Fourth meeting of GBAS-SBAS Implementation Task Force (GBAS-SBAS ITF/4)

Video Teleconference

11-12 May 2022

GBAS - ATC PERSPECTIVE

Ritesh Kapoor

ritesh.kapoor@airservicesaustralia.com

BENEFITS OF GBAS - ATC

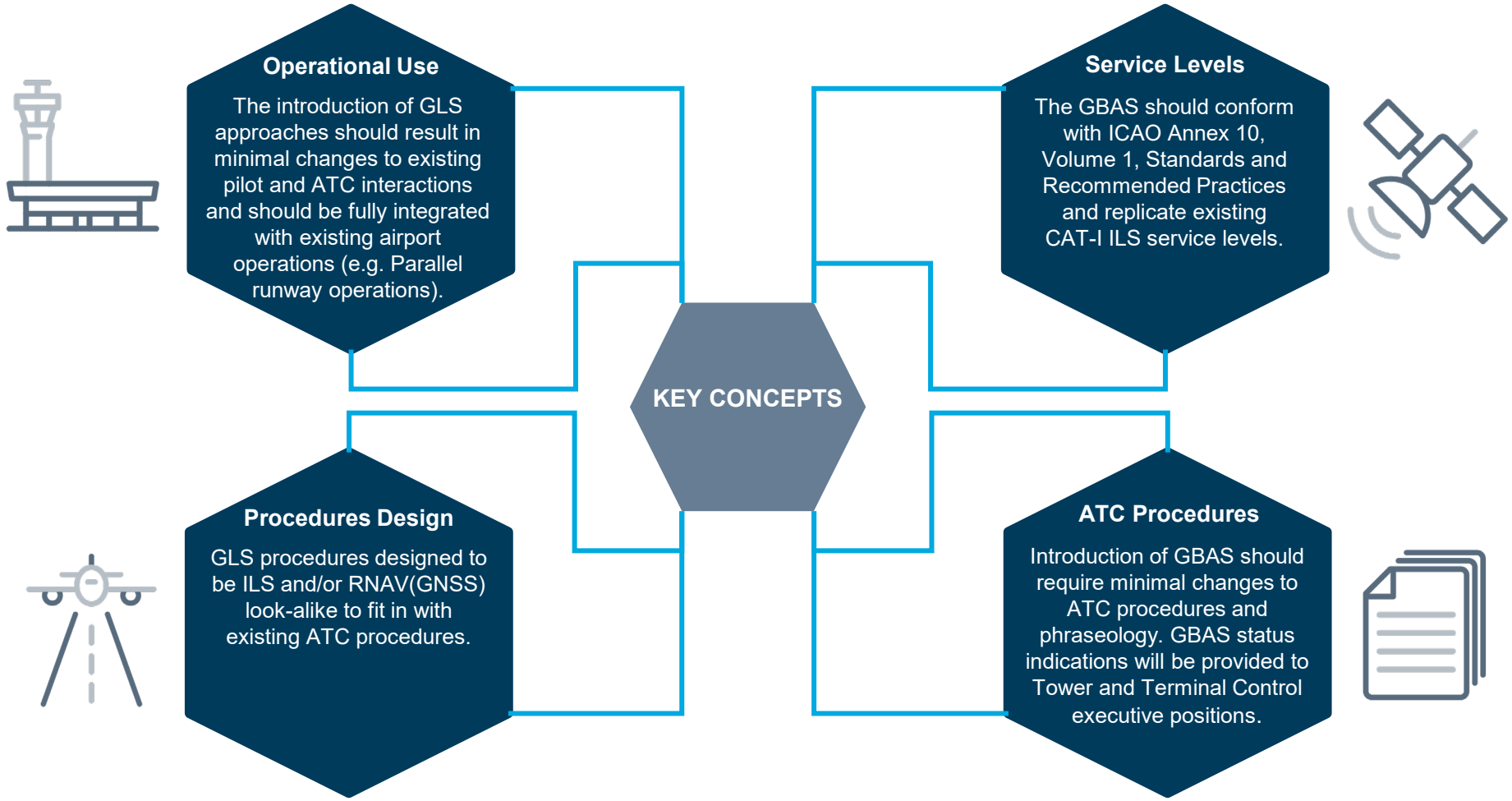
01 Expect no equivalent ILS Critical or Sensitive areas to protect allowing greater operational flexibility.

02 No loss of service during periodic flight calibration activities allowing the facility to remain in service.

03 Seamless transition from the ILS to GLS with minimal changes to existing practices.

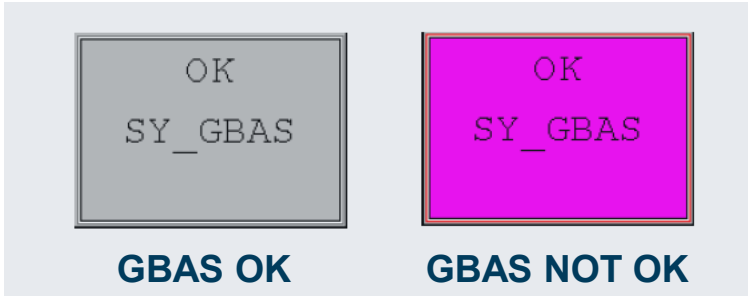
GBAS CONCEPT OF OPERATIONS

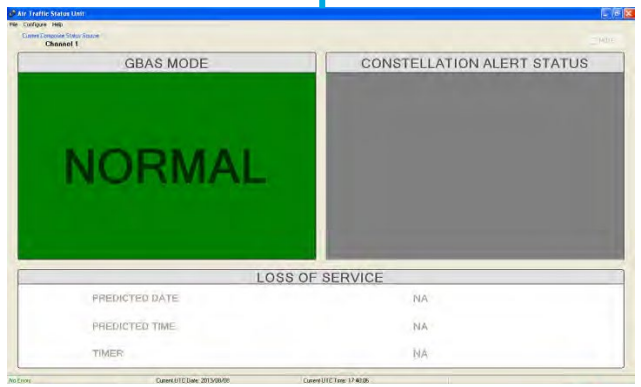
A dedicated GBAS Concept of Operations was developed to articulate how the GBAS would be used in the current Air Traffic Management environment. The Concept of Operations essentially involved replicating existing ILS practices.



SUMMARY OF CHANGES - ATC

AREA	SCOPE OF CHANGE
Sectorisation/Airspace	No change
Traffic Processing	No change
Phraseologies	Additional phraseology (e.g. “Cleared GLS”)
Separation	No change
Information provided to pilots	Additional GBAS information on ATIS (e.g. “Expect GLS”)
Documents	Local instructions and training documentation updated
Workstation operation	New GBAS monitor on Controllers screen
Equipment	New laptop used for advice of Constellation Alerts
HMI	Indication of aircraft approach in label data field *(no longer used)*
Abnormal/Emergency Operations	No change
Handover/takeover	Inclusion of GBAS information in Handover/Takeover
Degraded Modes	No change





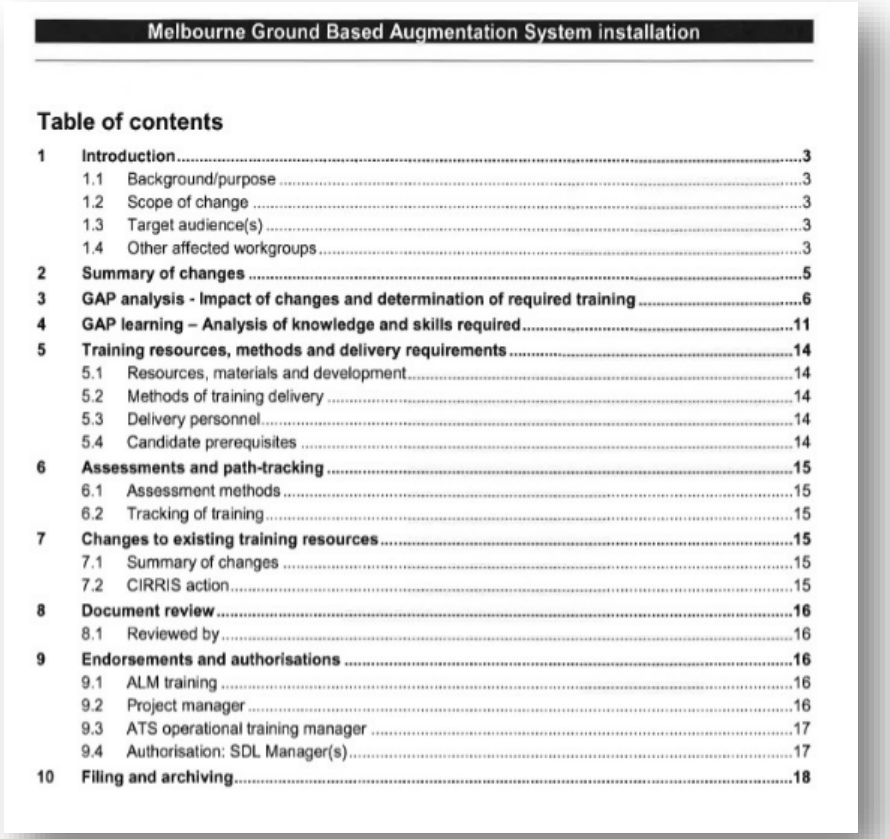
GBAS MONITOR ON CONTROLLERS SCREEN

GBAS LAPTOP USED FOR CONSTELLATION ALERTS

GBAS TRAINING - ATC

ATC TRAINING NEEDS ANALYSIS

- An ATC Training Needs Analysis (TNA) was completed in accordance with existing Airservices practices. This included:
  - GAP analysis – Impact of changes and determination of training required
  - GAP learning – Analysis of knowledge and skills required
  - Training resources, methods and delivery requirements
- Briefings provided to ATC on the GBAS by the project team
- Local instructions updated and a group circular developed. Briefings conducting internally within ATC.
- ATC provided with a briefing package on GPS satellite constellation alerting practices
- Practical skills consolidated through ongoing On The Job training for ATC



Melbourne Ground Based Augmentation System installation

Table of contents

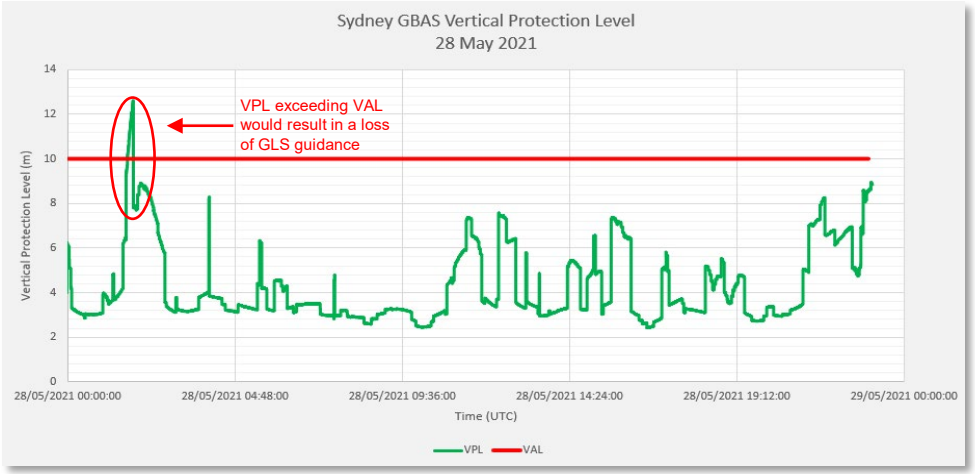
GBAS CONSTELLATION ALERTING - ATC

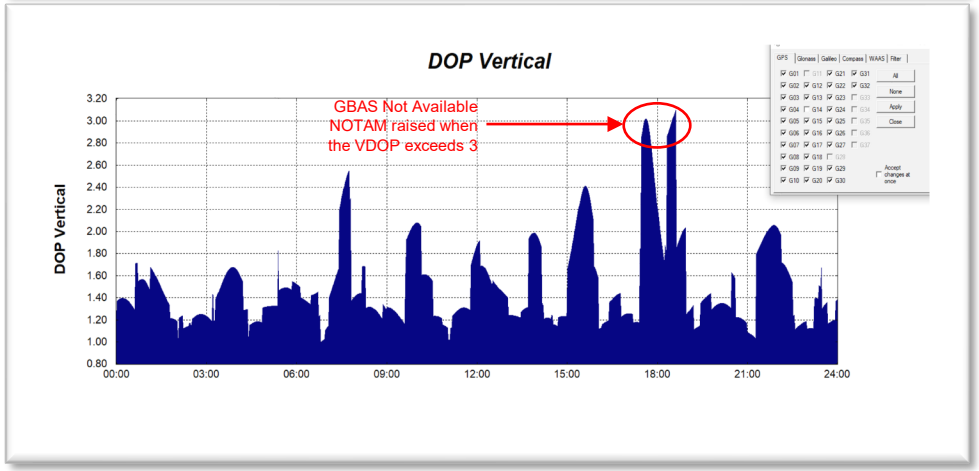
CONSTELLATION ALERTING PRACTICES

- Post implementation a limited number of aircraft reported a loss of vertical deviation indications whilst performing a GLS approach
- In response to these reports the GBAS was removed from service
- Loss of GLS guidance was due to the Vertical Protection Level (VPL) exceeding the Vertical Alert Limit (VAL)
- Attributed to the prevailing GPS satellite constellation being unable to support CAT-I precision approaches
- Airservices implemented a separate Constellation Alerting process
- GLS is not available during periods the GPS satellite constellation is predicted to be unable to support CAT-I precision approaches

EXAMPLE NOTAM

```
GROUND BASED AUGMENTATION SYSTEM (GBAS) NOT AVBL DUE CONSTELLATION
AVAILABILITY
FROM 05 111748 TO 05 171742
   1705111748 TO 1705111806
   1705121744 TO 1705121802
   1705131740 TO 1705131758
   1705141736 TO 1705141754
   1705151732 TO 1705151750
   1705161728 TO 1705161746
   1705171724 TO 1705171742
```





KEY LESSONS LEARNT

01

Initial Maximum Use Distance (Dmax) limitation of 23 NM presented challenges for ATC (especially during parallel runway operations where a course check is performed outside of 23 NM). Extended to 50 NM in 2020 reducing both pilot and ATC workload.

02

Loss of GLS course guidance observed in a limited number of aircraft resulting in removal of GBAS from service. Constellation Alerting practices introduced to preserve Continuity of Service. Briefing industry and internal stakeholders on differences to ILS is key.

03

GBAS approaches are the preferred approach method into both Sydney and Melbourne based on industry feedback.

THANK YOU

Ritesh Kapoor

Senior Engineering Specialist

ritesh.Kapoor@airservicesaustralia.com

airservices