



TAXIWAY SHOULDERS

Safety Assessment October 31,2023

Developed by ACSA-BACC Oct 2023

Risk Assessment Report

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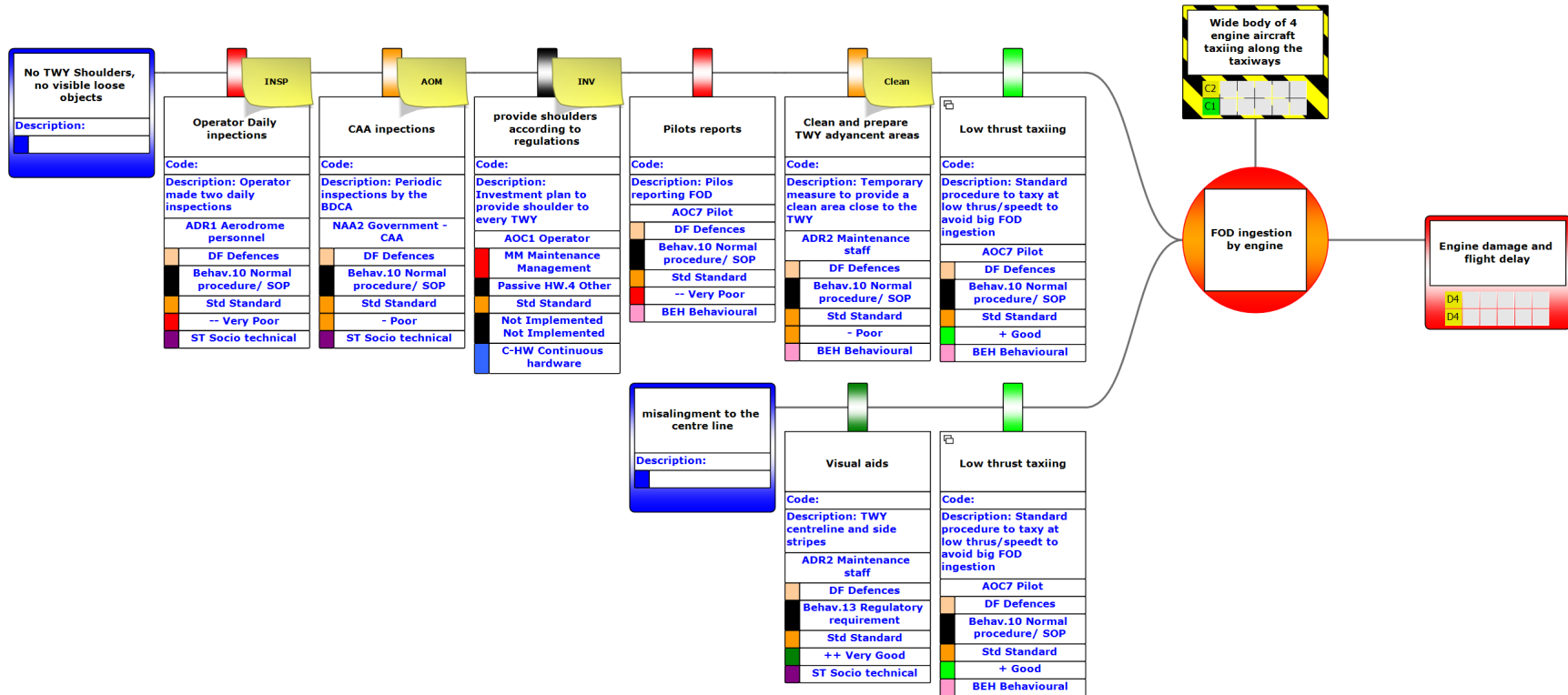
Barrier register

Barrier	Barrier type	Effectiveness	Criticality	Accountable	Description
Low thrust taxiing					
(Haz.) Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine / (S.E) No TWY Shoulders, no visible loose objects / (Br.) Low thrust taxiing	BEH Behavioural	+ Good	Std Standard	AOC7 Pilot	Standard procedure to taxi at low thrus/speedt to avoid big FOD ingestion
(Haz.) Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine / (S.E) misalignment to the centre line / (Br.) Low thrust taxiing	BEH Behavioural	+ Good	Std Standard	AOC7 Pilot	Standard procedure to taxi at low thrus/speedt to avoid big FOD ingestion
Operator Daily inpections					
(Haz.) Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine / (S.E) No TWY Shoulders, no visible loose objects / (Br.) Operator Daily inpections	ST Socio technical	-- Very Poor	Std Standard	ADR1 Aerodrome personnel	Operator made two daily inspections
CAA inpections					
(Haz.) Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine / (S.E) No TWY Shoulders, no visible loose objects / (Br.) CAA inpections	ST Socio technical	- Poor	Std Standard	NAA2 Government - CAA	Periodic inspections by the BDCA
provide shoulders according to regulations					
(Haz.) Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine / (S.E) No TWY Shoulders, no visible loose	C-HW Continouous hardware	Not Implemented Not Implement	Std Standard	AOC1 Operator	Investment plan to provide shoulder to every TWY

Barrier	Barrier type	Effectiveness	Criticality	Accountable	Description
objects / (Br.) provide shoulders according to regulations		ed			
Pilots reports					
(Haz.) Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine / (S.E) No TWY Shoulders, no visible loose objects / (Br.) Pilots reports	BEH Behavioural	-- Very Poor	Std Standard	AOC7 Pilot	Pilos reporting FOD
Clean and prepare TWY adyacent areas					
(Haz.) Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine / (S.E) No TWY Shoulders, no visible loose objects / (Br.) Clean and prepare TWY adyacent areas	BEH Behavioural	- Poor	Std Standard	ADR2 Maintenance staff	Temporary measure to provide a clean area close to the TWY
Visual aids					
(Haz.) Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine / (S.E) misalingment to the centre line / (Br.) Visual aids	ST Socio technical	++ Very Good	Std Standard	ADR2 Maintenance staff	TWY centreline and side stripes

New BowTIE Group

Hazard	Top event
Wide body of 4 engine aircraft taxiing along the taxiways	FOD ingestion by engine



Threats and consequences

New BowTie Group

BowTie Group	Description
New BowTie Group	

Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine	
Safety Events	No TWY Shoulders, no visible loose objects misalignment to the centre line
Consequences	Engine damage and flight delay

Barrier summaries

Operator Daily inspections

Code	Name	Effectiveness
	Operator Daily inspections	-- Very Poor

CAA inspections

Code	Name	Effectiveness
	CAA inspections	- Poor

provide shoulders according to regulations

Code	Name	Effectiveness
	provide shoulders according to regulations	Not Implemented Not Implemented

Pilots reports

Code	Name	Effectiveness
	Pilots reports	-- Very Poor

Clean and prepare TWY adyancent areas

Code	Name	Effectiveness
	Clean and prepare TWY adyancent areas	- Poor

Low thrust taxiing

Code	Name	Effectiveness
	Low thrust taxiing	+ Good

Visual aids

Code	Name	Effectiveness
	Visual aids	++ Very Good

All actions


Code	Name	Action party	Target
INSP	INSP Include TWYs FOD inspections in daily inspections in the aerodrome manual and implement the procedure	ERP4 Operations staff	15/11/2023
AOM	AOM procedure Verify the inclusion and implementation of the inspection procedure in the AOM	NAA2 Government - CAA	15/11/2023
INV	Investment Investment plan to provide TWY shoulders	AOC1 Operator	30/04/2025
Clean	Clean 1- remove vegetation 2- Clean the surface of any loose object 3- Maintain the surface without vegetation and any loose object	ADR2 Maintenance staff	15/11/2023

Open actions

Code	Name	Action party	Target
INSP	INSP Include TWYs FOD inspections in daily inspections in the aerodrome manual and implement the procedure	ERP4 Operations staff	15/11/2023
AOM	AOM procedure Verify the inclusion and implementation of the inspection procedure in the AOM	NAA2 Government - CAA	15/11/2023
INV	Investment	AOC1 Operator	30/04/2025

Code	Name	Action party	Target
	Investment plan to provide TWY shoulders		
Clean	Clean 1- remove vegetation 2- Clean the surface of any loose object 3- Maintain the surface without vegetation and any loose object	ADR2 Maintenance staff	15/11/2023

ICAO Format Risk Assessment

DATE: 31-10-2023		Risk Assessment No. 2			 Belize Airport Concession Company Limited	
HAZARD IDENTIFICATIONS AND RISK MANAGEMEN						
Description	Generic Hazard	Specific components of the Hazard	Consequences	Existing barriers	Additional Barriers	Accountable
No taxiway shoulders	Wide body of 4 engine aircraft taxiing along the taxiways	Aircraft incident related to FOD	1- Engine Damage 2- Flight Delay 3- visual aids damage	1-Low thrust taxiing 2-Visual aids C2	1- Include TWYs FOD inspeccions in daily inspections in the aerodrome manual and implement the procedure 2- Investment plan to provide TWY shoulders (exemption until 30th april 2025 if other measures are implemented) 3- Clean 1- remove vegetation 2- Clean the surface of any loose object 3- Maintain the surface without vegetation and any loose object C1	1. Aerodrome Operator 2- Aerodrome Operator 3- Aerodrome Operator

Risk Assessment Matrix Used

Safety Risk		Severity				
Probability		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely improbable	1	1A	1B	1C	1D	1E

Completed actions

In Progress

Responsible personnel

Aerodrome personnel

Job Title	# Barriers	# Activities	# Document Links
ADR1 Aerodrome personnel	1	0	0

Barriers
Operator Daily inspections

Maintenance staff

Job Title	# Barriers	# Activities	# Document Links
ADR2 Maintenance staff	2	0	0

Barriers
Clean and prepare TWY adyancent areas
Visual aids

Management

Job Title	# Barriers	# Activities	# Document Links
ADR3 Management	0	0	0

Operator

Job Title	# Barriers	# Activities	# Document Links
AOC1 Operator	1	0	0

Barriers
provide shoulders according to regulations

Pilot

Job Title	# Barriers	# Activities	# Document Links
AOC7 Pilot	3	0	0

Barriers
Pilots reports

Barriers
Low thrust taxiing
Low thrust taxiing

Operations staff

Job Title	# Barriers	# Activities	# Document Links
ERP4 Operations staff	0	0	0

Government - CAA

Job Title	# Barriers	# Activities	# Document Links
NAA2 Government - CAA	1	0	0

Barriers
CAA inspections

Register

Wide body of 4 engine aircraft taxiing along the taxiways / FOD ingestion by engine

No TWY Shoulders, no visible loose objects

<i>Barriers & Escalation Factors</i>	<i>Criticality</i>	<i>Barrier type</i>	<i>Effectiveness</i>	<i>Accountable</i>	<i>Activities</i>
Operator Daily inspections	Std Standard	ST Socio technical	-- Very Poor	ADR1 Aerodrome personnel	
CAA inspections	Std Standard	ST Socio technical	- Poor	NAA2 Government - CAA	
provide shoulders according to regulations	Std Standard	C-HW Continuous hardware	Not Implemented Not Implemented	AOC1 Operator	
Pilots reports	Std Standard	BEH Behavioural	-- Very Poor	AOC7 Pilot	
Clean and prepare TWY adyacent areas	Std Standard	BEH Behavioural	- Poor	ADR2 Maintenance staff	
Low thrust taxiing	Std Standard	BEH Behavioural	+ Good	AOC7 Pilot	
misalingment to the centre line					
<i>Barriers & Escalation Factors</i>	<i>Criticality</i>	<i>Barrier type</i>	<i>Effectiveness</i>	<i>Accountable</i>	<i>Activities</i>
Visual aids	Std Standard	ST Socio technical	++ Very Good	ADR2 Maintenance staff	
Low thrust taxiing	Std Standard	BEH Behavioural	+ Good	AOC7 Pilot	