

# HAL RBP UPDATE - REVIEW OF CAPEX CATEGORIES AND DELIVERY OBJECTIVES

June 2022

# Purpose of this Report

This report sets out recommendations to the Civil Aviation Authority (CAA) in relation to its work on capex incentives as part of the H7 price control review. As requested by the CAA we provide expert technical advice on:

## Capex categories

- In particular we assess HAL's proposed capex categories as set out in HAL's December 2021 Business Plan update (RBP Update 2) and have reviewed whether they are:
  - Compliant with the CAA definition (CAP 2265 and previous documents) and therefore if they are suitable for implementing ex ante incentives.
  - Compliant with the updated split of the HAL Asset Management Programme against CAA definition for capex categories and if they are suitable for CAA's proposed ex ante framework.
- We make recommendations to the CAA, to support in developing a list of capex categories for the Final Proposals.

## Delivery objectives

### We make recommendations to the CAA on:

- the delivery objectives proposed by HAL in RBP Update 2 for each capex category.
- developing a list of SMART delivery objectives (associated with the final list of capex categories we have proposed), for the Final Proposals.

## Arcadis makes the following recommendations to the CAA:

### 1. HAL capex programme compliance with CAA capex category definition

- Arcadis recommends to the CAA that HAL does have the appropriate level of controllability across the capex programmes included in the RBP Update 2 and capex categories have low levels of risk variability across all programmes excluding the Asset Management and Compliance Programme which is dealt with below.

### 2. Splitting of HAL Asset Management and Compliance Programme

- Further to the CAA's Initial Proposals, which were supported by Arcadis' analysis, HAL has made a counter-proposal to create an Asset Management and Compliance Programme with 10 sub-capex categories. Arcadis has assessed these against the CAA capex category definitions.
- Arcadis recommends that the CAA adopts HAL's proposed split of Asset Management and Compliance Programme into the 10 sub-capex categories and considers these as capex categories.

### 3. Suitability of capex categories for capex incentives in H7

- HAL does not support the introduction of ex ante incentives across its full proposed H7 capex programme treatment. HAL's opinion is that only some or parts of programmes are suitable for ex ante.
- Arcadis has assessed HAL's response to the CAA's IP and the information contained within the RBP Update 2.
- Arcadis maintains its recommendation to the CAA that all capex categories are suitable for ex ante capex incentives in H7.

## 4. Final Set of capex categories

- Arcadis has been able to re-affirm that the capex categories contained within the HAL RBP Update 2 (using the 10 sub-capex categories in the Asset Management and Compliance programme proposed by HAL) are compliant with the CAA definition.
- Arcadis recommends that all capex categories below are suitable for ex ante treatment.
- The full set of capex categories, based on HAL's proposed plan in the RBP Update 2, are:

<b>1. Asset Management &amp; Compliance</b>				
1.1 Baggage	1.2 Rail	1.3 Mechanical	1.4 Electrical	1.5 Controls
1.6 Civils	1.7 Airfield	1.8 Technology	1.9 Compliance	1.10 Commercial
<b>2. T2 Baggage</b>	<b>3. Regulated Security</b>	<b>4. Commercial Revenues</b>	<b>5. Efficient Airport</b>	<b>6. Carbon &amp; Sustainability</b>

- Arcadis understands that the final list of H7 capex categories included by the CAA in its final proposals will also be informed by CAA's own assessment of which capex initiatives should be undertaken in H7 (so could be a subset of the above, similar to the IPs).

## 5. Delivery objectives

- HAL has sought to develop delivery objectives as part of its RBP Update 2 however in almost all cases has not developed these in a format that could be considered as SMART.
- In the RBP Update 2, HAL proposes to use OBR/SQRB targets as part of delivery obligations for most capex categories, including the Asset Management sub-capex categories. In the Initial Proposals, the CAA indicated that it did not consider metrics from the OBR framework would be suitable as delivery objectives, as they are designed for a different purpose and capture elements of delivery beyond specific capex programmes.
- HAL will need to continue to develop its delivery objectives so that they are SMART and can form the basis of delivery obligations to be defined at the appropriate point within the Gateway cycle (currently proposed to be G3).

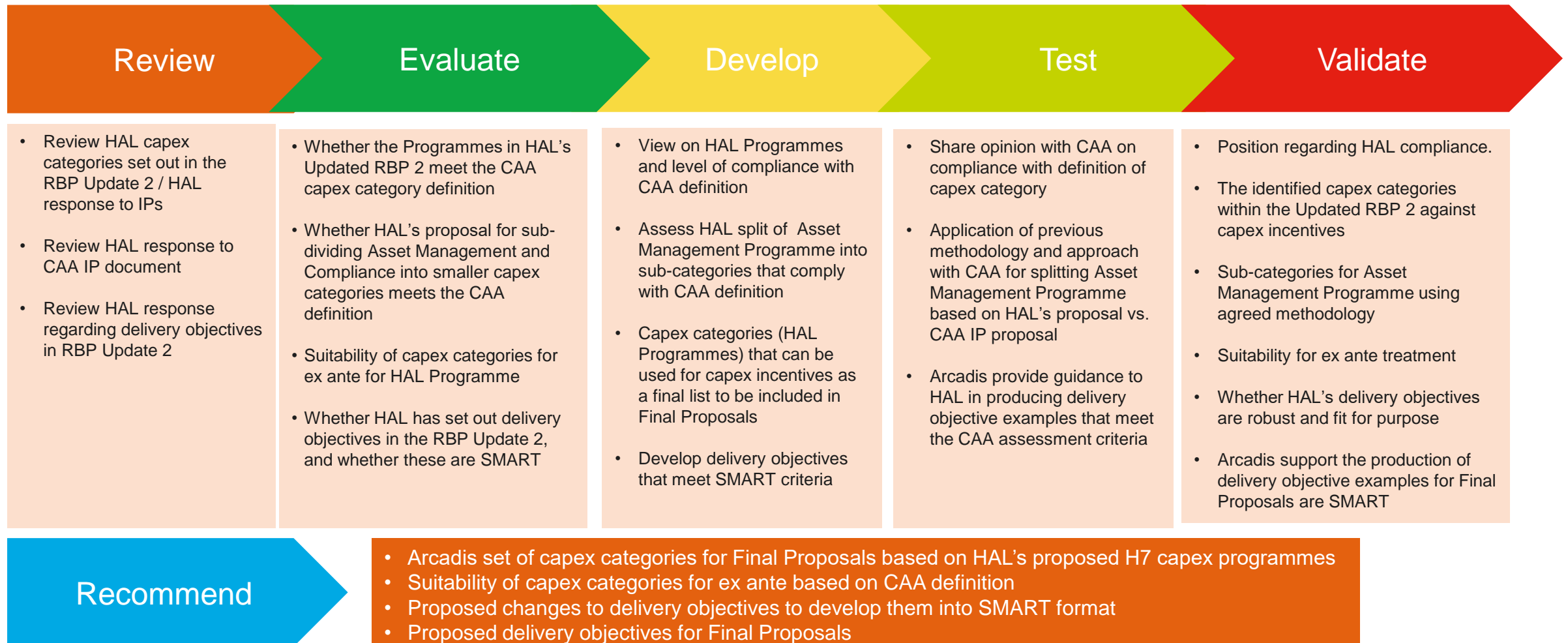
## 6. Example delivery objectives for Final Proposals

- Arcadis has undertaken workshops with HAL and airlines to discuss the delivery objectives included by HAL in the RBP Update 2 and how these could be enhanced to develop a set of SMART objectives that can be used for each programme.

# Our approach

Arcadis has developed and followed a methodology that has supported the delivery of the scope of this project. Our current scope has required us to review, examine, develop, test and validate our thinking in an agile and collaborative way with the CAA.

We understand that the introduction of a new regulatory regime for H7 is a developing process and we have sought to engage with the CAA throughout our work as we have progressed through our methodology and developed our thinking.



## Suitability of capex programmes for ex-ante capex incentives

Arcadis has reviewed HALs response to the CAA IP and its RBP Update 2 to:

- 1: Review and confirm the HAL Programmes (capex categories) comply with the CAA definition
- 2: Assess capex category suitability for ex ante treatment
- 3: Propose the full list of capex categories, based on HAL's proposed plan, which should be considered for the CAA's Final Proposals



# 1. Review HAL RBP Update 2 compliance with CAA capex category definition

HAL has developed its RBP Update 2 and within this document and response to IPs have made a number of statements / comments relating to the alignment of its programmes and capex categories and their suitability for ex ante treatment. Arcadis has reviewed these points.

## HAL RBP Update 2 / IP response comments (quotes)

## Arcadis View

The ability to appoint and retain the supply chain will not be as successful if a piecemeal approach is taken by the CAA to approving Cost Categories. (3.2.22)

Arcadis understands that it is not the CAA's intention to slow down the governance process or to impact on the procurement process in the supply chain. The setting of baselines and delivery objectives and ultimately delivery obligations will be between the airlines and HAL and not the CAA.

In contrast, the nature, scale, and complexity of our business means that capex projects, particularly large projects, are (i) one-off projects with little to no historic data or comparators to enable benchmarking, and (ii) subject to significant factors outside of our control. (9.4.7)

Arcadis do not agree with this statement as HAL (including their supply chain) has significant construction and delivery experience. This may have been the case for T5 and T2 but without major transformational projects the works within the capex programme proposed for H7 are not 'one-off' and most will have historical data (albeit maybe not at Heathrow) and do not have 'significant factors' outside of HAL's control.

The CAA's Initial Proposals present an incorrect view that it is appropriate to apply ex-ante incentives to the entire capex envelope, ignoring the complexity and nature of projects at Heathrow. (9.4.11)

Arcadis does not agree with this statement and further analysis follows in this pack (pages 20 – 25).

The complexity of projects at Heathrow has been considered as part of our analysis to inform IPs. All projects undertaken by HAL have some degree of complexity (and for some this is higher). The level of complexity within the project should be considered when HAL develop their planning, scheduling, contracts, risk mitigation and delivery plans

We ask the CAA to explain why it considers the Jacobs report was not balanced. (9.4.15)

This is for the CAA to respond however their view has been articulated previously in CAP2265

## 2. Review of criteria used to assess capex categories using the CAA defined criteria plus additional criteria developed by HAL (Jacobs)

The CAA's CAP 2139 document used two criteria to determine whether a programme proposed by HAL is suitable as a capex category. Arcadis' high-level view around these criteria is summarised below. In its response to CAP 2265, HAL put forward alternative criteria, developed by its consultants Jacobs.

- The two CAA criteria are:
  - **Controllability** – Arcadis has considered the level of control HAL has when developing and delivering a Programme or capex category. Arcadis has considered whether HAL has full operational control in the area it will be delivering the programme (within the airports red-line boundary) and also whether HAL is capable of implementing processes, procedures, reporting, checks, auditing and systems across a programme that are systematic and consistently applied.
  - **Risk Profile** – Arcadis acknowledges that programmes will not all have equivalent types of risk (Design, External, Environmental, Organisational, Project Management and construction); the key question is whether the overall level of risk is manageable. Arcadis has considered whether HAL can successfully manage risk using Risk identification, assessment, mitigation and monitoring. Arcadis' assessment of HAL's programmes seeks to identify whether there is a wide range of risks at a programme level that means that they cannot be grouped accordingly or considered for ex ante incentives.

In its response to the CAA IPs, HAL has considered the suitability of capex categories for ex ante incentives against a different set of criteria than used by CAA, namely: “controllable, repeatable and benchmarkable” For completeness, Arcadis has considered these criteria at a high level alongside the CAA definition criteria. We do not consider that the outcome of the assessment is a different one based on the HAL additional criteria.

## 2. Review of criteria used to assess capex categories using the CAA defined criteria plus additional criteria developed by HAL (Jacobs)

- The other criteria (Developed by Jacobs for HAL):
  - **Regular and repeatable** – Arcadis’ has considered whether HAL or their supply chain will have undertaken major elements of the proposed programme before and whether HAL has experience in delivering similar programmes at Heathrow in the past. HAL is an experienced infrastructure provider and has delivered complex and major projects. Arcadis has considered whether most projects within the portfolio (or elements of the projects) have been delivered at Heathrow in some form in the past.
  - **Efficient contracting** – Arcadis’ view is that HAL issues all the tier 1 contracts and has the ability to select and manage contracts efficiently. HAL agrees that they have a high level of control here across all programmes. This would also form a significant mitigation portion of any risk profile developed.
  - **Planned and sequenced** – Arcadis’ has considered whether HAL can fully develop and manage its work programmes across its campus in a live airport environment. We understand HAL’s view about external drivers that may impact on sequencing or futureproofing but consider that HAL should have the ability to develop solutions and plan these works.
  - **Programme complexity** – Working in a live airport environment always creates programme complexity and the level of interdependencies and operational challenge is always high. HAL has significant experience in delivering this type of complex project in the airport environment and Arcadis’ view is that HAL has the capability to manage these complexities, given the programmes proposed for H7.
  - **Clearly defined outputs** - Arcadis’ view is that the business case process used by HAL, and which forms an integral part of the governance and gateway process, requires HAL to set out clearly defined outputs and this is acknowledged by HAL in their response.

## HAL's response to the CAA Initial proposals included a review of the assessment Arcadis undertook of the capex categories included by HAL in its RBP Update 1

HAL has undertaken an appraisal of the work undertaken by Arcadis for the CAA in preparation for the Initial Proposals and they have indicated that they disagree with our conclusions.

Arcadis has assessed the response that HAL has developed and identified the points of agreement with our analysis and the points of disagreement.

Arcadis has responded to these points of disagreement at a programme level with the main focus being the two primary CAA criteria of Controllability and Risk.

# Definition Key

In this section, Arcadis has used a number of high-level descriptors for controllability, risk profile and compliance when assessing HALs responses to capex category compliance. The table below sets out descriptions in relation to these.

Controllability Level	Description
High	HAL has a high level of control over the programme and can develop and deliver this within the airport boundary and set the processes, procedures checks and systems to manage the programme itself.
Medium	HAL has a high degree of control but has some reliance on, or is dependent on, an external third party having some level of control or influence on the programme or some elements of the programme are outside of HAL's direct operational control.
Low	HAL has a low level of control and a third party has the majority influence and control over the programme and the processes and procedures used with major elements outside of HAL's operational control.
Risk Profile	Description
Similar	It will be possible for HAL at G3, to have a suitably developed programme that will have a risk profile that can be mitigated, planned and managed at the point of setting the capex incentive.
Differing	It will be more difficult for HAL at G3, to have a suitably developed programme that will have a risk profile that can be mitigated, planned and managed at the point of setting the capex incentive.
CAA Definition Compliance	Description
YES	Has fully met the CAA definition as set out in CAP 2265 and previous documents
PARTIAL	Has partly met the CAA definition as set out in CAP 2265 and previous documents with some elements needing some amendment to comply.
NO	Has not met the CAA definition as set out in CAP 2265 and previous documents and needs most elements to be amended to comply.

# Focused assessment around CAA Definition: Asset Management & Compliance Programme

Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
<p>Medium – Inherent risk on the unknown asset condition – surveys etc are carried out in advance but is not always possible to ascertain the exact situation until works commence.</p> <p>Consideration of working in operational environment and impact of variability of BAU operations on a daily basis.</p>	<p>The examples given by HAL are not elements of controllability but are closer aligned to risk considerations.</p> <p>Overall, HAL does have a high level of controllability based on our assessment using the considerations set out on page 9.</p> <p>As an example, if HAL were to undertake maintenance on a set of lifts, it has the ability to schedule and programme this work in consultation with its stakeholders to minimise operational impact and maximise project delivery as it has full control of the asset. HAL can develop a plan to take possession of the lifts for an agreed period of time and set out a maintenance replacement sequence to deliver the work in an agreed way that delivers the appropriate outcome and quality of maintenance in an agreed timescale.</p>	<p>Differing – as per the Arcadis assessment there will be differing risk profiles across the portfolio.</p>	<p>Agree with HAL assessment at a programme level. One of the reasons Arcadis proposed a split of this programme was due to the differing risk profiles across the programme which were not compliant with the CAA definition.</p>	<p>Yes – For many cases Yes. Certain specific projects will demonstrate the characteristics suitable for ex post – runway resurfacing being a prime example.</p>	<p>Arcadis does not support this view that the Asset Management and Compliance Programme as a whole is compliant as a capex category.</p> <p>This factor is why the recommendation was to split this programme into smaller sub-programmes where they could be considered compliant with the CAA definition for capex categories.</p>

## Focused assessment around CAA Definition: T2 Baggage

Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
<p>Medium – the major area of unknowns will be the works in the existing T1 estate, where issues such as asbestos could arise.</p> <p>Consideration of working in an operational environment and impact on variability of BAU operations on a daily basis. Need to work with multiple handlers and operating models/requirements is a key consideration in T2.</p>	<p>HAL has a relatively high level of control both in T1 (currently not occupied by airlines) and areas of T2 where most of the works are proposed.</p> <p>The example of asbestos is a risk rather than something HAL cannot plan for or even mitigate. It is understood by Arcadis that most of the asbestos risks in T1 have been identified (e.g. roof) and for those that remain, contingency can be included in the plan.</p> <p>Dealing in a live operational environment will create interdependencies and tension between the capital programme and the operation but these are well understood and HAL has the appropriate stakeholder environments already set up to deal with such matters.</p>	<p>Differing – work to maintain the existing building fabric will be very different to those required on the current controls system. And these will be very different to the installation of a new system in T2A.</p>	<p>As a single programme, it is possible for HAL to identify, mitigate, programme and monitor risk within the programme.</p> <p>The examples given do not change Arcadis' original view that the risk profile for this programme will be similar at the point the capex incentive is set (G3).</p>	<p>No – The complexity and risk of an aging estate and the need to maintain current operations during construction and commissioning lead to an assessment of more suitable for ex post.</p>	<p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL's view that this programme is not suitable as a capex category or for ex ante.</p>

## Focused assessment around CAA Definition: Regulated Security

Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
<p>Low – major focus is on meeting the requirements &amp; timelines in the Mandate. Hence limited ability to sequence for efficiency given this interface with ongoing operation.</p> <p>We remain exposed to DfT changing rules &amp; processes which could impact on infrastructure.</p> <p>Consideration of working in operational environment and impact of variability in BAU operations on a daily basis.</p>	<p>With the exception of the Mandate set by the DfT for the upgrade of security equipment which HAL has been aware of for some time, HAL has full control of both the Capital Programme and the operation.</p> <p>The likelihood of the DfT ‘changing rules and processes’ for Next Generation Security Checkpoint (NGSC) is low, [REDACTED], but this should be factored as a risk not as controllability.</p> <p>Arcadis does not support HAL’s conclusion that it cannot have a High level of controllability at G3</p>	<p>Differing – some elements such as machine purchasing are low. Other elements vary – there is a different infrastructure risk in an aging T3 compared to a relatively new T2. And other elements are unique and not yet clear – such as algorithms.</p>	<p>HAL has not taken a programmatic view of risk and has used specific examples. Each project may carry different risks but these will form part of a wider programme risk profile where a level of risk can be set.</p> <p>The examples given do not change Arcadis’ original view that the risk profile for this programme will be similar at the point the capex incentive is set (G3).</p>	<p>No – The deadlines, sequencing and novel elements across the whole estate in a passenger facing environment, lead to a highly risky programme. More suitable to ex post</p>	<p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL’s view that this programme is not suitable as a capex category or for ex ante.</p>



## Focused assessment around CAA Definition: Commercial Revenues

Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
<p>Medium – Sections are within Heathrow’s control. Other element have significant interface with external areas – such as cargo</p>	<p>HAL will develop a commercial revenue programme which will be on assets where HAL has significant control on the HAL estate.</p> <p>For example, HAL can undertake improvements in its car parks and develop its programme to minimise disruption and the operation.</p> <p>Where there is an interface, for example in property redevelopment, this does not mean that HAL does not have control at a programme level and issues around this type of stakeholder interaction such as decanting or relocating current tenants should be largely resolved or factored as an assumption or risk at G3.</p> <p>Arcadis does not support HAL’s conclusion that it cannot have a High level of controllability at G3</p>	<p>Differing – digital transformation will have a different risk profile and considerations than the property development.</p>	<p>HAL has used project specific examples rather than considering risk at a programme level.</p> <p>The examples given do not change Arcadis’ original view that the risk profile for this programme will be similar at the point the capex incentive is set (G3).</p>	<p>Partial – For many cases Yes. Certain specific projects will demonstrate the characteristics suitable for ex post – CTA redevelopment being a prime example.</p>	<p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL’s view that this programme is not suitable as a capex category or for ex ante.</p>

# Focused assessment around CAA Definition: Efficient Airport

Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
<p>Low – some elements will be developed by Heathrow. In other areas the programme will respond to airline and other requests – such as automation of the passenger, airfield and baggage processes.</p> <p>Consideration of working in operational environment and impact of variability of BAU operations on a daily basis.</p>	<p>HAL will again be working within its own estate where it has control over the areas it will be delivering this programme.</p> <p>The development of ‘requests’ may happen within the programme but this will likely occur before G3 and HAL can control these as part of the programme.</p> <p>Arcadis does not support HAL’s conclusion that it cannot have a High level of controllability at G3.</p>	<p>Differing – some elements may have high risk as first of type automation deployments.</p>	<p>HAL has not taken a programmatic view of risk and has used specific examples. Each project may carry different risks but these will form part of a wider programme risk profile where a level of risk can be set.</p> <p>Arcadis’ original view is that the risk profile for this programme will be similar at the point the capex incentive is set (G3).</p>	<p>Partial – For some cases Yes. Once elements of automation are understand and tested, trialled, they could be rolled out in a repeatable manner.</p>	<p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL’s view that this programme is not suitable as a capex category or for ex ante.</p>

# Focused assessment around CAA Definition: Carbon & Sustainability

Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
<p>Medium – as noted by Arcadis, Heathrow will not be able to develop all the requirements directly. Elements will be in response to airline / handler / other requirements.</p> <p>Consideration of working in operational environment and impact of variability of BAU operations on a daily basis.</p>	<p>Although HAL may not develop all the elements, the delivery will be on its own estate and therefore within HAL’s control.</p> <p>The example of delivering programmes in an operational environment is something HAL undertakes regularly-and this is under their control.</p> <p>Whether HAL is upgrading PCA or installing Electric Vehicle Charge Points the asset location and programme is under their control and can be planned and delivered to minimise operational disruption and to an agreed timetable.</p> <p>Arcadis does not support HAL’s conclusion that it cannot have a High level of controllability at G3</p>	<p>Differing – some elements such as pre conditioned air are known. Other areas may involve novel or emerging technologies.</p>	<p>HAL has not taken a programmatic view of risk and has used specific examples. Each project may carry different risks but these will form part of a wider programme risk profile where a level of risk can be set.</p> <p>The examples given do not change Arcadis’ original view that the risk profile for this programme will be similar at the point the capex incentive is set (G3).</p>	<p>No – For some cases Yes. The category has some elements which are suitable for ex ante – repeatable, benchmarkable – e.g. PCA, EV Charging. However other elements – airspace modernisation, new tech and not for ex ante.</p>	<p>It is accepted that airspace modernisation for example will not be under HAL’s direct control however the consequential capital works and when these are delivered will be.</p> <p>HAL has already set out its strategic commitment to carbon and sustainability (Heathrow 2.0 and more) HAL is aware of and can control of the programme and clearly understands the risk profile associated with the delivery of this programme.</p> <p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL’s view that this programme is not suitable as a capex category or for ex ante.</p>

**As part of the RBP Update 2 HAL has proposed elements of its H7 capex plan (programmes or projects within programmes) that they believe are not suitable for ex ante, due to the characteristics of the projects / programmes.**

HAL has undertaken an appraisal of the H7 Programme and identified programmes where they believe ex ante can and cannot be applied.

Where HAL believes that ex ante cannot be applied, they have split the programme and set out their rational for why some parts of the programme are not suitable for ex ante.

Arcadis has assessed HAL's rational to determine whether the elements of the programme HAL has identified that are not suitable for ex ante is justified. Arcadis has responded to these points of disagreement at a programme level with the main focus being the two primary CAA criteria of Controllability and Risk.

# Focused assessment around CAA Definition: HAL alternative approach to capex category suitability for ex ante

Programme	Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
Asset Management and Compliance – Airfield and Baggage	<p>Medium – inherent risk on the unknown asset condition – surveys etc are carried out in advance but it is not always possible to ascertain the exact situation until works commence.</p> <p>Consideration of working in operational environment and impact of variability of BAU operations on a daily basis. This is key issues with projects such as runway resurfacing.</p>	<p>HAL will be working within its own estate where it has control over the areas it will be delivering this programme.</p> <p>Delivering projects in a live operational environment will create interdependencies and tension between the capital programme and the operation but these are well understood and HAL has the appropriate stakeholder environments already set up to deal with such matters.</p> <p>Arcadis does not support HAL’s conclusion that it cannot have a High level of controllability at G3.</p>	<p>Differing – the risks on the airfield normal projects will be different to those relating to those relating to runway resurfacing and also to those in the baggage sphere.</p>	<p>HAL has not taken a programmatic view of risk and has used specific examples. Each project may carry different risks but these will form part of a wider programme risk profile where a level of risk can be set.</p> <p>Arcadis’ original view is that the risk profile for this programme will be similar at the point the capex incentive is set (G3).</p>	<p>No – the criticality of the assets and operational impact of non availability means that the projects will work around the operation and flex when possession periods change.</p>	<p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL’s view that this programme is not suitable as a capex category or for ex ante.</p>
Asset Management and Compliance – Other	HAL INDICATE PROGRAMME ELEMENT SUITABLE FOR EX ANTE					
T2 Baggage	SEE PAGE 14					
Regulated Security	SEE PAGE 15					

## Focused assessment around CAA Definition: HAL alternative approach to capex category suitability for ex ante

Programme	Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
Commercial Revenues – Surface Access & Cargo	HAL INDICATE PROGRAMME ELEMENT SUITABLE FOR EX ANTE					
Commercial Revenues – Retail and Media, Digital Transformation and Property	Medium – Sections are within Heathrow’s ability to control.	<p>HAL will develop a commercial revenue programme which will be on assets where HAL has significant control on the HAL estate.</p> <p>Where there is an interface, this does not mean that HAL does not have control at a programme level and issues around this type of stakeholder interaction should be largely resolved or factored as an assumption or risk at G3.</p> <p>Arcadis does not support HAL’s conclusion that it cannot have a High level of controllability at G3.</p>	Differing – digital transformation will have a different risk profile and considerations than the property development.	<p>HAL has used project specific examples rather than considering risk at a programme level.</p> <p>The examples given do not change Arcadis’ original view that the risk profile for this programme will be similar at the point the capex incentive is set (G3).</p>	No.	<p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL’s view that this programme is not suitable as a capex category or for ex ante.</p>
Efficient Airport – Compass Centre Exit, Terminal Capacity Optimisation & Service Initiatives	HAL INDICATE PROGRAMME ELEMENT SUITABLE FOR EX ANTE					

## Focused assessment around CAA Definition: HAL alternative approach to capex category suitability for ex ante

Programme	Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
Efficient Airport – Baggage Automation, Airfield Automation & Passenger Process Automation	Medium – automation will require linkages and connection to third party systems and ways of operation. Largely driven by airline/handler requirements.	<p>HAL will again be working within its own estate where it has control over the areas it will be delivering this programme.</p> <p>Delivering projects with linkages should be well understood and HAL has the appropriate stakeholder environments already set up to deal with such matters.</p> <p>Arcadis does not support HAL's conclusion that it cannot have a High level of controllability at G3.</p>	Similar – scope based on automation and technology development..	Arcadis' original view is that the risk profile for this programme will be similar at the point the capex incentive is set (G3).	No.	<p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL's view that this programme is not suitable as a capex category or for ex ante.</p>
Carbon & Sustainability - Decarbonisation of ground operations, take off and landing	Low – airspace change programme is wider than Heathrow so will be dependent on regional/national procedures and programmes.	<p>With the exception of the decisions made on airspace change, HAL has full control of both the Capital Programme and the operation within its own estate where it has control over the areas it will be delivering this programme.</p> <p>Arcadis does not support HAL's conclusion that it cannot have a High level of controllability at G3.</p>	Differing – some elements such as physical infrastructure may be low whereas process and airspace change will be more complex.	<p>HAL has not taken a programmatic view of risk and has used specific examples. Each project may carry different risks but these will form part of a wider programme risk profile where a level of risk can be set.</p> <p>The examples given do not change Arcadis' original view that the risk profile for this programme will be similar at the point the capex incentive is set (G3).</p>	No.	<p>It is accepted that airspace modernisation for example will not be under HAL's direct control however the consequential capital works and when these are delivered will be.</p> <p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL's view that this programme is not suitable as a capex category or for ex ante.</p>

# Focused assessment around CAA Definition: HAL alternative approach to capex category suitability for ex ante

Programme	Controllability (HAL View)	Controllability (Arcadis View)	Risk Profile in Programme (HAL view)	Risk Profile in Programme (Arcadis View)	CAA Definition Compliance (HAL view)	CAA Definition Compliance (Arcadis View)
Carbon & Sustainability – Airfield Ground efficiency, pre-conditioned air (PCA)	HAL INDICATE PROGRAMME ELEMENT SUITABLE FOR EX ANTE					
Carbon & Sustainability - Decarbonising Surface Access and Vehicles	HAL INDICATE PROGRAMME ELEMENT SUITABLE FOR EX ANTE					
Decarbonising heat and electric network upgrades	Medium – subject to agreed procedures and network capacity.	<p>HAL will again be working within its own estate where it has control over the areas it will be delivering this programme.</p> <p>Arcadis does not support HAL’s conclusion that it cannot have a High level of controllability at G3.</p>	Similar – though will need use of trials etc to determine most appropriate solution.	Arcadis’ original view is that the risk profile for this programme will be similar at the point the capex incentive is set (G3).	No.	<p>Arcadis maintains its view that HAL has a high level of Controllability and can develop a risk profile across the programme.</p> <p>Arcadis does therefore not support HAL’s view that this programme is not suitable as a capex category or for ex ante.</p>



# Consideration of HAL's review of Arcadis assessment of capex categories and their suitability for ex ante.

- A review of HAL's assessment of Arcadis' work as part of the CAA Initial Proposals has been undertaken to identify where HAL were in agreement with the Arcadis assessment and areas of difference across the programmes.
- Arcadis has considered HAL's comments (purple) relating to their assessment where there is a difference of view and a response (orange) has been set out to these in the above pages [pages 20 – 23].
- Having considered the additional information presented by HAL, Arcadis still maintains its original findings that the capex categories (excluding the unsplit Asset Maintenance and Compliance) do meet the CAA Definition and it is possible to use these for the purpose of ex ante capex incentives.
- In addition, Arcadis concludes that the split Asset Management and Compliance Programme is also suitable in the sub capex categories for ex ante capex incentives.
- HAL has sought to focus on the wider criteria and not just those of controllability and risk profile as set out by the CAA requirement that may have contributed to them developing a different viewpoint.
- Arcadis' conclusion is that HAL has not made a compelling case that the original capex categories in the CAA's Initial Proposal (excluding the unsplit Asset Maintenance and Compliance) or the split Asset Management and Compliance Programme (6 sub capex categories proposed in IP or the 10 sub capex categories proposed in RBP Update 2) cannot meet the CAA's definition of a capex category set out in CAP 2139.

# Splitting the Asset Management and Compliance Programme

HAL has considered the split of the Asset Management and Compliance Programme set out by the CAA in the Initial Proposals and has proposed a different split.

Arcadis has assessed this new split to determine whether the sub-programmes are compliant with the CAA definition for capex categories.

Arcadis has responded to these points of disagreement at a programme level with the main focus being the two primary CAA criteria of Controllability and Risk.

# Splitting of Asset Management and Compliance Programme

HAL has proposed an alternative approach to splitting the Asset Management Programme from 6 capex categories, as proposed by Arcadis in its analysis for the IPs, to 10 capex categories. Arcadis has assessed this alternative proposal to determine its compliance with the CAA definition of capex categories.

**ARCADIS**

Arcadis has identified three ways to define Capex Categories with similar levels of risk and controllability for both the Other 'continue' projects and the Asset Mgmt. Plan (maintenance). Two of these options would however generate too many capex categories and potentially a significant regulatory burden and reporting complexity.

It is recommended that Location should be used to sub-divide the other 'continue' projects and Asset Mgmt. Plan elements into Capex Categories

Location at LHR would give similar levels of controllability for HAL. Although the works in these locations would differ, the risk profile would be similar. E.g. Undertaking a project in any of HAL's terminals will carry similar levels of controllability and risk. Runway resurfacing can be incorporated into the 'Airfield' programme.

**✓**

Sub-dividing the maintenance into work type would provide far more granularity the level of controllability and risk are likely to be similar in each of the work types.

E.g. The processes and steps taken by HAL to deliver a baggage maintenance project will be well known and understood by HAL but different to those required to deliver a digital project.

This would however produce a high number of smaller Capex Categories

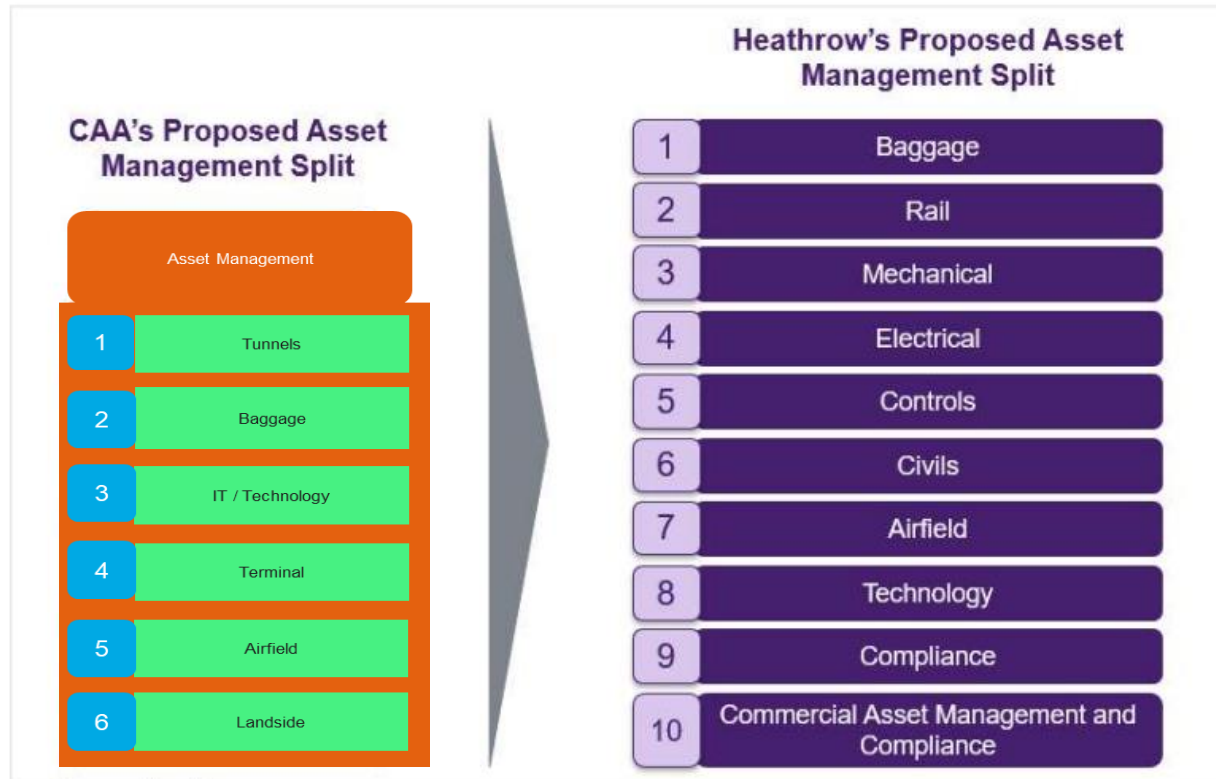
**✗**

Sub-dividing the maintenance into asset type would provide far more granularity and the level of controllability and risk are likely to be very similar in each of the asset types e.g. the risks and controllability associated in delivering a lift project in T2 would be similar to delivering a lift project in T3.

This would however produce a high number of smaller Capex Categories.

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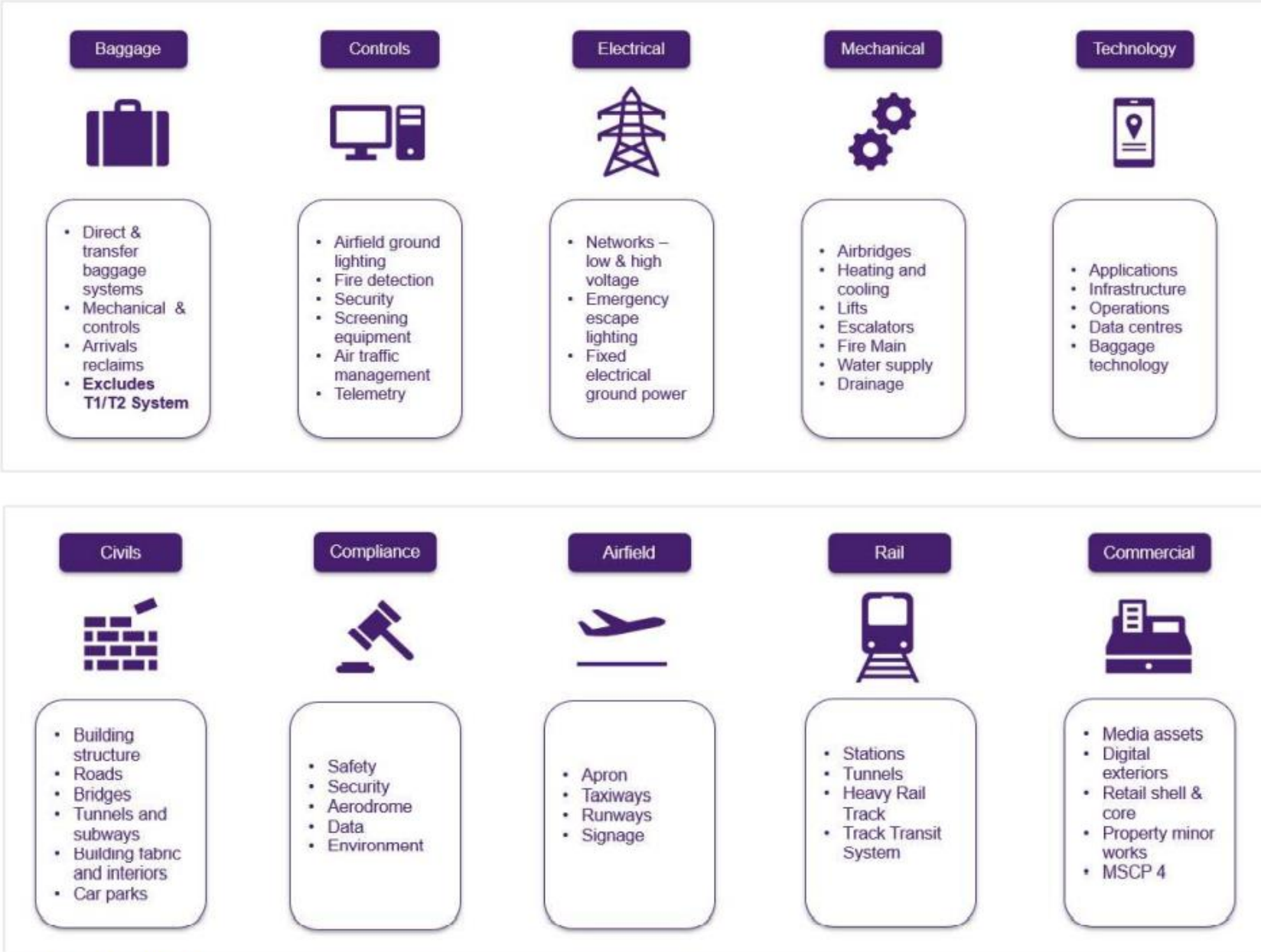
Figure 11: CAA and Heathrow proposed Asset Management Split comparison



Source: Heathrow

# HAL has split out the Asset Maintenance and Compliance Programme

Figure 1: Examples of assets within Asset Management Categories



Source: Heathrow

Arcadis had considered the type of works contained within each of these capex categories to assess whether they would be compliant with the CAA definition for capex categories.

Although HAL’s list of projects that might sit within each of these programmes is not exhaustive, these give an indication of the type of works and projects HAL will be seeking to assign to the various categories under the Asset Management and Compliance programme.

# Arcadis has undertaken a review of these HAL proposed categories to determine whether these meet the CAA definition for capex categories.

Split Asset Management and Compliance Programme and capex category review

Arcadis has followed the same approach undertaken in its assessment of capex categories in RBP Update 1 and IPs in assessing compliance of each of these capex categories to determine whether they are compliant with the CAA definition for capex categories.

Arcadis has focused on the primary assessment criteria which are controllability and risk.

Arcadis has also assessed the capex categories against the additional criteria set out by HAL in line with its previous assessment methodology.

Arcadis concludes that the 10 capex categories do comply with the CAA definition

Programme	HAL level of Controllability	Risk Profile in Programme	Regular & Repeated Activity	Efficient Contracting	Planned & Sequenced	Programme Complexity	Clearly Defined Output	CAA definition compliant
<b>Baggage</b>	HIGH	SIMILAR	YES	YES	YES	MEDIUM	YES	YES
<b>Rail</b>	HIGH	SIMILAR	YES	YES	YES	MEDIUM	YES	YES
<b>Mechanical</b>	HIGH	SIMILAR	YES	YES	YES	LOW	YES	YES
<b>Electrical</b>	HIGH	SIMILAR	YES	YES	YES	LOW	YES	YES
<b>Controls</b>	HIGH	SIMILAR	YES	YES	YES	LOW	YES	YES
<b>Civils</b>	HIGH	SIMILAR	YES	YES	YES	LOW	YES	YES
<b>Airfield</b>	HIGH	SIMILAR	YES	YES	YES	MEDIUM	YES	YES
<b>Technology</b>	HIGH	SIMILAR	YES	YES	YES	LOW	YES	YES
<b>Compliance</b>	HIGH	SIMILAR	YES	YES	YES	MEDIUM	YES	YES
<b>Commercial</b>	HIGH	SIMILAR	NO	YES	YES	LOW	YES	YES

# Splitting the Asset Management and Compliance Programme

- HAL has proposed an alternative approach for splitting the programme that differs from the split the CAA set out in its Initial Proposals.
- HAL's proposal is a hybrid of location, asset type and work type which we have assessed against the CAA definition for capex categories.
- The proposed split of the Asset Management and Compliance Programme aligns with HAL's asset management planning, cost and delivery process.
- HAL's proposal will mean an increase in the number of capex categories and therefore corresponding delivery objectives / obligations.
- The introduction of more capex categories will allow the development of SMART targets that are more focussed.
- There will however result in an increase in regulatory burden but this is marginal.
- HAL has acknowledged on 14/1/22, that proposed CAA split in the Initial Proposals is closer to delivery rather than planning.

Recommendations to CAA:

**Arcadis is of the opinion, on the basis of the above analysis, that:**

- **The proposed shift from the IP proposal of 6 capex categories to HAL's 10 capex categories would not impact on the capex incentives outcomes.**
- **HAL's 10 proposed capex categories are compliant with the CAA definitions.**

# Delivery objectives

Arcadis has considered the delivery objectives proposed by HAL in the RBP Update 2 and assessed these against the SMART principles used in the previous analysis undertaken for IPs.

The purpose of the delivery objective is to allow the development of a programme that can clearly demonstrate what the Capex will deliver, how this will be measurable and when it will be delivered. The cost to deliver this should not form part of the wording of the delivery objective as the expending of capital should not be the objective.

The delivery objective will then support the development of the delivery obligation that will be set at G3. Therefore, delivery objectives need to be clear and unambiguous with defined metrics and time bound.

Arcadis has undertaken its review on this basis and the following slides sets out the conclusions of this review of HAL's proposed delivery objectives.



## Setting delivery objectives

Delivery objectives will need to be developed by HAL, in collaboration with the CAA and airlines, for each capex category the CAA intends to include in the new regulatory regime as part of its process of setting a capex incentive. To do so, the delivery objectives will be set out in the CAA's H7 Final Proposals. HAL must develop delivery objectives and obligations for each capex category which will be used to assess whether HAL has delivered the outputs and benefits that have been agreed with airlines, at the point in time when the CAA undertakes its reconciliation of capex incentives.

Each capex category would have a SMART high-level statement of what HAL is seeking to deliver, and the reasons it has prioritised this spending. This would be the delivery objective, defined at the capex category level. As projects in HAL's portfolio reach G3, the high-level delivery objective set at the beginning of H7 for each capex category will be updated to reflect more the specific metrics / requirements developed for G3. During H7, and through discussions between HAL and airlines, delivery obligations will be defined, which should reflect, for each capex category<sup>1</sup> outputs, quality requirements and timing requirements. It is the delivery obligation that will form the basis of any assessment for capex incentive and not the delivery objective.

It is therefore important that the delivery objectives are SMART:

- **S – Specific** – objectives are aimed at what the business does,
- **M - Measurable** – the business can put a value to the objective,
- **A – Achievable** – and agreed by all those concerned in trying to achieve the objective,
- **R - Realistic** – the objective should be challenging, but it should also be able to be achieved by the resources available,
- **T- Time bound** – they have a time limit of when the objective should be achieved, e.g., by the end of the year.

In addition to the delivery objectives, each project within a capex category will have outputs. Again, these outputs would also need to be SMART which is best practice in project management.

<sup>1</sup> This reflects CAA policy at Initial Proposals. We understand that the approach to delivery obligations has evolved since and the CAA is no longer proposing to develop them at the capex category level.



# Assessment of delivery objectives

Arcadis has reviewed the delivery objectives set out by HAL in the RBP Update 2 at programme level to ascertain whether they meet the CAA requirement to develop SMART delivery objectives.

We have revisited the SMART criteria set out in our previous work<sup>1</sup> and applied this thinking to the delivery objectives set out by HAL.

Where HAL has met the respective element of the SMART objective, we have marked this as Y and coloured this green. Where HAL is yet to meet the SMART requirement, we have marked this as N and coloured it Red. There are some elements where HAL has developed an objective that are moving towards a SMART objective, and we have marked this as A and coloured this Amber.

## HAL Programmes

- Asset Management & Compliance – 10 capex categories with associated delivery objectives
- Security
- T2 Baggage
- Commercial Revenues
- Efficient Airport
- Carbon & Sustainability

<sup>1</sup> Available on the CAA website: [CAP2266C](#).

# Arcadis assessment of HAL delivery objectives



## Programme: Asset Management and Compliance

Programme	HAL Objective	S	M	A	R	T
Baggage	Heathrow will invest £65m (2018p) to replace life-expired assets to keep colleagues and consumers safe and secure. The investment is required to deliver operational continuity, predictable operating costs, and availability of assets. The scope includes Baggage systems – departures, arrivals, transfers; Inter terminal transfers; Threat Detection for hold baggage; Stillage.	N	N	Y	Y	N
Rail	Heathrow will invest £93m (2018p) to replace life-expired assets to keep colleagues and consumers safe and secure. The investment is required to deliver operational continuity, predictable operating costs, and availability of assets. The scope includes track, signalling, telecoms, stations, tunnel systems and overhead line equipment, TTS.	N	N	Y	Y	N
Mechanical	Heathrow will invest £158m (2018p) to replace life-expired assets to keep colleagues and consumers safe and secure. The investment is required to deliver operational continuity, predictable operating costs, and availability of assets. The scope includes lifts, escalators and passenger conveyors, airbridges, heating ventilation and air conditioning, PCA, potable water, fire main, foul network, surface water drainage and pollution control.	N	N	Y	Y	N
Electrical	Heathrow will invest £68m (2018p) to replace life-expired assets to keep colleagues and consumers safe and secure. The investment is required to deliver operational continuity, predictable operating costs, and availability of assets. The scope includes High Voltage and Low Voltage networks, airfield ground lighting, airfield standby generation; emergency escape lighting and lighting.	N	N	Y	Y	N
Controls	Heathrow will invest £92m (2018p) to replace life-expired assets to keep colleagues and consumers safe and secure. The investment is required to deliver operational continuity, predictable operating costs, and availability of assets. The scope includes door access controls, fire detection and alarms, security threat detection, nav aids, HART (Heathrow Airport Remote Telemetry) and BMS (Building Management System).	N	N	Y	Y	N
Civils	Heathrow will invest £331m (2018p) to replace life-expired assets to keep colleagues and consumers safe and secure. The investment is required to deliver operational continuity, predictable operating costs, and availability of assets. The scope includes: Road network - all carriageways, pedestrian walkways, traffic signals, road signs, lighting, safety measures and protective barriers. Tunnels, subways and bridges for the flow of road and rail transport vehicles, pedestrians, baggage, and building services beneath airfield surfaces and terminal buildings. Airside boundary fence. The structure, fabric, décor and furniture of all terminals and buildings. Passenger and colleague car park facilities, including multi-story terminal car parks.	N	N	Y	Y	N

# Arcadis assessment of HAL delivery objectives

## Programme: Asset Management and Compliance

Programme	HAL Objective	S	M	A	R	T
Airfield	Heathrow will invest £455m (2018p) to replace life-expired assets to keep colleagues and consumers safe and secure. The investment is required to deliver operational continuity, predictable operating costs, and availability of assets. The scope includes airfield pavements, including all manoeuvring areas, stands, taxiways, runways aprons and signage.	N	N	Y	Y	N
IT/Cyber	Heathrow will invest £204m (2018p) to: Continue Cyber+ to meet cyber compliance as defined by regulatory regimes and sustain our cyber posture. Replace, consolidate, and upgrade the IT asset footprint and deliver rolling maintenance schedules and service roadmaps. Remove legacy technology components with known cyber vulnerabilities and ensure assets remain supportable, secure, and fit for purpose whilst delivering efficient total cost of ownership.	Y	N	Y	Y	N
Compliance	Heathrow will invest £107m (2018p) to replace life-expired assets to keep colleagues and consumers safe and secure. The investment is required to deliver operational continuity, predictable operating costs, and availability of assets. The scope includes T4 HSB, PFOS and responding to new or enhanced compliance requirements which are not yet explicitly foreseen, such as security equipment upgrades and environmental standards.	Y	N	Y	Y	N
Commercial	Heathrow will invest £132m (2018p) to replace life-expired commercial assets to keep colleagues and consumers safe and secure. This investment is required to keep commercial facilities operational and therefore maintain existing revenue sources. The scope includes: - Retail and media asset replacement including shell and core works - Refurbishment of MSCP4 within the existing footprint - Essential property works including Heathrow Consolidation Centre decant, BA crew car park refurbishment, EPC compliance and Common area refurbishment .	N	N	Y	Y	N

The delivery objectives in this programme are not considered SMART. Only two elements are specific in what they will deliver however none are measurable or time bound. Although achievable and realistic are marked as Yes, this may alter without the inclusion of a timebound element to the Objective as the ability to assess whether something is achievable or realistic is usually coupled with the time available to achieve the quantum of work or activity.

# Arcadis assessment of HAL delivery objectives



## Programme: Security

Programme	HAL Objective	S	M	A	R	T
Security	[REDACTED]	Y	Y	Y	Y	Y

The delivery objective in this programme with some minor refining would be considered SMART. This has a clear specific outcome that has the ability to be measured and is time bound. The confidence in setting out the S, M and T elements can support the position that HAL believes it can achieve (A) this objective and the outcome within the time is realistic (R). The key element to be removed in the refinement is the cost and also there is an opportunity to make this far more succinct.

# Arcadis assessment of HAL delivery objectives



## Programme: T2 Baggage

Programme	HAL Objective	S	M	A	R	T
T2 baggage	<p>Heathrow will invest £432m (2018p) in H7 and £142m (2018p) in H8 with the H7 objective of contributing to achieve the OBR baggage misconnect rate of 9/1000*, timely delivery from departures baggage system, Overall Satisfaction, Customer effort (ease), Airport that meets my needs and protecting Terminal 2's 2019 baggage peak daily throughput capability of 31,000 bags (typical peak day).</p> <p>This will be achieved by starting to migrate the majority of the existing baggage operation from Terminal 1 to Terminal 2A. Construction of the Terminal 2A baggage system will commence in H7 and the system will be operable in early H8. During H7, the programme will also deliver asset replacement of the Terminal 1 building and services to keep it safe and secure, protect the Terminal 1 baggage system/operation and relocate non-Terminal 1 related IT systems out of Terminal 1. *Misconnect rate is a measure of total product performance which includes system, airline and handler .</p> <p>Key assumptions: Terminal 1 will remain until 2035, Terminal 2 will be home to airlines from 2019 and will maintain similar fly schedule and baggage peak volumes.</p>	A	Y	Y	Y	Y

The delivery objective in this programme with some minor refining would almost be considered SMART. The outcome needs to be slightly more specific around what the T2 Baggage system will be capable of delivering that has the ability to be measured and is time bound. The confidence in setting out the SM and T elements can support the position that HAL believes it can achieve (A) this objective and the outcome within the time is realistic (R). The key element to be removed in the refinement is the cost and reference to OBR Targe. There is an opportunity to make this far more succinct.

# Arcadis assessment of HAL delivery objectives



## Programme: Commercial Revenues

Programme	HAL Objective	S	M	A	R	T
Surface Access	Invest £33m in car parking to deliver improvements to our passenger and colleague parking proposition, protecting £[REDACTED]m revenue at risk and delivering £[REDACTED]m incremental revenue through H7. Invest a further £2m in Terminal Drop Off Charge infrastructure to protect this revenue stream through H7 This business case delivers an average payback of [REDACTED] years.	Y	N	Y	Y	N
Retail & Media Development:	Invest £207m in retail initiatives throughout H7, which centre on Space Optimisation and Operational Compliance & Improvements. These investments will deliver improvements to passenger experience and will protect £[REDACTED]m revenue at risk and generate £[REDACTED]m incremental revenue. This business case delivers an average payback of [REDACTED] years.	Y	N	Y	Y	N
Digital Transformation	Invest a total of £62m in income generation digital propositions through H7 (One Heathrow Ecosystem, Curated Marketplace and Seamless Journey) to respond to changing consumer needs, enhancing passengers' digital experience - protecting £[REDACTED]m of revenue at risk and £[REDACTED]m incremental revenues over H7. This business case delivers an average payback of [REDACTED] years.	N	N	Y	Y	N
Cargo Development	Invest £27m in redevelopment of the on-airport cargo estate, deliver an airside transshipment centre and ensuring a continued safe, sustainable and efficient cargo operation. These investments do not generate quantifiable commercial revenue in H7, but will deliver significant strategic value to the wider Heathrow commercial model to the benefit of passengers, airlines and Heathrow.. This business case delivers an average payback of [REDACTED] years.	Y	N	N	N	N
Property Development:	Invest £161m to undertake a range of property development across the Heathrow estate – including Eastern Business Park and D'Albiac House replacement, car park densification, estates optimisation and perimeter/CTA redevelopment enabling studies/works. These investments will protect £[REDACTED]m revenue and generate £[REDACTED]m incremental revenue over H7, as well as ensuring safety and compliance across the Heathrow estate. This business case delivers an average payback of [REDACTED] years.	Y	N	Y	Y	N

The delivery objectives in this programme would not be considered SMART. Although 4 of the 5 has a clear specific financial outcome this does not indicate what the capital will deliver. It is possible to measure financial performance however this may not be able to be linked to the capital expenditure. E.g. can a correlation in increased revenue be directly attributed to the improvement in an asset through capital expenditure or was this organic growth? None of the objectives is time bound. Although achievable (A) and realistic (R) are marked as Yes in most cases, this may alter without the inclusion of a timebound element to the Objective as the ability to assess whether something is achievable or realistic is usually coupled with the time available to achieve the quantum of work or activity.

# Arcadis assessment of HAL delivery objectives



## Programme: Efficient Airport

Programme	HAL Objective	S	M	A	R	T
<b>Compass Centre Exit</b>	<b>£44m</b> – Transition APOC, data centres, critical surveillance equipment and operational support teams into new fit for purpose locations without disrupting airport operations, delivering operating cost savings through the elimination of the Compass Centre lease cost by 2024.	Y	Y	Y	Y	Y
<b>Passenger Process Automation</b>	<b>£50m</b> – Renew, replace and introduce new automation across the passenger journey to meet growing consumer expectations for predictable and reliable journeys. This will also support our airline customers to achieve operating cost savings and support airline customer propositions, ensuring we remain competitive against other airports. Scope includes T4 Self Boarding Gates, T3 Self Service, T4 CUSS Kiosks / Automated Check-in, Automated gate announcements (T2, T3 and T4), onboarding of airline automation requests and implementation of biometrics/ PAX ID across passenger journey.	Y	N	Y	N	N
<b>Baggage Optimisation</b>	<b>£43m</b> – Develop and implement automation of a range of baggage handling processes across Heathrow to meet growing consumer expectations for predictable and reliable journeys, and to support our airline customers to achieve operating cost savings and support airline customer propositions.	N	N	N	N	N
<b>Airfield Optimisation</b>	<b>£39m</b> – Drive airport efficiency through the implementation of new technology, integration of data and new business processes. The scope includes AI capable CCTV on stands, which can track and time stamp critical turnaround activity, further sharing and integration of telematics, integration of airfield systems and replacement of current stand planning platforms. This will meet growing consumer expectations for predictable and reliable journeys and support our airline customers to achieve operating cost savings and support airline customer propositions.	Y	N	Y	Y	N
<b>Terminal Capacity Optimisation</b>	<b>£33m</b> – Provide three additional remote stands on GA20, delivering additional efficiency in the western campus through enabling more inter-terminal connections and a more efficient towing operation.	Y	N	Y	Y	N
<b>Service Initiatives</b>	<b>£106m</b> – Deliver improved wait times at the Border, improved facilities and service for Passengers Requiring Support, improved seating and charging options for passengers and utilising digital wayfinding, ensuring their journeys are more predictable, reliable, comfortable and providing a more welcoming and accessible airport where passengers feel cared for. We have only prioritised the improvements most valued by consumers (see Consumer Insights chapter).	Y	N	Y	Y	N

The delivery objectives in this programme would not be considered SMART. Although 5 of the 6 has an outcome this needs to be more specific as well as have a measure (M) and be timebound (T). Although achievable (A) and realistic (R) are marked as Yes in most cases, this may alter without the inclusion of a timebound element to the Objective as the ability to assess whether something is achievable or realistic is usually coupled with the time available to achieve the quantum of work or activity.



# Arcadis assessment of HAL delivery objectives



## Programme: Carbon and Sustainability

Programme	HAL Objective	S	M	A	R	T
Carbon & Sustainability	<p>Heathrow and the whole UK and global aviation sector, including all of Heathrow’s airline customers, have committed to reach net zero emissions by 2050. Heathrow has developed and consulted on a new net zero plan which sets out carbon reduction goals for H7, 2030 and beyond that will deliver net zero emissions and is also aligned with the UK Government’s net zero target. We need to cut carbon to enable Heathrow to operate and grow successfully in future, providing the benefits of affordable global air connectivity to UK consumers and cargo. Cutting carbon will also manage the risk of changing consumer and political sentiment on flying and rising carbon costs, which could all impact demand. We will also address other key sustainability impacts in our Heathrow 2.0 plan to maintain our commitments to the local community.</p> <p>In H7 we will invest £188m, linked to the masterplan, and targeted at areas where direct Heathrow investment in H7 is necessary to deliver our net zero goals. This investment along with airport standards and incentives, investment and action by Team Heathrow companies, and the right Government policies, will reduce Heathrow’s annual carbon footprint by 2.30 million tonnes against a 2019 baseline, by the end of 2026; and contribute to a reduction in Heathrow’s annual carbon footprint of 3.48 million tonnes, against a 2019 baseline, by the end of 2030. This will keep Heathrow on a net zero trajectory in H7 and deliver improvements to aircraft noise, air quality and road congestion.</p> <p>This includes the following sub-objectives:                      Net Zero in the air (£110m)– airspace modernisation (including Easterly Alternation), air traffic management efficiency, upgrading Pre-Conditioned Air (PCA) units and enabling design work for zero emissions aircraft; and                      Net Zero on the ground (£78m) – Surface Access projects to change mode share, electric vehicle charging, and design and operational trials for decarbonising heat and upgrading the airport electricity distribution network.                      Easterly alternation will deliver aircraft noise improvements for the local community. Our Net Zero investment will deliver broader sustainability improvements, including a reduction in airport related air quality emissions and reduced traffic congestion as important secondary benefits.                      This contributes to the following OBR measures; Value for money of Overall Journey, Reducing Heathrow’s Carbon Footprint and an Airport that meets my needs.</p>	N	N	N	N	N

The delivery objective in this programme would not be considered SMART. It is not specific (S), measure (M) or be timebound (T). It is not possible to identify whether this will be achievable (A) and realistic (R).



# Assessment of delivery objectives

HAL has not set a single delivery objective for each programme but have developed a series of objectives that cumulatively seek to generate a combined delivery objective that is more specific for the type of investment that will be required to fulfil the separate element of the capex category.

The overarching theme is that HAL must be far more specific in what the capex spend is for and outputs or benefits it is trying to achieve. This should allow for a quantitative measurement of the specific deliverable set out by the delivery objective. HAL has yet to develop delivery objectives that are SMART although Security and T2 Baggage are closer aligned to SMART objectives than the other programmes.

HAL has proposed the use of OBR/SQR Targets as a proxy for measurement of capex incentives which the CAA has indicated it does not consider them to be suitable metrics for capex delivery.

Programme	SMART Objectives	Commentary
Asset Management & Compliance	No	HAL has set out a delivery objective for the proposed 10 capex categories. Only 2/10 delivery objectives have been specific enough. 0/10 have any measurement that is credible for the capex spend or have any time window associated with delivering the programme. Although all 10 have been marked as compliant for achievable and realistic, this is based on an opinion that similar quantum of work has been delivered over a similar regulatory period before at Heathrow.
Security	Yes	This programme does set a clear delivery objective with a specific measurable output and a date by which delivery is expected. The format of the delivery objective could be written in a more succinct manner achieving the same result.
T2 Baggage	No	The delivery objective is close to being SMART but needs the capex spend to be more specifically identified in the objective. There is a measurable output and a date by which delivery expected which in Arcadis' opinion is realistic and achievable..
Commercial Revenues	No	Although 4/5 of the programme areas do have a specific deliverable for the capex spend, none have a clear measure or delivery date although a payback period for the investment is identified.
Efficient Airport	No	Only one of the programmes (Compass Centre Exit) is SMART. 5/6 do identify a specific delivery objectives but only 1/6 has a clear measure and is timebound.
Carbon & Sustainability	No	None of this programme has identified delivery objectives that are specific enough with any clear measure or delivery date. There is currently insufficient clarity to determine whether HAL could deliver this in a realistic and achievable manner.

# Developing SMART delivery objective examples

Arcadis has used the delivery objectives provided by HAL in the RBP Update 2 to develop a set of SMART delivery objective examples

The purpose of the delivery objectives is to allow the development of a programme that can clearly demonstrate what the Capex will deliver, how delivery will be measured and when it will be delivered. The delivery objective should support the development of the delivery obligation that will be set at G3 and will form the basis of the capex incentive.

Arcadis is not recommending that the wording set out in these example SMART delivery objectives is used as the final version for each capex category but as an indication that a high-level SMART delivery objective can be developed at a capex category level by HAL in consultation with airlines going forward.

Following discussions with the CAA, Arcadis has not developed SMART delivery objectives for the Asset Management and Compliance Programme as part of this exercise.

## Programme: Security

Programme	HAL Objective	S	M	A	R	T
Security	Heathrow will enhance threat detection and achieve regulatory compliance through implementation of the Next Generation Security Checkpoint (NGSC) security screening equipment & technologies across all our terminals (2,3,4,5) & campus. [REDACTED]	Y	Y	Y	Y	Y

## Programme: T2 Baggage

Programme	HAL Objective	S	M	A	R	T
T2 baggage	Heathrow will deliver asset replacement of the Terminal 1 building and services to protect the Terminal 1 baggage system/operation and relocate non-Terminal 1 related IT systems out of Terminal 1. Heathrow will migrate the majority of the existing baggage operation from Terminal 1 to Terminal 2A with the construction of the Terminal 2A baggage system capable of processing a peak daily throughput capacity of 31,000 bags. The programme will commence in H7 and the system will be operable in early H8.	Y	Y	Y	Y	Y

## Programme: Commercial Revenues

Programme	HAL Objective	S	M	A	R	T
Surface Access	HAL will deliver infrastructure improvements to car parks and terminal drop off charge equipment by the end of 2026 to generate additional incremental revenue of £[REDACTED]m through H7.	Y	Y	Y	Y	Y
Retail & Media Development:	HAL will deliver retail initiatives which centre on Space Optimisation and Operational Compliance & Improvements and will be complete by the end of 2026 to generate £[REDACTED]m in additional incremental revenue.	Y	Y	Y	Y	Y
Digital Transformation	HAL will deliver digital propositions by the end of 2026 including the One Heathrow Ecosystem, Curated Marketplace and Seamless Journey to generate £[REDACTED]m in additional incremental revenues over H7.	Y	Y	Y	Y	Y
Cargo Development	HAL will redevelop the on-airport cargo estate, delivering an airside transshipment centre and additional operational efficiency projects by the end of 2026.	Y	Y	Y	Y	Y
Property Development:	HAL will redevelop the Eastern Business Park, replace D'Albiac House, densify car park sites and undertake site optimisations activities on the perimeter and in the CTA by the end of 2026 to generate £[REDACTED]m of additional incremental revenue over H7.	Y	Y	Y	Y	Y

## Programme: Efficient Airport

Programme	HAL Objective	S	M	A	R	T
<b>Compass Centre Exit</b>	HAL will transition APOC, data centres, critical surveillance equipment and operational support teams into new fit for purpose locations through the decant from the Compass Centre lease cost by 2024.	Y	Y	Y	Y	Y
<b>Passenger Process Automation</b>	HAL will deliver T4 Self Boarding Gates, a T3 Self Service zone with CUSS Kiosks / Automatic Check-in, T4 CUSS Kiosks / Automated Check-in, Automated gate announcements at T2, T3 and T4 and implementation of biometrics/ PAX ID across the campus by the end of 2026.	Y	Y	Y	Y	Y
<b>Baggage Optimisation</b>	HAL will develop and implement infrastructure solutions that will automate baggage handling processes across Heathrow by the end of 2026.	Y	Y	Y	Y	Y
<b>Airfield Optimisation</b>	HAL will deliver new technology, integration of data and new business processes including Artificial Intelligence (AI) capable CCTV on stands, Integrated Vehicle Telematics, Integrated Airfield Systems and a replacement of current stand planning platforms by the end of 2026.	Y	Y	Y	Y	Y
<b>Terminal Capacity Optimisation</b>	HAL will deliver three additional remote stands on GA20 by end of 2026.	Y	Y	Y	Y	Y
<b>Service Initiatives</b>	HAL will deliver improved facilities for Passengers Requiring Support (PRS) with improved seating in the terminal IDL's and Landside areas and an increase in device charging options for passengers by the end of 2026.	Y	Y	Y	Y	Y

## Programme: Carbon and Sustainability

Programme	HAL Objective	S	M	A	R	T
<b>Carbon &amp; Sustainability</b>	HAL will reduce its annual carbon footprint by 2.30 million tonnes, reduce airport related air quality emissions by [TBC] and reduce traffic congestion by [TBC]%, all against a 2019 baseline by the end of 2026. This will be through the delivery of airspace modernisation projects, air traffic management efficiencies, upgrading Pre-Conditioned Air (PCA) units, Surface Access projects to change mode share, introduce electric vehicle charging, and implement trials for decarbonising heating and cooling and upgrading the airport electricity distribution network.	Y	Y	Y	Y	Y