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# **3RS consultancy study Financial arrangement for 3-Runway System (3RS) at HKIA – Financial advisor report**

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Date: September 2015

HSBC 

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## Table of abbreviations

<b>3RS</b>	3-Runway System
<b>AAHK</b>	Airport Authority Hong Kong
<b>AAO</b>	Airport Authority Ordinance
<b>AECOM</b>	AECOM Asia Company Limited
<b>Airport/HKIA</b>	Hong Kong International Airport
<b>APM</b>	Automated People Mover
<b>ATM</b>	Air Traffic Movement
<b>BCF</b>	Boundary Crossing Facility
<b>BHS</b>	Baggage Handling System
<b>Board</b>	Board of Directors of AAHK
<b>CAN</b>	Guangzhou Airport
<b>Capex</b>	Capital Expenditure
<b>CPI</b>	Consumer Price Index
<b>DCM</b>	Deep Cement Mixing
<b>L&amp;S</b>	Langdon & Seah Hong Kong Limited
<b>EIA</b>	Environmental Impact Assessment
<b>ExCo</b>	Executive Council of the Government of Hong Kong SAR
<b>FA</b>	Financial Advisor
<b>FY</b>	Financial Year (1 April-31 March)
<b>5-Year Plan</b>	Five year financial plan (FY2014/15 to FY2018/19) of AAHK HSBC notes that AAHK would update the 5-year plan on a rolling basis, usually in the last quarter of the year and the updated 5-year plan would be approved by the Board in the first quarter of the following year
<b>FSTB</b>	Financial Services and the Treasury Bureau
<b>GDP</b>	Gross Domestic Product
<b>GPRD/PRD</b>	Greater Pearl River Delta/Pearl River Delta
<b>HKG</b>	The Government of the Hong Kong SAR
<b>HSBC</b>	The Hongkong and Shanghai Banking Corporation Limited
<b>HZMB</b>	Hong Kong – Zhuhai – Macau Bridge
<b>ICS</b>	Individual Carrier System
<b>IATA Consulting</b>	International Air Transport Association Consulting
<b>MOD</b>	Money-of-day
<b>Mott</b>	Mott MacDonald Hong Kong Limited
<b>MP2030</b>	Master Plan 2030
<b>MTR</b>	MTR Corporation Limited
<b>NCD</b>	North Commercial District
<b>NPV</b>	Net Present Value
<b>Opex</b>	Operating Expenses
<b>TRC</b>	Third Runway Concourse
<b>THB</b>	Transport and Housing Bureau

# 1. Executive summary

## 1.1 Introduction and background

---

Since commencing operations in 1998, the Airport Authority Hong Kong (“AAHK”) has successfully operated a growing business which in 2014 served 63.3m passengers and 4.4m tonnes of cargo via around 391,000 air traffic movements (“ATMs”) utilising a 2-runway system at Hong Kong International Airport (“Airport”).

AAHK prepared its Master Plan 2030 (“MP2030”) in 2010 in accordance with its regular planning process and identified that the existing 2-runway system was likely to reach full capacity by around 2020 (current estimate is earlier in 2016 or 2017 due to stronger than expected traffic growth in the past few years). The MP2030 examined both maintaining the existing 2-runway system and expanding to a 3-runway system (“3RS”) to meet future demand with the latter being recommended. AAHK then conducted a public consultation on the proposal.

Following feedback from the public consultation and based on the recommendations of AAHK in March 2012, the Executive Council (“ExCo”) gave its in-principle approval for AAHK to proceed with planning related to the development of a 3RS system at the Airport. AAHK was asked to proceed with (i) the Environmental Impact Assessment (“EIA”); (ii) financial arrangement proposal; and (iii) associated design details.

The 3RS project involves the reclamation of approximately 650 hectares to the north of the existing airport island and construction of a third runway and its associated concourses and infrastructure facilities (including Terminal 2 (“T2”) expansion, airside concourse, automated people mover, baggage handling system, road infrastructure, etc.) to cater for long-term passenger and cargo traffic demand.

At the time of preparation of the MP2030, demand was expected to reach approximately 97 million passengers and 8.9 million tonnes of cargo and 602,000 ATMs by 2030. The 3RS project is designed to cater for this increase in demand and therefore involves an approximate 50% increase in capacity versus the capacity of the current facilities (post completion of the midfield development currently in progress).

Since then, the scheme design for construction of the 3RS project has been developed. The traffic projections were reviewed and updated by International Air Transport Association Consulting (“IATA Consulting”) in 2012, which were used in the EIA report. Based on the updated traffic forecast, demand was expected to reach approximately 102.3 million passengers, 8.9 million tonnes of cargo and 607,000 ATM by 2030.

In 2013, AAHK engaged The Hongkong and Shanghai Banking Corporation Limited (“HSBC”) to act in the role of financial advisor to prepare the financial arrangement plan and to assist AAHK in the discussions with the Hong Kong Government (“HKG”) for the financial arrangements of expanding the Airport into a 3RS system.

In November 2014, AAHK obtained the Environmental Permit for the 3RS development. AAHK completed the scheme design in late 2014.

On 15 December 2014, the Board approved a financial arrangement plan for the 3RS based on the following three funding sources:

- (i) AAHK’s projected net cash flow from operations. This includes the expectation that AAHK will retain all surplus funds from operations and apply these to meet 3RS project costs
- (ii) based on the “joint contribution” principle, maximising revenue through:
  - (a) periodic upward adjustment of airport charges taking into consideration relevant factors including cost inflation and the competitive position of the airport;



- (b) introduction of an Airport Construction Fee (“ACF”) of HKD180 per departing passenger (with exemption for transit passengers);
- (c) due increase in retail and advertising revenue, in accordance with the projected increase in traffic and Consumer Price Index; and
- (iii) raising funds from the capital markets to fully bridge the remaining funding gap and the associated debt services charges on its own.

On 17 March 2015, the ExCo considered AAHK’s recommendations and affirmed the need for the 3RS. However, the ExCo considered that the original ACF level proposed at HKD180 per passenger would be on the high side and thus AAHK should increase its borrowings in order to lower the ACF level as appropriate so as to reduce the burden on passengers.

Following the guidance from the ExCo to revisit the level of ACF, AAHK management and HSBC have reviewed a potential reduction in ACF and its impact on the funding plan and put forward an updated financial arrangement plan to fund the 3RS.

This report sets out the findings of HSBC’s assessment based on the updated financial arrangement plan.

## 1.2 HSBC review framework

HSBC’s approach to developing the financial arrangement plan included:

- Reviewing the assumptions developed by AAHK and AAHK’s consultants as described in this report
- Reviewing the financial model to ensure that it accurately captured the capital expenditure (“capex”) and traffic inputs, as well as other key assumptions from which the cashflow projections were prepared. HSBC also reviewed the logical and mathematical integrity of the financial model
- On the basis of the working case cashflows with projections up to FY2046/47, performing a financial analysis which included calculating the initial debt funding requirement for the 3RS project, after considering the debt capacity of AAHK
- Assessing potential deviations from the working case assumptions and running sensitivities to evaluate the impact of these deviations on the funding requirement and financial profile of AAHK

## 1.3 Working case assumptions

### 1.3.1 Definition of working case assumptions

In order to create a set of financial projections, a set of working case assumptions were developed based on guidance received from AAHK.

#### Chart 1 – Working case assumptions

Parameters	Working Case Assumptions
<b>Airport Charges</b>	To be brought back to the level in year 2000 starting FY2016/17 and subsequent increases in line with inflation. AAHK shall propose the actual adjustment mechanism after consulting with the stakeholders.
<b>Surplus Funds</b>	It is assumed that the AAHK will retain surplus funds from operations and apply these to meet the costs of 3RS until completion of 3RS
<b>Airport Construction Fee</b>	Fee charged per departing passenger, the level of which is dependent on the class (premium or economy), distance (long haul or short haul) and type of travel (origination/destination or transfer/transit), applied from commencement of the 3RS project until repayment of the 3RS project debt projected to be in FY2030/31
<b>Retail Revenue</b>	As per 5-Year Plan, grow in line with passenger growth and CPI thereafter

Parameters	Working Case Assumptions
<b>CPI</b>	As per 5-Year Plan, 3% per annum thereafter
<b>Traffic Growth</b>	As per 5-Year Plan for FY2014/15-FY2018/19, period thereafter is in line with IATA Consulting's base case traffic forecast used in the EIA report which has incorporated the 2RS capacity constraint before 3RS commences operations
<b>Capex</b>	HKD141.5bn (MOD prices) per estimates from AAHK and their external consultants
<b>Routine Replacement of Fixed Assets</b>	AAHK will continue to invest in committed capital projects, such as Midfield development and the routine replacement of fixed assets
<b>Cost of Borrowing</b>	5.0% per annum over the projection period

## 1.4 Financial analysis

### 1.4.1 Financing objectives and constraints

HSBC's analysis of the financial arrangement plan for the 3RS project is based on the following major underlying principles:

- The assumption that HKG does not wish to dispose of or dilute their interest in AAHK
- AAHK will fund 3RS from its net cashflows after reviewing and adjusting existing fees and charges and the introduction of new fees (i.e. ACF on departing passengers) at HKIA
- Raising long term debt

Based on these principles HSBC has prepared a financial arrangement plan for AAHK. HSBC first projected how much incremental debt AAHK needs to raise initially to finance the 3RS project. HSBC then assessed the additional funding requirement and financial profile of AAHK under different downside scenarios and hence the risks associated with the financial arrangement plan.

### 1.4.2 Working case cashflow

AAHK has a cumulative pre-financing cash shortfall under the working case assumptions of HKD52bn. An additional HKD69bn of external debt will need to be raised by AAHK to bridge this funding gap and finance the cost of external debt. The maximum Debt/EBITDA is estimated at 4.5x, to be reached in FY2022/23, and the peak debt level is estimated to reach HKD77bn in FY2023/24.

#### Chart 2 – Cashflow summary

Cumulative FY2015/16 to FY2023/24	HKDbn
<b>Cash surplus from existing business (pre-financing)</b>	<b>90</b>
3RS capex estimate	(141.5)
<b>Pre-financing cash shortfall</b>	<b>(52)</b>
<b>Incremental debt</b>	<b>69</b>
Cost of external debt	(17)
<b>Funding gap (post-financing)</b>	<b>0</b>

### 1.4.3 Sources of third party financing

There are a wide range of markets with funding available to AAHK. These include the USD, HKD and Sukuk institutional bond market, the HKD retail bond market, the Hong Kong and international bank loan markets, securitisations and hybrid capital. HSBC is confident there will be sufficient demand from these markets to fund 3RS.

## 1.5 Conclusions

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In HSBC's opinion, based on AAHK's strong credit profile, AAHK will be able to raise the incremental debt of HKD69bn as set out in the financial arrangement plan.

HSBC has undertaken "what-if" analysis to assess the impact of potential downside scenarios (including cost overruns and revenue shortfalls) on the financial position of AAHK.

In HSBC's opinion, in the event that these downside scenarios occur, AAHK would be able to raise additional debt to fund the consequential funding shortfall.

HSBC considers that the incremental debt of HK\$69bn to be near or at the estimation of the maximum level of debt that AAHK should include in the working case financial arrangement plan for 3RS in order to leave AAHK with the capacity to raise additional funding from debt to meet shortfalls in downside scenarios (if they arise) whilst complying with a reasonable interpretation of the principles of financial prudence and management standards set out in the AAO.

In case of downside situations which have a more severe financial impact than those considered in Section 6.2, and AAHK reasonably projects that a funding shortfall is likely to arise which cannot prudently be met with additional indebtedness, AAHK is recommended to revisit its financial plan. AAHK may look to develop other revenue streams or access alternative forms of financing other than senior debt.

## 2. Background of the 3RS project

### 2.1 Introduction

---

Since commencing operations in 1998, AAHK has successfully operated a growing business which in 2014 served 63.3m passengers and 4.4m tonnes of cargo via more than around 391,000 ATMs utilising a 2-runway system.

AAHK prepared the MP2030 in 2010 in accordance with its regular planning process and identified that the existing 2-runway system was likely to reach full capacity by around 2020 (current estimate is earlier in 2016 or 2017 due to stronger than expected traffic growth in the past few years). The MP2030 examined both maintaining the existing 2-runway system and expanding the Airport to a 3RS to meet future demand with the latter being recommended. AAHK then conducted a public consultation on the proposal.

Following feedback from the public consultation, in March 2012 and on the recommendation of AAHK, the Executive Council gave its in-principle approval for AAHK to proceed with planning related to the development of a 3RS at the Airport.

Following this, the AAHK engaged HSBC to act in the role of financial advisor to prepare a financial arrangement plan and to assist the AAHK in the discussions with the HKG for the financial arrangements of expanding the Airport into a 3RS. This report sets out the findings of HSBC's assessment.

### 2.2 Background to the 3RS scenario

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The 3RS project involves the reclamation of approximately 650 hectares to the north of the existing airport island and construction of a third runway and its associated concourses and infrastructure facilities (including T2 expansion, airside concourse, automated people mover, baggage handling system, road infrastructure, etc.) to cater for long-term passenger and cargo traffic demand.

The 3RS is planned to cater for an additional 30 million passengers per annum. To allow for further passenger growth beyond this number, AAHK has included in its capital cost estimate the construction of essential enabling works to cater for any necessary expansion in the future to cope with a total of 50 million additional passengers per annum.

The total capex associated with the construction of the 3RS is estimated to be HKD141.5bn in money-of-day ("MOD") terms. The proposed construction is currently expected to take 8 years.

### 2.3 Key changes vs MP2030

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**2.3.1**  
*Traffic* The methodology for traffic projections has remained largely the same as that in the MP2030, except adjusting for the impact of capacity constraints as actual traffic figures in the last three years have exceeded the projections set out in the MP2030. As such, long term projections have been adjusted upwards. This results in demand exceeding supply starting from 2016 or 2017 before the commencement of 3RS operation and therefore traffic will now be constrained by the capacity of 2RS for that period. The changes in traffic figures have resulted in corresponding impacts on passenger-based revenue and cost assumptions.

**2.3.2**  
*Retail spend* Retail spend projections are assumed to follow the 5-Year Plan projections and future growth is based on passenger growth and inflation.

2.3.3  
*Changes in  
3RS capex*

The table below shows the 3RS project cost estimate adopted for the current financial arrangement plan compared with the estimate in the MP2030.

**Chart 3 – 3RS project cost estimate in 4Q 2010 price**

HKDbn	MP2030	3RS scheme design
Reclamation works	40.4	38.4
T2 expansion	10.2	11.1
Third Runway Concourse (“TRC”) and infrastructure	35.6	35.0
<b>Total project cost</b>	<b>86.2</b>	<b>84.5</b>

The total project cost of 3RS in terms of 4Q 2010 price has decreased from HKD86.2bn in MP2030 to HKD84.5bn in the current scheme design due to refinements to the design and cost estimates. In MOD prices, the 3RS project cost estimate has increased from HKD136.2bn in MP2030 to HKD141.5bn in the current scheme design and capex phasing due to difference in timing of the construction phases and update of MOD factors.

2.3.4  
*Timing*

Commencement of the project’s construction has been deferred compared to the plan at the time of preparation of MP2030. Forecast MOD factors have also been updated from those released by Financial Services and the Treasury Bureau (“FSTB”) in Oct 2010 to those in Mar 2014. These have resulted in increase in the MOD costs for the project.

2.3.5  
*Refinements to  
design*

There have been a number of refinements to the design between MP2030 and 3RS. The key ones are highlighted below.

2.3.5.1  
*Reclamation works  
and runway and  
related costs*

The sand cost estimate has increased in view of market movements in the past few years. As per MP2030, this assumes that the sand will be procured from the PRD area which will require approvals from the PRC Government.

A wrap around taxiway has been added around each end of the central runway to enhance efficiency of the central runway by allowing taxi-ing from the north runway around at the ends of the central runway to T1.

The sand cost increase and the additional cost of taxiway are offset by cost savings in ground improvement works due to design refinement.

2.3.5.2  
*Terminal 2  
expansion and  
related costs*

The total cost increase for T2 expansion is mainly driven by the need for a bigger basement area because of the need for active safeguarding for double pinched loop operation for the Automated People Mover (“APM”) system and the provision of a baggage handling area to cater for arrival bag automation for the Baggage Handling System (“BHS”) serving the TRC.

Safeguarding a lane of kerbside drop-off and adopting green airport design are refinements which have also been included in the scheme design since MP2030.

2.3.5.3  
*TRC and  
infrastructure and  
related costs*

The perimeter of TRC has been elongated to have a higher proportion of parking spaces for larger planes (type F, 80m) based on IATA Consulting’s forecast of flight schedules in terms of aircraft mix and stand demand.

## 3. Objectives and approach

### 3.1 Assessment principles

---

HSBC's analysis of the financial arrangement plan for the 3RS project is based on the following major underlying principles:

- The assumption that HKG does not wish to dispose of or dilute their interest in AAHK
- AAHK will fund 3RS from its net cashflows after reviewing and adjusting existing fees and charges and the introduction of new fees (i.e. ACF on departing passengers) at HKIA
- Raising long term debt

Based on these principles HSBC has prepared a financial arrangement plan for AAHK. HSBC first projected how much incremental debt AAHK needs to raise initially to finance the 3RS project. HSBC then assessed the additional funding requirement and financial profile of AAHK under different downside scenarios and hence the risks associated with the financial arrangement plan.

### 3.2 HSBC review framework

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To fulfill the terms of its engagement, HSBC has defined and executed a clear and structured approach to the assignment which aims to address each of AAHK's requirements. Details of HSBC's approach and methodology are described below.



#### Key objectives


- Evaluate the key assumptions provided by AAHK and verify the basis on which these have been made

As the starting point of its analysis, HSBC has reviewed the assumptions provided by AAHK, including revenue, operating expenditure ("opex") and replacement capex projections up to FY2046/47. Where necessary, HSBC has conducted further due diligence with various departments within AAHK in order to fully understand the basis of the assumptions provided.



#### Key objectives

- Review the work carried out by the 3RS Consultants
- The scope of the 3RS involves a major expansion to the current airport facilities. Consequently, AAHK has appointed experienced consultants to provide expert review of key inputs into the analysis of this scenario, including traffic, capacity design and construction cost estimates. HSBC has reviewed the reports provided by and, where necessary, conducted due diligence meetings to ensure that the analyses undertaken are consistent and appropriate for a project as substantial and complex as 3RS.
  - Traffic Consultant: IATA Consulting
  - P281 Scheme Design Consultant: Atkins
  - P282 Scheme Design Consultant: AECOM
  - P283 Scheme Design Consultant: Mott MacDonald ("Mott")
  - Quantity Surveying Consultant: Langdon and Seah ("L&S")
  - Asset Lives Consultant: PolyU Technology & Consultancy Co., Ltd.




Prepare and develop the 3RS financial model

**Key objectives**

- Establish a working case set of assumptions in collaboration with AAHK for further analysis
- Ensure that assumptions are incorporated in the financial model appropriately
- Develop the financial model to ensure that it can support the required financial analysis e.g. facilitating sensitivity analysis

Having reviewed the key assumptions in the business forecast for the Airport, HSBC has defined and agreed a working case set of assumptions with AAHK. These assumptions have been captured in the financial model.




Conduct working case pre-financing cash shortfall analysis

**Key objectives**

- Evaluate the pre-financing cash shortfall arising from the undertaking of the 3RS project under these working case assumptions

HSBC has subsequently considered the aggregate financial position of AAHK as a whole i.e. incorporating the cash flow generated from the existing facilities plus the incremental cash flow due to the 3RS project. HSBC has determined that the working case pre-financing cash shortfall under a 3RS scenario, which is defined as the net additional cash required by AAHK to meet the costs under the 3RS scenario after consideration of the expected cash surplus arising from the existing business, but before considering any additional financing that may be raised.



Identify key risks and perform sensitivity analysis

**Key objectives**

- Identify the key areas of risk
- Perform sensitivity analysis in conjunction with AAHK to evaluate the impact of downside cases on the additional funding requirement and financial profile of AAHK

Utilising the detailed review of the key assumptions, HSBC has identified key areas of uncertainty for the 3RS project. From this risk analysis, HSBC, in consultation with AAHK has derived a set of sensitivity cases to assess the impact of possible deviations from the working case assumptions.



Identify financing sources and highlight risks consideration

**Key objectives**

- Identify key sources of third party financing
- Highlight key risks consideration associated with the financing plan and make recommendations on reducing financing risks

Based on the calculated pre-financing cash shortfall and HSBC's understanding of the key risks of the 3RS project, HSBC has identified sources of third party financing to fill the funding gap. HSBC has highlighted key risk considerations of AAHK's funding plan and recommended measures to reduce financing risks of the plan.

## 4. Working case assumptions

### 4.1 Overview of working case assumptions

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In order for HSBC to create a set of financial projections, a set of working case assumptions was developed in collaboration with AAHK.

For the avoidance of doubt, HSBC does not represent that these working case assumptions and projections are the most likely outcome. There is uncertainty associated with the outcome of many of the key assumptions and that it is possible that one or more of these assumptions may be different (higher or lower) from that incorporated in the working case forecasts. As such, there remains the risk that the actual financial results, or future projected results, may be different from the working case forecasts. These risks are discussed in Chapter 6.1.

### 4.2 Review of traffic assumptions

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**4.2.1**  
*Overview of traffic forecasts*

The traffic forecasts for the 3RS project are critical to the underlying decisions on capex and provide a key cornerstone for the financial analysis of AAHK. The traffic forecasts directly drive AAHK's revenue from terminal building charge, passenger charge and retail revenues. Passenger and cargo traffic drive the number of ATMs which in turn, determines landing and parking charge revenue as well as other revenues. Additionally, the traffic forecasts also drive key opex items.

Following on from the work conducted as part of the MP2030 study, the AAHK re-appointed IATA Consulting as Traffic Consultant in 2012 to update their passenger, cargo and ATM forecasts for HKIA. As traffic had grown faster than originally forecasted in MP2030, traffic would become constrained by two runway capacity (420,000 ATMs per year) for a number of years before 3RS is completed and operational. Therefore, as part of their update, IATA Consulting has produced a constrained traffic forecast which reflects the constrained capacity at the HKIA until the 3RS is completed and operational.

In the current financial projections, for the period covered by the 5-Year Plan, AAHK has adopted its own in-house forecast which has been approved as part of the 5-Year Plan process. The updated constrained traffic forecast by IATA Consulting has been adopted for the period after the 5-Year Plan.

**4.2.2**  
*Summary of material reviewed*

IATA Consulting has issued a memorandum which explains the approach that has been followed by IATA Consulting to prepare the updated constrained forecasts from the MP2030 unconstrained forecasts. HSBC has reviewed this memo and a due diligence meeting with IATA Consulting has been conducted to understand the basis of the updated forecasts.

**4.2.3**  
*Changes in IATA Consulting's forecasting approach vs MP2030*

In MP2030, IATA Consulting's AAHK forecasting model relied on a dual approach combining top-down and bottom-up analysis. The top-down approach was made up of three major modules:

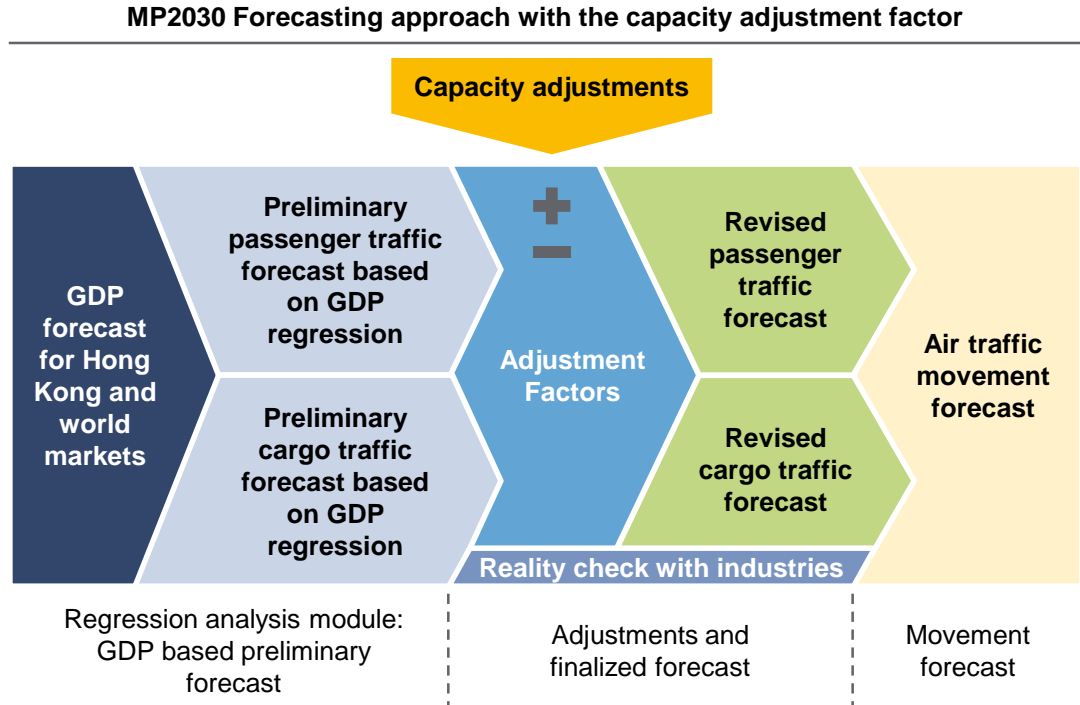
1. Regression analysis of historical traffic against GDP in constant dollars in order to construct a baseline passenger and cargo traffic projection
2. Adjustment module which considered current and future changes in the airport environment which were not present in the historical analysis and thus not incorporated into the baseline forecasts
3. Movement forecast to derive the number of aircraft movements based upon the traffic forecasts

The bottom-up analysis checked the relevance of the traffic forecast in light of airline strategies.



The MP2030 traffic forecast did not require any capacity constraint to be considered. Following stronger than expected economic and traffic growth after the preparation of MP2030 traffic forecast, IATA projects that traffic at HKIA would be constrained by two-runway capacity (420,000 ATMs per year) for a number of years before 3RS commences operations, resulting in a constrained growth of passenger and cargo traffic during those years. The potential impact of this capacity constraint has been assessed by IATA Consulting through a detailed analysis when updating the traffic forecast for the EIA study and this financial arrangement study.

**Chart 4 – IATA consulting forecast model**



**4.2.4  
Impact of  
capacity  
constraint**

To quantify the impact this constraint may have on the traffic forecast, IATA Consulting has conducted a detailed analysis which consists of:

- Assessing (terminal and airside) airport capacity constraints and requirements according to international best practice
- Evaluating the impact of these constraints on schedules, including aircraft type, load factor and flight time
- Conducting an extensive survey covering 31 airlines representing 67% of the ATMs on a “busy day” to support the evaluation above

The constrained traffic projections used in this financial arrangement study show that traffic would start to be constrained at two-runway capacity in 2016 or 2017. ATM volume would remain constant during the constrained period. Some airlines will use larger aircraft and load factors will rise slightly. Therefore overall, the passenger and cargo traffic will keep growing during the constrained period, but at a much slower pace than under the original MP2030 forecast. Passengers and cargo are expected to fall slightly behind the original MP2030 forecasts in 2022 because of two-runway capacity constraint, but would catch up to demand level soon after 3RS is completed and operational.

4.2.5  
IATA  
consulting  
forecast  
statistics

Based on the methodology described above, air traffic demand forecasts for HKIA estimate that total traffic will reach 102.3 million passengers per annum and 8.9 million tonnes of cargo by 2030. By then, ATMs will have been forecasted to reach around 607,000 per annum.

HSBC considers that the methodology adopted by IATA Consulting is reasonable and appropriate for the purposes of preparing the traffic forecasts used in the financial projections.

In addition to the base case, IATA Consulting also provided a set of high and low case traffic forecast numbers up to 2030, which were derived by statistical method based on the same level of GDPs used in the base case.

**Chart 5 – Summary of IATA Consulting traffic forecasts in 2030\***

	High case	Base case	Low case
Passenger (million per annum)	108.4	102.3	94.7
Cargo (million tonnes per annum)	9.5	8.9	8.2
ATM (thousand per annum)	619.0	607.0	569.0

\* Based on calendar year

### 4.3 Review of revenue assumptions

HSBC has reviewed the key revenue assumptions as described in the following sections.

4.3.1  
Airport charges  
per unit

The level of airport charges is an important assumption as airport charges account for a significant proportion of the Airport's revenues (26% of total AAHK revenue in FY2013/14). This revenue is driven by two key factors, (i) traffic volume and (ii) airport charges per unit.

Airport charges have three components: (1) landing charges (based on aircraft maximum take-off weight), (2) parking charges (based on parking time and types of parking stands; assumed to be a certain % of landing charges based on historical data for modelling purpose as this percentage has been relatively stable over previous years) and (3) terminal building charges (fixed charge per departing passenger).

HSBC notes that airport charges have been, and likely will continue to be, driven by the objective of maintaining Hong Kong's status as an international and regional aviation centre and not solely by a profit maximising strategy. For the purposes of the financial analysis and modelling, after discussion with AAHK, airport charges (landing, parking and terminal building charges) are assumed to be brought back to the level in 2000 starting from FY2016/17 and subsequent increases in line with inflation (15% every 5 years).

The assumed airport charges increases (after tax and opex) will contribute around HKD7bn incremental cash flow up to FY2023/24 for funding the construction of 3RS. Whether and how the actual airport charges are adjusted annually or at a specific regular interval would be subject to consultation with stakeholders.

The assumed increases can be considered reasonable when taking into account the relative low level of charges increase at HKIA compared to other airports and the fact that the proposed increase is equivalent to 3% per annum, in line with inflation.

HSBC understands from AAHK that as long as proposed increases are reasonable and non-discriminatory (to comply with ICAO principles), increases could be proposed after proper airlines consultation. AAHK needs to seek approval of proposals related to airport charges from the Chief Executive in Council via the Director-General of Civil Aviation, and for such proposals to be published in the Gazette before they can become effective.

4.3.2  
Passenger  
charges

Passenger charges include charges directly levied on passengers. These may be collected by AAHK directly or through third parties such as the airlines. Currently, AAHK levies a Passenger Security Charge on each departing passenger which is collected through the airlines. A new

passenger charge, an Airport Construction Fee, is assumed to be introduced to help finance the 3RS as described below.

4.3.2.1  
Passenger  
Security Charge

Passenger Security Charge accounted for 7% of AAHK's total revenue in FY2013/14. AAHK currently levies a HKD45 Passenger Security Charge per departing passenger from HKIA which is included in the ticket price for passengers and collected by the airlines on behalf of AAHK.

The level of Passenger Security Charge levied is designed to allow recovery of security costs incurred by the AAHK and it would make no net contribution to the funding of 3RS because this revenue would be fully spent on security related expenses and investment.

For the purposes of financial analysis, the Passenger Security Charge per departing passenger is assumed to increase with inflation.

HSBC considers this assumption to be reasonable given that this is consistent with the assumed increase in unit security costs which are projected to increase with CPI.

4.3.2.2  
Airport  
Construction Fee

AAHK proposes to introduce a new passenger charge, the Airport Construction Fee ("ACF") to help finance the 3RS. ACF aligns with the user pay principle and levying some form of construction charge on passengers to help fund major capex projects is common for airports in many countries as shown in **Chart 6** below. The ACF is assumed to be charged on all departing passengers from FY2016/17 up to the time when all the 3RS debt is fully repaid. For the purpose of financial modelling, this is assumed to be until 31 March 2031. Following ExCo's recommendation in March 2015 to revisit the originally proposed HKD180 ACF level, the level of ACF has now been revised after consultation with key stakeholders and adjusted to be dependent on the class (premium or economy), distance (long haul or short haul) and type of travel (origination/destination ("OD") or transfer/transit ("TT")) as per **Chart 7** below.

**Chart 6 – Examples of ACF around the world**

Airport/ Country	Name of Charge	Description	HKD Equivalent <sup>1</sup>
<b>US</b>	International Transportation Tax <sup>2</sup>	USD17.7/arriving or departing international passenger	137
<b>Mainland</b>	Airport Construction Fee <sup>3</sup>	RMB90/departing international passenger	114
<b>Toronto</b>	Airport Improvement Fee	CAD25.00/departing originating passenger	172
<b>Vancouver</b>	Airport Improvement Fee	CAD20.00/departing passenger <sup>4</sup>	138
<b>Calgary</b>	Airport Improvement Fee	CAD30.00/departing passenger Exempt: infants, transit/transfer (24hrs)	206
<b>Athens</b>	Airport Development Tax	EUR22.00/departing passenger <sup>5</sup> Exempt: children under 5, transit, transfer (24hrs), crew	218
<b>Delhi</b>	Airport Development Fee	INR600.00/departing passenger Exempt: infants, transit/transfer (24hrs), crew	76

Note:

1. HKD 1 = CAD 0.1454, EUR 0.101, INR 7.92, USD 0.1289, RMB 0.7895 (Bloomberg, 19 Oct 2014)
  2. Tax collected will go to Airport and Airway Trust Fund (AATF) that feeds the Airport Improvement Program which provides funds for airports to pay for approved infrastructure projects
  3. Contribute to Aviation Development Fund under the Ministry of Finance which provides funds to individual airports for their expansion needs
  4. To international destinations other than British Columbia & Yukon
  5. Destination outside EU/EEA
- Sources: AAHK and public websites

**Chart 7 – ACF charges per departing passenger**

OD	Premium	Economy	TT	Premium	Economy
Long Haul	HKD180	HKD160	Long Haul	HKD180	HKD160
Short Haul	HKD160	HKD90	Short Haul	HKD160	HKD70

**Note:**

The split of passengers between long and short haul follows the definition used by the Civil Aviation Department, when determining fuel surcharges, as follows:

- Long haul – To North & South America, Europe, Middle East, Africa, Southwest Pacific, Indian Subcontinent
- Short haul – To any other destinations

In our financial analysis, the passenger split is assumed to be 19% (long)/81% (short) for OD passengers and 35% (long)/65% (short) for TT passengers, and is based on actual 2014 numbers. The proportion between OD and TT passengers is 70%:30%. These splits are assumed to remain constant throughout the ACF collection period and this is considered an appropriately conservative assumption based on traffic pattern in recent years.

The split between Premium and Economy passengers is 9%/91%. This has been estimated by AAHK in consultation with a number of airlines.

In setting the revised structure and level of the ACF, AAHK management has consulted key stakeholder groups including passengers, major home base carriers and the travel industry. This charging structure which differentiates by class, distance and type of travel, as well as the absolute and relative charging levels aim to address the concerns of these different stakeholders whilst also considering the impact on the financial position of AAHK. HSBC understands that AAHK will continue to engage the community to explain the need of ACF at these new levels. The new ACF levels as a percentage of overall air ticket cost are low. Examples of the proposed ACF as a percentage of ticket prices are shown in **Appendix 3**. In the original MP2030 Primary Traffic Forecast as well as in the more recent updated traffic forecast for the EIA, IATA Consulting found that HKSAR GDP explained more than 99% of HKIA historical traffic growth. These studies also concluded that price had not been a significant driver to HKIA historical passenger demand.

AAHK management does not envisage major impact on HKIA's attractiveness and competitiveness as an aviation hub arising from the introduction of the ACF.

On the basis described above, HSBC considers the ACF assumptions to be reasonable.

#### 4.3.3 Retail and advertising revenue

Retail and Advertising revenue accounted for approximately 43% of total AAHK revenue in FY2013/14, representing the largest component of AAHK's cash generating ability.

From FY2014/15-FY2018/19, the Retail and Advertising revenues are assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, Retail and Advertising revenues are forecasted to grow in line with growth in passenger traffic and escalated with CPI.

HSBC believes that this assumption is reasonable.

#### 4.3.4 Airport Support Services Franchises

Total revenues from Airport Support Services Franchises ("ASSF") accounted for 10% of total AAHK revenue in FY2013/14. This includes franchises which cover services such as cargo support, aviation fuel system, aircraft catering and aircraft base maintenance.

From FY2014/15-FY2018/19, the ASSF revenues are assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, AAHK has made detailed revenue projections based on each individual ASSF. In general, depending on the nature of the ASSF contract, these have been increased with CPI and, where volume driven, growth in traffic (passengers, cargo or ATM as appropriate). HSBC considers these assumptions to be reasonable.

**4.3.5** Other Terminal Revenue accounted for 8% of AAHK's total revenue in FY2013/14. Other Terminal Revenue includes rental income earned from various terminal assets such as VIP lounges, store rooms and offices. From FY2014/15-FY2018/19, Other Terminal Revenues is assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, AAHK has projected other Terminal Revenues based a cost per square foot basis which is escalated with the Commercial Property Index, the available rental space and occupancy levels in line with historic levels. HSBC considers these assumptions to be appropriate given the nature of this revenue stream.

**4.3.6** All other revenues (including revenues from other airport related facilities and real estate) in aggregate accounted for 6% of AAHK's total revenue in FY2013/14. HSBC has reviewed the assumptions used in the financial projections and considers these to be reasonable.

## **4.4 Review of opex assumptions**

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HSBC has reviewed the key opex assumptions as described in the following sections.

**4.4.1** HKG charges accounted for 21% of the Airport's total expenses in FY2013/14. The majority of these charges relate to the provision of Air Traffic Control services. From FY2014/15-FY2018/19, the HKG charges are assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, the HKG Charges are projected to increase with CPI, with a step-up the additional services that will be required under the 3RS.

HSBC considers these assumptions to be reasonable.

**4.4.2** Staff costs accounted for 19% of AAHK's total expenses in FY2013/14. From FY2014/15-FY2018/19, staff costs are assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, AAHK has estimated staff numbers in light of both the organic growth as well as the additional staffing requirements arising from the 3RS operations.

Staff costs associated with the construction of the 3RS have been included in the capex cost estimates and have not separately been included in these projections.

HSBC considers these assumptions to be reasonable.

**4.4.3** Maintenance costs accounted for 16% of AAHK's total expenses in FY2013/14. From FY2014/15-FY2018/19, the maintenance costs are assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, maintenance costs for existing assets are assumed to grow in line with CPI. For new assets, maintenance costs are projected based on prevailing rates, adjusted for CPI, and the associated capital costs of different types of assets. Synergy factors are also considered in the forecast.

HSBC considers these assumptions to be reasonable.

**4.4.4** Security costs accounted for 15% of AAHK's total expenses in FY2013/14. From FY2014/15-FY2018/19, security costs are assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, security costs are projected to increase with CPI.

HSBC considers these assumptions to be reasonable.

**4.4.5** Contract Services accounted for 10% of AAHK's total expenses in FY2013/14. From FY2014/15-FY2018/19, Contract Services costs are assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, Contract Services costs

for existing facilities are assumed to increase with CPI. Contract Services costs for new facilities are based on incremental space and adjusted by CPI.

HSBC considers these assumptions to be reasonable.

**4.4.6**  
*Utilities*

Utilities costs accounted for 6% of AAHK's total expenses in FY2013/14. From FY2014/15-FY2018/19, utilities costs are assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, utilities expenses for existing facilities are adjusted with CPI. Utilities expenses for new facilities are based on incremental space adjusted by CPI.

HSBC considers these assumptions to be reasonable.

**4.4.7**  
*Other opex*

All other opex items in aggregate accounted for 13% of AAHK's total expenses in FY2013/14, which include rates and government rent, costs for IT services and telecommunications and other miscellaneous opex items. These are assumed to follow the projections in the 5-Year Plan from FY2014/15-FY2018/19. Thereafter these expenses, depending on the category, are expected to increase in line with one of revenue or CPI or as specifically estimated based on additional requirements after the midfield and 3RS commence operations. HSBC considers these assumptions to be reasonable.

## **4.5 Review of 3RS capex assumptions**

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**4.5.1**  
*Overview of capex estimates*

Atkins (contract P281), AECOM (contract P282) & Mott (contract P283) have been engaged by AAHK to provide a refined Scheme Design completed as part of 3RS project. L&S has been appointed as the Quantity Surveyor to assist in the preparation of a project cost estimate. The ultimate project costs, as well as the spend profile, form a vital input into the 3RS financial analysis.

HSBC has reviewed the materials presented by AAHK and the consultants including Atkins, AECOM, Mott and L&S. This section summarises the 3RS Scheme Design.

The 3RS Scheme Design has been broken into the following components:

- P281 covering land reclamation
- P282 covering T2 expansion works
- P283 primarily covering the Third Runway Concourse and associated infrastructure works
- P291 & P292 covering the quantities surveyor's report for the three components above

**4.5.2**  
*Engineering consultant approach*

On the basis of the Scheme Design conducted by Atkins, AECOM & Mott, L&S has produced a cost estimate. This estimate is based upon estimates derived from a mix of:

- Current market prices
- Preliminary quotes from potential suppliers (land formation, APM and BHS)
- Comparable projects in Hong Kong (terminals, airfield facilities, land infrastructure) and elsewhere

Cost estimates are based on price levels at the time of estimation and adjusted for inflation.

**4.5.3**  
*Capex estimate*

The capex estimates compiled by L&S were based on the Scheme Design utilising a combination of comparisons with recent airport projects and other major construction work contracts.

HSBC notes that the capex estimates include:

- Design, site supervision and project management costs
- A 15% contingency

Total 3RS capex estimate is estimated at HKD141.5bn in MOD prices in the working case financial analysis, which will be further validated and optimised during detailed design stages. Breakdown of the total 3RS capex estimate is shown below:

**Chart 8 – Total 3RS capex estimates (MOD prices)**

Item	MOD prices in HKDbn <sup>1</sup>
Reclamation works	58.7
T2 expansion	19.3
TRC and infrastructure	63.5
<b>Total</b>	<b>141.5</b>

The above figures are subject to rounding differences.

Of these cost estimates, the main cost item is the land formation works, which is necessary in order to reclaim the land required for the third runway and TRC. Comparable in size to the reclamation works for the initial airport development, this will be conducted in deeper waters and will require a more complex technology due to contaminated mud pits that were either originally dug to provide landfill for the initial Airport construction or formed by the Government for subsequent disposal of contaminated mud from other projects in Hong Kong.

**4.5.4**  
*Timing of construction*

The financial model is predicated on the assumption that the construction will start in FY2016/17 and last for 8 years.

**4.5.5**  
*Capex conclusion*

In summary, the Scheme Design Consultants and Quantity Surveyor’s work reviewed by HSBC has been consistent with our expectations for a project of this nature. However, a project of this size, duration and complexity is invariably subject to considerable capex cost risk. These risks are outlined in Section 6.1 of this report. HSBC notes that a 15% contingency has been applied to the capex estimates. However, there remains the potential for unspecified capex costs to exceed this contingency amount and hence for the final capex outturn to exceed the working case assumption. As such, the financial arrangement plan itself should have sufficient contingencies and robustness to withstand the need to finance potential capex overruns.

**4.6 Review of non-3RS capex assumptions**

Non-3RS capex comprising replacement capex and capex for other capital works totals HKD41bn from FY2015/16 to FY2023/24.

**4.6.1**  
*Replacement capex*

Replacement capex covers the replacement of both existing and new assets at the end of their useful lives. The replacement cost is based on initial capital costs, increased with the construction cost indexation.

Given AAHK’s high capital asset base, replacement capex represents a material use of cash for AAHK over the forecast horizon. In order to better predict future replacement capex requirements, AAHK engaged the PolyU Technology & Consultancy Co. Ltd. to undertake a study into the useful lives of the assets at HKIA. This study utilised models based on sound theoretical foundations and proven decision tools with real historical data and projections extrapolated from known trends. The outputs from this study were then applied by AAHK to forecast future replacement capex requirements.

HSBC believes the above approach is reasonable.

1. Includes design/project management cost and contingency (15%)

4.6.2  
*Other capital works*

Other capital works programmes outside of the 3RS project and replacement capex include projects such as:

- Midfield Phase 2
- Remaining Midfield development
- Northern Commercial District (“NCD”) landlord provision, constraints and adjustment of carpark locations due to NCD
- Boundary Crossing Facility (“BCF”) related road connection outside the airport island
- T1 capacity enhancement
- Intermodal Transfer Terminal

Currently there are no costs related to the NCD construction or any revenue associated with the project within the financial model. Once further details on this project are developed, AAHK may need to revise its projections accordingly and adjust the financial plan if required.

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## 4.7 Review of CPI assumption

For the 5-Year Plan period from FY2014/15-FY2018/19, CPI is assumed to follow the projections in the 5-Year Plan. From FY2019/20 which is beyond the period covered by the 5-Year Plan, CPI is projected to increase at 3% per annum.

HSBC believes that this assumption is reasonable, as it is broadly in line with market forecast. The assumption is also consistent with the average increase in CPI over the last 25 years, which represents a balance between periods of high historic CPI in the 1980s and the more moderate rates experienced in the 1990s and for much of the period since then.

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## 4.8 Application of surplus funds

The projections have been prepared on the expectation that AAHK will retain all surplus funds from operations and apply these to meet 3RS project costs until completion of 3RS.

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## 4.9 Cost of borrowing

AAHK has various sources of funding that may be considered as described in Section 7. The actual cost of borrowing will depend on market conditions at the time of borrowing.

For the purpose of preparing an assumption for the cost of borrowing used in the financial analysis, HSBC has considered that the cost of borrowing to be made up of 2 components, being an underlying benchmark rate and a “spread” over this rate.

For the underlying benchmark rate, HSBC has used the average historical yield on 10-year US Treasury since 2000, which is at approximately 3.8%. For the spread, HSBC has used the assumption of 1.2%, being the average mid-market spread over the US Treasury yield of AAHK’s most recent bond for the last 8 years prior to its maturity in 2013. Based on this analysis, the cost of borrowing is assumed at 5% in the financial model.

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## 4.10 Review of financial model

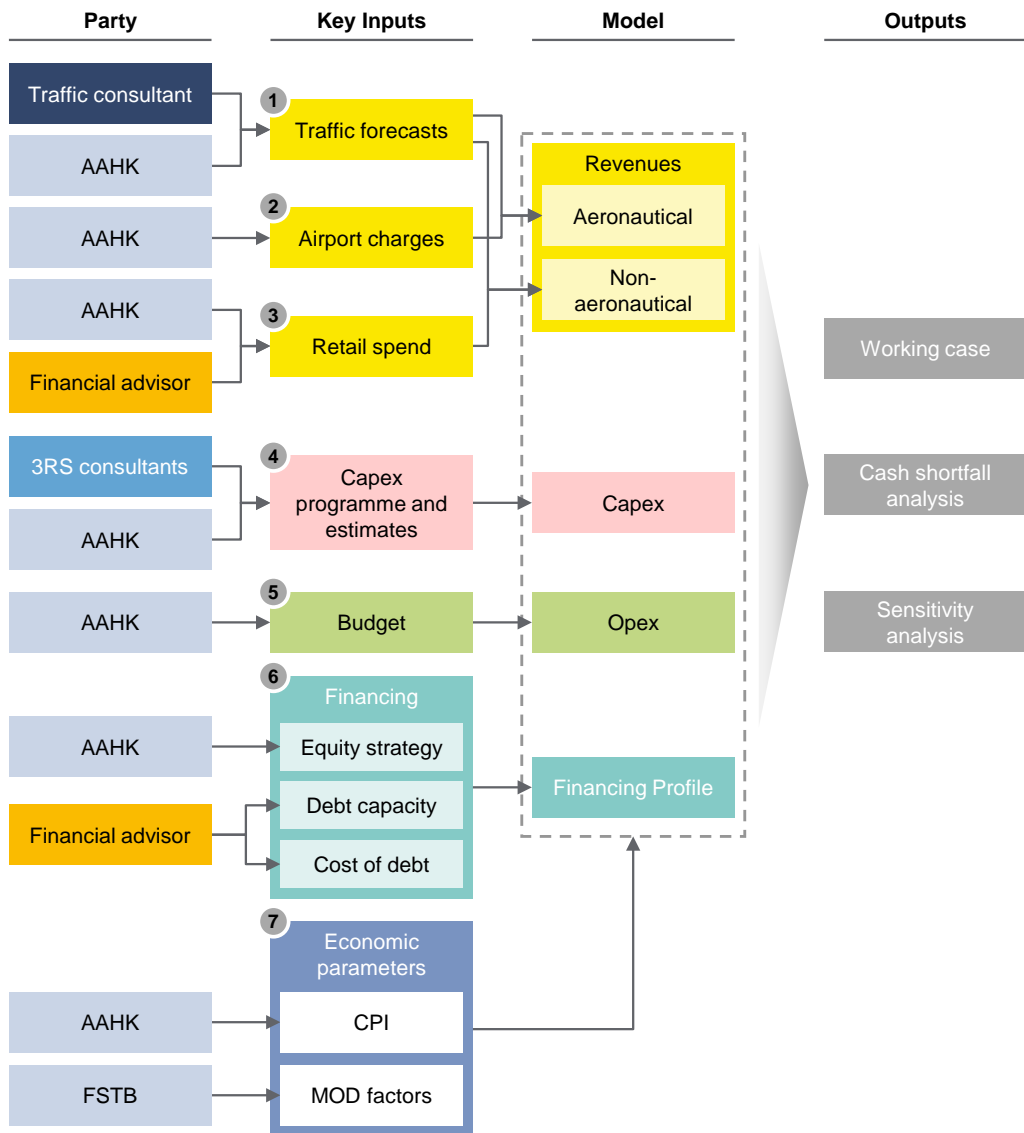
HSBC has conducted a thorough review of the financial model and tested various model functionalities. This review was supplemented with face-to-face meetings and discussions with AAHK personnel responsible for the construction and maintenance of the financial model.

The main purposes of HSBC’s review were to validate the logical integrity of the financial model and to ensure that the assumptions (outlined in the sections above) were accurately reflected in the financial model. The diagram below visually describes how the key inputs have been provided,



what these key inputs consist of, how they are applied by the financial model, and finally the nature of the model outputs.

**Chart 9 – 3RS key inputs/outputs dynamics**



HSBC has concluded that:

- The model reflects the AAHK’s 5-Year Plan (FY2014/15-FY2018/19)
- The model reflects AAHK’s internal accounting policies<sup>2</sup>
- The model reflects the traffic forecast and capex estimates conducted by external consultants for the 3RS
- The model reflects the assumptions made internally by AAHK
- The model is robust, accurate and constructed in a logical and consistent manner

The financial model is a key tool in performing:

- Cash Shortfall Analysis
- Sensitivity Analysis

2. With the exception that land depreciation assumes the renewal of land lease beyond 2047

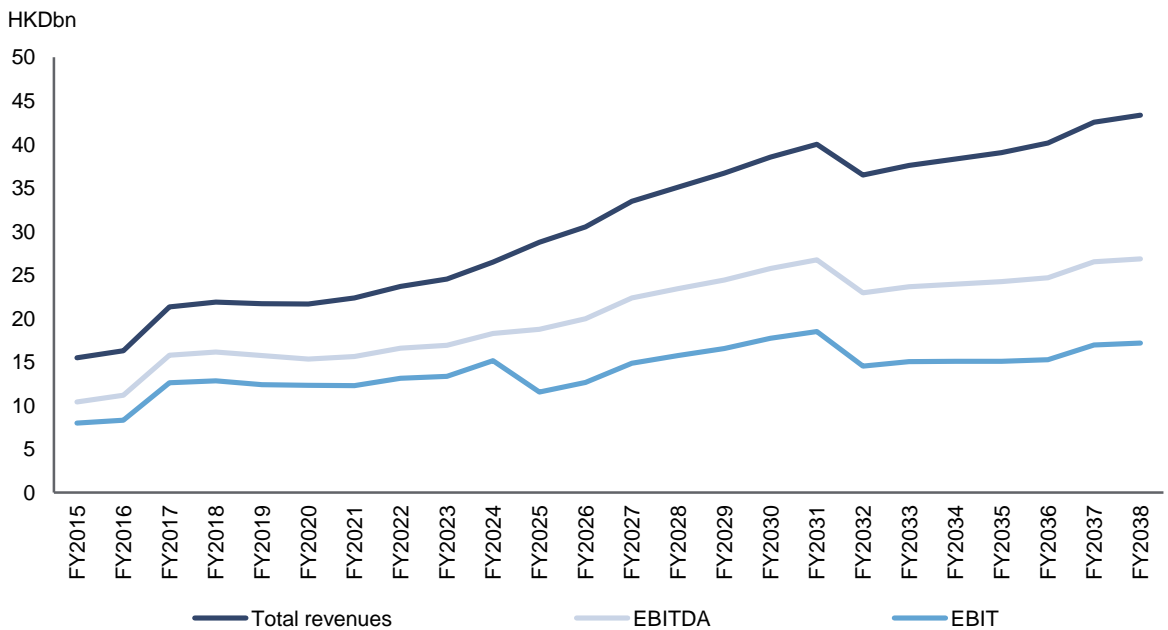
## 5. Working case cash shortfall analysis

### 5.1 Working case financial projections

The working case assumptions reviewed in Chapter 4 have been captured in the financial model which has been used to produce financial projections for AAHK as a whole, including the undertaking of the 3RS project.

The projections show that AAHK remains profitable throughout the modelling period. There is a step up in revenue in FY2016/17 when the ACF is introduced, which represents a new source of income for AAHK. However, growth in revenue, EBITDA and EBIT is muted compared with historical levels as HKIA becomes capacity constrained. Revenues and EBITDA are forecasted to grow more rapidly from FY2024/25 following the opening of the 3RS, though are subject to a step-down after FY2030/31 when the ACF is expected to be removed.

**Chart 10 – Working case P&L**



### 5.2 Closing the funding gap

It is assumed that surplus funds from operation will be retained and applied to meet 3RS costs until completion of 3RS.

The table below summarises the cumulative cashflow of the working case from FY2015/16 to FY2023/24. The cash surplus from AAHK’s existing business after accounting for the new ACF and incremental Airport and Passenger Security Charges will still be HKD52bn short of the total 3RS capex cost estimate. AAHK will need to raise HKD69bn incremental debt to fund this HKD52bn cash shortfall and the HKD17bn cost of debt.

**Chart 11 – Cashflow Summary**

<b>Cumulative FY2015/16 to FY2023/24</b>	<b>HKDbn</b>
Cash surplus from existing business (pre-financing)	90
3RS capex estimate	(141.5)
<b><i>Pre-financing cash shortfall</i></b>	<b>(52)</b>
Incremental Debt	69
Cost of debt	(17)
	<b>52</b>
<b><i>Funding gap (post-financing)</i></b>	<b>0</b>
Max debt/EBITDA	4.5x

Total external debt of AAHK will reach HKD77bn in FY2023/24 (HKD8bn existing plus HKD69bn incremental debt) and AAHK's Debt/EBITDA will reach a maximum of 4.5x in FY2022/23 during the 3RS construction period.

## 6. Key risks and sensitivity analysis

### 6.1 Key risks identification

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#### 6.1.1 *Introduction*

The 3RS project represents a large, highly complex project, to be developed over a long period. The financial projections and assessed funding requirement are based on an extensive set of assumptions and estimates which are subject to a certain degree of uncertainty which might result in a significant deviation from the working case. In this section, HSBC identifies and highlights some of the key risk areas associated with 3RS project which have the potential to impact the financial position of AAHK.

HSBC has also undertaken a sensitivity analysis to simulate the financial impact on AAHK under a number of downside scenarios. These scenarios seek to address the uncertainties surrounding key assumptions.

The outputs from this analysis provide insight into the robustness of AAHK's business and financial profile under stressed cases, and the quantum of potential additional funding requirement. Additionally, this analysis is considered to be representative of the approach potential debt providers may take when evaluating AAHK's financial profile.

#### 6.1.2 *Traffic risk*

The difficulties in accurately forecasting long-term traffic are widely acknowledged and recognised across a number of sectors, including airports.

The Airport's long operating history and relatively extended period of historic traffic data provide for a sounder basis from which to forecast long-term traffic compared to greenfield assets. Nonetheless, HSBC is of the view that risks still remain in the traffic forecasting process for the reasons described below.

#### 6.1.2.1 *Accuracy of GDP growth forecast*

As described in Chapter 4.2.3, IATA Consulting's forecast methodology is based on a strong correlation with GDP. Therefore, even if the underlying correlation with GDP holds, the accuracy of IATA Consulting's forecasts for both passengers and cargo is directly linked and proportional to the accuracy of the GDP forecasts used in IATA Consulting's regression model.

GDP assumptions used by IATA Consulting in its forecasts were primarily based on forecasts from Global Insights and the Economist Intelligence Unit (EIU). HSBC also notes that:

- Long-term GDP is very difficult to forecast accurately due to the large number of factors that can impact long-term GDP growth
- Projections of long-term GDP from different economists can vary substantially, despite being made at the same time
- The actual GDP from 2010 to 2014 has been significantly higher than projected in 2010. Traffic numbers have also been commensurately higher than projected in 2010

#### 6.1.2.2 *Risk to changing elasticity*

The IATA Consulting forecasts assume the historical elasticity between GDP growth and traffic holds over the forecast period.

IATA Consulting believes that this is consistent with their experience of airports in different economic environments. IATA Consulting views the Airport as exhibiting characteristics of both a mature market, as represented by the immediate Hong Kong catchment area, and a developing market, as represented by its wider GPRD catchment area. Whilst developing markets experience higher elasticity, mature markets tend to exhibit lower elasticity.

HSBC notes that any change in elasticity can lead to changes in the traffic numbers based on the same level of GDP.

6.1.2.3  
*Greater competition from other GPRD airports*

With increasing competition from other GPRD airports, IATA Consulting has forecasted a declining market share of the total GPRD traffic for the Airport.

Despite this decreasing market share, IATA Consulting has assumed that passengers will continue to travel from the PRD in large (and growing) numbers to fly out of Hong Kong. HSBC considers IATA Consulting's analysis to be reasonable.

However, HSBC notes that there are a number of factors which could present downside risks to this assumption, such as:

- Guangzhou (CAN)'s status as one of the three designated International Hubs in China, with strong policy support to grow its international traffic. If CAN is successful in more aggressively growing its international traffic, fewer PRD residents will be expected to travel to Hong Kong to make international journeys
- Faster-than-expected development of GPRD airports (including Shenzhen airport) in terms of increasing capacity and flight availabilities, allowing these airports to capture a larger market share than is currently forecasted

It is noted that the development of the 3RS project is critical to the Airport maintaining its competitive position in the growing PRD Region and, the Hong Kong-Zhuhai-Macau Bridge will enhance HKIA's connection to the wider GPRD catchment area.

6.1.2.4  
*Change in traffic mix and aircraft size*

IATA Consulting's forecast mix of aircraft size and traffic type dictates the TRC and stand layout. A significant change in the forecast may affect this design basis and any re-design will have implications on cost and construction programme timeline.

To mitigate this risk, the final layout can be adjusted during detailed design if necessary.

6.1.2.5  
*Change in ATM constraint assumption*

HSBC notes that the 3RS has been planned on the assumptions that the traffic demand would reach 607,000 ATMs per annum by 2030, an air traffic forecast prepared by IATA Consulting based on long-term forecast having taken into account local and global circumstances, and capacity constraint of 620,000 ATMs per annum as advised by NATS. Any significant change to these assumptions can lead to significant changes in revenues.

6.1.3  
*Capex cost estimation risk*

There are risks associated with the estimation of the costs of extensive works required. The work done to date by Atkins, AECOM, Mott and L&S has attempted to limit these risks by conducting thorough and professional planning. However, the consultants and HSBC have identified a number of key risks which still remain.

6.1.3.1  
*Land formation*

HSBC notes that there are risks surrounding the land formation works which could impact the project costs and schedule. Whilst Hong Kong has extensive experience in land formation, for example from the original development of the Chek Lap Kok site, changes in environmental policy have meant that the historical methods applied are no longer permitted. In particular, current environmental policy does not allow for the large scale removal of marine mud, a technique used extensively on past projects to provide sound foundations. Consequently, alternative methods have been required to be developed to implement the 3RS project.

6.1.3.1.1  
*Untested land formation technique*

The land formation techniques proposed for 3RS project includes extensive deployment of Deep Cement Mixing ("DCM").

HSBC understands from the consultants that, from an engineering perspective, DCM is not technically complex and is becoming more widely adopted as a result of new environmental regulations. However, it has not been applied before in Hong Kong or on the scale proposed for the 3RS project. As such, its application carries additional technical risks, given higher uncertainty surrounding the process and less experience of the operators. HSBC notes that to reduce the

uncertainty associated with DCM implementation, AAHK is conducting DCM trials with about 400 DCM clusters to validate the productivity of the DCM plant and establish a programme based on findings.

6.1.3.1.2  
*Scale of DCM  
equipment  
requirement*

HSBC also notes the potential for higher than expected cost escalations of the DCM works arising from the scale of the DCM operation proposed for the 3RS project. The DCM requirement for the 3RS project is substantial compared with the historic amount of DCM conducted globally to date, and therefore will require a significant portion of the entire DCM equipment available globally. HSBC has been informed that whilst it is possible to adjust other forms of equipment to perform DCM work, it is unclear if such equipment would be as efficient or cost effective as dedicated machinery. Therefore, should there be a shortage of suitable equipment, it is possible that cost escalations or delays could result.

6.1.3.1.3  
*Contaminated  
mud pits*

HSBC understands that the proposed DCM works are required due to the presence of large contaminated mud pits in the reclamation area and to meet current environmental requirements.

These mud pits were either originally dug to provide landfill for the initial Airport construction or formed by the Government for subsequent disposal of contaminated mud from other projects in Hong Kong. As such, the nature of the mud in these pits is less solid than undisturbed marine mud and consequently requires DCM techniques to provide a sound foundation. However, the precise condition of the mud remains unknown and may vary significantly in different parts of the pits. Where the mud conditions prove to be less solid than expected, larger amounts of cement may be required, leading to higher costs. Mott estimates that in a worst case scenario where the condition of the mud proved to be sufficiently poor to require the entirety of the pits to be filled with cement, DCM costs would increase significantly. However, Mott believes that such a scenario would be unlikely.

HSBC notes that to reduce the uncertainty associated with DCM costs and schedule, AAHK is conducting DCM trial with about 400 DCM clusters to verify the engineering assumptions, optimise the ground improvement design and the amount of cement that will be required to stabilise the ground conditions. This trial commenced in April 2015.

6.1.3.1.4  
*Reclamation  
materials*

HSBC notes the large scale of the project and understands that the procurement of fill materials required for the 3RS project is dependent on Hong Kong-Mainland governmental negotiations. HSBC notes the risk that these negotiations may take longer than expected or that the resultant price for materials may be higher than forecasted. If the PRC is unwilling to provide permits for any sand exports from its territory, the costs would be significantly higher for sand sources from other nearby Asian countries. A detailed sand procurement strategy would need to be developed, including the split of volume across different timeframes, number of suppliers to be used and amount of redundancy. HSBC gains comfort from the continuous coordination on all major projects between the HKG and Mainland administrations. HSBC also understands that HKG is working closely with Mainland authorities and AAHK on securing marine sand supply for the 3RS project.

6.1.3.1.5  
*Reliance on  
quotes "bidder bias"*

HSBC notes that certain elements of the cost estimate provided by L&S may be exposed to the risk of "bidder bias" which may result in an underestimation of procurement costs. In compiling its cost estimates, L&S has used the resources approach and obtained indicative quotes from potential suppliers for large cost items such as DCM works. In HSBC's experience, suppliers are typically strongly incentivised to see a project proceed, and consequently may deliberately underestimate the true cost in their quotes. Furthermore, as the suppliers are not bound to their indicative quotes, there is no disincentive to them from taking this approach.

The risk of "bidder bias" has been partially mitigated by the fact that L&S obtained quotes from contractors worldwide including Japan, Korea and Europe as benchmark references for their estimates.

6.1.3.2  
*Interface risk*

HSBC understands that AAHK will enter into a significant number of major contracts for delivery of key components of the 3RS project. AAHK's experienced contracting team will manage the overall construction programme including the interface risk with individual contractors. In HSBC's experience, this risk is significant for a project as large and complex as the 3RS project. HSBC understands that AAHK will engage designated risk management specialist team throughout the project implementation period to ensure all potential risks are well managed.

6.1.3.3  
*Baggage handling risk*

HSBC understands that as part of the 3RS project, a new baggage handling system will be installed. Such systems represent a critical piece of airport infrastructure. As baggage handling systems are logistically complex pieces of equipment, there will be technical risks associated with their installation.

HSBC understands that AAHK has carefully selected the tote-based Individual Carrier System ("ICS") for the transport of baggage between T2 and TRC, which offers a higher level of reliability and higher speed (9-10m/s compared to 2m/s in T1), in order to meet the same key performance indicators for the BHS at the current T1. This ICS tote type of system is a proven technology for large multi-concourse airports and is in use at a number of new large airports with remote concourses including Beijing, Incheon, Munich, Dubai and Madrid.

However, given the historical experience of baggage handling system at other airports, HSBC is of the view that AAHK needs to conduct sufficient stress tests and trials to ensure operational integrity of the new BHS.

6.1.3.4  
*Contingency reduction*

Due to the significant amount of development work conducted since the completion of the MP2030 report, the contingency has been adjusted downward from 20% to 15%. Costs estimates will develop as the project moves from Scheme Design to Detailed Design.

6.1.3.5  
*Scope changes*

Given the long construction period of 3RS, technological advancement and changes in regulations during that period can lead to potential scope changes. However, HSBC notes that AAHK has indicated that it will adopt a rigorous vetting process for any major scope changes which have to be well justified.

6.1.4  
*Construction cost inflation*

The nominal capex costs can substantially deviate from working case assumptions due to higher or lower inflation of construction price. AAHK has adopted construction cost inflation adjustment factors released by FSTB as of March 2014, which is in line with the approach adopted by major infrastructure projects in Hong Kong. As inflation of construction price has historically been very volatile, there is a risk of nominal capex costs being different from working case assumptions.

6.1.5  
*Delay*

Late opening of the 3RS can be triggered by a number of construction related risks, commissioning risk and potential delay in project start or project progress due to judicial reviews and regulatory approvals.

HSBC understands that a construction period of eight years is considered tight. One key risk area is reclamation programme over-runs/late handover. The construction schedule is expected to be more robust after DCM trials. A key risk to the overall project schedule arises in the last few years of construction when the central runway will be closed for 24 months for reconstruction of the runway and taxiway system and installing tunnels for airside tunnels underneath. This is challenging because the underwater structure of the existing central runway will be exposed and may be different from plan. Mitigation measures that can be undertaken include (1) agreeing on a reasonable and achievable critical path with commitment from contractors, (2) adopting suitable construction techniques to reduce likelihood of delay and (3) developing efficient temporary mode of operation to reduce the impact of delay.

Commissioning risk is another key issue that can lead to delay in 3RS opening or problems when 3RS first opens. This risk will be mitigated by confirming required commissioning periods with

suppliers during tendering of the 3RS and engaging stakeholders and airlines early in the Detailed Design stage to confirm their requirements.

At the time of preparation of this report, there are a number of judicial review applications outstanding related to the 3RS. The development of these judicial reviews should be monitored closely to determine possible impact on the 3RS development.

A number of project components are subject to regulatory approvals, such as approvals for central runway temporary closure for installing the tunnels, testing of the Air Traffic Control Tower and navigation system, etc. HSBC notes that AAHK will continue to engage relevant stakeholders, government departments and operators during the detailed design stage to ensure seamless cooperation on the 3RS project.

## 6.2 Sensitivity analysis

**6.2.1 Sensitivity analysis** In light of the long duration and complexity of the project, HSBC has designed downside scenarios to test the financial robustness and prudence of the 3RS financial arrangement plan. These scenarios are used to test the ability of AAHK to raise additional debt to meet the funding shortfall arising in these downside scenarios whilst maintaining financial ratios consistent with an underlying rating of investment grade.

**6.2.2 Revenue decline** Sensitivity Case (I) assumes a reduction in total revenue by 15% from the Working Case from FY2016/17.

**6.2.3 Capex overrun** Sensitivity Case (II) assumes there is a 20% overrun on 3RS capex which is back-ended in the last 3 years of the construction period.

Sensitivity Case (III) assumes there is a 50% overrun on 3RS capex which is back-ended in the last 3 years of the construction period. Some remedial measures are included in this case at the guidance of AAHK.

**6.2.4 Single adverse event** Sensitivity Case (IV) models the impact of a single adverse event during construction, e.g. an epidemic similar to SARS in 2003, with passenger volumes assumed to decrease by 19% and ATMs to decrease by 10% from the Working Case in FY2019/20.

**6.2.5 Cost of borrowing increase** Sensitivity Case (V) tests the impact of an increase in the cost of borrowing rate from 5% p.a. to 7% p.a.

**6.2.6 Summary of sensitivity results**

**Chart 12 – Summary of stress case parameters and outputs**

HKDbn	Working Case	Sensitivities				
		(I) Revenue -15%	(II) Capex +20%	(III) Capex +50%	(IV) Single Adverse Event	(V) Cost of Borrowing +2% p.a.
<b>Total Debt at FY2023/24</b>	77	104	105	141	80	84
<b>Max. debt/EBITDA</b>	4.5x	7.5x	5.7x	7.1x	4.7x	4.9x
<b>FFO/debt at FY2023/24</b>	15.4%	7.1%	10.3%	7.6%	14.7%	11.8%



6.2.7

*Indicative  
underlying  
ratings and  
impacts under  
downside  
scenarios*

The results indicate that in these downside scenarios AAHK's financial ratios would remain at or near to levels consistent with an underlying rating of investment grade. In more severe downside scenarios the financial ratios may be weaker than those consistent with an underlying rating of investment grade at some point during the construction of the 3RS.

Hence HSBC believes that the HKD69bn of incremental debt can be considered to be at or near to the maximum level of debt that AAHK should prudently include in the working case financial arrangement plan for 3RS in order to leave AAHK with the capacity to raise additional debt to meet shortfalls in downside scenarios (if they arise).

## 7. Financial arrangement plan considerations and sources of financing

### 7.1 Financial arrangement plan approach

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Under the financial arrangement proposed for the working case and various downside scenarios as mentioned in Section 6.2 above, there is no request for HKG to enter into any form of contractual support for AAHK or to provide guarantees to lenders or creditors of AAHK.

As described below, HSBC has examined a wide range of potential third party financing sources available to AAHK for the 3RS project. HSBC is confident that there is sufficient market capacity to fund the HKD69bn of debt envisioned under AAHK financial arrangement plan.

Furthermore, on the basis of AAHK rating being maintained at a level based on rating agencies continued expectation of implicit support from HKG as the 100% shareholder of AAHK, HSBC expects that any additional funding requirements arising under even the severe downside scenarios considered in Section 6.2 (should they occur) can be raised by AAHK from the market on reasonable terms.

The approach adopted in developing the financial plan is:

- Raise debt from sources and on terms that result in (i) debt tenors consistent with AAHK's investment plans and funding needs, (ii) cost effective financing for AAHK, (iii) flexible terms recognising the uncertainties of a project of the scale and complexity of 3RS and (iv) opportunities for a broad range of stakeholders to participate in the financing of AAHK/3RS
- Retain flexibility to adapt to changing market conditions, timing of approach to market and unexpected events at AAHK including the need to raise additional funding if required to, e.g. by ensuring sufficient headroom under the debt capacity of AAHK, retaining sufficient committed but undrawn facilities, and ensuring that a current multi-currency Medium Term Notes ("MTN") programme is in place
- Examine all potential sources of financing, including institutional bonds, retail bonds, Sukuk, bank loans and hybrid capital across a range of currencies and tenors. The financial plan will also be formulated to take into account the need to allow public ownership/participation in the 3RS investment
- Actively manage relationship with relevant rating agencies, investors and banks to ensure the strength of AAHK business is well understood

### 7.2 Sources of third party financing for 3RS

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#### 7.2.1 *Commercial bank loans*

There is currently good market liquidity with appetite to lend up to long tenors at competitive costs. Therefore, strong appetite to lend to AAHK is anticipated.

#### 7.2.2 *Institutional bonds*

AAHK has a strong track record of tapping the HKD and USD bond markets and local and international investors continue to have a keen interest in AAHK's bonds. The bond markets can also provide tenors of up to 30 years, matching the long term nature of AAHK's investments in 3RS. While market capacity in HKD bonds is limited, the USD markets provide substantial liquidity, provided the credit and pricing are appropriate. HSBC expects these investors to rely heavily on the HKG ownership of AAHK. Foreign exchange risk will need to be considered and managed for non-HKD bond issuance.

- 7.2.3  
*Retail bonds* Including a retail tranche will provide the opportunity for local investors to participate in the AAHK business. Retail investors will have strong interest to acquire AAHK's bonds. However, the quantum of retail investor appetite will be limited in the current market environment although this may improve over the long construction period and pricing may not be competitive versus alternative sources. Furthermore, the tenor of retail bonds is likely to be short when compared to the long term nature of the 3RS investment.
- 7.2.4  
*Islamic (Sukuk) bonds* HKG issued its first Islamic bond in 2014. This bond was issued to increase the profile of Hong Kong as a centre for Islamic finance and as a template for other issuers to utilise Hong Kong to issue their Islamic bonds. Islamic bonds are more complex than conventional financing and in the short term are unlikely to offer a pricing advantage. However, there may be a strategic benefit from diversifying the investor base supporting AAHK to include investors in various parts of the world seeking Islamic compliant structures.
- 7.2.5  
*Hybrid capital, including subordinated bonds or preference shares* Hybrid capital, including subordinated bonds or preference shares, would provide AAHK with a form of equity like financing without selling an economic interest in the AAHK. This form of financing has been popular with Hong Kong infrastructure companies in recent years. HSBC believes there would be strong interest in a hybrid capital offering by AAHK.  
The attraction of this form of financing is that under periods of financial stress, interest and principal payments can be deferred without defaulting on the underlying obligations. However, clearly, premium returns need to be paid on hybrid capital versus senior debt. As such, HSBC recommends that AAHK may consider the use of these forms of instruments to augment the financing of 3RS in severe downside scenarios.
- 7.2.6  
*Securitisation* There are a number of different forms of securitisation which could be contemplated by AAHK. Such a financing would allow AAHK to monetize future cashflows beyond the construction period of 3RS to assist in its funding.
- 7.2.7  
*Third party equity or IPO* The financial arrangement plan has been prepared on the assumption that HKG does not wish to dispose of or dilute their interest in AAHK
- 7.2.8  
*Convertible bonds* A convertible bond is not feasible if an IPO has not been completed and is not being actively considered and prepared.

### 7.3 Recommendations for the financial arrangement plan

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When devising the detailed funding plan to raise HKD69bn incremental debt, the following are recommended to be taken into account:

- Long tenor bonds are an appropriate financing option for AAHK's core debt which is expected to remain in place under steady state business operations. Such funding is considered appropriate because of its long tenor (reducing refinancing risk) and fixed interest rates, matching the long life and stable revenues of infrastructure projects such as 3RS. As such, they are recommended to form a core part of AAHK's whole financial arrangement plan for 3RS. A portion of the additional debt can be in the form of retail bonds with a 3-year tenor to allow public participation in the 3RS project. Sukuk format can also be considered.
- A revolving credit facility is recommended to be maintained to provide flexibility to meet funding needs on short notice and allow AAHK to size and time debt issuance to achieve the best terms from the market
- Long tenor commercial bank loans may also be considered (including finance backed by Export Credit Agencies subject to the likely procurement plan and eligible content)
- In order to maintain the underlying rating of AAHK within investment grade under severe downside scenarios, AAHK may consider including hybrid capital<sup>3</sup> in the overall funding plan. For avoidance of doubt the analysis presented above is based on senior debt only and does not reflect the benefits of hybrid capital funding on prospective underlying ratings

HSBC understands that the management of AAHK will continue to consult the HKG on all appropriate matters relating to HKIA including its financial position as well as the formulation of specific funding options/debt vehicles. HSBC is aware AAHK management recognise that for AAHK as a major Public Sector Entity ("PSE"), its substantial debt issuance may impact on other HKG or PSE debt issuance being considered and therefore management will liaise with HKG and the Hong Kong Monetary Authority and will consider any appropriate approaches if such circumstances arise.

3. Only non-dilutive and non-convertible forms in compliance with the Airport Authority Ordinance to be considered

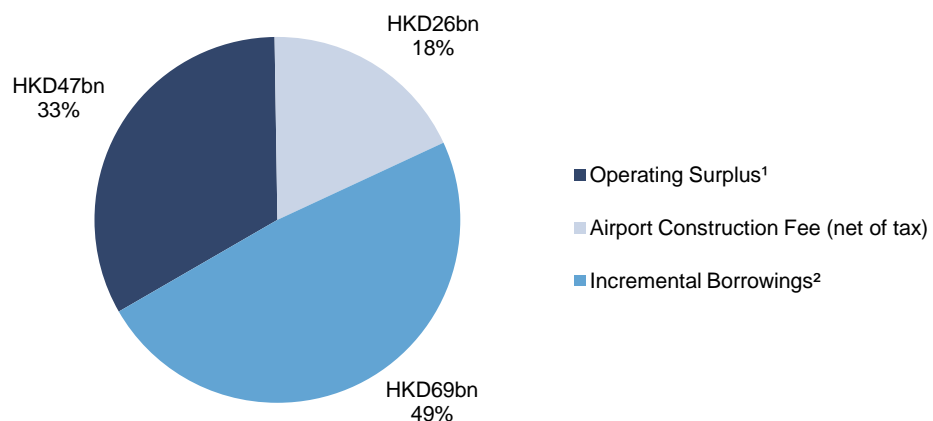
## 8. 3RS financial arrangement and HSBC's opinion

### 8.1 3RS financial arrangement plan

3RS capex estimate of HKD141.5bn is funded by the following means:

- HKD47bn (33%) from operating surplus (net of interest cost of HKD17bn)
- HKD26bn (18%) from ACF after handling cost and tax
- HKD69bn (49%) of incremental borrowings

Chart 13 – 3RS financial arrangement plan



Notes:

1. Operating Surplus excludes ACF but includes financing costs on all debt and changes in working capital
  2. Incremental Borrowings = Max. Debt - Existing Debt Level
- The numbers above are subject to rounding.

HSBC notes that the HKD141.5bn of 3RS capex estimate will be further validated and optimised during detailed design stages.

### 8.2 HSBC's opinion on the financial arrangement and recommendations

In HSBC's opinion, based on AAHK's strong credit profile, AAHK will be able to raise the incremental debt of HK\$69bn as set out in the financial arrangement plan.

HSBC has undertaken "what-if" analysis to assess the impact of potential downside scenarios (including cost overruns and revenue shortfalls) on the financial position of AAHK.

In HSBC's opinion, in the event that these downside scenarios occur, AAHK would be able to raise additional debt to fund the consequential funding shortfall.

HSBC considers that the incremental debt of HK\$69bn to be near or at the estimation of the maximum level of debt that AAHK should include in the working case financial arrangement plan for 3RS in order to leave AAHK with the capacity to raise additional funding from debt to meet shortfalls in downside scenarios (if they arise) whilst complying with a reasonable interpretation of the principles of financial prudence and management standards set out in the AAO.

In case of downside situations which have a more severe financial impact than those considered in Section 6.2, and AAHK reasonably projects that a funding shortfall is likely to arise which cannot prudently be met with additional indebtedness, AAHK is recommended to revisit its financial plan. AAHK may look to develop other revenue streams or access alternative forms of financing other than senior debt.

## Appendix 1 – Financial IRR

HSBC has conducted a financial benefit and cost assessment of the 3RS project on standalone basis through analysing the expansion project's financial internal rate of return ("IRR"). This analysis does not take into account economic benefit to be brought by the project as this is outside the scope of this financial arrangement study.

The HKD141.5bn 3RS capex will increase the capacity of the Airport from 420,000 ATMs per annum to 620,000 ATMs per annum, which will bring in incremental revenues and incur additional operating expenses and taxes.

Based on incremental cashflows, the 3RS project generates a financial internal rate of return IRR<sup>4</sup> of around 8% on standalone basis before taking into account any economic benefit. This is materially higher than that under MP2030 principally because of the incremental revenue from the ACF and changes in other operating assumptions.

4. Calculated based on incremental cashflows (revenues, operating expenses and capex) generated by the 3RS project relative to a 2 runway scenario (traffic capped at 77m ppa, 420,000 ATM p.a.) until to FY2046/2047, after taking into account incremental tax plus incremental terminal value in 2047 based on 15x EBITDA multiple.

## Appendix 2 – Debt/EBITDA comparison

**Chart 14 – Rated airports debt/EBITDA ratios**

Airports rated by S&P with “excellent” business profiles

Company	S&P's underlying rating	Annual passenger numbers (m)	Ownership	Capex <sup>5</sup>	Debt/EBITDA <sup>6</sup> (as of financial year end dated)
AAHK <sup>7</sup>	AA-	61	100% Gov	HKD7.3bn in FY14/15	0.5 (Mar 14) Under current steady state
Paris	A+	90	52% Gov, listed	HKD4.3bn p.a.	3.9 (Dec 13)
Amsterdam	A+	53	92% Gov	HKD3.8-4.7bn in 2014	3.4 (Dec 13)
Narita	A	35	100% Gov	HKD1.6bn over 12 months	6.1 (Mar 14)
Auckland	A-	15	22.5% Gov, listed	HKD0.9-1.0bn p.a., early stages of second runway planning	4.3 (Jun 14)
Melbourne	A-	30	Private	HKD3.2-4.4bn p.a.	5.1 (Jun 14)
Sydney	BBB	38	Private	HKD1.6bn p.a. over next 3 years	9.6 (Dec 13)

Source: S&P, Bloomberg and public websites

**Chart 15 – Debt/EBITDA of major Hong Kong listed companies**

Utility/Infrastructure company	Debt/EBITDA as 30 Jun 2014	S&P's underlying rating
MTR Corporation Limited	2.1x	AA-
CLP Holdings	3.1x	A-
Power Assets Holdings	3.2x	A+
HK & China Gas	4.0x	A+

Source: Bloomberg, S&P

- Equivalent HK dollar capex investments for foreign airports are calculated according to Bloomberg's exchange rate as of 29 Dec 2014
- Debt/EBITDA are from Bloomberg, except for Sydney airport which is calculated from the annual report of Southern Cross Airports Corporation
- AAHK's final S&P rating is AAA which is equal to the rating of HKG based on S&P's expectation that AAHK will continue to receive “almost certain” extraordinary support from HKG in the event of financial distress. Anticipate S&P to review rating of AAHK based on the 3RS funding plan



## Appendix 3 – ACF as a percentage of ticket prices

Chart 16 – Proportion of ACF to total airfare at HKIA

Airports	Average Price <sup>1</sup> (HKD)	ACF (Short haul: \$90; Long haul: \$160)	Total Fare (HKD)	ACF as % of average total fare
Shanghai (PVG)	3,175	90	3,265	2.8%
Beijing (PEK)	5,079	90	5,169	1.7%
Hangzhou (HGH)	3,548	90	3,638	2.5%
Taipei (TPE)	2,564	90	2,654	3.4%
Singapore (SIN)	4,217	90	4,307	2.1%
Bangkok (BKK)	3,325	90	3,415	2.6%
London (LHR)	18,376	160	18,536	0.9%
Dubai (DXB)	8,675	160	8,835	1.8%
Sydney (SYD)	12,301	160	12,461	1.3%

Note:

1. Source: Desktop airfare survey conducted in November 2014 by AAHK. The airfares represent the total price (ticket price + surcharge + airport tax) of an economy return ticket for the week of Dec 1 to Dec 7, 2014 captured from airlines' websites.

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