TURKS AND CAICOS ISLANDS AIRPORTS AUTHORITY

STRATEGIC MASTER PLAN FOR THE TCIAA

Conceptual Master Plan – North Caicos (NCA)

October 2024

ALG

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Glossary of terms and abbreviations

ADRM	Airport Development Reference Manual
ARFF	Aircraft Rescue and Fire Fighting
ASK	Available Seat per Kilometers
ATC	Air Traffic Control
ATM	Air Traffic Movement
ATR	Avions de Transport Régional
Avg	Average
B737	Boeing 737
CAGR	Compound Annual Growth Rate
CapEx	Capital Expenditure
DOM	Domestic
EMB	Embraer
FBO	Fixed Base Operator
FOD	Foreign Object Debris
GA	General Aviation
GDP	Gross Domestic Product
GSE	Ground Support Equipment
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IFP	Instrument Flight Procedure
ILS	Instrument Landing System
INT	International
LF	Load Factor
MUSD	Million United States dollars
NB	Narrow Body Aircraft
NEO	New Engine Option
NM	Nautical Miles
PAX	Passengers
PHP	Peak Hour Passengers
POS	Point of Sale
PPP	Public-Private Partnership
RepEx	Replacement Expenditure
RESA	Runway End Safety Area
RET	Rapid-Exit-Taxiway
RPK	Revenue Passenger per kilometers
RWY	Runway
SQM	Square Meter
TCI	Turks and Caicos Islands
TCIAA	Turks and Caicos Islands Airports Authority
TORA	Take-off Runway Available
TWY	Taxiway
USA	United States of America
USD	United States Dollar
VFR	Visiting Friends and Relatives
WB	Wide Body Aircraft

List of airport codes

Turks and Caicos Islands airports

GDT	JAGS McCartney International Airport
MDS	Middle Caicos Airport
NCA	North Caicos Airport
PLS	Providenciales International Airport
SLX	Salt Cay Airport
XSC	South Caicos International Airport

International airports

ATL	Hartsfield-Jackson Atlanta International Airport
AZS	El Catey International Airport
BIM	South Bimini Airport
BOS	Logan International Airport
BQN	Rafael Hernández International Airport
CAP	Cap Haitien International Airport
CCC	Jardines del Rey Airport
CCZ	Chub Cay Airport
CFG	Jaime González International Airport
CLT	Charlotte Douglas International Airport
CMW	Ignacio Agramonte International Airport
CXY	Cat Cay Airport
CYB	Sir Captain Charles Kirkconnell International Airport
CYO	Vilo Acuña Airport
DEN	Denver International Airport
ELH	North Eleuthera Airport
EWR	Newark Liberty International Airport
FLL	Fort Lauderdale–Hollywood International Airport
FPO	Grand Bahama International Airport
FXE	Fort Lauderdale Executive Airport
GGT	Exuma International Airport
GHB	Governor's Harbour Airport
GHC	Great Harbour Cay Airport
HOG	Frank País Airport
IAH	George Bush Intercontinental Airport
JFK	John F. Kennedy International Airport
KIN	Norman Manley International Airport
LAX	Los Angeles International Airport
LRM	La Romana Casa De Campo International Airport
MCO	Orlando International Airport
MHH	Marsh Harbour International Airport
MIA	Miami International Airport
MZO	Sierra Maestra Airport
NBW	Guantanamo Bay Naval Base Airport
NSB	North Bimini Airport

ORD	Chicago O'Hare International Airport
PBI	Palm Beach International Airport
PHL	Philadelphia International Airport
POP	Gregorio Luperón International Airport
PSE	Mercedita International Airport
RDU	Raleigh–Durham International Airport
RIH	Scarlett Martínez International Airport
RSD	Rock Sound International Airport
RTB	Juan Manuel Gálvez International Airport
SAQ	San Andros Airport
SCU	Antonio Maceo Airport
SEA	Seattle-Tacoma International Airport
SNU	Abel Santamaría Airport
STX	Henry E. Rohlsen Airport
TAB	Crown Point International Airport
TCB	Treasure Cay Airport
TPA	Tampa International Airport
VIJ	Virgin Gorda Airport
VRA	Juan Gualberto Gómez Airport
YHM	Munro Hamilton International Airport
YHZ	Halifax Stanfield International Airport
YOW	Ottawa Macdonald-cartier International Airport
YQB	Québec City Jean Lesage International Airport
YQG	Quaqtaq Airport
YQM	Greater Moncton International Airport
YUL	Montréal–Trudeau International Airport
YWG	Winnipeg James Armstrong Richardson International Airport
YYC	Calgary International Airport
YYZ	Toronto Pearson International Airport
ZSA	San Salvador Airport

1 Introduction

The airport network of the Turks and Caicos Islands is composed of 8 different airports, 6 of them public and 2 private airports. The public airports are under the scope of the Turks and Caicos Islands Airports Authority (TCIAA), which is a corporate body created under the Turks and Caicos Islands Airports Authority Ordinance and is responsible for the control, management, operation and development of all Turks and Caicos Islands' public airports.

Out of these 6 airports, Providenciales Howard Hamilton International Airport (PLS) is the country's gateway and concentrates more than 90% of country's total traffic, while the other 5 airports only operate domestic scheduled flights and general aviation operations. These 5 airports are Grand Turk JAGS McCartney International Airport (GDT), South Caicos Norman B. Saunders Sr. International Airport (XSC), Salt Cay Henry Leon Wilson Airport (SLX), North Caicos Clifford Gardiner International Airport (NCA) and Middle Caicos Eric Arthur Airport (MDS). The two airports under private management within the Turks and Caicos Islands are Pine Cay and Ambergris Cay.

Providenciales Airport is currently undergoing a restructuring process with the intention of being granted to a private operator through a PPP (Public-Private Partnership) contract. Once this process is completed, the TCIAA will concentrate its efforts in developing the secondary airports of its network, allowing for significant developing opportunities.

Particularly at North Caicos Airport, there are currently no scheduled flights. The passengers who arrive to the island do it via charter flights and private flights, mainly from Providenciales. There exists potential to develop regular connectivity with PLS, adapting its infrastructure, complementing the often-full ferry service along with regular international flights in the mid-term, particularly to the US with routes to Florida. Achieving this positioning of the airport and the development of its air traffic is in line with the objectives of the Government of the Turks and Caicos Islands for the modernization of its airports. This would have an impact on the improvement of the country's connectivity and, in turn, on boosting its tourism, economic and social growth. And this traffic development is only possible if it is accompanied by a process of renovation and expansion of the current infrastructure.

In this context of airport development and changing environment, the TCIAA has decided to carry out a Strategic Master Plan for the entire organization, which includes de development of an individual Master Plan for each airport within its network.

Creating a Master Plan becomes an essential process to ensure coherent planning. The Master Plan is the main strategic tool to ensure the expansion of highly complex and constantly evolving infrastructures such as airports. The International Civil Aviation Organization (ICAO, Doc. 9184) agrees on the need for a Master Plan as guide for short-, medium- and long-term planning of airports that identifies expansion and investment needs.

Therefore, the main objective of the present document is to become the reference for the planning of North Caicos Airport for a 30-year time horizon. To this end, the Master Plan includes the following sections:

- **Current situation of the airport**: this section contains a detailed description and characterization of the current infrastructure, including the evaluation of the airport's main assets, the analysis of their compliance with the aeronautical regulations, as well as the determination of the maximum capacity of the existing infrastructure.
- **Market analysis and traffic projections**: this chapter includes a detailed market study reviewing the evolution of air traffic at the airport, its positioning within the country, and identification of the levers for growth in the coming years. Based on this market study, traffic projections are developed for the airport for the next 30 years, evaluating both the annual traffic growth potential and peak hour design parameters, which are key to the subsequent definition of investment needs.
- **Infrastructure requirements and investment plan**: this section comprises a detailed capacity-demand analysis to identify the expansion needs in the different airport subsystems to be able to meet the expected traffic demand. It also includes the associated investment plan, not only the expansion projects identified, but also the replacement investments or major maintenance of the infrastructure.
- **Long-term development and land reservation**: this section shows the very long-term development potential of the airport, identifying the main areas that may be subject to expansion in the future and therefore should be reserved to ensure the airport's growth.
- **Collection of Drawings**: the last section includes the main drawings of the airport, both for its current situation as well as for the airport's future development.

2 Current situation of the airport

The objective of this section is to perform a detailed characterization of the current infrastructure existing at the airport, to know the starting point for the subsequent definition of the airport's infrastructure development plan. To this end, it includes:

- General description of the airport and its main subsystems, including airfield, aircraft parking apron, passenger terminal and other facilities.
- Evaluation of the current conditions of these facilities and their compliance with the regulatory reference framework, as well as the general environmental conditions at the airport.
- Definition of the estimated capacity of the main airport subsystems.

To facilitate its understanding, the chapter is structured by airport subsystem, so that all the analyses referring to the same subsystem are included in the same subchapter.

2.1 General considerations

2.1.1 Airport location

The North Caicos Airport (IATA code: NCA; ICAO code: MBNC) is strategically placed on the island in the middle eastern part, close to the main settlement of Major Hill and not far from Bottle Creek village. North Caicos is known as the Garden Island due to the high levels of rainfalls. Its proximity to Pine Cay can foster the expansion and development of North Caicos Airport as an important connection for business jets visitors.

Figure 1. North Caicos Airport location

Source: Google Earth, ALG Analysis

2.1.2 Airport general design

The North Caicos Airport is a one-runway (RWY 08 and RWY 26) airport, allowing code A aircraft operations. All buildings and facilities in use are located in the southeast part of the airport. However, the ARFF building, and a currently unused apron are located in the north part of the runway.

The in-use commercial apron, with 3,700 m^2, counts with 4 to 6 non-marked stands for light code A aircrafts. The commercial terminal counts with 100 m^2. With respect to parking lots, there is a public car parking with no markings, with enough capacity for current demand.

The airport borders in the west with a salina, whereas in the east with a small settlement.

The aerodrome reference temperature is 32 Celsius degrees, with an elevation of 12 feet (3.6 meters) above mean sea level. The airport operates between 10:00 UTC (6:00 local time) and 22:00 UTC (18:00 local time). Regarding flight operations, flights are operated with non-precision visual flight rules (VFR).

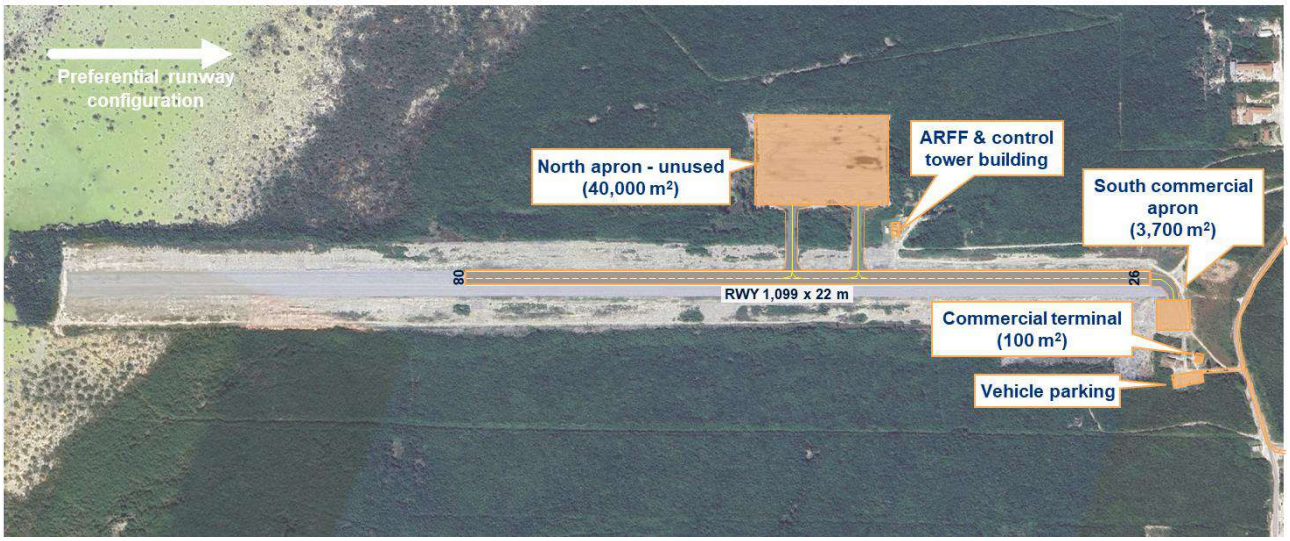


Figure 2. General view of North Caicos Airport

Source: Google Earth, TCI AIP, ALG Analysis

2.2 Airfield

2.2.1 General description

The airfield is composed by a unique asphalt runway (08/26) with the following dimensions:

- Runway 08: 1,099m x 22m (TORA, TODA, ASDA, LDA). Preferential runway configuration.
- Runway 26: 1,099m x 22m (TORA, TODA, ASDA, LDA).

The airport does not have declared strip nor RESAs. However, current declared runway is part of a larger paved area of 2,000m x 45m, and the aerodrome has a 150m width strip free of obstacles (although not declared). The airfield has three taxiways (the one connecting the runway with the commercial terminal, and two connecting the runway with the north apron) that code-A aircraft can make use of.

Figure 3. Airfield dimensions

Source: Google Earth, ICAO Annex 14, TCI AIP, ALG Analysis

2.2.2 Current runway, taxiway, and apron conditions

Runway and taxiway conditions were analyzed considering AIP data and the observations made by the project team during the site visit in March 2024. The conclusions about the runway are mostly positive: The runway pavement is in an overall good state given that it has a strong foundation (only part of the paved area is used) and it is currently sub-utilized, although the painting is in poor condition. Furthermore, the declared runway spans 1,099 x 22 m, but it sits in a much wider paved area (approximately 2,000 x 45 m), which, if properly adapted, could handle narrowbody code-C aircraft in the future. The possibility of handling code-C aircraft is also supported by the pavement strength (PCN) of 43/F/A/X/U.

Minor cracks may be seen along the runway, along with vegetation growing through some of these (mainly around the edges).

There is a taxiway connecting the runway to the apron, which has a lower pavement strength and no markings on it, as does the apron, which has an area of 3,700 m^2.

Figure 4. Runway, taxiway and apron images obtained during the site visit

Source: TCIAA, TCI AIP, ALG Analysis

Currently the airfield handles light code A aircraft, given its 22m-wide runway and its commercial apron; in this sense, distances currently comply with ICAO guidelines, although it has no declared strip or RESAs.

2.2.3 Compliance with ICAO regulations

The airfield infrastructure compliance with ICAO requirements is key to guarantee operational safety within the airport. For this analysis, both the observations obtained during the site visit and the ICAO Annex 14 rule were considered.

As mentioned before, currently the airfield handles light code A aircraft, given its 22m-wide runway and its 3,700 m^2 apron. In this sense, distances currently comply with ICAO guidelines, although it has no declared strip or RESAs. A 75m cleared area on both sides of the large, paved area is available to develop minimal investments to certify the aerodrome as a 4C ICAO-compliant runway. However, declaring RESAs would use some of the paved area along the runway edges, and the current (south) apron would need to be relocated to the north apron.

2.3 Terminal building and other areas

2.3.1 General description of the terminal building

The current terminal is the old immigration building, which was refurbished into a 100 m^2 terminal, which was completed in 2023, although it is not currently operational. For both departures and arrivals, the same entrance/exit of the apron, as well as the same exit/entrance of the terminal building is used.

The building sits on an area adjacent to the current apron and has a direct walkway to it. The building houses a single space with seating for around 30 passengers and 2 desks; no security or other equipment was observed within the building.

2.3.2 Current conditions and operations of the terminal building

The main entrance of the building does not have a paved walkway, and the facility's surroundings have growing vegetation that attracts mosquitoes, posing a potential threat to passengers eventually using the terminal.

The main entrance of the terminal, with vegetation attracting mosquitoes, posing hazards to passengers

The surrounding area of the new terminal building lacks paved walkways for departing passengers

Aerial view of the terminal building area, which is adjacent to the existing apron

The interior of the terminal building has 2 desks and seating for over 30 passengers

Figure 5. Terminal images

Source: ALG Analysis

2.3.3 Access and vehicle parking areas

The access to the terminal building is performed from the east part of the airport. Regarding vehicle parking, there are not marked parking spaces in the parking lot. However, there is enough space for cars to park there.

2.3.4 Other areas

Other areas include the Aircraft Rescue and Fire Fighting facility and the control tower. During the visit to the airport, the state of each facility, building and equipment was assessed.

A brand-new ARFF facility and control tower building, which sit adjacent to the north apron, were commissioned in 2023, although these have not yet entered service. The entire facility has an area of over 200 m^2 and is fully equipped with both ATC equipment and ARFF equipment (excluding the fire truck).

The airport is RFF category 2, and is unable to upgrade beyond, as per the AIP. The Rosenbauer fire truck (757 liters water, 94 liters foam, 227 dry chemical) is currently stored outside the airport.

Figure 6. Current state of ARFF and control tower facilities and equipment

Source: ALG Analysis

2.4 Current environmental situation

During the site visit, the project team observed areas with abandoned machinery and equipment around the airport. All this due to poor waste disposal practices following the construction, in addition to dangerous materials not properly stored. Besides, the operational perimeter is non-fenced, which may lead to hazards and operational risks. In addition, vegetation control must be implemented around the terminal building to reduce potential health threats.

3 Market analysis and traffic projections

The objective of this chapter is to analyze the current situation of the air transport market and the tourism sector in Turks and Caicos and the region influenced by North Caicos Airport (NCA), in order to establish the necessary basis for determining the expected air traffic (demand) at the airport over the next 30 years. Thus, it includes:

- The current context of the air transport market in Turks and Caicos in general and North Caicos Airport in particular.
- The characterization of tourism in the country and its impact on the airport to define its strategy and development potential.
- Passenger traffic forecasts and annual aircraft movements for the next 30 years.
- Projections of peak hour design parameters, key for the subsequent definition of the infrastructure development plan.

3.1 Air transport market and tourism

3.1.1 Air transport market in Turks and Caicos

Turks and Caicos is located in the Caribbean region, specifically in the Lucayan Archipelago. Within the Caribbean, it ranks in the mid-low range of the top 20 destinations with 1.8 million seats, with an increase of +11% compared to 2019. The majority of its traffic is international, primarily from North America and the Caribbean, with relatively low domestic traffic.

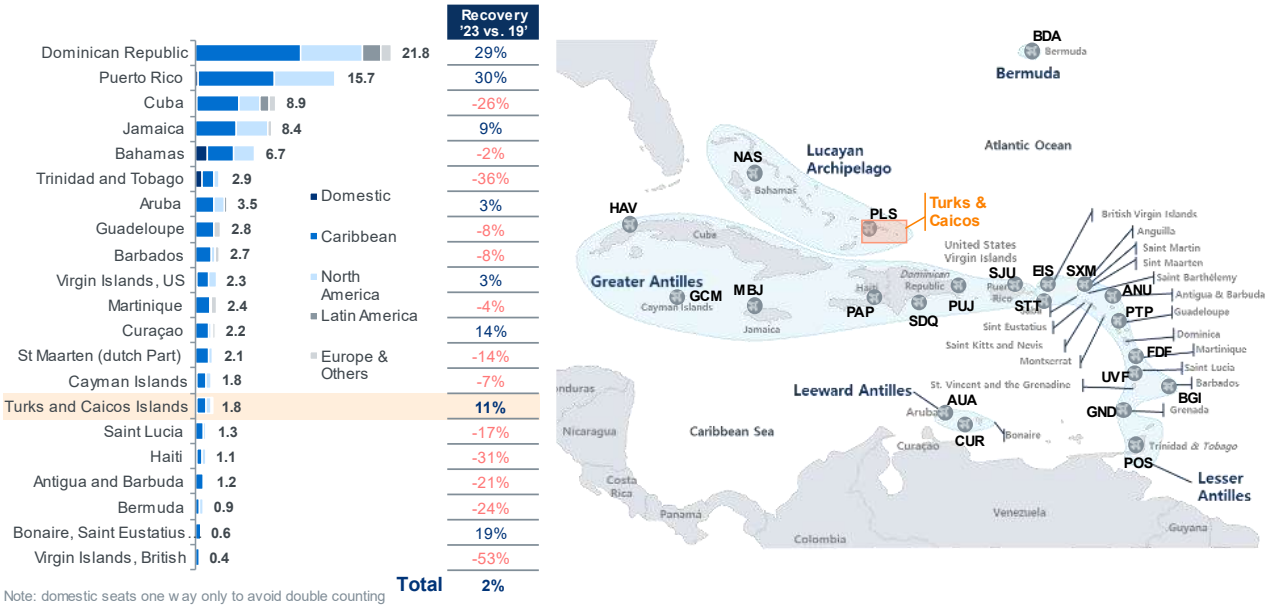


Figure 7. Air traffic of the Caribbean region by country (Mseats, 2023)

Source: OAG, ALG Analysis

The Caribbean region surpassed pre-COVID capacity levels in 2023, with an increase of +3.9%, led by the Dominican Republic and Puerto Rico. Turks and Caicos was among the top five countries with the most significant growth compared to 2019. This capacity recovery in the Caribbean was driven by traffic from North America and Latin America, where the market is predominantly controlled by foreign carriers, especially full-service carriers.

In contrast, the intra-Caribbean and domestic markets remain below 2019 levels, following a consistent trend over the past decade, with a -0.8% CAGR from 2013-2019. Factors contributing to this trend include the economic weakness of certain countries in the region, the absence of low-cost carriers, lack of competition, high fees and charges, and the use of turboprops with higher unit costs than larger aircraft.

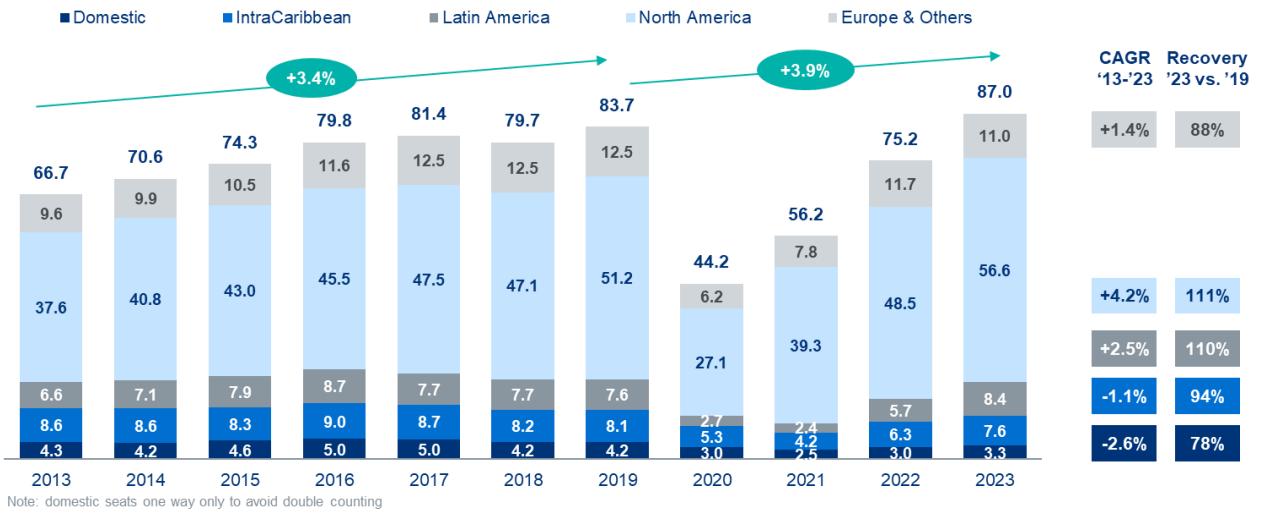


Figure 8. Historical Caribbean seat capacity evolution (Mseats, 2013-2023)

Source: OAG, ALG Analysis

The Turks and Caicos Islands Airports Authority (TCIAA) manages 6 of the country's 8 airports, including five secondary airports and Providenciales International Airport (PLS). Providenciales serves as the primary gateway and is the only airport with scheduled international commercial services, currently undergoing a PPP process.

- **Providenciales (PLS):** Located on Providenciales Island, it is the primary international gateway and the busiest airport in Turks and Caicos, accommodating a wide range of direct flights from various cities across North America and connection with Europe. Providenciales airport handled over 90% of the total passenger traffic in Turks and Caicos in 2023.
- **Grand Turk (GDT):** As the second largest airport in the territory, it is located 1.6 km south of Cockburn Town and handled over 90k scheduled passengers in 2023.
- **South Caicos (XSC)**: This airport, featuring a 1,829-meter asphalt runway, handled over 23k passengers in 2023, with scheduled flights from Providenciales and Grand Turk. Its terminal was inaugurated in Aug-23.
- **Salt Cay (SLX):** Serving Salt Cay Island, this airport is the 4th busiest in the country, handling approximately 900 passengers in 2023. It primarily connects to Grand Turk.
- **North Caicos (NCA):** Located adjacent to Major Hill Settlement and Bottle Creek Village, North Caicos airport caters to domestic charters and private flights, with plans for a boutique terminal but no commercial scheduled traffic as of today.
- **Middle Caicos (MDC):** This airport has been inactive since the construction of the North Caicos – Middle Caicos causeway, which began in 2007. It features a small terminal building and a 750-meter paved runway.

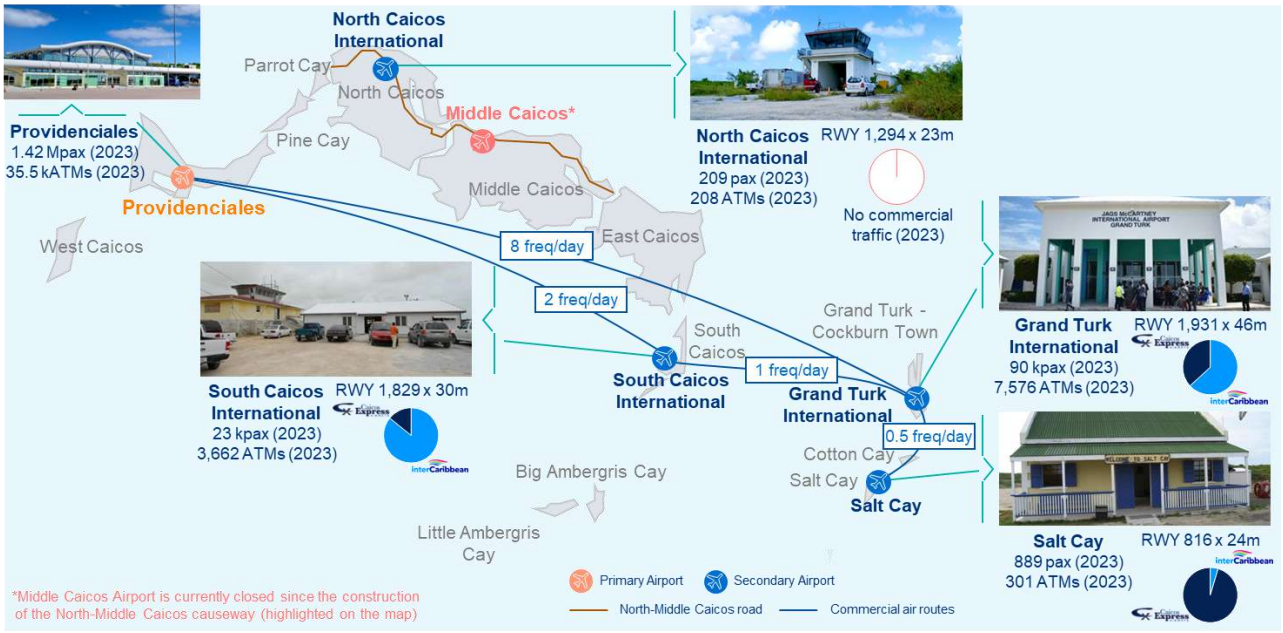


Figure 9. Turks and Caicos airport network characterization

Source: TCIAA, CAPA, OAG, ALG Analysis

In 2023, Providenciales International Airport flew to up to 45 destinations, making it the only airport in Turks and Caicos with international connections, as mentioned earlier. This includes 16 routes to North America and 23 routes to the Caribbean, giving the country the best intra-Caribbean connectivity in the region. The airport also operates three domestic routes to Grand Turk, South Caicos, and occasionally to Salt Cay. While international connectivity relies on foreign airlines, particularly USA carriers and InterCaribbean Airways, domestic connectivity is maintained by InterCaribbean Airways and Caicos Express.

Of the other TCIAA 5 airports, only South Caicos, Grand Turk, and Salt Cay operate scheduled domestic flights, while Middle Caicos remains closed. These domestic flights connect with Providenciales and include a few cross-island routes, such as Grand Turk to South Caicos and Grand Turk to Salt Cay.

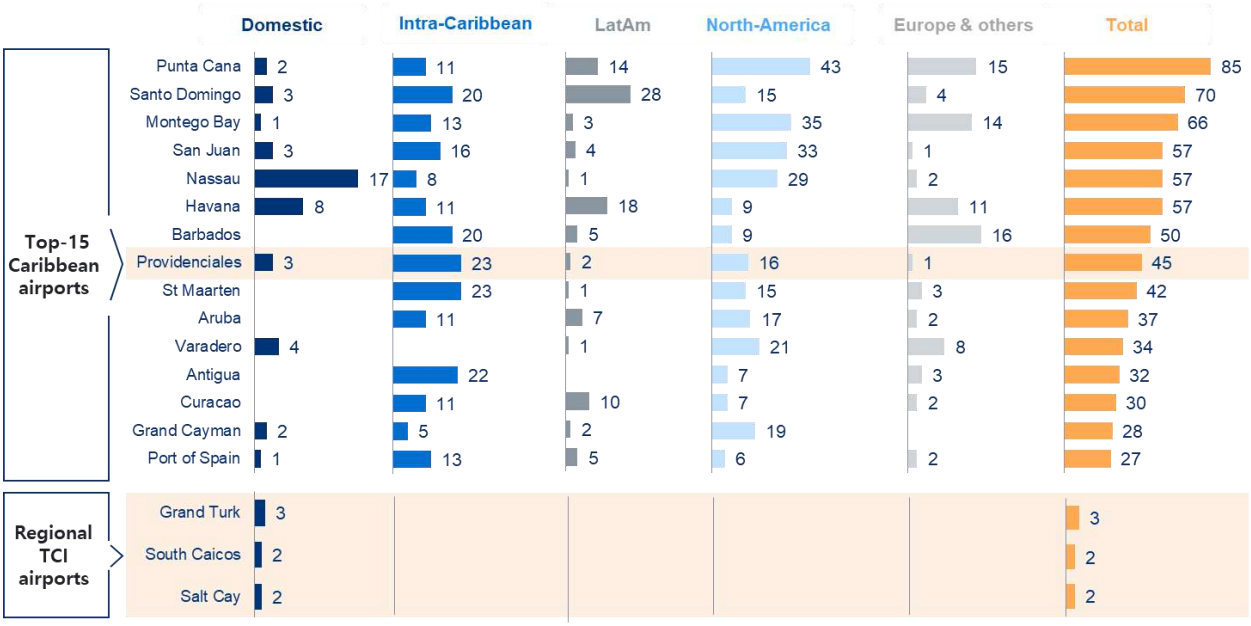


Figure 10. Connectivity at the Caribbean airports (# destinations, 2023)

Source: OAG, ALG Analysis

Turks and Caicos has demonstrated a strong post-pandemic recovery in seat capacity, surpassing 2019 traffic levels and reaching 1.93 million seats. From 2013 to 2023, the compound annual growth rate (CAGR) was 5.5%, driven mainly by international traffic, which has nearly doubled, and Caribbean traffic, which has almost tripled.

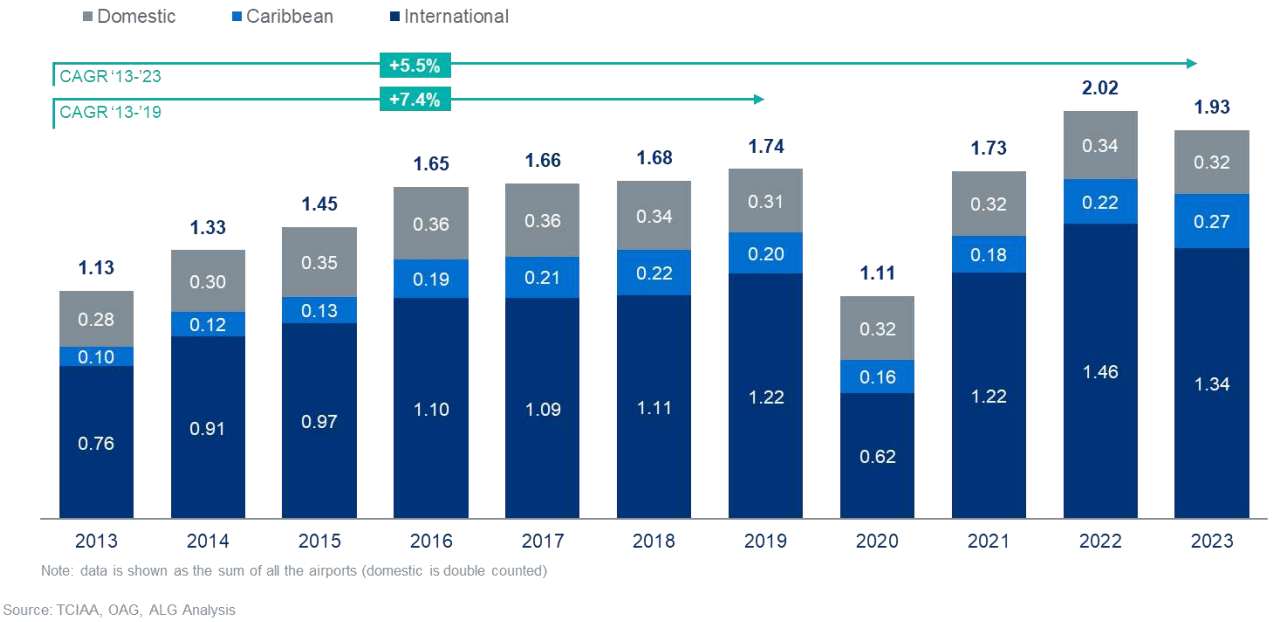


Figure 11. Evolution of seat capacity in Turks and Caicos (Mseats, 2013-2023)

Source: OAG, ALG Analysis

In terms of passenger traffic, it has grown at a slightly higher rate than seat capacity, with a CAGR of 6.0% from 2013 to 2023, reaching a peak of 1.54 million passengers in 2023. More than 90% of these passengers are handled at Providenciales, which saw almost 1.42 million passengers, followed by Grand Turk (90k pax) and South Caicos (23k pax). The other two airports with passenger traffic, Salt Cay and North Caicos, handled fewer than a thousand passengers each one.

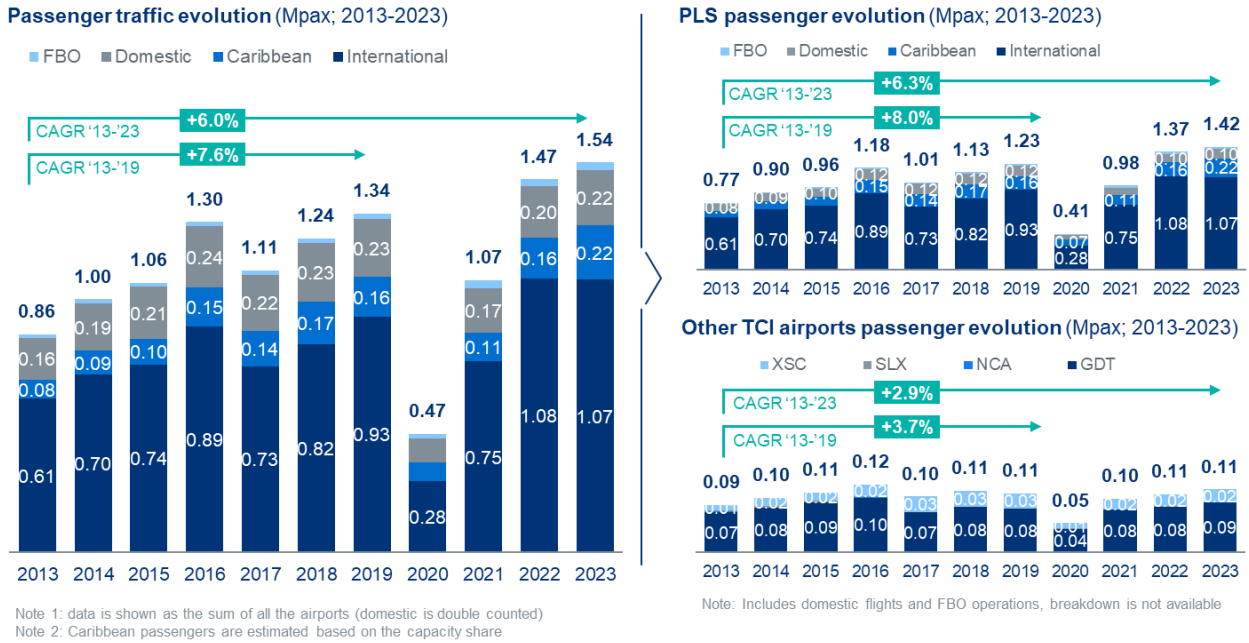


Figure 12. Evolution of passenger traffic in Turks and Caicos (Mpax, 2013-2023)

Source: TCIAA, OAG, ALG Analysis

This slightly higher growth rate in passenger traffic compared to seat capacity in recent years has enabled Turks and Caicos to recover and even surpass pre-pandemic load factors. In 2023, the overall load factor reached 78%, higher than the 76% in 2019. This improvement was driven primarily by international routes, which achieved an 80% load factor, while domestic routes had a load factor of 69%.

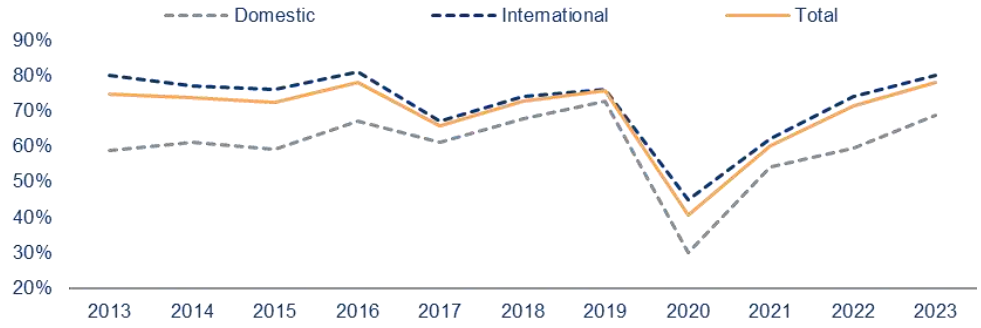


Figure 13. Evolution of load factor in Turks and Caicos (percentage, 2013-2023)

Source: TCIAA, OAG, ALG Analysis

3.1.2 Tourism in Turks and Caicos

International traffic is mainly driven by tourism, with approximately 49 million international tourists visiting the Caribbean region in 2019, of which Turks and Caicos accounted for around 3.3%.

Regarding tourism, the Caribbean has become a top destination, benefiting from its favorable climate and beaches. Turks and Caicos received 1.60 million visitors in 2019, reflecting an increase in its market share over the past few years. This growth underscores the rising popularity of Turks and Caicos as a preferred travel destination.

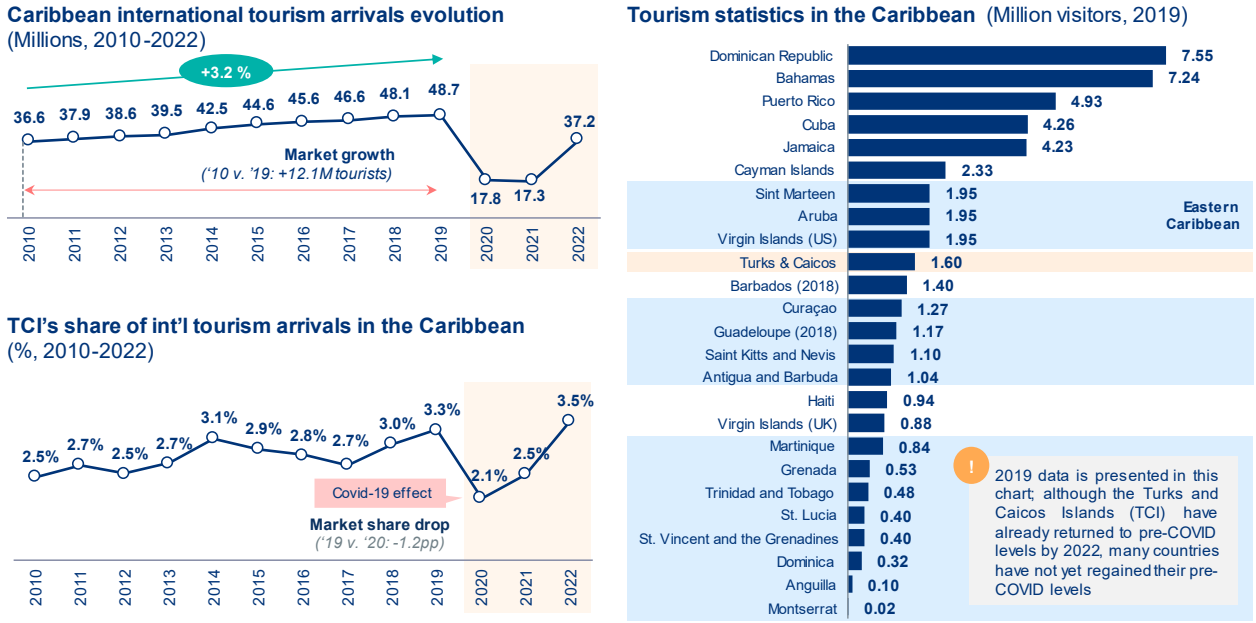


Figure 14. Caribbean Tourism sector

Source: World Tourism Organization (2023), World Bank, ALG Analysis

Turks & Caicos, with an area of 430 km² and a population of 49,300, is a constituent country of the British Overseas Territory located in the Caribbean Sea. The economy is primarily based on tourism, positioning Turks & Caicos as a high-yield tourist market among Caribbean destinations. In 2023, the GDP per capita was 23.9 kUSD, with over 90% of the GDP generated by the services sector. The islands attract almost 550,000 overnight visitors annually, highlighting their growing popularity as a premier travel destination.

Country	Surface (km²)	Population ('000)	GDP/ capita	Overnight visitors	Rooms	Tourism Expenditure (MUSD)	Diaspora ('000)	Top 3 Airlines	Positioning
Dominican Rep.	48,670	11,333	8,884	7,163,400	83,557	8,406	604	jetBlue, Delta, American Airlines	Mass tourism, VFR
Puerto Rico	8,870	3,260	28,976	3,273,100	14,488(*)	3,330	247	jetBlue, spirit, Frontier	Mass tourism, VFR
Jamaica	10,990	2,826	5,359	2,478,400	28,955	3,621	24	jetBlue, Delta, American Airlines	Mass tourism, VFR
Cuba	109,880	11,194	7,544	1,613,400	75,044	1,037	3	sunwing, Air transat, American Airlines	Mass tourism, VFR
Bahamas	13,880	413	31,002	1,452,400	15,724	3,515	64	jetBlue, bahamasair, American Airlines	Mid-range tourism, Niche, high-yield
Aruba	180	106	33,103	1,101,000	11,929(*)	2,303	54	jetBlue, United, American Airlines	Mid-range tourism
Virgin Isl. (U.S.)	346	106	38,454	684,800(*)	2,994(*)	-	-	spirit, Delta, American Airlines	Niche, high-yield
Guadeloupe	1,628	396	27,115	650,000(*)	5,443(*)	-	90	Air France, Corsair, Air Caraïbes	Mid-range tourism
Martinique	1,128	367	25,279	556,000	4,200	-	68	Air France, Corsair, Air Caraïbes	Mid-range tourism
Barbados	430	282	17,004	539,700	6,564(*)	929	35	Virgin Atlantic, Caribbean Airlines, InterCaribbean	Mid-range tourism
Curacao	444	192	13,771	489,600	11,000	988	57	KLM, TUI fly, American Airlines	Mid-range tourism
Turks & Caicos	**430**	**49**	**23,935**	**549,161(*)**	**4,647**	**877**	**26**	United, InterCaribbean, American Airlines	Niche, high-yield
Sint Marteen	34	44	35,873	373,000	3,368	957	29	Delta, Winair, American Airlines	Niche, high-yield
St. Lucia	620	180.25	10,734	356,000	4,767	1,080	8	British Airways, jetBlue, American Airlines	Mid-range tourism
Cayman	260	69	77,974	284,300	7,263(*)	39(*)	29	United, Cayman Airways, American Airlines	Niche, high-yield
Antigua Barbuda	440	94	15,702	265,100	3,816(*)	773	29	British Airways, InterCaribbean, American Airlines	Mid-range tourism
Trinidad Tobago	5,130	1,535	14,742	226,500	7,731	324	78	Caribbean Airlines, British Airways, jetBlue	Mid-range tourism, VFR
Virgin Isl. (UK)	153	31	31,738(*)	173,000	2,240(*)	-	-	Silver Airways, Cape Air, InterCaribbean	Niche, high-yield
Haiti	27,750	11,725	1,152	148,000(*)	1,814(*)	73	19	jetBlue, spirit	VFR
Bermuda	53	64	111,865	145,900	1,720	143(*)	-	jetBlue, British Airways, American Airlines	Niche, high-yield

(*) Last available year

Visitors Profile: Mass tourism; Mid-range tourism; Niche, high-yield; VFR

Figure 15. Caribbean Countries Positioning Analysis (2023)

Source: UNWTO, Oxford Economics, World Bank, ALG Analysis

Turks and Caicos Islands saw an estimated 1.46 million arrivals in 2023, with 520,000 of these being stayover visitors traveling by air. Air visitor arrivals have experienced moderate growth in recent years, with a compound annual growth rate (CAGR) of 4.1% from 2011 to 2019. Although the COVID-19 pandemic caused a significant drop of 77% in arrivals, the subsequent years saw a remarkable recovery of 82% in 2022. Most air travelers, over 90%, originate from the USA and Canada, while Europe accounts for less than 5% of visitors.

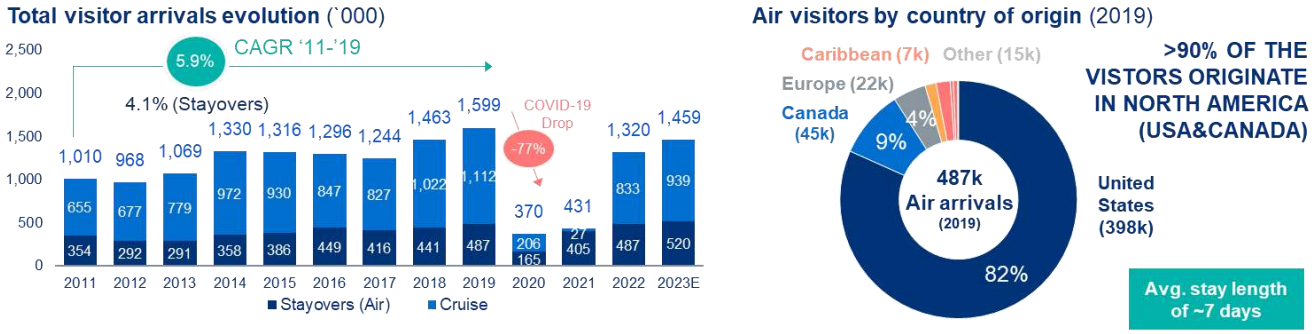


Figure 16. Visitor arrivals to Turks and Caicos

Source: Turks & Caicos Islands Tourist Board, TCIAA Brochure Investment Opportunities 2022-23, National tourism strategy and implementation plan for Turks & Caicos, ALG Analysis

Regarding the seasonality of visitors, September and October are the low season due to hurricanes. Air visitor numbers peak in December and from March to July, while cruise visitors see their highest numbers in December. Cruise arrivals, concentrated in Grand Turk, exhibited a stable monthly pattern before COVID-19, and it is expected to reach 1.1 million cruise passengers in 2024.

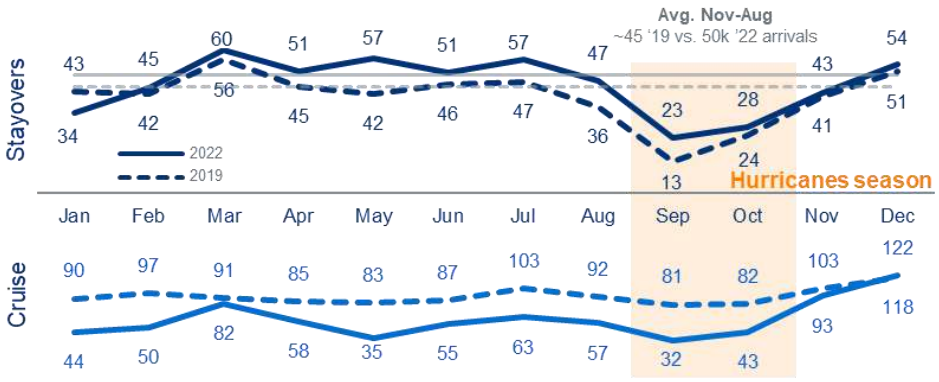


Figure 17. Monthly visitor arrivals evolution (thousands)

Source: Turks & Caicos Islands Tourist Board, TCIAA Brochure Investment Opportunities 2022-23, National tourism strategy and implementation plan for Turks & Caicos, ALG Analysis

The destination appeals to high-yield, high-end luxury markets, as well as significant mid-range and niche markets, attracting a diverse range of travelers. Business class travelers also contribute to the high yield. Visitors from the USA and Canada typically stay for an average of 7 days, those from Latin and South America for 6 days, and tourists from the UK and Europe for around 10 days. The main reasons for travel include business investment, beach experiences, diving, water sports, honeymoons or romantic getaways, attending festivals, golfing, and ecotourism. Visitor arrivals have been relatively consistent since 2018, with the exception of a decline in September and October due to the peak hurricane season. The destination is gaining significant popularity, establishing itself as a top destination in the Caribbean, with 98% of visitors likely to recommend it.

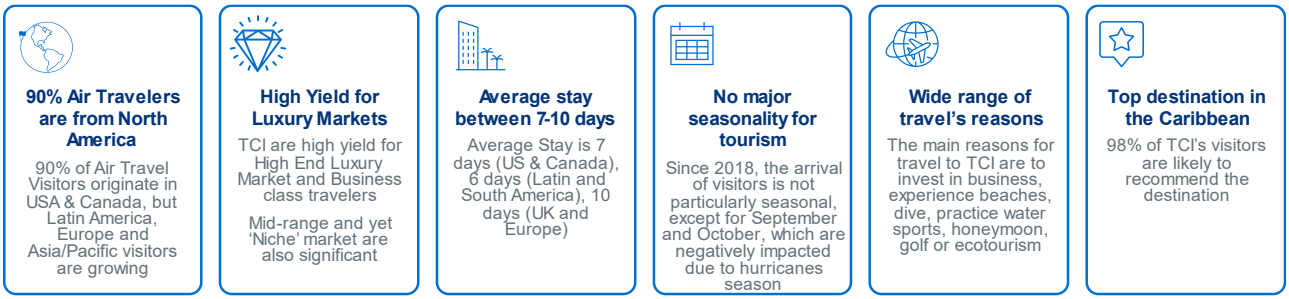


Figure 18. Turks and Caicos passenger profile

Source: National tourism strategy and implementation plan for Turks & Caicos, ALG Analysis

Each island in Turks and Caicos boasts a unique tourist profile, offering a variety of experiences that cater to diverse preferences:

- Providenciales serves as the gateway, renowned for its premium Grace Bay Beach and luxury accommodations, capturing the majority of international arrivals by air. This island is the hub of tourist activity, offering high-end resorts, fine dining, and various water sports.
- Grand Turk captivates visitors with its rich history and top-tier scuba diving opportunities. As the sole cruise port in the archipelago, it attracts significant cruise traffic, showcasing colonial architecture, historical landmarks, and vibrant marine life.
- South Caicos is known for its vibrant marine ecosystem and traditional fishing communities. This island presents a strategic opportunity for sustainable tourism, emphasizing eco-friendly practices and preserving local traditions, making it an ideal destination for environmentally conscious travelers.
- The quieter islands like North and Middle Caicos offer unique attractions for those seeking serene beauty, rich marine life, and authentic local experiences. These islands provide a tranquil escape with stunning landscapes, hidden beaches, and opportunities to explore the local culture and nature.

This diverse destination caters to luxury seekers, adventure enthusiasts, and cultural explorers alike, making Turks and Caicos a unique jewel in the Caribbean.

Compared to more developed tourist regions like Cancun or Montego Bay, Turks and Caicos has a lower overall hotel density. The country has a hotel density of 19 rooms per km², with nearly 87% of the hotel capacity concentrated in Providenciales. This brings Providenciales closer to typical values seen in other established regions, which range between 60-80 rooms/km².

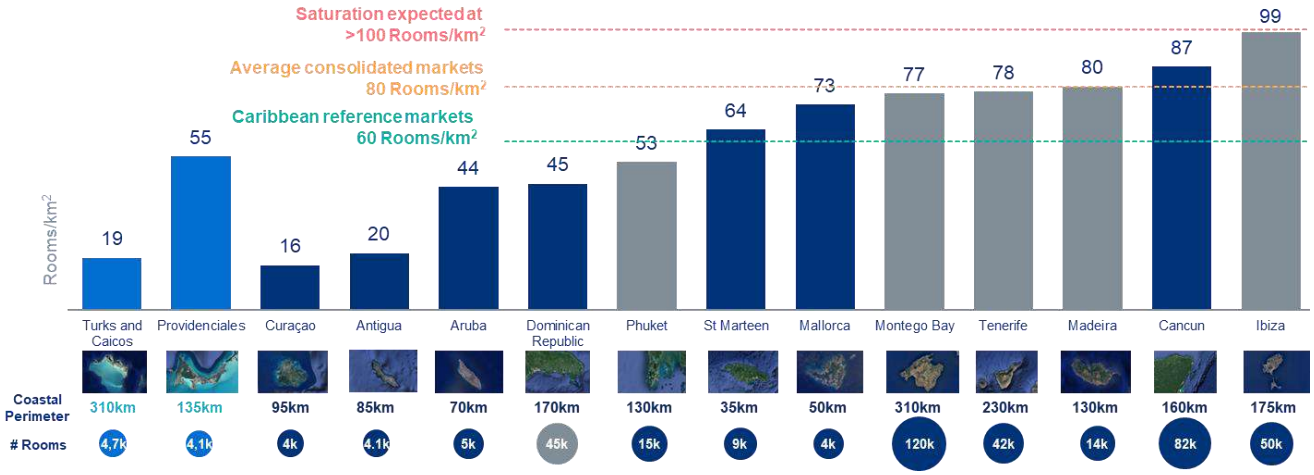


Figure 19. Hotel rooms per square kilometer at touristic destinations

Source: National tourism strategy and implementation plan for Turks & Caicos, ALG Analysis

This disparity highlights the potential for further tourism infrastructure development in Turks and Caicos. To foster balanced growth, it is essential to focus on developing infrastructure in islands other than Providenciales. This strategy will not only support the expansion of hotel capacity but also drive the development of airports and other essential facilities across the archipelago.

Given the current state of the tourism ecosystem in Turks and Caicos Islands (TCI), the National Tourism Development Strategy seeks to establish quantitative objectives for up to 2032, focusing on four key aspects: increasing the number of visitors and tourism revenue, enhancing the visitor experience, and expanding hotel capacity. The anticipated increase in hotel capacity is based on information gathered from on-site visits in the country.

Figure 20. Objectives of the National Tourism Development Strategy (2032)

Source: Turks & Caicos Islands Tourist Board, National tourism strategy and implementation plan for Turks & Caicos, ALG Analysis

Additionally, the tourism development strategy also aims to achieve the following objectives:

- Enhance connectivity from Providenciales to all other tourism destinations in the country, with a particular focus on improving air connectivity.
- Diversify the current range of tourism products and strengthen existing offerings to attract a broader range of tourism segments and markets.
- Consolidate the primary source markets for tourism demand, namely the USA, Canada, and the UK, while expanding market share in new potential markets across Europe (Germany, Italy, France, Spain, Benelux, etc.), Latin America (Brazil, Colombia, Chile, Argentina, etc.), and the Caribbean region.
- Improve the quality of working conditions and increase job opportunities for the TCI population.

3.1.3 North Caicos Airport - air transport market and tourism

North Caicos is the northernmost island within the country, characterized by its reserves of natural freshwater ponds. The island, sparsely populated, is the second largest island in the archipelago, with a collective landmass of 116 km². There is not public transportation nor taxi stand at the airport.

The airport is not connected with any scheduled frequencies with any other airports in the country. In 2023, North Caicos reached 200 domestic passengers, not surpassing pre-pandemic levels, and still below the peak of 2014, with 1,000 passengers.

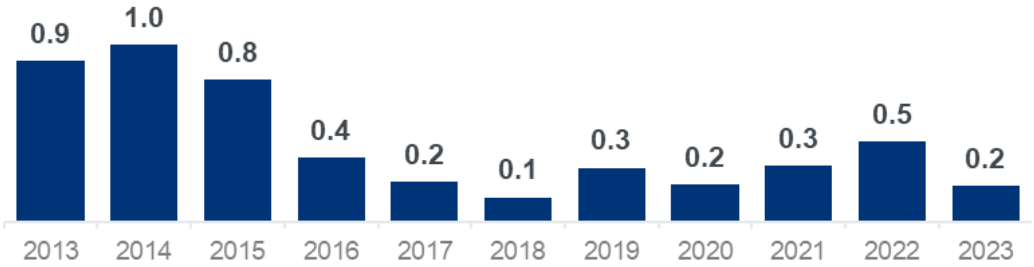
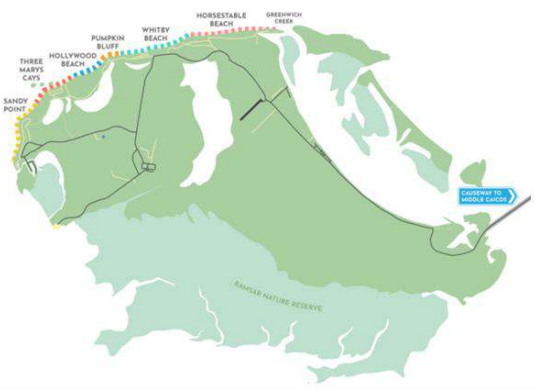


Figure 21. Evolution of passenger traffic in North Caicos (kpax, 2013-2023)

Source: TCIAA, CAPA, OAG, ALG Analysis

Furthermore, North Caicos offers a variety of tourist attractions:

- Beaches: Sandy Point Beach is the best beach on the island, but Whitby Beach, Three Mary Cays and Horsestable Beach, with Greenwich Creek, a sandy inlet channel, are also great attractions.
- Garden Island: Due to the higher levels of rainfall, the island has the reputation of being the Garden Island of TCI and supports the greatest reserves of natural freshwater ponds.
- Attractions: Wade's Green is the best-preserved Loyalist-era plantation in TCI. Cottage Pond is a natural blue hole pond, with a depth of 122 m. And Caribbean flamingos can be seen in Flamingo Pond.



Quick Facts	
Population	~1.5k (2023 estimated)
Hotel rooms	124 (33 hotels)
Best Beach	Sandy Point Beach
Highest Point	Monkey Hill (30 m)
Most popular attraction	Wade's (Cotton plantation)
Natural Hotspot	Cottage Pond

Figure 22. Main tourist facts in North Caicos (2024)

Source: Visit Turks & Caicos Islands, TCIAA, ALG Analysis

North Caicos has established itself as a popular tourism destination with ongoing high-valued investments of luxury resorts and villas. In the following 2 years, it is expected that the accommodations in the island will increase by 15-20 rooms. In addition, in the mid-term there are expectations of 2 projects of more than 200 rooms. Moreover, 2$M will be spent on roads for Promenade and the construction of the Bottle Neck Creek village infrastructure (one million each project).

To the west of North Caicos island, Pine Cay is found, home to the private retreat of Pine Cay Resort. It offers a tranquil and exclusive getaway, perfect for high-end travelers seeking privacy and luxury, with activities such as spa services and various water sports. Boat connectivity from North Caicos could enhance accessibility to Pine Cay, especially for jets that may face limitations due to Pine Cay's runway constraints and PLS airfield congestion.

It is expected that the Pine Cay Resort (formerly the Meridian Club) will be expanded with extra private rooms. In summary, the development of North Caicos can be fostered by the demand from business jets visitors to Pine Cay.

Figure 23. Pine Cay map and location

Source: Google Earth, Visit Turks & Caicos Islands, pinecay.com, TCIAA, ALG analysis

Based on the performance of other tourism-focused secondary airports, North Caicos shows certain potential to improve its connectivity within the country, specially developing a regular connection to Providenciales, and develop seasonal connectivity to the US, where it currently does not have scheduled regular flights. Establishing connections to the US would open up a major market for North Caicos.

Country	Airport	Seat Capacity (Mseats, 2023)	Destinations (# destinations, 2023)						Other		
			Domestic	Intra - Caribbean	Latin America	North America	Europe & Others	Total	Island Population (k, 2023)	#rooms	Main Airlines
Honduras	RTB	0.37 0.33 0.71	5	-	3	9	-	17	110.0	3,402	
Bahamas	FPO	0.32 0.23 0.55	1	-	1	7	1	10	47.5	1,694	
Bahamas	MHH	0.18 0.20 0.38	2	-	-	8	-	10	16.6	1,818	
Bahamas	GGT	0.15 0.22 0.37	3	-	-	5	-	8	7.3	826	
Bahamas	ELH	0.1 0.2 0.30	3	-	-	6	-	9	9.2	645	
Cayman Islands	CYB	0.14	2	-	-	1	-	3	2.0	268	
Turks & Caicos	GDT	0.13	3	-	-	-	-	3	7.2	155	
Panama	RIH	0.07	-	-	-	3	-	3	267.0	2,200	
Turks & Caicos	XSC	0.03	2	-	-	-	-	2	2.0	87	
British Virgin Islands	VIJ	0.02 ■DOM ■INT	1	2	-	-	-	3	4.5	732	
Turks & Caicos	NCA	< 0.5k Room for growth	< 0.5k	-	-	-	-	-	1.5	124	-

Figure 24. Benchmark of North Caicos vs. tourism-focused secondary airports

Source: OAG, Oxford Economics, UNWTO, ALG Analysis

Turks and Caicos aspires to develop its tourism industry to position itself alongside countries that already attract American tourists to their secondary airports, such as the Bahamas, Cuba, the Cayman Islands, and

the US Virgin Islands. In this context, Turks and Caicos should differentiate itself from countries like Antigua and Barbuda, the UK Virgin Islands, or Curaçao, which primarily attract tourists through their main gateways.

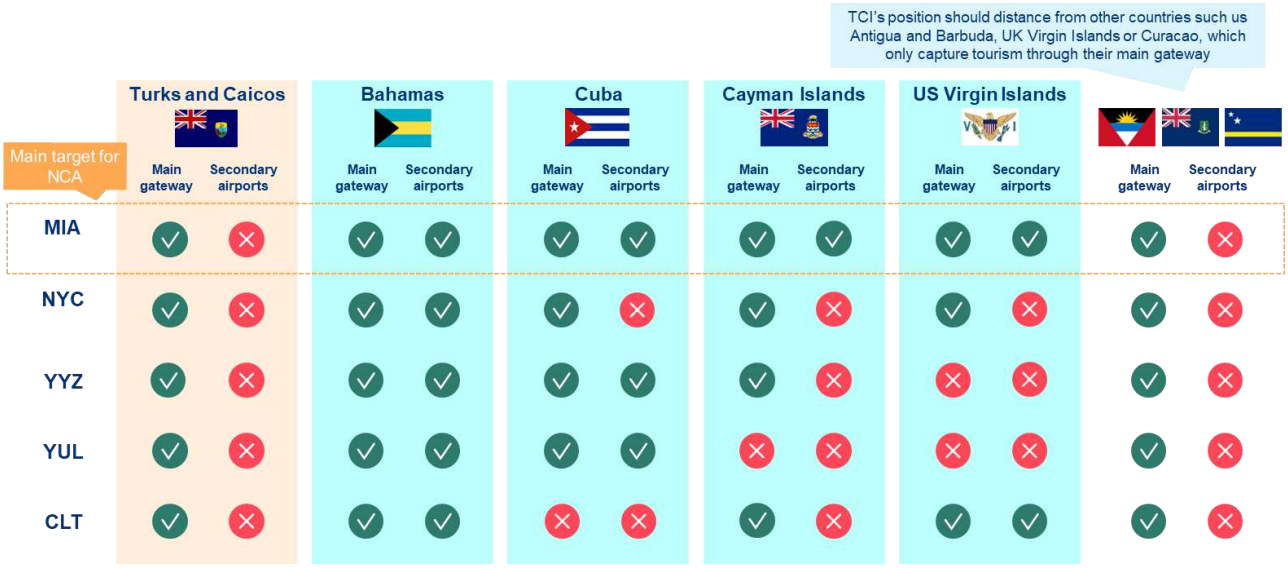


Figure 25. Main gateways and secondary airports connectivity

Source: OAG, Oxford Economics, UNWTO, ALG Analysis

Currently, the main obstacle for an international traveler to reach North Caicos, primarily from North America, is the connection through Providenciales, as North Caicos does not have any international scheduled commercial routes, nor domestic scheduled routes, forcing the tourists to reach the island in a charter flight or by ferry. This can lengthen the journey and add the inconvenience of a layover in PLS, which can be particularly troublesome during peak times and certain days of the week. This issue is similar if the visitor's destiny is Pine Cay.

As presented through the document, despite North Caicos Airport limited infrastructure, the island has the potential to develop regular connectivity to PLS to facilitate tourist transfers, complementing the often-overfull ferry service.

In addition, the emergence of new luxury resorts in the area, in addition to the proximity to established ones like Pine Cay, could foster a significant volume of international private flights managed by an FBO. In parallel, driven by the expectations of hotel development, there is an opportunity to develop international traffic that could lead to the establishment of seasonal flights to the US, particularly with routes to Florida, operated by regional aircraft.

Additionally, boosting its domestic connectivity with PLS and attracting international charters and private flights is essential to drive demand and the local economy of the island.

3.2 Traffic forecast for North Caicos Airport

3.2.1 Traffic forecast methodology

The methodology for passenger traffic projection is based on a combination of a long-term macroeconomic top-down projection and short to mid-term adjustments made at an airline-route level (bottom-up projection). This approach considers the development of new routes at the airport in accordance with the previously defined strategy.

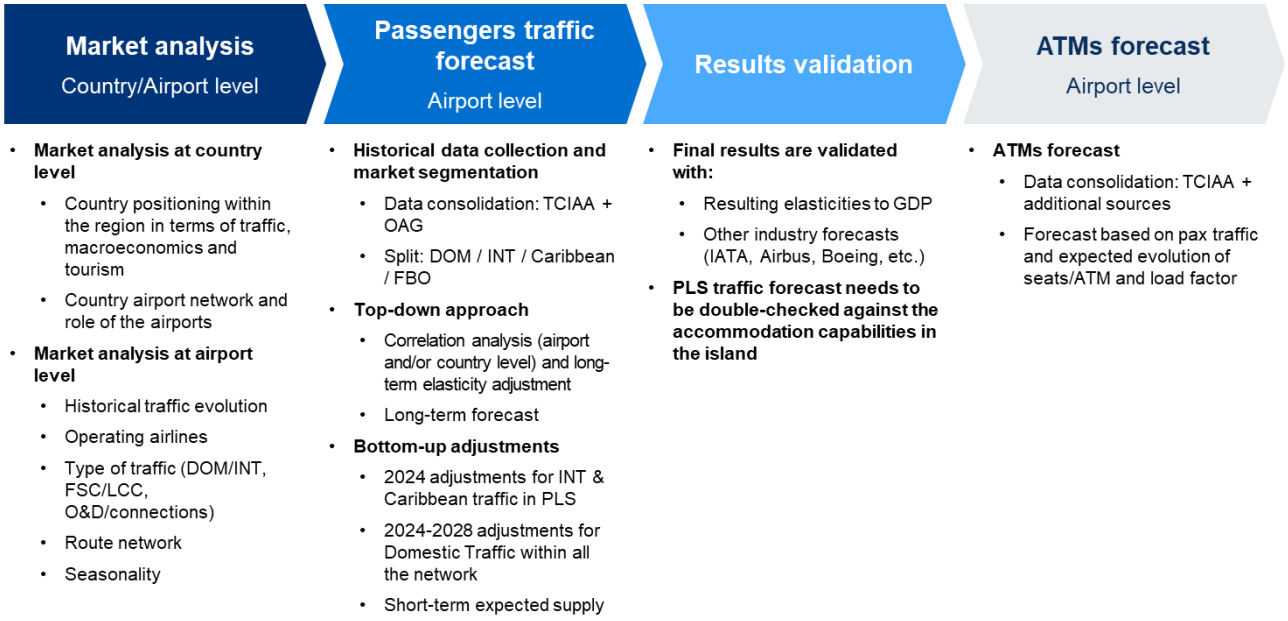


Figure 26. Traffic forecast methodology

Source: ALG Analysis

3.2.2 Macroeconomic projection (top-down approach)

The conclusions drawn from the market analysis serve as the foundational framework for the traffic projections. These insights guide the methodology application based on relevant market segmentation and the historical period for regression analysis. In this context, it is identified that the optimal approach for forecasting medium and long-term traffic at Turks and Caicos airports entails establishing growth rates through an econometric model.

Considering the econometric trend of the model, the Top-down approach emerges as the most suitable methodology consisting of:

- A multivariable linear regression based on macroeconomic variables is used to generate air traffic projections. The robustness and significance of these projections are determined by evaluating the correlation factor (R^2) and employing various statistical tools.
- When statistical significance is not achieved with the aforementioned methodology, an elasticity-based model is used. This econometric approach is based on assessing the impact of economic growth on air traffic growth. A coefficient of elasticity is derived and applied to the macroeconomic growth to calculate the air traffic growth.

Both methodologies are widely used in the market, preferring multiple linear regression whenever R^2>85%. While achieving higher correlation factors (R^2) is desirable, it does not always equate to the most accurate traffic projections. Conclusions identified on the market analysis are key, being used to select the adequate methodology and to address results validation. Also, by employing a range of additional statistical tools, the model aims to approach a more robust and reliable result.

Multivariable linear regression model

$Pax = m_1 \cdot V_1 + m_2 \cdot V_2 + \ldots + m_n \cdot V_n + b$

- V: Descriptive variables
- m: Coefficients of the regression
- b: Intercept

Key issues — Preferred model

- Regression is validated with statistical parameters:

Parameter	Validity	Meaning
R^2	> 85%	Quality of the model to replicate the results
Adjusted R^2	> 75%	Measures the same as R^2, taking into account the number of variables included in the model
P-value	< 0.05	Checks the contribution of each variable to the model

- Coefficients are estimated and variables are projected to obtain the passenger forecast. If no combination of variables is identified as significant, an elasticity-based model is then applied

Empirical elasticity model

$\Delta Pax = \varepsilon_1 \cdot \Delta V_1 + \varepsilon_2 \cdot \Delta V_2 + \ldots + \varepsilon_n \cdot \Delta V_n$

- V: Descriptive variables
- ε: Empirical elasticities

Key issues — Elasticities used for validation

- Growth in passenger traffic is explained by the variation of selected variables and empirical elasticities
- Normally applied to GDP for the specific market, elasticity relates GDP growth with traffic growth
- Historical values are used to validate future projections, as well as empirical values based on different sources (market, ICAO, etc.)

Figure 27. Top-down forecasting model selection

Source: ALG Analysis

Given the model's considerable sensitivity to macroeconomic assumptions over extended periods, the reliability of econometric variables becomes crucial to ensure a stable and robust traffic forecast. This involves a range of factors, highlighting the necessity for thorough accuracy and precision in the projection, such as national and regional GDP projections, GDP/capita, inflation and exchange rates, international trade (imports / exports), foreign direct investment, middle class size, average household income and other macro variables.

	TCI & Inbound countries GDP	GDP TCI	Population of TCI	ForEx (non-USD markets)	Oil price	Yields	Tourism
Relation with air traffic	GDP evolution reflects the economic development of the country and the wealth level of its citizens and economic sectors	Regional GDP reflects the particular economic development of the state and the wealth level of the citizens	Population reflects the development of the country and represents the volume of people which have access to air transport	As local currency devaluates, foreign currencies become stronger and inbound traffic is stimulated because travel becomes cheaper	Fuel usually represents the largest OpEx for airlines. Air fares are directly correlated with Brent price (lower yields, higher traffic)	The offer of airlines affects yields and stimulates short-term demand. Yields represent the accessibility to air transport	Tourism is one of the main sources of air traffic, and therefore airport traffic is directly correlated
Pros & Cons for air traffic forecast	**Pros** • Robust projections are available • Normally correlates extremely well **Cons** • May have limitations for very small markets	**Pros** • Normally correlates extremely well **Cons** • Does not take into account inbound traffic (the most important one within TCI)	**Pros** • Projections available **Cons** • Does not take into account inbound traffic (the most important one within TCI) • Might show dependence with GPD per capita	**Pros** • Projections available • Tends to correlate well with int'l traffic **Cons** • Volatile projections • Different impact for outbound and inbound • Non representative for TCI (USD-based)	**Pros** • Tends to correlate well with traffic **Cons** • Volatile projections, only for short-term • Difficult to find a good correlation	**Pros** • Good correlation with short-haul and long-haul markets **Cons** • No robust projections available	**Pros** • Exceptional correlation factors with traffic **Cons** • No robust projections available; usually projections are too optimistic (targets) • May inter-correlate with GDPs
Elasticity	+	+	+	+ −	−	−	+

Main descriptive variable

Figure 28. Top-down variable selection

Source: ALG Analysis

It is important to emphasize that GDP tends to be the most relevant and reliable macroeconomic variable to describe the evolution of air traffic demand, since it is the variable with more available projections from reliable sources. Besides, if the real origin of the passengers of a particular market is known, a blended GDP compounded by each GDP of each origin country tends to provide with greater correlation factors and better results.

Due to the low volumes of traffic within the secondary airports network, aggregate traffic for the country has been used in order to find suitable correlations for the macroeconomic forecast. By using a top-down approach, the traffic forecast for the medium to long-term is developed based on the relationship between GDP per point-of-sale and airport traffic for each market segment, using point-of-sale data from airline tickets.

While Caribbean and International traffic at Providenciales, show a strong correlation with the blended GDPs of each market (R^2 87-92%), the Domestic market does not correlate with GDP. Therefore, the projection methodology involves forecasting Caribbean and International traffic for PLS and projecting domestic and FBO traffic at PLS as a percentage of international traffic, based on the insights from the market analysis. This domestic traffic mainly consists of inbound international tourists who travel to other areas of TCI, such as Grand Turk, while FBO traffic corresponds to inbound international tourists arriving in TCI on private flights.

Domestic traffic for North Caicos and the rest of the network heavily depends on projections for PLS, with only minor transversal routes between secondary airports. Providenciales' domestic traffic has been forecasted using a bottom-up approach for 2024-2028 by analyzing each route individually *(see details below)*, while for 2029-2055, it is projected as a percentage of the airport's international traffic.

3.2.3 Bottom-up adjustments

Top-down traffic projections are complemented by a micro bottom-up analysis at the route level, where the vast majority operate to/from PLS, except for cross-island routes such as Grand Turk to Salt Cay and Grand Turk to South Caicos.

For the 2024-2028 period, bottom-up adjustments were applied to project a more reliable traffic, based on OAG published schedules, airline interviews and empirical insights from air traffic trends, enabling the prediction of traffic volume based on operational variables like routes, frequency, and seats offered. The methodology encompasses an analysis of passenger, airline companies, existing frequencies, and routes, projecting the future evolution of traffic and capacity, considering factors like potential new routes at the airports, tourism strategy and infrastructure projects.

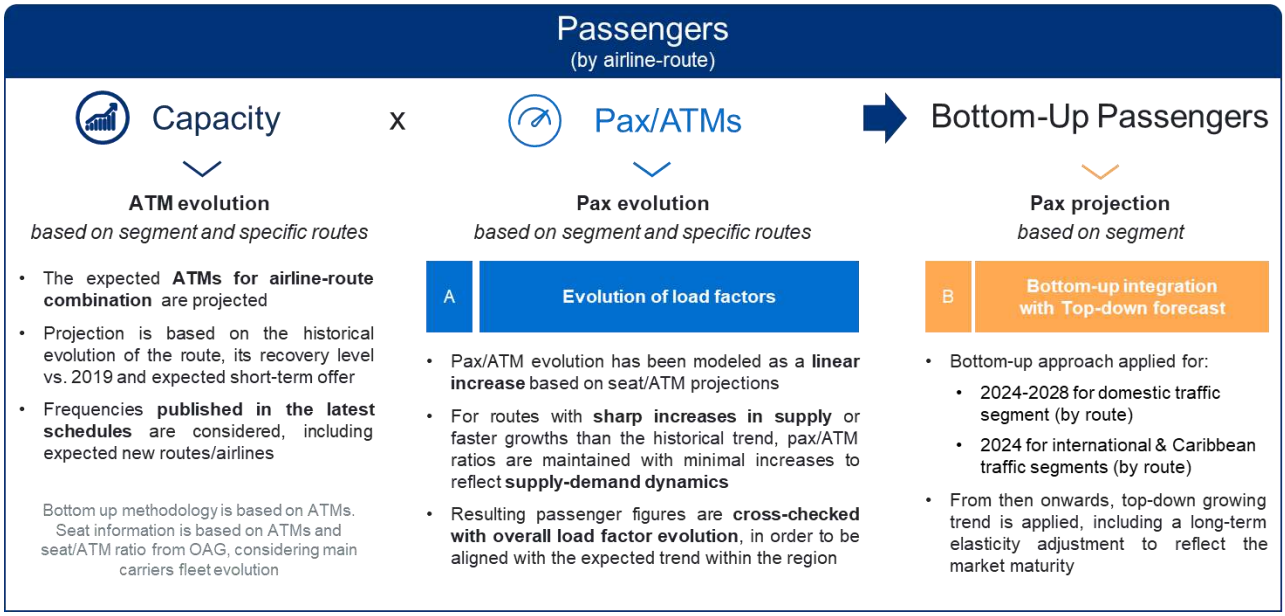


Figure 29. Bottom-up approach

Source: ALG Analysis

The objective is to provide a more empirical perspective on demand within the 2024-2028 timeframe that can be integrated into the top-down model from 2029 onwards, enhancing the accuracy of the model for the short/mid-term period. This approach involves a thorough analysis of airline activity and specific routes, considering new routes, tourism product, infrastructure changes, global economic drivers or any other phenomenon that might halt, accelerate, or disrupt traffic recovery or growth. The ultimate objective of this approach is to introduce essential refinements to the forecast, enabling it to account for nonlinear elements in the short-term that cannot be adequately addressed by the top-down analysis.

Domestic traffic within the country is expected to continue growing at a stable pace due to additional frequencies scheduled on some existing routes, reflecting the expansion plans of InterCaribbean and Caicos Express. For North Caicos, the development of a regular scheduled route to PLS has been considered, operated with light-aircraft (8-seats capacity) and reaching one daily frequency in the mid-term.

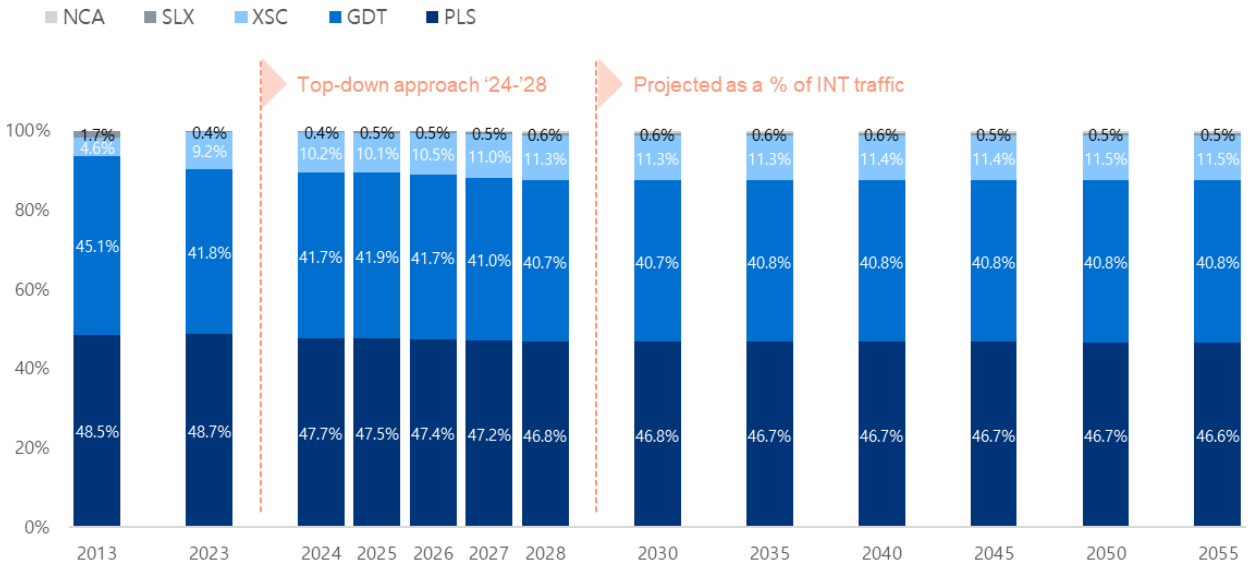


Figure 30. Domestic traffic projection: Distribution by airport (Mpax)

Source: ALG Analysis

Regarding international traffic, due to the expected tourism development in North Caicos aimed at increasing tourism capacity, it is expected that seasonal international routes will be scheduled to/from their airports by 2027, offering a 2-weekly connection with some of the usual airports on the East Coast, likely MIA. In the mid/long-term, an increase in the weekly frequencies is anticipated, targeting 3-5 weekly frequencies at NCA, all of which will mainly be operated using regional aircraft with 75-90 seats. Thus, North Caicos is expected to reach over 11k passenger by 2055.

Passenger numbers and aircraft movements (Pax/ATMs) in both segments are expected to grow based on the projected fleet in each market. Domestic Pax/ATMs are expected to reach 7 pax/ATM by 2055, equivalent to an aircraft with 9 seats at a 75% load factor. For international traffic, Pax/ATMs are expected to total 65 pax/ATM by 2055, equivalent to an aircraft with 82 seats at an 80% load factor.

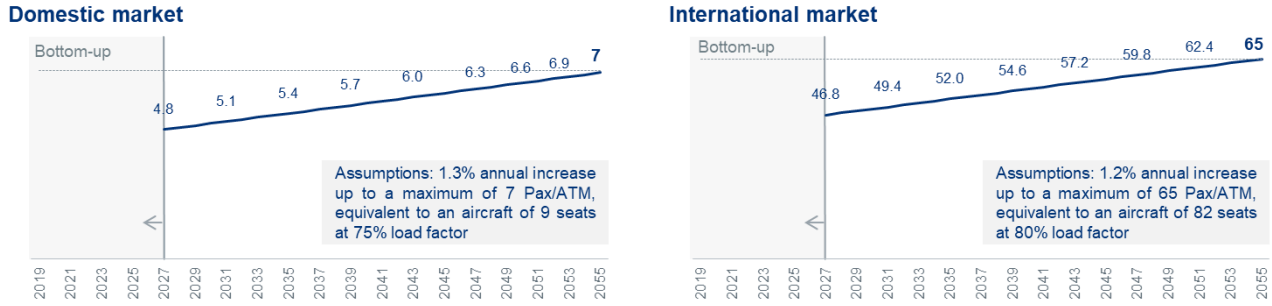


Figure 31. Pax/ATM forecast

Source: OAG, TCIAA, CAPA, ALG Analysis

3.2.4 Consolidated traffic forecast results

By integrating the top-down and bottom-up results, the forecast predicts that North Caicos Airport will reach a volume of almost 25,000 passengers in 2055, starting with regular traffic after 2027, once the airport infrastructure is expanded.

CAGR	2013-2019	2019-2055	2023-2055
Int'l	-	-	-
Domestic	-	-	-
FBO	-16.7%	9.4%	12.1%
Total	**-16.7%**	**12.9%**	**16.1%**

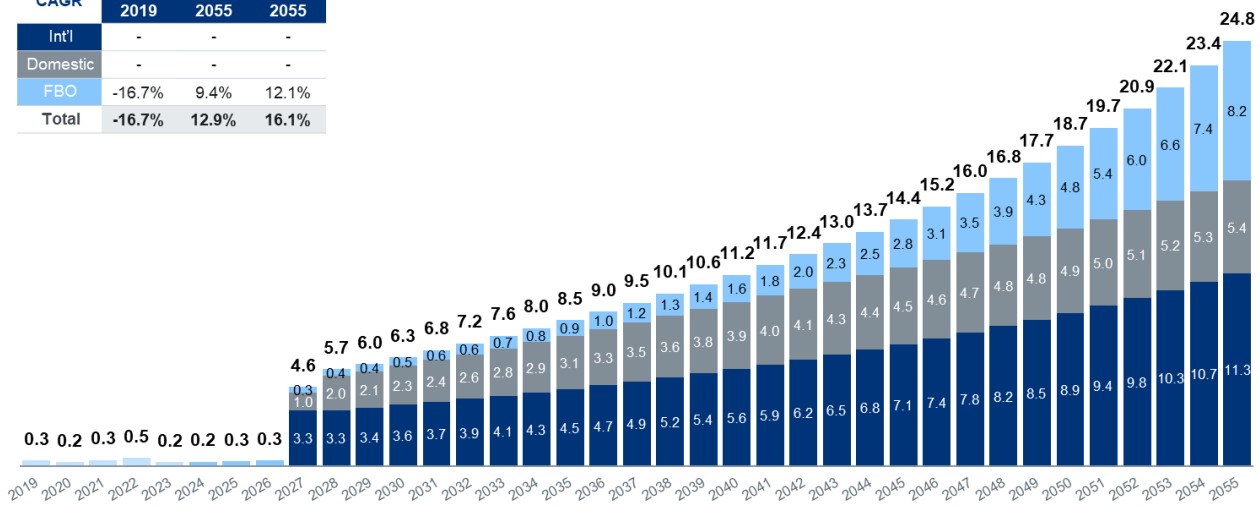


Figure 32. North Caicos passenger traffic forecast (kpax)

Source: OAG, TCIAA, CAPA, ALG Analysis

Regarding the projection of aircraft movements, North Caicos is expected to reach over 4,200 operations in total by 2055, with a CAGR of 9.9% for the period 2023-2055.

CAGR	2013-2019	2019-2055	2023-2055
Int'l	-	-	-
Domestic	-	-	-
FBO	-17.9%	10.0%	9.0%
Total	**-17.9%**	**10.8%**	**9.9%**

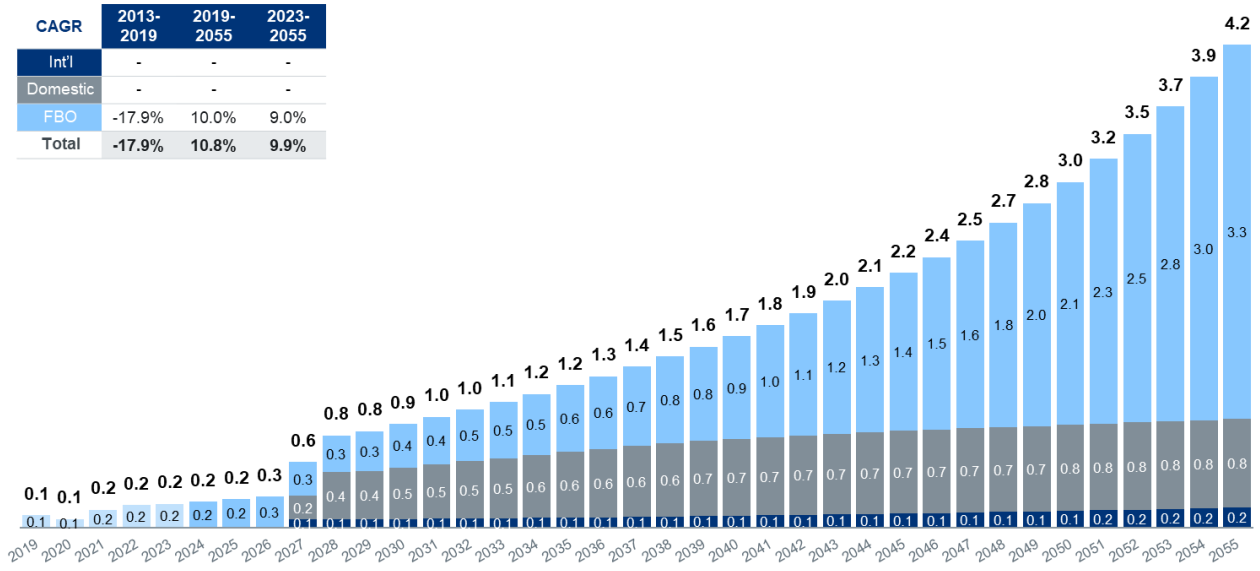


Figure 33. North Caicos operations forecast (kATM)

Source: OAG, TCIAA, CAPA, ALG Analysis

3.2.5 Design parameters forecast

For the subsequent sizing of the infrastructure, it is not enough to simply have annual forecasts of passenger traffic and operations. It is also important to have certain parameters that indicate the infrastructure requirements during peak operation periods. In this regard, it is crucial to know the expected volume of passengers and operations that the airport will need to process in an hour (passengers at peak hour or PHPs, and operations at peak hour or ATM/h, respectively), as well as the maximum expected demand for aircraft parking positions or stands.

The ATM/h and PHPs are projected using benchmarks from similar airports, which relate annual figures (ATMs and Mpax) to these peak hour parameters. These benchmarks consider the progressive reduction in the ratio between peak values and annual values as airport traffic grows due to the gradual flattening of the profile.

To select the design day for starting the projection, following the methodology recommended by IATA, the 30th hour criterion is used for PHPs (the day that contains the thirtieth busiest hour of the year). For selecting the design day for ATM/h, the peak hour criterion is used (the day that contains the busiest hour of the year), a more restrictive criterion to ensure capacity for the planned flight operations within the airfield.

The stands projection is based on the forecast of ATM/h, considering a progressive reduction due to the optimization of ground operations and turnaround times (considering the specific performance of the airport).

For North Caicos Airport, the design day with the peak of operations profile was not available since no commercial flights are operating as of today. However, it has been estimated a peak of 2 ATMs/h (one departure and one arrival), meaning 1 code A/B stand used.

Projecting ATM/h using the benchmark, it is anticipated that the peak of commercial operations will reach 7 ATM/h in 2055. This projection assumes that the rest of the hours on the design day will grow in proportion to the annual operations.

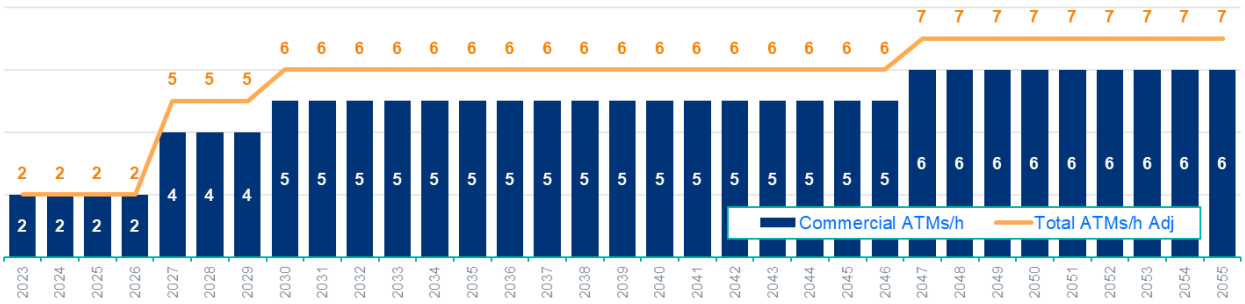


Figure 34. Projection of peak ATM/h at North Caicos (2023-2055)

Source: TCIAA, ALG Analysis

Based on this projection and the maximum stand demand in 2023 (1 code A/B aircraft), it is estimated that the peak number of stands in 2055 will increase until reaching 4 positions (3 code A/B and 1 code C stand demand).

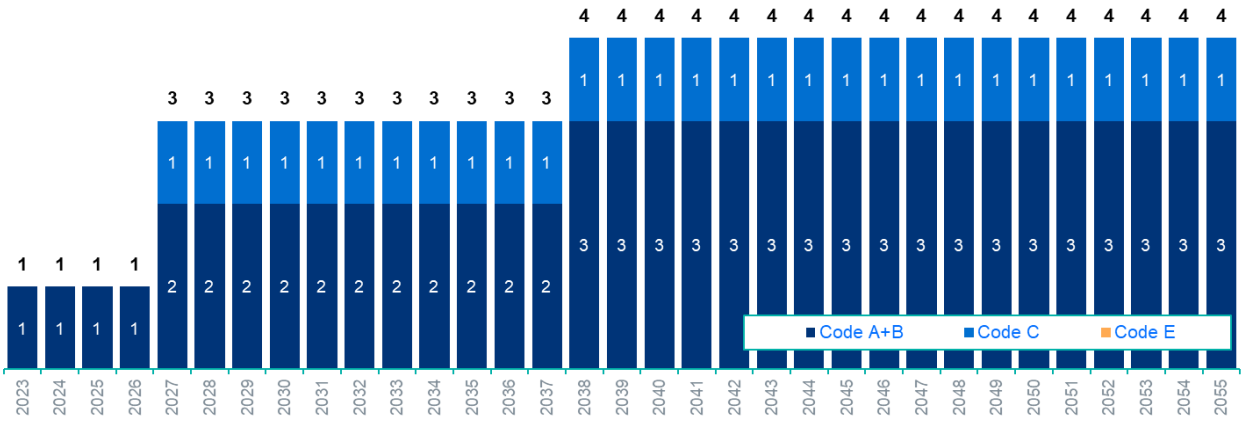


Figure 35. Projection of stand demand at North Caicos (2023-2055)

Source: TCIAA, ALG Analysis

As for ATMs/h, the design day with the peak of PHPs profile was not available. However, it has been estimated a peak of 6 pax/hour (3 departures and 3 arrivals) based on current fleet mix.

For the projection of PHPs, a benchmark that relates annual traffic to peak hour traffic is also used. It is estimated that by 2055, the total volume will reach 187 PHPs (96 for arrivals and 102 for departures), increasing once the regular flight to PLS and the seasonal international one start operations.

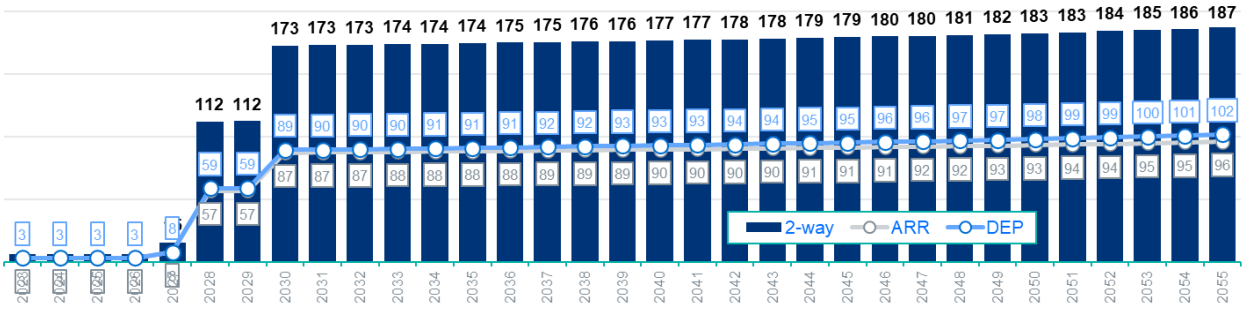


Figure 36. Projection of PHPs during peak hour at North Caicos (2023-2055)

Source: TCIAA, ALG Analysis

4 Infrastructure requirements and investment plan

The objective of this section is to provide a detailed assessment of the airport's development requirements for each subsystem, in order to obtain the proposed airport development plan for the coming 30 years and its associated investment plan. To this end, this section includes:

- Capacity-demand analysis for each of the main subsystems (airfield, apron, passenger terminal and vehicle parking) to determine the infrastructure needs.
- General review of development alternatives for each of the subsystems requiring them.
- Recommended development plan for each subsystem, as a final alternative, and its investment plan.

4.1 Capacity-demand analysis

The different subsystems to be evaluated for North Caicos Airport are presented below. For each subsystem, a different design parameter is selected to perform the corresponding analysis. This approach helps to obtain information on the possible saturation of the subsystem under study and the time horizon to reach saturation.

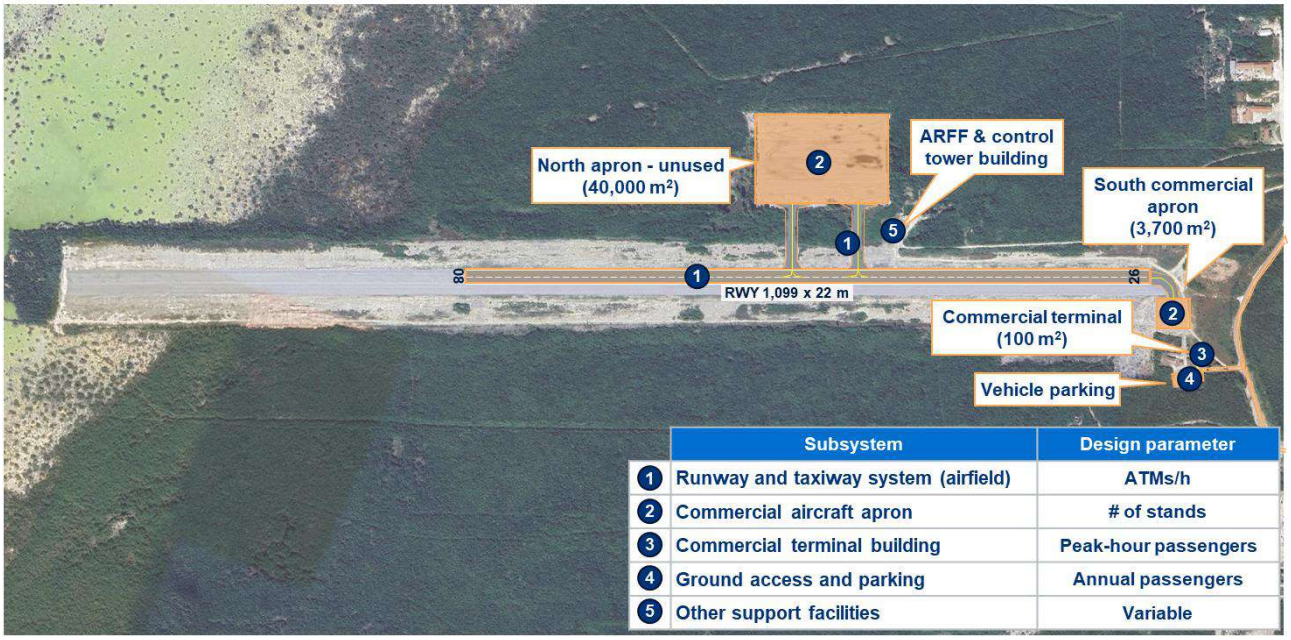


Figure 37. Subsystems to be assessed & design parameters

Source: Google Earth, TCI AIP, ALG Analysis

4.1.1 Airfield

The airfield study is split into two sections: one about the range analysis, and another one about the runway capacity in terms of ATMs per hour.

Regarding the runway range analysis, the current aircraft type operating at the airport is A/B. In addition, the runway dimensions could accommodate business jets to reach North America's east coast, provided the runway is widened to at least 30m (current 22m width is not compliant for this type of aircraft). The emergence of new luxury resorts on nearby islands, such as Pine Cay, could foster a moderate volume of business jet and international flights with regional aircraft, which could be further enhanced by the expansion of the runway (both wider and longer RWY required) to comply with 4C ICAO requirements.

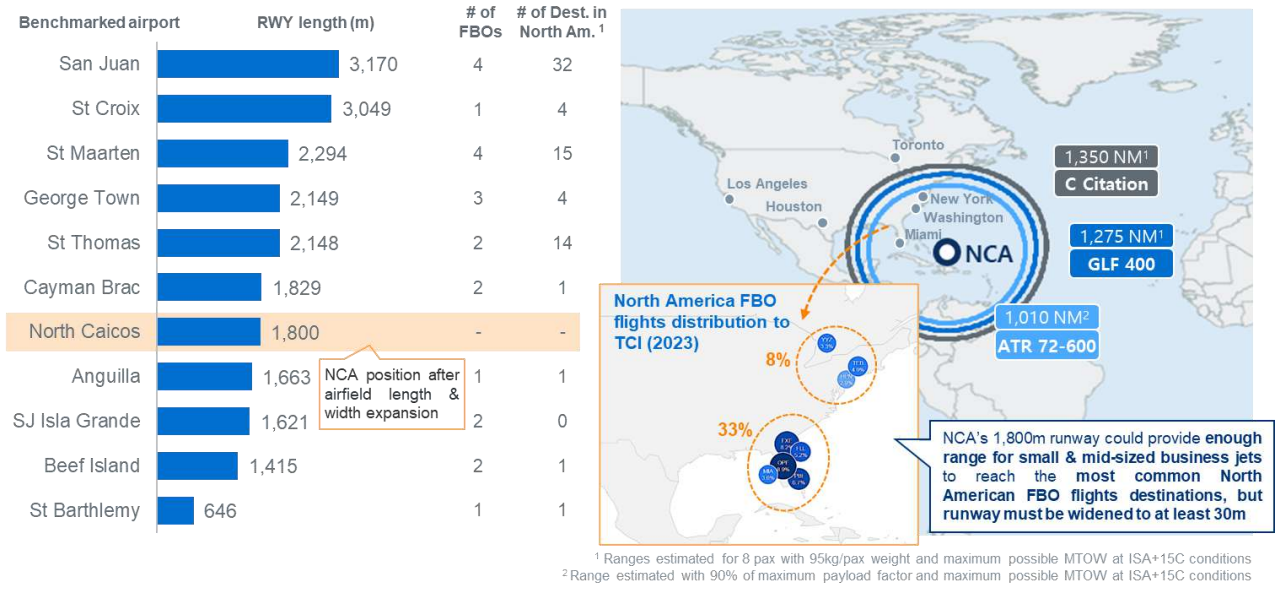


Figure 38. Aircraft range analysis from NCA

Source: Aircraft ACAPs, OAG, ALG Analysis

After the analysis of North Caicos Airport, it is concluded that, to allow main business jets coming from the US east coast operate on it and develop certain seasonal international scheduled traffic with regional aircraft, the runway should be widened to 30 meters, as well as extended to 1,800 m length.

Furthermore, it will be necessary the adequation of the taxiway connecting the runway and the north apron, by adapting it to a 25 meters width including shoulders. With those works, the infrastructure could absorb current and future estimated 7 ATMs/h in 2055 with no major problems.

4.1.2 Apron

The apron capacity-demand analysis is based on the peak demand for aircraft parking positions (stands), in other words, the total number of aircraft on the ground at the airport at any given time. As evaluated in subchapter 2.2, the current stand configuration allows 4 to 6 light aircrafts parked simultaneously and due to pavement strength, space restrictions and the lack of defined stands, is only able to accommodate light (code-A) aircraft.

Figure 39. South apron aerial view

Source: Google Earth, TCIAA, TCI AIP, ALG Analysis

However, the capacity-demand analysis shows that while the current apron has enough stands to accommodate existing demand, the short-term arrival of a regular code-C aircraft indicates that the existing apron space will not be adequate to accommodate it. The forecast predicts that NCA will require 4 aircraft

stands by 2055 (3 code A/B + 1 code C) to handle peak stand demand, highlighting the need for an adequation of the apron in the short/mid-term. The ideal apron expansion would allow all aircraft to perform autonomous turnarounds (no need for pushback tugs).

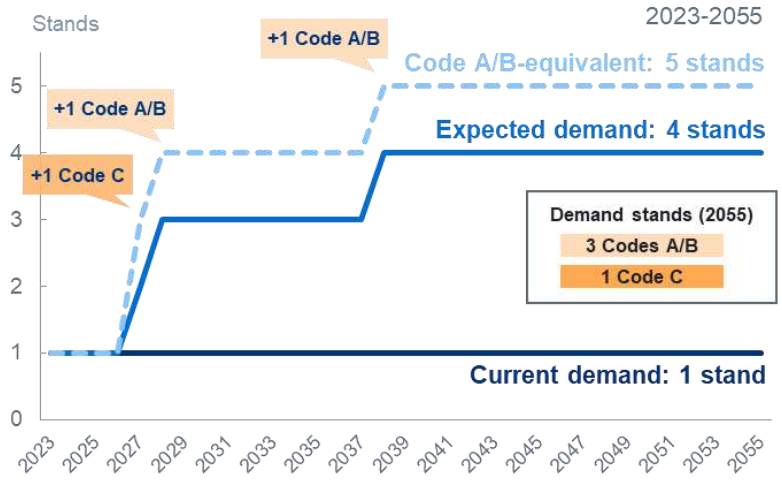


Figure 40. Apron capacity-demand gap analysis (2023-2055)

Source: TCIAA, TCI AIP, ALG Analysis

Nevertheless, the north apron, which is currently unused, has a surface of over 40,000 m^2 with two taxiways that connect it to the runway. If moderately reinforced, the entire area could be used as a renovated apron to accommodate larger aircraft. Concretely, a portion of the entire north apron (~24,000 m^2) could be adapted to handle both light aircraft and larger business jet and regional traffic. This would allow to stop operations at the south apron, which is located within the required declared strip for the operation of code-C aircraft.

4.1.3 Terminal building

As described above, the old immigration building was refurbished into a 100m^2 terminal, which was completed in 2023, although it is not currently operational. The building sits on an area adjacent to the current apron, and has a direct walkway to it, which houses a single space with seating for around 30 passengers and 2 desks. No security or other equipment was observed within the building.

The current terminal is sufficient for to meet current passenger traffic, but if the north apron is reinforced and becomes the main apron of the airport, it would be necessary to build a new terminal building near this area. Moreover, given the expected increase in traffic demand for the next 30 years, the existing non-operational 100m^2 terminal building could be replaced with a new one of approximately 1,700 m^2, including FBO facilities, to adequately accommodate both current traffic and expected future demand.

4.1.4 Vehicle parking

There are not parking lots, but there is enough space for accommodating the arriving and departing passengers. However, similar with the terminal building, a new parking area will be required near to the north apron to start the operation in this area, as well as its corresponding accesses.

4.2 Development plan

For carrying out the development for the airport, two analyses were considered: the capacity-demand analysis shown in the previous section (see 4.1), and the current situation of the infrastructure (see chapter 2), along with the strategic and market vision of the airport.

By taking this into consideration, it can be concluded that:

- A new commercial and general aviation apron should be developed at the north apron.

- The construction of new passenger terminal, new access road and a new parking area, replacing the current terminal building will be then required.
- One of the two taxiways connecting the runway with the north apron must be widened to let code-C aircraft operate on it.
- Besides, the runway should be widened to 30 meters and lengthened to 1,800 m taking advantage of the existing paved area, allowing it to accommodate code-C aircraft and business jets.

4.2.1 Airfield development

As the capacity-demand analysis concluded, the airfield will require expansions to serve future demand, as so does require some work to ensure compliance for the code-C aircraft operations by ICAO regulations about the taxiways and runaway (see section 2.2.3 for details of airfield compliance).

To solve the existing irregularities, the taxiway's width should be adapted, resulting in a 15 meters-wide taxiway with shoulders, with total width of 25 meters. The same applies for the runway, that needs to be widened to 30 meters to be able to hold code-C aircraft. Regarding the extension of the runway, it is required to increase it to 1,800 m for the expected traffic demand (domestic flights with light aircraft and code-C aircraft and business jets operations to the US eastern coast).

Figure 41. Airfield state and potential development

Source: Google Earth, TCI AIP, ALG Analysis

4.2.2 Apron development

The existing apron is only able to accommodate light (code-A) aircraft due to pavement strength and space restrictions, with no defined stands. In order to meet expected peak hour demand over the next 30 years, it will be necessary to adapt the existing commercial apron. A realistic approach to attend that demand is to adapt a portion of the north apron (~24,000 m^2) to create a common apron that could handle both light (current) aircraft, and larger (code-C) aircraft and business jet traffic; this, provided the runway is also adapted for this type of traffic (1,800x30 m RWY).

The adapted north apron could handle 2 code-C aircraft and 1 code A/B aircraft, or 1 code-C aircraft and 4 code A/B aircraft simultaneously. This will allow to accommodate the expected demand of 3 code-B aircraft and 1 code-C.

Figure 42. Future commercial apron development

Source: Google Earth, TCIAA, ALG Analysis

4.2.3 Terminal building development

The existing non-operational 100 m² terminal building could be replaced with a new one adjacent to the apron and equipped with FBO facilities to adequately accommodate expected future demand. The ample size of the north apron could be leveraged to construct a new terminal building of approximately 1,700 m².

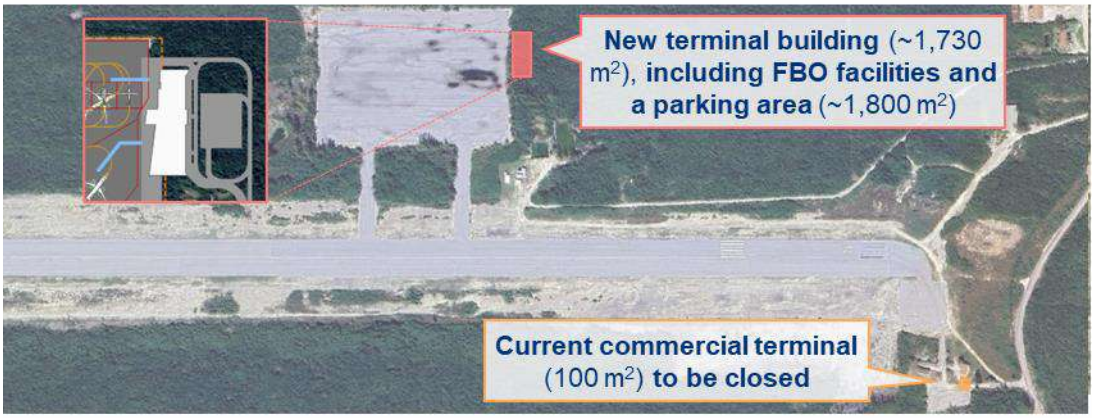


Figure 43. Passenger terminal development (1/2)

Source: TCIAA, ALG Analysis

The new terminal building should be designed with separate flows for arrivals and departures. While domestic and international passengers will share these flows, FBO passengers will follow a distinct arrival path and, for departures, will have direct access to the FBO lounge. However, all new terminal subsystems will be able to attend the expected traffic demand with an optimal level of service.

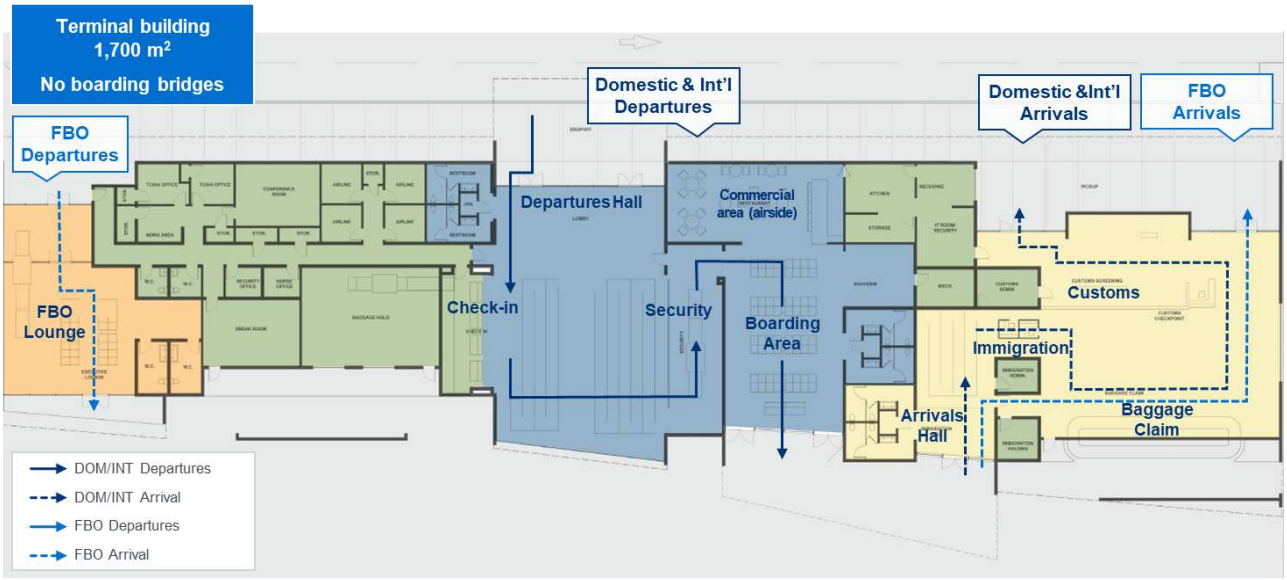


Figure 44. Passenger terminal development (2/2)

Source: TCIAA, ALG Analysis

4.2.4 Development of vehicle parking areas and accesses

As commented in the previous subchapter, a new car parking area of 1,820 m² near the new terminal building is expected to be developed to meet future demand. Additionally, a new access (2-lanes road) connecting this area to the existing road is required.

4.2.5 Development of other airport facilities

Regarding the other airport facilities, there is still need for the fencing of the airport operational perimeter. Should the aerodrome be upgraded to 4C category, the ARFF facilities and equipment would need to comply with that category requirements.

4.2.6 Environmental development plan

The key for a successful environmental development of North Caicos is considering external factors beyond the airport perimeter. E&S management programs should begin immediately, particularly considering coastal management outside the perimeter fence. Implementing sustainable construction criteria for new developments would also improve efficiency in operational management.

Here below, the main environmental-related proposed developments are presented:

1. Improvement of the water cycle from supply to water recirculation.
2. Implementation of renewable energy infrastructure (ex. Photovoltaic plant for self-consumption in the terminal roof/car park).
3. Designation of a waste and hazardous materials management center.
4. Implementation of a perimeter fence throughout the airport's operational area (priority action).
5. Guarantee land uses around the airport through an aeronautical SLO, mainly in the residential development area.

Figure 45. Main environmental-related proposed developments

Source: Google Earth, TCIAA, ALG Analysis

4.3 Investment plan

The purpose of the investment plan is to set out the costs associated with each stage of recommended development above by subsystem, in a chronological context. To do this, each proposed development is integrated into an overall development plan, the cost of each proposed action will be calculated, and ordered chronologically from today to 2055. In addition, a projection of major maintenance costs (RepEx, replacement costs) is made for each subsystem, both for the existing infrastructure and for the proposed one, to obtain the total of annual long-term investments.

4.3.1 General development plan

Each subsystem development plan has been detailed in the last subchapter. In summary, the main works to be performed are the new commercial apron adaptation, the new passenger terminal construction, the taxiway widening and adequation, and the runway widening:

1. Development of new commercial and general aviation apron: Adapt and reinforce 24,200 m^2 of the existing north apron area to simultaneously accommodate a single code-C (business jet and regional aircraft) and 4 code-A/B aircraft (autonomous stands).
2. New passenger terminal: New 1,730 m^2 passenger terminal with FBO facilities to replace the existing terminal.
3. New public car parking and access road: New 1,820 m^2 parking lot adjacent to the new terminal and access road.
4. Taxiway expansion: Adapt one existing taxiway to connect the newly developed apron and the runway, with code-C standards (25m witdh including shoulders).
5. Runway widening: Widen the runway to 30m utilizing the existing paved, expanding to 1,800m length, allowing it to accommodate code-C aircraft.
6. Fence construction: Implementation of a perimeter fence of 5,300m length throughout the airport's operational area.

Figure 46. Infrastructure development plan

Source: Google Earth, TCIAA, TCI AIP, ALG Analysis

4.3.2 Costs of planned actions

The approximate cost of each action to be carried out has been calculated, based on estimated dimensions (as detailed above in the development proposal) and unit costs from similar projects or, if applicable, benchmarks with historical data from various projects in the country adjusted for inflation and geographical area.

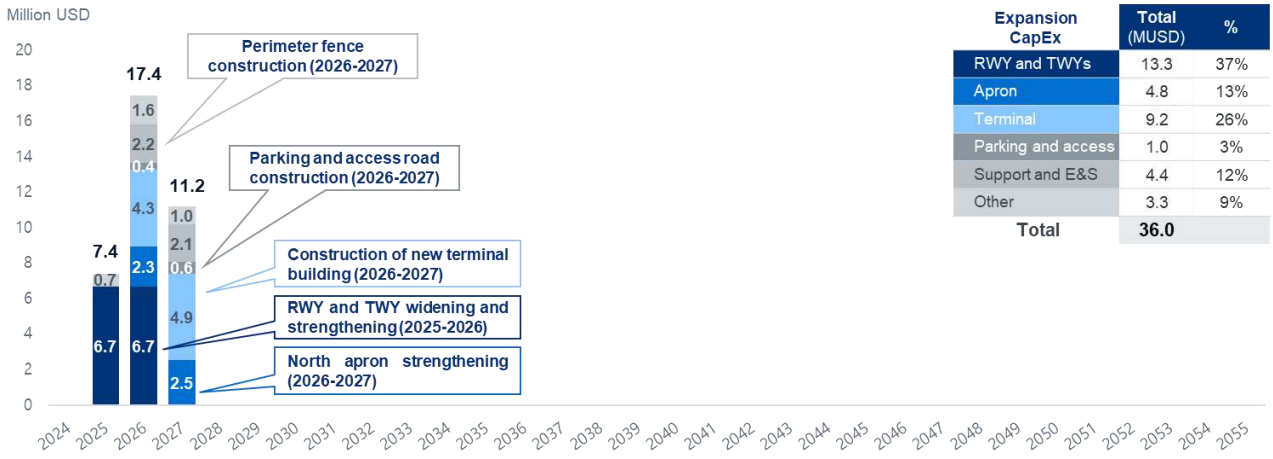
System	Item	USD 2022	Unit	Total surface	Total Cost[1] (MUSD)
Airfield	RWY expansion	110	USD/sqm	29,500	6.5
	RWY strengthening	110	USD/sqm	54,000	5.9
	TWY expansion	550	USD/sqm	1,200	0.7
	TWY strengthening	100	USD/sqm	2,200	0.2
Apron	North Apron strengthening	190	USD/sqm	24,200	4.6
	North Apron lightning	110,600	USD/unit	2	0.2
Terminal	Terminal construction	5,000	USD/sqm	1,730	8.7
	Terminal equipment	245	USD/sqm	1,730	0.4
	Terminal equipment - Security RX	125,000	USD/unit	1	0.1
Parking and Access	Public parking construction	150	USD/sqm	1,820	0.3
	Access road construction	150	USD/sqm	5,000	0.8
Support and E&S Facilities	Area clearing	20	USD/sqm	3,000	<0.1
	Perimeter fence construction	400	USD/m	5,300	4.2
	Waste storage facility	55,000	USD/unit	1	<0.1
	Hydrocarbon separation plant	182,000	USD/unit	1	<0.1
	Other additional costs[2]	-	-	-	3.4
				Total Expansion CapEx	36.0

Figure 47. Estimated CapEx for North Caicos development actions

Source: ALG Analysis

As presented before, there is a 10% additional cost assuming contingency and preliminary costs (5% each). The total estimated cost reaches 36 MUSD (real values 2024). This amount does not include maintenance CapEx costs, which will be detailed in the next subchapter.

As it can be seen in the figure below, all expansion works are scheduled to be completed entirely in the short-term, between 2025 and 2027, to allow the development of regular traffic at the airport. These works include the runway widening and taxiway strengthening, where the largest investment is allocated with ~12.4 MUSD, ~9.2 MUSD designated for the new terminal construction, the perimeter fence construction with ~4.2 MUSD, the north apron strengthening with ~4.8 MUSD, and ~1 MUSD for parking and accesses.



Expansion CapEx	Total (MUSD)	%
RWY and TWYs	13.3	37%
Apron	4.8	13%
Terminal	9.2	26%
Parking and access	1.0	3%
Support and E&S	4.4	12%
Other	3.3	9%
Total	36.0	

Figure 48. Required investment projection for new infrastructure development (CapEx)

Source: ALG Analysis

4.3.3 Maintenance CapEx forecast

On the other hand, the major maintenance investment plan is based on the life cycle of each existing and future infrastructure, and depends on the type of facilities, materials used and to be built, year of construction or historical repair data, among others. It is important to emphasize that major maintenance does not include day-to-day repair costs, as these are operational costs; major maintenance only includes periodic and major maintenance costs. Unit costs are also calculated using data from similar projects and neighboring countries or, alternatively, historical data from other projects adjusted for inflation and geographic area. Maintenance CapEx considers a percentage of reinvestment by the end of the lifecycle of each asset.

Item	USD 2022	Unit	Lyfe cycle (year)	% Reinvest. /cycle
RWY and TWYs				
RWY repavement	66	USD/sqm	100	60%
TWY repavement	80	USD/sqm	100	80%
New RWY repavement	110	USD/sqm	30	100%
New TWY repavement	100	USD/sqm	30	100%
Apron				
Apron repavement	114	USD/sqm	100	60%
North Apron repavement	114	USD/sqm	20	60%
North Apron Lighting - Replacement	66,360	USD/unit	20	60%
Terminal				
Terminal reconfiguration	1,500	USD/sqm	30	100%
Terminal equipment	245	USD/sqm	100	100%
Terminal equipment - Security RX	125,000	USD/unit	20	100%

Item	USD 2022	Unit	Lyfe cycle (year)	% Reinvest. /cycle
Parking and access				
Parking repavement	80	USD/sqm	100	100%
Curbside Road repavement	80	USD/sqm	100	100%
New Public Parking repavement	80	USD/sqm	20	100%
Access road repavement	80	USD/sqm	20	100%
Support and E&S facilities				
ATC Tower	1,450	USD/sqm	20	50%
RFFS Facility	185	USD/sqm	20	50%
RFFS Trucks	1,090,000	USD/unit	20	100%
Waste storage	55,000	USD/unit	30	100%
Hydrocarbon separation plant	182,000	USD/unit	30	100%

Figure 49. Unit costs for Maintenance CapEx estimation

Source: ALG Analysis

As the previous CapEx investment projections, the following figure is the major maintenance investment plan for the period 2024 to 2055:

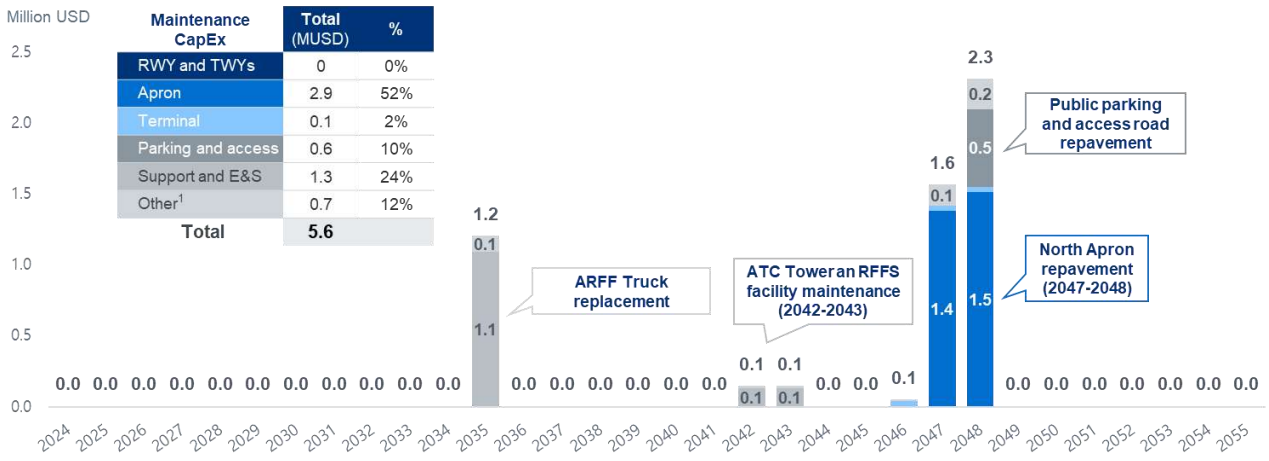


Figure 50. Maintenance CapEx plan (2024-2055)

Source: ALG Analysis

Major maintenance at NCA is expected in the mid/long-term, where the largest RepEx is allocated in the ARFF truck replacement in 2035 for ~1.1 MUSD. In the long-term, main investments are the ATC Tower and RFFS facility maintenance works in 2042-2043, totaling ~0.2 MUSD, as well as the north apron, the public parking car and access road repavement, expected in 2046-2048 with ~4.0 MUSD, along with some terminal building maintenance.

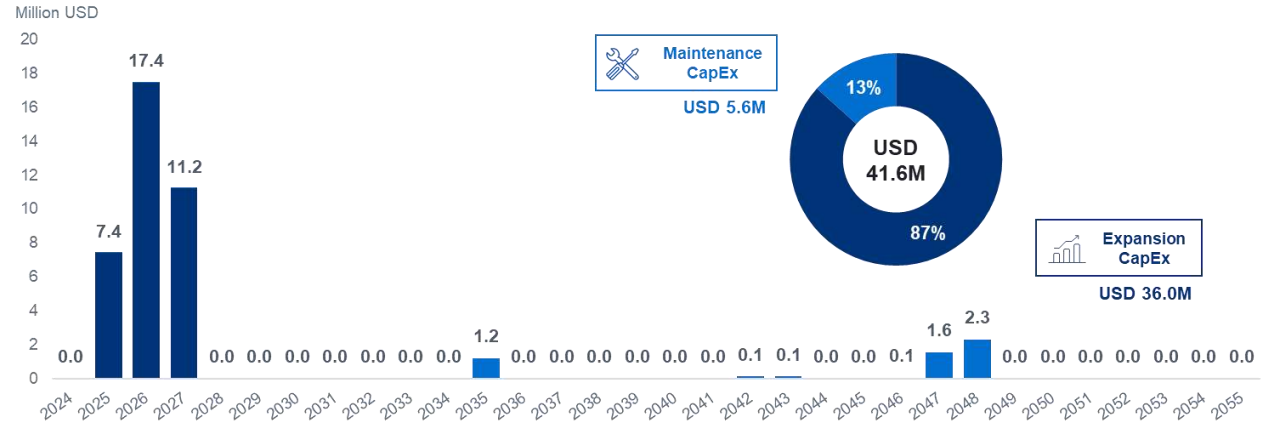
4.3.4 Airport investment plan

In conclusion, as shown in figure below, it is anticipated that a total of 41.6 MUSD will be required between 2025 and 2055 at North Caicos Airport to:

I. adapt the infrastructure to the expected growth in demand to provide an adequate level of service for airport users (36.0 MUSD for expansion CapEx), and

II. maintain the infrastructure in optimal condition to ensure adequate levels of safety and passenger satisfaction (5.6 MUSD for maintenance CapEx).

Here is the integrated investment plan (2024 real values):



	2024-2025	2026-2029	2030-2055	Total 2024-2055
Expansion CapEx	7.4 MUSD	28.6 MUSD	-	36.0 MUSD
Maintenance CapEx	<0.1 MUSD	<0.1 MUSD	5.5 MUSD	5.6 MUSD
Total	7.4 MUSD	28.7 MUSD	5.5 MUSD	41.6 MUSD

Figure 51. North Caicos Integrated Investment Plan (2024-2055)

Source: ALG Analysis

5 Long-term development plan and land reservation

This Master Plan is focused on the development of North Caicos Airport for the next 30 years. Thus, this document contains all needed development proposals to process, with an adequate level of service, the forecasted air traffic at the end of this period, which amounts up to 24,800 passengers in 2055.

However, a key issue when developing a Master Plan is to assess the potential development of the airport beyond the studied period. This is important with the objective to ensure land reservation within the airport perimeter in case that it is required in the future for further areas or facilities developments, avoiding less relevant constructions be undertaken on those terrains.

In this sense, as shown in earlier chapters, the investment plan for the next 30 years mainly contemplates the adaptation of the airport for the operation of business jets and regional code-C aircraft, setting up the north apron for its use and developing new infrastructure around it. Thus, main works include the widening of the runway and a taxiway, the apron reinforcement, and the construction of a new terminal building, a road access and parking lot pavement.

In the further long-term, if needed, the expansion of the commercial apron, the terminal building and parking lot could be performed. Nevertheless, it is key to keep the aeronautical SLO area protected in case of necessity of expansion of the airport in the long-term future.

The potential runway expansion area is already paved. It would only be necessary to perform some reconditioning and reinforcing works to make it operative.

The following figure shows a high-level proposal for this potential very long-term airport development, also showing the land that should be set aside for future developments, so as not to affect the natural growth of North Caicos Airport.

Figure 52. Future potential developments and land reservation

Source: ALG Analysis

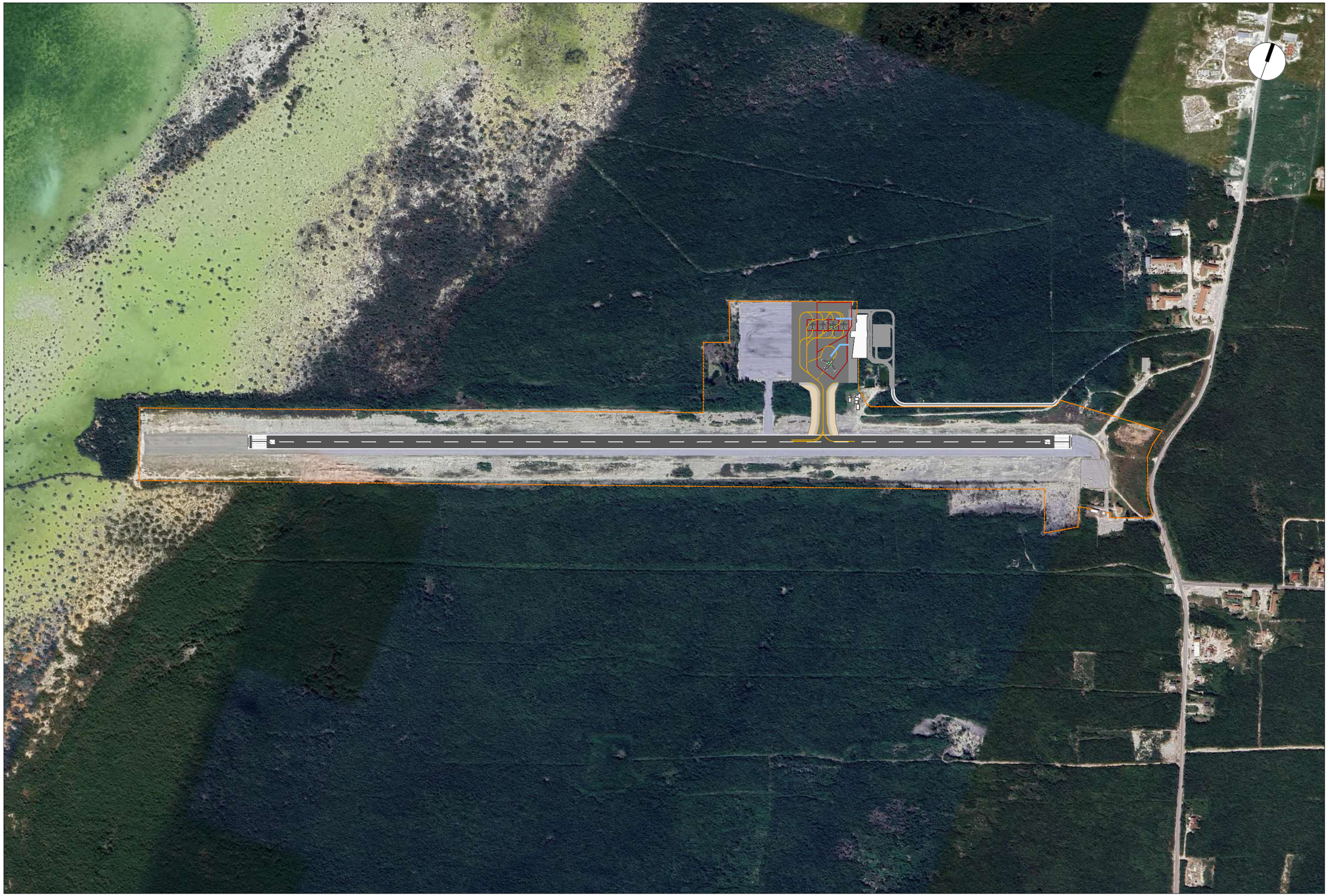
6 Drawings

This chapter contains the main drawings carried out during the development of this Conceptual Master Plan. The following drawings are included:

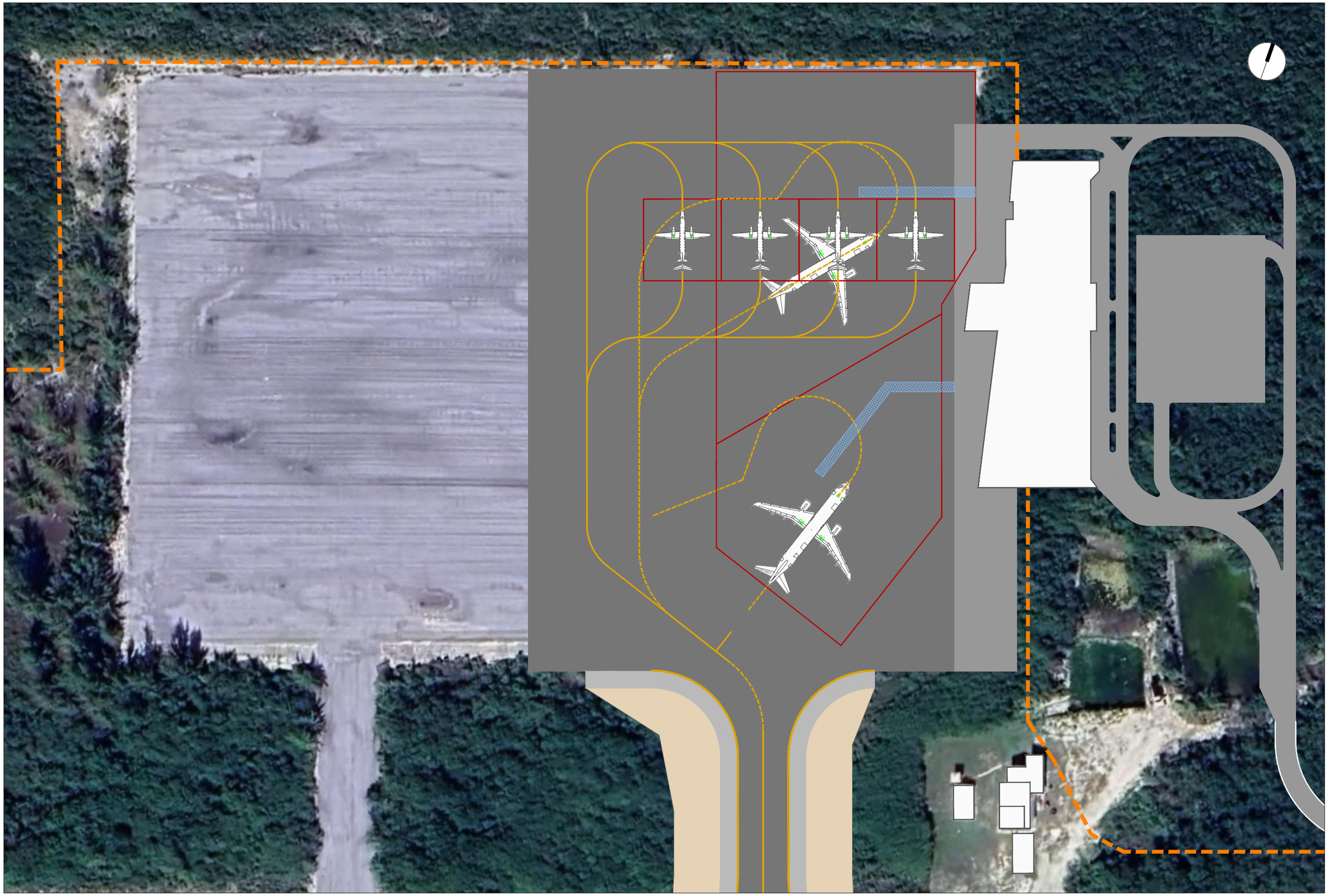
- Airport general layout – Current situation
- Terminal area detail – Current situation
- Airport general layout – Development proposal
- Terminal area detail – Development proposal

CLIENT:	CONSULTANT:	PROJECT:	SCALE:	DATE:	DRAWING NAME:	DRAWING NUMBER:
TCIAA TURKS AND CAICOS ISLANDS AIRPORTS AUTHORITY	ALG	STRATEGIC MASTER PLAN FOR THE TCIAA	1: 7.500 0 50 100m ORIGINAL A3 GRAPH	AUGUST 2024	NORTH CAICOS AIRPORT CURRENT SITUATION GENERAL LAYOUT	5.1.1 PAGE 1 OF 1

CLIENT:	CONSULTANT:	PROJECT:	SCALE:	DATE:	DRAWING NAME:	DRAWING NUMBER:
TCIAA TURKS AND CAICOS ISLANDS AIRPORTS AUTHORITY	ALG	STRATEGIC MASTER PLAN FOR THE TCIAA	1: 1.000 ORIGINAL A3 — 0 25 50m GRAPH	AUGUST 2024	NORTH CAICOS AIRPORT CURRENT SITUATION TERMINAL AREA	5.1.2
						PAGE 1 OF 1



CLIENT:	CONSULTANT:	PROJECT:	SCALE:	DATE:	DRAWING NAME:	DRAWING NUMBER:
TCIAA TURKS AND CAICOS ISLANDS AIRPORTS AUTHORITY	ALG	STRATEGIC MASTER PLAN FOR THE TCIAA	1: 7.500 ORIGINAL A3 — 0 50 100m GRAPH	AUGUST 2024	NORTH CAICOS AIRPORT DEVELOPMENT PROPOSAL GENERAL LAYOUT	5.2.1 PAGE 1 OF 1



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TCIA TURKS AND CAICOS ISLANDS AIRPORTS AUTHORITY	ALG	STRATEGIC MASTER PLAN FOR THE TCIAA	1: 1.000 ORIGINAL A3 — 0 25 50m GRAPH	AUGUST 2024	NORTH CAICOS AIRPORT DEVELOPMENT PROPOSAL TERMINAL AREA	5.2.2 PAGE 1 OF 1

ALG

alg-global.com

Pere Mas
pmas@alg-global.com

Ana Gómez
agomez@alg-global.com