

ICAO OPS Low Visibility Operations (LVO) Sub Group Initial Meeting April 2013

Presented to: Aeronautical Charting Forum IPG

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Date:



**Federal Aviation
Administration**



Overview for Today

- **The Overarching Low Visibility Ground Operations Goal**
- **Primary Initial ICAO Ops Panel Goals**
 - Harmonized international policies
 - Standardized charting and symbols
- **Research Efforts That may Assist Goals**
- **Discussion**



The Overarching Goal

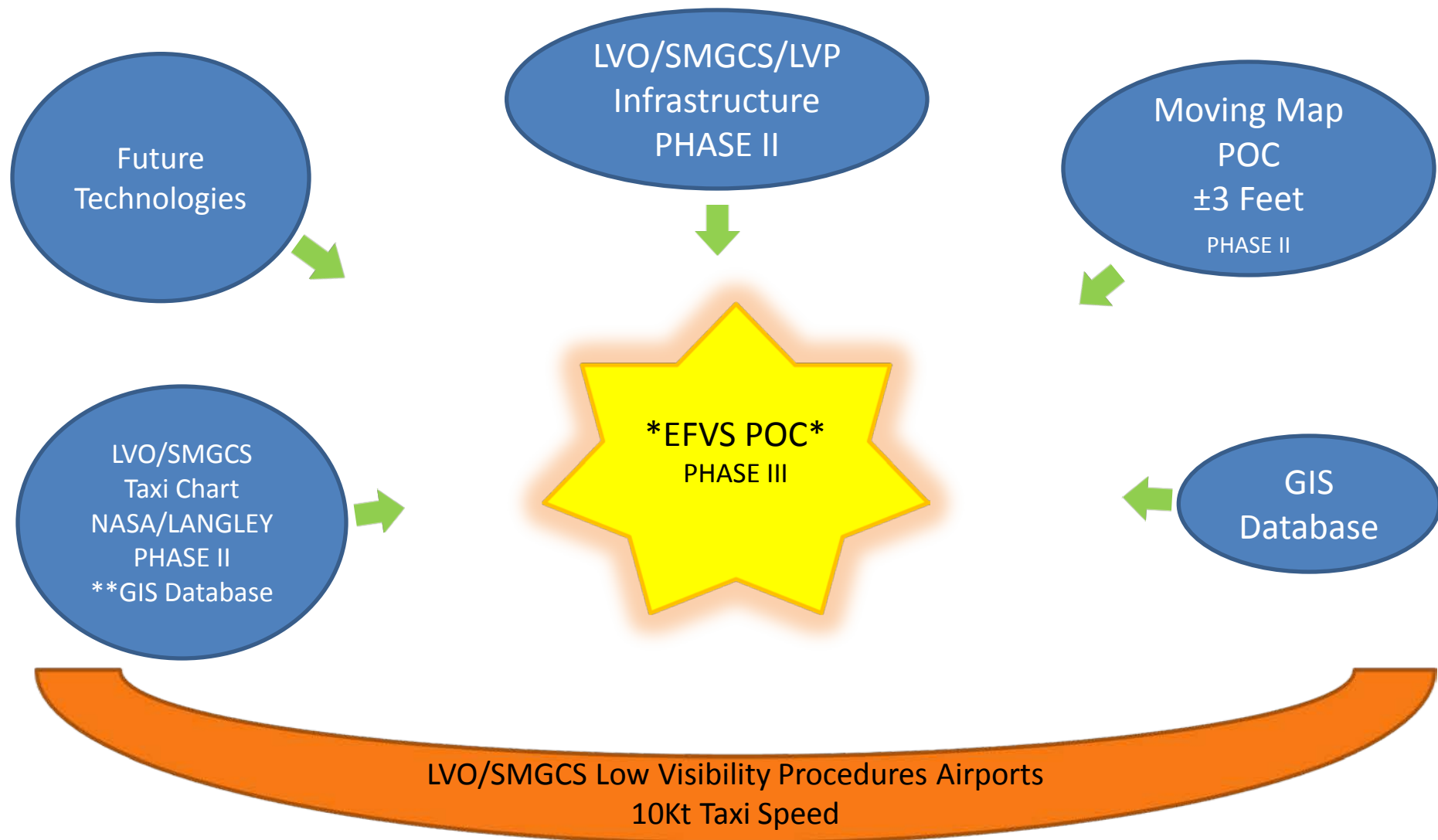
- As Close as we can get to:

**ZERO/ZERO VISIBILITY
GATE TO GATE**



GATE to GATE In Zero-Zero Visibility

ELVO Program Destination 2025



First Ops Panel Goal

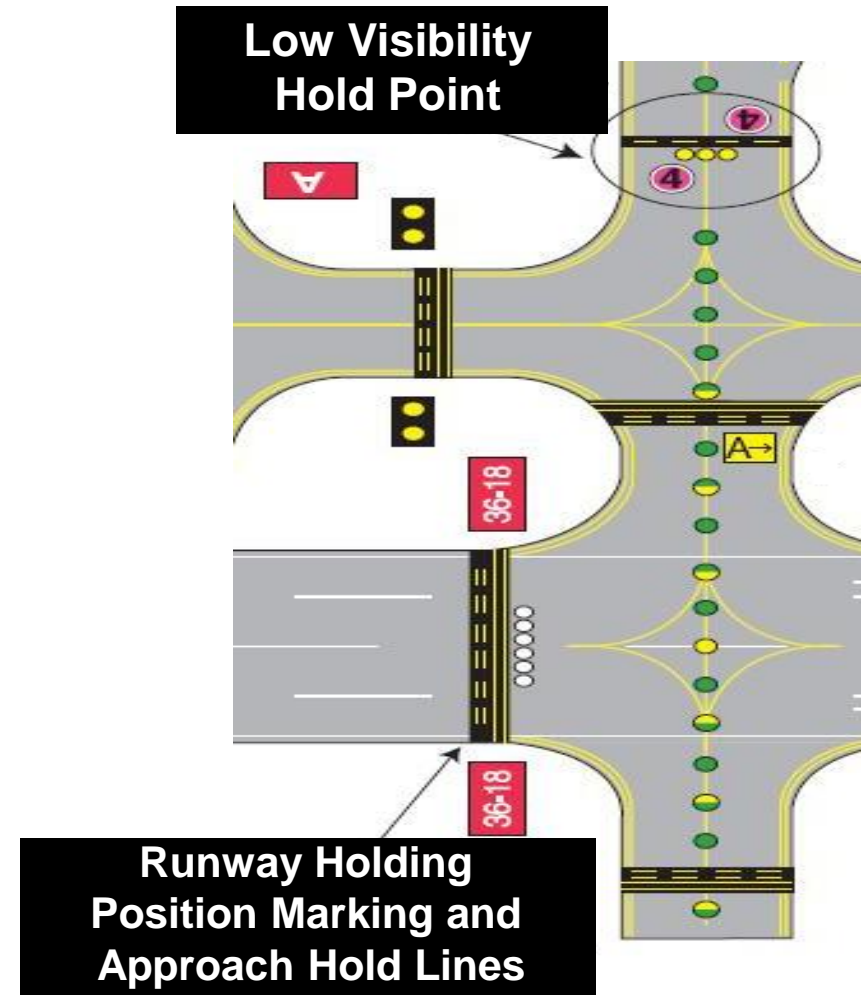
**Harmonized
international
policies**



Federal Aviation
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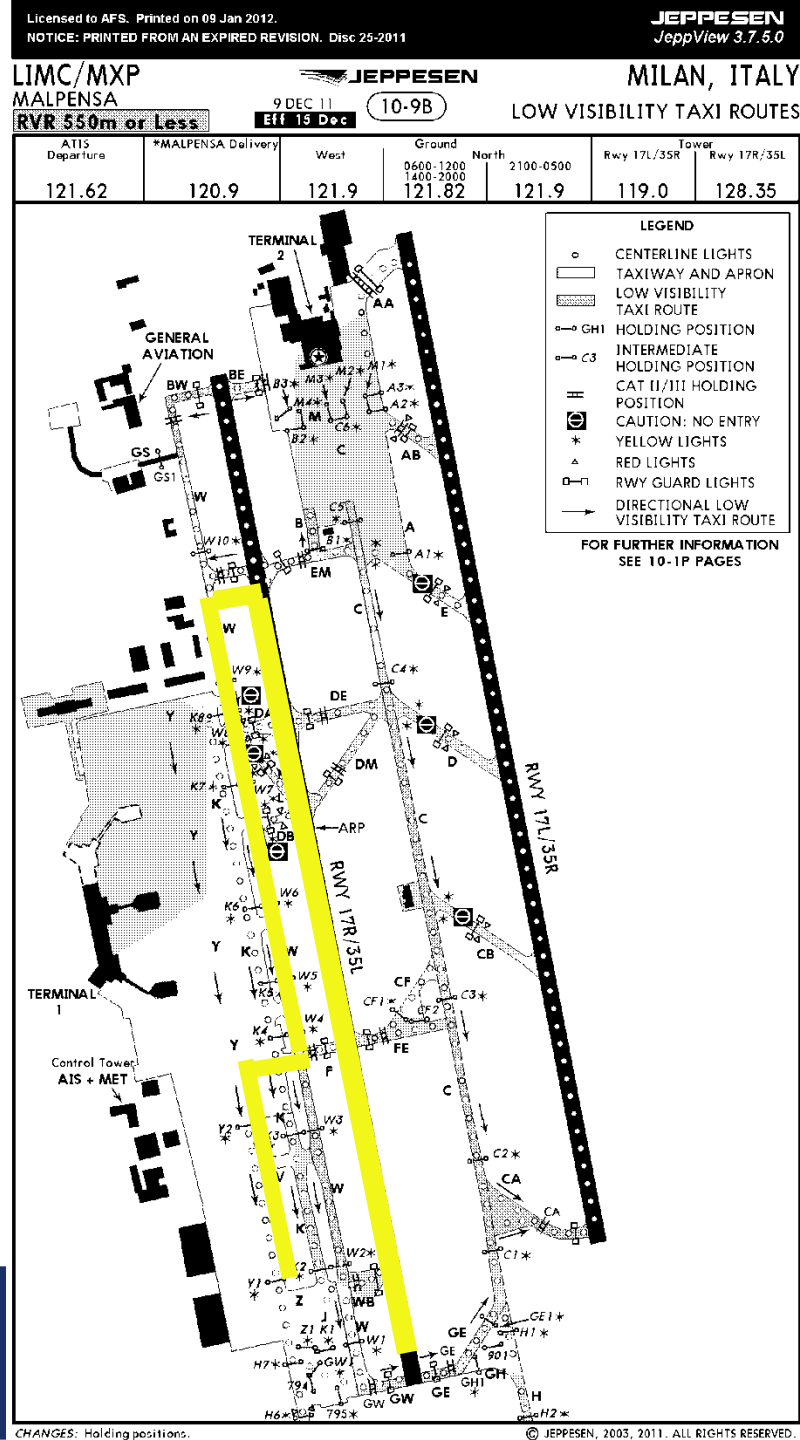
U.S. Inconsistencies

- Low Visibility Hold Point Markings– “Pink Spots, Geographic Position Markings”
- Runway Holding Position Markings and Approach Hold Lines



European Inconsistency

- Milan, IT
- Taxiway “W” Spots
- Geographic Position Markings are black signs with yellow & black Letters/Numbers



From the European All Weather Operations Guidance Manual Edition 4

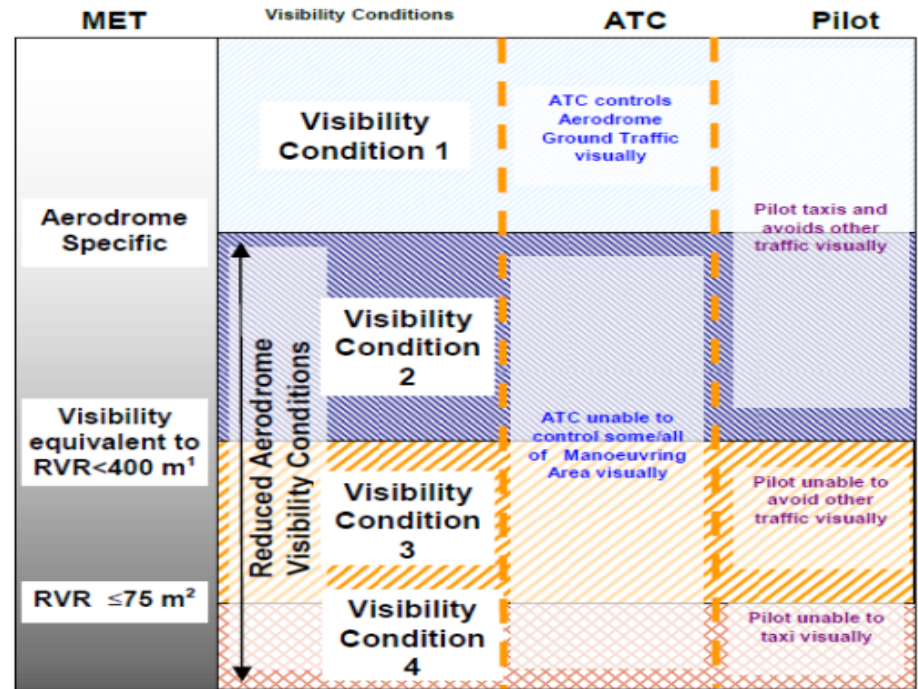


Figure 3.1 The relationship between ICAO Visibility Conditions.

Note 1.— For taxiing, this value is normally taken as visibilities equivalent to an RVR of less than 400 m but more than 75m. The value of 400 m is provided as an example in Doc 7030. Criteria for determining the transition between visibility conditions are a function of local aerodrome and traffic characteristics. See 3.2.3 and 3.2.4 for more details of the transition between visibility conditions.

Note 2.— This value is normally taken as an RVR of 75 m or less.

- 3.2.3 The transition from Visibility Condition 1 to Visibility Condition 2 occurs when meteorological conditions deteriorate to the point that personnel of control units are unable to exercise control over traffic on the basis of visual surveillance and in practice defines the entry to Reduced Aerodrome Visibility Conditions (RAVC). The transition will be different for each aerodrome, depending on factors such as the location and height of the ATC tower and the size and layout of the manoeuvring area. Reduced ground visibility will normally be the determining factor for this transition. However at some locations, such as those with tall control towers, low cloud may be a prevalent factor requiring consideration. The process of determining the boundary between Visibility Condition 1 and Visibility Condition 2, and



MET

Visibility Condition

Procedures

Approach Category

Aerodrome Specific

<550m/<1800ft
CG <75m/<300ft

<350m/<1200ft

<150m/<500ft

<75m/<300ft

RAVC

VISIBILITY CONDITION 1

Tower visibility 100%
Ground visibility 100%

INTERNATIONAL ¹

UNITED STATES

LVO/SMGCS LVP prep ²

550m/1800ft

CAT I

VISIBILITY CONDITION 2a ³

Pilot/vehicles see and avoid. Extra procedures/restrictions ensure ELOS for tower control.

IFR low vis spacing in effect
POFZ rules (<3/4)
CAT II requirements (Lighting, ATC...)

500m/1600ft

CAT II

450m/1400ft

SA CAT I

350m/1200ft

VISIBILITY CONDITION 2b ⁴

Pilot/vehicles see and avoid. Extra procedures/restrictions/equipage and LVO/SMGCS LVP ops ensure ELOS for tower control.

LVP (LVO/SMGCS Level 1)
-Equipage, procedures, training, qualifications, restrictions
CAT III requirements

300m/1000ft

SA CAT II

200m/700ft

150m/500ft

CAT III

VISIBILITY CONDITION 3

LVP(LVO/SMGCS Level 2)

75m/300ft

VISIBILITY CONDITION 4

Footnotes 1 & 2

- 1. Entry into Vis Condition 2: This value is locally determined depending on the size of the aerodrome, however the airports have to be under LVP/LVO/SMGCS operations by 1800 ft RVR/ 550 m.**
- 2. LVP/LVO/SMGCS prep. Determined locally, but should be completed before the airport goes below 1800 ft RVR/ 550 m.**



Footnote 3: Visibility Condition 2a Requirements

- At less than Category I ILS visibility conditions reduced number of aircraft operations
- Category II ILS conditions restrictions/qualifications/training apply
- Obstacle Free Zone protection

Equivalent Level of Safety [ELOS] to Air Traffic full visual control of aerodrome achieved



Footnote 4: Visibility Condition 2b Requirements

In addition to Vis Condition 2a restrictions

- **Category III ILS conditions restrictions/qualifications/training in place**
- **Low Visibility Procedures/Low Visibility Operations/Surface Movement Guidance Control System LVP/LVO/SMGCS invoked**
- **Increased LVP/LVO/SMGCS airport infrastructure applied**

ELOS to Air Traffic Visual Control achieved



Second Ops Panel Goal







**Standardized charting and
symbols**



Charting Variances

Stop Bars RGLs

Inconsistent Stop Bar & Guard Light Jepp symbols

 STOP BAR	 RUNWAY GUARD LIGHTS IN-PAVEMENT
 RUNWAY GUARD LIGHTS	 ELEVATED & IN-PAVEMENT GUARD LIGHTS
 RWY GUARD LIGHTS	
 ELEVATED GUARD LIGHTS ONLY	 HOLDING POSITION MARKERS & IN-PAVEMENT GUARD LIGHTS
 RUNWAY GUARD LIGHTS ELEVATED	 IN-PAVEMENT & ELEVATED RWY GUARD LIGHTS
 ELEVATED RUNWAY GUARD LIGHT	 RUNWAY GUARD LIGHTS IN-PAVEMENT
 RUNWAY GUARD LIGHTS (NOT INSTALLED YET)	 RWY GUARD LIGHTS
 TAXIWAY CLEARANCE BAR LIGHTS	 (Rwy Guard lights exist on all Twys that intersect a Rwy)

Joint FAA/NASA Langley/VOLPE Research



Figure 4. NASA Langley Research Flight Deck (Note: EFBs relocated)



International Picture

- **144 Category III ILS served airports world wide**
- **65 European Category III ILS served airports 4000 hours per year LVO at less than**
- **64 U.S. Cat III ILS served airports averaging 2500 hours per year LVO at less than 1000 ft RVR/300 m**
- **15 other airports in various locations**



Background

- **16 years in U.S. of Cat III ILS airports under LVO/SMGCS operations with 2500 hours average per year at less than 1000 ft RVR/ 300 m**
- **New Order 8000.94 resolving inconsistent policies defines responsibilities of AVS, ARP & AJO and key points of LVO/SMGCS program**
- **2012 Joint FAA/NASA Langley/VOLPE research providing data on RVR 300 ft/75m LVO operations and charting**



VOLPE CHART SYMBOLS USABILITY TEST

We Want You!

The United States Federal Aviation Administration is looking for pilots to participate in an LVO/SMGCS Symbol Study

Qualification:
Airline Transport Pilot
CAT III experience

Survey Duration:
About 45 minutes to complete

All Pilots Interested, Please Contact

Andrea Sparko @ (617) 494-3363
Andrea.sparko@dot.gov

or

Stephanie Chase @ (617) 494-6348
Stephanie.chase@dot.gov

****50 Random Pilots Who Complete The Survey Will
Receive a \$50 Gift Certificate to Amazon.Com****



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- Questions
- Discussion

