Authority
- Patricia Hayes – Director General Civil Aviation, Department for Transport
- Martin Rolfe – Managing Director Operations, NATS En-route Limited
- Normand Boivin – Chief Operating Officer, Heathrow Airport Limited (HAL)
- Stewart Wingate – Chief Executive, Gatwick Airport Limited (GAL)
- Gary Copeland – Managing Director Operations, British Airways (IAG)
- Warwick Brady – Chief Operations Officer, easyJet
- Air Vice Marshall Edward Stringer – Assistant Chief of the Air Staff, MoD

The SDG's primary function is to bring executive level, cross-industry oversight to the delivery of optimisation measures. Where implementation plans are in place the SDG's function will be to establish that the plans are expeditious, key milestones are on track and the risks to delivery are effectively managed. Where measures are conceptual or under definition, the SDG's function will be to initiate the activity needed to bring viable plans to the point of deployment as quickly as possible. In both cases the SDG will encourage the gathering of evidence to help strike the right balance between operational benefits and the impact on local communities affected by aircraft noise.

The SDG recognises that it must work within the established framework for any consultation, validation and approval activities required to implement the measures within its scope. Many of the measures will require regulatory approval prior to implementation to ensure they are deployed safely and efficiently. Some measures will undoubtedly require the need to secure Government approval if they represent a significant change to existing operational characteristics. The SDG will also help to inform the Government on the likely impact that each package of measures could have on capacity optimisation and aircraft noise, in addition to other evidence, including that arising from broader engagement or consultation. Such decisions will be made in the context of the final Airports Commission Recommendations due in the summer of 2015.

The SDG will meet four times a year to agree the measures to take forward, resolve issues and allocate actions accordingly. Progress against key milestones for each measure will be tracked at the meetings. The SDG's secretariat, provided by the CAA, will work with the group's members and external stakeholders, including the existing FAS deployment groups, to drive delivery.

In addition to the creation of the SDG, the CAA will continue to play a leading role in the wider Future Airspace Strategy through the FAS Deployment Steering Group (FAS-DSG). NATS co-chair the FAS-DSG alongside the CAA. The group is supported by a range of industry led working-groups and the FAS Policy and Regulatory Programme Board. The FAS-DSG will report to the SDG every three months on the progress of the FAS projects of relevance to the optimisation strategy.

2. Measures in scope

The optimisation measures considered by the SDG are based on the recommendations included in the Commission's interim report. The SDG has assessed the recommendations based on their potential to deliver benefits and their impact on local communities affected by aircraft noise. A prioritised set of measures have been grouped into three packages that form the initial scope of the SDG's optimisation strategy and delivery plan. The packages are:

1. Operating to schedule
2. Tactical responses to traffic overloads
3. Investments in the route infrastructure

The focus of each package and the measures included are described below and the impacts are considered further in section 3.

2.1 Operating to schedule

Under this package the SDG will consider the deployment of measures to smooth the flow of traffic and improve punctuality. Heathrow and Gatwick operate at close to maximum capacity and are often subject to congestion, which results in delays. In today's system queues are managed on a first come, first served basis, increasing the impact of delays and limiting the airports' ability to operate to schedule.

The SDG will drive the introduction of electronic support tools and new operating procedures to better sequence the flow of traffic, presenting flights in an optimal order for take-off and landing. The measures are expected to reduce the impact of congestion and require airlines to evolve their operations to accommodate new ways of working.

The measures in scope under package #1 are:

a. **Airport Collaborative Decision Making** systems to link up information about the aircraft turnaround phase and optimise runway capacity.
b. **Real-time Departure Planning Information** to optimise airspace capacity.
c. **Queue Management** systems to sequence inbound and outbound traffic flows.
d. **Time-Based Separations** to maintain arrival rates in strong headwinds.

2.2 Tactical responses to traffic overloads

Under this package the SDG will consider the impacts of introducing more flexible, temporary measures to reduce the severity of delays as they build up. Tactical measures are relatively quick to initiate but have limited potential to improve performance in the long term. Over the medium-term some measures included in package #1 – operating to schedule - may be deployed to resolve the same issues in a more comprehensive way. As part of package #2, the SDG will consider the Airports Commission's recommendation to increase the flexibility of triggers for Tactically Enhanced Arrival Measures (TEAM) at Heathrow. TEAM refers to operating arrivals on the designated departure runway tactically to manage surges in demand and the build-up of delays. Any decision on TEAM will be taken alongside the Commission's final report in 2015.

2.3 Investments in the route infrastructure

Under this package the SDG will monitor the implementation of new arrival and departure routes for Heathrow and Gatwick, designed to Performance-Based Navigation (PBN) standards. The current route structure is not effective at separating arrival and departure flows onto dedicated routes for the individual airports. Managing the interaction between traffic flows increases the workload on pilots and controllers, interrupts continuous climbs and reduces airspace capacity.

The NATS led London Airspace Management Programme (LAMP) has been established to deliver a more efficient PBN route structure for south-east England. PBN routes rely on satellite positioning rather than ground based navigation aids. In live trials, completed as part of the FAS programme, PBN routes have proven significantly more precise and flexible than the current conventional procedures.

At Heathrow, Gatwick and Stansted the Secretary of State for Transport has designated Noise Preferential Routes (NPRs) to minimise the noise disturbance from being overflown. It has been the custom since the 1990s to add a 1.5 km swathe of airspace either side of these NPRs to provide a mechanism to assess the track keeping of aircraft using the NPR. This resulted in a swathe of airspace 3 km wide where residents underneath it can expect to experience aircraft disturbance.

The implementation of a new route structure will require many of the established NPRs to be re-aligned for operational and environmental benefits. Improvements in track keeping from the introduction of PBN will also allow the width of the NPRs swathes to be reduced and the CAA are carrying out research to develop the evidence base for this. The implementation of PBN may also enable airport operators to create opportunities to offer noise respite for residents living under flight paths.

The measures in scope under package #3 are:

e. **PBN Departure Trials** to assess route spacing, runway throughput and noise respite opportunities.

f. **A PBN Arrivals Trial** to test the feasibility of advanced arrival concepts.

g. **The development of the LAMP Phase 1** systemised PBN route network.

h. **Raising the UK Transition Altitude to 18,000ft** to create significant additional airspace capacity in the London terminal area.

i. **The design and development of the LAMP Phase 2** systemised PBN route network.

3. Benefits, timelines and community impacts

This section summarises the expected benefits, delivery timelines and community impacts of implementing each measure. Benefits are comprised of industry cost efficiencies, passenger benefits, safety enhancements and reductions in aviation CO_2. Monetary figures represent the annual net present value once the measures are fully deployed and are based on assumptions developed by industry stakeholders engaged in the FAS programme.

The delivery timelines are grouped into short-term (years 1 and 2) medium-term (years 2 and 3) and long-term (years 3, 4 and 5), and are based on the current business plans of the key organisations involved. The optimisation measures are expected to reduce the overall impact of aircraft noise.

Chart 1 places each measure on a matrix that compares the relative benefits against the timelines for delivery. The chart illustrates the potential for the optimisation strategy to deliver significant benefits in the short and medium term (as highlighted by box 1 and the measures titled in green). Lower impact/higher benefit measures typically form part of package #1 – operating to schedule.

The chart also sets out some of the key enabling measures, such as PBN trials and raising the Transition Altitude, which the optimisation strategy is dependent on to succeed. A more detailed review of the measures is described in the sub-sections below – starting from the bottom left of the chart (short term, low community impact) to the top right (long term, high community impact).

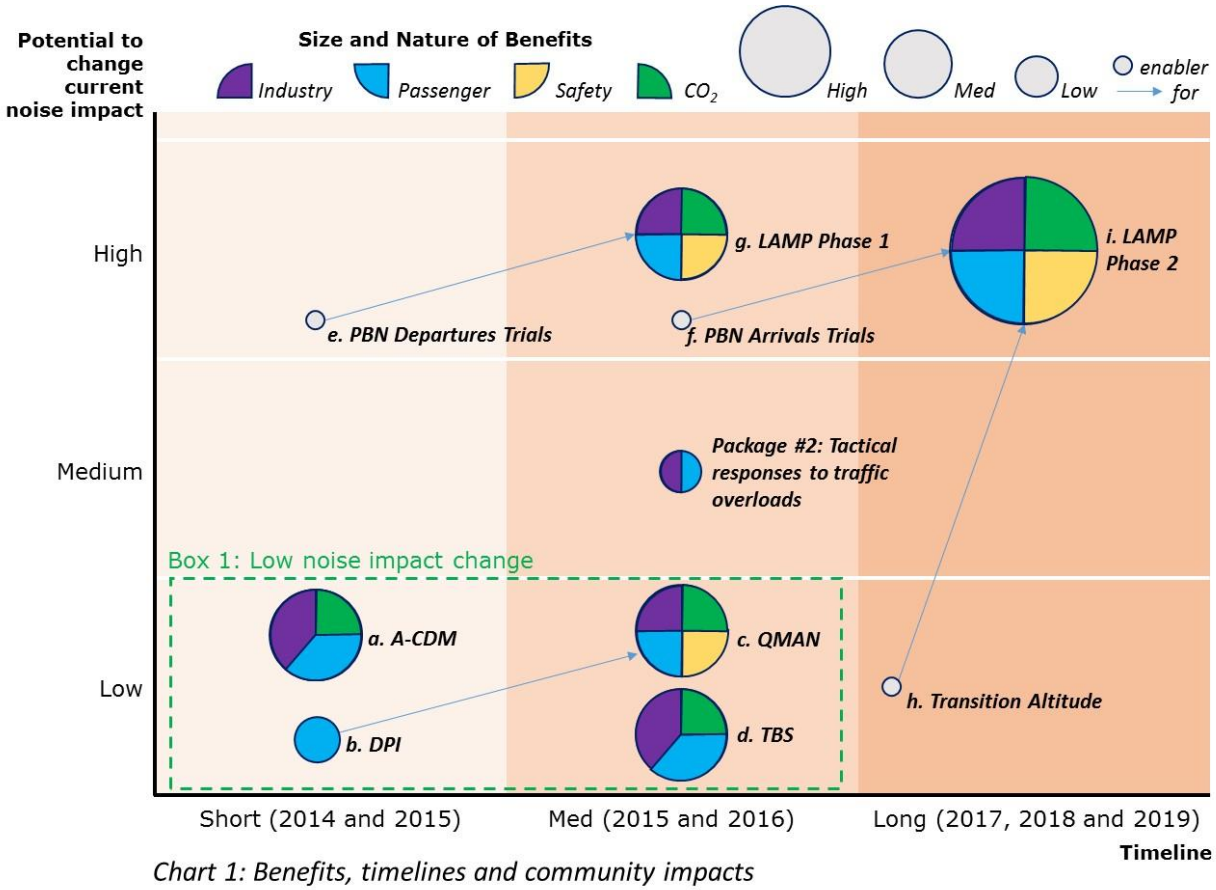

Chart 1: Benefits, timelines and community impacts

a. Airport Collaborative Decision Making systems (A-CDM): ***Short term, high benefit, low noise impact change***

A-CDM systems went live at Heathrow and Gatwick over the last 12 months to improve how the airports' manage runway demand. As a result performance is better during normal operations and the airports are quicker to recover from disruption.

A-CDM systems focus on sharing information about when each flight is ready to depart and their taxi time to the runway in order to create an optimised departure sequence. The systems improve the predictability of traffic demand meaning less capacity is wasted. Benefits are generated by an increase in runway utilisation rates and a reduction in ground delays.

The SDG will facilitate the adoption of A-CDM at the UK's largest airports as part of the optimisation strategy. Industry stakeholders estimate the full implementation of A-CDM at the UK's eight largest airports (in addition to Heathrow and Gatwick) will cost between £24m to £32m. By contrast the benefits are expected to exceed £28m per year by 2020.

b. Real Time Departure Planning Information (DPI): ***Short term low benefit/critical enabler for QMAN, low noise impact change***

The deployment of DPI functionality at UK airports will improve the ability of en-route controllers to manage airspace capacity, reducing wastage in the same way as A-CDM on the ground. DPI can form part of an integrated A-CDM system, but is quick and inexpensive to implement separately.

DPI functionality allows airports to send en-route controllers information about when each flight plans to take-off and their expected departure routes. The information increases the accuracy of traffic flow forecasts that are used by controllers to optimise network performance and stream arrivals (see Queue Management).

The SDG are supporting early implementation of DPI functionality and welcome the funding provided by the Transport Systems Catapult – the Government's Transport Innovation Centre – to develop and deploy a solution. The Catapult has allocated £750,000 over FY14/15 and 15/16 to support implementation at up 30 UK airports including all airports with more than 30,000 movements, as recommended by the Airports Commission. Implementation began in May 2014 and DPI functionality is now live at Stansted and London City airports.

DPI is expected to generate benefits of c.£4m per year from the end of 2015. In addition, industry stakeholders have assessed that DPI could contribute a 10% reduction in airborne holding worth c.£2.2m per year by from 2015, by supporting Queue Management.

c. Queue Management (QMAN): ***Medium term, high benefits, low noise impact change***

Many flights inbound to London experience arrival delays due to limited runway capacity and an over-delivery of traffic. Arrival delays are managed through airborne holding, a practice that wastes fuel, delays passengers, and causes additional noise. NATS are leading the industry through the FAS programme to better stream inbound traffic, manage queues and reduce reliance on airborne holding.

In 2013, a trial by NATS demonstrated that the use of arrival management procedures can reduce average airborne holding by up to 25% through the absorption of delays more efficiently in the cruise phase. The trial procedures were made permanent in October 2013 and are expected to be worth more than £20m per year in fuel savings from 2015.

NATS plan to invest c.£14m over the next five years in their Queue Management capabilities at Heathrow and Gatwick. The investment is expected to reduce average airborne holding by a further 25% and optimise outbound traffic flows through the introduction of Departure Management.

d. Time-Based Separations (TBS): ***Medium term, high benefits, low noise impact change***

Strong winds are common at Heathrow and Gatwick and cause a significant reduction in runway utilisation rates. The ability to separate aircraft by time, rather than distance, can increase runway utilisation in strong wind conditions optimising performance. NATS is already well advanced in the implementation of this measure and a TBS solution will be deployed into London Terminal Control later this year. Operational deployment has been accelerated to 2015 at Heathrow. NATS is investigating acceleration of TBS for Gatwick which will require adaptation of the solution for a mixed mode environment. The delivery date has not yet been confirmed.

NATS estimates that approximately 200,000 minutes of delay per year are attributable to the effects of strong headwinds at Heathrow. The use of TBS could reduce the impact by c.50%. The benefits of TBS are forecast to ramp up between 2016 and 2018 when the solution is expected to become fully operational at Heathrow and Gatwick. NATS will report progress regularly to the SDG. If the project is a success the SDG will encourage other large UK airports to implement TBS solutions.

Package #2: Tactical responses to traffic overloads: ***Short term, low benefits, medium noise impact change***

Some temporary, tactical measures to manage traffic overloads are already available to Heathrow. The SDG will consider the impacts of adding more flexibility into the trigger system that is used to initiate tactical measures such as TEAM, but decisions on such items will be taken in 2015 in the context of the Airports Commission's final report. The decision making process for additional flexibility to use temporary tactical measures must also take into account the impact of related measures that focus on similar benefits such as Queue Management.

e. PBN Departure Trials: ***Short term, critical enabler for LAMP Phases 1 and 2***

PBN departure trials are a critical enabler for both phases of LAMP. NATS are already part way through a programme of trials to collect high quality PBN data that will be used to enhance the standards for route design. The trials will determine the extent to which PBN can generate additional airspace capacity by reducing separation standards, additional runway capacity by increasing throughput and opportunities for noise respite by increasing the predictability of departure routes.

The trials completed to date have generated the most comprehensive set of PBN performance data in the world. Additional data will be collected over the next 12 months to ensure the airspace design implemented by LAMP maximises the potential benefits.

f. A PBN Arrivals Trial: ***Medium term, critical enabler for LAMP Phase 2***

A PBN arrivals trial is under development to test the feasibility of advanced arrival concepts that will be implemented as part of LAMP Phase 2. The trial is scheduled for the second half of 2015 to de-conflict it with the implementation of Time Based Separation. It aims to prove that a systemised PBN arrival structure can deliver environmental improvements while maintaining high runway utilisation rates. The results should demonstrate the extent to which PBN arrival routes can improve noise respite for local communities. The trial will also test the noise benefits of steeper approach procedures (with a 3.2 degree descent).

g. LAMP Phase 1: ***Medium term, high benefits, high noise impact change***

The first stage of the Future Airspace Strategy, LAMP, is designed to create airspace capacity to meet forecast demand out to 2025 with no additional air traffic control costs or delays. It could increase fuel and environmental efficiency by introducing more continuous

climbs and descents and reducing track miles. The reduction in route complexity and wide spread use of PBN could enhance safety. LAMP Phase 1 is designed to implement new PBN arrival and departure routes at Gatwick, London City and Stansted, capitalising on the enhanced standards created by the PBN departure trials. Some aspects of the LAMP Phase 1 design will require approval from the Secretary of State after the final report from the Airports Commission.

h. Raising the Transition Altitude (TA): ***Medium term, critical enabler for LAMP.***

Raising the Transition Altitude (TA) in the UK (and ultimately across Europe) will improve the efficiency of the UK's airspace and is a critical enabler for the creation of a systemised PBN route network (to be implemented through the LAMP programme).

The TA is a common height at which all aircraft harmonise their altimeters for safety reasons. The current low TA, at 6000ft, limits airspace capacity. A significantly higher TA is needed for PBN airspace designs to fully realise their potential and has long been requested by pilots to remove the need to change altimeter settings during the busy departure phase.

Projects to re-design the airspace over London have been prevented in the past by the low 6,000ft TA, which limits the number of suitable levels to separate traffic on departure from adjacent airports, undermining the benefits of a PBN network and the goal of achieving optimised climb and descent profiles. Further altitude restrictions required to separate departures from arrivals add to the complexity in the terminal environment, impacting the ability to deploy Queue Management solutions to prevent bunching and delays.

A much higher TA level (e.g. 18,000ft) generates more opportunities to provide continuous climbs on the busiest routes. Other departures and arrivals, designed to fit in below, are still high enough to achieve optimal profiles, generating benefits across the operation and maximising the performance of modern aircraft.

Raising the TA is a large and complex project. Implementation is expected to take three years and encompasses a wide range of system changes, procedural updates and training affecting all UK airports and air traffic control organisations. The project is led by the CAA, closely supported by NATS, and is planned to complete in November 2017. A consultation with industry stakeholders about managing the transition to a higher TA across the UK will be completed in winter 2015.

i. LAMP Phase 2: ***Long term, high benefits, high noise impact change***

LAMP Phase 2 is designed to capitalise on the airspace capacity generated by a higher TA and the advanced route design standards created through PBN departure and arrival trials to establish a fundamentally more efficient route structure for Heathrow and its interaction with adjacent airports. As with LAMP Phase 1, some aspects of LAMP Phase 2 will require approval from the Secretary of State no earlier than 2017.

4. Delivery plan and interdependencies

This section summarises the SDG's current delivery plan to develop and deploy the measures described above. The delivery plan sets out the specific milestones that will be tracked in six monthly periods and the interdependencies. It also indicates the organisations accountable for delivery. Some of the measures being considered by the SDG are subject to regulatory oversight and/or Government approval.

Where this is the case, taking forward particular measures is likely to depend on appropriate consideration by the Regulator and the Government. Where relevant, the work of the SDG should not be taken as pre-empting these considerations.

Measure	**# Milestone** *(dependent on)*	***Owner(s)***
July to December 2014		
Airport CDM	1. Complete a study into the roll-out of A-CDM at the UK's largest airports in additional to Heathrow and Gatwick.	*FAS Airport Stakeholders*
Departure Planning Info.	2. Complete the development of a Departure Planning Information solution for UK airports.	*Transport Systems Catapult*
Queue Management	3. Complete the trials of cross-border arrival management to reduce airborne holding by an additional 25%.	*NATS (and European Partners)*
Time Based Separation	4. Complete the development of a Time Based Separation solution and introduce it into London Terminal Control for validation.	*NATS*
PBN trials (departures)	5. Complete the implementation of the core set of PBN departure trials at Heathrow and Gatwick.	*NATS, CAA, HAL and GAL*
PBN trials (arrivals)	6. Finalise the scope of the PBN arrivals trial at Heathrow.	*NATS, CAA and HAL*
January to June 2015		
Departure Planning Information	7. Full implementation of Departure Planning Information functionality at up to 30 UK airports, including all airports exceeding 30,000 traffic movements. *(2)*	*Transport Systems Catapult*
Time Based Separation	8. Complete implementation of Time Based Separation at Heathrow. *(4)*	*NATS and HAL*
PBN trials (departures)	9. Publish enhanced PBN route spacing and separation standards for the terminal environment based on the outcomes of the PBN departure trials. *(5)*	*CAA*
LAMP P1	10. Complete the Airspace Change Proposal for LAMP Phase 1 and submit for regulatory review and approval.	*NATS / Airports*

July to December 2015		
Airport-CDM	11. Target date to commence implementation of additional A-CDM systems at larger UK airports. *(1)*	*FAS Airport Stakeholders*
Queue Management	12. Complete implementation of cross-border arrival management for the London terminal area. *(3)*	*NATS (and European Partners)*
Tactical Responses	13. Review the timing and approach to increasing the flexibility of tactical measures to respond to traffic overloads.	*HAL and DfT*
PBN trials (arrivals)	14. Commence implementation of the PBN arrivals trial. *(6)*	*NATS, CAA and HAL*
LAMP P1	15. Consideration of the realignment of NPRs to enable the implementation of LAMP P1. *(10)*	*DfT*
LAMP P1	16. Commence implementation of LAMP P1 – dependent on agreement with airline lead operators. *(15, 10)*	*NATS / Airports*
Transition Altitude	17. Complete a consultation on the UK wide approach to raising the TA to 18,000ft.	*CAA*
January to June 2016		
Time Based Separation	18. Assess feasibility and options for acceleration of TBS for a mixed mode environment at Gatwick – date TBC. *(8, 4)*	*NATS and GAL*
LAMP P2	19. Complete LAMP P2 route design at a network level for public consultation. *(14, 9)*	*NATS / Airports*
July to December 2016		
Queue Management	20. Target date for the implementation of Departure Management at Heathrow and Gatwick.	*NATS, HAL and GAL*
LAMP P1	21. Complete implementation of LAMP P1. *(16)*	*NATS / Airports*
LAMP P2	22. Complete public consultation on LAMP P2. *(19)*	*NATS / Airports*
2017		
LAMP P2	23. Consideration of the realignment of NPRs to enable the implementation of LAMP P2. *(22, 19)*	*DfT*
Transition Altitude	24. Raise the UK Transition Altitude to 18,000ft. *(17)*	*CAA (with NATS support)*
2018		
LAMP P2	25. Commence implementation of LAMP P2. *(23, 22, 19)*	*NATS / Airports*
2019		
LAMP P2	26. Complete implementation of LAMP P2. *(25)*	*NATS / Airports*

Conclusion

The delivery plan set out in section 4 illustrates the high levels of interdependency across the optimisation strategy. The majority of the SDG's work will centre on considering the challenges associated with the development of a number of complex interrelated projects that require inputs from multiple stakeholder groups. The tables below summarise where the SDG expects key stakeholder groups to take the lead.

NATS
Trial PBN and advanced concepts like TBS
Re-design the route structure above 4000ft
Develop Queue Management capabilities

Airports
Deploy and integrate Airport-CDM systems
Implement PBN routes below 4000ft
Engage communities on local noise issues

Airlines
Quantify and communicate the overall benefits of optimisation measures
Identify and deploy schedule and punctuality improvements
Develop operations and train personnel to work with advanced concepts (A-CDM, PBN)

Regulator
Set new standards for advanced concepts like PBN and Time Based Separation
Validate and approve airspace change proposals
Raise the Transition Altitude to 18,000ft.

Government
Consider changes to the NPR structure at designated airports
Consider changes to the established night noise arrangements

Over the next six months the SDG will need to take steps to ensure the aviation industry is aligned to a common delivery timetable and technical scope. For example the implementation of A-CDM requires complimentary changes to the procedures and working practices of airlines, air traffic controllers and ground handling agents. Otherwise, uncoordinated implementation may lead to a net reduction in airport capacity during the transition to new ways of working.

Some measures like Time-Based Separation and are the product of recent research and development and have not been deployed operationally before. The SDG expect to provide close support in these areas to resolve unforeseen issues during their introduction. For example the safety case for deployment of TBS may prove complex, impacting the delivery timetable and / or benefits at Heathrow and Gatwick.

The SDG will have to manage issues associated with optimising an aviation industry with varying levels of technical capability. The implementation of PBN sets a new standard of navigational capability for the London terminal area. The optimisation strategy must maximise the performance of the airspace system for the majority of operators who are able to benefit, without being unduly limited by the need to accommodate a minority of stakeholders operating to a lower standard.

The CAA is expecting to mandate the adoption of a basic variant of PBN (known as RNAV1) for all aircraft operating on major arrival and departure routes in the London terminal area by November 2017 to establish a consistent minimum baseline for LAMP Phase 2.

Further work is needed over the next six months to explain the benefits of the optimisation strategy to different industry stakeholder groups and the general public. Some measures like DPI require stakeholders to invest in updating procedures and training personnel for limited local benefits, but significant network performance improvements.

The SDG expect to play an important role in coordinating the pace and focus of change to ensure sufficient resources and management attention are applied to areas with the greatest potential to optimise the use of existing runway and airspace capacity.

5. Glossary

A-CDM	Airport Collaborative Decision Making
CAA	Civil Aviation Authority
DFT	Department for Transport
DPI	Departure Planning Information
FAS	Future Airspace Strategy
FAS DSG	Future Airspace Strategy Deployment Steering Group
GAL	Gatwick Airport Limited
HAL	Heathrow Airport Limited
IAG	International Airlines Group
LAMP	London Airspace Management Programme
NPR	Noise Preferential Route
PBN	Performance Based Navigation
SOS	Secretary of State
TA	Transition Altitude
TBS	Time Based Separation
TEAM	Tactically Enhanced Arrival Measures
TSC	Transport Systems Catapult