Safety Survey Final Report
Impact Assessment regarding GNSS Approach

SAFETY MANAGEMENT SURVEY (**02/17**) – (**Impact Assessment regarding GNSS Approach**) – FINAL REPORT

References:

CAP 1122 - Application for instrument approach procedures to aerodromes without an instrument runway and/or approach control.

Introduction

This safety survey will review the appropriateness of the proposed GNSS approaches in to Scatsta Airport. A risk assessment, safety case and approach designs have previously been completed. A PRM and stakeholder meeting has also been completed in accordance with CAP1122. This safety survey has been requested to impact assess 3 specific areas; Operational impact, Environmental impact (NON aviation stakeholders) and Environmental impacts (aviation stakeholders). This safety survey will form part of the GNSS safety package.

Scope & Sources

The team was tasked with impact assessing operational effects of introducing a GNSS approach at Scatsta airport, as well as the environmental impact for both Aviation stake holders and non-aviation stakeholders.

The following sources of information were used:

Personnel
SATCO, USO, Bristow's Chief Pilot, CAA Regulator, Airport Manager, Serco Head of Aviation Safety

Documentation
CAP 1122, CAP 725, MATS part 2, GNSS safety case review

Findings

Operational

Significant 7
Scatsta airport has two Runways; 24 and 06. Approaches into 24 in poor weather conditions are completed using LOC/DME approach. When 06 is in use, aircraft complete the approach into 24 and VMC (Circle) into 06. A GNSS approach into 06 shall further enhance safety by removing need to VMC (Circle), reducing low level flying towards high ground and high energy manoeuvres for helicopters.

Flight Crew
The introduction of a GNSS approach would show a reduction in pilot workload by diminishing the need for manual flying of VMC (Circling). The minima for the GNSS approach is lower than the circling minima and would reduce the need for holding (for weather improvements) and diversions. In the event of a missed approach for RWY06 the procedure to follow, currently depend on the aircrafts position in the circle. The published missed approach for the GNSS will give a more defined procedure to follow than the current method and further enhance safety.

Air Traffic
The introduction of the new approach for 06 offers the availability of tactical vectoring and sequencing which helps in reducing traffic density (with increased certainty in regards to a published missed approach procedure, gives further assistance to the ATCO when planning).

Synopsis
The introduction of a GNSS shall improve safety, reduce operational risks and a reduction in the likelihood of a significant 7 event. For operational personnel, a published GNSS will improve planning, benefit the operational task and reduce workload.

Environmental (Non stakeholder)

The current circling approach results in flying over rural population and in close proximity to Sullom Voe oil terminal. The nature of north sea operations, results in holding for weather improvement and the resulting effect of increased noise, holding fuel, carbon foot print and time. The implementation of GNSS approach will reduce the above. In addition the GNSS Approach will avoid flying over rural populated areas as the majority of it is flown over sea.

Synopsis
In VMC conditions the impact on environmental non stakeholders is minimal, as the route is currently flown visually, however in IMC conditions there will be a positive result due to the reduction in flight time and minimal time flown over land.

Environmental (Aviation Stakeholders)

The GNSS approach has significant benefits to Aviation Stakeholders from an environmental standpoint. These include reduction in track mileage, fuel burn and time spent in the air as well as lessening the need for diversions due to weather.

Synopsis
Significant positive impact following the introduction of GNSS approach.

Conclusion

The Scatsta safety stakeholders have reviewed the impact of the GNSS approach and have concluded there is significant positive impact with regards to the implementation of this approach.

USO/USecO* Comments

The USO/USecO* may comment on the methodology and content of the report

ANNEX

SERCO – Impact assement for introduction of GNSS Approach					
Subject Area	Impact	Positive/Negative impact		Comment	
OPERATIONAL					
VMC (Circling)	Remove necessity	Positive			
Low level flying towards high ground	Remove necessity	Positive			
Holding	Reduced	Positive		Reduction in holding for weather improvement	
Diversions	Reduced	Positive		Reduction in necessity for diversion	
Helicopter manoeuvring	Reduction in high energy manoeuvring	Positive		Helicopters currently perform a tighter VMC (circling) for landing Rwy06.	
CFIT	Reduce risk	Positive			
Published Procedure	Reduce reliance on flying manually	Positive			
GNSS reliability	Workload, Planning	Negative		Mitigation of alternative approach procedures	
Reduced Minima	Reduce risk of diversions, holding	Positive			
Aircraft Capability	Availability of GNSS approach	Negative		May not have instrumentation to carry out procedure	
Significant 7	CFIT, Runway excursion	Positive		More stable defined approach procedure	
Sequencing	ATCO workload, planning	Positive			
ATCO/ATSA Workload	Reduces risk of HF error	Positive			
Pilot Workload	Reduces risk of HF error	Positive			
ENVIRONMENTAL (Non-stakeholder)					
Holding	Reduced necessity	Positive		In marginal weather conditions	
Approach	Approach routing in IMC conditions	Positive	Negative	Route aircraft from south and west to make approach mainly over sea rather than populated rural areas.	Helicopters from North east would increase their mileage flying a longer route to join GNSS approach.
Fuel Burn	Reduced fuel usage	Positive		For traffic from south and west	
Flying time	Reduced flying time	Positive		For traffic from south and west	
Nosie Abatement	Holding, Visual Circling	Positive		Reduction in populated rural area as GNSS approach mainly over the sea	
ENVIRONMENTAL (Stakeholders)					
Holding	Reduction in need for holding	Positive		Assist in ATCO planning/sequencing, reduce fuel usage for Operators	
Track Mileage	Reduction	Positive	Negative	Reduced mileage for inbound traffic from south and west, traffic from North East.	Increased mileage for Helicopter
Diversions	Reduction	Positive		In marginal weather conditions	
LVPs	Man power	Negative		Likelihood of a/c operations in LVPs increased. Increase workload for security.	