P U B L I C V E R S I O N

South Africa Airside Capacity Enhancement Study for Air Traffic Navigation Services

Task 3 Report: Economic and Financial Analysis

Metron Aviation, Inc.
45300 Catalina Court, Suite 101
Dulles, VA 20166

13 March 2013

This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U.S. Government. The opinions, findings, conclusions, or recommendations expressed in this document are those of the author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report.

The U.S. Trade and Development Agency

The U.S. Trade and Development Agency helps companies create U.S. jobs through the export of U.S. goods and services for priority development projects in emerging economies. USTDA links U.S. businesses to export opportunities by funding project planning activities, pilot projects, and reverse trade missions while creating sustainable infrastructure and economic growth in partner countries.

Mailing and Delivery Address: 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901
Phone: 703–875–4357 • **Fax:** 703–875–4009 • **Web site:** www.ustda.gov

REVISION HISTORY

Internal Process #	Document Version # Revision History	Approval Date	Modified By	Section, Page(s) and Text Revised
CPS-C011-20130313	1.0	13 March 2013	Metron Aviation	Initial delivered version

TABLE OF CONTENTS

Mailing and Delivery Address: 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901
Phone: 703–875–4357 • **Fax:** 703–875–4009 • **Web site:** www.ustda.gov

LIST OF TABLES

LIST OF FIGURES

AKNOWLEDGEMENTS

The Metron Aviation Team wishes to thank all of the dedicated men and women at the Air Traffic and Navigation Services Company of South Africa and the Airports Company of South Africa for the time and effort provided in support of this effort.

LIST OF ACRONYMS

AAOC.................. Average Aircraft Operating Cost
AASA.................. Airlines Association of Southern Africa
ACRP .... Airport Cooperative Research Program
ACSA .... Airport Company South Africa
ANSP.................. Air Navigation Service Provider
ATNS .... Air Traffic Navigation Services
BARSA .... Board of Airline Representatives of South Africa
BE........................ Breakeven
CAPEX................ Capital Expenditure
DOT..................... Department of Transport
EU........................ European Union
FAA..................... Federal Aviation Administration
FACT................... Cape Town International Airport
FAOR .... O.R. Tambo International Airport
FALE................... King Shaka International Airport
FIFA .... Fédération Internationale de Football Association
IRR .... Internal Rate of Return
JPT....................... Joint Project Team
NPV..................... Net Present Value
PFMA .... Public Finance Management Act
RAB..................... Regulated Asset Base
RC........................ Regulating Committee
SA ACES............. South Africa Airside Capacity Enhancement Study
USD..................... U.S. Dollar
USTDA................ U.S. Trade and Development Agency
USDOT................ U.S. Department of Transportation
WACC................. Weighted Average Cost of Capital

1 Introduction

Air Traffic and Navigation Services (ATNS) and Airports Company South Africa (ACSA) have engaged Metron Aviation, Landrum & Brown, and ACA Associates to conduct a South Africa Airside Capacity Enhancement Study (SA ACES). The purpose of the study is to identify and validate capacity-enhancing technologies and procedural improvements that lead to reduced delays and increased efficiency and safety of air traffic movements at the O.R. Tambo International Airport (FAOR), King Shaka International Airport (FALE), and Cape Town International Airport (FACT). This study is funded by the U.S. Trade and Development Agency (USTDA).

Task 3, Economic and Financial Analysis, serves several purposes:

1. To understand how the financial and regulatory framework, which determines the financial sustainability of ACSA and ATNS, affects the ability of each to finance capital projects.
2. To provide a methodology for evaluating the financial benefits of the airspace capacity enhancement options identified in Task 2.
3. To review ATNS' and ACSA's capacity to finance recommended capacity enhancements.

The Task 3 report is organised as follows:

- *Section 2* reviews the regulatory system that determines the revenues collected by ATNS and ACSA and summarises the status of the current impasse between the companies and the Regulator.
- *Section 3* highlights how financial interests in airspace capacity enhancements held by ATNS and ACSA, the government, airlines, and other stakeholders differ. This section discusses how these varying interests could be reconciled by effective stakeholder engagement during the decision process to determine which capacity enhancements to implement.
- *Section 4* outlines the methodology and parameters used to evaluate the costs and benefits of the airspace capacity enhancements. This section also provides an indication of the sensitivity of the evaluation to changes in key assumptions.
- *Section 5* summarises findings from a review of ATNS and ACSA 2012 annual reports[1] to assess whether the current financial environment or regulatory impasse is likely to affect the ability to finance the capacity enhancements under consideration in this study.
- *Section 6* consolidates the summaries of the report findings and identifies the next steps that follow this task.

[1] Airports Company south Africa Integrated Annual Report 2012, and Air Traffic and Navigation Company Limited Annual Report, 2011–2012

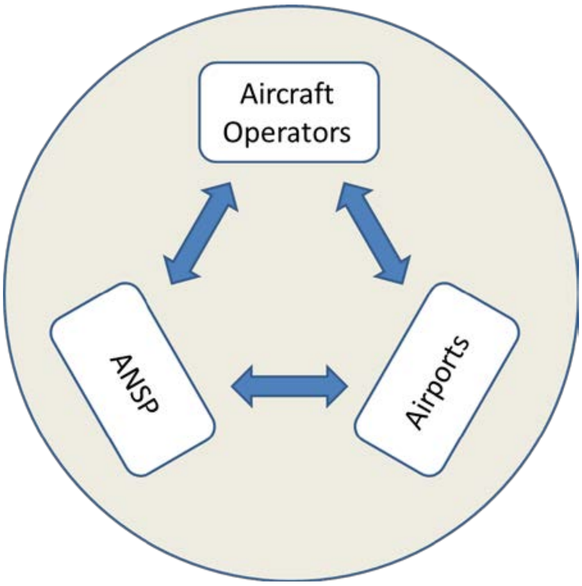
2 Financial Regulation

This section reviews the regulatory system that determines the revenues collected by ATNS and ACSA and summarises the current impasse between the companies and the Regulating Committee (RC) that oversees ATNS and ACSA.

2.1 Introduction

Airports, air traffic management, and aircraft operators are the three legs of the world's air transport system. Safe and efficient functioning of this system is essential to all economically advanced nations and to all that aspire to that status. Excellent air transportation infrastructure is an essential linkage between industrial economies. Nations that lack this competitive advantage will see commerce and tourism gravitate to nations that are better equipped[2]. Moreover, there must be sufficient infrastructure to accommodate a nation's current needs and there must be a plan for meeting future needs as the economy grows. The RC, ACSA, ATNS, and the stakeholders, need a methodology for developing a consensus regarding what should be done to improve the efficiency and capacity of air transport infrastructure.

Figure 1: Three legs of aviation



All components of aviation infrastructure are expensive and require access to competitive financing. Aircraft are recognised as very attractive assets to finance because they hold value and can be moved and resold or leased as required. Air navigation systems and airports are different because their assets cannot be moved and the financier can only be repaid if the borrower has the required cash flow to make the payments. ACSA and ATNS depend on the global financial community's confidence that the South African regulatory system will provide ACSA and ATNS with sufficient cash flow to repay their debts and provide their shareholders with a reasonable return. Ideally, assets can be financed with debt that has a

[2] http://www.benefitsofaviation.aero/Documents/Benefits-of-Aviation-US-2011.pdf

repayment schedule that reflects the asset's useful life, which in the case of airport infrastructure may be twenty-five years or longer. When financial markets become concerned about the financial regulator's commitment to providing appropriate rate increases, the financiers reflect these concerns in higher interest rates and in shorter debt maturities. The impact of both responses is a need for higher tariffs than would otherwise have been the case.

South Africa has benefited from a regional competitive advantage in air transport infrastructure, but this historical advantage relies on the ability of the system to acquire and finance new technology and capacity enhancements at best-in-class costs, a situation that requires a regulatory regime that is predictable and provides ACSA and ATNS with revenues that do not place an undue burden on the aircraft operators. The future of South Africa's airports, air navigation infrastructure, aircraft operators, and the nation's economic growth are dependent upon the continued excellence of all three legs of the aviation infrastructure.

South Africa's regulatory regime recognises that ACSA and ATNS must earn an adequate return to maintain their well-earned reputation for excellence and to provide airspace users with safe and efficient infrastructure. The challenge for the air transportation industry is to institute a system that enables each leg of this integrated whole to better understand each other's needs so that all parties can purchase the equipment and technology needed to preserve South Africa's competitive advantage and stimulate continued economic growth.

2.2 The Regulator and the Permissions Process

The Airports Company Act of 1993 (Act No. 44 of 1993) (Airports Company Act), that created ACSA and ATNS as independent companies, provides for an independent statutory body, the Regulating Committee (RC), to oversee the economic regulation of the companies. One intention of the Airports Company Act is that ACSA and ATNS should be able to earn a return that reflects their performance, their business risks, and the size of their investment. The most relevant responsibilities of the RC's activities in this study are to: 1) review ACSA's and ATNS' five-year capital investment plans, 2) approve the revenues that ACSA and ATNS require to compensate them for these investments, and 3) set the fees the aircraft operators and passengers will pay to generate these revenues.

The RC is appointed and funded by the Minister of Transport but is charged with being non-political and independent. The Airports Company Act provides for five-year regulatory cycles but is silent on methodology, allowing the RC to adopt an approach that reflects the current situation. At the onset of each five-year Permissions cycle the RC publishes a document outlining its approach to the forthcoming review. Note that this approach may change from one cycle to the next.

The RC relies heavily on information provided by ACSA and ATNS. Moreover, the RC relies on ACSA, ATNS, and the airspace users to reach consensus regarding the capacity enhancements that will be implemented over the Permission period. The regulatory system is not effective if the stakeholders are not able to reach that consensus.

The regulatory funding model allows ATNS and ACSA to earn revenue that covers their forecast operating expenses, a return on their existing regulated asset base (RAB), plus a return on planned capital expenditures (CAPEX). The regulatory process has enabled both ACSA and ATNS to finance the infrastructure needed to meet South Africa's rapidly growing economy and to provide incremental South African jobs by expanding into international markets.

2.3 Current Situation

The Permissions process broke down during the 2007–2012 Permissions cycle. Following the massive airport infrastructure investments that were made to accommodate expected increases in traffic from South Africa's rapid economic expansion and the traffic upturn created by the World Cup in 2010, ACSA requested 132.9% increase in user charges for 2010–2011 followed by 24.4% in 2011–2012 in its September 2009 Permissions application. After protests by airspace users, this request was turned down by the RC.

The disagreement became sufficiently serious that ACSA filed a law suit and the Minister of Transport responded by suspending the RC and creating a Joint Project Team (JPT) to review the situation. The JPT includes representatives from the Department of Transport (DOT), ACSA, ATNS, Airlines Association of Southern Africa (AASA), and the Board of Airline Representatives of South Africa (BARSA). The JPT is tasked with evaluating the regulatory funding situation and providing recommendations for changes by 31 Dec 2012[3]. The JPT's activities were suspended in early 2012 when the government appointed a new Minister of Transport leaving the regulatory environment unclear.

During this interregnum, the financial community has continued to support ACSA and ATNS, based on their history of technical and managerial excellence and a belief that both companies are sufficiently important to South Africa that it is very unlikely that the government would jeopardise ACSA's and ATNS' ability to meet their financial obligations, even if the JPT is unable to comply with its original timeline.

In spite of this regulatory uncertainty and in accordance with submissions to the RC, ACSA and ATNS continue to make capacity enhancements that are adjusted to reflect the continued negative variance in traffic growth. This below-forecast traffic has provided the JPT with much-needed time to complete their task. Under these circumstances, the study team has focused on capacity enhancements that will improve the efficiency of the existing infrastructure at minimal cost to the stakeholders, thereby providing additional time for the JPT. However, failure to accomplish the JPT's mission in a reasonably timely manner could eventually damage both companies' credit standing, which would increase their cost of capital and ultimately result in higher user fees.

The regulatory limbo creates a greater problem for ACSA than ATNS, because airports are more capital intensive than air navigation systems. Fortunately, both ACSA and ATNS have relatively modest capital expenditure plans for the next few years. Nevertheless, lenders to either company must rely on a stable and reliable regulatory framework in South Africa as the foundation for ACSA and ATNS credit.

The Minister of Transport started the process of reforming the regulatory system by creating the JPT—its creation reflects the importance of including stakeholders in the process. Effective regulation requires that all stakeholders believe that the stakeholder engagement process will result in a consensus of how ACSA and ATNS provide capacity enhancements.

[3] The status of this review is unknown.

ACSA and ATNS understand this and have reached out to an even broader group of stakeholders during the preparation of this report. ACSA's and ATNS' ability to provide a safe and efficient aviation infrastructure in South Africa requires that they can continue to manage their businesses by focusing on safety first without having to be concerned about how their decisions could affect their financial well-being.

Effective collaboration between ATNS and ACSA is integral to both companies, but the challenge will be to foster an environment where all stakeholders contribute to the process.

2.4 Summary

South Africa has a world-class air navigation and airport infrastructure because of ACSA's and ATNS' extraordinary employees and the stability provided by the regulatory process. This infrastructure has been critical to the nation's economic success and will remain essential to its future growth. Continued development of aviation infrastructure requires that the JPT develop regulatory recommendations that allow all stakeholders to reach consensus in a timely manner, and permit both ACSA and ATNS to plan for the future of South Africa's growing air transport needs.

This will not be possible unless the banking community retains its confidence that the regulatory process will provide predictability for ACSA's and ATNS' financial future. If this confidence is lost, ACSA's and ATNS' cost of capital will rise, which will result in increased costs of aviation for all stakeholders.

3 Aligning Stakeholder Interests

3.1 Stakeholders

The JPT, whose members are the DOT, ACSA, ATNS, and airlines through their two associations, AASA and BARSA, is tasked with reconfiguring the Permissions process. The study team believes that pilots, passengers, and local communities are all important stakeholders whose interests should be considered in some form if they wish to become involved. The challenge will be to find a way to recognise the legitimate interests of each stakeholder while creating an engagement process that effectively reconciles conflicting needs and financial interests. The regulator can support the stakeholder engagement process by incentivising constructive engagement, but it is ultimately the obligation of each stakeholder to commit to the process.

3.2 Stakeholder Financial Interests

At the highest level, the financial interest of all the stakeholders is to have sufficient airport and airspace capacity to provide a desired level of service and have each individual stakeholder pay fair value for the service received. The problem is that the short-term interests of stakeholders are not always aligned:

- The two regulated monopolies, ACSA and ATNS, are entitled to a return on their RAB that equals their weighted average cost of capital (WACC).
- The stakeholders that pay fees to ACSA and ATNS (aircraft operators and passengers) are likely to want to minimise investment in infrastructure because the cost of higher fees is more obvious than the benefits such as savings from reduced delays, happier passengers from improved service levels, and increased aircraft utilization. Moreover, passengers generally make travel decisions based on ticket prices and do not focus on how much of the ticket's price is used to pay for infrastructure, fuel, employees, etc. Thus, the airlines are the most vocal stakeholder, because the fees both directly and indirectly affect their profits.
- Stakeholders that pay no fees but benefit from increased economic activity and higher property values that result from the improved air service are likely to favor capacity enhancements because the benefits are more obvious than the costs.

The direct effects of insufficient airspace and airport capacity are airport delays and longer travel times. These result in quantifiable higher airline operating costs due to higher fuel burn, increased labor costs, and lower aircraft utilisation. The indirect effects of limited capacity and reduced efficiency include the inability of airlines to add additional flights to meet increasing demand, which in turn results in lost revenue potential to the airlines (in terms of lost ticket sales), to the airport company (in terms of lost landing and passenger facilities fees) and to the air navigation service provider (ANSP) (in terms of lost approach fees). However, these increased expenses or lost revenue potential may not be experienced equally by all stakeholders. As a result, even if a cost-benefit analysis for a project is positive, some aircraft operators are likely to benefit more than others on the basis of their operational strategy. In addition, the economic cost of passenger delays is a drain on the larger economy, but is generally ignored by travelers for numerous reasons, including: individuals being poor judges of the value of their time; third parties (such as employers) absorbing the cost; and few people understanding that the flight time could have been shorter if the infrastructure had been better.

The economic value of adequate and efficient aviation infrastructure is significant. In a study[4] that was produced by Oxford Economics about aviation's impact on the U.S. economy, it was found that improved aviation connectivity provides greater access to foreign markets, increased competition in the home market, and freer movement of investment capital and workers between countries. Additional benefits result from the ability to reliably ship components between suppliers, thereby reducing the need for expensive buffer stocks. However, these important societal benefits may not accrue to the existing airlines, which are the ones that pay for the capacity. Moreover, the added capacity may result in more airline competition, which may reduce airline profits. Thus, building a consensus on capacity enhancements may require active stakeholder engagement over an extended period.

3.3 Stakeholder Engagement Process

For the stakeholder engagement process to be effective, decision makers from all stakeholders must be convinced that engagement is a worthwhile use of their time. Stakeholders need to believe that they have input in deciding the amount of capacity that is needed and input in how that capacity is provided. This is also likely to include developing service standards as a metric for agreeing on capacity needs. While all stakeholders need to have a voice, some focus only on the economic impact a proposal will have on their operations and lack the expertise to evaluate its impact on other stakeholders. As a result, it is incumbent on ACSA and ATNS to ensure that stakeholders understand their master plans, different capacity enhancement options, and the major implications of the different options.

The study team believes that it is important to have stakeholders develop service standards that provide a framework for long-term plans and for evaluating specific capacity enhancements. The long-term planning service standard can be defined in terms of movements per day or in terms of maximum acceptable delays. These standards will probably vary by airport because a hub and spoke airport might need shorter average delays than an airport that provides limited connectivity.

3.4 Summary

- The study team proposes that the capacity enhancements under consideration be evaluated on the basis of expected reduction in delay in the air and on the ground, because the value of these time savings can be calculated based on the methodology described in Section 4.
- Once a minimum performance standard at an airport or airspace is agreed upon by stakeholders, ACSA and ATNS need to collaborate to determine capacity enhancements that will enable the airport or airspace to achieve the standard. For the stakeholder engagement process to be as effective as possible, ATNS and ACSA should present options to the stakeholders for achieving the performance standard, and hold meaningful discussions with interested parties over a prolonged period to build a consensus.
- This study has identified capacity enhancements that will be relatively inexpensive. At the onset, ATNS and ACSA should present these capacity enhancements to stakeholders to start the consensus-building process. Since air traffic is currently lower than forecast,

[4] http://www.benefitsofaviation.aero/Documents/Benefits-of-Aviation-US-2011.pdf

there is time to continue the engagement process (i.e., establish ongoing contacts, present master plans, agree on appropriate performance metrics, understand stakeholder concerns) before airport delays become onerous.

4 Methodology for Evaluating Capacity Enhancements

The study team recommends that stakeholders be provided an economic or business case for capacity enhancements that compares the value of the benefits relative to its cost. However, the level of detail should be proportionate to the enhancement's cost. This section describes how the costs and benefits of the enhancements in this study will be quantified.

4.1 Approach to Stakeholder Engagement

The study team recommends that the stakeholders be given a succinct description of the reason for a capacity enhancement and what the proposal expects to achieve—i.e., its benefits. Most capacity enhancements will improve operational efficiency which will be measured as a change in average delay, which will then be converted into a Rand value. The objective is to provide stakeholders useful but manageable levels of information relative to the cost of the enhancement.

As discussed in SA ACES Task 2 Report, Section 6[5], an enhancement that involves mainly changes in operational procedures with minimal cost (defined as less than R20 million) will receive minimal economic analysis. A capacity enhancement that costs more than R20 million will be justified by sufficient analysis that the stakeholders can understand the monetary benefits to both the aircraft operators and their passengers.

4.2 Methodology Overview

The study team recommends that the benefits produced by capacity enhancements that are recommended by this report be quantified based on the estimated reduction in delays provided by the enhancement. Nevertheless, it is recognized that some enhancements result in an increase in peak hour capacity. This increased peak hour capacity may justify the enhancements to the stakeholder airlines.

While there are myriad costs associated with airport delays as discussed later in this section, the study focuses on the following two costs: 1) direct aircraft operating costs, and 2) the value of passenger time. Quantification of other delay costs is beyond the scope of this study, but stakeholders may want them addressed when very large costs are involved such as would be the case, for example, for a new runway. Moreover, capacity enhancements that have a significant impact on the community will require economic cost benefit analyses that capture societal benefits and costs prior to their formal adoption.

4.3 Financial Analysis Tools

There are numerous ways to evaluate investments, including Net Present Value (NPV), breakeven period (BE), and Internal Rate of Return (IRR). Each approach has its own strengths and weaknesses, and the study team recommends that NPV and BE are used in the consultation process. The approaches are described below.

[5] "South Africa Airside Capacity Enhancement Study for Air Traffic Navigation Services, Task 2 Report: Technical Analyses," report to USTDA, ATNS, and ACSA, 13 March 2013, 51–54.

1. *Net present value* is the sum of the benefits minus the sum of the costs over the economic life of the project. The time value of money is taken into account using a discount rate which results in near-term costs/benefits having a higher value than those that occur further in the future. One consequence of this methodology is that the higher the discount rate, the longer it will take an investment to pay off. The discount rate should reflect the risks associated with the investment and the risk of achieving the benefits— higher risk investments warrant higher discount rates. If the NPV is greater than zero, the project is financially justifiable. When comparing two investments, the higher the NPV, the better.
2. *Breakeven period* measures the number of years required for the benefits to equal the costs. This is useful when evaluating capacity enhancements that are likely to have a short useful life such as an operating procedure that will be replaced by a new technology that would render the operating procedure obsolete.
3. *Internal Rate of Return* measures the interest rate that is required to justify the investment. It is related to NPV— the IRR is the discount rate that produces a NPV of zero. The better the investment the higher the IRR. If the IRR is lower than the return required by the investor, the investment should not be made. That required interest rate could be the investor's WACC.

4.4 Analytical Assumptions and Data Sources

Stakeholder acceptance requires that the stakeholder engagement material be based on mutually agreed methodologies and independent data sources. The capacity enhancements will be evaluated based on:

- Forecasts of aircraft movements and passengers prepared for ACSA by Mott MacDonald in the January 2012 traffic forecast[6] 2011–2035.
- The design day aircraft fleet mix for FAOR, FALE, and FACT; the fleet mix is held constant going forward.
- Aircraft block hour operating costs reported by U.S. carriers to the U.S. Department of Transportation (USDOT) for the twelve months ending 3Q 2012. Costs for aircraft not included in the USDOT data are estimated based on the number of seats. General aviation aircraft operating costs are estimated based on the maximum take-off weight of the aircraft.
- All aircraft block hour costs are held constant at 2012 levels. Approximately 60% of aircraft block hour operating cost is the cost of fuel, which averaged $3.04[7] per gallon for the twelve months ending 3Q 2012.
- Enhancement cost estimates used in this report are based on input provided by ACSA and ATNS and the experience of the study team.
- The study will use the weighted average cost of capital for ACSA and ATNS as the discount rate to compute NPV; this is approximately 12%.
- The foreign currency exchange rate used, U.S. $1 = 8.31Rand, is the average monthly BID rates for the period 26 Feb 2012–26 Feb 2013[8].
- All enhancement costs (i.e., capital, implementation and operating costs), aircraft block hour costs, and the value of passenger time are held at constant 2012 levels.

[6] ACSA Aviation Traffic Forecasts 2011-2035, Mott MacDonald, January 2012
[7] Source: http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=eer_epjk_pf4_rgc_dpg&f=w
[8] http://www.oanda.com/currency/historical-rates/

4.5 Traffic Forecast

Valuation of benefits from the enhancements under consideration will use the baseline traffic forecasts of aircraft movements (mov) and passengers (pax) prepared for ACSA in the Mott MacDonald January 2012 traffic forecast 2011–2035 (Table 1). Year 1 of the evaluation is 2013/2014.

Table 1: Passenger and Traffic Forecast

	Passengers (pax)			Movements (mov)		
Year	FAOR	FACT	FALE	FAOR	FACT	FALE
FY12/13	19,776,946	8,888,949	5,255,739	222,222	101,937	57,749
FY13/14	20,807,335	9,369,909	5,556,772	232,760	106,944	60,816
FY14/15	21,953,981	9,917,449	5,901,062	244,458	112,652	64,331
FY15/16	23,109,742	10,464,463	6,244,928	256,112	118,290	68,003
FY16/17	24,357,994	11,066,713	6,624,854	268,667	124,502	71,850
FY17/18	25,682,547	11,692,979	7,019,126	281,999	130,937	75,822
FY18/19	27,057,339	12,340,308	7,427,007	295,759	137,545	79,908
FY19/20	28,484,175	13,009,284	7,848,869	309,961	144,328	84,110
FY20/21	29,964,931	13,700,503	8,285,091	324,619	151,292	88,432
FY21/22	31,501,551	14,414,573	8,736,057	339,749	158,438	92,875
FY22/23	33,096,054	15,152,115	9,202,158	355,366	165,773	97,443
FY23/24	34,750,537	15,913,765	9,683,790	371,485	173,299	102,137
FY24/25	36,467,177	16,700,168	10,181,358	388,123	181,021	106,961
FY25/26	38,248,237	17,511,988	10,695,271	405,297	188,942	111,917
FY26/27	40,096,068	18,349,897	11,225,945	423,025	197,067	117,008
FY27/28	42,013,117	19,214,586	11,773,802	441,324	205,401	122,236
FY28/29	44,001,924	20,106,759	12,339,270	460,216	213,946	127,604
FY29/30	46,065,138	21,027,133	12,922,784	479,718	222,708	133,115
FY30/31	48,205,510	21,976,443	13,524,783	499,851	231,692	138,772
FY31/32	50,425,907	22,955,438	14,145,715	520,637	240,900	144,576
FY32/33	52,729,316	23,964,883	14,786,032	542,098	250,338	150,532
FY33/34	55,118,846	25,005,561	15,446,192	564,258	260,011	156,641
FY34/35	57,597,740	26,078,271	16,126,661	587,139	269,923	162,906
FY35/36	60,169,376	27,183,830	16,827,909	610,767	280,079	169,331

4.6 Cost of Capacity Enhancements

The costs of the capacity enhancements being evaluated in this study are estimated based on inputs from ATNS and ACSA and professional judgments from the study team as appropriate.

The cost of a capacity enhancement is defined by:

Capital cost includes the cost of new equipment, both ground-based and installed in aircraft, new infrastructure construction, project management fees, etc.

Implementation cost includes operational planning, testing, operating manuals, personnel training, interest on debt, and other costs that are incurred prior to the enhancement becoming operational.

(Note: *upfront cost* is defined as the sum of the capital and implementation costs.)

Operating costs include changes in staffing, maintenance, rehabilitation and replacement, and other operational costs for all stakeholders. Depending on the nature of the enhancement, these changes may be net positive or negative. This cost component is usually the most difficult to estimate, and the study will utilise input from ATNS and ACSA if available. If not, the study team will make professional judgments regarding the likelihood and significance of operating cost changes.

4.7 Quantification of Benefits

The primary focus of this study is to increase the capacity of the three airports in a cost-efficient manner. While increasing capacity at an airport that is capacity-constrained may result in an increase in traffic, this financial analysis makes the conservative assumption that increased capacity does not result in more traffic. Rather, the aircraft movements and passengers used in the analysis are taken from the Mott MacDonald traffic forecast, which is based on economic development and trade flows and does not take the capacity of the airspace into account.

The financial analysis assumes that capacity enhancements will on average result in fewer or shorter airspace delays. The analysis quantifies the cost of delays to both aircraft operators and passengers, and calculates the benefit of a capacity enhancement as the cost of an avoided delay.

The study team recognises that the Mott MacDonald forecast might exceed an airport's capacity and result in delays during the out years that could restrict the airport's ability to meet the forecast demand, but the analysis does not take this into account. Similarly, certain enhancements provide exponentially higher delay reductions at higher levels of demand, but quantification of these benefits is beyond the scope of this study and the delay reduction is held constant through the forecast period.

Finally, the study team recognises that reduced delays at hub airports generally result in reduced delays at secondary airports, but these system improvements will not be quantified.

4.8 Cost of Airline Delays

4.8.1 Aircraft Operating Costs

It is recognised that the direct aircraft operating cost of a flight delay depends on where the delay occurs, for example, an in-flight delay caused by suboptimal routing or by holding for a landing slot costs more than a hold at the gate. In addition, longer taxi times result in higher per-trip fuel consumption than shorter times. However, this analysis does not differentiate between airborne and ground delays; the average cost of a delay is based on the aircraft block hour operating cost, which includes ownership and maintenance costs as well as costs that are only incurred when the aircraft is operating, such as crew and fuel.

Block hour aircraft operating costs reported by U.S. airlines to the USDOT for the year 4th quarter 2011 through 3rd quarter 2012 (last available data) are used as a proxy for operating costs in South Africa. A sample of this data is listed in Table 2. General aviation aircraft operating costs are estimated based on the aircraft maximum take-off weight.

Table 2: Examples of block hour aircraft operating cost

U.S. Commercial Aircraft Domestic Block Hour Operating Cost (2011Q4-2012Q3)		
Aircraft Model	**US$ per hour**	**R per minute**
Airbus A330-300	$8,449	R 1,170
Boeing 777	$10,208	R 1,414
Boeing B-747-400	$13,390	R 1,854
Boeing B-767	$7,495	R 1,038
Airbus A319	$4,111	R 569
Boeing B-737-300/700	$4,174	R 578
Boeing B-737-800/900	$4,218	R 584
Boeing B-757	$5,502	R 762
MD-80, DC-9-80 All	$4,456	R 617
Canadair RJ-700	$1,402	R 194
Embraer EMB-135	$1,413	R 196
De Havilland DHC 8-400	$1,436	R 199
Source: USDOT Form 41		

To compute the value of an avoided delay at each of the three airports, an average aircraft operating cost (AAOC) was computed based on the demand day fleet mix for each airport (Table 3).

Table 3: Aircraft operating cost of delay

Average Aircraft Operating Cost (AAOC)	
Airport	**R per minute**
FAOR	R 571
FALE	R 486
FACT	R 471

The AAOC is held constant throughout the study period. Hence, the analysis does not reflect changes to the fleet mix that are anticipated in the Mott MacDonald forecast, particularly the effect of more modern, fuel efficient aircraft that are entering service. Approximately 60% of the block hour operating cost in Table 1 is the cost of jet fuel, which averaged $3.04 per U.S. gallon 2011Q4-2012Q3. Hence, this use of the AAOC will not reflect any changes in the cost of jet fuel.

4.8.2 Cost of Handling Delayed Passengers

In addition to aircraft operating costs, airlines bear the cost of dealing with delayed passengers, which can be significant when the delays are long. These costs, which include customer service, rebooking, and perhaps compensation, are harder to measure because they depend on the length of and reason for the delay. A European Union (EU) study[9] estimates hard passenger delay costs to an airline vary between €0.06 per passenger per minute for a five-minute delay, to €0.24 per passenger per minute for a thirty-minute delay. Although this cost can become significant, the quantification of delay by duration is beyond the scope of this study, so it is not included.

An additional cost related to passenger delays is customer dissatisfaction. The study does not attempt to quantify the benefit to an airline of reducing passenger dissatisfaction even though social media makes it possible for passengers to convey their displeasure to the vast on-line community, making it important for airlines to overcome this displeasure.

4.8.3 Other Airline Delay Costs

The study team recognises that airlines incur multiple delay-related costs in addition to those described above. For example:

1. Airlines build extra time into their published flight schedules to ensure required connectivity between flights. This schedule buffer time reduces the productive utilization (hours per day) that an airline can obtain from its fleet, increases crew costs, and increases the number of aircraft needed. (A study of the cost of air traffic delays in the U.S.[10] estimates that the schedule buffer costs U.S. airlines more than seventy-five percent of the direct cost of unanticipated delays in 2007.)
2. Airlines incur substantial weather-related delay costs such as the cost of repositioning its aircraft and crew rescheduling.

Accurate analyses of these and other delay-related costs are complex. They need to take into consideration the fact that the location of the delay may not be where the majority of the cost is incurred. For example a flight held on the ground at FALE due to flow control constraints at FAOR is caused by FAOR but shows up as a delay at FALE. Similarly, departure queue delays on the ground may be caused by airspace constraints. The study team recognises that capacity enhancements at one airport may be required to reduce downstream constraints, but the quantification of the benefits at airports other than the one where the capacity constraint is located is beyond the scope of the study.

This analysis does not address any of these issues.

4.8.4 Summary of Airline Benefit

In summary, the benefit to airlines from reduced delays in this analysis is represented by:

$$BA_i = AAOC \times mov_i \times \Delta_i$$

where: BA_i = reduced aircraft operating cost (in Rand) in the i^{th} year;
$AAOC$ = average aircraft operating cost (Rand per minute) at an airport (Table 3);
mov_i = forecast movements in the i^{th} year (Table 1);
and Δ_i = average delay reduction in minutes in the i^{th} year (assumed to be constant).

[9] European airline delay cost reference values, University of Westminster, 31 March 2011.
[10] http://www.nextor.org/pubs/TDI_Report_Final_11_03_10.pdf

4.9 Cost of Passenger Time

In addition to the costs to airlines, passengers incur delay-related costs, i.e., the value of time that could have been spent on more productive activities. The value of a traveller's time can be estimated by either using econometric models or by the price a passenger is willing to pay to reduce the elapsed journey time. This study will use a value that is in the mid-range of the values recommended by Eurocontrol and the Federal Aviation Administration (FAA). In its latest report on the subject, Eurocontrol[11] recommends using € 46 - € 59 per hour per passenger to take account of the delay cost to passengers. An FAA-sponsored 2009 study for the Airport Cooperative Research Program (ACRP)[12] recommended valuing passenger time at $40.10 per hour for business travelers and $23.30 per hour for leisure travel. And a 2008 study[13] prepared for the U.S. Congress values passenger time at $37.60 per hour. In this study, we estimate the benefit of reduced passenger delay time at the rate of R 500 per passenger per delay hour. (R 8.33 per minute).

4.9.1 Summary of Passenger Benefit

In summary, the value of reduced delays to passengers is represented by:

$VP_i = 8.33 \times pax_i \times \Delta_i$

Where: VP_i = the value of the saved passenger time in Rand in the i^{th} year;

pax_i = forecast passengers in the i^{th} year (Table 1); and

Δ_i = average delay reduction in minutes in the i^{th} year (assumed to be constant).

4.10 Cost Benefit Evaluation Recap

For operational capacity enhancements that cost less than R20 million, limited financial analysis will be carried out.

For capacity enhancements with a cost of more than R20 million, the study will estimate the NPV of the enhancement according to the following:

NPV = - upfront cost +

4.10.1 Considerations

The study will quantify the benefits produced by capacity enhancements based on the average reduction in delay per movement over a year that will result from the increase in peak hour capacity provided by the enhancement. Thus, although aircraft scheduled at peak times may experience a significant, meaningful reduction in delay, it is acknowledged that the average delay savings per movement to justify an investment may appear small. The study team believes that this approach is reasonable in spite of its limitations.

The study team will review each capacity enhancement to determine if there are situations where a capacity enhancement produces savings in one area only to have that savings offset by delays in another. These nuances will be considered for each initiative based on a combination of professional judgment and quantitative analysis.

It should also be emphasised that the average delay reduction is estimated based on current demand. Although the delay reduction will increase with increased demand, this is not reflected in this methodology, which means the reduction in delays (and the benefits) going forward is understated. If a similar approach is to be applied in the future for other projects, this limitation should be considered; more detailed simulation analysis could be performed for projects expected to result in substantial delay reduction/capacity increases since such analysis would provide more information such as unit delay savings per year, distribution of delay durations, etc.

4.11 Sensitivity Analyses

Many variables are involved in evaluating whether an investment can be supported by the benefits it produces, and the economic value of very small average time savings can be substantial. This section provides information on the sensitivity of the time saving to justify a R20 million investment to airport size, discount rate, and traffic growth, and looks at how the magnitude of an investment that can be supported depends on it useful life.

In addition, the relative benefit of reduced delays for passengers and aircraft operators is addressed.

4.11.1 Airport Size

The methodology for quantifying the benefit of a capacity enhancement produces values that depend on the total reduction in passenger and aircraft delays at an airport. Thus, an average one-second reduction in delay at FAOR is worth more than the same average delay avoidance at FALE because FAOR has more traffic than FALE. This intuitive fact can be demonstrated by calculating the number of seconds of reduced delays required to justify a R20 million investment at each airport. The average delay reduction needed at FAOR is 0.58 seconds; the same investment at FACT requires an average 1.36 seconds delay reduction and at FALE 2.30 seconds (Table 4).

Table 4: Comparison of delay reductions that justify R20 million investment

Avg Delay Reduction to Support* R20 million Upfront Investment		
Airport	# Movements 2013	Seconds
FAOR	232,760	0.58
FALE	60,816	2.30

Avg Delay Reduction to Support* R20 million Upfront Investment		
Airport	# Movements 2013	Seconds
FACT	106,944	1.36
*Based on aircraft operating costs & passenger time; 12% discount rate; BE period 10 years.		

4.11.2 Discount Rate

The discount rate affects the time value of benefits; the higher the rate, the lower the value today of future benefits. Thus, to justify a given upfront investment within a given time period, the lower the discount rate, the easier it is to justify an investment.

For example, a R20 million investment at FAOR with a BE period of ten years requires an average reduction in delay time of 0.58 seconds using the 12% discount rate that reflects the cost of capital to ATNS and ACSA. If instead of using ACSA and ATNS rates we use the interest rate on South African government 10 year bonds (representing an almost risk free investment)—approximately 7%—the same investment would require a smaller average reduced delay of 0.46 seconds (Table 5).

Table 5: Comparison of delay reductions that justify R20 million investment using different discount rates

Avg Delay Reduction to Support* R20 million Upfront Investment (Seconds)		
Airport	Discount Rate	
	7%	12%
FAOR	0.46	0.58
FALE	1.79	2.26
FACT	1.07	1.36
*Based on aircraft operating costs & passenger time; BE period10 years.		

4.11.3 Useful Life of an Investment

Breakeven time period analysis is helpful in evaluating investments when there is greater than normal uncertainty about the size of the benefits or their duration.

Investments in technologies which are constantly being improved generally have shorter useful lives than a runway or airport terminal. Thus, reducing delays at FAOR by one second justifies an R8.7 million investment if it has a five-year life, but the same delay reduction justifies a R19.4 million investment if it lasts fifteen years. The size of the increase in investment is not linear because of the time value of money. The impact of different useful lives at FAOR is shown in Table 6.

Table 6: Comparison of investment supported using different BE periods

Upfront Investment Supported by 1 Second Delay Reduction at FAOR*	
BE time period years	**R (million)**
5	R 8.7
10	R 15.0
15	R 19.4
*Based on aircraft operating cost only; 12% discount rate	

4.11.4 Traffic Growth

The financial benefits of capacity enhancements are based on the base traffic forecast of the 2012 Mott MacDonald ACSA forecast. That forecast covers the period 2011–2036, and uses an average passenger growth over all ACSA airports of 4.8% per annum with 4.0% per annum growth in aircraft movements. Mott MacDonald's traffic forecast also includes high and low growth scenarios, with growth in passengers of 5.1% and 4.0% and growth in movements of 4.4% and 3.4%, respectively. The value of a capacity enhancement that can be justified at an airport depends on its traffic volume, so if traffic exceeds the forecast it will support a higher investment than if it falls short.

At FAOR the average time savings needed to support a R20 million investment using the base traffic forecast (4.8% passenger growth and 4.3% movement growth) is 0.58 seconds; this is reduced to 0.55 seconds in the high-growth case and increased to 0.61 seconds in the low-growth scenario (Table 7).

Table 7: Comparison of time to justify R20 million investment at FAOR using different growth scenarios

FAOR Reduction in Delays that Supports* R20 million Investment		
Growth Scenario	**# Movements 2023**	**Seconds**
Low	333,881	0.61
Base	355,366	0.58
High	379,757	0.55
*Based on aircraft operating costs & passenger time; 12% discount rate; BE period 10 years.		

An alternative way of looking at the sensitivity of an investment to different growth forecasts is to compare the size of the investment that is justified by a one-second delay reduction—FAOR's base traffic forecast will support a R34.8 million investment; the high-traffic scenario increases this to R36.6 million, and the low-traffic scenario decreases it to R33.3 million (Table 8).

Table 8: Comparison of investment supported by one-second delay reduction at FAOR using different growth scenarios

FAOR Investment Supported* By One-Second Delay Reduction		
Growth Scenario	# Movements 2023	Upfront Investment R million
Low	333,881	33.3
Base	355,366	34.8
High	379,757	36.6
*Based on aircraft operating costs & passenger time; 12% discount rate; BE period 10 years.		

4.11.5 Comparison of Aircraft Operator and Passenger Benefits

The total economic benefit of reduced delay time at an airport is the combined value of avoided aircraft operating costs and the value of the saved time to passengers. Based on the Mott MacDonald traffic forecast and the aircraft costs used in this study, the value of passenger time saving exceeds that of the reduction in aircraft operating cost by between 30% and 60%, depending on the airport and the year.

4.12 Summary

It is important to financially justify investments that are made to increase capacity, but the level of analysis should be proportionate to the cost of the enhancement. The study team will perform minimal analysis of capacity enhancements that cost less than R20 million—those can be justified by an average of less than three seconds of reduced delays at any one of the three airports if the investment has a useful life of at least 10 years.

More costly capacity enhancements will be supported by sufficient analysis to enable the stakeholders to understand the reason for the investment and agree that its cost is financially justified. These analyses will quantify the monetary benefits to both aircraft operators and their passengers. The benefits included in the financial analysis are quantified by estimating the avoided costs of delays. Those avoided costs are based on U.S. airline data for direct aircraft operating costs, and EU and FAA studies regarding the value of passengers' time.

Given the cost of the capacity enhancements that are proposed by this study, this methodology is appropriate. However, in the future if more expensive capacity enhancements are being considered, stakeholders may want to commission a more detailed study to provide a comprehensive understanding of the benefits and how those benefits are distributed among the various stakeholders.

5 ACSA and ATNS Funding

The study team reviewed ACSA and ATNS 2012 annual reports with the objective of assessing whether the current financial environment or regulatory impasse is likely to affect their ability to finance the capacity enhancements under consideration in this study.

5.1 Background

Both ACSA and ATNS are registered as State-owned Companies as defined in the Companies Act, 2008, and are listed as major public entities in terms of Schedule 2 of the Public Finance Management Act (PFMA). Both companies have Board of Director committees that are responsible for compliance with PFMA for overseeing the investments and funding of their companies. Of particular relevance to the financing of the capacity enhancements recommended in this study, PFMA mandates that companies that are governed by this act have:

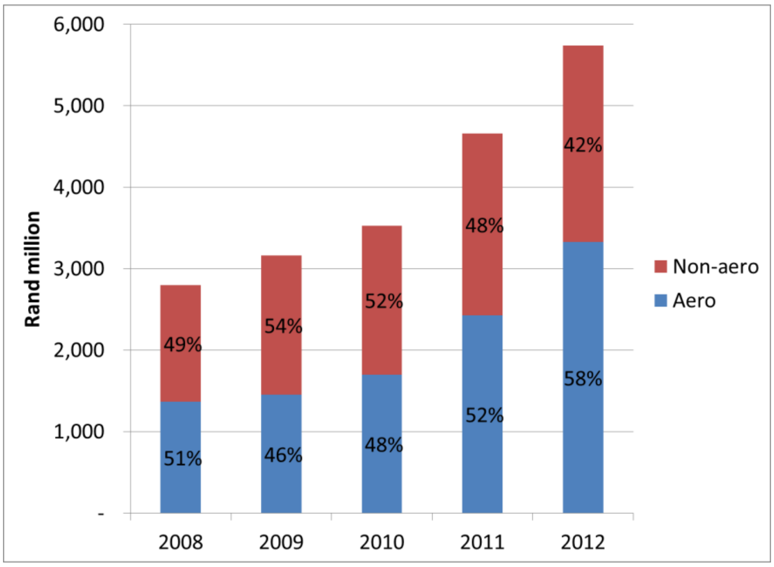
- Economic, efficient, and transparent systems of financial and risk management, including internal controls.
- A system for evaluating all major capital projects prior to making a final decision for investing in each project.
- Measures to prevent irregular or fruitless and wasteful expenditures, and expenditures that do not comply with legislative requirements or losses from criminal conduct.
- Systems to ensure that all revenues due are collected.
- Efficient and economical management of working capital.
- Allocation of resources in an economic, efficient, and transparent manner.

5.2 ACSA

ACSA is a capital-intensive and leveraged business whose long-term ability to offer world-class infrastructure will depend on whether the RC approves fee increases sufficient to meet ACSA's financing obligations. ACSA management recognises that this regulatory risk can be reduced by working with its stakeholders and balancing their interests, and has structured both formal and informal ways of ongoing engagement with stakeholders.

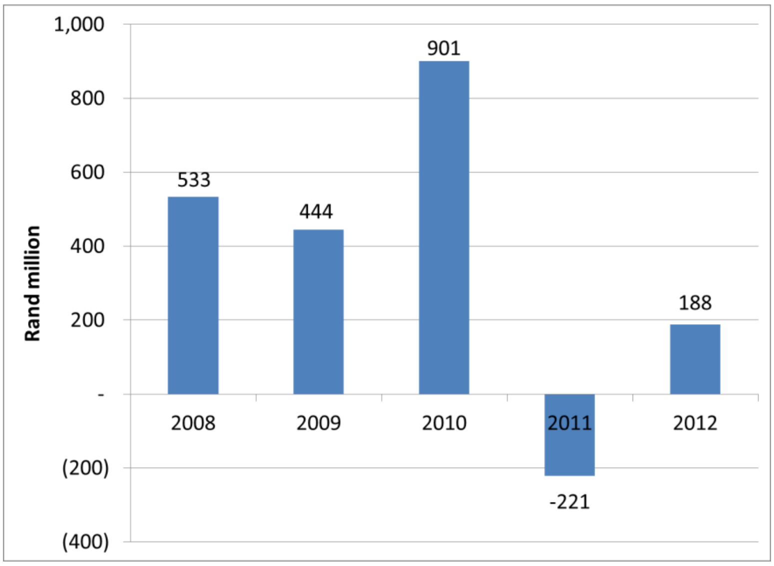
ACSA's revenues (Figure 2) have more than doubled over the past five years and totaled R5.7 billion for the year ended 31 Mar 2012. Aeronautical revenue comes from regulated sources, which includes passenger service charges, and aircraft landing and parking charges. Non-aeronautical revenues are derived primarily from property rentals, retail, car rental, car parking, and advertising. Over this five-year period, the non-aeronautical revenues have increased such that they total 42% of revenues in 2012.

Figure 2: ACSA revenues



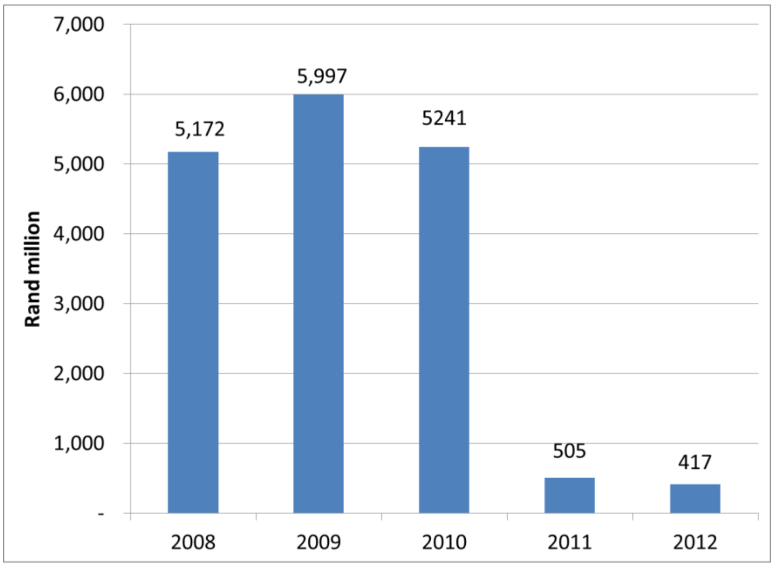
In spite of their rapid increase in revenues, ACSA experienced significant fluctuations in income, which almost doubled between 2008 and 2010, only to fall to a loss of R221 million in 2011 (Figure 3). Net income increased by almost R400 million in 2012 because of significant revenue increases that were approved by the RC.

Figure 3: ACSA net income



ACSA's revenue growth reflects its very large investments in infrastructure prior to the 2010 FIFA World Cup. Since this, influenced in part by lower-than-expected traffic and the previously discussed regulatory environment, the company's capital expenditure fell to less than 10% of the earlier levels during fiscal 2011 and 2012 (Figure 4).

Figure 4: ACSA capital expenditures



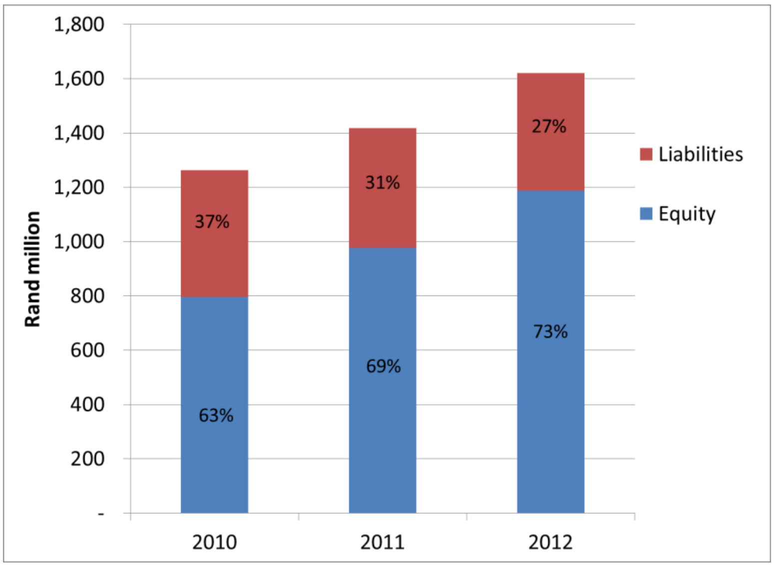
ACSA recognises that its long-term success and its ability to increase shareholder value depend on the development of a new funding model and the creation of new revenue streams. Given the uncertainties, ACSA reduced its dependence on short-term commercial paper by borrowing R2 billion from Agence Française de Développement with a loan that has a final maturity of 2026.

5.3 ATNS

Compared to ACSA's capital-intensive business, ATNS has limited capital expenditures, a high cash flow, modest leverage, and holds significant cash. As a result its financial strength and reputation in the financial markets are less sensitive to rate regulation than ACSA.

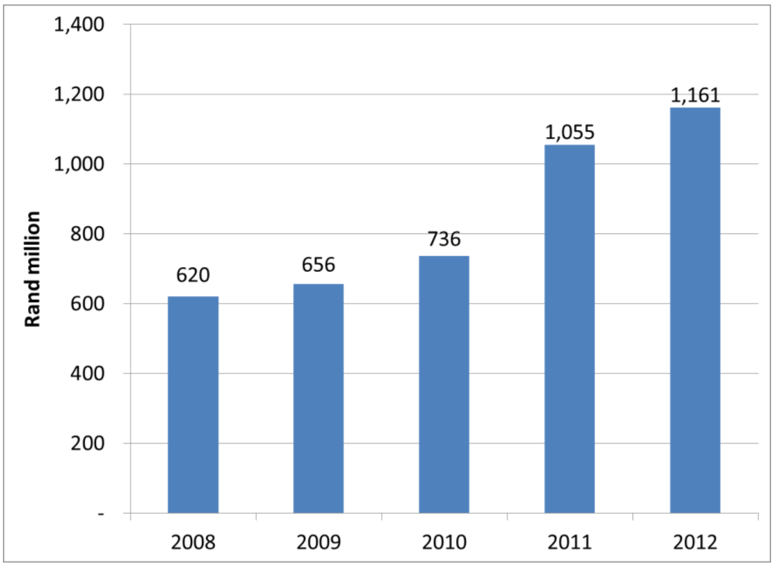
ATNS' operating efficiency and limited capital expenditures has enabled it to have very modest leverage with liabilities at 27% of total capital (Figure 5). Ideally, a company with limited financial or market risk would benefit from higher leverage, and ATNS management has stated that they would be comfortable increasing the leverage to around 40–45% of assets. Ways to increase ATNS leverage include paying dividend surplus capital to its owner or investing in non-regulated businesses. Moreover, ATNS' WACC should fall if it replaces high-cost equity with low-cost debt, which under the current regulatory structure would reduce fee increases.

Figure 5: ATNS capital structure



ATNS revenues have increased by approximately 90% over the past five years, rising to R1.2 billion in the year ended 31 Mar 2012. Ninety percent of the company's revenues come from aircraft en route and approach fees (Figure 6).

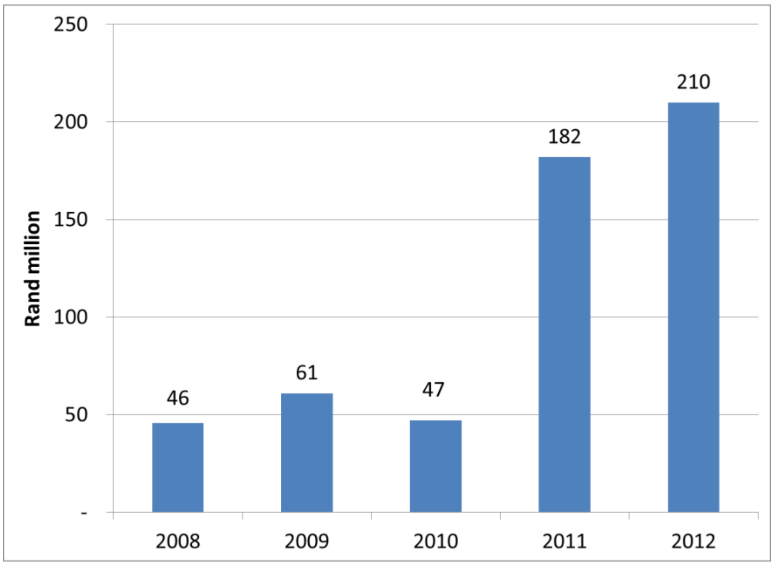
Figure 6: ATNS revenue



ATNS regulated revenues are Rand denominated, but most of most of their capital expenditures are U.S. dollar or Euro denominated. Nevertheless, the cost of this equipment is added to their RAB at Rand values enabling ATNS to eliminate currency exposure. Given its high cash flow, low leverage, and Rand financing needs, ATNS utilises South African banks as its primary source of funding. Under these circumstances, there is little need for accessing the international capital markets and these funding sources are likely to be more expensive than funding obtained from South African institutions.

Unlike ACSA, ATNS has been consistently profitable over the past five years. Profits increased modestly in fiscal 2012 relative to 2011 because ATNS revenue growth was driven by increased traffic instead of increased tariff rates; however, profits more than tripled in 2011 (Figure 7).

Figure 7: ATNS net income



5.4 Summary

ACSA and ATNS are currently financed in a prudent and effective manner. Their history of excellence in operations and conservative financial management provides both access to domestic and foreign financial markets, including commercial banks, development banks, export credit agencies, and sources of private capital. Neither should have difficulty in financing the recommended capacity enhancements.

ACSA and ATNS manage their borrowings to reflect their operating cash flows and future investment requirements. ACSA was able to invest over R17 billion during 2008–2010 in spite of the global financial crisis—a testament to its reputation in the financial markets.

Historically, neither ACSA nor ATNS have recently paid dividends to their owners. This did not matter when both were fully owned by the DOT, but is likely to become more important to ACSA because of its private shareholders. It might also be beneficial for ATNS to institute a dividend policy that reflects its cash flow and investment needs.

As both companies expand regionally and globally, their financial risks will change which provides challenges as well as opportunities. International expansion may generate revenues denominated in currencies (such as the USD and euro) that currently have low interest rates. Moreover, these international projects may provide both ACSA and ATNS opportunities to obtain funding at sub-market rates from national and regional development banks and from export credit agencies.

Both ACSA and ATNS could consider including a financing requirement for equipment that is purchased for their non-regulated businesses because customer financing can deliver considerable value at no cost to the supplier.

6 Conclusions and Next Steps

This section consolidates the summaries of the report findings and identifies the next steps that follow this task.

6.1 Conclusions of Regulatory Review

South Africa has world-class air navigation and airport infrastructure because of ACSA's and ATNS' extraordinary employees and the stability provided by the regulatory process. This infrastructure has been critical to the nation's economic success and will remain essential to its future growth. It is important to all stakeholders, as well as the national interest of South Africa, that ATNS and ACSA have the financial resources to continue to provide adequate capacity to meet South Africa's transportation needs and that both be allowed to utilise their core competencies to expand internationally.

Continued development of aviation infrastructure requires that the JPT develop regulatory recommendations that allow all stakeholders to reach consensus in a timely manner, and permit both ACSA and ATNS to plan for the future and use those plans to meet the nation's growing air transport needs.

Finally, none of the above will be possible unless the banking community retains its confidence that the regulatory process will provide predictability for ACSA's and ATNS' financial future. If this confidence is lost, their cost of capital will rise, and result in an increase the cost of aviation for all stakeholders.

6.2 Conclusions of Stakeholder Engagement

The study team proposes that the capacity enhancements under consideration be evaluated on the basis of expected reduction in delay in the air and on the ground because the value of these time savings can be calculated based on the methodology described in Section 4.

Once a minimum performance standard at an airport or airspace is agreed upon by stakeholders, ACSA and ATNS need to collaborate to determine capacity enhancements that will enable the airport or airspace to achieve the standard. For the stakeholder engagement process to be as effective as possible, ATNS and ACSA should present options to the stakeholders for achieving the performance standard, and hold meaningful discussions with interested parties over a prolonged period to build a consensus.

This study has identified capacity enhancements that will be relatively inexpensive. At the onset, ATNS and ACSA should present these capacity enhancements to stakeholders to start the consensus-building process. Since air traffic is currently lower than forecast, there is time to develop the engagement process (i.e., establish ongoing contacts, present master plans, agree on appropriate performance metrics, understand stakeholder concerns) before airport delays become onerous.

6.3 Conclusions of Evaluation Methodology

Air transportation systems are complex and expensive; any inefficiency can result in a high burden on a nation's economy. Seemingly modest system improvements, for example, one that shortens a trip by as little as 0.58 seconds at FAOR, can justify a R20 million investment. It is important to financially justify investments that are made to increase capacity, but the level of analysis should be proportionate to the cost of the enhancement. This study team will perform minimal analysis of capacity enhancements that cost less than R20 million—those can be justified by an average of less than three seconds of reduced delays at any one of the three airports if the investment has a useful life of at least 10 years.

More costly capacity enhancements will be supported by sufficient analysis so that the stakeholders understand the reason for the investment and agree that its cost is financially justified. The study team will perform increased analysis for capacity enhancements that cost more than R20 million, but recognises that a R100 million investment warrants more analysis than a R20 million one. These analyses will quantify the monetary benefits to both aircraft operators and their passengers.

The benefits included in the financial analysis are quantified by estimating the avoided costs of delays. Those avoided costs are based on: 1) U.S. airline data for direct aircraft operating costs, and 2) EU and FAA studies regarding the value of passengers' time. (South African costs and values will be different, but these data sources are independent and provide data that is reasonable for this study.)

Given the cost of the capacity enhancements that are proposed by this study, the methodology used to estimate the value of their benefits is appropriate. However, in the future if more expensive capacity enhancements are being considered, stakeholders may want to commission a more detailed study to provide a comprehensive understanding of the benefits and how those benefits are distributed among the various stakeholders.

6.4 Conclusions of ATNS and ACSA Financial Review

ACSA and ATNS are currently financed in a prudent and effective manner. Their history of excellence in operations and conservative financial management provides ACSA and ATNS access to both domestic and foreign financial markets, including commercial banks, development banks, export credit agencies, and sources of private capital. Neither should have difficulty in financing the recommended capacity enhancements.

However, their continued ability to do this depends on the current regulatory impasse being solved as quickly as possible and on the regulatory regime recommended by the JPT being accepted by stakeholders. ACSA and ATNS have benefitted from a regulatory system that has produced world-class aviation infrastructure and the JPT will serve the interests of all stakeholders by completing their work as quickly as possible.

Both ACSA and ATNS are financially conservative and manage their borrowings to reflect their operating cash flows and future investment requirements. ACSA was able to invest over R17 billion during 2008–2010 in spite of the global financial crisis—a testament to its reputation in the financial markets.

Both ACSA and ATNS also manage their currency exposure in a prudent manner. As both companies expand regionally and globally, their financial risks will change which provides challenges as well as opportunities. International expansion may generate revenues denominated in currencies (such as the USD and Euro) that currently have low interest rates. Moreover, these international projects may provide both ACSA and ATNS opportunities to obtain funding at sub-market rates from national and regional development banks and from export credit agencies.

Historically, neither ACSA nor ATNS have recently paid dividends to their owners. This did not matter when both were fully owned by the DOT, but is likely to become more important to ACSA because of its private shareholders. It might also be beneficial for ATNS to institute a dividend policy that is appropriate for its cash flows and investment needs.

Both ACSA and ATNS could consider including a financing requirement for equipment that is purchased for their non-regulated businesses because customer financing can deliver considerable value at no cost to the supplier. A customer finance requirement for the regulated businesses is of limited value because ATNS and ACSA command a very high standing in the credit markets.

6.5 Next Steps

When feedback on this report from ACSA and ATNS has been received, the study team will use the financial evaluation approach described herein to financially evaluate the recommended capacity enhancements. The financial evaluation will be one component in the process of determining which capacity enhancements to implement.

This process will need input from ACSA, ATNS and perhaps other stakeholders to determine order-of-magnitude costs of implementing the enhancements (including local construction costs and labor rates) and a judgment on the likely ongoing operating costs where applicable.

The results of the financial evaluation will be included in the Task 6 report on Specifications and Recommendations.