



GEORGE AIRPORT TERMINAL EXPANSION PROJECT

Project Scope Breakdown





Project Scope Breakdown

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1. PROJECT SCOPE:

The scope of work entails the design, construction and commissioning of the Terminal Expansion Project and associated works at George Airport, in accordance with the design guidelines of the Functional Concept Design Layout developed by Airports Company South Africa (ACSA).

The ACSA Functional Concept Design Layout stipulates the demand related specifications, spatial provisions and sizing of circulation, queuing and operational elements for passengers & public in the airport terminal building. The functional concept design layout was produced to scale and must be considered as an initiation point in the design process to the extent that it communicates the integrated transportation network to be achieved by the development, the nodes and areas in that network, their sizes and ideal spatial relationships.

The scope of the work is broken down into the following key focus areas of work which sums up the overall project scope details:

Terminal Expansion: This will involve the expansion of the existing terminal building to accommodate increased passenger traffic which is outlined in the ACSA Concept Design Layout and the accommodation schedule, both developed to guide in the required expansion of the terminal building.

Terminal Renovation: This will involve the renovation of the existing terminal building to improve passenger experience, upgrade facilities, upgrade the information technology systems used to manage the terminal (baggage handling systems, IT systems (BMS), security systems and the passenger processing systems. It also involves the design and installation of building services, such as HVAC, lighting, power, plumbing and fire systems.

Sustainability Requirements: This will involve the ACSA requirement of delivering a 4 Green Star Certified Building for the project, of which a feasibility study must be conducted to allow ACSA to define and qualify the appropriate sustainability initiatives and test if a 4 Green Star rating is achievable or even desirable, that will provide ACSA with the maximum benefit within the project budgetary means.

Kerbside Relocation: This will involve the relocation and expansion of the kerbside operational elements and the existing ring road to enable the expansion of the terminal building.

Specialist Studies: This will involve stipulation of all Specialist Studies required and the extent of the scope of the studies. This includes investigations, condition assessment, surveys and analysis, demolition and clearing, utilities installation, access point establishment, site camps and other establishment related activities.

Project Delivery management: This will involve the planning, producing methodologies, phasing and management of the design and construction activities. This will thus naturally include producing construction phasing strategy (enablement work and main works), scheduling, cost estimating, risk management, and quality control of all project activities.



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General Design Requirements for inclusion in scope: This will involve a detailed breakdown and listing of specific requirements from the various divisions within ACSA which the professional consultant team must include during design development.

The above key focus areas of scope must be read in conjunction with the ACSA Concept Design Layout below conceptualised for both ground and first floor areas of the terminal building. The accommodation schedule based on the ACSA Concept Design Layout was developed which provides minimum spatial upgrade requirements which should be adhered to, as it stipulates the spatial provisions required to increase the relevant existing processing areas within the terminal as part of the design intervention to increase terminal capacity:

Area Schedule	Current	Additional	Total SQM	Total QTY
GROUND FLOOR				
1. Passenger Processing Areas (m²)	2795	2061	4126	31
Departure Concourse Area (m ²)	500	412	912	
Check-in Counter Incl. Spatial Provision for additional 4 x Check-In counters (qty)	16	8		24
Departures: Replacement / Expansion of existing Baggage Belt incl. Airside (m ²)	400	100	500	
Arrivals Concourse Area (m ²)	240	264	504	
Holding Lounge (Total) including 6 x relocated Boarding gates (m ²)	365	315	680	
Additional 1 x Security Point incl. spatial provision for 1 x additional security point (qty)	2	2		4
Spatial Provisions for 4 x Additional Boarding Gates (qty)	6	4		10
Arrivals: 3 x Code C Baggage Belt Area (qty)	2	1		3
Associated Service Area / Baggage Belt Area (qty) - unit = meters (m ²)	560	240	800	
Arrivals: Refurbishment of existing Baggage Hall Area (Existing area) = m ²	730	730	730	
2. Landside Retail Areas	225	200	425	0
Total Retail shops (m ²)	225	200	425	
3. Airline Office Accommodation (m²) incl.	197	153	350	0
Airline Ticket Counters				
Airline Offices BOH				
Sub-Total (m²)	3217	2414	4901	
FIRST FLOOR				
Office Accommodation (m ²)	775	325	1100	
Premium Lounge / Restaurant Area (m ²)	1050	450	1500	
Back of House (m ²)	111	589	700	
Sub Total (m²)	1936	1364	3300	0
GRAND TOTAL	5153	3778	8201	31

Table 1: Terminal Accommodation Schedule







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The above accommodation schedule is derived from the below ACSA Concept Design Layout which was developed to guide spatial conceptualisation of the terminal and produce the scope of the expansion. It must be noted that the stated total additional and new total square meterage numbers and total quantities numbers indicated in the Accommodation Schedule are the minimums based on the ACSA Concept Design Layout and will be subject of further improvement, if feasible, at design development stage with the appointed professional consultant team. This is applicable to anywhere else in this document, where additional and total numbers and quantities are provided.

The next sections will provide a breakdown of the scope in terms of the critical sections of the scope of work for the project, viz: Terminal Expansion, Terminal Renovation, Kerbside Relocation, Sustainability Requirements, Specialist Studies, Project Delivery Management and General Design Requirements for inclusion in scope. The table below provides a key to the indicate colours in the ACSA Concept Design Layout:

Colour Key: ACSA Concept Design Layout

-  New proposed terminal expansion areas (Ground and First Floor)
-  New proposed areas of retail and commercial lounges (Ground Floor & First Floor)
-  New proposed areas of airline ticketing counters and back of house areas (Ground Floor)
-  Existing areas of the terminal building (Ground and First Floor)



AIRPORTS COMPANY SOUTH AFRICA

Project Scope Breakdown

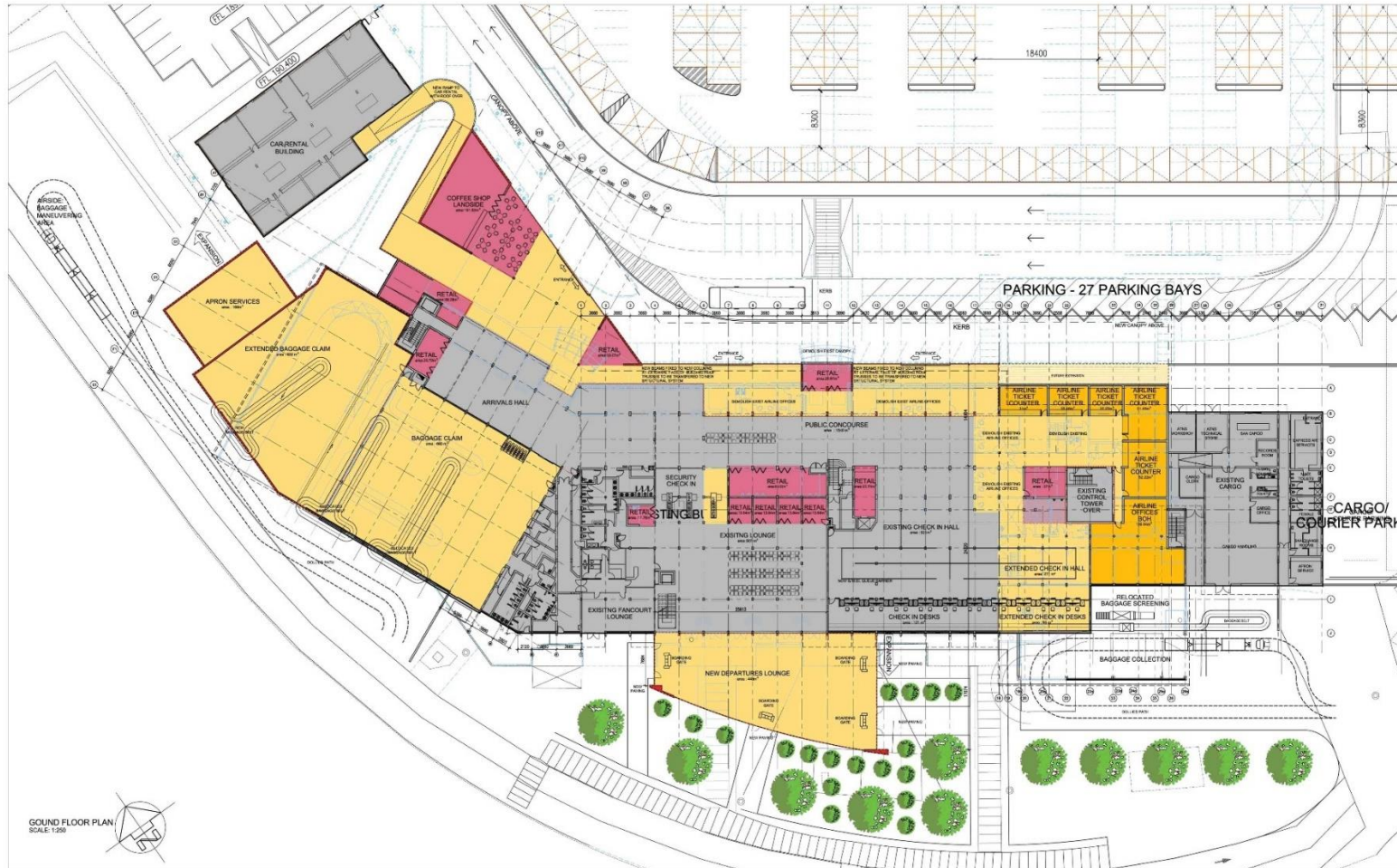


FIGURE 1: George Airport Terminal ACSA Concept Layout: GROUND FLOOR (Not to Scale)



AIRPORTS COMPANY SOUTH AFRICA

Project Scope Breakdown

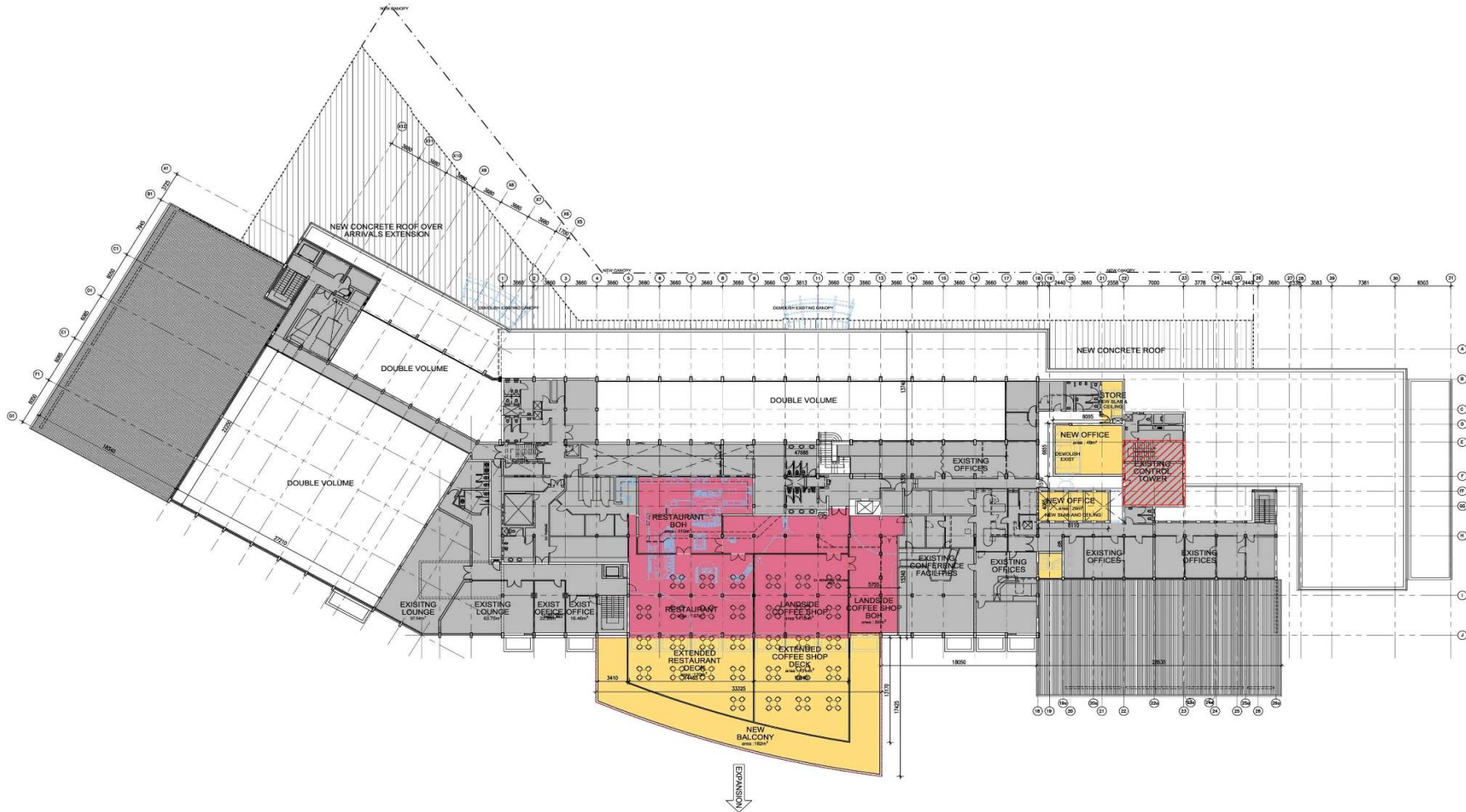


FIGURE 2: George Airport Terminal ACSA Concept Layout: FIRST FLOOR (Not to scale)

Oracle Project No. 4627

02/04/2024

Version: 0



Project Scope Breakdown

1.1. SCOPE OF WORK BREAKDOWN

The scope breakdown below must be read in conjunction with the ACSA Concept Design Layout (Figure 1 & 2) and the Accommodation Schedule (Table 1).

1.1.1. TERMINAL EXPANSION:

This involves the expansion of the existing terminal building to accommodate increased passenger traffic from the current 0.9 Million Annual Passengers (0.9 MAP) to a new terminal processing capacity of 2 million annual passengers (2 MAP). Critical operations sub-systems will require additional capacity as follows (Read this section in conjunction with the ACSA Concept Design Layout):

1.1.1.1. Ground Floor:**a) Terminal Landside / Public Concourse**

An additional module of a minimum width of approx. 10m to the north-east (landside) must widen the landside concourse to allow more queuing space in front of the check-in counters as well as more circulation and commercial / retail space. The stated width is an estimate in line with the current concept design and will be subject of further improvement, if feasible, at design development stage.

The landside / public concourse is seen to contain at least the following functional zones:

- General circulation area where passengers can wait / circulate with their greeters and proceed to check-in their luggage.
- Waiting area where meeters & greeters wait and meet arriving passengers.

The Landside / Public Concourse footprint is currently 500m² and the aim is to increase its footprint by an additional 412m² to achieve a new total internal footprint area of 912m². The stated additional area is an estimate in line with the current ACSA Concept Design Layout and will be subject of further improvement, if feasible, at design development stage with the appointed professional consultant team.

With the envisaged landside concourse footprint increase, an additional rentable space must be included for landside retail outlets and other terminal public services. The ultimate tenant mix and related design issues should be carefully confirmed in conjunction with the ACSA Commercial Division and the recommendations of the Commercial Study that will be undertaken under the project scope.

b) General Terminal Public Commercial FacilitiesLandside Retail Area:

Retail and Food & Beverage outlets along the Public Concourse are to be designed and laid out according to the recommendations of the Commercial Study and ACSA's Commercial Division's requirements and guidelines.

- The layout of the commercial areas should be such that it facilitates the free flow and circulation of passengers.



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- Retail spaces do not impede on the visibility of terminal directional signage and the Flight Information Display Systems (FIDS).

The current landside combined retail area footprint is a total of 225m² and with the proposed expansion of the terminal footprint, it is planned that an additional 200m² retail area footprint can be added (see ACSA Concept Design Layout) which will increase the retail footprint to a total area of 425m². This stated total new footprint is an estimate in line with the current ACSA Concept Design Layout and will be subject of further improvement, if feasible, at design development stage with the appointed professional consultant team.

Landside Airlines Commercial area:

Airlines operational offices (Ticket sales counters) will be sized according to airline needs and located sensibly to aid ease of operations (whilst avoiding placement of offices in prime retail space) with clear and simple access for passengers and public. Airline offices are to include back of house areas for each airline – to be confirmed by the professional consultants as part of the tenant coordination / requirements scope. As part of the expansion of the public concourse, the current total footprint area for the Airline Offices (Linked with their Ticket Sales Counters) is 197 m² and is to be increased by 153 m² to a new total of 350m². This stated total new footprint is an estimate in line with the current ACSA Concept Design Layout and will be subject of further improvement, if feasible, at design development stage with the appointed professional consultant team.

Meeters and Greeters area:

An adequately sized and dedicated Meeters & Greeters area should be provided for, where public can wait to meet passengers arriving through the Arrivals Halls. The meeters and greet area should therefore be designed to be near the Baggage Claim hall.

c) Terminal Check-in area

The Check in counter space will have its footprint increased towards the airside apron (North-West). The current total Check-in counter space, including the luggage conveyor belt behind the counters, is a total of 400m² and will require an additional footprint area expansion of 100m² to the north-west of the apron area. This additional footprint will enable a re-design of the automated linkage of the Check-Counters with the baggage conveyor belt behind the check-in counters.

There is current 12 total number of existing physical Check-In counters, and with the additional footprint, 4 additional counters (at minimum) should be added, thus taking total new number of physical Check-In counters to 16 (at minimum) – refer to accommodation schedule. Spatial provision should be made for 8 self check-in kiosks machines.

d) Terminal Security Processing and Screening

The existing two security screening machines are kept in the current / existing terminal location as indicated in the ACSA Concept Design Layout. An expanded and fixed queueing maze must be designed for to streamline processing of passengers towards the security screening process. One additional security processor and spatial provision for an additional security processor are required in this area.



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As part of the design development, consideration must be given to relocate the current security screening area to another position / location to allow for the increased size of the facility, but also to improve on the circulation and movement of passengers from the check-in area to the security area. This will be developed further at Design Development stage with the appointed professional consultants.

e) Terminal Departure Lounge (Passengers Holding Lounge)

The Departure Lounge is a Restricted / non-public space located beyond the Security processing area. The Departure Lounge serves as a passenger holding area prior to the boarding gates which serve the remote aircraft stands.

The Departure Lounge is to be extended towards the airside / apron to allow an increased footprint area from 365m² to new total of 680m². This total footprint area is based on ACSA Concept Design Layout and is subject to review for and even larger footprint, if feasible, and subject to the design development review with the appointed professional consultants.

The increased footprint is to accommodate for additional passenger seating, retail spaces and improved vertical connectivity to the First Floor for access to the Premium Lounge areas.

With the increase in the Departure Lounge footprint, space provision must be made for additional passenger boarding gates. There is currently 6 boarding gates and a minimum total of 4 boarding gates is required to increase total number of gates to 10.

f) Terminal Arrivals Baggage Claim Hall

The existing baggage reclaim hall is to be expanded to allow for the installation of an additional baggage carousel belt. The carousel shall preferably be of the flat carousel type which provides additional capacity. The total area, spacing and layout for baggage claim hall should closely follow the guidelines referred to in the IATA Airport development Reference Manual (a global best practice airport design manual). Access to the guidance material will be provided by the ACSA Airport Planning Division.

Adequate space adjacent to the carousels should be allowed for the circulation and storage of baggage trolleys. The collection point for baggage trolleys should be located upstream of the main passenger flow i.e. passengers should be able to collect a trolley prior to or immediately upon entering the baggage claim area. Storage of trolleys between baggage devices is not preferable.

The existing carousels are fed from the baggage make-up area located on the north-east of the facility. The current operation baggage loading operations is not optimal. A redesign of the space is required to provide and expanded baggage reclaim hall together with the associated baggage offloading area, that may include the realignment of the baggage carousels to aid future expansion.

There are currently 2 existing baggage carousels and as indicated in the ACSA Concept Design Layout, 1 x additional carousel is to be added for a total compliment of 3 baggage carousels. Design provision for full replacement of the existing baggage carousels and the new additional carousel are to be included within the scope of this development as the existing carousels have reached the end of their useful life.



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1.1.1.2. First Floor

The first floor is to be expanded from the existing total footprint of 1935m² to a new total of 3300m² to allow for additional Commercial / Premium Lounge offerings, Restaurants and improved back of house service areas. The additional premium lounge offerings are to include the reconfiguration of the overall space which could possibly entail the relocation of the existing Bidvest Lounge to allow for each Commercial / Premium Lounge offering to include standalone ablution services within their leased area and views to the airside.

a) Commercial / Premium Lounge, Restaurant and Offices space**I. Commercial / Premium Lounge & Restaurants**

There is currently an existing Premium Lounge and Restaurant on the First Floor which is included in the scope of the proposed terminal in terms of the proposal to increase the commercial spatial provision on the First Floor. As per the ACSA Concept Design Layout and the accommodation schedule, there is an existing area of 1050m² allocated to commercial spaces on the First Floor and it is proposed that an additional 450m² be provided to take the total new commercial space offering to a minimum total of 1500m².

The ACSA Concept layout indicates an option of spatial provision for premium lounge/s and or restaurant/s. The proposed Commercial Study will inform the recommended spatial provision for both the commercial lounge and restaurant in terms of quantities, size and location. The final accommodation schedule for restaurant/s and commercial lounge/s based on outcomes of the commercial study and the design development will need to provide sufficient space to allow for future growth / expansion of the facilities.

The restaurant/s must not have a direct link to the restricted / airside space of the terminal and a landside access / egress must be maintained for the restaurant patrons and staff.

Direct ingress and egress should be provided for between the Commercial Lounge/s and the Departure Holding Lounge to allow passenger movement between the spaces.

The design must ensure that sufficient provision is made for ablutions, showers and staff rest rooms within the envisaged total spatial footprint of the commercial lounge/s and restaurant/s facilities.

II. Office Accommodation (Conferencing):

A commercial office space must be provided on the First Floor that will increase the current total office footprint allocation of 775m², to a new total office footprint space footprint of 1100m². The office space will be utilised as commercial offering by ACSA for conference and training facilities with boardrooms.

b) Back of House

Provision should be made for back of house facilities to support the commercial lounge/s, restaurant/s and conference facility. Supporting facilities such as compliant access routes for the users of these facilities (e.g. people movers), sufficient ablutions, goods delivery passages, goods delivery lifts, waste chutes, kitchen, prep areas, staff change rooms, store rooms and



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goods delivery lifts. These back of house facilities must have no direct link to the restricted terminal areas.

c) Viewing Deck

A Landside viewing deck must be provided for in the design. The location and size of the viewing deck will be determined during design development stage. The viewing deck must have supporting ablution facilities and spatial provision for seating and smaller commercial offerings (e.g. vending machines, coffee kiosks, etc).

d) Standalone ACSA Information Counter

A standalone information counter must be designed with the Terminal public circulation space. The counter must be located in a position that will ensure visibility to passengers, ease of accessing and free of external weather elements.

e) Security Control Room,

A Control room / CCTV room is to be added within the terminal building. At design development stage, ACSA Security will provide the Professional Consultants with the necessary design guidelines for the required Security Surveillance room.

f) Airport Staff Rest Room

Provision for a common use Staff Rest Room facilities must be made during the design development stage of the project. The location of the facility will be recommended by the Professional Consultants for approval by ACSA.

1.1.2. TERMINAL RENOVATION:

George Airport terminal building was last renovated in 2009 and thereafter various minor works upgrades were undertaken, including maintenance work to improve the life of some assets. The proposed terminal expansion scope will create new spaces which will integrate with the existing terminal building and facilitate a uniform seamless passenger experience.

The Terminal expansion work will take place within a macro airport framework; therefore, it should be integrated with other airport systems (current and planned) to facilitate smooth and efficient airport operations. The design and specification of new key building services will need to be undertaken with the intention to integrate these services with existing services where feasible. This will require investigations of the current performance of the existing services, remaining serviceable life, required intervention to prolong the life of the existing services, services that will need to be partially or fully replaced and determination of ease of integration with new building services.

a) Finishes

All finishes are to follow a quality standard similar to that achieved in the existing terminal. The normal considerations related to life cycle costing (e.g. durability, design life etc.) will apply. The finishes specified as part of design development for the new and the old / existing facilities must integrate. The design team must optimise for re-use of existing finishes which are good and replace what cannot reasonably be kept. The terminal must read as one continuous and seamless experience.



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A 2D and 3D (and walkthrough video) model is to be developed by the professional team to clearly indicate the optimum combination of structure and finishes required to achieve a world class facility and simultaneously restrict upfront costs and ongoing maintenance expenditure to a minimum. This will form part of the Airport Theming study to be undertaken as part of the project scope.

The professional team will familiarize themselves with the policies and procedures laid down by ACSA in this regard, ensuring provision of branding, finishes and theming that is fully compliant with the stated objectives and standards.

b) Ablution Facilities

Sufficient provision for ablution facilities in all areas should be made according to the design passenger flows, maximum building population and the requirements of SABS 0400. Based on the outcome(s) during design development iterations, these figures will of course have to be continually revisited. Additional ablution facilities will have to be provided at least in the following public areas:

- Arrivals concourse.
- Baggage re-claim hall.
- Departure Holding Lounge.
- Airside Facilities:
 - Baggage Makeup Areas.
 - Airside Office Facilities.
 - Apron Offices.
 - Baggage Processing BOH Areas.

ACSA ambiance standards will be issued at design development stage to guide on airport specific requirements for public ablutions. Over and above these requirements, separate staff ablutions may be required following the considerations on separation of public and staff flows.

c) Airside Baggage Make up and Loading areas

Baggage screening and make-up is maintained in the existing location with an expanded footprint and allows for increased footprint to the baggage make-up area and baggage loading areas. Additional staff facilities are required in these areas both on the arrivals and departures baggage makeup areas. Provision for the Hold Baggage Screening (HBS) facilities and provisions for a leased areas with provision for kitchenette, ablutions, restrooms and staff locker facilities. The Baggage system must have a designed buffer accommodation for peak hours i.e. parallel conveyor belt system.

Baggage make-up and baggage delivery areas: ACSA sized the requirements of these areas at a conceptual level in the accommodation schedule. Although the existing baggage make up facility is adequate to serve the current operation, a new makeup area serving the expanded check-in area must be redesigned and properly sized to enable sufficient space for baggage handling, baggage screening activities and holding of Out of Gauge baggage items at check-in areas and arrivals areas. The professional team should however provide confirmation of the above and also produce a high-level capacity scoping for future demand activity levels. The design team is also required to ensure that ACSA is kept abreast of all



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design aspects of these areas to ensure that all changes, however small, be taken into consideration. Furthermore, all design input required from ACSA on baggage installations should be clearly stated at all times.

d) Service Yard

The professional consultant team will be required to investigate the tie-in and the expansion of the existing service yard and storage areas to the terminal building to ensure optimum use of the facilities to suit allocated operations.

e) Terminal Building exterior treatment

As part of the expansion and renovation of the terminal building, the professional consultant team will be required to conceptualise a new look and feel of the exterior of the building. This will require a design intervention to blend in the new terminal areas and the existing to create seamless exterior look and feel (External facades).

A design model is to be developed by the professional team to clearly indicate the optimum combination of structure and finishes required to achieve a world class facility and simultaneously restrict high upfront capital and ongoing operational expenditure to a minimum. The design must also take into consideration weather conditions, orientation of the building, building theming (local attributes) and cost-effective maintenance cycles.

Where there are existing facilities which are out of scope, when embarking upon design development and specification of terminal façade treatment, the Professional Consultants will be required to make recommended options to ACSA of the finishes that will need to be considered for application to the areas that are out of scope e.g. façade design, cladding, painting, etc.

f) Building systems design and Upgrades to terminal management systems

The Professional Consultant team is to ensure sufficient capacity of the electrical, mechanical and other services to cater for the projected demand increase resulting from the terminal expansion. Logical location of all services installations and service cores is required to ensure accessibility during maintenance, that these installations will not hinder future terminal expansion and will not obstruct passenger circulation. Furthermore, the team is required to consider the entire life cycle of the installations in making design decisions and specifications. This will involve for the design and installation of building systems, such as HVAC, lighting, power, plumbing and fire systems.

The upgrades to the technology systems used to manage the terminal, such as baggage handling systems, IT systems (BMS), security systems and passenger processing systems will also require careful design and specification consideration by the Professional Consultant team. This also entails the consolidation and replacement of all existing infrastructure as necessary to ensure replacement of plant and equipment that is deemed to be at end of life.

ACSA EAM requirements and minimum engineering design standards/guidelines are included and are to be reviewed in consultation with ACSA EAM as part of the preparation of the FIDPM stage 1 report.



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1.1.3. SUSTAINABILITY REQUIREMENTS

Sustainability is engrained in all aspects of ACSA's business. The Sustainability requirements and the objective of delivering a Green Star Certified Building for the project are listed within the EAM Requirements. It is however required that a specialist study be conducted to allow ACSA to define and qualify the appropriate sustainability initiatives and if a 4 Star Green Star rating is achievable or even desirable, that will provide ACSA with the maximum benefit within budgetary means.

The Green Building Architect will be appointed to undertake the feasibility study with scope recommendations to enable the George Airport terminal building to obtain at least a 4-star sustainability rating for the proposed terminal expansion.

The core professional consultant team will participate in the implementation of initiatives to ensure that the building once completed, achieves the desired green star rating based on the ACSA approved scope recommendations from the Green Building Architect. As a start, proper fee allowance must be made by the consultants for inclusion of the approved Green building scope items within the design development of the entire project scope.

1.1.4. KERBSIDE RELOCATION:

The expansion of the terminal building towards the landside area (North-East) of the airport will have implications on the existing roadside kerb and the terminal access landside ring road. Included in the project scope is the relocation of the kerbside ring road from its current location. This will enable for the extension of the terminal building towards the North-East of the terminal as indicated notionally on the ACSA Concept Design Layout.

A new kerbside parking design will have to be proposed and approved by ACSA which will at minimum cater for the following kerbside requirements:

- Short stay passenger drop off and pick up parking bays
- Drop off and pick up areas for tourism busses and mini-bus taxis
- Public Taxi parking bays – drop off and pick up (Metered taxis and e-hailing)
- Kerbside baggage drop off operation
- Parking pay stations
- Public Transport Offerings e.g. Go George

A Traffic Impact Assessment (TIA) will thus need to be undertaken to inform the design of the landside ring road in the new location as well as the impact of parking losses emanating from the relocation and how these can effectively be replaced elsewhere within the airport.

Consultants will have to obtain letter of Environmental Studies / Water Use Application or exemption from the Competent Authority for the proposed relocation of the road after carefully studying on whether there will be any triggers within the project that will require environmental study.



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1.1.5. SPECIALIST STUDIES:

The following additional studies are required to be undertaken by the appointed Professional Consultants team to enable the finalisation of the design. These services will be incorporated into the Consultant Contract and delivered as part of the additional scope of services. These studies will be initiated during design development, as and when needed:

a) Building Investigation / assessment

In order to understand the current condition, performance and remaining life, the professional consultant's team will be expected to undertake an assessment / investigation of the existing building elements i.e. services, building finishes, structural integrity and capacity of existing bulk services. Outcomes of the assessment / investigation will enable the professional consultants to advance proposals to ACSA of the required extent of replacement or refurbishment of the building elements and integration with the terminal expansion areas.

Professional consultant team will be expected to ensure sufficient capacity of the electrical, mechanical and other building and related services to cater for the projected demand. Logical location of all installations is required to ensure accessibility during maintenance and that the services installations will not hinder future terminal expansion and will not obstruct passenger circulation. ACSA EAM minimum design standards /guidelines are provided.

Furthermore, the professional team is required to consider the entire life cycle of the installations in making design and specification decisions. This entails the consolidation and replacement of all existing infrastructure as necessary to ensure replacement of plant and equipment that is deemed to be at end of life.

b) Bulk Services Capacity

The professional consultant team will be required to undertake an assessment of all the existing bulk services to determine the availability and capacity of existing bulk services in anticipation for the terminal building expansion and ring road relocation. This will include assessment of electrical, mechanical, IT, water supply, sanitation and stormwater bulk services.

c) As-Built Drawings

There are currently no good records of as-built drawings for the building layout and existing building services for the terminal building. The appointed Professional Consultants will be required to undertake As-Built drawings verification on site. Where there is no adequate record of existing services drawings to inform design development, the professional team will be required to undertake 3D laser scanning, heat detection and mapping of existing services, including bulk services, IT installations / Infrastructure, in order to produce a reasonable set of as-built drawings that will aid the design development process for production of new design proposals and specifications.

Employer will endeavour to provide as much available records as possible of existing As Built drawings information from its archives to assist the professional consultants in compiling a reasonable set of As-Built drawings to inform the design development proposals.



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d) Vertical Circulation Study

The provided ACSA Concept Design Layout excludes sections drawings, and primarily deals with layout in plan only. It will be a primary design task of the professional team to design the vertical circulation aspects of the building. This could include options of introducing new circulation cores for the building, to ensure separation of access between floors to the office areas (non-public areas), restaurant and lounge spaces on upper floor and goods delivery circulation (goods lifts, security screening of goods, etc) as part of operational considerations. The key parameters in this facet of the design process will be the following:

- Review of current operations including data collection / trip generation / hourly traffic statistics and use.
- Integration with existing structures, (existing levels must be verified and aligned with concept design)
- Cognizance shall be taken of all applicable standards in terms of maximum inclines and slopes on all elements of the terminal building. These include:
 - SABS standards for disabled/physically challenged persons.
 - International standards as prescribed by Airports Council International (ACI) IATA and ICAO.
 - International Best practice at airports of a similar size.
 - SANS Requirements related to vertical circulation and provisions
 - Separation of access to public and restricted areas.
- Sizing, Location and specification of facilities i.e. sizes and quantities of lifts in specific area appropriate to use (passenger and / or goods delivery / trolleys etc.)

In cases where a vertical circulation node is proposed, provision should be made for sufficient redundancy. The level to which this is taken would depend on factors such as design capacity required, functional use and location. Thus, in some cases redundancy may take the form of simple staircases. However, in some cases this possibility may of course be precluded by design regulations for the accommodation of disabled persons. Through design iterations these requirements will therefore vary. The consultant team will be expected to closely consult with ACSA in working towards a final scope fix and design solution.

e) IT Scope Study

The IT Scope Study is required to flesh out the full extent of IT scope requirements for the project. At a macro level, and subject to the IT Scope Study, the professional consultant team must include the following technological elements which must form part of the output of the project:

- IT Brief Development to enable Project Requirements.
- Passenger Bag Drop & Self Service Kiosk's.
- Passenger Boarding e-gates.
- Flight information Display Systems (FIDS).



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- IT server rooms & switch rooms.
- Telecom, PABX & PA server rooms.
- IT Backbone for tenants.
- Current and Future Provision of Work-Centres and Data Centres.
- 3rd Party IT Requirements (e.g. Government).
- Temporary / Enablement IT infrastructure.

f) Passenger Processing Simulation Study

The objective of the Simulation Study will commence with a process of analysis / data collection of passenger flows and processing times at GRJ Airport within the departures area for the check-in areas and security processing areas. This data will then be used to further define / make provision for the future capacity scenario. The major outcomes of this study include the following tasks that are outlined below:

- Develop a simulation model aimed at understating the service levels and capacity of the future airport layout for the check-in areas and the passenger and hand-luggage security screening areas.
- Assess the capacity and service levels, in line with IATA recommended levels of services.
- Provide optimised configurations to improve service levels of passenger processing times, with recommendations for future growth.

The Simulation Study will comprise of the following activities:

1. Review of existing documentation and related Data related to:
 - Passenger flows.
 - Processing times.
 - Peak and off peak schedules.
 - Terminal lay outs at the time of the survey.
 - Calibration survey.

Deliverable: Status quo assessment of the envisaged / planned / targeted capacity for passengers, aircraft, Peak schedules, Processing times (peak and off-peak), future capacity analysis, Calibration and sensitivity analysis of existing survey data.

2. Discrete Model Formulation: Developing the algorithm to be used for assessing the future passenger flow analysis to identify the:
 - Structure and system of the waiting line.
 - Flow for arrivals (Distribution).
 - Service time probability distributions.
 - Service Rate.
 - Constraints.
 - Identify Scheduling peculiarities in time (peak and off-peak).



Project Scope Breakdown

- Identify scenarios for analysis.

Deliverable: Algorithm for assessing the process flow for the Check-in and security gates

3. Pedestrian Modelling: Develop a dynamic agent-based model to simulate the passenger service movements for the Departure areas to simulate the service quality for departure passengers. The following elements will be understood:
 - Determination of the characteristics of the entities to be simulated (flights and passengers)
 - Modelling passenger events:
 - i. Passenger arrival.
 - ii. Check-in.
 - iii. Discretionary activities.
 - iv. Security control.
 - v. Retail use.
 - Modelling passenger behaviour:
 - i. Journey times.
 - ii. Queuing.
 - iii. Delay.
 - iv. Space density (pinch points).

Deliverable: Pedestrian model for GRJ departure level and model development report.

4. Simulation and results analysis: Running the model and assessing the results for both the models to determine the following:
 - Future capacity based on layout (peak and off peak).
 - Optimisation solutions for the future lay-out if any.
 - Future processing flow numbers at future service rates.
 - Proposed optimised service rates.
 - Scenario analysis.
 - Service level analysis.
 - Proposals and recommendations.

Deliverable: Assessment of the service and capacity analysis of the check-in and security processing area, providing optimised solutions and configurations.

5. Final report detailing: The final report will document the process of formulations the problem, developing the model and the analysis of the results to provide proposals and recommendations on optimisation.

Deliverable: Future capacity analysis and service level optimisation, proposed recommendations on improvements, if any.

g) Geotechnical Study

The Geotech Study should be undertaken for geotechnical investigation to assess the soil and rock profile across the site for new foundation designs. The primary objective of study is to



Project Scope Breakdown

assess the soil and rock profiles across the site so as to provide foundation recommendations, foundation and pavement design parameters as well as earthworks/pavement designs.

The study should present practical recommendations for site preparation (earthworks and terracing) and for the design and construction of foundations for the new buildings and the earthworks for the relocated landside Ring Road.

The investigation methodology should at minimum comprise of

- Desk study of existing site and regional information,
- scanning of underground services,
- soil resistivity tests,
- excavation of test Pits and / or drilling of boreholes
- laboratory testing
- compilation of all critical factual reports.

The Geotech Study shall be undertaken as an additional scope of service for the Civil & Structural Engineering services. Refer to Scope of Service for Civil & Structural Engineering.

h) Topographical / GPR / Spatial Land Survey (Underground Services Scan)

In the absence of an accurate record of spatial, site cadastral information and location of As-Built underground services, the professional consultants will be required to undertake a Topographical and an intrusive 3D Ground Penetration Radar (GPR) Surveys and Heat Detection for the specific areas of site development i.e. all terminal expansion areas and Ring Road relocation area.

The survey is to include tagging of external services within the perimeter road service yard, airside entering and exiting the Terminal Building and adjacent buildings such as the Car Rental Area and Structures within the Parking Area. Analysis of the 2D topographical survey obtained from SAT map in June 2018.

The obtained survey comprised of the following:

- Topographical survey for air and landside portions along the perimeter of the terminal
- Services yard levels, kerbs and islands;
- Stormwater, water, sewer and electrical services invert and cover levels;
- Confirmation of external services direction;
- Tagging of all external services by means of numbering sequences for identification at a later stage;
- Obtain survey of piling positions and foundations;
- Obtain information of existing airport sewer pump station levels;
- Obtain information of existing stormwater treatment and if required detention dam levels;
- Produce a Civil 3D model that incorporates levels and services to visualise the interaction with buildings and the future footprint of the proposed new terminal building expansion within the BIM model.
- Comprehensive photo report of infrastructure and any structures within the footprint with tremble files.



Project Scope Breakdown

The extent of the survey will be determined in conjunction with the appointed consultant team.

i) Traffic Impact Assessment

It is envisaged that the current airport frontage road (known as Ring Road) will be relocated to make way for the expansion of the terminal building towards the Ring Road. The extent of the expansion of the terminal building and resultant extent of relocation of the Ring Road shall be determined once ACSA has signed off the concept design at (FIDPM Stage 2).

However, the relocation of the road will result in the new relocated road to have sufficient lanes, kerbside parking bays, necessary traffic controls and calming, and access to adjacent public parking facility. A traffic Impact Assessment (TIA) is therefore required to inform the ultimate design of the relocated Ring Road. The study will include at minimum the following:

- Study Area: Landside Traffic Access, Circulation and Parking (Short- and Long-Term stay) areas.
- Airport Traffic Count (Peak and off peak).
- Parking trends and parking circulation.
- Future developments.

The TIA will be undertaken as an additional scope of service for the Civil Engineering services on the project – Refer to Scope of Service for Civil Engineering.

j) Commercial Study

Creating a unique passenger retail experience is a critical element in the commercial strategy of the airport and is tied to the spatial location of the commercial properties to achieve the necessary commercial benefits. Therefore, the terminal design layout should be carefully crafted to achieve the optimum retail and commercial property mix suitable for a regional airport.

It is envisaged that a commercial study (part of this scope of works) must be undertaken to inform the best retail and property position, layout, mix, sizing and supporting services outlets. This will also include investigation of the commercially viable position of the advertising billboards within the terminal building.

It is therefore required that a Commercial Specialist be appointed to lead and undertake the Commercial Study to inform the retail, property and advertising tenant mix and new revenue opportunities for the George Airport Terminal Expansion project.

The tenant mix should be for both the retail and property type tenants.

Scope of the Commercial Study for retail, property and advertising facilities:
➤ Retail Facilities

- I. Review existing retail offering at the airport (desk top exercise and various site visits).
- II. Meet and interview current retailers.
- III. Meet with ACSA Retail Division to understand current contracting and rental regimes and lease expiry dates / renewal dates.



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- IV. Benchmark George Airport against other relevant airports in sales and commercial area.
- V. Determine the tenant mix, size, number and nature of retail stores in the terminal building.
- VI. Determine the size, number and location of the common use back of house facilities not forming part of the tenant fit out for each retail store i.e. Storerooms, service cores, waste sites, etc.
- VII. Produce proposed concept design layout and options for approval by ACSA.
- VIII. Engage ACSA Commercial team on a regular basis of the progress and findings of the study and include fine tuning of the study.
- IX. Produce final recommendations for approval by the ACSA Commercial Division.
- X. Include spatial recommendations into the overall architectural design.

➤ Property Facilities

- I. Review existing property offering at the airport (desk top exercise and on-site visits).
- II. Meet and interview current property tenants.
- III. Meet with ACSA Property Division to understand current contracting and rental regimes and lease expiry dates / renewal dates.
- IV. Benchmark George Airport against other relevant airports in commercial property offerings,
- V. Determine the tenant mix, size, number and nature of commercial property basket in the terminal building,
- VI. Determine the size, number and location of the common use back of house facilities not forming part of the tenant fit out for each retail store i.e. Storerooms, service cores, waste sites, etc.
- VII. Produce proposed concept design layout and options for approval by ACSA.
- VIII. Engage ACSA Property team on a regular basis of the progress and findings of the study and include fine tuning of the study.
- IX. Produce final recommendations for approval by the ACSA Property Division.
- X. Include recommendations into the overall architectural design.

➤ Advertising Facilities

- i. Review existing advertising offering at the airport (desk top exercise and on-site visits).
- ii. Meet and interview current advertising tenants.
- iii. Meet with ACSA Advertising Division to understand current contracting and rental regimes and lease expiry dates / renewal dates.
- iv. Benchmark George Airport against other relevant airports in commercial advertising offerings.
- v. Determine the advertising space mix, sizing, type, number and nature of commercial advertising basket in the terminal building.



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- vi. Determine the size, number and location of the common use back of house facilities required for advertising tenants within the terminal.
- vii. Produce proposed concept design layout and options for approval by ACSA.
- viii. Engage ACSA Advertising team on a regular basis of the progress and findings of the study, including regular fine tuning of the study.
- ix. Produce final recommendations for approval by the ACSA Advertising Division.
- x. Include recommendations into the overall architectural design.

1.1.6. PROJECT DELIVERY MANAGEMENT:

This will involve the planning and producing methodologies, phasing and management of the design and construction activities. The professional consultant team will be required to produce a Project Management Plan which will outline how the team will manage the various stages of design development , project risk management, cost management, schedule / programme management, quality management and construction phasing strategy (enablement work and main works) which will be approved by ACSA, scheduling, cost estimating, risk management, and quality control of all project activities.

The professional consultants will also be required to produce methodologies for enablement work which will primarily be aimed at ensuring that current airport operations are not affected and take precedence to project delivery activities. Proposals for enablement work must be cost effective and do not result in high sunk costs.

1.1.7. GENERAL DESIGN REQUIREMENTS FOR INCLUSION IN SCOPE

The following requirements will form part of the scope and should be included during design development to ensure full realisation of the project scope.

1.1.7.1. General Design requirements:
a) Major Factors for inclusion in Conceptual Design

The below factors affect the conceptual planning for the terminal expansion. Other factors to be identified are:

- Airport Traffic Categories.
- Airport Capacity Growth.
- Balance of required Airport Capacity and Facilities.

b) Basic Design Criteria

- Priority must be given to Airport Operations when undertaking design and construction methodologies.
- Seamless Integration for all airport operational areas.
- Confirmation of capacity of Airside Baggage make-up and delivery areas required.
- Investigation of tie-in and expansion of the existing service yard and storage areas.



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- Design of landside kerbside ring road.

c) Vertical Design

The provided ACSA concept design layout excludes cross sections, but primarily deals with layout in plan only. It will be a primary design task of the professional team to design the vertical aspects of the building. The key parameters in this facet of the design process will be the following:

- Integration with existing structures, existing building levels (FFL and Heights) must be verified and aligned with concept design.
- Cognisance shall be taken of all applicable standards in terms of maximum inclines and slopes on all elements of the terminal building. These include:
 - SABS standards for disabled/physically challenged persons.
 - International standards as prescribed by Airports Council International (ACI) IATA and ICAO.
 - International Best practice at airports of a similar size

In all cases where vertical circulation nodes are required, provision should be made for sufficient redundancy and ease of future expansion - the extent of which would depend on factors such as design capacity required, functional use and location. Thus, in some cases redundancy may take the form of simple staircases. However, in some cases this possibility may of course be precluded by design regulations for the accommodation of disabled persons. Through design iterations these requirements will therefore vary. The professional consultant team will be expected to closely consult with ACSA in working towards a final scope fix and design solution.

d) Operations Management Requirements

The following design elements must be included in the design:

- Separate ingress & egress passages and doors for trolleys into the terminal building.
- Domestic and International security processing area in one location
- Enclosed Baggage wrap office space.
- Common use restrooms, training facility and boardrooms.
- Facilities for unaccompanied minors / wheelchair area and kiddie's room.
- Departure Check in counters – change all to streamlined clutter free counters space.
- Additional ablution facilities – Landside, Restricted and Airside areas.



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- Investigate baggage belt being behind check-in counters. / on arrivals airside and provide automated and user-friendly optimum solution – manual override.
- All commercial areas:
 - Electrical metering infrastructure must accommodate usage-billing. This implies that each area must have its own DB inside the leased area (tenant DB). This tenant DB must be fed from an ACSA DB higher up – where the supply circuit breaker and usage meter will be located. Note that the usage electrical meters must be intelligent – able to communicate via ethernet – in order to enable remote AMR (Automatic Meter Reading).
 - Water infrastructure: Where water supply is provided for tenant spaces – ensure that the water supply point is metered accordingly. This will enable ACSA to recover revenue from water usage. Similar to the electricity usage meters, the water usage meters must also be intelligent in order to accommodate remote AMR.
 - Sand / Oil Grease Traps with ease of connectivity to all relevant areas must be included for all commercial areas with kitchens and prep areas.
- Seated smoking area (with smoke extraction) must be provided in Commercial / Holding Lounge.
- Provide dedicated and enclosed external landside smoking area / pods.
- Provide the Lost property office – best practice (security)
- A standalone Permit Office adjoined or located within close proximity to the Terminal building.
- Provide clear Way finding signage and fire evacuation plan/maps.
- Provide additional people movers – lifts and escalators.
- Overall operational office space in the Terminal
- Ambience/ finishes to reflect the local heritage and context – as per Theming study.
- Provide a Viewing deck (identify viable location and size).
- **Security Area required:**
 - Common use firearm desk – adjacent acceptance of oversized baggage.
 - Departures and Arrivals – Emigrations, customs and port health facilities at arrivals.
 - Level 1 to 5 screening and reconciliation room.
 - E-gates.
 - Search room/s.
 - SAPS Office accommodation / counter within the terminal
 - Dog Unit and Accommodation
- Provision of Spare parts / attic stock: FOR BOQ purposes:



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- All the items that are installed must make provision for a 15% spare allocation as part of the BOQ
 - Ablution items
 - Taps
 - Toilets
 - Urinals
 - Floor and Wall Tiles
 - Electrical fittings
 - Ceiling boards (If drop ceiling)
 - Paint
 - Handrails
- Where spares / attic stock cannot be supplied – detailed maintenance requirements and scope / specification documents must be handed over by the consultants to ACSA Maintenance for the following infrastructure (This will ensure that the maintenance department can obtain the correct services and spares after the project has been completed):
 - HVAC infrastructure
 - Water infrastructure
 - Electrical infrastructure

e) Commercial Requirements

The extent of space requirements for retail, food & beverage, storage areas provisions, pop up shops etc, including locations and adjacencies will be defined through a Commercial Study. Commercial requirements are to be finalized with the ACSA Commercial Department. The consultant team is to include lease diagrams as per SAPOA requirements for all lettable areas and tenant coordination services.

f) IT Requirements

IT requirements are to be finalized with the ACSA IT Department. The scope must include an IT Scope Study which will outline the full extent of IT requirements to be included in the project. At a macro level the Professional Consultants team must include the following in the design:

- Provision for Bag Drop & Self-Service Kiosk's
- Design inclusion for Boarding e-gates
- Design inclusion for Flight Information Display System (FIDS)



Project Scope Breakdown

- IT server rooms & switch rooms
- Telecom, PABX & PA server rooms
- IT Backbone design provision for all tenants
- Current and Future Provision of WorkCentre and Data Centres
- 3rd Party IT Requirements
- Temporary / Enabling IT infrastructure.

Professional Consultant must note that the installation, positioning, connecting to services, commissioning and training required, needs to be factored into the overall project programme. Additionally, ACSA is attempting to standardize and optimise its IT installations across the network; the procurement of equipment for one project therefore has implications on the rest of the network.

g) Enterprise Asset Management (EAM) Requirements

The Professional Consultant team are to ensure sufficient capacity of the electrical, mechanical and other services to cater for the projected demand. Logical location of all installations is required to ensure accessibility during maintenance, installations will not hinder future terminal expansion and there will not obstruct passenger circulation.

Minimum ACSA MEA Engineering Design Standards / Guidelines will be issued for inclusion, and the Professional Consultant team is required to consider the entire life cycle of the specified installations in making design and specification decisions. This entails the undertaking cost benefit analysis of sourcing, procurement, installation, maintenance and replacement of recommended specifications for all plant and equipment that is deemed to be at end of life.

The ACSA MEA Engineering Design Standards / Guidelines annexed and are to be clarified in consultation with EAM as part of the preparation of the FIDPM stage 1 report.

h) Sustainability Requirements

Sustainability is engrained in all aspects of ACSA's business. The Sustainability requirements and the objective of delivering a Green Star Certified Building for the project are listed within the ACSA EAM Engineering Requirements. It is however required that a specialist study be conducted to allow ACSA to define and qualify the appropriate sustainability initiatives and test feasibility (or even desirability) of achieving 4 Green Star rating, that will provide ACSA with the maximum benefit within the project budget.

i) Security Requirements



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i. Expansion of the Terminal:

According to the National Aviation Security Program, the design of an airport shall:

- “Integrate security functions into the entire building in such a manner as to maintain the efficient usage of space for processing passengers, baggage, cargo and commercial items sold or used at an airport without sacrificing the needs of facilitation and commercial processes.
- Allow for the safe facilitation of firearms of passengers, in compliance with both the NASP and the Firearms Control Act, 2000 (Act No. 60 of 2000) and
- Allow for the easy implementation of contingency plans and other responses during crisis situations.

The airport’s design shall also recognise the threat that explosive devices place on any large, publicly accessed structure and ensure that the design minimises any effects of an explosion.

This can be achieved by:

- Designing structures and fittings to limit damage and casualties in case of attack,
- Ensuring that the materials used in the construction are capable of withstanding the effects of explosions and other forms of armed attack; where practical,
- Providing enhanced levels of protection for vulnerable or high threat areas and,
- Ensuring that security measures are considered when designing commercial spaces for revenue generation during planning stage,

The above will be included by the Professional Consultant team in the project scope of work.

ii. Security Screening Equipment:

The security screening equipment specification will be informed by a network-wide study that is currently underway. For the purposes of design, should the above-mentioned project not be complete by the time design decisions for this terminal expansion are required, the consultant team must provide design lanes with the following philosophy:

- It is envisaged that 1x additional security screening machine plus spatial provision for 1x security screening machine (total 2 additional) will be required for passenger processing, goods screening, staff processing at the terminal Central Search Point (CSP).
- Undertake Design option for a full body scanner to be shared between two lanes.



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- Screening technology should enable the screen of laptops and other electronic equipment in bags (i.e. CTX machine).
- The lanes must be elongated to allow for multiple divest and reclaim positions.
- Automatic tray return is preferred, as this will assist in increased throughput, reduction in staff tray handling and the ability to increase passenger focus.
- A passenger repacking area at the search point must be provided. This will allow passengers to sort out their hold luggage and (possibly) put back their shoes.
- A storeroom for lost property/prohibited items is to be included.
- A space for firearm handling counter area is to be included.
- An office for the supervisor and staff area is to be included in close proximity to the CSP.
- Remote screening is viewed as the best solution as it minimises disruptions and there is less noise. A remote screening must therefore be identified for the possibility of remote screening. Screening positions at the lanes must however be designed for. The security study will verify which option is ultimately selected for the group.
- Security e-gates are required and will do the reading of the 2D bar code machines. Security gates with queue management and fixed queuing maze system is preferable.
- Professional Consultant team to investigate at design development stage, the breaking down of existing ablution facilities near the current central search Point (CSP), for positioning of the CSP as a proposed solution to accommodate more space and for queuing.
- The screening facility and must be able to facilitate the goods receiving for restaurants & lounges, an alternative option cannot be provided.
- A Security Control room/CCTV room is to be added within the terminal complex.



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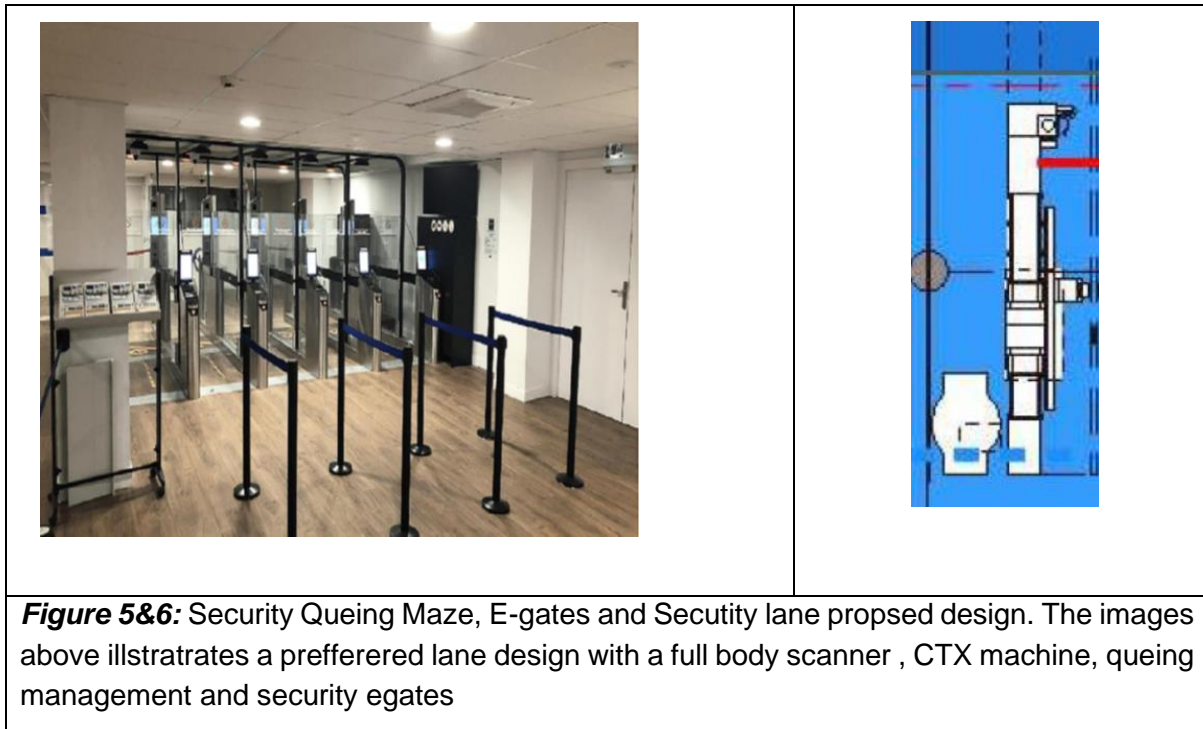


Figure 5&6: Security Queing Maze, E-gates and Security lane proposed design. The images above illustrates a preferred lane design with a full body scanner, CTX machine, queuing management and security gates

 iii. Roadways

- The NASP Section 6.17.4 (i) states that “the vehicles design, location and features of vehicle access roads and parking areas allocated in front of the terminal buildings should allow for effective control of traffic flow”.
- Vehicle-proof barricades on pavements and sidewalks outside buildings to allow for the prevention of vehicle borne IEDs from crashing into a building”.

 iv. Hold Baggage Screening (HBS) Requirement

The design to include the following facilities for baggage screening:

- Out Of Gauge (OOG) screening and pick up facility.
- Baggage Reconciliation Room.
- Different Screening levels, i.e. separation of level 2 and level 3 screening.
- Secure location for screened baggage.

 v. CCTV Surveillance

- The NASP section 6.12.2, CCTV applications states that “Areas of special importance requiring CCTV installations shall include but are not restricted to, all passenger, baggage and cargo handling areas at airports or regulated agent facilities, and access points. CCTV systems installed shall include a time lapse recording capability. All CCTV recording must be retained for a minimum of 30 days under normal operations, in cases where CCTV coverage is the subject



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of an investigation; the recordings must be retained until such times as approval for their release is given in writing by the Airport Security Manager.

- Airport operators shall deploy CCTV system in monitoring of passenger screening points. In addition to meeting security objectives, CCTV coverage of passenger screening points can facilitate the operational analysis of passenger throughput and possible enhancements, in particular adjustments to staffing levels, to reduce the length of queues”.

vi. Enhanced level of protection

- Parking areas must be situated as far as possible from the terminal buildings in case of a bomb attack.
- Short-term parking must be located closer to the terminal building than other parking facilities, with strict control of vehicles.

vii. General security considerations include the following:

- Minimise the number of access points.
- Provide appropriate separate permit holder entrances/exits with an access control system preferably a biometric system to be fitted in all restricted areas, landside/airside boundary.
- Inadmissible passenger facility.
- Control Room (remote screening room)
- Cash in Transit Room.
- Security Supervisor office door to face the CSP.
- Panic alarm system.
- Private search room.
- Emergency Operations Centre (retain existing facility)
- Tray holder for efficiency.
- Staff rest room.
- Parade room.
- Extension of fire detection system.

The Professional Consultant Team will at design development stages obtain from the ACSA Enterprise Security Department any additional security standards which can be used in such a way as to maintain the integrity of the local security programme yet allow sufficient flexibility to achieve a balance between the needs of aviation security, safety, operational requirements and passenger facilitation.



Project Scope Breakdown

The professional consultant team will be required to sign off non-disclosure agreements prior to handover of ACSA Security requirements and documents for guiding the design development and implementation.

j) Hold Baggage Screening (HBS) Design

The technical design and specification of the baggage handling systems will form part the Project. The professional consultant team will be expected to source all technical considerations as far as it affects their design responsibilities e.g. loadings, dimensions, interfaces etc for the provision of HBS equipment.

k) Technical Installations

The design and construction of specialised electro-mechanical installations is part of the scope and it shall be expected of the architectural and mechanical engineering team to provide adequate and applicable spatial and technical provision, co-ordination and designs for the following technical installations where required by other design consultants or contractors during the design process at large:

- Designs for reticulation for all electrical/electronic/telecom/data equipment required in the envisaged final development.
- Design and specification of Public Address systems.
- Design and specification of CCTV as per ACSA Security Standards.
- Design and specification of communication Antennas.
- Design and specification of the Building Management System (BMS).
- Airport Signage design as per ACSA Signage Manual Guidelines.
- Design and specification of the airport Access control system as per ACSA Security specifications.
- Any other systems & installations that arise in the design process, that is airport security related.

In all of these it shall be expected of the professional consultant team to be innovative in providing a spatial and structural concept that will enhance the installation, maintenance and adaptation of technical systems. In the case of mechanical installations (and Baggage systems), the placing of plant and equipment should be such that all maintenance and repair/replacement can be carried out outside any public areas. Sufficient provision must be made for accessibility to such plant/service areas, especially in the case of vertical circulation being required for the movement of equipment or materials.



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Where applicable, spatial provision has been made in the ACSA Concept Design Layout for some of these installations. In these instances, the professional consultant team should maintain the integrity of location and sizing of functional zones in the final design and coordinate the provision of interfaces with relevant user clients and/or contractors. Such specific cases where ACSA will provide the design and procurement and the team the necessary co-ordination and integration are the following:

- Baggage conveyor, sorting and delivery systems.
- FIDS (flight information display systems)

l) Roof Design

To a large extent the new roof design will be informed by other considerations following from vertical design and the mixture of existing adjacent constructed areas. Nevertheless, the following additional aspects will have to be considered by the professional consultant team in designing the new roof structures:

- Life cycle considerations, especially ongoing maintenance/cleaning and general durability.
- Architectural considerations such as the creation of volumes of space that supports the general atmosphere and functioning of the terminal.
- The placement of plant or even solar panels on roof level or within roof structure is not precluded, which in turn will inform roof design relating to future servicing, replacement, and accessibility.
- Local weather conditions / patterns e.g. adverse weather conditions (torrential rains, hailstorms, heavy winds, building orientation).
- Civil Aviation Authority guidelines on airport structures.

m) Statutory Regulations

In all design aspects, the building design should comply with all relevant and applicable local or national building regulations. Contractors must comply with health and safety regulations to ensure a safe working environment. This includes obtaining the necessary permits and licenses, implementing safety protocols, providing personal protective equipment (PPE), and conducting regular safety inspections.

Site-Specific Documentation: Contractors need to submit specific documentation and phasing of construction related activities related to the site establishment, which may include:



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- a) Site Plans and Layouts: Detailed site plans showing the proposed layout, access points, utilities, and other relevant information.
- b) Traffic Management Plan: If the site establishment impacts public roads or traffic, a traffic management plan may be required to ensure the safe flow of vehicles and pedestrians. Specific Actions relating to the disruption of the Terminal Accessibility during the realignment of the ring road will be required.

Without limiting any of the requirements set out in this brief, the professional consultant team should ensure compliance with the standards and regulations laid down by the Occupational Safety and Health Act with the aim of submitting final building plans to the relevant authorities for vetting on building, fire protection & escapes compliances.

n) Building Legibility

It is of overriding importance that the building supports the primary passenger flows and is not in opposition to normal passenger behaviour. Therefore, the building should be easily read by occupants and avoid confusion. This will support some of the primary design considerations listed above such as commercial opportunities as well as efficient operations. Moreover, it will arguably reduce the needs for excessive placement of directional signage or operational intervention.

From a layout and flow point of view, it is thus crucially important that vertical circulation elements and major decision points are positioned such that they are highly visible and accessible. They should furthermore support a natural flow of passengers.

o) Ablution Facilities

Provision and quantities of ablution facilities in all areas must be made according to the ultimate design passenger capacity (2MAP) and flows, building population and the requirements of SABS 0400. Based on the outcome(s) during design development iterations, these figures will of course have to be continually revisited with ACSA.

Suitable quantities of Ablution facilities will have to be provided in at least in the following terminal areas:

- Arrivals concourse (Meeters and Greeters area).
- Baggage reclaim hall
- Departure Holding Lounge
- Landside terminal circulation area
- First Floor restaurants



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- Viewing Deck
- Airside Facilities
 - Baggage Make-up Areas
 - Airside Office Facilities

Over and above these requirements, separate staff ablutions may be required following the design considerations on separation of public and staff flows.

p) Signage (fixed and variable)

All terminal signage should conform to updated ACSA signage specification documents, this requirement includes any FIDS installations. Statutory signage will have priority preference above all other signage elements in terms of locations, placement and sizing.

q) Finishes

All finishes are to follow a quality standard similar to that achieved in the terminal. The normal considerations related to life cycle costing (e.g. durability, design life etc.) will apply. The finishes of the new and old facilities must integrate. The design team must optimise for re-use of existing finishes which are good and replace what cannot reasonably be kept. The terminal must read as one continuous and seamless experience, in terms of the look and feel of the surface finishes.

r) Theming

The elements recommended as regionalized theming of the terminal building will be recommended by the theming study and the commercial study - at a minimum include elements of the local heritage, in consultation with ACSA for approval. An important element of theming that the professional consultant team must include, is the use of natural light, green spaces and sense of place elements throughout the terminal, both in the existing and new build areas.

s) Requirements for People Living with Disabilities and the Aged

Design provisions for disabled persons and the aged are to be in accordance with the minimum provision of SABS 0400, the provisions recommended by the Societies for the Disabled and/or the Blind, the ACI Handbook on Airports & Persons with Disabilities, IATA ARDM, White Paper on the Rights of Persons with Disabilities and any other relevant design guideline.

The relevant local organizations such as the SA Disability Alliance are to be consulted through the design process to ensure best practice related to the provision of facilities with a universal



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design in mind. In consultation with the SA Disability Alliance, the installation of Induction Loop Systems in all applicable areas is to be considered for inclusion within the scope of the project.

t) Baggage Trolleys

The terminal design must aim to facilitate the easy use of trolleys by passengers and staff. Therefore, an effort should be made to reduce/eliminate vertical transfers where possible. Provision should be made for dedicated corridors for the circulation of empty trolleys by airport staff in a way that is secure and does not impede on general passenger flow or comfort. It must be endeavoured that these areas should be out of sight of passenger circulation spaces. In addition, layouts of circulation and concourse areas should, where applicable, allow sufficient space for the storage of trolleys. These storage areas should be placed in a manner that it facilitates ease of identification of trolley parking and collection by passengers, whilst not infringing on general circulation. Specific trolley parking/storage areas include:

- Stacking area for trolley collection by arriving passengers upon entry into the baggage claim hall.
- Stacking area for trolley collection by passengers at the kerbside areas prior to entering the terminal building.
- Stacking area for trolley collection by passengers at the parking area prior to entering the terminal building.

u) Furniture and Fittings

The design, procurement, installation and fitting of all furniture and equipment are deemed to be part of the project scope. This is to include but not limited to:

- Terminal Seating:
 - Benches
 - Chairs (with and without armrests)
 - Sofas and lounges
 - Waiting area seating
 - Priority seating for elderly and disabled passengers
- Information Desks and Counters:
 - Airport information desks
 - Ticketing counters
 - Check-in counters
 - Baggage drop-off counters
 - Customs and immigration counters



Project Scope Breakdown

- Wayfinding and Signage:
 - Directional signage
 - Information boards
 - Gate signage
 - Flight information display systems (FIDS)
- Workstations:
 - Check-in desks
 - Passport control desks
 - Security screening areas
 - Retail and Commercial Spaces:
- Enabling Infrastructure or First Fit for:
 - Retail kiosks and shops
 - Duty-free stores
 - Food and beverage outlets
 - Cafes and restaurants
 - ATMs and currency exchange counters
 - Associated Information and Communication Technology (ICT):
- Charging stations
- Internet and Wi-Fi access points
- Digital displays and advertising screens
- Ablutions:
 - All required fittings eg. sinks and mirrors, hand dryers or paper towel dispensers, luggage storage areas / lockers:
- Miscellaneous:
 - Waste bins and recycling containers
 - Planters and greenery with irrigation
 - Artwork and decorations
 - Flooring and carpets
 - Lighting fixtures (functional and ambiance)

Safety, durability, and comfort should be prioritized when selecting furniture and fittings for the airport terminal. It is essential to comply with applicable regulations and accessibility guidelines to ensure a smooth and inclusive passenger experience. Effort must be made by the professional consultant to ensure 100% local content and production of the above items



Project Scope Breakdown

as per the DTI Local industries, sectors and sub-sectors designation guidelines and further localisation guidelines that will be provided by ACSA.

All furniture and fittings will be informed by the commercial study and will include a variety of options that is not homogenous but are harmonious. Comfort, aesthetics, flexibility durability and ease of expansion must be of consideration. The seating must compliment the terminal design from a sizing as well as theming point of view.

v) Separation of Staff and Public Flows

Separate entrances, facilities and workplaces for staff should be provided away from public areas to improve security, operational flows and availability of other facilities to the general public and/or passengers. This includes the provision of locker rooms/ staff area, rest rooms and the like. If feasible, a separate staff access point or security point must be identified and recommended for approval by ACSA as part of the project scope.

w) Advertising

Airport advertising represents a significant revenue stream to ACSA. The professional consultant team must make every effort to maximise the potential future revenue opportunities from advertising within the redeveloped terminal building. In ascertaining the advertising revenue potential, the sizes, numbers and locations of advertising positions, the professional consultant team shall closely interact with the ACSA Commercial Division for guidance and approval – this will include incorporating recommendations from the Commercial Study and Theming Study. The professional consultant team must identify advertising areas within the terminal structures that will provide permanent positions of digital advertising screens for approval by the ACSA Commercial Division.

Despite the key objective of providing maximum commercial advertising opportunities, no advertising (in whatever form, location, quantity or size) will be accepted by ACSA if it negatively impacts on any other directional or statutory signage, or if it detracts from the general quality of space, or if it negatively affects the general architectural theme or corporate branding.