CHAPTER 7 FUNDING ASSESSMENT

7.1 Under the Airport Authority Ordinance, AAHK is required to conduct its business according to prudent commercial principles. It has maintained an efficient capital structure in line with comparable commercial entities. Leveraging its strong revenue base and superior credit rating, it operates with a prudent level of borrowings (average year-end debt balances at about HK$9 billion). This helped it achieve a financial rate of return on equity of 10.7% for the year ending March 2011[81].

7.2 To ascertain AAHK's financial capability in undertaking the Master Plan 2030, an independent financial advisor, The Hongkong and Shanghai Banking Corporation Limited, was commissioned to evaluate the financial feasibility of the development options under the Master Plan 2030 within the context of AAHK's financial capability and AAHK's prudent borrowing capacity[82] based on cashflow projections.

7.3 For Option 1, developing the existing Midfield further to add capacity, the capital cost of the works required from 2013 to 2030 is HK$23.4 billion in 2010 dollars, or HK$42.5 billion at Money-Of-the-Day (MOD) prices. This assumes a construction cost Tender Price Index (TPI) increase of 5% per annum in 2011-2014, 5.5% per annum in 2015-2020 and 3% per annum thereafter.

7.4 For Option 2, constructing a Third Runway along with associated passenger and cargo handling facilities on reclaimed land to the north of the existing site, the capital cost of the works required from 2013 to 2030 is HK$86.2 billion in 2010 dollars, or HK$136.2 billion at Money-Of-the-Day (MOD) prices. This assumes a construction cost Tender Price Index (TPI) increase of 5% per annum in 2011-2014, 5.5% per annum in 2015-2020 and 3% per annum thereafter.

Debt Financing for MP2030

7.5 In determining AAHK's prudent debt capacity, the financial advisor considered the organisation's financial objectives and analysed its cashflow projections, taking into consideration the key requirements of financing parties, such as bond investors and lenders, as well as the criteria applied by rating agencies. These included:

- Maintaining a high investment grade standalone rating in the single 'A' range so as to ensure a prudent capital structure and continued access to the debt capital markets on reasonable terms;
- Assessing the prudent debt capacity on the basis of being able to fully repay debt on the terms and conditions typically offered by lenders to this type of project; and
- Evaluating the robustness of AAHK's overall financial position, including the ability to maintain a standalone investment grade rating, under various stress scenarios.

[81] According to 2010/11 unaudited accounts.
[82] Please refer to paragraph 7.5 for the detailed methodology of debt sizing.

7.6 The results of these different but complementary approaches show that AAHK's prudent debt capacity is approximately HK$26 billion. Given that AAHK has an average debt balance of about HK$9 billion, the incremental debt capacity available up to 2030 would be approximately HK$17 billion.

Major Assumptions in the Cashflow Projections

7.7 The cashflow projections under both Options 1 and 2 are prepared on the following assumptions:

a) The final construction cost of the capital projects will be increased from the current estimate based on 2010 dollars to MOD amounts, in line with the Tender Price Index (TPI) which is estimated to increase at the rate of 5% per annum from 2011 to 2014, 5.5% per annum from 2015 to 2020 and 3% per annum thereafter;

b) HKIA's operating revenue will increase in line with traffic growth based on IATA Consulting's base case traffic forecast for this period;

c) Airport charges will be adjusted in line with Consumer Price Index (CPI) movements (assuming 3% CPI increase per year up to 2030);

d) The majority of AAHK's profits will be distributed by way of dividends to AAHK's shareholder each year at a similar rate as in previous years; and

e) AAHK will continue to invest in committed capital projects, such as Phase 1 of the Midfield Development, and the routine replacement of fixed assets.

Cashflow Analysis – Option 1

Traffic Forecast

7.8 Figure 7.1 details the traffic assumptions for the two-runway option that form the basis of revenue and operating cost forecasts during the period up to 2030.

Figure 7.1 : HKIA Traffic Forecast (Two-Runway Option)

	2015	2020	2025	2030	CAGR * 2008-2030
Passenger Traffic (million trips)	57	68	72	74	1.9%
Cargo Traffic (million tonnes)	4.4	5.6	5.8	6.0	2.3%
Air Traffic Movements ('000)	347	420	420	420	1.5%

Note: * CAGR: Compound Annual Growth Rate

Construction Cost

7.9 Under Option 1, the capital expenditure to be incurred would amount to HK$23.4 billion (2010 dollars) or HK$42.5 billion at MOD prices between 2013 and 2030. The schedule of development and corresponding cost estimates are outlined in Figure 7.2 and Figure 7.3 respectively. The annual cash outflow of the capital expenditure is shown in Figure 7.4 below.

Figure 7.2 : Indicative Development Phasing Plan for the Two-Runway Option

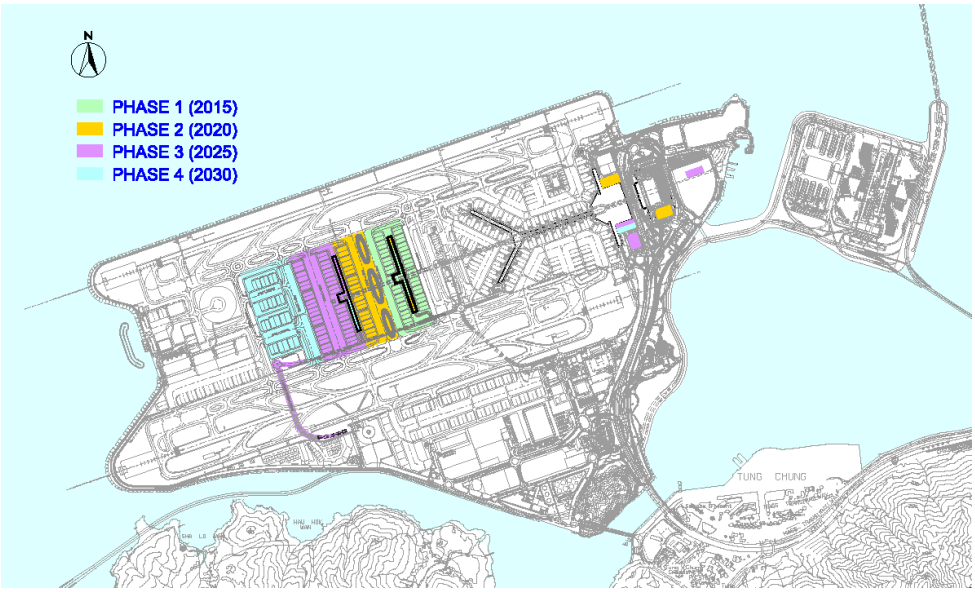
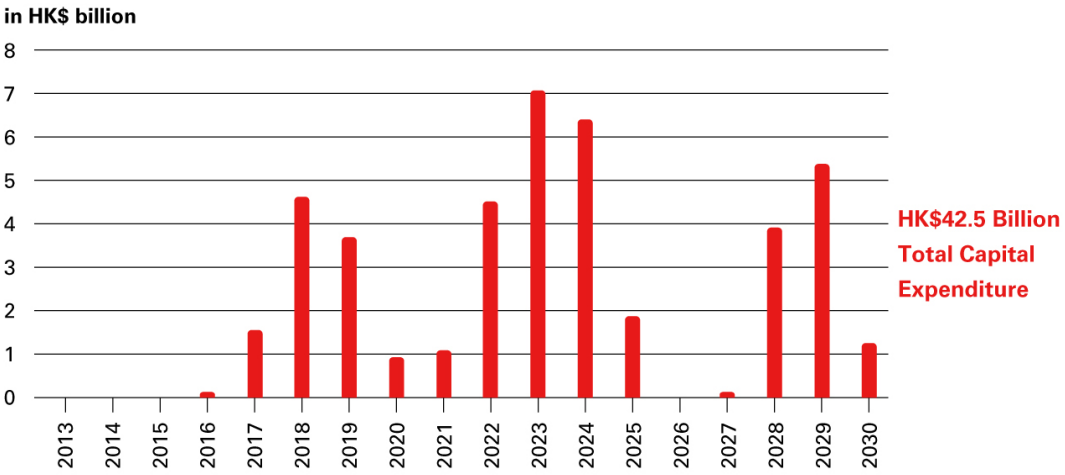


Figure 7.3 : Two-Runway Option Preliminary Phased Development Cost Estimates

HK$ Billion (2010 dollars)	Phase 1 (By 2015)	Phase 2 (By 2020)	Phase 3 (By 2025)	Phase 4 (By 2030)	Total (Phase 2-4)
Construction Cost		5.4	8.9	3.8	**18.1**
Design & Project Management		0.5	0.9	0.4	**1.8**
Contingency		1.0	1.7	0.8	**3.5**
Total Cost Estimates	*9.3**	**6.9**	**11.5**	**5.0**	**23.4**

Note: *The cost estimate of HK$9.3 billion is in MOD prices.

Figure 7.4 : Option 1 – Annual Capital Expenditure



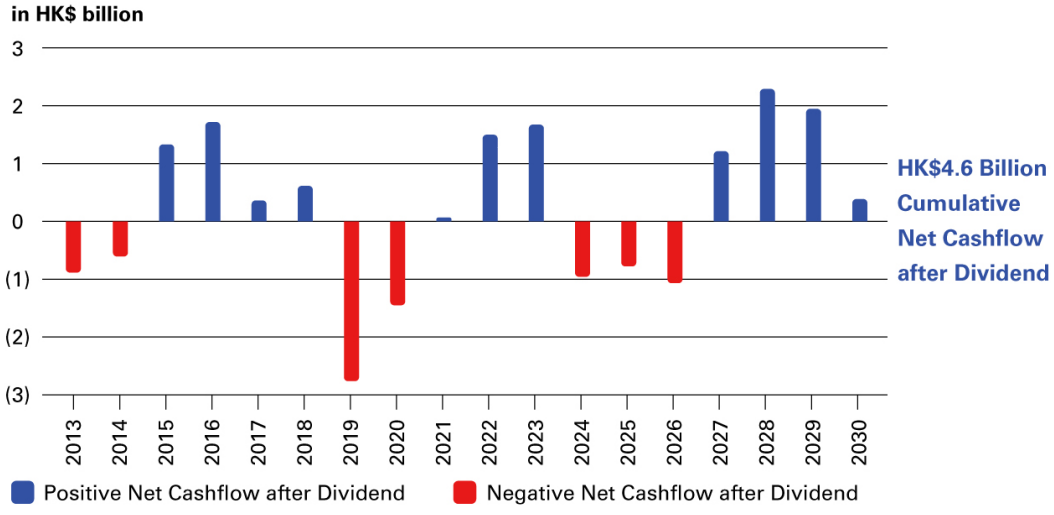
Cashflow Analysis

7.10 The results of each year's operations based on the assumptions set out in paragraph 7.7 show a trend of rising profits. As depreciation is charged before arriving at the profits, the cashflow generated from the operations is the aggregate of the profits and the depreciation charge but less any increase in AAHK's working capital. At the same time, expenditure is incurred on the committed capital projects such as Phase 1 of the Midfield Development and routine replacement of fixed assets. Hence, such expenditure should be deducted from the cashflow from operations to arrive at the net cashflow before dividend payments.

7.11 Under the Airport Authority Ordinance, the Financial Secretary has the power to request AAHK to distribute dividend after consultation with the Board. About 80% of profits have been distributed as dividend in past years and the same level of distributions is assumed in the projections.

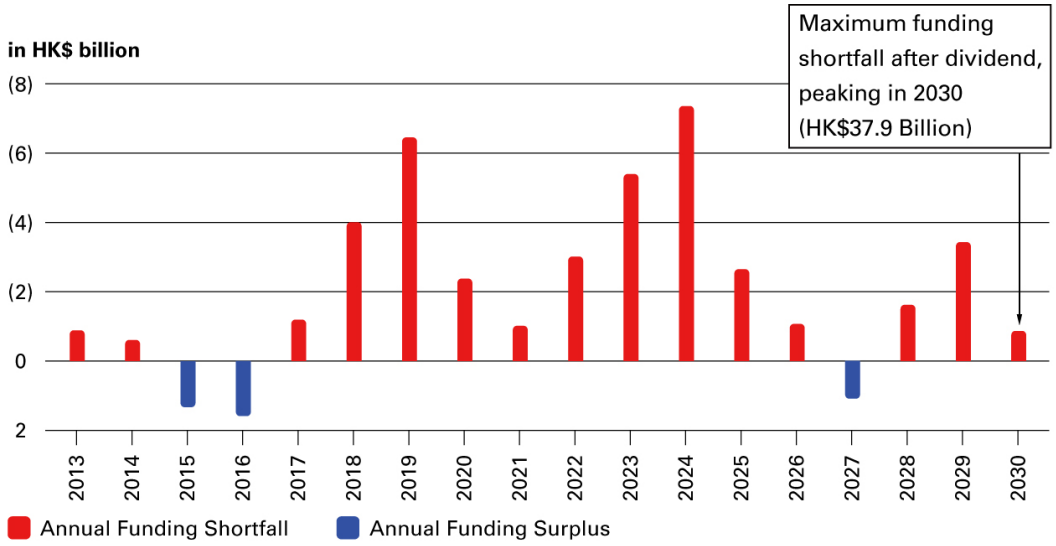
7.12 Based on the foregoing, the forecast profits for the period from 2013 to 2030 under Option 1 will amount to HK$101.6 billion after depreciation charges of HK$68.2 billion and a net increase in working capital of HK$6.1 billion. In the same period, capital expenditure on committed capital projects and routine replacement of fixed assets will amount to HK$79.5 billion. On the basis of the previous practice of payment of approximately 80% of the preceding year's profits by way of dividends, which will amount to HK$79.6 billion, the net cashflow after dividend is forecast to amount to HK$4.6 billion (representing HK$101.6 + HK$68.2 – HK$6.1 – HK$79.5 billion – HK$79.6 billion).

Figure 7.5 : Option 1 – Annual Net Cashflow after Dividend



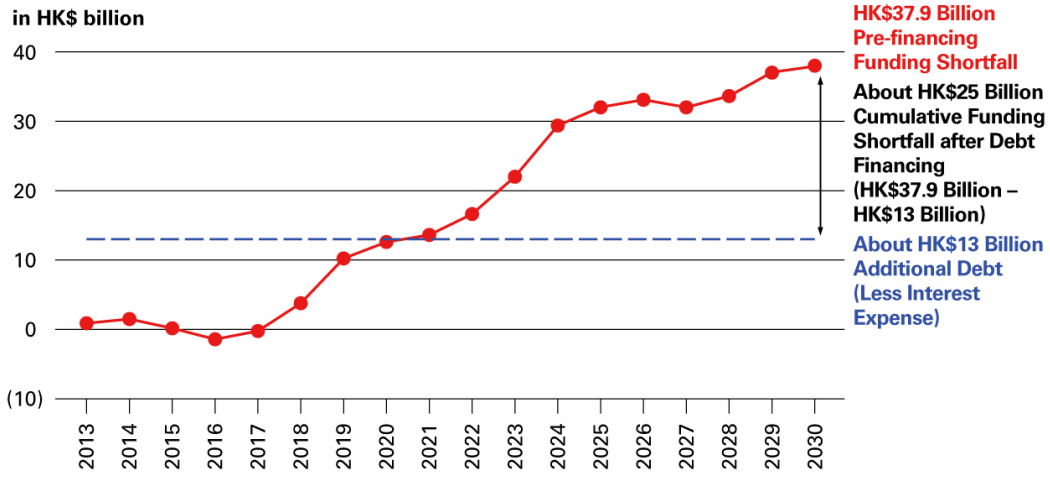
7.13 On comparing the cash outflow required for the capital expenditure with the net cashflow after dividend, it is clear that there would be a funding shortfall for most of the years between 2013 and 2030. The annual funding shortfall is shown in the chart below and the total funding shortfall between 2013 and 2030 is estimated to be HK$37.9 billion, peaking in 2030 (please see Appendix 7 for details).

Figure 7.6 : Option 1 – Annual Funding Shortfall/Surplus



7.14 As described in paragraph 7.5 above and based on the assumption set out in paragraph 7.7, the financial advisor has assessed AAHK's prudent borrowing to be approximately HK$26.0 billion, representing a net additional borrowing capacity of about HK$17.0 billion over AAHK's average level of borrowings of about HK$9.0 billion As additional interest costs would be incurred on these borrowings, the net incremental cashflow available from borrowings up to 2030 would amount to approximately HK$13.0 billion under Option 1. This amount would not be sufficient to meet the funding shortfall as shown in the chart below.

Figure 7.7 : Option 1 – Cumulative Funding Shortfall after Debt Financing



Cashflow Analysis – Option 2

Traffic Forecast

7.15 The base case traffic assumptions provided by IATA Consulting are set out in Figure 7.8. They form the basis for the revenue and operating cost forecasts for the period up to 2030.

Figure 7.8 : HKIA Traffic Forecast (Three-Runway Option)

	2015	2020	2025	2030	CAGR 2008-2030
Passenger Traffic (million trips)	57	68	82	97	3.2%
Cargo Traffic (million tonnes)	4.4	5.7	7.2	8.9	4.2%
Air Traffic Movements ('000)	347	421	509	602	3.2%

Construction Cost

7.16 Under Option 2, capital expenditure to be incurred would amount to HK$86.2 billion (2010 dollars) or HK$136.2 billion at MOD prices between 2013 and 2030. The schedule of development and corresponding cost estimates are outlined in Figure 7.9 and Figure 7.10 respectively. The annual cash outflow of the capital expenditure is shown in Figure 7.11 below.

Figure 7.9 : Indicative Development Phasing Plan of the Three-Runway Option

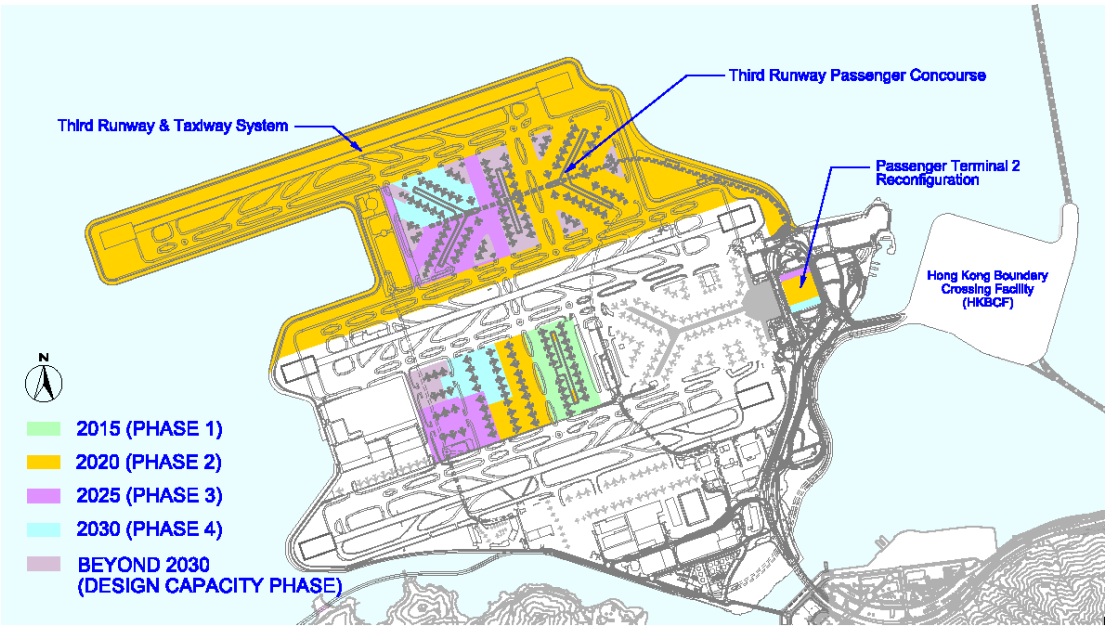
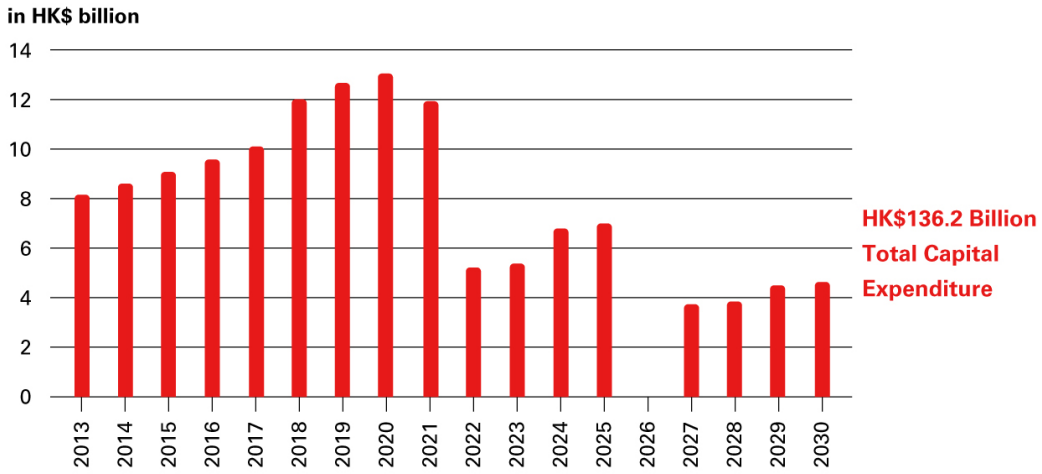


Figure 7.10 : Three-Runway Option Preliminary Phased Development Cost Estimates

HK$ Billion (2010 dollars)	Phase 1 (By 2015)	Phase 2 (By 2020)	Phase 3 (By 2025)	Phase 4 (By 2030)	Total (Phase 2-4)
Construction Cost	-	50.2	10.1	6.0	**66.3**
Design & Project Management	-	5.0	1.0	0.6	**6.6**
Contingency	-	10.1	2.0	1.2	**13.3**
Preliminary Total Cost Estimates	*9.3**	**65.3**	**13.1**	**7.8**	**86.2**

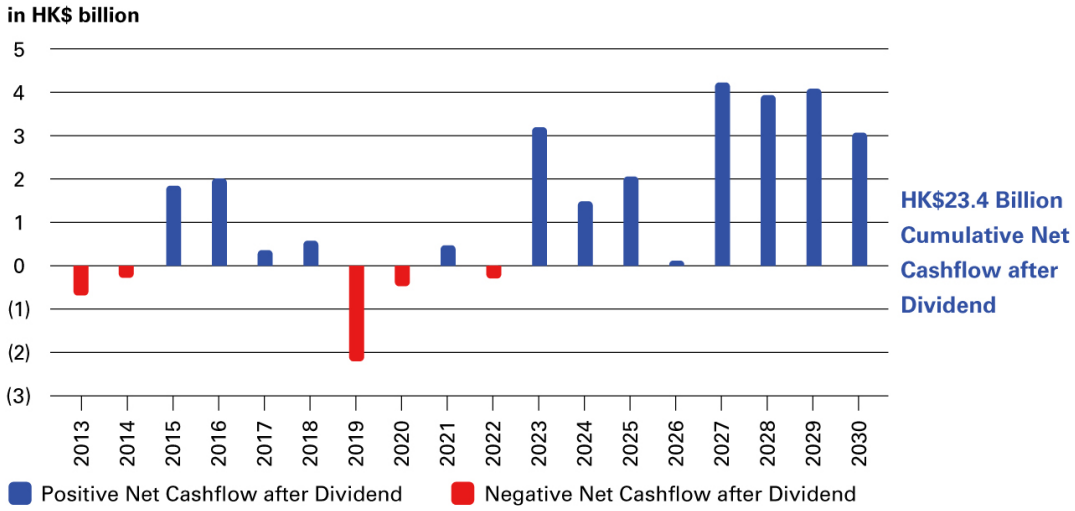
Note: *The cost estimate of HK$9.3 billion is in MOD prices.

Figure 7.11 : Option 2 – Annual Capital Expenditure



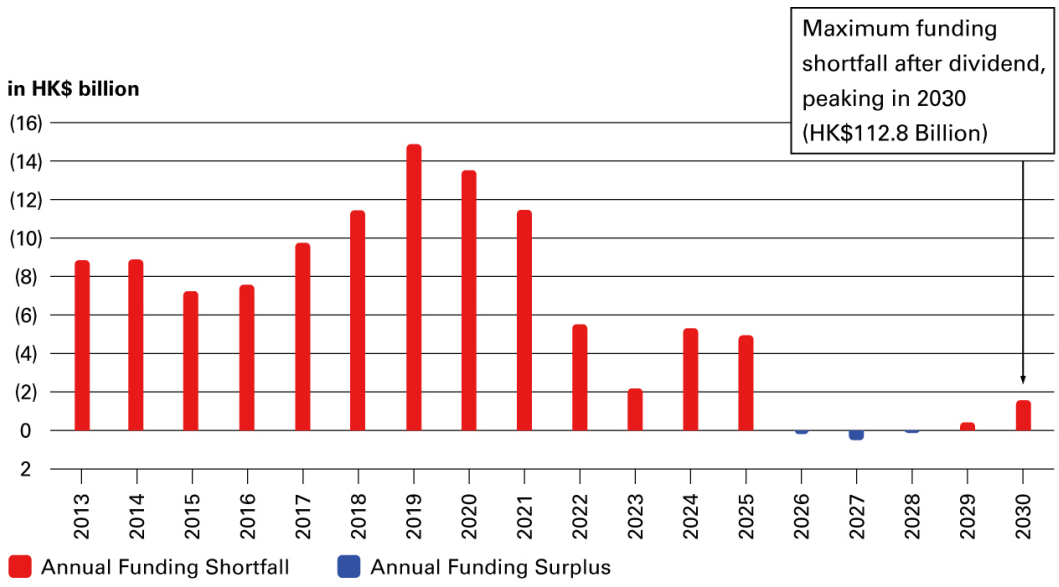
7.17 As described in paragraph 7.10 above, the net cashflow generated from the operations represents the profits, plus depreciation charges and changes in working capital less capital expenditure on committed capital projects and dividends to AAHK's shareholders. On the assumptions set out in paragraph 7.7 above, the forecast profits for the period from 2013 to 2030 under Option 2 will amount to HK$102.7 billion after depreciation charges of HK$87.2 billion and increase in working capital of HK$4.6 billion. In the same period, capital expenditure on committed capital projects and routine replacement of fixed assets will amount to HK$83.0 billion. On the basis of the previous practice of payment of approximately 80% of the profits of the preceding years by way of dividends, which will amount to HK$78.9 billion, the net cashflow after dividend is forecast to amount to HK$23.4 billion (representing HK$102.7 + HK$87.2 – HK$4.6 – HK$83.0 – HK$78.9 billion).

Figure 7.12 : Option 2 – Annual Net Cashflow after Dividend



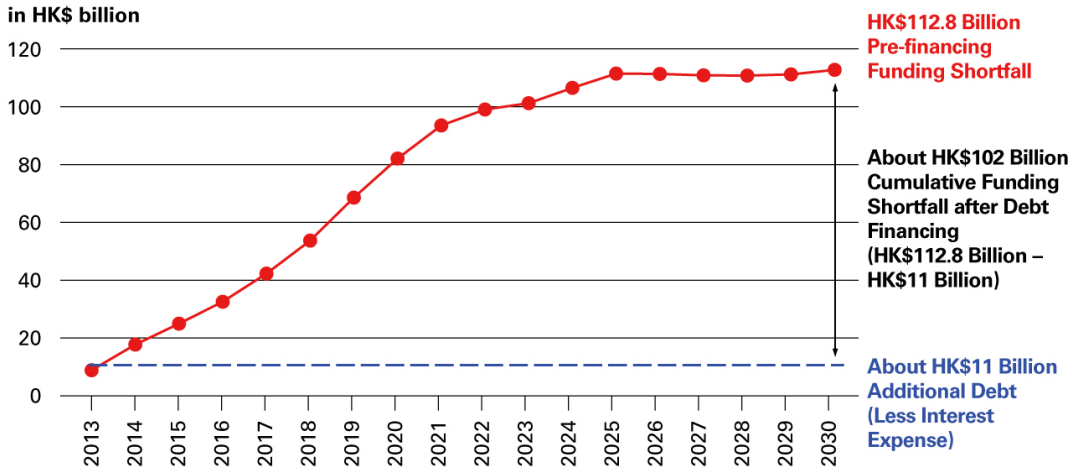
7.18 On comparing the cash outflow required for the capital expenditure with the net cashflow after dividend, it is clear that there would be a funding shortfall for most of the years between 2013 and 2030, with the exception of a few years beyond 2025. The funding shortfall is also much bigger than that of Option 1. The annual funding shortfall is shown in the chart below and the total funding shortfall would peak at HK$112.8 billion in 2030 (please see Appendix 8 for details).

Figure 7.13 : Option 2 – Annual Funding Shortfall/Surplus



7.19 A similar approach to debt sizing has been adopted in Option 2 as for Option 1, resulting in a net additional borrowing capacity of approximately HK$17 billion. After allowing for the related interest cost over a slightly longer period, the net incremental cashflow available from borrowings would amount to approximately HK$11 billion under Option 2. This amount would not be sufficient to meet the funding shortfall as shown in the chart below.

Figure 7.14 : Option 2 – Cumulative Funding Shortfall after Debt Financing



Sensitivity Analyses

Risk Areas Reviewed

7.20 The following risk areas were reviewed to assess the impact of an adverse change in any one of the key assumptions.

7.21 *Traffic and passenger revenue*

Lower than expected future passenger traffic volumes at HKIA could adversely affect its financial profile. The diminished passenger traffic would result in lesser traffic driven revenue, leading to a lower operating surplus and consequently, a greater funding shortfall. This would lead to even greater financing requirements and a reduced debt-servicing ability.

7.22 Given the 20-year long master planning horizon, there are different degrees of uncertainty around some of the key inputs used to develop the forecasts, such as:

- GDP growth forecast – whilst traffic growth at major airports has historically been closely correlated with real GDP growth, future GDP growth forecasts can be uncertain and may vary according to different viewpoints.
- Competition – As the other major airports and alternative modes of transport in the Pearl River Delta develop rapidly, the overall competitive environment for HKIA will remain dynamic and difficult to predict.

7.23 To understand this uncertainty, sensitivity analysis utilising the IATA Consulting's low traffic case was performed (see Figure 7.15).

Figure 7.15 : HKIA Traffic Forecast (Low Case)

	2015	2020	2025	2030	CAGR 2008-2030
Passenger Traffic (million trips)	54	64	76	89	2.8%
Cargo Traffic (million tonnes)	4.2	5.2	6.5	8.0	3.7%
Air Traffic Movements ('000)	332	394	470	552	2.8%

7.24 *Airport Charges Adjustment*

While the airport charges increase assumption is reasonable in light of HKIA's strong competitive position and high quality service offering and, as confirmed by IATA Consulting, the MP2030 traffic consultant, the relative insensitivity of traffic numbers to modest changes in airport charges, there could be situations when these increases are not implemented. Therefore, a scenario analysis of no airport charges increase is included.

7.25 *Construction Cost Overrun*

There are risks of cost overruns on all construction projects. To incorporate this, a high construction cost stress test where the investment amount exceeds the base case construction cost (excluding the design fees, project management fees, and contingency) assumption by 20% has been included.

7.26 *Construction Cost Inflation*

The base case financial assumptions utilise a Tender Price Index (TPI) of 5% per annum in 2011-2014, 5.5% per annum in 2015-2020 and a 3% per annum thereafter. To gauge the impact of a higher TPI, the TPI increase assumed in the base case analysis has been raised by an average of 25% throughout the forecast period. As a result, a TPI adjustment of 6% per annum in 2011-2014, 6.5% per annum in 2015-2020 and 4% per annum thereafter has been used while conducting the stress test.

Sensitivity Analysis for Option 1

7.27 Sensitivity analyses are performed to assess the impact that changes in the key parameters of the base case assumptions might have on the pre-financing funding shortfall of MP2030. These are detailed in Figure 7.16.

Figure 7.16 : Option 1 Sensitivity Analysis

FY13/14 - FY30/31	Base Case	High TPI	20% Capex overrun	Low Traffic	No airport charge increase
Traffic Forecast	Base Case	Base Case	Base Case	Low Case	Base Case
CAPEX Estimate (2010 dollars)	23bn	23bn	27bn	23bn	23bn
CAPEX Estimate (MOD prices)	43bn	48bn	49bn	43bn	43bn
TPI	3-5.5%	4-6.5%	3-5.5%	3-5.5%	3-5.5%
Airport charges adjusted in line with CPI increase	3% per annum	3% per annum	3% per annum	3% per annum	none
Pre-financing Funding shortfall (HKD)	38bn	51bn*	43bn	39bn	45bn*

Note: *Figures are the cumulative pre-financing funding shortfall up to FY2030/31.

7.28 The sensitivity analysis indicates that the impact of low traffic is less severe than that observed in other stress test scenarios. The other stress test cases incorporate a significant adverse change to the key assumptions in order to assess the robustness of the analyses, viz.:

a) Raising the TPI adjustment factor by an average of about 25% throughout the period up to 2030;
b) Building in a 20% cost overrun in addition to the 20% contingency which is already included in the cost estimate; and
c) Allowing for a scenario where airport charges will not be raised in the next 20 years, despite the inevitable increase in operating costs and CPI adjustments during that period.

In any event, the results of these stress tests indicate that the funding shortfall of the two-runway option will rise by up to HK$13 billion, resulting in a material weakening in AAHK's financial profile and a need for additional financial support.

Sensitivity Analysis for Option 2

7.29 Similar to Option 1's sensitivity analysis, the stress tests for Option 2 show that low traffic has a relatively smaller impact on the funding shortfall than changes in other parameters. The other stress test scenarios incorporate significant downside adjustments to key assumptions to assess the robustness of the analyses, viz.:

a) Raising the TPI adjustment factor by an average of around 25% throughout the period up to 2030;

b) Building in a 20% cost overrun in addition to the 20% contingency which is already included in the cost estimates; and
c) Allowing for a scenario where airport charges will not be adjusted in the next 20 years, despite the inevitable increase in operating costs and CPI adjustments during that period.

The results of these stress tests (see Figure 7.17) indicate that the size of the funding shortfall could increase by up to HK$20 billion, resulting in a need for additional financial support and review of other financing options.

Figure 7.17 : Option 2 Sensitivity Analysis

FY13/14 - FY30/31	**Base Case**	**High TPI**	**20% Capex overrun**	**Low Traffic**	**No airport charge increase**
Traffic Forecast	Base Case	Base Case	Base Case	Low Case	Base Case
CAPEX Estimate (2010 dollars)	86bn	86bn	100bn	86bn	86bn
CAPEX Estimate (MOD prices)	136bn	150bn	157bn	136bn	136bn
TPI	3-5.5%	4-6.5%	3-5.5%	3-5.5%	3-5.5%
Airport charges adjusted in line with CPI increase	3% per annum	3% per annum	3% per annum	3% per annum	none
Pre-financing funding shortfall (HKD)	113bn	133bn	131bn	117bn	122bn

Funding the Two Options

7.30 The above analysis is predicated on the base case financial projections of AAHK and MP2030 construction costs. It shows that neither options can be funded through AAHK's internal cashflow and external prudent borrowing capacity. While AAHK may be able to reduce the shortfall by reviewing the existing revenue framework with a view to increasing the revenue, the magnitude of such additional revenue sources would unlikely be material within this time frame. Subject to views gauged on the way forward for the Master Plan 2030, further discussions on how best to bridge the funding gap between AAHK and the Government would be necessary.

7.31 In preparation for the discussions, the following financing possibilities will be analysed in detail in conjunction with the financial advisor. The options listed below are not mutually exclusive and can be pursued independently or in combination. The optimal choice will depend on the priorities of AAHK and its shareholders and stakeholders, in addition to

other factors such as credit rating considerations and capital market condition at the time the additional funding is needed.

- ***User Pays Principle***

  Under this principle, the user of the facilities and services provided by the HKIA pay for part of the construction costs of MP2030. The Airport Authority Ordinance empowers AAHK to set up and determine the amount of charges and fees. HKIA has historically maintained a very competitive level of airport tariff, but the current level of changes other than airport charges can be reviewed to identify areas for adjustment. While planning, HKIA will take into consideration the possibility that passenger flow at the airport might be diverted to its neighbouring competitors as a result of any tariff adjustments.

- ***Equity funding from the private sector***

  Private sector equity capital can be accessed through a partial sale of HKIA to a selected group of investors. This approach however has many issues, including the issue of diluting the HKSAR government's interest in HKIA, and the strategic, operational and pricing implications of reduced control of the business.

- ***Alternative financing instruments***

  A wide range of financing options along the debt/equity spectrum can be employed to expand the funding portfolio. They include:
  - Debts that cater to demands from specific funding sources, such as retail bonds, Islamic bonds and Renminbi bonds, etc.;
  - Hybrid capital and convertible debts; and
  - Structured debts in the form of perpetual bonds, preferred equity, etc.

  The list above is not exhaustive and more options can be generated based on market conditions and investor demand at the time when the funding is needed. Some of these instruments, however, will not increase the overall debt capacity. Others, such as structured financing instruments, could find their market constrained by lack of liquidity, small investor base and higher costs. Financing instruments with conversion features also present issues of ownership dilution. Nevertheless, in many cases these instruments will benefit AAHK's overall financing capability by enhancing its credit rating, or from accounting and tax considerations.

- ***Government's funding support***

  Direct financial support from the HKSAR Government represents a departure from the user pays principle. But given the economic benefits that HKIA's future expansion would bring to the economy of Hong Kong, the case can be made for seeking Government's funding support. This could take many forms, including an injection of additional equity, a reduction in the rate of dividend payout, provision of shareholder's loan(s) and/or guarantees to third party lenders, etc., or a combination of these different methods.