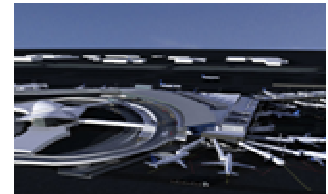
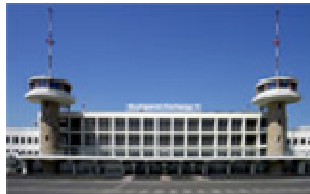


REVIEW OF DEDICATED LOW-COST AIRPORT PASSENGER FACILITIES



FINAL REPORT

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EXECUTIVE SUMMARY

Jacobs Consultancy UK Limited (JC) is pleased to submit this report to the Commission for Aviation Regulation on a review of the recent development of dedicated 'low cost' passenger terminal facilities at certain airports.

The evolution of the low cost airline has seen these operators seeking to reduce their overall operating costs through redefining the passenger service and experience provided. The service is based on the basis delivering a lower fare through a lower frills service to stimulate demand. Given the focus on low fares, the airlines have therefore sought to minimise their cost base and in many cases operate out of regional airports where fast turnaround times can be achieved and low airport charges provided. However as the market has evolved, low cost carriers are increasingly serving main airports and as such are beginning to exert pressure on their respective airports to reduce operating costs at the airport. Although airports have adopted incentive mechanisms to promote growth, they are beginning to reflect the changing market base in the provision of new capacity. As such the concept of dedicated low cost facilities, specifically designed for certain airlines or class of carriers is beginning to emerge.

The context for the review is the current re-appraisal of airport charges at Dublin Airport and the impending development of Terminal 2. The Commission wishes to gain a better understanding of what other airports are doing in terms of providing low cost terminal building facilities for low cost carriers.

The purpose of this report is therefore to review such developments at identified airports to better understand the design and operating characteristics and the resultant impact on airline charges. As agreed with the Commission the following airports with dedicated low cost facilities have been identified as the primary focus of the review:

- Marseilles
- Budapest International Airport
- New York, JFK
- Kuala Lumpur
- Schiphol International Airport
- Frankfurt-Hahn International Airport

The review has found that many of the airports were keen to see the growth of low costs airlines but recognised that the current facilities provided for traditional or legacy carriers are not appropriate for low cost airlines if the airport is to maintain competitive charges to continue attracting and supporting LCC growth on a sustainable basis. The airports have responded by either redeveloping existing facilities (old cargo buildings or dilapidated terminals) or building new facilities.

FACILITY CHARGES

Differential charges exist for the low cost terminals at Budapest, Kuala Lumpur, Marseille and Singapore airports. In each case the differential relates to the passenger charge, and low cost airlines also do not pay for the use of airbridges. The overall charges for use of these terminals vary between around 65% and 76% of the equivalent charges in the respective main terminals. At Frankfurt-Hahn which specifically serves and targets the low cost sector, charges for aircraft turnarounds of less than 30 minutes are 65% of those for services with longer turnaround times.

At Amsterdam airport, users of the low cost Pier H and Pier M facilities benefit from an airport-wide 20% discount on landing charges for aircraft which are not connected to an airbridge. However since a primary aim of Schiphol is to attract transfer traffic, the current incentive structure does not appear to provide any pricing advantage for low cost airlines.

As well as specific differential charges for low cost terminals, low cost carriers benefit in practice from a range of other discounts and incentives at significant numbers of airports. These are commonly geared to provide discounts to carriers achieving high levels of growth which are more likely to be generated by low cost than full cost carriers.

An analysis of the relationship between published charges and actual aeronautical revenue at a sample of mid-sized European airports (including Dublin) did not reveal any significant discounting effects. However, it may be that this would not be the case at smaller regional airports.

INDUSTRY OPINION

IATA expresses itself as being opposed to differential pricing "in order to maintain fair competition". It is concerned that differential pricing at one airport can adversely affect the interests of its members which are serving different, neighbouring, airports. However, by calling for a transparent cost justification in those cases where differential pricing is introduced, it appears to accept that further cases of such pricing will arise.

ICAO has no objection to differential pricing as long as it is underpinned by a clear cost justification. It argues that differential pricing for low cost facilities is no different in principle to differential pricing between international and domestic passenger terminals.

ACI has no formal policy on the development of low cost terminals, but it in general encourages members to offer a diversified range of services so as to suit the greatest possible range of airline users.

The recently issued proposed Directive on airport charges provides positive encouragement for the provision of differential levels of service within different parts of an airport, with a correspondingly differentiated pricing structure. However, this encouragement is within an overarching requirement for full transparency in the relationship between airport operating costs and charges. Since pricing at airports regulated on a single till basis does not reflect full operating costs, the justification at such airports of differential pricing is likely to prove extremely complex. It is possible that some cases of differential pricing will prove difficult to justify under a comprehensive cost scrutiny.

SUSTAINABILITY

The question on the sustainability of dual pricing structures arose because of a number of acrimonious exchanges between full cost airlines and airports which introduced dual pricing. In practice it appears that in most cases, as long as there is a clear cost differential, dual pricing for physically separated low cost terminals will be tolerated by full cost carriers. This position seems likely to be reinforced if the European Directive is enacted in its current form.

The number of cases of dual pricing is relatively limited. This suggests that airports themselves may be reluctant to introduce low cost facilities, in the light of the degradation of commercial revenues which is likely as a result.

Overall, therefore, further cases of differential pricing are unlikely to be subject to serious resistance as long as there is a clear underlying cost justification. It is unlikely that differentials at the airports where they already exist will be significantly eroded.

DESIGN AND OPERATING CHARACTERISTICS

We have undertaken a review of the design and operating characteristics of the selected airports with dedicated low cost facilities. It is clear that at the moment there is no single approach.

Some facilities are the result of refurbishment of existing facilities such as at Marseilles and Budapest whilst others are essentially dedicated facilities for certain carriers such as at Kuala Lumpur. It is of course the case that if an airport has terminal capacity constraints, the introduction of low cost facilities is a cost-effective means of increasing capacity which also frees up capacity in the main terminal facility for traditional airlines. However, if the existing facility is not fully utilised, an airport can serve low cost carriers to enhance facility utilisation at a low marginal cost. Alternatively if there is strong demand from full service carriers the ability to redevelop remote or other facilities can sometimes be a more attractive, cost effective and mutually beneficial option.

It is apparent however that, in general, the facilities provided are designed to operate at a lower level of passenger service than is typically expected in more traditional facilities. Airports typically design facilities to operate at Level of Service (LOS) C during the peak, whereas LOS D and E are more typical in the facilities considered. Indeed Frankfurt-Hahn which markets itself as a 'real' low cost airport adopts level of service E for planning and design purposes consistent with the requirements of its primary customer, Ryanair. The notable exception is the dedicated jetBlue terminal currently being developed at JFK, but the airline is seeking to extract value through the direct provision and construction of the proposed terminal. It believes that cost savings can be realised through controlling the design, project management and financial funding of the terminal rather than compromising level of service. This is consistent with the jetBlue philosophy and business model.

The table below summarises the basic design and operating characteristics of the airports considered and the apparent differential in airline charges.

Summary of Low Cost Passenger Facilities and Charges

AIRPORT	FACILITY DESCRIPTION	CHARGES AS % OF MAIN TERMINAL	DESIGN & OPERATING CHARACTERISTICS					
			COST € m	DESIGN LOS	TPHP	DESIGN MPPA	No. LCC	GROSS AREA m ²
MARSEILLE	<i>Old Cargo Facility Refurbishment</i>	65%	16.4 (2003)	E	900	3.5	5	7,532
BUDAPEST	<i>Terminal 1 Refurbishment</i>	76%	35 (2005)	C – D	720	n/a	8	7,990
KL LCCT <i>New Terminal</i>	<i>Remote terminal developed for Air Asia</i>	70%	23 (2006)	D/E	N/A	10 undergoing expansion to 15mppa	3-4	35,290
SCHIPHOL <i>New Pier H&M</i>	<i>Pier off existing terminal. Pax processed through existing terminal</i>	120%	30 (2005)	D - E	1200	4 (JC estimate)	8	6,150
JFK <i>jetBlue Terminal</i>	<i>Construction of new terminal focusing on old TWA terminal</i>	N/A	600 (2007 prices)	Designed for LOS C at Peak	2340	15	1	58,000
HAHN	<i>Current terminal specifically developed for LCC operations</i>	65% for turnaround <30 minutes	25 (1993- 2006)	E	2675	5.6	1 main + 2	18,500

N.B. We understand that the costs expressed reflect actual construction costs at the time of completion, see estimated year in brackets.

Abbreviations:

- LOS – Level of Service
- TPHP – Total Peak Hour Passengers
- MPPA – Million Passengers Per Annum
- LCC – Low Cost Carrier

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1 INTRODUCTION

Jacobs Consultancy UK Limited (JC) is pleased to submit this report to the Commission for Aviation Regulation on a review of the recent development of dedicated 'low cost' passenger terminal facilities at certain airports.

As agreed with the Commission the following airports with dedicated low cost facilities have been identified as the primary focus of the review:

- Marseilles
- Budapest International Airport
- New York, JFK
- Kuala Lumpur
- Schiphol International Airport
- Frankfurt-Hahn International Airport

While the majority of the review has been conducted from published sources, we acknowledge the help of BAA in sourcing information for Budapest Airport.

1.1 CONTEXT

The evolution of the low cost airline has seen these operators seeking to reduce their overall operating costs through redefining the passenger service and experience provided. The service is based on the basis that their passengers are fundamentally interested in getting to where they want to go at the cheapest possible price. The reduced fares offered have significantly stimulated demand and created a new low cost market. Given the focus on low fares, the airlines have therefore sought to minimise their cost base and in many cases operate out of regional airports where fast turnaround times can be achieved and low airport charges provided. However as the market has evolved, low cost carriers are increasingly serving main airports and as such are beginning to exert pressure on their respective airports to reduce operating costs at the airport. Although airports have adopted incentive mechanisms to promote growth, they are beginning to reflect the changing market base in the provision of new capacity. As such the concept of dedicated low cost facilities, specifically designed for certain airlines or class of carriers is beginning to emerge.

The context for the review is the current re-appraisal of airport charges at Dublin Airport and the impending development of Terminal 2. Given that the majority of recent and predicted traffic growth is related to Low Cost Carriers, the Commission wishes to gain a better understanding of what other airports are doing in terms of providing low cost terminal building facilities for low cost carriers.

The purpose of this report is therefore to review such developments at a identified airports to better understand both the design and operating characteristics and the resultant impact on airline charges.

The Commission defined the scope of the review as follows, grouped into four areas.

1.1.1 FACILITIES CONTEXT

“A short account setting out how and why such a terminal came to be proposed and developed at that airport.”

1.1.2 DESIGN AND OPERATING CHARACTERISTICS

“A description of the key characteristics of the new facility, compared to other facilities at the airport, to include: size (pax, sq. meters), IATA level of service (LOS), construction cost, airline users, and perhaps other characteristics key to the ‘low cost’ character of the terminal;”

1.1.3 FACILITY CHARGES

“A detailed account of the airport charges policy at the ‘low cost’ and other passenger facilities at that airport and, in particular, a measure of the overall effective price differential on a per-passenger basis between the ‘low cost’ and other facilities at that airport.”

1.1.4 PRICING ARRANGEMENTS AND SUSTAINABILITY

“An assessment of the sustainability of the resultant airport charges regime: i.e. is there now a ‘settlement’ at the airport whereby (sets of) airlines have selected which terminal they will use at which LoS and at which level of charges.”

1.2 REPORT STRUCTURE

As we understand that the emphasis of the scope of work is on the pricing arrangements and sustainability supported by an understanding of the context and physical characteristics we have organised the report as follows.

Section 2 of the report contains our report on pricing and sustainability for low cost facilities and Section 3 outlines the rationale for the facilities as well as the physical characteristics. This approach allows the Commission to review the pricing policy for each airport and separately refer to the physical attributes to provide an appreciation of the facilities provided relative to the pricing structure.

2 FACILITIES CHARGING AND PRICING SUSTAINABILITY

2.1 FACILITY CHARGES

In this section we provide details of charge rates which we have identified as being set differentially for full cost- and low cost airport facilities, and we make an illustrative comparison of total charges for an aircraft turnaround under both charge scenarios. We provide details of other available rebates and reductions from standard published tariffs at a wider selection of airports. We also discuss the overall effects of discretionary pricing on aeronautical revenues at selected UK and European airports.

2.2 AIRPORTS WITH PUBLISHED DUAL PRICING STRUCTURES

As far as we have been able to determine, there are at present only four airports in the benchmark group with a clearly defined dual pricing structure for a separate low cost terminal. These are Marseille, Budapest, Kuala Lumpur, and Singapore. This position has been confirmed by IATA, which monitors differential pricing by airports closely, as discussed in Section 8.2.2. In addition, service levels at one pier at Amsterdam airport have been set in a way which is designed to be acceptable to low cost carriers, with a corresponding price differential. The form and effect of these differentials are discussed below.

2.2.1 MARSEILLE

The low cost mp² terminal opened in September 2006, having been converted from an existing freight terminal. It is at present principally used by Ryanair.

Again, the pricing differential relates to the passenger charge, which at €1.30 per passenger represents a 78% discount over the €6.00 charge in the full cost terminal. Prior to the opening of the terminal there were press reports which suggested that "other charges will be significantly lower as well", but as far as we can determine there is no further price differentiation. It is possible that the airport's management was deterred from allowing further discounts by voluble pressure from Air France.

However, as at most French airports there is a complex structure of overall charges, with landing charges enhanced or moderated depending on aircraft noise levels, a separate noise charge, parking and boarding bridge charges, and passenger charges which are differentiated between domestic, EU and other international destinations. There is no security charge as such, but there is an airport tax of €6.29 per passenger which covers various services including security. There is also a separate terminal navigation charge.

To understand the full impact of dual pricing at all four airports, we have calculated total aeronautical charges for a turnaround by an Airbus A319 and a Boeing 737-800, two aircraft types commonly used by low cost carriers. Charges included are for landing, aircraft parking, all passenger related charges and terminal navigation charges. For our calculation in this case we assume that full cost airlines park for two hours, attracting a boarding bridge charge throughout that time and a parking charge for the second hour.

Our calculation is based on charges for international passengers only. The results of the calculation are shown in Table 1 below.

Table 1 Overall aeronautical charges for low cost airline operations at Marseille

EUROS	MAIN TERMINAL			mp ² TERMINAL		
	A319	B737-800	TOTAL	A319	B737-800	TOTAL
LANDING CHARGE INCL NOISE	195.93	252.87	448.8	195.93	252.87	448.8
PARKING/AIRBRIDGE	182.64	186.05	368.69	0	0	0
PASSENGER CHARGE INCL. AIRPORT TAX	1,566.98	1,974.39	3,541.36	967.73	1,219.33	2,187.06
TERMINAL NAVIGATION	237.99	285.03	523.02	237.99	285.03	523.02
TOTAL	2,183.54	2,698.33	4,881.88	1,401.65	1,757.23	3,158.89
mp² as % of MAIN TERMINAL				64.2%	65.1%	64.7%

In this case there is a larger overall difference in charges between the two terminals, with a typical user of the mp² terminal paying around 65% of the equivalent charges payable in the main terminal.

2.2.2 BUDAPEST

There are three terminals at Budapest, namely Terminal 1 and Terminals 2A and 2B. Terminal 1 is a relatively old building dating back to the early Soviet Bloc era, while Terminal 2A was opened in 1985 and 2B in 1997. Terminal 1 was refurbished prior to being reopened in September 2005. It is used by a total of six low cost airlines plus the Ukrainian airline Aerosvit. Terminal 2A was originally used exclusively by the national airline Malev, and is now used by Malev and its code share partners. However there appears to be no definitive pattern with which other airlines use either Terminal 2A or 2B, and of the 26 airlines which use Terminal 2B nine also use Terminal 2A, including Malev.

The pricing differential relates to the passenger charge only, which for Terminal 1 is €8.78 per passenger compared to €12.81 for Terminals 2A and 2B, amounting to a 31% discount per passenger. However it is probable that low cost airlines will also benefit from the pricing structure for aircraft parking, for which there is no free time on airbridge-connected stands but for which no charge is applied for the first three hours parked on off-gate stands. There is no differentiation of charges for domestic and international passengers.

In the case of our charges calculations for Budapest we take into account noise charges, and there are separate security charges. CUTE charges apply in Terminals 2A and 2B only. Charges have been calculated assuming an 85.0% passenger load factor, corresponding closely to that actually achieved by easyJet and Ryanair. For the purposes of this comparison we have not taken account of the fact that transfer passengers, which account for around 18% of total passengers at Budapest, are charged for at a lower rate in Terminals 2A/2B, since in practice low cost carriers do not offer transfer connections without full arrival and check-in procedures being followed. The results of the calculation are shown in Table 2 below.

Table 2 Overall aeronautical charges for low cost airline operations at Budapest

EUROS	TERMINALS 2A/2B			TERMINAL 1		
	A319	B737-800	TOTAL	A319	B737-800	TOTAL
LANDING CHARGE INCL. NOISE	603.62	730.43	1,334.05	603.62	730.43	1,334.05
PARKING/AIRBRIDGE	100	100	200	0	0	0
PASSENGER CHARGE INCL. SECURITY	2,175.15	2,740.69	4,915.84	1,565.70	1,972.78	3,538.48
TERMINAL NAVIGATION	61.67	61.67	123.34	61.67	61.67	123.34
TOTAL	2,940.44	3,632.79	6,573.23	2,230.99	2,764.88	4,995.87
T1 as % of T2A/2B				75.9%	76.1%	76.0%

2.2.3 KUALA LUMPUR LCCT

The newly built low cost carrier terminal at Kuala Lumpur opened in March 2006, and is primarily used by Air Asia. It is separated by a considerable distance from the main terminal, although construction of a rail link between the two is to start this year. The main airport opened in 1998, replacing a smaller facility which was located much closer to the city of Kuala Lumpur.

The overall pricing at the airport is a clear example of pricing at a State-run airport which bears little or no relationship to operating costs. When services were transferred from the old airport to the new facility, no change was made to aeronautical charges, despite the fact that the construction costs of the old airport were long since written down and the costs of construction and operation of the new airport were considerably higher. The landing and aircraft parking charges in force at the airport today were originally set in 1992, and have not been revised since then.

The pricing differential again relates to the international passenger charge only, which is MYR35.00 in the low cost terminal compared to MYR51.00 in the main terminal. The charge for domestic passengers is just MYR9.00 (€1.98) per passenger. The overall structure of charges is very simple, with no separate charges in force for noise, security or terminal navigation. There is a boarding bridge charge, but it does not apply for the first three hours after an aircraft has arrived, so we have not taken it into account in calculating overall charges. Our calculation is based on charges for international passengers only. The results of the calculation are shown in Table 3 below. The result of the calculation is similar to that for Budapest, with a typical user of the Low Cost terminal paying around 70% of the equivalent charges payable in the main terminal.

Table 3 Overall aeronautical charges for low cost airline operations at Kuala Lumpur

RINGGITS	MAIN TERMINAL			LCC TERMINAL		
	A319	B737-800	TOTAL	A319	B737-800	TOTAL
LANDING CHARGE	440.71	507.92	948.63	440.71	507.92	948.63
PARKING/AIRBRIDGE	85	85	170	0	0	0
PASSENGER CHARGE	5,737.50	7,229.25	12,966.75	4,462.50	5,622.75	10,085.25
TERMINAL NAVIGATION	0	0	0	0	0	0
TOTAL	7,028.21	8,786.07	15,814.28	4,903.21	6,130.67	11,033.88
LCCT as % of MAIN TERMINAL				69.8%	69.8%	69.8%

2.2.4 SCHIPHOL

The situation at Amsterdam is somewhat different to that at the four airports with separate low cost facilities. At Amsterdam one pier (Pier H – now split into Piers H and M to accommodate non-Schengen and Schengen traffic respectively) of the main terminal has been fitted out with minimal facilities so as to provide a differentiated service level for low cost carriers. Passengers pass from the passport control area to Departure Lounge 3, which has full waiting and shopping facilities, before moving to the pre-boarding area on the ground floor of Pier H. The pier has seven gates but no airbridges, so that passengers walk direct from the terminal to their aircraft. The facility is intended to allow 20 minute turnarounds, with average dwell time in the pre-boarding lounge of 10 minutes. The discount amounts to 20% off the landing charge: this applies not only at Piers H and M but in all cases at the airport where there is no airbridge connection.

Of the five facilities which we have discussed in this section, this is probably the one which has generated the most controversy, and the pricing differential is still the subject of disagreement between the airport and the main carrier KLM. The airport’s publicity states that “Pier H is designed to create space in the central area of the terminal to accommodate the anticipated growth of Air France-KLM and partners” as well as to serve the low cost carrier market. KLM only partly accepts that additional space has been created, on the grounds that some airlines would not want to offer their passengers a lower quality product and are therefore not willing to leave Pier D for Pier H.

Some unusual factors come into play in the calculation of charges. Amsterdam has differential pricing for landing charges dependant on whether aircraft are parking on an airbridge or not. We have assumed that users of the main terminal are charged at the airbridge rate whereas users of Pier H are not. Amsterdam also has differential pricing for transfer passengers, with substantial discounts of 65.5% for passenger related charges and 67.8% for security charges. A significant proportion of Amsterdam’s passengers are transferring (42.1% in 2005) and it seems reasonable to assume that this proportion of passengers using the main terminal would be eligible for the transfer passenger discounts. On this basis, users of Pier H will in practice pay more for the overall package of charges than users of the other piers, as shown in Table 4 below.

Table 4 Overall aeronautical charges for low cost airline operations at Amsterdam

EUROS	MAIN TERMINAL			PIER H		
	A319	B737-800	TOTAL	A319	B737-800	TOTAL
LANDING CHARGE INCL NOISE	453.9	526.32	980.22	395.02	454.38	849.4
PARKING/AIRBRIDGE	0	0	0	0	0	0
PASSENGER CHARGE INCL. SECURITY CHARGE AND TRANSFER DISCOUNT	1,229.83	1,547.22	2,777.05	1,698.33	2,136.57	3,834.90
TERMINAL NAVIGATION	333.88	415.81	749.69	333.88	415.81	749.69
TOTAL	2,017.61	2,489.35	4,506.96	2,427.23	3,006.76	5,433.99
Pier H as % of MAIN TERMINAL				120.3%	120.8%	120.6%

2.2.5 JFK JETBLUE TERMINAL

The Port Authority of New York who is financing the development of the terminal for jetBlue does not offer any form of rebate or pricing differential to the airline. The deal that was concluded between the airport and the airline is outlined below:

- The airline would continue to pay its appropriate landing and parking charges
- The airlines passengers would continue to pay a departure fee to the Port Authority
- The airline will pay a ground rent for the terminal for the 30 year lease period
- The airline is responsible for the maintenance and operation of the terminal building
- The Port Authority will derive a percentage of the concession fees from sales in the terminal building
- The airline will derive the remainder of the concession fees from terminal concessionaires.

2.2.6 FRANKFURT HAHN

A similar calculation has been carried out in respect of Frankfurt Hahn airport. Frankfurt Hahn is owned and operated by Fraport, the holding company for the main Frankfurt-Main airport. It is a former military airfield, and it was developed primarily for commercial operations by low cost operators. The airport has a single passenger terminal, so there is no charge differentiation in respect of different facilities. However, there is a degree of charge differentiation according to the type and scale of operations:

- The landing charge does not apply in the case of aircraft turnarounds which take 30 minutes or less;
- The per passenger charge varies on a sliding scale according to the number of passengers carried through the airport in a year.

The per passenger charge varies between €5.35 for up to 100,000 passengers p.a. to €2.48 for between 2,000,001 and 3 million passengers p.a. There are further discounts on further passenger increments beyond 3 million passengers. For our calculations we have contrasted the charges which would apply at a traffic level of 2.5 million passengers, all with a sub-30 minute turnaround, with those which would apply at a traffic level of 250,000 passengers all of which were subject to a turnaround of over 30 minutes. The calculated charges are as shown below.

Table 7 Overall aeronautical charges for low cost airline operations at Frankfurt Hahn

	> 30 MINUTE TURNAROUND, 250,000 PASSENGERS (A)			< 30 MINUTE TURNAROUND, 2,500,000 PASSENGERS (B)		
EUROS	A319	B737-800	TOTAL	A319	B737-800	TOTAL
LANDING CHARGE INCL. NOISE	320.00	391.00	711.00	0	0	0
PARKING/AIRBRIDGE	0	0	0	0	0	0
PASSENGER CHARGE INCL. SECURITY	1,115.63	1,405.69	2,521.31	870.83	1,097.24	1,968.06
TERMINAL NAVIGATION	162.75	179.90	342.65	162.75	179.90	342.65
TOTAL	1,598.37	1,976.59	3,574.96	1,033.57	1,277.14	2,310.71
B as % of A				64.70%	64.60%	64.60%

2.2.7 SINGAPORE

Although not included in the benchmark list, a dedicated low cost facility has been developed at Singapore and is worthy of review. Singapore opened its newly built Budget terminal in March 2006, within a few days of that at Kuala Lumpur, reflecting the high level of competition between the two airports.

As in the case of Kuala Lumpur, the airport pricing has been subject to very little change over an extended period. The landing, parking and boarding bridge charges were all set in 1995, although the landing charge has been subject to a 15% discount for several years. This discount will remain in place at least until the end of 2008. The passenger charge for the main terminal has not changed since 1997, and the security charge is unchanged since 2002.

The discount for use of the budget terminal is a little over half, at SG\$7.00 per passenger compared to SG\$15.00 per passenger in the main terminal. The airport website indicates that rental charges for space within the budget terminal are also around half of those in the main terminal. Apart from the passenger charge differential, we have assumed that the boarding bridge charge is payable at the main terminal but not at the budget terminal. The results of our calculation are shown in Table below.

Table 5 Overall aeronautical charges for low cost airline operations at Singapore

SINGAPORE \$	MAIN TERMINAL			BUDGET TERMINAL		
	A319	B737-800	TOTAL	A319	B737-800	TOTAL
LANDING CHARGE INCL. NOISE	458.51	572.76	1,031.27	458.51	572.76	1,031.27
PARKING/AIRBRIDGE	85	85	170	0	0	0
PASSENGER CHARGE INCL. SECURITY	2,677.50	3,373.65	6,051.15	1,657.50	2,088.45	3,745.95
TERMINAL NAVIGATION	0	0	0	0	0	0
TOTAL	3,221.01	4,031.41	7,252.42	2,116.01	2,661.21	4,777.22
BUDGET as % of MAIN TERMINAL				65.70%	66.00%	65.90%

In this case the price differential at the budget terminal amounts to around 66% of the charges in the main terminal. This is very similar to the discount at Marseille but rather more than the discount at the competing Kuala Lumpur facility. The level of competition at the two airports is apparent from the fact that, when converted to a common currency, the prices are virtually identical, with Kuala Lumpur being marginally the more expensive.

2.2.8 AIRPORT CHARGES AT DUBLIN

For comparison purposes we have calculated charges at Dublin on the same basis as for the airports reviewed earlier in this section. While Dublin does not have a dedicated low cost terminal we can calculate a small degree of price differentiation, based on the assumption of an aircraft parked for only 30 minutes on a remote stand. The calculated charges are as shown below.

Table 6 Overall aeronautical charges for low cost airline operations at Dublin

	AIRBRIDGE, PARKED FOR ONE	REMOTE STAND, PARKED FOR
--	---------------------------	--------------------------

EUROS	HOUR			30 MINUTES		
	A319	B737-800	TOTAL	A319	B737-800	TOTAL
LANDING CHARGE INCL. NOISE	504.00	622.13	1126.13	504.00	622.13	1126.13
PARKING/AIRBRIDGE	80.96	80.96	161.91	12.20	12.20	24.40
PASSENGER CHARGE INCL. SECURITY	830.98	1,047.04	1,878.02	830.98	1,047.04	1,878.02
TERMINAL NAVIGATION	128.00	156.40	284.40	128.00	156.40	284.40
TOTAL	1,543.94	1,906.52	3,450.45	1,475.18	1,837.76	3,312.94
REMOTE STAND as % of AIRBRIDGE				95.50%	96.40%	96.00%

Charges calculated on the same basis for an Airbus A320, an aircraft type commonly used at Dublin, total €1,708.17 for airbridge use and €1,639.41 for remote stand use.

2.3 REBATES AND REDUCTIONS AT OTHER AIRPORTS

The low cost terminals discussed above are in principle available for use by any airline. In practice, though, most are designed around the principle of providing minimal facilities and of requiring passengers to carry out a number of functions themselves, such as loading baggage onto the baggage conveyor. Because of this lack of amenities full cost airlines are unlikely to use the terminals, since the service level is not of a standard which they would wish to oblige their passengers to use.

There are a number of other forms of rebates and discounts available to passengers at a number of airports. These are again available in principle to any airline, and some have been in place for a good number of years, since before the low cost airline phenomenon gained its current level of strength. Others have been introduced more recently and appear to be designed so that airports can claim that the discounts are available to any airline, while in fact low cost airlines are those most likely to be able to take advantage of the offer. This applies particularly to discounts related to traffic growth or the introduction of new routes, since in general full cost airlines in Europe are not experiencing significant levels of growth, particularly in the short haul markets where low cost carriers are concentrated.

We set out below some examples of the offers which are in place in Europe and for which details are available. The list is not intended to be exhaustive, but to illustrate the variety of offers which are being made available.

2.3.1 BASLE/MULHOUSE

Incentive plans are on offer for both passenger and cargo services. For passenger services, there is a New Passenger Service Destination rebate which reduces landing charges for the first twelve months of operation by 80%, by 50% for the following six months and by 25% for a further six months. The same rebates are available in the case of the re-introduction of services to destinations to which services had previously ceased.

More obviously aimed at low cost carriers, there is a rebate on landing charges for existing services based

on the rate of traffic growth. Growth of up to 5% p.a. attracts no rebate, while growth of between 5% and 20% p.a. attracts a rebate of 10%. There is a sliding scale going up to a 70% rebate for growth of over 100%.

2.3.2 BIRMINGHAM

Birmingham has a growth incentive scheme which is reportedly designed to reward carriers generating the highest growth in the form of a rebate, although details of the rates of growth which trigger the rebates do not appear to be publicised. The scheme runs for four years, starting with a 100% rebate on landing charges and a 50% rebate on passenger charges. The landing charge rebates reduce by 25% increments over the course of the four-year period, while the passenger charge rebate reduces in 12.5% increments. There is also a "promotional fare rebate scheme" which provides marketing support for carriers selling fares below a certain threshold. Again, no details appear to be published.

2.3.3 MANCHESTER

Manchester offers a comprehensive set of six different forms of incentive, the most significant are:

- *New route incentive*: Operators of new routes are offered a single charge per passenger which replaces all separate charges. This applies for the first three years of operation in the case of flights scheduled within the standard operating hours (£3 per passenger rising to £5) and for the first five years of operation in the case of flights scheduled in off-peak hours (£3 per passenger rising to £7). For an Airbus A320 aircraft this compares to a normal overall charge of £14.86 per passenger with a typical load, but for larger aircraft the normal overall per passenger charge would be higher;
- *Capacity growth incentive*: if an airline replaces an aircraft type used on an existing service with a larger aircraft, landing charges are based on the maximum take-off weight of the smaller aircraft;
- *Non-stop service incentive*: if an airline replaces a multi-stop service with a non-stop service it will pay landing and air traffic service charges at a discount, for three years, of 40% in the first year falling to 20% in the third year.

2.3.4 PRAGUE

Prague airport offers a 75% discount on landing charges for the first year of operation of a new route and 25% in the second year for aircraft of up to 100 tonnes take-off weight. Higher discounts are available over three years for operations with larger aircraft. In addition, a 25% discount on landing charges is available for additional frequencies operated on existing routes.

2.4 MARKETING SUPPORT

Apart from giving publicised (or unpublicised) discounts on standard tariffs, airports commonly provide marketing support to airlines which have either started, or are considering starting, new routes. This may take the form of providing data on potential route demand, based on airport passenger surveys or on other sources of information, to an airline which is considering the introduction of a new route, or providing assistance with advertising the route once it has been introduced.

The value of these discounts is rarely made public, but it is generally accepted that they have been widely available for a number of years. A brief internet search found details of marketing assistance being offered or provided by Athens, Copenhagen, Cork, Dortmund, Dublin, Londonderry, Prague, Shannon and Stockholm, although it is probable that some level of assistance would be provided by all but the most congested of airports.

Again, these offers are available to all sectors of the airline industry, but it is most likely that they would benefit low cost airlines since these are currently much more likely to be introducing new services than traditional carriers.

2.5 PRICING ARRANGEMENTS AND SUSTAINABILITY

2.5.1 THE ACI VIEW

ACI has no formal policy on the development of low cost terminals. However, in general it encourages members to offer a diversified range of services so as to suit the greatest possible range of airline users. It follows from this that it does not object to the development of low cost terminals, although it recognises that at airports with a large low cost airline presence this could lead to revenue dilution.

2.5.2 THE IATA VIEW

IATA is a very active campaigner on a wide spectrum of issues affecting its members, which are primarily traditional full cost airlines (there are few low cost airline members of IATA, although Aer Lingus and Air Berlin are both members). While low cost airlines are very much in the ascendancy, IATA can still rightly claim to represent the interests of the majority of scheduled airline operations by passenger numbers. As part of its campaigning activities it has produced a series of position statements, used for lobby purposes and in its dealings with airports and air traffic service providers among others.

One of these statements relates specifically to Low Cost Facilities and Services. The Position statement is reproduced in full below.

“There must be no discrimination between different groups of users with regards to charges as supported by ICAO policies.¹

Airports should offer a generic level of low cost facilities and services to all airlines to show their strong commitment to cost reduction, cost efficiency and continual improvement. It is only acceptable to pay a premium charge where additional facilities or services, such as aero-bridges and premium lounges, are specifically requested by and provided to individual airlines. There should be no differential or discriminatory charging between airport terminal buildings.

IATA will resist any proposal to introduce differential or discriminatory pricing at an airport in order to

¹ ICAO Document 9082/7, paragraph 15.

maintain fair competition.

Where differential pricing is nonetheless imposed, there must be transparency of airport costs and charges so that any differential is limited to the cost of those services (eg boarding bridges, escalators, baggage belts, etc) where a real differentiation in service is offered. In many areas (eg runway, tarmac, fire and rescue, security, etc) there is no cost differential involved.

All airlines must be given equal and non-discriminatory access to any low-cost terminals that might be built”.

IATA’s overall concern is that differential pricing may adversely affect the interests of its members, not only at the airport where it is introduced but also at other airports within the same catchment area. It cited as an example the effect of differential charges at the proposed low cost terminal at Geneva (see below) on IATA members’ services operated out of Basle and Lyon.

2.5.3 OTHER PERSPECTIVES

In order to get a non-aligned view on this subject, we have spoken with a senior representative of ICAO based in Geneva.

The ICAO position is that airport user charges should be transparent, non-discriminatory and cost-related. They therefore take the view that, if there is a clear cost justification for lower charges and the terminal is available to any airline which is prepared to accept the lower service standards inherent in a low cost facility, then there is no reason why differential pricing should not exist.

ICAO bolsters this position by pointing out that differential pricing exists at many airports where a domestic terminal is separate from the international terminal, and that this differential can be justified on the grounds of the lower operating costs of the domestic terminal. There are therefore no grounds for treating a low cost terminal differently if a cost differential can be demonstrated to exist.

The view was expressed that airports with a significant level of low cost traffic could be expected to be reluctant to open a low cost facility. The example of Geneva was cited, where the go-ahead for a proposed low cost facility principally for the use of easyJet has been delayed by a series of challenges by Air France, with the findings of a judicial review currently being awaited. The situation is that easyJet accounts for around 40% of total passengers at Geneva, and if this level of traffic was transferred to a new low cost terminal there would be a serious adverse effect on commercial revenues in the main terminal.

The conclusion which could be drawn from this may be that perhaps Geneva’s management would prefer not to go ahead with a low cost terminal, but were forced to initiate the proposal as easyJet is now the airport’s largest single operator. This conclusion appears to be justified in view of the fact that the latest version of the airport’s master plan does not include any reference to the low cost terminal proposal. A growing number of airports are likely to be facing the same pressures.

The overall ICAO position was therefore that cost-related differential pricing which is available to all carriers is considered acceptable. However, it observes that progress towards the introduction of low cost terminals is very slow, and slower than might previously have been expected. Resistance by airports for commercial reasons may be the main reason for this.

2.6 THE PROPOSED EUROPEAN DIRECTIVE ON AIRPORT CHARGES

Shortly after we submitted our proposal to carry out this study to the Commission, the European Commission issued, on 24 January 2007, a proposed Directive on airport charges. It will enter its legislative process within the next few weeks, but the process, which allows for changes to be required by either the European Parliament or the European Council of Transport Ministers, means that the Directive cannot be expected to be formalised before mid-2008 at the earliest.

The proposed Directive broadly aims to:

- make the setting of airport charges within the Community more transparent;
- require airports and users to provide forecasts of traffic and infrastructure requirements at airports;
- require member States to nominate or establish an independent regulatory authority to ensure that consultation procedures and quality standards are fully met, and to act as a mediator in cases where airports and their users are at odds over the introduction of changes to charge levels;
- set a framework for a common approach to setting charges within the Community, while leaving the actual method of implementation open to individual member States.

Article 8 of the proposed Directive deals exclusively with the differentiation of charges, and is reproduced in full below:

“Member States shall take the necessary measures to allow the airport managing body to vary the quality and scope of particular airport services, terminals or parts of terminals, with the aim to provide tailored services or a dedicated terminal or part of a terminal. The level of airport charges may be differentiated according to the quality and scope of such services.

Member States shall ensure that any airport user wishing to use the tailored services or dedicated terminal or part of a terminal, shall have access to these services and terminal or part of terminal.

In the case that more users wish to have access to the tailored services and/or a dedicated terminal or part of terminal than it is possible due to capacity constraints, access shall be determined on the basis of relevant, objective, transparent and non-discriminatory criteria”.

There appear to be some issues within this framework which will need careful consideration. In some cases the requirement for full transparency is likely to mean that the process of demonstrating the underlying justification for price differentials will be extremely complex. There are some in the industry who question whether all existing differentials could be justified if subject to full transparency.

While the final form of the Directive remains to be seen, it seems clear that the proposed Directive lends its support to the principle of differential pricing in cases where differential costs can be clearly demonstrated.

2.7 CONCLUSION ON SUSTAINABILITY OF DUAL PRICING STRUCTURES

The introduction of low cost terminal facilities has resulted in a number of acrimonious exchanges between airports and their airline users, and in some cases where such facilities have been brought into operation the issue of dual pricing has meant that the conflict has continued. There are certainly indications that the efforts of aggrieved airlines have stopped, or at least delayed, the introduction of low cost facilities, with Geneva probably being the clearest example of this.

Yet although this issue has pitched airports against flag carriers, it is not clear that the introduction of low cost facilities will always be in the airport's best interests financially. In this regard the potential loss of retail revenue may well be more significant than the effect of dual pricing. It is possible to imagine a situation in which an airport is forced to move towards proposing a low cost facility by the airlines which would expect to use it, while being concerned rather than enthusiastic about the financial consequences of doing so.

It is of course the case that if an airport has terminal capacity constraints, the introduction of additional low cost facilities is a cost-effective means of increasing capacity which also frees up capacity in the main terminal facility for traditional airlines. However, if the existing facility is not fully utilised, an airport would look to use existing spare capacity for low cost carriers at a likely low marginal cost rather than provide dedicated facilities.

The situation is made more complex because the wording of IATA's statement seems to suggest that, if a low cost facility is sufficiently differentiated from the main terminal facilities, it would be reluctantly accepted. As far as we are aware there are no real issues remaining at the four airports discussed in this report where fully separated low cost facilities have been introduced. IATA's position is made the more difficult because, while it calls for non-discriminatory access to low cost facilities, it must realise that most IATA members would not be interested in using low cost facilities because of the inherently low passenger service standards.

It would appear that the situation of disagreement which remains at Amsterdam has been caused by the fact that the low cost facility is attached to, rather than separated from, the main terminal facility. In these circumstances the flag carrier's opposition to dual pricing (or perhaps to the extent of the differential) is understandable, notwithstanding the fact that our analysis suggests that in practice users of the main terminal facility pay about the same as users of the low cost facility.

Overall, though, the wording of the proposed EU Directive appears to make opposition to fully differentiated facilities difficult if not impossible to sustain. We would therefore expect that, assuming the proposal is formalised in its current form, future proposals for fully differentiated facilities would meet no

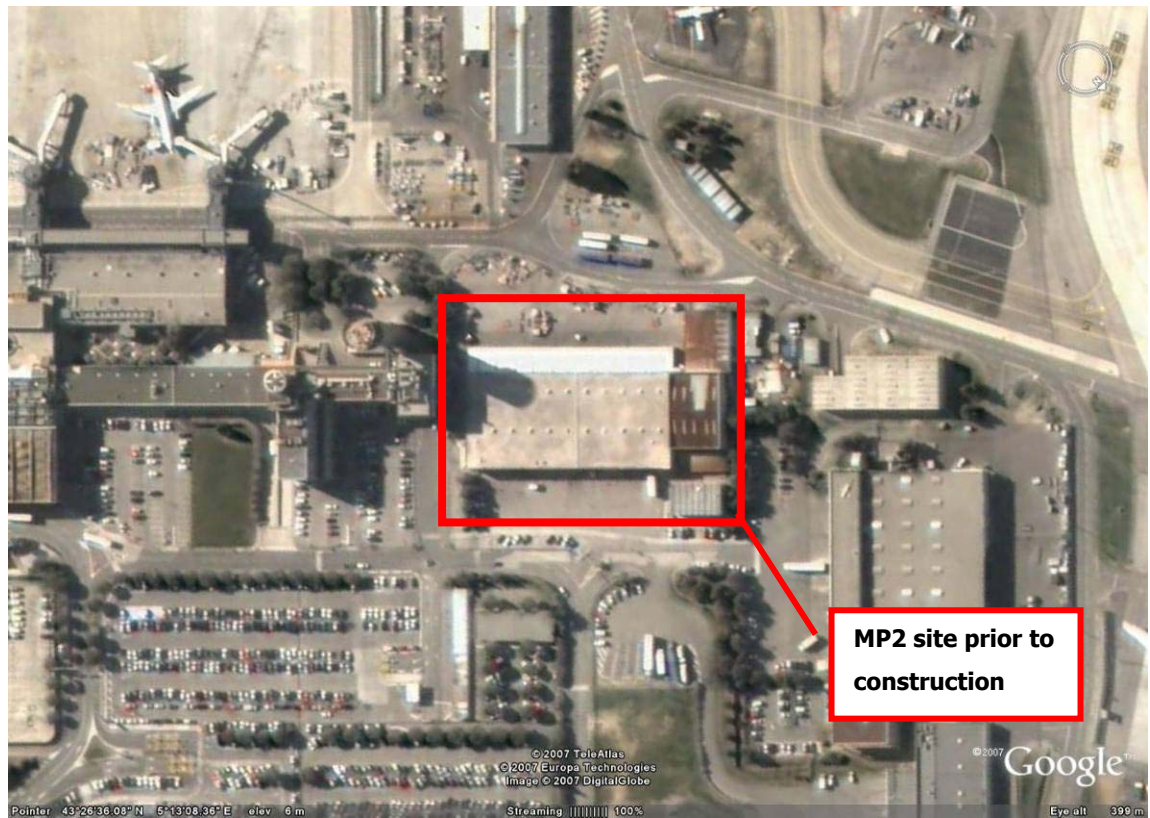
more than token resistance from flag carriers. However, progress towards the introduction of more facilities of this kind may continue to be slow as a result of airports' reluctance to incur the short- to medium term financial consequences of their introduction.

Table 6 List of LCCs at Marseille

LOW COST CARRIERS	MAIN TERMINAL	mp ²
Aerlingus	●	
Atlas Blue	●	
Bmibaby		●
Easyjet		●
Flybe		●
Myair		●
Ryanair		●
Virgin Express	●	

The following image is taken from Google Earth with a red square surrounding the cargo facility that was converted to the Low Cost Terminal. This image was taken prior to the conversion of the facility.

Figure 2 Close up Aerial Image of mp², Source: GoogleEarth



Taken from the mrsairport website (www.mrsairport.com), the following image is the access map for the airport indicating the extended pier finger for access to the aircraft on the parking apron.

Figure 3 Access Map for Marseille

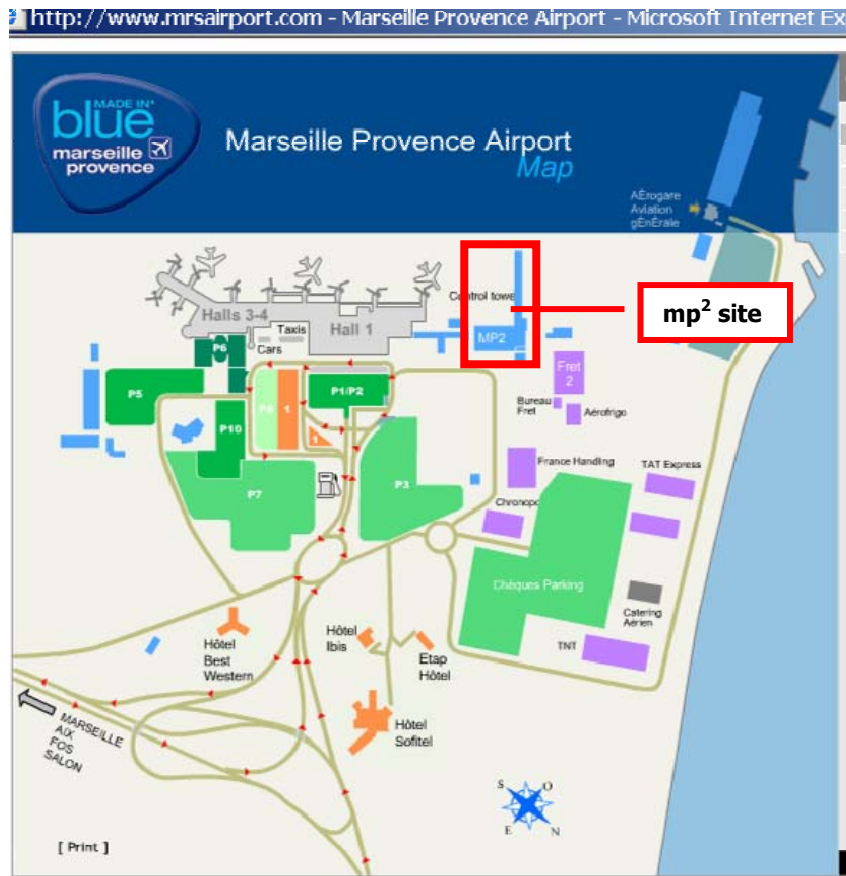


Figure 4 Artists Impression of mp² (taken from mp² brochure)

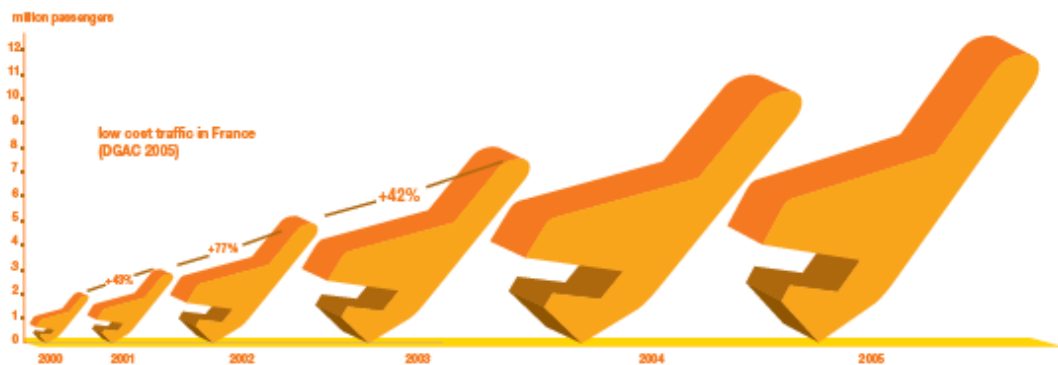


3.1.2 RATIONALE FOR FACILITY

Information on the Marseille airport website states that the evolution of air transport within France and the greater European Union will be more towards to providing low cost facilities as low cost carriers come to dominate intra European travel.

The airport has provided the following graph in its literature which illustrates the significant growth in the low cost sector in France. Marseille state that the growth is such that traffic doubles every 4 years.

Figure 5 French traffic statistics for LCC Source: mrsairport.com



Thus Marseille state that they are taking an innovative approach to providing low cost facilities for low cost airlines and their passengers by providing suitable terminal facilities which reflect the economics of low cost airlines.

Marseille was significantly affected by several years of traffic loss which was caused by the introduction of the TGV to Paris and subsequent traffic loss due to the September 11, 2001 terrorist attacks in the United States. Based upon this rationality Marseille decided that it would be an appropriate use of a disused cargo facility to accommodate selected low cost carriers and their passengers.

3.1.3 KEY CHARACTERISTICS

The following table is taken from a range of sources including the airport website and various internet resources.

Table 7 **Marseille mp² Benchmarking Data**

MEASURE	METRICS	NOTES
GROSS AREA	7,532m ² <i>(JC estimated footprint)</i>	No information was provided regarding the gross area of the terminal facility. An estimate was made through the measure of Google Earth mapping and an approximation of the pier finger. This is a footprint measure and does not include any second or mezzanine level which may exist.
COST	€16.4m	The cost was in relation to the redevelopment of an existing cargo facility.
AIRLINE USERS	5	Bmibaby, Easyjet, Flyme, Myair, Ryanair
ANNUAL VOLUME	1 mppa	2005
DESIGN CAPACITY	3.5 mppa	pax/annum
TPHP	900	Estimated max one way TPHP (6 stands @ 150 pax/aircraft)
NO OF STANDS	6	Information from website would suggest Code C Stands with no passenger bridges. Passenger access to aircraft is achieved by two sets of portable stairs located on the apron. It is not clear if there is a limited number of stairs or if each stand has dedicated passenger stairs.
STAND CODE	C	Information from website would indicate Code C Stands
CHECK IN DESKS	12	Airlines are required to remove all check in equipment after boarding. One baggage scale per desk. No electronic system for displaying flight but a system for putting a fixed non lighted sign above the desk is provided. Airlines are only assigned 2 desks per flight.
CHECK IN QUEUING SPACE		No information available
DESIGN IATA LOS	E	Information from website states that it is the minimum expected level of service.
SECURITY COMB	3	No drawings available to check but information is provided on their website.
HBS	2	Passengers are required to take their baggage to the HBS post check in as there is no outbound baggage system.
DEP LOUNGES	6	
DEP LOUNGE AREA	145 m2	This includes standing and seating area. Using 150 pax/flight @ 90% LF = .97m ² /pax
OUTBOUND BAGGAGE CONVEYER BELT SYS	N	There is no outbound baggage conveyer belt system post check in. Passengers are required to take their baggage to the HBS screening machines where it is scanned and separated from the passenger. No information was available on how the outbound baggage is processed beyond the HBS.
ARR BAGGAGE BELT	2	
FIDS	N	Manual display panels managed by the airline
BIDS	N	No information available.
CUTE	N	No CUTE system is provided.
CIRCULATION SPACE		No other significant information was available.
NOTES	Conversion of cargo building	The design of the terminal facility was based upon a no frills approach to passenger comfort. There is no significant investment in air conditioning beyond an air cooling system. Items such as carpet and wood floors were omitted with a preference for polished concrete to reduce costs. Little has been spent on decorative facades or other architectural aspects to increase the aesthetic qualities of the facility.

3.2 BUDAPEST INTERNATIONAL AIRPORT

3.2.1 INTRODUCTION

Budapest Ferihegy International Airport is the primary passenger airport for Budapest Hungary and is located on the west north west part of the airport. Terminal 1 is currently the low cost airline terminal and was recently refurbished to meet the needs of the low cost airlines at a cost of some 35 million Euros.

Figure 6 Budapest Ferihegy International Airport Aerial Image, Source: Google Earth



The facility was recently refurbished specifically for the low cost market and currently there are 5 low cost airlines operating out of the facility. Figure 7 below is a close up aerial image of Terminal 1 showing the approximate area for aircraft parking immediately outside the terminal building prior to the redevelopment of the terminal and associated apron.

Figure 7 Budapest Terminal 1 Aerial Image, Source: Google Earth



3.2.2 RATIONALE FOR FACILITY

In context with the other airport terminals which are being benchmarked in this report, Budapest had an additional reason for the significant investment in infrastructure. Post September 11, 2001 and EU accession, the airport was required to update its existing facilities to meet the security requirements of the EU and to manage the projected growth of traffic at the airport.

As there had been no significant infrastructure development since 1998 with the T2 complex, the investment of 8.7bn HUF or approximately 35m Euros was a significant investment in airport facilities. This investment was made up of the refurbishment of Terminal 1 and 5 other projects. The refurbishment of T1 was chosen as it was an existing underutilised facility that was easily convertible. The projects included the refurbishment of the parking apron, redevelopment of the small aircraft terminal, refurbishment of the government official reception facility and various other projects.

Although the €35m redevelopment cannot be solely attributed to Terminal 1 it is speculated that the majority was for that project. This is supported by the fact that press releases by the airport indicate that a significant investment was made in the mechanical and electrical systems for the terminal including air conditioning, new utility links, a new baggage system and investment in the parking aprons.

Figure 8 below is a graph of low cost passenger traffic from the opening of the new facility in September 2005 until December 2006. Unfortunately the data set is not complete as it was reported on the Budapest website that some airline information was double counted. We have included the data which may be suspect as it appears to be approximately in line with what would be expected (no significant deviations

and it follows what we perceive to be a reasonable seasonal trend).

Figure 8 Budapest Terminal 1 Passenger Traffic

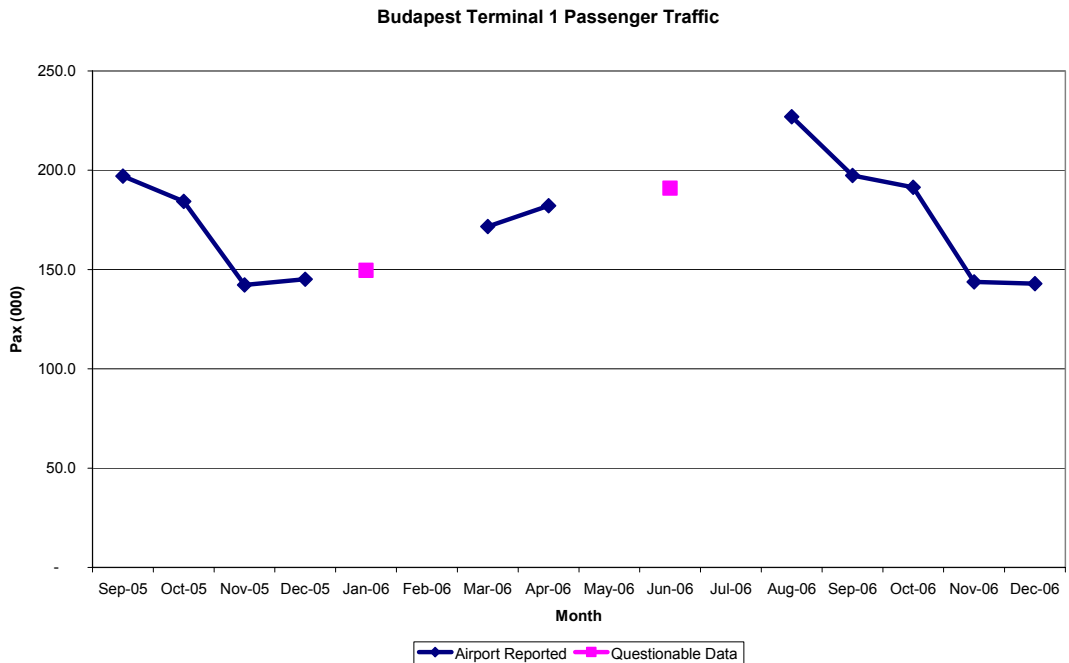
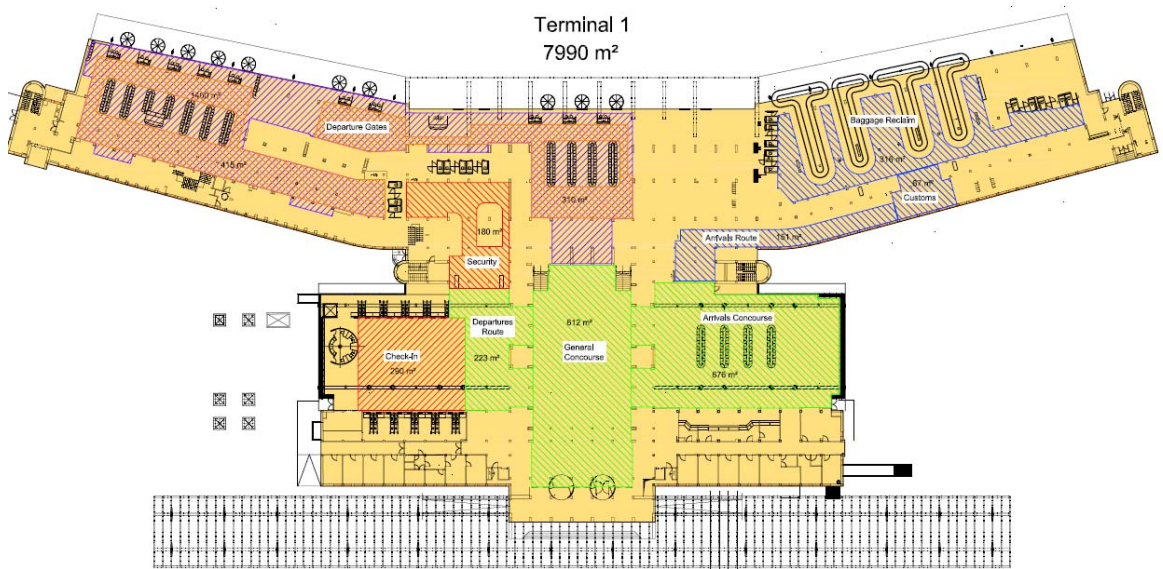


Figure 9 below is a schematic layout of the terminal building with areas marked for the calculation of the various circulation spaces which is reported in Table 8 below.

Figure 9 Terminal 1 Layout - Source: BAA



3.2.3 KEY CHARACTERISTICS

The following table sets out the physical benchmarking data which was publicly available at the time of submission of this report. Some information is based upon Jacobs Consultancy calculation and estimation upon publicly available data and may not necessarily reflect the true existing conditions.

Table 8 Budapest Physical Benchmarking

MEASURE	METRICS	NOTES										
GROSS AREA	7,990 m ²	Terminal footprint										
COST	€35 m <i>(8.7bn HUF)</i>	Refurbishment of an existing facility including a small aircraft terminal and government facilities. Refurbishment included items such as full M&E redevelopment, air conditioning and baggage system.										
AIRLINE USERS	8	<ul style="list-style-type: none"> • Easyjet • Sky Europe • Wizzair • Germanwings • Norwegian • Sterling • Flynorwegian • Jet2.com 										
ANNUAL VOLUME	2.138 mppa 2006	Arrivals: 1,058,448 Departures: 1,079,968										
NO OF STANDS	10	3 stands are within walking distance of the terminal building although all passengers are bussed due to passenger safety reasons.										
STAND CODE	C											
CHECK IN DESKS	19											
CHECK IN QUEUING SPACE	290 m ²											
DESIGN IATA LOS	N/A	No IATA LOS design was applied during planning.										
SECURITY COMB PROVISION	3											
TPHP	720	This was limited to 720 pax/hr rather than a design capacity in annual terms										
HBS	2											
DEP GATES	10											
DEP LOUNGE AREA	1,400 m ²											
SECURITY COMB	3											
OUTBOUND BAG BELT SYS	Y											
ARR BAGGAGE BELT	4											
FIDS	Y											
BIDS	Y											
CUTE	Y											
CIRCULATION SPACE		<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"><u>Landside:</u></td> <td style="width: 50%;"><u>Airside:</u></td> </tr> <tr> <td>Departures route - 223 m²</td> <td>Departures Lounge - 725 m²</td> </tr> <tr> <td>Arrivals Concourse - 676 m²</td> <td>Baggage Reclaim - 316 m²</td> </tr> <tr> <td>Main Terminal - 612 m²</td> <td>Customs - 67 m²</td> </tr> <tr> <td><u>Security:</u> - 180 m²</td> <td>Arrivals Route - 151 m²</td> </tr> </table>	<u>Landside:</u>	<u>Airside:</u>	Departures route - 223 m ²	Departures Lounge - 725 m ²	Arrivals Concourse - 676 m ²	Baggage Reclaim - 316 m ²	Main Terminal - 612 m ²	Customs - 67 m ²	<u>Security:</u> - 180 m ²	Arrivals Route - 151 m ²
<u>Landside:</u>	<u>Airside:</u>											
Departures route - 223 m ²	Departures Lounge - 725 m ²											
Arrivals Concourse - 676 m ²	Baggage Reclaim - 316 m ²											
Main Terminal - 612 m ²	Customs - 67 m ²											
<u>Security:</u> - 180 m ²	Arrivals Route - 151 m ²											
DESIGN CAPACITY	N/A	As a refurbishment, design capacity is not relevant										
NOTES	Terminal 1 was fully refurbished in 2005 for low cost airlines. It was built and opened with a lower aeronautical charging regime in place as compared to Terminal 2											

Source: BAA and Jacobs Consultancy

3.3 KUALA LUMPUR

3.3.1 INTRODUCTION

At the end of March of 2006 this Air Asia terminal was opened to traffic after being built by Kuala Lumpur airport on the south east section of the inner airfield. The terminal is some 35,290 square meters and is located approximately 20km away from the main terminal building by road. The construction was a fast track process costing approximate RM 108m or some 23m Euros

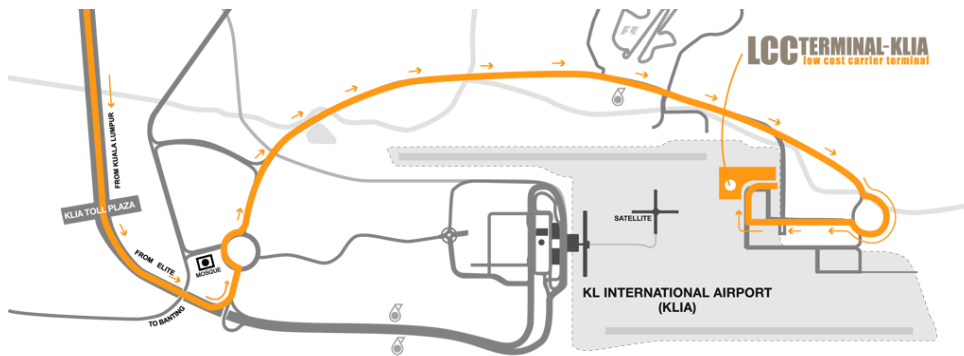
Figure 10 below is an image taken from Google Earth showing the relative location of the facility to the main terminal building at Kuala Lumpur.

Figure 10 Relative Site Location, Source: Google Earth



Again Figure 11 below is an image taken from the KLIA website (<http://www.klia.com.my/LCCTerminal/>) for the low cost terminal outlining its approximate location.

Figure 11 LCC Terminal Location Map



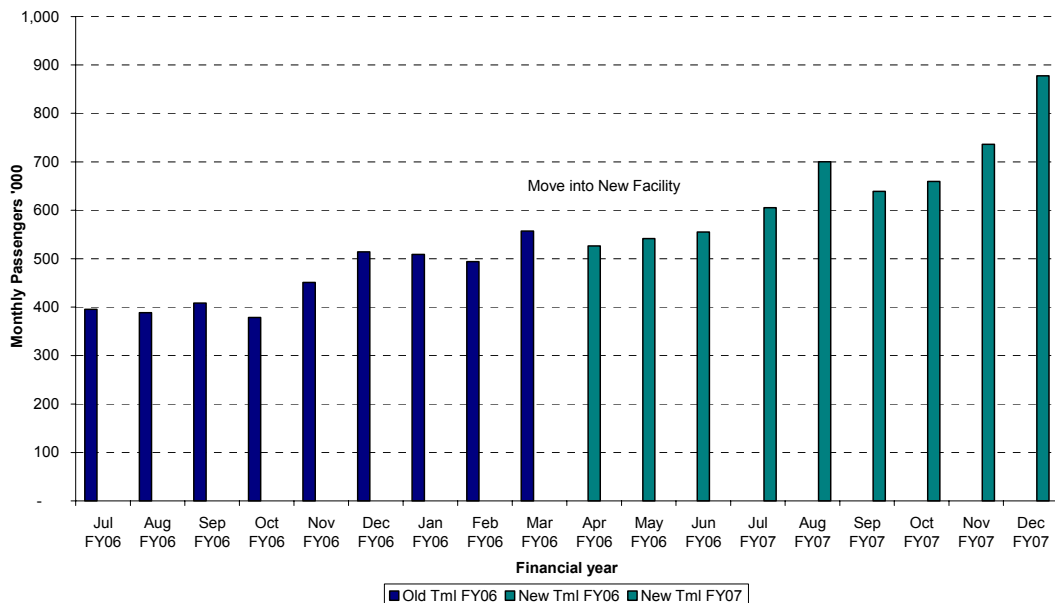
LCC TERMINAL-KLIA
KL International Airport
64000 KLIA, Sepang, Selangor Darul Ehsan, Malaysia.
Tel: +603 8777 8888 Fax: +603 8777 6600 Web: www.klia.com.my



3.3.2 RATIONALE FOR FACILITY

The growth of Air Asia as indicated in Figure 12 below is significant. The graph was taken from data provided by Air Asia on their website for operations in Malaysia but clearly shows the significant growth of the airline. Thus it can be said that it was prudent for Air Asia to seek a dedicated low cost terminal facility to foster its rapid growth. The break in the line at March represents the time when the airline moved to the new low cost facility. It is clear that the growth of the airline post this transition is significant however no correlation can be made between the move to the new facility and its rapid growth.

Figure 12 Air Asia Traffic Growth Jul05 - Dec06



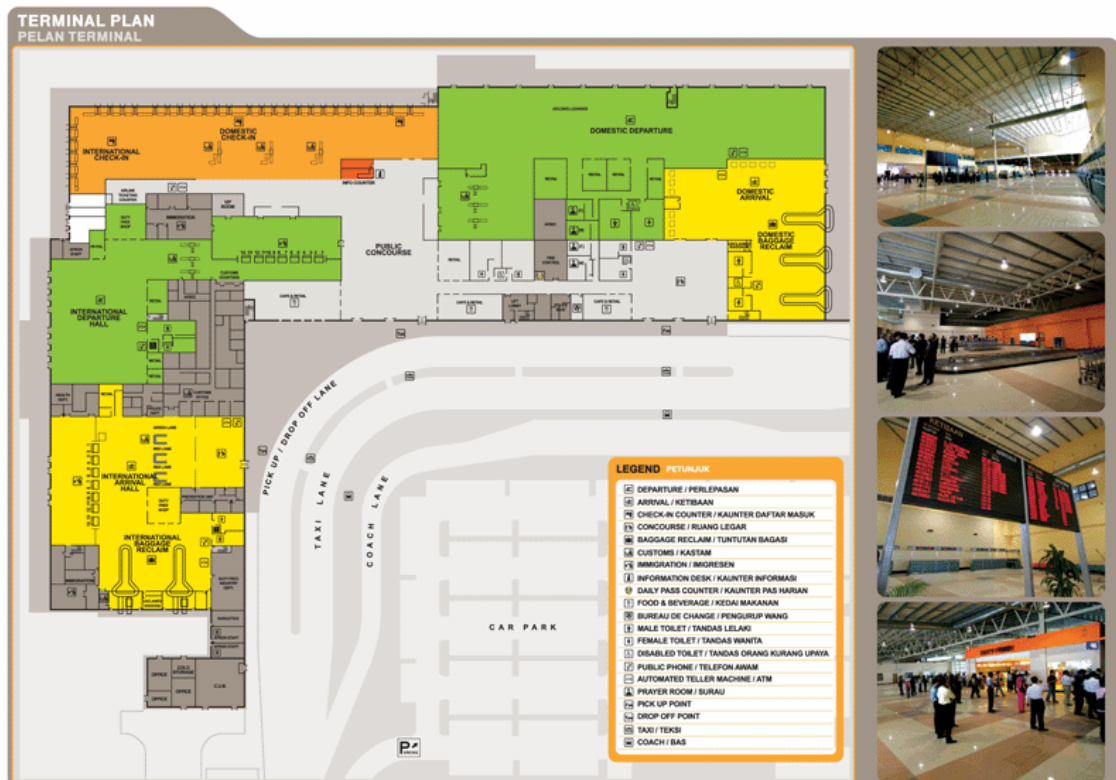
3.3.3 KEY CHARACTERISTICS

Taken from the KLIA website Table 9 below sets out the various areas of the terminal buildings which is should be noted in conjunction with Figure 13. It should be noted that the areas listed does not add up to the 35,290m² stated but that it was short some 7,290m² which is assumed to be non passenger circulating area including offices and mechanical and electrical equipment areas.

Table 9 KL LCCT Terminal Areas Source: KL LCCT Website

LCCT DIMENSIONS	m ²
Check in area	2,650
International Departure Hall	3,240
International Arrival Hall	4,340
Domestic Departure Hall	4,430
Domestic Arrival Hall	1,900
Public Concourse Main Area	4,355
Public Concourse International	325
Common, Ramp and circulation	6,760
<i>Sub Total</i>	<i>28,000</i>
Non public Area	7,290
Total Area (m²)	35,290

Figure 13 LCCT Terminal Floor Plan & Images - source www.klia.com



In terms of physical benchmarking Table 10 below sets out the data that has been collected.

Table 10

KL LCCT Benchmarking Data

MEASURE	METRICS	NOTES
GROSS AREA	35,290m ²	Detailed information provided on the LCCT website.
COST	108m RMB	Approximately 23m Euros @ 0.216 exchange rate
AIRLINE USERS	Air Asia	The facility was primarily built for Air Asia. Other minority operators include CeBu Pacific Air, Jet Star, Jet Airway and Tiger is reported to be considering operating out of the new terminal.
ANNUAL VOLUME	n/a	
DESIGN CAPACITY	10 mppa	Information from website suggests that sufficient space is available to increase capacity to 15m. Anecdotal evidence suggests that there are significant operational issues with the terminal building.
TPHP	N/A	An estimate of 2,000 passengers (departure) has been made using an average check in time of 2 min per passenger. However, it is most likely that this is constrained by bottlenecks at passenger screening points for entry to the holding lounges.
NO OF STANDS	26	Initially all passengers were required to walk to the aircraft which could take significant time considering the distance to the most remote stand. This also presented problems with passengers getting wet during inclement weather. A solution of providing umbrellas to passengers was soon abandoned due to the risk of them being ingested in aircraft engines. The most recent solution saw the construction of a sheltered passenger walkway.
STAND CODE	C	We understand that Air Asia is seeking long haul routes to Australia and that they will be modifying some existing stands to cater for Code E aircraft.
CHECK IN DESKS	72	20 counters are for passengers with no hold baggage
CHECK IN QUEUING SPACE	2,650 m ²	As per information provided on website. A review of drawing suggests that much of this area is given over to general circulation and pre check-in HBS.
DESIGN IATA LOS	N/A	Insufficient information available to determine relative level of service. However anecdotal evidence would suggest that at peak times the facility is operating at LOS D/E
SECURITY COMB	3 Domestic 3 International	Drawings on website would indicate that the configuration of the security comb is similar to what would normally be expected.
HBS	3	Located prior to check in
DEP LOUNGE	2	Domestic and International lounges are provided.
DEP LOUNGE AREA	4,430 DOM, 3,240 INT'L	Drawings on the website indicate the departure halls, but it is intermixed with outbound passenger processing and no clear demarcation is provided to show seating/waiting area.
OUTBOUND BAGGAGE CONVEYER BELT SYS	Nil	Baggage is handled manually
ARR BAG BELT	3 DOM 2 INT'L	Drawings on the website indicate that international arriving bags are screened prior to entering terminal. This is suggestive of some form of inbound customs/security screening. No information is provided as to who has paid or who is operating this check.
FIDS	Y	Reference is made to FIDS and is supported by images on the website.
BIDS	N/A	No information available
CUTE	Unknown	It is presumed that if Air Asia is the sole operator out of the terminal, then there will be some form of check in system
CIRCULATION SPACE	4,680 m ²	Public concourse main area and international. Set out in table above.
NOTES		

3.4 SCHIPHOL INTERNATIONAL AIRPORT

3.4.1 INTRODUCTION

Gate H&M is Amsterdam Schiphol Airport's solution for low cost airlines demanding lower charges for a more sparse facility. The facility itself comprises a purpose built pier off the main terminal and was built for approximately 30m Euros.

3.4.2 RATIONALE FOR FACILITY

As with other low cost terminal providers, Schiphol came under pressure from its resident low cost airlines to provide an appropriate facility to cater to the low cost passenger and airlines. To this end, Schiphol responded by providing a basic facilities such that it does not even have toilet facilities for passengers within the gate areas. In addition to this, the facility reportedly only has 8 seats available per aircraft for passengers while waiting.

The basis of this provision of sparse facilities is that the airport management only call passengers to the boarding lounge 30min prior to boarding as the facility is only a pier off the main terminal building. This strategy ensures that passengers spend as much time as possible in the revenue generating section of the airport terminal.

3.4.3 KEY CHARACTERISTICS

Table 11 below sets out the physical benchmarking data for Gate H with notes providing context

Table 11 Schiphol Benchmarking Data

MEASURE	METRICS	NOTES
GROSS AREA	6,150 m ² Total 7 pre-boarding areas incl: rental offices etc. - 2,100 m ² 1st floor pier - 3,800 m ² technical rooms - 250 m ²	The office rental space is located on the apron level and is rented to either airlines or handling agents. Although there is no retail space provided this is a good example of making the best use of a low cost facility asset. This area includes both Schengen and Non Schengen hold lounges.
COST	€30m	
AIRLINE USERS	8	<ul style="list-style-type: none"> • Easyjet • Thomsonfly • BMIBaby • Jet2.com • Air Berlin • Sky Europe • Sterling • Flybe
ANNUAL VOLUME	Forecast for 2007: Non Schengen: 300,000 Schengen: 1,500,000	
NO OF STANDS	7	
STAND CODE	C	
CHECK IN DESKS	N/A	Check in takes place in the main check in hall
CHECK IN QUEUING SPACE	N/A	See above
DESIGN IATA LOS	D-E	Waiting Areas in the pier: Level D/E
SECURITY COMB	N/A	Security at the entrance of the pier
TPHP	1200	
HBS	N/A	HBS is provided centrally in the main terminal building
DEP LOUNGE	7	
DEP LOUNGE AREA	1,400 m ²	
OUTBOUND BAG CONVEYER BELT SYS	N/A	Outbound baggage is processed centrally through the main terminal building. No information exists as to how the passengers bags are taken to their relative aircraft. It is presumed that there is at least some form of sorter system to manage the volume of traffic.
ARR BAG BELT	N/A	All of these aspects of operations are managed through the main terminal building and its associated facilities.
FIDS	Y	
BIDS	Y	
CUTE	Y	
CIRCULATION SPACE	Corridor: 2,000 m ²	
DESIGN CAPACITY	3.5 mppa	7 gates x 9.2 turnarounds x 150 pax/flight x 365 days/a = 3,525,900 departing pax/a
NOTES	Pier H&M was built as a low cost facility using the existing terminal facilities for processing departing and arriving passengers. Departing passengers use Departures 3 check-in, passport control and security check facilities into departure lounges 3 or 4. Passengers are then called to the gates in Pier H 30 minutes before departure. Pier H is for Schengen countries and Pier M is for Non Schengen country citizens.	

3.5 JOHN F KENNEDY INTERNATIONAL AIRPORT

3.5.1 INTRODUCTION

In August of 2004 an agreement was reached between the Port Authority of New York and jetBlue for the development of a dedicated terminal. Expected to open in 2008, the terminal will have a 58,000 square meters foot print with 26 contact stands and 800m of approach roads and a hydrant fuelling system.

This new facility is different in its conception from the other facilities in the study in that jetBlue has had direct involvement in the facilities design. The basic deal that was struck with the Port Authority is that jetBlue would be responsible for the design, procurement and construction management of the facility. The Port Authority would be reimbursed for the capital investment over the period of a 30 year lease and receive regulated charges (passenger, landing fees, ground rent etc) and a portion of terminal concessionaire fees. jetBlue in turn would receive a proportion of concessionaire fees and be responsible for the maintenance and operation of the facility.

3.5.2 RATIONALE FOR FACILITY

Taken from interviews and email correspondence the following is understood to be the rationale for the development of the facility at JFK.

(a) **Business Growth**

Currently jetBlue is located in a facility only covering 28 acres with a maximum of 14 gates for the operation of their schedule. The new facility is on 72 acres of land and provides sufficient space for 26 gates. This investment allows jetBlue to grow their business to 250 flights per day or approximately 10 turnarounds per gate. It should however be noted that jetBlue's international operations take place in another terminal as the new facility is for domestic operations only.

(b) **Flexibility of Daily Operations**

As jetBlue will be the only occupiers of the terminal facility this gives them the scope to manage operations that best suit their business such as baggage handling and gate assignment.

(c) **Control of Facility Quality**

As jetBlue were controlling the design and fit out of the facility they had direct control over the level of service that it will provide. The facility was designed such that during the peak hours of operation the level of service would not fall below IATA level of service C. This therefore means that a off peak periods the facility will be operating at a higher level of service.

3.5.3 KEY CHARACTERISTICS

It is important to know that the investment of the US\$ 800m includes new approach roads, a fuel hydrant system, a new car park for the authority and foot bridges linking the facility with the airports Skytrain. Thus without having access to additional cost information it is difficult to determine what the cost of the terminal facility is on its own.

Table 12 **JFK jetBlue Terminal Benchmarking**

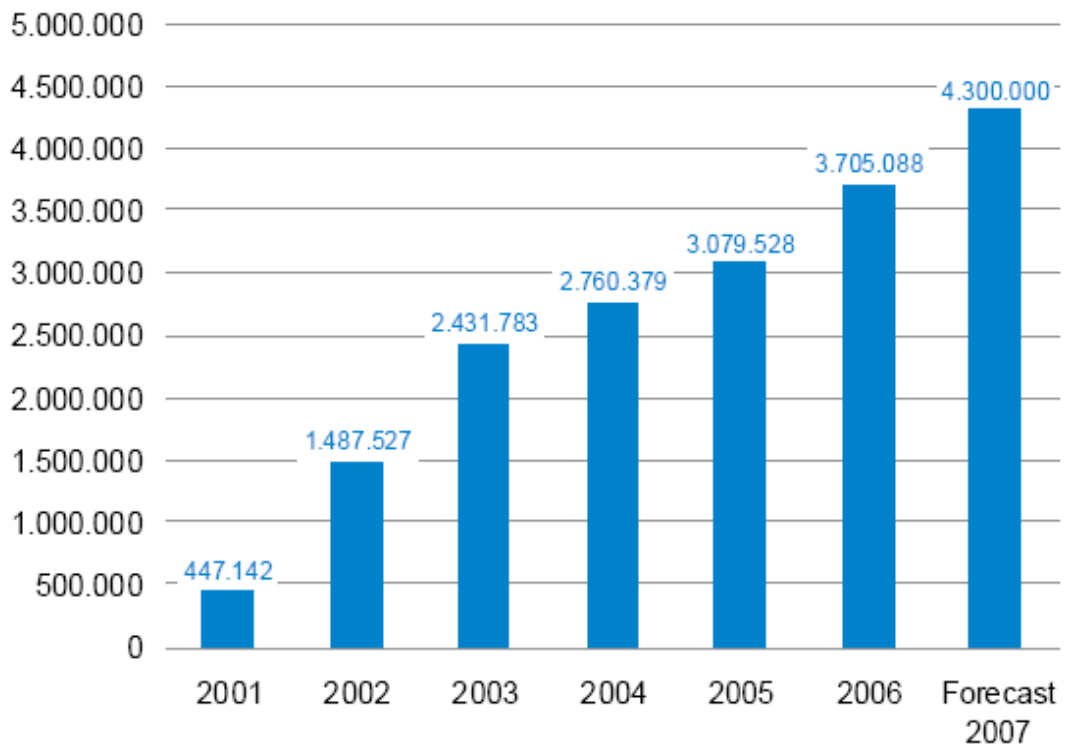
MEASURE	METRICS	NOTES
GROSS AREA	58,000 m ²	
COST	\$800m US	The cost included the provision of the approach roads, elevated passenger walkway to the airport SkyTrain, parallel taxiway system and a hydrant fuelling system for all contact stands.
AIRLINE USERS	1	jet Blue is the sole user of the facility
ANNUAL VOLUME	15 mppa	Calculation based upon 26 gates turning over 12 times per day with each aircraft having 150 seats @ 90%LF for 360 days/year
NO OF STANDS	26	There is 26 contact stands with airbridges and one spare gate.
STAND CODE	C	All stands are designed for A320 with tolerance for Embraer 190s
CHECK IN DESKS	40+40	The layout of the terminal building is such that there are 40 desks on each side of the central security comb
CHECK IN QUEUING SPACE	1,400 m ²	Estimated based on drawings provided.
DESIGN IATA LOS	C	Estimated at Code C or better
SECURITY COMB PROVISION	20	Security comb provision is provided centrally on the departures level between the check in areas.
TPHP	2340	Estimated based on interview with jetBlue. Calculation based on 25 gates with AC@100 seats @90% occupancy with peak being in the morning
HBS	10 EDS and 5 CTX	Full in line HBS with cross redundancy capability
DEP GATES	26	Contact gates designed for A320/EMB190 operations assuming 100 seats at 90% LF. jetBlue have provided 90 seats per gate
DEP GATE AREA	5,100m ²	Estimated using images provided gives an average area per gate of 190m ² or 2.1m ² per passenger.
SECURITY COMB	20	There are 20 security combs provided centrally for access airside.
OUTBOUND BAG BELT SYS	10	There are 10 outbound baggage make up areas
ARR BAG BELT	6	The arrivals baggage claim belts are exceptionally large with and estimated 270m of linear claim length.
FIDS	Y	
BIDS	Y	
CUTE	Y	jetBlue's own paperless ticketing system
CIRCULATION SPACE	N/A	
DESIGN CAPACITY	20m	

3.6 FRANKFURT-HAHN

3.6.1 INTRODUCTION

Frankfurt-Hahn Airport (HHN) was originally created in 1953 as a military base for NATO use. In 1993, it was successfully converted to civilian use, and it has since been operating as the low cost option to the nearby Frankfurt International Airport (FRA). Civilian conversion and total expansion of the airport is quoted to have cost a total of €138m to date which we assume includes stands, runway, taxiway and access development. Comprised in this total figure, is the development of the Main Terminal building, which was created by combining the former Terminals 1 and 2 at an initial cost of €25m. When it was first converted, HHN relied heavily on cargo operations. However, since the advent of low cost carriers, passenger traffic has grown steadily. The most notable increase in traffic took place in 1999, when Ryanair commenced services. Ryanair has since heavily increased its operations and it currently serves 43 destinations from HHN. Additional routes are served by Iceland Express (1) and Wizz (3).

Figure 14 Frankfurt Hahn Historical and Forecasted Traffic



Source: Frankfurt-Hahn website

3.6.2 RATIONAL FOR FACILITY

(a) **Geographical position**

The geographical position of Frankfurt makes HHN an attractive option for airline traffic. Situated in the centre of Europe, HHN is easily accessible to and from many destinations. Frankfurt is a quick commute to London, the Benelux, and within easy reach of most other European regions and cities.

(b) **Night-Time operations**

HHN markets itself as the Low-Cost airport in the Frankfurt region, and it has maintained adequately low and attractive airport charges. In addition, HHN has a 24-hour operating license, which allows it to be competitive with FRA (that instead has restrictions on night-time flights) without directly threatening its traffic base.

(c) **Future Growth**

Since 1998 Hahn has invested € 138m in airport infrastructure and in 2004 began a 3,800 m extension of its runway at a cost of € 37m. It is predicted that another € 240m will be spent between 2006 and 2010 for additional airport improvement projects including additional 747 cargo positions and cargo facilities, a rapid exit taxiway and additional parallel taxiways. Around € 150m is proposed to be spent on landside access and road improvements

As part of its near-term capex, HHN plans to build a totally new 50,000 sqm terminal (south) and gate area which is projected to cost € 54.6m and is due for completion by the end of 2008. The new Terminal and gates, which will replace the current facility, will have approximately 26 aircraft parking positions and an equivalent number of gates with a design capacity of 15mppa. It will provide 20,500 m² of departures and arrivals terminal processing, plus 20,000 m² of airside space plus 5,000m² for commercial development (such as a hotel) with 5,000m² for connecting corridors.

Figure 15 The planned, Terminal South

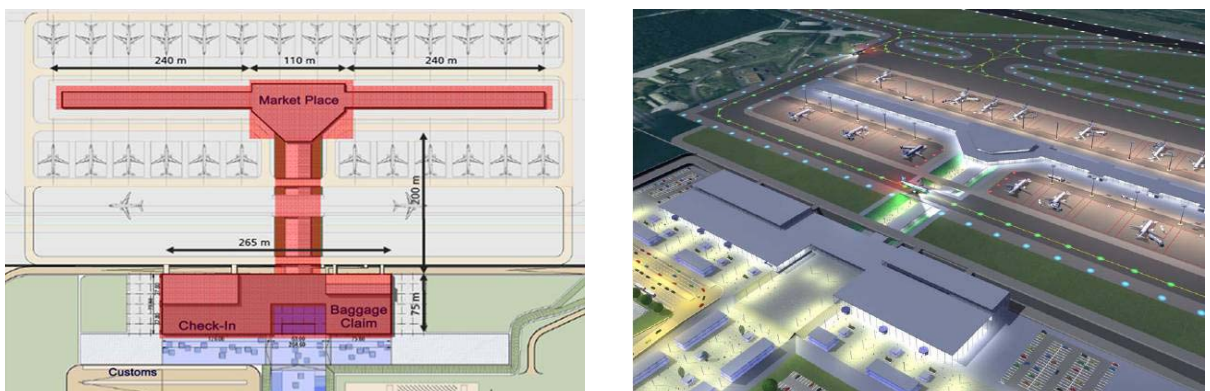


Table 13 Frankfurt-Hahn Benchmarking Characteristics – Existing Terminal

MEASURE	METRICS	NOTES
GROSS AREA	18,500 m ²	Including office space and baggage. Terminal area only = 13,500 Sqm
COST	Total €25 million	€4.40 per Passenger, assumed to include terminal and gates but not associated stands and apron developments
AIRLINE USERS	Business + tourism	Ryanair, Wizz, Iceland Express
ANNUAL VOLUME	4.2 mppa	2007 figure
NO OF STANDS	16	
STAND CODE	C/D/E/F	10 Codeletter "C" and 6 Codeletter "D, E, F" as of 05/2007
CHECK IN DESKS	22	
CHECK IN QUEUING SPACE	750m ²	Terminal A 280 m ² , Area A-B 150 m ² , Terminal B 320 m ²
DESIGN IATA LOS	IATA LEVEL "E"	
TPHP	2,675 Design Peak Hour	
HBS	3	1 EDT, 1 EDTS, 1 oversize baggage
DEP GATES	12 Gates	
DEP GATE AREA	2100m ² + circulation	Terminal A 1.200 m ² gate area, Terminal B 900 m ² gate area + circulate area
SECURITY COMB	11	10 PAX Security Lanes, 1 Personal + Customers Lane
OUTBOUND BAG BELT SYS	1	1 Outbound carousel, capacity max 10 flights/hour
ARR BAG BELT	4	4 Inbound carousel; 3 flights Arrival Terminal A together, 4 flights Arrival Terminal B together
FIDS	12	4 for monitors per arrival area, 8 for departure + wait/circulate area
BIDS	No BIDS	
CUTE	No CUTE	
CIRCULATION SPACE		
DESIGN CAPACITY	5.6mppa	
NOTES		<p>The current baggage claim will be extended in summer 2007 to a capacity of max 14 flights/hour.</p> <p>HHN will also built a new arrival in winter 2007/08 and change the current arrival to gate area. The new arrival will be on the area of the new terminal that HHN will built in 2008-2010.</p> <p>A new 15mppa capacity 50,000m² terminal south and gate area is planned to be developed with 26 gates at a cost of €54.6m. It will provide 20,500 m² of departures and arrivals terminal processing, plus 20,000 m² of airside space plus 5,000m² for commercial development (such as a hotel)</p>