Operations at Remote Airports Conference

May 29, 2013
Ottawa Marriott
Ottawa, ON

Prioritizing Airport Infrastructure Development Nunavut Airports

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Manager, Standards and Program Development

Nunavut Airports

Existing Conditions

Airport Infrastructure & Community Services

Regional Locations



Population Base 2011



Community Services



Runway: Orientation & Length



Runway: Surfaces



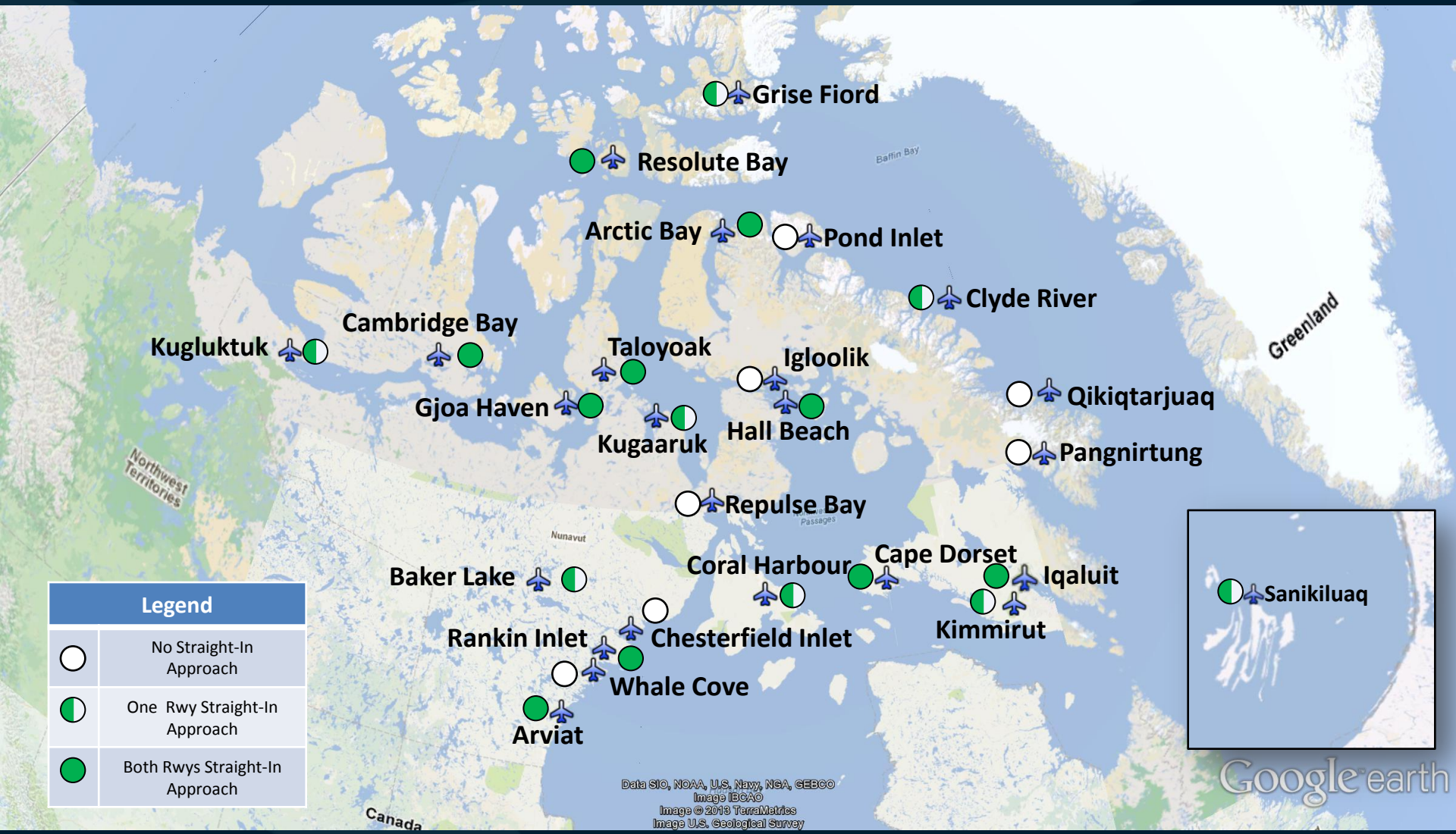
Runway: Code & Classification



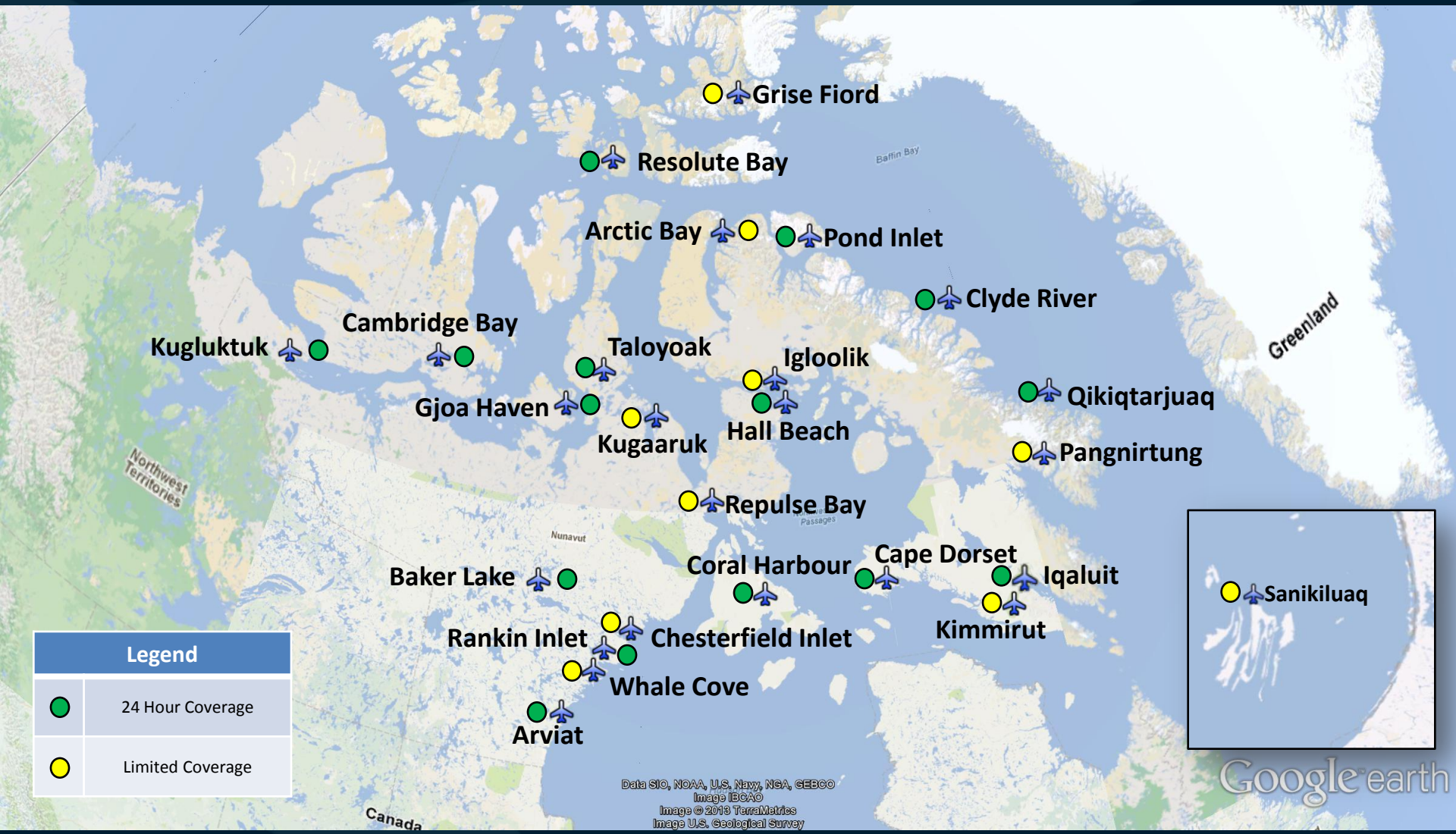
Runway: IAPs

Airports	Rwy	East Runway		West Runway	
		Best Approach	MDA (ft. AGL)	Best Approach	MDA (ft. AGL)
Arctic Bay (YAB)	13,31	RNAV	1348	RNAV	1831
Arviat (YEK)	15,33	RNAV	506	RNAV	507
Baker Lake (YBK)	16,34	CIRCLING	679	RNAV	513
Cambridge Bay (YCB)	13,31	RNAV	298	RNAV	315
Cape Dorset (YTE)	13,31	RNAV	642	RNAV	801
Chesterfield Inlet (YCS)	12,30	CIRCLING	528	NDB A	528
Clyde River (YCY)	2,20	CIRCLING	573	RNAV	393
Coral Harbour (YZS)	16,34	CIRLCING	516	NDB	369
Gjoa Haven (YHK)	13-31	RNAV	506	RNAV	504
Grise Fiord (YGZ)	14,32	N/A	2265	RNAV A	2265
Hall Beach (YUX)	12,30	VOR/DME	390	VOR/DME	399
Igloolik (YGT)	15,33	CIRCLING	507	NDB A	507
Kimmirut (YLC)	16,34	CIRLCING	871	RNAV	840
Kugaaruk (YBB)	05,23	CIRCLING	1009	RNAV	558
Kugluktuk (YCO)	12,30	CIRCLING	526	RNAV	506
Pangnirtung (YXP)	6,24	NDB A	2541	CIRCLING	2541
Pond Inlet (YIO)	02,20	NDB A	558	CIRCLING	558
Qikiqtarjuaq (YVM)	03,21	CIRCLING	1982	NDB A	1982
Rankin Inlet (YRT)	13,31	LPV	258	LPV	256
Repulse Bay (YUT)	16,34	CIRCLING	505	NDB A	505
Resolute Bay (YRB)	17,35	LOC(BC)	418	ILS	200
Sanikiluaq (YSK)	09,27	CIRCLING	510	NDB	450
Taloyoak (YYH)	15,33	RNAV	510	RNAV	495
Whale Cove (YXN)	15,33	NDB A	560	CIRCLING	560

Runway: IAPs


Grise Fiord
Resolute Bay
Arctic Bay
Pond Inlet
Clyde River
Cambridge Bay
Kugluktuk
Taloyoak
Igloolik
Qikiqtarjuaq
Gjoa Haven
Kugaaruk
Hall Beach
Pangnirtung
Repulse Bay
Baker Lake
Coral Harbour
Cape Dorset
Iqaluit
Sanikiluaq
Rankin Inlet
Chesterfield Inlet
Kimmirut
Whale Cove
Arviat
Baffin Bay
Greenland
Northwest Territories
Nunavut
Canada
Legend
No Straight-In Approach
One Rwy Straight-In Approach
Both Rwys Straight-In Approach
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image IBCAO
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Image U.S. Geological Survey
Google earth

Airport: Weather Services



Airport Improvements

Services and Accessibility

Summary of Improvements

Airports	Rwy	Existing Procedures		Estimated Procedures			I-NP Cert.	Improvement
		MDA	IAP	RNAV	LPV	MDA		
Limited Opportunity								
Qikiqtarjuaq	3	1982	NDB A	✓	x	1000 LNAV -	No.	982 LNAV -
	21	1982	NDB A	x	x	- -		- -
Arctic Bay	13	1348	RNAV (GNSS)	✓	✓	1348 LNAV 500 LPV	No.	- 848 LPV
	31	1831	RNAV (GNSS)	✓	x	- -		- -
Pangnirtung	6	2541	NDB A	✓	x	1800 LNAV -	No.	741 LNAV -
	24	2541	NDB A	✓	x	1800 LNAV -		741 LNAV -
Kimmirut	16	N/A	N/A	✓	x	600 LNAV -	No.	600 LNAV -
	34	840	RNAV (GNSS)	✓	x	840 LNAV -		- -
Grise Fiord	14	2260	R-RNAV (GNSS)	x	x	- -	No.	- -
	32	2260	R-RNAV (GNSS)	x	x	- -		- -
Rankin Inlet	13	258	RNAV (GNSS)	No Action Required			Ex.	- -
	31	258	RNAV (GNSS)					- -

Shown as a ● on map

Summary of Improvements

Airports	Rwy	Existing Procedures		Estimated Procedures			I-NP Cert.	Improvement
		MDA	IAP	RNAV	LPV	MDA		
Opportunity With Certification Change								
Kugaaruk	5	1009	NDB A	✓	✓	500 LNAV 350 LPV	Potential	509 LNAV 659 LPV
	23	558	RNAV (GNSS)	✓	✓	558 LNAV 350 LPV		- 208 LPV
Baker Lake	16	N/A	N/A	✓	x	560 LNAV -	Yes	NEW -
	34	513	RNAV (GNSS)	✓	✓	350 LNAV 300 LPV		163 LNAV 213 LPV
Whale Cove	15	560	NDB A	✓	✓	350 LNAV 250 LPV	Yes	210 LNAV 310 LPV
	33	560	NDB A	✓	✓	300 LNAV 250 LPV		210 LNAV 310 LPV
Pond Inlet	2	558	NDB A	✓	✓	350 LNAV 350 LPV	Yes	208 LNAV 208 LPV
	20	558	NDB A	✓	✓	350 LNAV 350 LPV		208 LNAV 208 LPV
Kugluktuk	12	526	NDB A	✓	✓	500 LNAV 250 LPV	Yes	26 LNAV 276 LPV
	30	506	RNAV (GNSS)	✓	✓	506 LNAV 250 LPV		- 256 LPV
Chesterfield Inlet	12	528	NDB A	✓	✓	350 LNAV 250 LPV	Yes	178 LNAV 278 LPV
	30	528	NDB A	✓	✓	350 LNAV 250 LPV		178 LNAV 278 LPV
Repulse Bay	16	505	NDB A	✓	✓	350 LNAV 250 LPV	Yes	155 LNAV 255 LPV
	34	505	NDB A	✓	✓	350 LNAV 250 LPV		155 LNAV 255 LPV
Igloolik	15	507	NDB A	✓	✓	350 LNAV 300 LPV	Yes	157 LNAV 207 LPV
	33	507	NDB A	✓	✓	350 LNAV 300 LPV		157LNAV 207 LPV
Taloyoak	15	510	RNAV (GNSS)	✓	✓	400 LNAV 350 LPV	Yes	110 LNAV 160 LPV
	33	495	RNAV (GNSS)	✓	✓	400 LNAV 350 LPV		95 LNAV 145 LPV
Gjoa Haven	13	506	NDB A				In process.	
	31	504	RNAV (GNSS)					

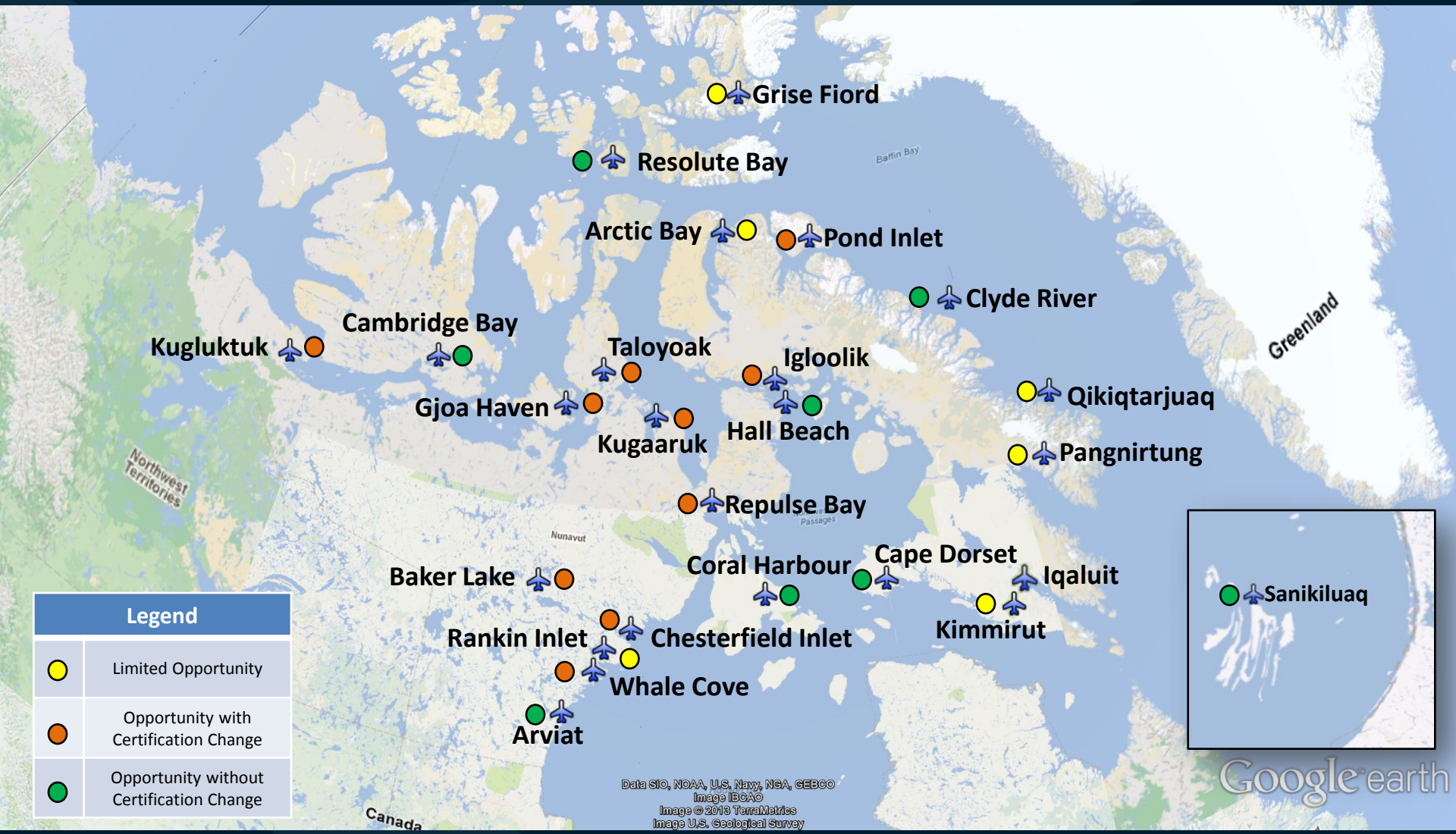
Shown as a ● on map

Summary of Improvements

Airports	Rwy	Existing Procedures		Estimated Procedures			I-NP Cert.	Improvement
		MDA	IAP	RNAV	LPV	MDA		
Opportunity Without Certification Change								
Coral Harbour	16	N/A	N/A	✓	✓	350 LNAV 250 LPV	Ex.	NEW 250 LPV
	34	369	NDB	✓	✓	350 LNAV 250 LPV		19 LNAV 119 LPV
Hall Beach	12	490	NDB	✓	✓	310 LNAV 250 LPV	Ex.	180 LNAV 240 LPV
	30	499	NDB	✓	✓	310 LNAV 250 LPV		189 LNAV 249 LPV
Arviat	15	506	RNAV (GNSS)	✓	✓	350 LNAV 250 LPV	Ex.	156 LNAV 256 LPV
	33	507	RNAV (GNSS)	✓	✓	350 LNAV 250 LPV		157 LNAV 257 LPV
Cape Dorset	13	642	RNAV (GNSS)	✓	✓	500 LNAV 500 LPV	Ex.	142 LNAV 142 LPV
	31	801	RNAV (GNSS)	✓	x	600 LNAV -		201 LNAV -
Resolute Bay	17	418	LOC(BC) DME	✓	✓	350 LNAV 250 LPV	Ex.	68 LNAV 168 LPV
	35	200	ILS/DME	✓	✓	350 LNAV 250 LPV		- -
Sanikiluaq	9	N/A	N/A	✓	x	400 LNAV -	Ex.	NEW -
	27	450	NDB	✓	x	400 LNAV -		50 LNAV -
Clyde River	2	796	RNAV (GNSS)	✓	x	796 RNAV -	Ex.	- -
	20	393	RNAV (GNSS)	✓	✓	393 LNAV 250 LPV		- 143 LPV
Cambridge Bay	13	298	RNAV (GNSS)	✓	✓	298 LNAV 250 LPV	Ex.	- 48 LPV
	31	315	RNAV (GNSS)	✓	✓	315 LNAV 250 LPV		- 65 LPV

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Northern Airports Usability Study



Next Steps

- Airport Usability and Certification
  - Finalize “Northern Airports Usability Study”
    - Share Analysis with NAV CANADA
    - Undertake ‘Desktop’ Certification Feasibility Study
      - Non-Instrument to Instrument Non-Precision
    - Prepare priority action list
  - Work with NAV CANADA on implementation
  - Where possible, complete Certification change

Certification Requirements & Approach Visual Aids

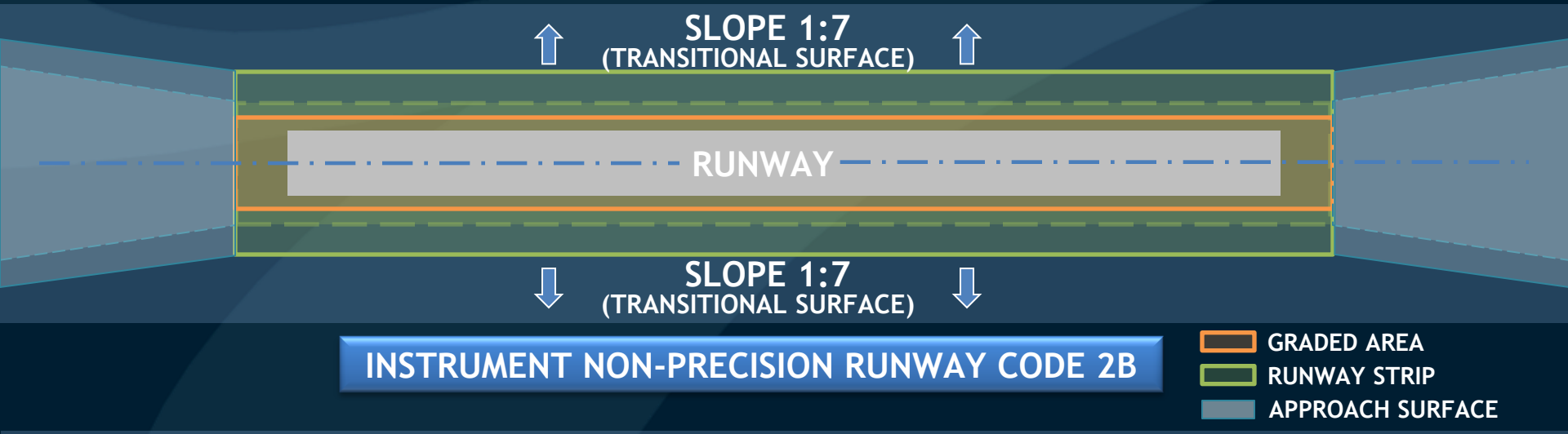
Technical Information

Runway: Code & Classification



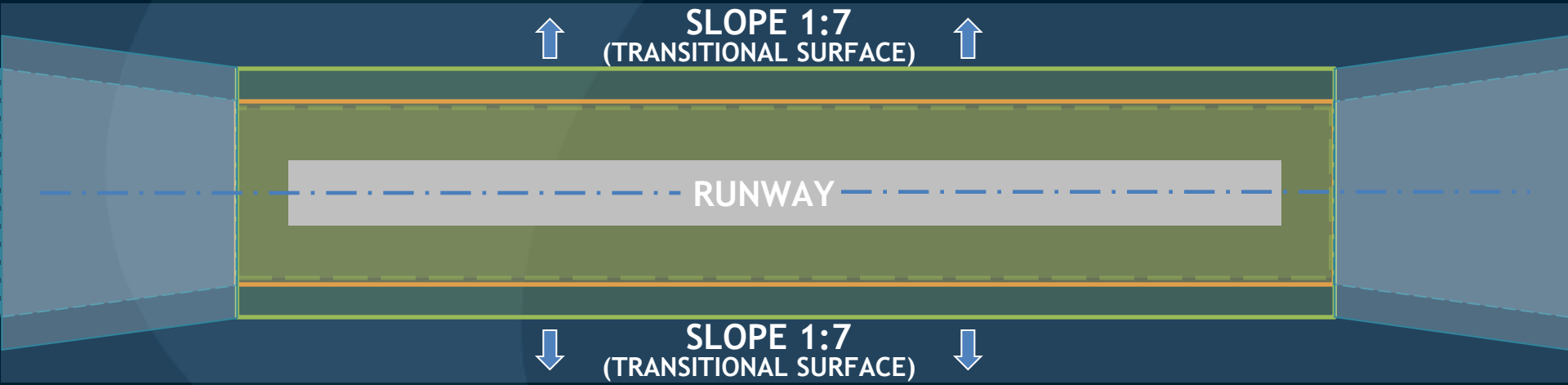
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Runway: Code & Classification



INSTRUMENT NON-PRECISION RUNWAY CODE 2B

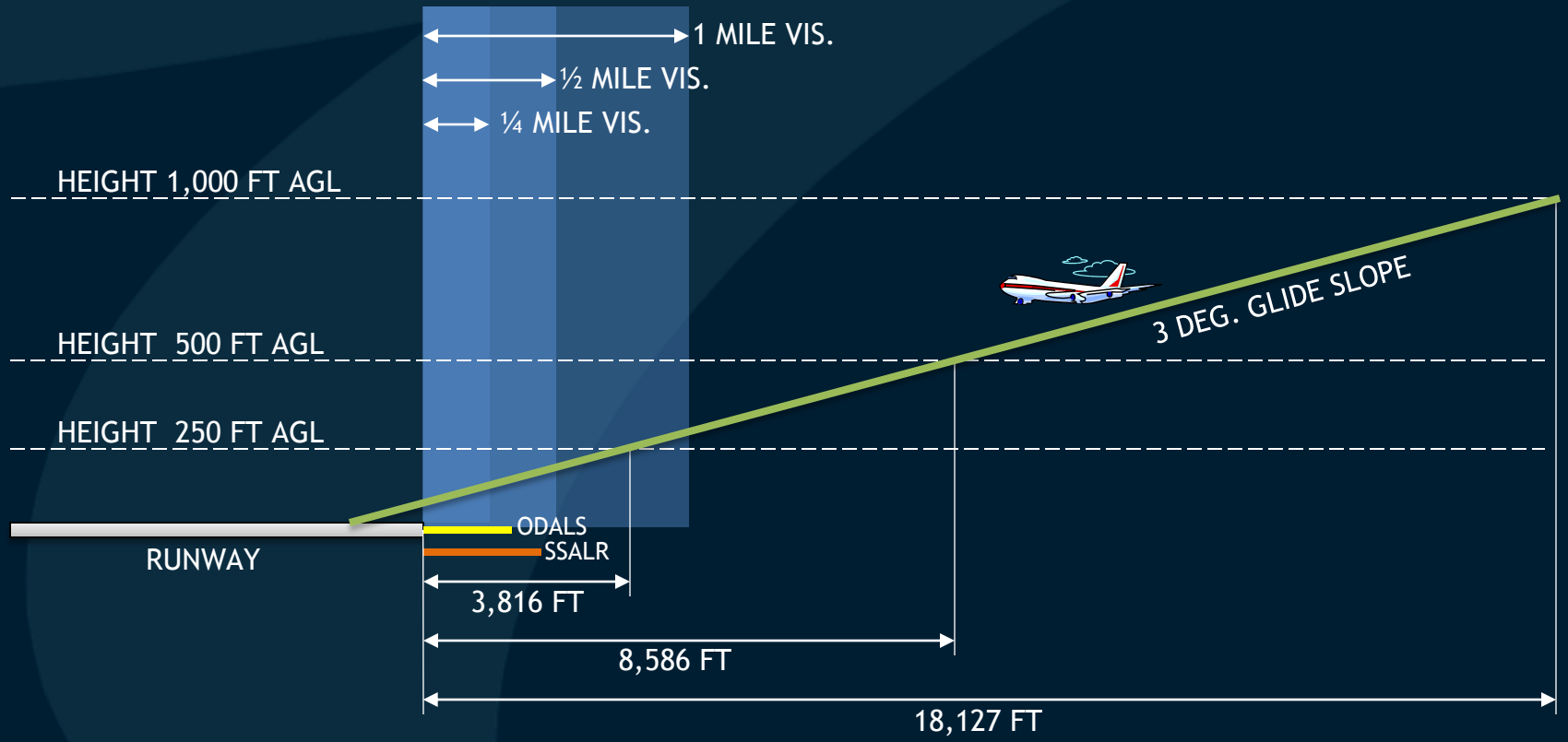
GRADED AREA
RUNWAY STRIP
APPROACH SURFACE



INSTRUMENT NON-PRECISION RUNWAY CODE 3C

NOTE: DIAGRAM NOT TO SCALE

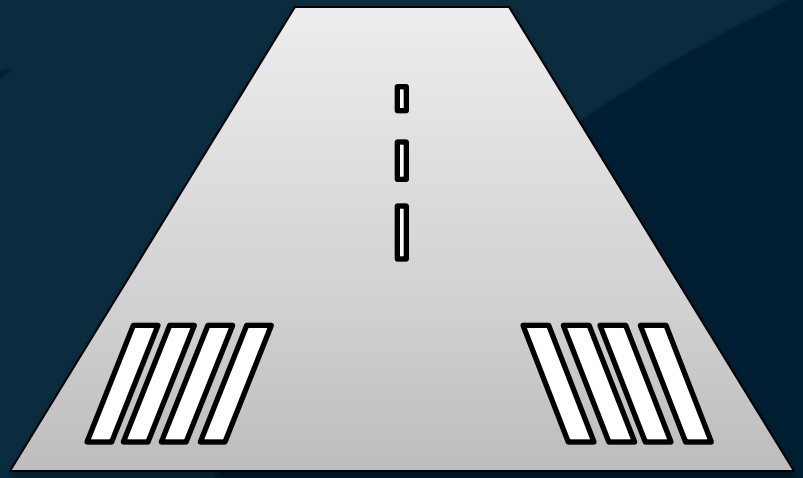
Approach Visual Aids



VISUAL LIGHTING AIDS



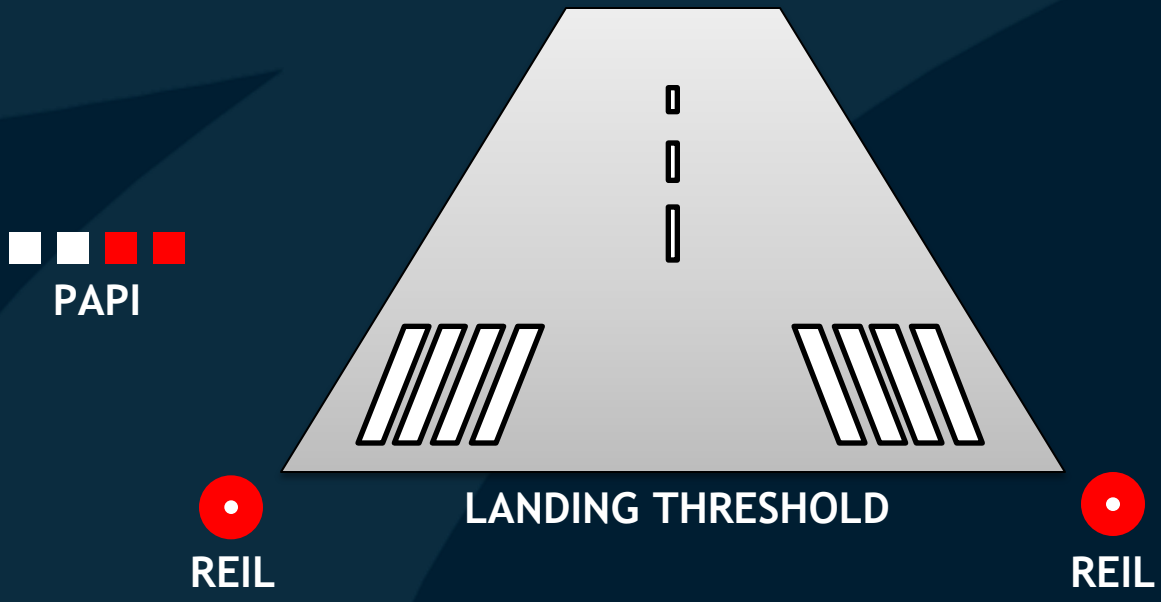
PAPI



LANDING THRESHOLD

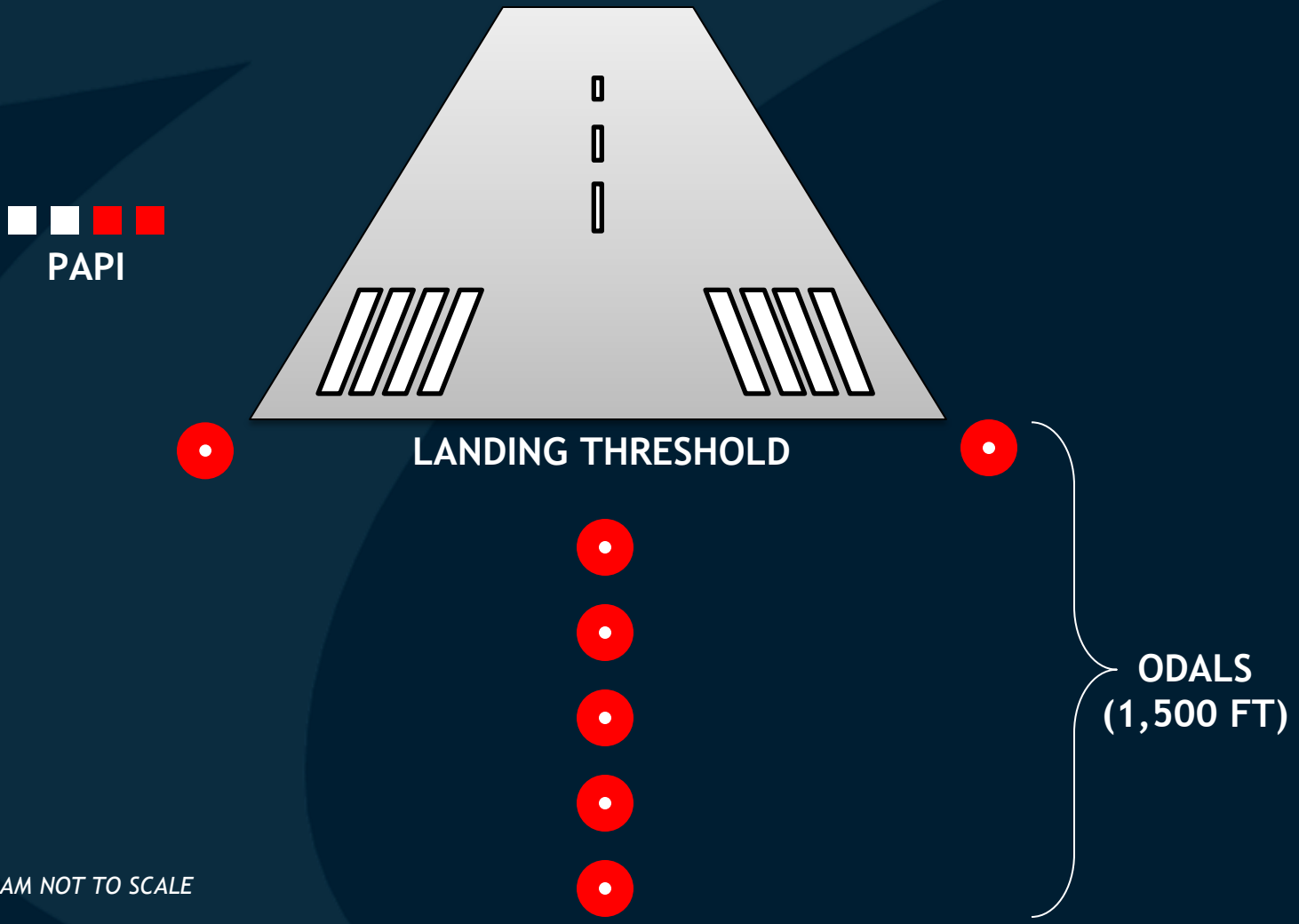
NOTE: DIAGRAM NOT TO SCALE

VISUAL LIGHTING AIDS

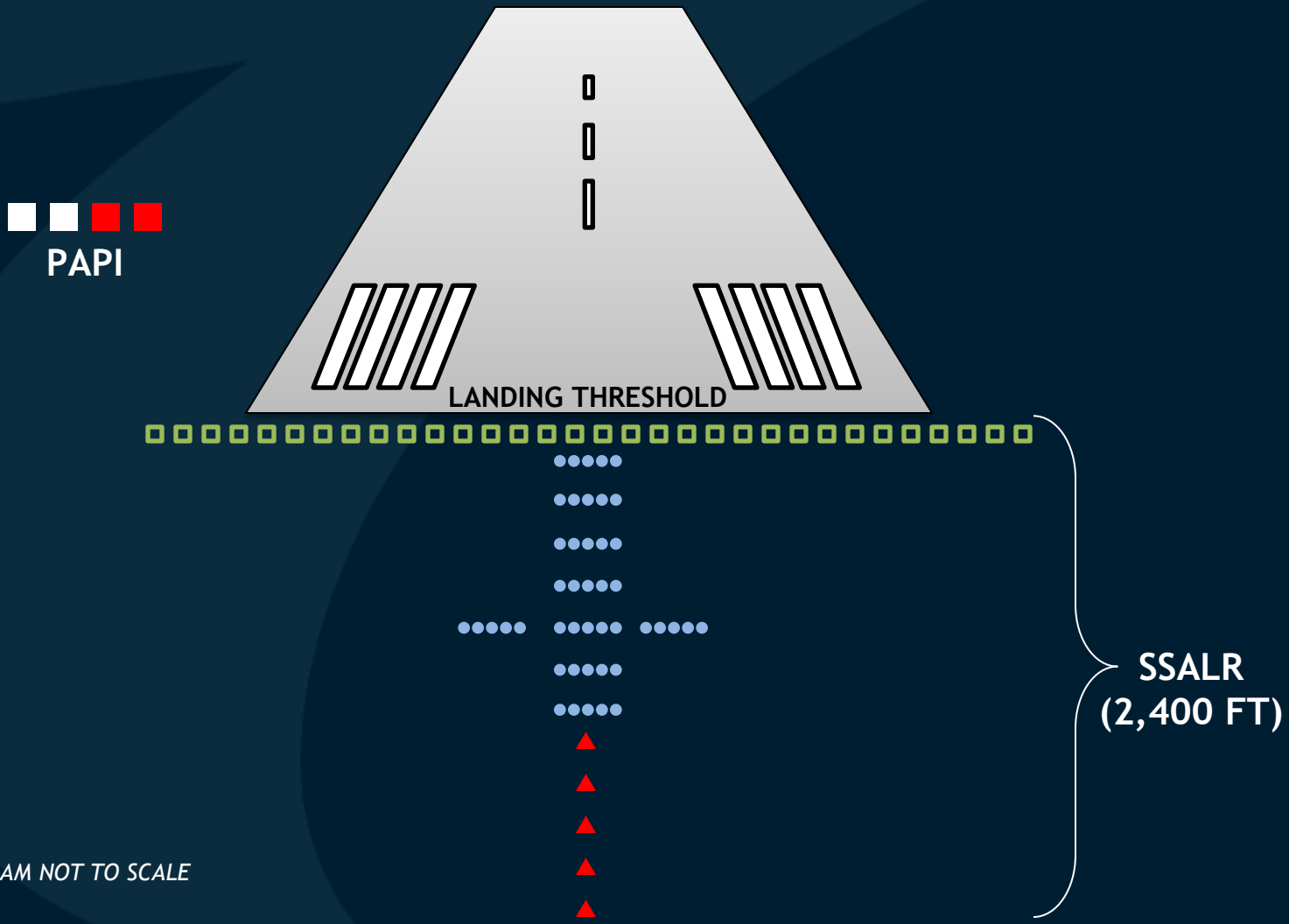


NOTE: DIAGRAM NOT TO SCALE

VISUAL LIGHTING AIDS



VISUAL LIGHTING AIDS



Questions?

Presentation by:

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Nunavut Airports

In consultation with GENIVAR

