

# **Piarco International Airport Facilities Expansion Study**

**A Report to the Airports Authority of Trinidad and Tobago**

**May 28, 2012**



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## Executive Summary

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Improving non-aeronautical revenue has become a crucial component of successful airport management. Airports across the globe have increased their share of non-aeronautical revenue to improve earnings, subsidize aeronautical operations, provide greater passenger amenities, fund infrastructure improvements, and stabilize earnings during market slowdowns.

The Airports Authority of Trinidad and Tobago is considering expanding parking, concessions, and the addition of an on-site hotel at Piarco International airport. The Authority's goals are to a) improve service its passengers, b) add amenities that continue to improve the airport's competitive position among Caribbean airports, and c) derive new streams of revenue.

Aviation Consulting Group (ACG) was engaged by the Authority to complete the ***Piarco International Airport Facilities Expansion Study*** in order to assist the Authority's decision making and implementation process. ACG's task was to develop order of magnitude recommendations for the proper size and scale of new and additional 1) parking spaces, 2) new commercial and concessions space, and 3) a possible hotel located on-site at Piarco International.

ACG has completed a study of the size, scale, and potential revenue generated from parking, concessions rents and hotel operations at airports across the industry, focusing on industry-wide standards and the performance of Peer airports — airports of comparable size and function to that of Piarco. ACG's findings represent order of magnitude indicators of supportable development capacity for parking spaces and concession space at Piarco. However, ACG declines to recommend a comparable estimate for new hotel rooms at Piarco. Data within the airport hotel segment is not sufficient to develop a professionally supportable estimate, and would require a study of considerably greater scope to reliably produce.

These estimates represent a development "envelope" for facility expansion at Piarco, but do not include an examination of detailed market characteristics at the local level. ***It is recommended that a full feasibility study, studying local market performance and characteristics in detail, be completed before committing to full-scale investment in any improvements.*** A summary of ACG's findings are as follows.

### *Parking*

Comparable peer airports sustain from 1.86 to 1.98 parking spaces per 1,000 annual passengers. Airport parking spaces correlate with airport size, but in an inverse relationship. Considering Piarco's passenger volume, the airport would require from 4,658 to 4,959 total parking spaces.

Total revenue generated from parking is highly dependent on parking rates and the composition of parking customers and parking services. Although parking rates may be significantly higher at large hub airports, frequency and intensity of parking space use is higher at smaller terminating destination airports (non-hubs) with less public transport infrastructure. Average parking revenue per passenger for the airports studied by ACG is \$2.81 (USD). Average revenue per passenger at peer airports studied by ACG is from \$3.22 to \$3.62 (USD).

### *Concession & Commercial Space*

Based on comparable peer airport performance, considering its passenger volume and profile, Piarco could support anywhere from 7.2 to 8.64 square feet of commercial space per 1,000 annual passengers, translating into over 18,000 to over 22,000 potential square feet of total commercial space at the airport. Rents vary widely across the industry, and income to the airport is highly dependent on the nature of the vendor, demand within the terminal, and the structure of lease contracts with vendor-operators. The range of rents at peer airports ranges from \$39 to \$53 (USD) per square foot per year.

### *Hotel*

The utilization of industry statistics to the hotel segment is inconclusive, as airport hotel demand is sensitive to a wide set of factors, does not correlate to passenger size, and that fully understanding airport hotel demand must be done on a detailed, case-by-case basis.

Projections from available data suggest a demand range that is too broad (13 to 252 rooms) to be useful, lacking adequate data to be supportable. An accurate study of hotel room potential requires a detailed study beyond the scope of this report. Please see the Hotel Capacity Analysis Section for further detail.

## Airport Revenue Structure

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Airport operating revenue is classified as **aeronautical (airside) revenue** — revenue derived from charges to airlines for the facilities/services provided by an airport, and **non-aeronautical (landside) revenue** — all other revenues (not generated by charges and fees to airlines for the use of the airport facilities). Aeronautical and non-aeronautical operating revenues are typically comprised of the following segments:

### *Aeronautical Revenue:*

- Landing fees
- Passenger and Cargo fees
- Aircraft Parking fees
- Handling fees
- Terminal Building rent
- Operation charges, ATC fees, ground facility leases etc.

### *Non-Aeronautical Revenue:*

- Car Parking revenue
- Concessions (food & beverage, hotels etc.)
- Other Property Rents — Office Buildings, Hotels, Gas Stations, etc.
- Rents from Advertising Space
- Direct Sales
- Sale or Land Development of Excess Property

## Non-Aeronautical Operating Revenue

Airport revenues have grown in line with rapidly increasing world air travel. Until the early 1990's airside revenue was the major component of airport operating revenue, typically comprising 85% to 90% of average airport operating revenue. However, over the last two decades, non-aeronautical revenue has grown sharply as a proportion of overall airport operating revenue. Worldwide in 2010, aeronautical revenue accounted for 53.5% of industry-wide airport operating income, while non-aeronautical revenues accounted for 46.5% of airport operating income.<sup>1</sup> Airport revenue at U.S. Airports has followed the same global pattern. In 2011, aeronautical revenues accounted for over 54% of revenues while non-aeronautical revenues accounted for over 45% of total operating revenues for both hub and non-hub airports.

The growth of non-aeronautical operating revenue has become an indispensable part of modern airport management and finance. The growth of non-aeronautical operating revenue is the product of several factors. First, increased airline deregulation and competition has resulted in increasing passenger numbers, but lower fares and slimmer airline operating margins. Faced with an increasing number of privatized airports, reduced state control, pressures for constant infrastructure improvements, airport operators need to find other revenue streams to insure continued growth and profitability.

Second, higher passenger volume, combined with expanded air travel routes, and increased security inspection measures, have created longer passenger dwell times at airports. This creates an opportunity to capture new revenue, but offering expanded services and retail opportunities within the airport is also a competitive requirement. Airports are forced to offer an expanded array of amenities to remain competitive within the air travel market.

Third, non-aeronautical revenues provide not only additional revenue, but needed revenue diversification. According to ACI World Director General Angela Gittens: "Non-aeronautical revenues are a vital component in the economics of airports. During the downturn the diversification of airport revenues cushioned the impact of lower passenger and freight volumes and safeguarded operating profits."<sup>2</sup>

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<sup>1</sup> Airport Economics Survey of Airports Council International (ACI), 2011

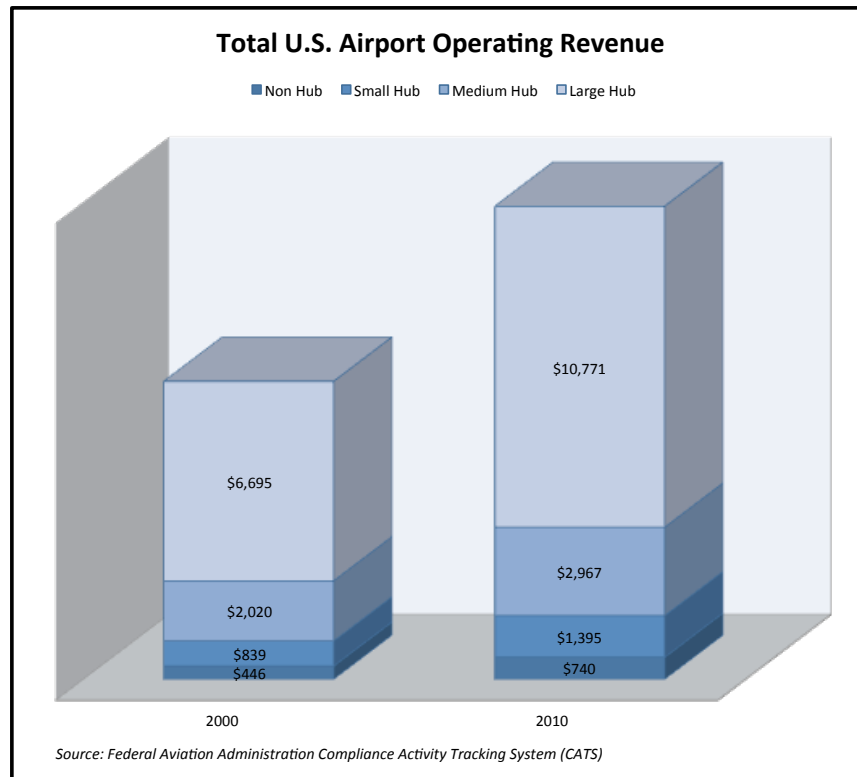
<sup>2</sup> Airports Council International, Press Release Announcing the Airport Council International Airport Economics Survey 2011, 12/01/2012.

Lastly, landside (non-aeronautical) activities have higher profit margins than airside activities. Again, according to Director Gittens: “Non-aeronautical revenues critically determine the financial viability of an airport as they tend to generate higher profit margins than aeronautical activities, the latter frequently representing a zero sum game or producing a deficit.”<sup>3</sup>

According to the FAA Compliance Activity Tracking System, revenue composition varies by airport location and type. Industry-wide, in 2011 U.S. airports generated most of their non-aeronautical operating revenue from:

- Parking (15-40% of total operating revenue),
- Rental Cars (5-25%),
- Terminal retail stores and duty free shops (2-5%),
- Non-terminal land and facility leases (2-6%).
- Revenue from on-site hotel rooms varies, but industry-wide represents a small portion of total operating revenue, especially for small and non-hub airports.

**Figure 1**



<sup>3</sup> Airports Council International, Press Release Announcing the Airport Council International Airport Economics Survey 2011, 12/01/2012.

Figure 2

Composition of U.S. Airport Operating Revenue, 2011				
	Non-Hub Airports		All Airports	
Passenger Airline Aeronautical Revenue				
Passenger airline landing fees	50,367,838	7.7%	2,276,815,002	17.2%
Terminal arrival fees, rents, and utilities	67,520,268	10.4%	3,099,112,432	23.4%
Terminal area apron charges/tiedowns	5,453,999	0.8%	113,397,180	0.9%
Federal Inspection Fees	150,718	0.0%	154,480,434	1.2%
Other passenger aeronautical fees	6,321,007	1.0%	123,759,779	0.9%
	129,813,830	19.9%	5,767,564,827	43.6%
Non-Passenger Aeronautical Revenue				
Landing fees from cargo	7,411,906	1.1%	213,410,051	1.6%
Landing fees from GA, and military	5,544,481	0.9%	26,147,469	0.2%
FBO revenue; contract or sponsor-operated	34,499,212	5.3%	146,839,918	1.1%
Cargo and hangar rentals	53,957,213	8.3%	564,151,160	4.3%
Aviation fuel tax retained for airport use	2,049,080	0.3%	16,928,549	0.1%
Fuel sales net profit/loss or fuel flowage fees	71,279,646	10.9%	244,599,567	1.8%
Security reimbursement from Federal Government	13,866,241	2.1%	67,141,750	0.5%
Other non-passenger aeronautical revenue	37,597,017	5.8%	220,001,487	1.7%
	226,204,796	34.7%	1,499,219,951	11.3%
Total Aeronautical Revenue	356,018,626	54.6%	7,266,784,778	54.9%
Non-Aeronautical Revenue				
Land and non-terminal facility leases and revenues	91,853,676	14.1%	460,099,736	3.5%
Terminal-food and beverage	5,412,132	0.8%	370,532,647	2.8%
Terminal-retail stores and duty free	3,975,262	0.6%	471,582,096	3.6%
Terminal-services and other	9,553,192	1.5%	314,772,699	2.4%
Rental cars-excludes customer facility charges	72,495,555	11.1%	1,239,559,395	9.4%
Parking and ground transportation	83,007,048	12.7%	2,345,045,597	17.7%
Hotel	507,668	0.1%	111,151,354	0.8%
Other	28,759,634	4.4%	659,787,108	5.0%
	295,564,167	45.4%	5,972,530,632	45.1%
Total Operating Revenue	651,582,793	100.0%	13,239,315,410	100.0%

Source: Federal Aviation Administration Compliance Activity Tracking System (CATS)

Source: Federal Aviation Administration Compliance Activity Tracking System (CATS)

## Parking Capacity Analysis

### Airport Parking Development Context

On-airport parking revenues are typically the largest source of non-aeronautical revenues at airports. Airport customers often park for several days, or occasionally several weeks. “Long duration” airport parking customers (parking more than 24 hours) typically account for less than 30% of all entering and exiting vehicles, but occupy more than 70% of all parking spaces and generate most of the parking revenues.<sup>6</sup>

Airport managers can influence parking revenues more than any other income stream, and often raise rates to offset lost income during periods of market slowdowns. At airports like Tampa International (TPA), parking generates more than \$50 Million a year, making it the airport's top moneymaker, accounting for 31 percent of all revenue. Los Angeles International (LAX) balances parking fees against aircraft landing fees which roughly translates into every \$1 in increased fees meaning \$1 less in landing fees for the airlines.

Larger airports often have diversified parking products aimed to generate maximum revenue from each customer. The first include *duration-based* where the cost reflects the length of stay including short-term parking, long-term parking, free 30-minute parking and cell phone lots. The second type is *value-added* which include valet parking, reserved parking zones, guaranteed spaces, validated parking, and other value-added products available at additional cost.

Figure 3

<b><i>Parking Revenue as Percent of Total Airport Revenue</i></b>	
<b>Airport</b>	<b>Parking Revenue</b>
MCI	43.30%
CMH	39.70%
TPA	31.10%
IND	29.50%
COS	27.40%
MSP	25.80%
ALB	23.70%
CVG	19.60%
YOW	14.60%
MCO	14.30%
SFO	12.80%
LAS	6.40%
HOU	3.70%

*Source: ARN Factbook 2011 and Airport Annual Reports*

### Comparative Parking Supply Analysis

The number of parking spaces supplied and supported varies by the size and type of each airport. ACG surveyed 81 U.S. airports to develop a recommended supply of feasibly supported parking at Piarco International. Across U.S. airports, the number of parking spaces supplied per passenger varies inversely with passenger traffic with a high level of correlation. Larger hub airports in major metropolitan areas face higher costs and availability of land, and are usually served by more sophisticated public ground transportation, such as New York's JFK, Las Vegas, and San Francisco Airports. Looking at each size segment of the U.S. market, the average parking spaces per passenger are as follows:

- 20 Million Passengers or more: .52 spaces per 1,000 passengers
- 5-20 Million Passengers: 1.2 Spaces per 1,000 passengers
- 2-5 Million Passengers: 1.86 spaces per 1,000 passengers
- 2 Million Passengers or less: 2.29 spaces per 1,000 passengers

<sup>6</sup> ACRP Report 24 – Guidebook for Evaluating Airport Parking Strategies, Federal Aviation Administration

Figure 4

<i>Parking at Selected U.S. Airports</i>				
Airport	Code	Annual Passengers	Parking Spaces	Parking Spaces per 1,000 Passengers
<b>20 Million Passengers or More</b>				
Atlanta	ATL	89,238,058	29,657	0.33
Los Angeles International Airport	LAX	59,060,517	16,101	0.27
Dallas/Fort Worth International Airport	DFW	55,907,302	40,049	0.72
John F. Kennedy International Airport	JFK	42,634,959	14,401	0.34
Houston George Bush Intercontinental Airport	IAH	40,474,979	23,638	0.58
San Francisco International Airport	SFO	39,116,764	12,522	0.32
Las Vegas	LAS	38,910,428	12,439	0.32
Phoenix Sky Harbor International Airport	PHX	38,554,530	22,000	0.57
Charlotte	CLT	38,254,207	26,700	0.70
Miami	MIA	35,014,350	8,867	0.25
Orlando International Airport	MCO	34,288,697	19,202	0.56
Newark Liberty International Airport	EWR	33,109,039	19,163	0.58
Minneapolis-St. Paul International Airport	MSP	32,741,444	21,700	0.66
Detroit Metropolitan Wayne County Airport	DTW	32,377,064	18,456	0.57
Seattle-Tacoma International Airport	SEA	31,553,166	9,183	0.29
Philadelphia International Airport	PHL	30,775,961	18,854	0.61
Boston	BOS	27,370,210	14,968	0.55
LaGuardia Airport	LGA	23,994,408	6,730	0.28
Fort Lauderdale-Hollywood International Airport	FLL	22,409,664	12,133	0.54
Baltimore	BWI	21,936,461	25,100	1.14
<b>5 to 20 Million Passengers</b>				
Ronald Reagan Washington National Airport	DCA	18,105,110	8,941	0.49
San Diego International Airport	SAN	16,889,622	8,073	0.48
Vancouver International Airport	YVR	16,778,774	5,192	0.31
Tampa International Airport	TPA	16,645,765	23,579	1.42
Portland International Airport	PDX	13,184,843	14,230	1.08
Montreal, Canada	YUL	12,971,339	8,751	0.67
Lambert-St. Louis International Airport	STL	12,655,908	8,867	0.70
Calgary, Canada	YYC	12,633,708	7,480	0.59
Memphis	MEM	10,010,186	3,800	0.38
Kansas City	MCI	9,924,159	24,573	2.48
General Mitchell International Airport, Milwaukee	MKE	9,848,377	11,244	1.14
Oakland International Airport	OAK	9,537,150	6,951	0.73
Cleveland Hopkins	CLE	9,492,455	7,140	0.75
Nashville International Airport	BNA	9,076,453	10,605	1.17
Raleigh-Durham International Airport	RDU	9,074,870	16,422	1.81
William P. Hobby Airport	HOU	9,027,031	4,360	0.48
Sacramento International Airport	SMF	8,849,711	19,697	2.23
John Wayne Airport, Santa Ana	SNA	8,663,452	7,194	0.83
San Jose (Norman Y. Mineta International Airport)	SJC	8,230,985	5,952	0.72
Pittsburgh International Airport	PIT	8,195,359	13,200	1.61
San Antonio International Airport	SAT	8,034,720	8,648	1.08
Cincinnati/No. Kentucky International Airport	CVG	7,977,588	13,600	1.70
Dallas Love Field Airport	DAL	7,960,809	7,100	0.89
Indianapolis International Airport	IND	7,526,414	18,250	2.42
Fort Myers, Southwest Florida International Airport	RSW	7,380,596	11,304	1.53
Port Columbus International Airport	CMH	6,366,191	13,158	2.07
Edmonton, Canada	YEG	6,089,099	9,654	1.59
Palm Beach International Airport	PBI	5,864,910	10,220	1.74
Jacksonville International Airport	JAX	5,601,550	7,524	1.34
Bradley International Airport	BDL	5,379,990	8,024	1.49
Buffalo	BUF	5,203,104	6,850	1.32

Source: ARN Factbook 2011 and Airport Annual Reports

Figure 5

Parking at Selected U.S. Airports				
Airport	Code	Annual Passengers	Parking Spaces	Parking Spaces per 1,000 Passengers
<b>2 to 5 Million Passengers</b>				
Ontario International Airport	ONT	4,798,220	5,591	1.17
Anchorage	ANC	4,765,746	2,382	0.50
Ottawa, Canada	YOW	4,473,894	3,198	0.71
Eppley Airfield	OMA	4,287,428	8,581	2.00
T.F. Green Airport	PVD	3,936,423	8,566	2.18
Reno-Tahoe International Airport	RNO	3,823,393	3,682	0.96
Tucson International Airport	TUS	3,740,675	7,585	2.03
Louisville International-Standiford Field Airport	SDF	3,349,162	5,719	1.71
Richmond International Airport	RIC	3,306,004	7,224	2.19
Spokane International Airport	GEG	3,176,204	8,978	2.83
El Paso International Airport	ELP	3,082,170	5,738	1.86
Boise Airport	BOI	2,802,400	2,270	0.81
Albany	ALB	2,534,309	6,379	2.52
Dayton International Airport	DAY	2,527,239	7,320	2.90
Gerald R. Ford International Airport Grand Rapids	GRR	2,185,924	8,454	3.87
Charleston	CHS	2,016,273	3,163	1.57
<b>Less than 2 Million Passengers</b>				
Colorado Springs Airport	COS	1,738,333	5,585	3.21
Savannah/ Hilton Head International Airport	SAV	1,653,301	3,914	2.37
Wichita Mid-Continent	ICT	1,549,395	2,518	1.63
Sarasota/ Bradenton International Airport	SRQ	1,336,906	1,407	1.05
Burlington International Airport	BTW	1,326,008	2,622	1.98
Orlando Sanford International Airport	SFB	1,138,538	1,961	1.72
Fresno Yosemite Air Terminal	FAT	1,083,282	1,894	1.75
Phoenix-Mesa Gateway Airport	AZA	804,330	2,637	3.28
St.Petersburg-Clearwater International Airport	PIE	776,087	714	0.92
Tallahassee Regional Airport	TLH	737,685	2,184	2.96
Asheville Regional Airport	AVL	735,760	1,435	1.95
Roanoke Regional Airport	ROA	629,310	1,814	2.88
Ft.Wayne International Airport	FWA	550,446	2,167	3.94
Lafayette Regional Airport	LFT	448,226	759	1.69
Stewart International Airport, New Windsor	SWF	395,244	1,201	3.04

Source: ARN Factbook 2011 and Airport Annual Reports

Figure 6

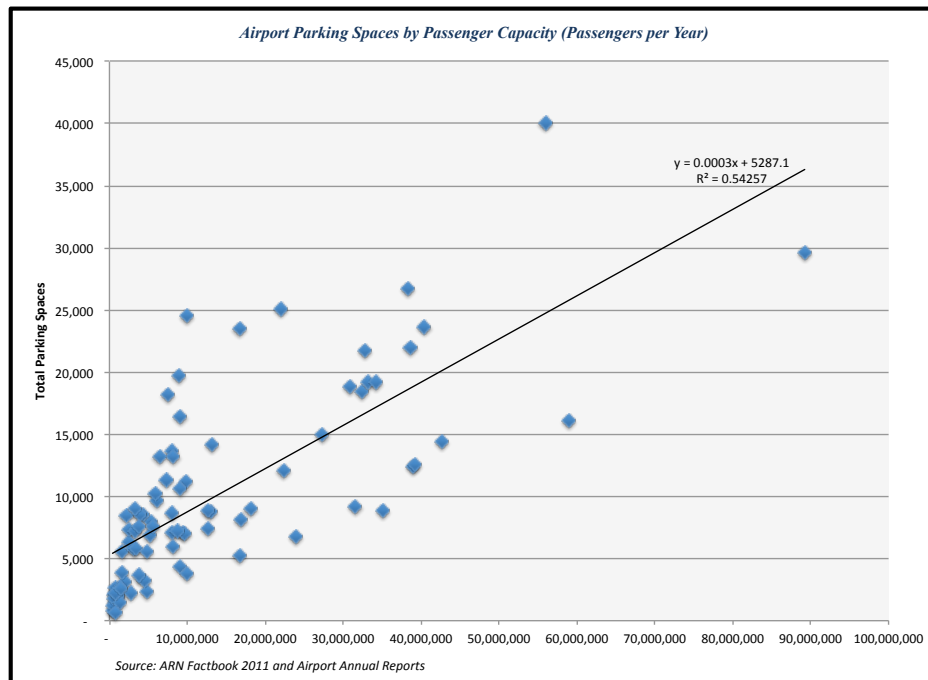




Figure 8

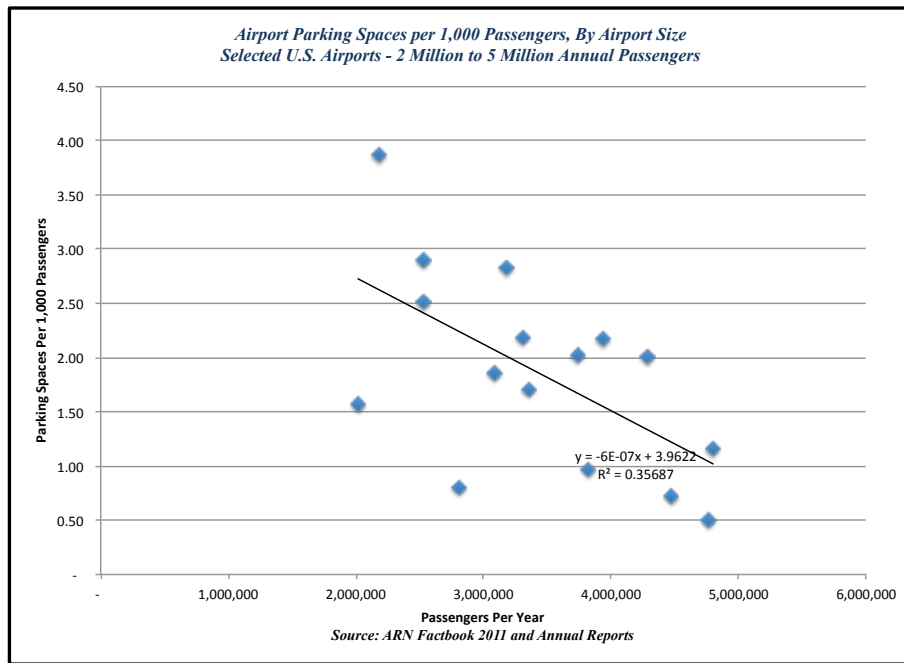
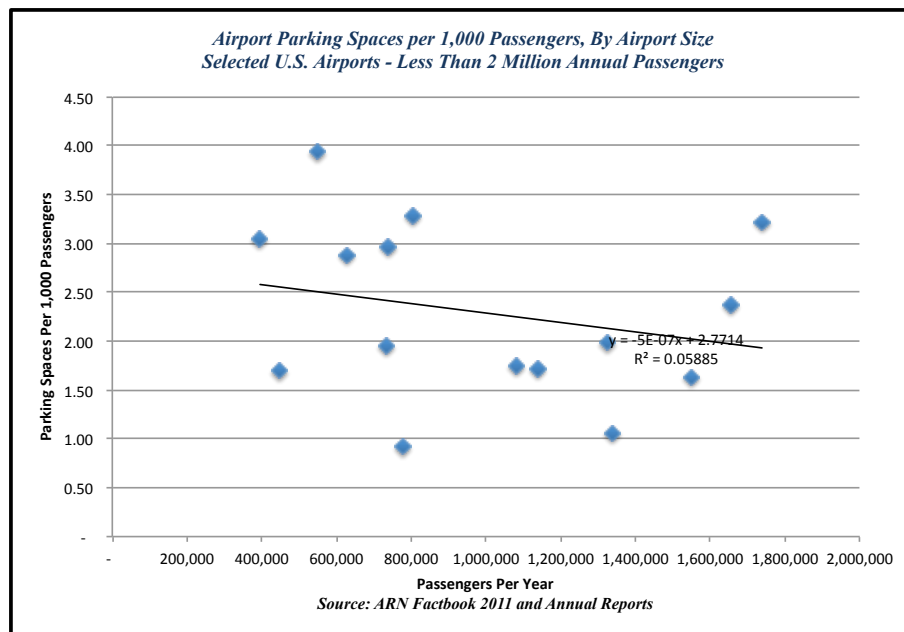


Figure 7



## Comparative Parking Revenue Analysis

Parking revenue per passenger follows the same inverse relationship with airport size. Although parking rates may be significantly higher at large hub airports, frequency and intensity of parking space use is higher at smaller terminating destination airports (non-hubs) with less public transport infrastructure. Average parking revenue per passenger for the airports studied by ACG is \$2.81 (USD). Average per passenger parking revenue by market segment size is as follows:

- 20 Million Passengers or more: \$1.47 per passenger
- 5-20 Million Passengers: \$3.58 per passenger
- 2-5 Million Passengers: \$3.62 per passenger
- 2 Million Passengers or less: \$3.22 per passenger

# Concession Capacity Analysis

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## Airport Concession Development Context

Concessions consist of rent payments generated from retail, food & beverage establishments, and refer to all commercial activities to sell goods and services in the airport, and sometimes the words concession, rent and lease are used interchangeably. Concession revenue is driven by 1) passenger volume and passenger types, 2) passenger dwell time, and 3) leasing structure.

The mix of airport concessions, revenue, and net profit is largely dependent on the type of passengers going through the airport, and whether the airport functions as an: (1) intercontinental gateway, (2) international (same continent) gateway, (3) regional transfer hub, (4) local origin/destination point, (5) specialized air cargo distribution center, or (6) overnight parcel hub. Additionally, passengers show clear preferences for concessions that more closely resemble their choices outside the airport.

Higher passenger volume drives demand for a higher number of concessions. Large hub airports with greater exposure to passengers with longer dwell times need more variety of concessions than small to medium sized airports. Large airports serving predominantly business travelers have concessions tailored to the needs of the business traveler.

Passenger dwell time — the average time spent by air travelers within the airport terminal, has more than doubled over the last decade to 108 minutes, and for connecting passengers can often exceed three hours. This means that passengers are available for greater lengths of time to use the concession areas and generate revenue for the airport. Dwell time increase with an airport's level of congestion, as passengers choose to arrive earlier to avoid missing flights due to lengthy security check wait times.

Lease agreements with concessionaires usually involve a fixed rental plus additional income to the airport once a predetermined profit or turnover level has been reached by the concessionaire. From a contracting perspective, the award of concession agreements has evolved from straight bids based solely on guaranteed revenues toward more customer-focused processes emphasizing customer satisfaction and convenience as well as revenue. The structure of leasing arrangements at an airport can also affect its concession revenue. Airport Council International (ACI) North America (2009) in a survey of major airports found that the most common length of contracts is 10 years, and the predominant leasing structures are as follows:

- Prime operator: The airport leases packages of locations to two or more operators, each of which has multiple locations (more than 3) within the airport.
- Master concessionaire: The airport leases all food service concessions to a single operator, who may or may not also operate retail. The Master Concessionaire may sublease some of the locations to other operators.
- Direct leasing: The airport leases individual locations or small groups of locations (no more than three) directly with operators.
- Developer: The airport has agreement with a third party to develop/lease and manage the concessions without operating any directly. The Developer invests in facilities directly.

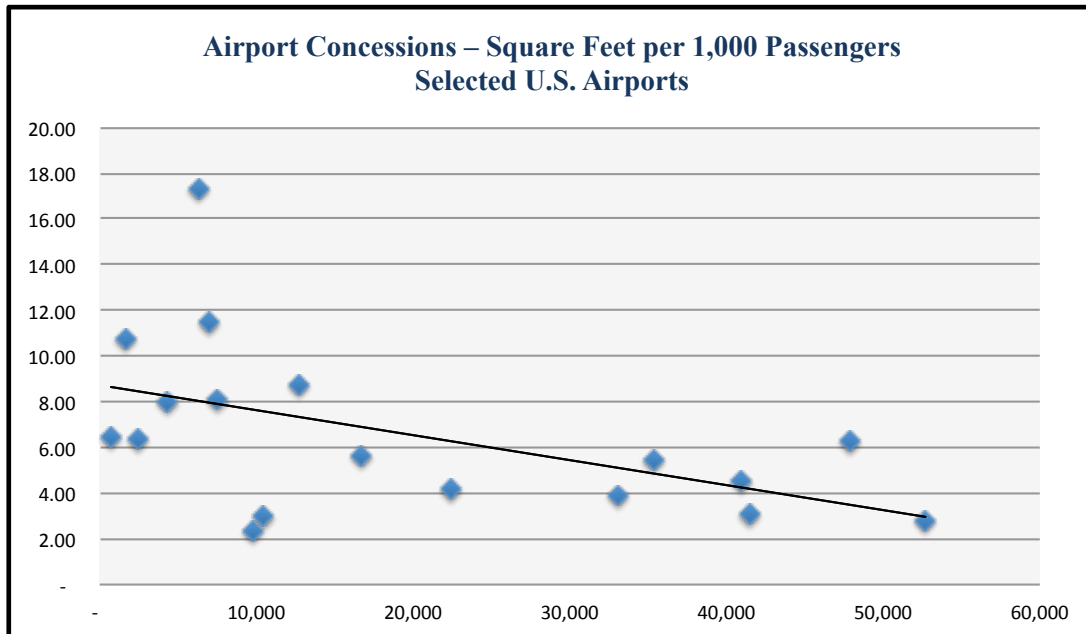
## Comparative Concessions Supply Analysis

While the number of concessions per passenger varies directly with the size of the airport, the square footage of concession space varies *inversely* with the number of airport passengers. The reason is simple: larger airports require a broader mix of concessions and services, but space within the terminal is available generally at a much greater premium (less available, higher cost) than smaller airports. The typical mix for larger airports includes a greater number of concessions, but in smaller footprints, than at smaller airports.

ACG examined 18 selected U.S. airports. The number of concessions per 100,000 passengers varies from .2 to over 2. However, industry averages indicate that the number of concessions per 100,000 passengers is highest for airports serving 5 Million to 20 Million passengers (.95), followed by airports serving 2 Million to 5 Million passengers.

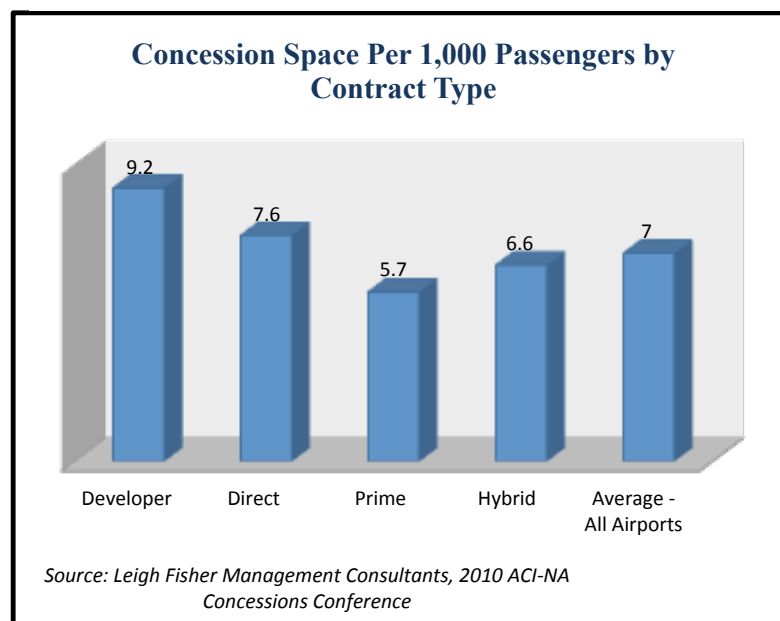
Industry-wide, all U.S. airports average 7 square feet of concession space per 1,000 enplanements. Within ACG's sample set, square feet of concession space is highest with small airports serving under 2 Million passengers, at 8.64 square feet of concession space per 1,000 passengers, followed by airports serving 5 Million to 20 Million passengers (8.07 square feet per 1,000), and airports serving 2 Million to 5 Million passengers (7.20 square feet).

Figure 9



Ownership structure and type of management contract also affects the development of airport concession space, with concession square footage per enplanement highest with developer owned and managed concession space, and lowest with the Prime Operator model.

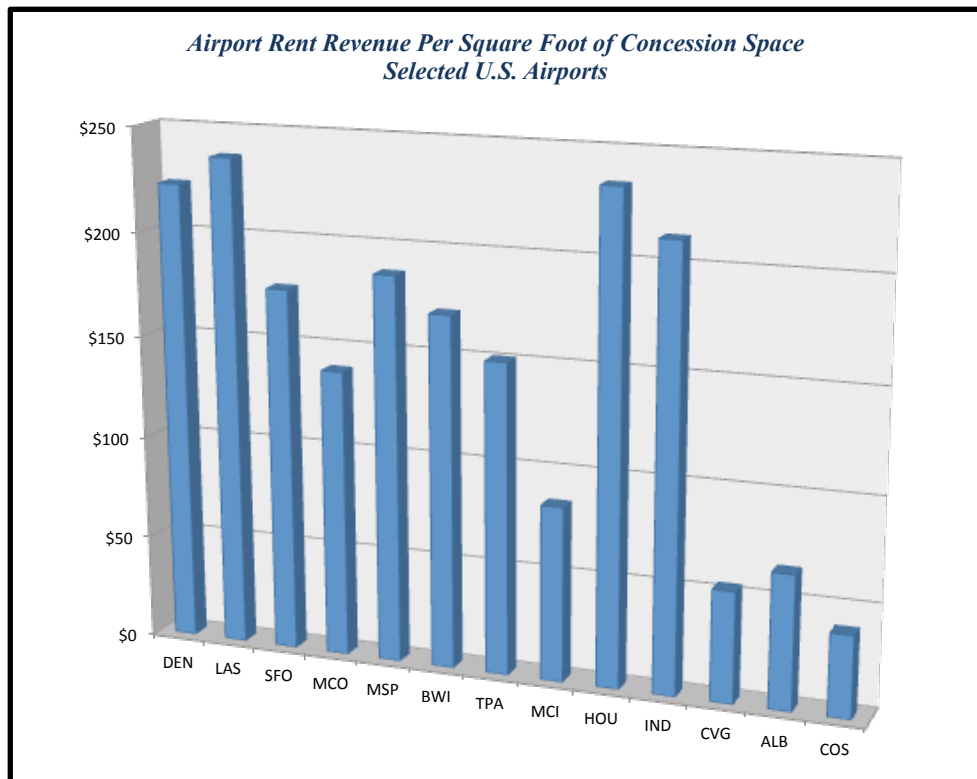
Figure 10



## Comparative Concessions Revenue Analysis

Rent revenue per square foot of concession space, as well as rent revenue per passenger, is directly related to passenger volume. New York's John F. Kennedy Airport has the highest average sales per enplaned passenger at \$12.90. Pittsburgh International is second with \$11.90 and SFO ranks third in the nation at \$11.65 in sales per enplaned passenger. Revenues for a selected set of airports is shown below.

Figure 11



# Hotel Capacity Analysis

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## Airport Hotel Development Context

Airport hotels serve primarily 1) business travelers originating and terminating (O&T) at the airport, 2) meetings, seminars, and training, 3) airline crews, and 4) passengers experiencing cancellation or delay. Airport hotels provide tremendous advantages for business travelers seeking to maximize the use of their time, offering conference rooms and meeting spaces. Business travelers can complete a trip without having to leave the airport, eliminating the need for rental cars and local travel.

Airport hotels have evolved considerably. According to a report issued by Smith Travel Research in 2009, airport hotels have often been more budget-friendly than user-friendly, a last resort in cases of unexpected delays, cancellations or limited expense accounts. However, over the last decade, airport hotels have emerged as new destinations — the newest airport hotels now offer the types of luxury spas, destination dining options, full-service business centers and architecture that match their downtown five-star equivalents.<sup>7</sup> The latest examples of this trend include Zurich's Terminal 1, Heathrow's Terminal 3, Chicago O'Hare, Amsterdam Schiphol and Singapore Changi.

In the United States, several successful airport hotels have been developed, but many of the 50 largest airports in the United States do not have on-site hotels, despite the fact that on-site airport hotels generally outperform off-site hotels.<sup>8</sup> Room rates in the U.S. average \$100 per night. A number of major airports are currently considering developing their own hotels that will be integrated with the terminal facilities.

## Comparative Hotel Demand and Supply Analysis

Data upon which to produce a reliable development envelope forecast for airport hotel rooms at Piarco is incomplete. There are few, if any, adequately detailed studies of airport passenger hotel demand generation that 1) include on-site and off-site hotels as the complete local hotel market, and 2) provide adequately conclusive results. The paucity of reliable data means that ACG's research is inconclusive. ACG's findings regarding airport hotel market demand generation are as follows.

1. Airport passengers generate demand for hotel room-nights in hotels located **on-site and near** airport properties, as evidenced by the large supply of hotel rooms within the vicinity of most airports, many of which are just off the airport property. Developing a reliable market forecast of potential demand requires the study of the complete hotel room supply market on and off airport properties.
2. On-site hotel rooms represent only a small fraction of the total demand for "airport" hotel rooms generated by airport passengers. However, the hotel industry's definition of "airport hotel" includes on and off-site hotels, but is too imprecise for use in this study.
3. Airport hotel performance is extremely sensitive to the business travel market. Understanding the composition of any airport's passenger population is critical to understanding the specifics of its hotel demand generation characteristics, and is beyond the scope of this study.
4. Most importantly, the number of occupied hotel room-nights for all airport hotels does not correspond to passenger volume in any statistically significant way, further supporting the view that hotel room occupancy is the product of a wide range of factors, including passenger profile, supply, price, distances to hotels, and airport location relative to other hotel demand generators, and can only be understood through a detailed, case-by-case study of an individual airport hotel market.

Data from leading U.S. on-site airport hotels is inconclusive as to establishing a development envelope for Piarco. The number of hotel rooms per passenger is statistically uncorrelated, and as discussed, represent only a fraction of the hotel demand generated at each airport. ACG's review of European airport hotels shows the same lack of correspondence or predictability.

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<sup>7</sup> Kaufman, D. (2009) Airport Hotels, The New York Times, January 30, 2009.

<sup>8</sup> Detlefsen, H. (2008) Airport Hotels: On-Site Locations Yield Premium Performance, Oct. 28 2008.

PKF Consulting completed the most comprehensive study of airport hotel demand for England's airports, looking at hotel performance from 2003-2008 for the complete set of "airport" hotels (on-site and off-site), for each airport. PKF found that UK airports generated a wide range of hotel demand — from 11 to 74 occupied room-nights per 1,000 passengers. Most of the UK airports generated between 11 and 24 occupied hotel room nights per 1,000 passengers. PKF's higher demand numbers are the result of studying the entire airport hotel market at each airport. *However, as PKF noted, these demand numbers had little or no correspondence to passenger volume.*<sup>9</sup>

Applying these findings directly to Piarco produces a comparable hotel room potential at Piarco of 32 to 46 rooms, using the U.S. market comparables, and a hotel room potential of 13 to 44 rooms, using the European market comparables data. The PKF UK study data would suggest a **total** potential market demand for 75 to 252 rooms at Piarco, but without better data regarding the close-in hotel market at Piarco, ACG has no analysis at this point to indicate what portion of that demand would remain on-site versus off-site.

Figure 12

<i>Hotel Rooms at Leading U.S. Airports</i>				
Airport	Passengers (thousands)	Hotel Operator	Total Hotel Rooms	Hotel Rooms per 1,000 Passengers
Chicago O'Hare (ORD)	66,735	Hilton	860	0.013
Dallas-Fort Worth (DFW)	56,907	Hyatt Regency	811	0.014
Orlando International (MCO)	35,357	Hyatt Regency	445	0.013
Newark (EWR)	33,107	Marriott	585	0.018
Detroit Metropolitan (DTW)	32,377	Westin Hotels	404	0.012
Tampa International (TPA)	16,732	Mariott	295	0.018

*Source: ARN Factbook 2011 and Airport Annual Reports*

Figure 13

<i>Hotel Room Supply at Selected International Airports</i>						
Airport	Passengers	Total Room Nights	Hotel Room Supply Potential		Hotel Room Per 1,000 Passengers	
			L	H	L	H
LHR	66,037,000	160,000	438	674	0.007	0.010
CDG	57,907,000	187,512	514	790	0.009	0.014
FRP	50,938,000	47,813	131	202	0.003	0.004
AMS	43,570,000	97,549	267	411	0.006	0.009
MUC	32,681,000	61,697	169	260	0.005	0.008
LGW	32,397,000	23,305	64	98	0.002	0.003
STN	19,957,000	37,428	103	158	0.005	0.008
CPH	19,715,000	44,322	121	187	0.006	0.009
MAN	18,265,000	54,083	148	228	0.008	0.012
DUS	17,793,000	73,700	202	311	0.011	0.017
BRU	16,999,000	48,620	133	205	0.008	0.012

<sup>9</sup> *Airports and Hotels - A Symbiotic Relationship?* PKF Research, Hospitality Net, <http://www.hospitalitynet.org>, May 15, 2009.

## Conclusions

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ACG has completed a survey of performance indicators for airport parking, concessions rents and hotel operations. Based on its research, ACG has been able to develop order of magnitude estimates for the size of potentially supportable improvements at Piarco International. This assessment is based on industry-wide standards, and more importantly, the performance of Piarco's "peer" market segment airports. Incomplete data in the airport hotel sector, combined with the limited scope of this study, has made it impossible for ACG to develop reliable estimates for the size of a potential on-site hotel at Piarco.

ACG reminds the reader that these indicators of potential capacity at Piarco are order of magnitude, and has not included an examination of detailed market characteristics at the local level in Trinidad. ***It is recommended that a full feasibility study, studying local market performance and characteristics in detail, be completed before committing to full-scale investment in any improvements.*** As indicators of potential scale, however, this study provides a valuable envelope for potential expansion at Piarco. Based on its analysis, ACG's key findings are as follows.

### Parking

Across the industry, parking operations are a lucrative option for expanding overall airport revenue. Comparable peer airports sustain from 1.86 to 1.98 parking spaces per 1,000 annual passengers. Airport parking spaces correlate with airport size in an inverse relationship. Considering Piarco's passenger volume, the airport would require from 4,658 to 4,959 total parking spaces.

Total revenue generated from parking is highly dependent on parking rates and the composition of parking customers. Although parking rates may be significantly higher at large hub airports, frequency and intensity of parking space use is higher at smaller terminating destination airports (non-hubs) with less public transport infrastructure. Average annual parking revenue per passenger for the airports studied by ACG is \$2.81 (USD). Average annual revenue per passenger at peer airports studied by ACG is from \$3.22 to \$3.62 (USD).

### Concession & Commercial Space

Small airports can successfully develop quality commercial space within their terminals, providing profitable and valuable goods and services to its traveling passengers. Across the industry, larger airports have developed diversified commercial offerings and a wide range of stores, services, and facilities that are leased to private operators, or operated directly by the airport.

Based on comparable airport performance, considering its passenger volume and profile, Peer airports comparable to Piarco support anywhere from 7.2 to 8.64 square feet of commercial space per 1,000 annual passengers. At Piarco, this translates to 18,677 to 22,412 potential square feet of commercial space at the airport. Rents vary widely across the industry, and income to the airport is highly dependent on the nature of the vendor, demand within the terminal, and the structure of lease contracts with vendor-operators. Industry-wide rents range from over \$39 to over \$236 (USD) per square foot per year. Rents at peer airports ranges from \$39 to \$53 (USD) per square foot per year.

### Hotel

As discussed, the utilization of industry statistics to the hotel segment is inconclusive, as airport hotel demand is sensitive to a wide set of factors, does not correlate to passenger size, and that fully understanding airport hotel demand must be done on a detailed, case-by-case basis.

Projections from available data suggest a demand range that is too broad to be useful — from 13 to 252 total hotel rooms. ACG suggests that these findings are inconclusive, and that an accurate study of hotel room potential requires a detailed study beyond the scope of this report.

ACG's findings are summarized in the table below.

Figure 14

<b>Piarco International Airport Facilities Expansion Study</b> <i>Summary of Recommended Capacity Potential</i>		
<b>Parking Capacity Potential</b>	<b>Low</b>	<b>High</b>
Industry Data Range (Spaces per 1,000 Passengers - All Airports Studied)	0.25	3.94
Peer Airport Indicators (Parking Spaces Per 1,000 Passengers)	1.86	1.98
Suggested Parking Potential at Piarco (Total Parking Spaces)	4,658	4,959
Peer Airport Average Parking Revenue Per Passenger (\$USD)	\$3.22	\$3.62
<b>Concession (Commercial) Potential</b>	<b>Low</b>	<b>High</b>
Industry Data Range Indicators (Square Feet Per 1,000 Passengers)	2.34	17.33
Peer Airport Indicators (Square Feet Per 1,000 Passengers)	7.2	8.64
Suggested Concession/Commercial Potential at Piarco (Total Square Feet)	18,677	22,412
Industry Rent Price Range (USD per Square Foot)	\$39.81	\$236.00
Peer Airport Rent Range (Per Square Foot Per Year, USD)	\$39.81	\$53.00
<b>Hotel Capacity Potential*</b>	<b>Low</b>	<b>High</b>
Industry Data Range (Hotel Room Nights per 1,000 Passengers)*	11	24
Hotel Room Potential - Piarco International*	13	252
<i>*These hotel room estimates are not reliable due to a lack of adequate comparable data. Please see Report for Discussion</i>		