



**Thirty Seventh Regional Aviation Safety Group — Pan America Executive Steering Committee  
Meeting  
(ESC/37)**

Mexico City, Mexico, 25 to 26 May 2022

**Agenda Item 2: Safety management process within RASG-PA**

**SAFETY MITIGATION ACTIONS IN THE VALLEY OF MEXICO TERMINAL CONTROL AREA (TCA)**

(Presented by the Secretariat)

<b>EXECUTIVE SUMMARY</b>	
Considering the progressive degradation of safety in the Control Area (CTA) of Valle de Mexico, and more recently the significant number of safety alerts reported, the Project Proposal included in the <b>Appendix</b> seeks to assist Mexico in the identification and implementation of mitigation actions to the safety risk, which overall impact is not limited to the Valley of Mexico, but to the CAR region as a system.	
<b>Action:</b>	Under paragraph 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> <li>• Safety</li> <li>• Air Navigation Capacity and Efficiency</li> </ul>
<i>References:</i>	<ul style="list-style-type: none"> <li>• Valley of Mexico safety alerts</li> <li>• Airspace Design implementation in the Valley of Mexico</li> <li>• Last reports on Air Traffic Management (ATM) performance in the Valley of Mexico</li> </ul>

**1. Introduction**

1.1 At the beginning of the COVID-19 pandemic, the Mexico City international airport (MMMX) and Mexico in general registered a decrease in the number of operations. For example, from having up to 1,250 operations per day in MMMX, it ended up registering only 129. This extraordinary situation contributed to decongest operations at the Valley of Mexico Control Area (CTA), as well as the withdrawal of some operators.

1.2 Beginning in 2021, operations began to recover. By December 2021, they reached 1,087 due not only to the demand, but to the growth of airlines such as Aeroméxico, Volaris, and VivaAerobus.

**2. Discussion**

2.1 In March of 2021 a redesign of the airspace over the Valley of Mexico was implemented. Since then, there have been over 17 incidents of Ground Proximity Warning System (GPWS) alerts for planes approaching Mexico City’s Benito Juarez International Airport. In accordance with ICAO Annex 6, Chapter 6, basic GPWS provides time-critical alerts for potentially hazardous flight conditions involving imminent impact with the ground. GPWS is required to provide aural annunciations (Modes 1- 6) to assist the flight crew with immediate situational awareness of the aircraft’s height above the ground. In operating conditions where sudden change in altitude occurs, GPWS can announce wind shear (Mode 7).

2.2 On a recurring basis since the end of 2021, these safety alerts have been identified which, in the last months of 2022, have increased and raised the safety risk to significant and worrying levels. This is supported by the data and user reports of the airlines operating in the Valley of Mexico.

2.3 In the past few weeks, the users and the airlines expressed concern over the significant increase in safety alerts in the Valley of Mexico airspace, as well as the airspace inefficiencies and operational concerns.

2.4 This WP proposes a Project to analyze, and rectify issues or concerns associated with the Valley of Mexico airspace redesign, identifying and implementation mitigation actions to the safety risk. The Appendix presents the Project Proposal for this goal.

2.5 In this regard, the following Draft Conclusion is proposed:

<b>DRAFT CONCLUSION</b>	
<b>RASGPA-ESC/37</b>	<b>SAFETY MITIGATION ACTIONS IN THE VALLEY OF MEXICO TERMINAL CONTROL AREA (TCA)</b>
<b>What:</b> That, in order to assist Mexico and the CAR Region in identifying and implementing safety mitigation actions in the Valle of Mexico CTA, the Meeting approve the Proposal Safety Mitigation Actions in the Valley of Mexico Terminal Control Area (TCA) described in Appendix XX to this report	<b>Expected impact:</b> <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
<b>Why:</b> To provide technical assistance and guidance to Mexico for improving safety in the Valley of Mexico CTA	
<b>When:</b> Immediate	<b>Status:</b> <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed
<b>Who:</b> <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO <input checked="" type="checkbox"/> Other:	Project to be executed under the supervision of the NACC RO -Responsible: Ernie Snyder

**3. Suggested Action**

3.1 The Meeting is invited to:

- a) note the information of this paper;
- b) approve Draft Conclusion in 2.5 of this paper; and
- c) propose any action as deemed necessary.

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## APPENDIX

<b>Project Name:</b>	SAFETY RISKS MITIGATION ACTIONS IN THE VALLEY OF MEXICO TERMINAL CONTROL AREA (TCA)		
<b>Date:</b>	17/05/2022	<b>Area of interest:</b> Other	Version: 1
<b>Author:</b>	ICAO NACC Regional Office		
<b>Project Sponsor:</b>	Regional Aviation Safety Group–Pan America (RASG-PA)		
<b>Senior User:</b>	Mexico		
<b>Client:</b>	Mexico and the CAR Regional		
<b>Document ID:</b>	SAF202201(Priority area+Subject+Year+Ref #)		
<b>Document link:</b>			

Note: This document is only valid on the day it was printed

### 1. Executive Summary

- a. In March of 2021 a redesign of the airspace over the Valley of Mexico was implemented. Recently, several articles have been published expressing concern over the increase of safety alerts in the Valley of Mexico (see **Attachment**) including phraseology usage, unplanned holding, diversions and significant GPWS alerts. In accordance with ICAO Annex 6 Chapter 6 basic GPWS provides time-critical alerts for potentially hazardous flight conditions involving imminent impact with the ground. GPWS is required to provide aural annunciations (Modes 1- 6) to assist the flight crew with immediate situational awareness of the aircraft’s height above the ground. In operating conditions were sudden change in altitude occurs, Ground Proximity Warning System (GPWS) can announce wind shear (Mode 7).
- b. On a recurring basis since the end of 2021, these safety alerts have been identified which, in the last months of 2022, have increased and raised the safety risk to significant and worrying levels. This is supported by the data and user reports of the airlines operating in the Valley of Mexico.
- c. The ICAO NACC Regional Office, in coordination with Mexico, users, industry and the Pan American Regional Aviation Safety Team (PA-RAST) is the perfect group to facilitate the task mentioned in this project.

### 2. Problem / Opportunity Statement

*What problems are we addressing or opportunity are we pursuing?*

- a. Safety alerts in the Valley of Mexico have increased indicating a greater safety risk.
- b. Considering that safety management is the first aviation priority, this is an opportunity for RASG-PA, through this Project, assist and support Mexico and the aviation community to analyse the reports and issues within the airspace, and implement mitigation actions in the short, medium, and long terms.

### 3. Business Options

*Analysis and reasoned recommendation for the base business options of: do nothing, do the minimal or do something.*

- a. Do Nothing: Higher safety risk with a greater possibility for a major incident or accident.
- b. Do the minimal: A precursory analysis of the reports without resolving underlying issues
- c. Do something: Thoroughly analyse the airspace redesign including all parties involved resulting in a solution that resolves the safety issues in the airspace.

### 4. Expected Benefits

*The benefits that the project will deliver expressed in measurable terms against the situation as it exists prior to the project.*

Upon completion of the analysis and any required implementation a resolution of safety concerns, and a reliably safe operation in the Valley of Mexico.

#### **Main Benefits:**

- Increase safety levels
- Reduced safety alerts
- Increased confidence to operate in the Valley of Mexico
- Increase of overall safety

### 5. Expected Detriments

*Outcomes perceived as negative by one or more stakeholders. Dis-benefits are actual consequences of an activity whereas, by definition, a risk has some uncertainty about whether it will materialize.*

An ineffective analysis of the airspace in the Valley will take considerable time and resources. There are over 1000 operations at Mexico City's Benito Juarez airport and another 1000 operations in the immediate area and surrounding airports.

Also as detriment, the stakeholders may see adjustments to the current airspace requiring training and possible Traffic Management Initiatives during this process.

## 6. Project Objectives

*Objectives are statements that specifically describe what is to be achieved within the project's mandate in order to meet the overall project goal. Wherever possible, objectives should be quantified and "SMART" (Specific, Measurable, Achievable, Realistic, and Time-Based).*

The main objective of this project is to assist Mexico in the implementation and identification of mitigation actions to increase safety levels in the Valley of Mexico..

## 7. Scope Statement / Project deliverables

*Defines what is being produced. Deliverables relate to, and satisfy, the specific project requirements or capabilities. Deliverables must cross-reference and satisfy the project's objectives.*

The Project is formulated as an analysis and programme of 1 year. The scope of this project will be for the airspace in the Valley of Mexico. The lead for this Project will be the ICAO NACC Regional Office. The deliverables will be as follows:

- a) Reduce safety alerts by 50%
- b) 4 Subject Matter Expert team meetings
- c) Meeting follow-up reports on meeting action items.
- d) Mechanism to follow-up implementation by tracking safety alerts (Traffic Alert and Collision Avoidance System/Traffic Collision and Avoidance System (TCAS), GPWS, go-arounds etc...) Dashboard

## 8. Critical Success Factors

*Defines what is needed as necessary conditions for project success.*

- High-level engagement and commitment from the different Stakeholders (State support –Civil Aviation Authority (CAA) Director General level, airport operator support, Air Navigation Services Provider (ANSP) support, air operator support, etc.)
- Commitment of the State Point of Contact (PoC) thru the entire project
- Engagement by involved parties- execution level, including active participation by Focal Point
- RASGPA support (data, funding)
- State and International organizations support for Subject Matter Experts (SMEs). Selection of SMEs

## 9. Budget / Costs / Funding

*Source and funding amount (whether annual or in total) not be exceeded.*

It is expected that, as most of ICAO projects, the States and industry SME support on a pro-bono scheme would reduce costs relating to missions and document preparation. Project management and administrative costs are expected to be covered by current known mechanisms of RASGPA projects. By working on regional guidance and projects, cost-benefit analysis are expected to deliver positive results compared with individual efforts by States and with consultants. The projected cost of the Project is US\$45,800.00.

Activity	Potential direct cost (USD)	Notes
1. Assist and support the Mexico Valley Safety Team- for immediate/short term evaluations and recommendations	NIL	IATA, ASPA; CPA, AFAC; SENEAM, etc...  May- Sept. 2022
2. Support Mexico on development of communications (AIP, NOTAM, etc.) on short term mitigation actions	USD4,000.00	RASG-PA SMEs participation  May- Sept- 2022
3. Assistance/ monitoring to State on Air traffic controller (ATCO) phraseology	Supported by RASG-PA Project	SME assistance to support State  May- July 2022
4. Prepare an airspace analysis implementation roadmap including a plan (with target dates) for the Valley of Mexico	USD4,000.00	Prepared by the NACC Regional Offices with the support of State's focal points
5. Create a monitoring mechanism by the ICAO NACC Regional Office (virtual meetings, dashboards, reports) using all existing platforms	NIL	RASG-PA dashboard can be used, focused on Mexico
6. Compile and prepare best practices and guidance material to support airspace analysis	USD3,000 Recommendations on mitigation actions, Content development	Use of email and available current resources. Potential use of ICAO Portal resources.
7. <i>Establish SME Team to analyse the airspace redesign and any safety issues associated with it.</i> <ul style="list-style-type: none"> <li>• <i>4 in-person meetings (5 days) through the end of 2022</i></li> <li>• <i>SME Team including but limited to: SENEAM, AFAC, FAA, IATA, IFALPA, ICAO, CANSO, Aeromexico, Viva Aerobus, Volaris and 1 International carrier.</i></li> </ul>	<i>3 SME's from outside Mexico City, Per diem for 6 nights plus airfare</i>  Total estimated: USD34,800.00	<i>4 SMEs to be funded by Project (possible virtual simultaneous?) Other costs such as meeting room, interpretation as needed. projector or visual equipment, coffee breaks, etc., not included and supported by Airport/State</i>

## 10. Stakeholder / Communications Plan

*Identifies the key individuals or organizations that have a clear **stake** in the project's success. Who is impacted by the project, and how should they be involved?*

<b>Key Individuals/Organizations:</b>	<b>Specific Needs/Concerns:</b>	<b>Actions/Mean/Frequency of Communication</b>
RASGPA ESC	Follow-up / Decision making	WP for ESC meetings Dashboard
RASGPA and GREPECAS Secretariat	Follow-up	Monthly reports Email Dashboard
Focal points from Member States	Follow-up / Action	Monthly meetings Monthly reports Email Website
Involved Stakeholders (airport, ANSP, air operator, CAA)	Follow-up	Dashboard
Donors	Follow-up	WP for ESC meetings Dashboard

## 11. High Level Milestone/Stages Schedule

*Identification of the major project phases and when they will be completed*

<b>#</b>	<b>Major Project Phases / Milestones</b>	<b>Completion Date</b>
1	Phase 1Preparation & Analysis – identify measures/implement short term measures (immediate)	October 2022
2	Phase 3Project Deployment required training to be carried out by State	Mid 2023
3	Closing phase – next improvements	YE 2023

## 12. Acceptance Criteria

*Identify the quality standards and criteria that apply to the project. Explain how the plan will ensure adherence to these standards and criteria.*

- Acceptable safety levels reflected in the reduction of safety alerts by 50%

### 13. Risk Management Plan

List of major risks confronting the project. Assessment of severity (H/M/L, or high, medium or low) as determined by (1) probability, and (2) potential impact. For each High risk item, develop appropriate mitigation plans.

#	Major Risks	Assessment	Mitigation
1	Lack of interest	H	<i>Demonstrate business case to potential sponsor showing benefits that the project may deliver, along with its alignment to Global ICAO provisions</i>
2	Lack of funding	M	<i>Due to the high benefits of this implementation and relative low cost, look to ensure funding from RASGPA, ICAO Regional Project or third party interested to support the project</i>
3	Lack of expertise to develop the project	M	<i>Engage with recognized organization or thru ICAO to get the right people for the task.</i>
4	State may not participate on the project	H	<i>Include the project as part of already accepted mechanisms by States (such as RASGPA &amp; GREPECAS Projects).</i>
5	Low involvement and consultation of other Stakeholders (airport operator, airlines, pilots, ATC).	H	<i>Foster collaboration with partners (ACI, IATA, CANSO, IFALPA, IFATCA) to ensure stakeholder point of view.</i>
6	Sharing of sensitive data	M	<i>Identifying the measures that will be taken to protect data. Stick to safety data only.</i>

### 14. Project Team Organization

Who will be involved in managing the project and how will they interface?

<b>Project Sponsor:</b>	<b>Role:</b>	<b>Responsible for:</b>
RASGPA		Follow-up High Level engagement to the project Project mandate
<b>Project Manager:</b>	<b>Role:</b>	<b>Responsible for:</b>
NACC RONACC RO/ATM/SAR/2		Manage the project activities and deliverables Reports to sponsor
<b>Team Member:</b>	<b>Role:</b>	<b>Responsible for:</b>
State assigned focal point, users, industry, PA-RAST		Follow-up project activities under his/her area of responsibility

To be determined		Support project activities on corresponding stakeholder
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## 15. Project Control Procedures

*Anticipated processes for monitoring and ensuring work progress, including: Status reporting and frequency, Review meetings (including who and when), Tracking methods and tools*

- Monthly review meetings
- Monthly reports
- WP on RASG-PA and GREPECAS meetings
- Dashboard

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## Attachment



SAFETY BULLETIN

22SAB11  
4 May 2022

## Mexico City International Airport (MMMX)

### BACKGROUND

Mexico City International airport was declared as over capacity in 2014. As a result, the Santa Lucia Military Airbase (MMSM) has been developed into a mixed civil/military airport for simultaneous operations between MMMX and MMSM. MMSM opened 21 March 2022.

### CONCERNS

In the past month IFALPA has been made aware of several incidents involving aircraft arriving at MMMX with low fuel states due to unplanned holding, diversions for excessive delays, and significant GPWS alerts where one crew almost had a Controlled Flight into Terrain (CFIT).

It would appear that with the opening of this newly converted airport, ATC has apparently received little training and support as to how to operate this new configuration in the airspace.

Crews have received clearances that do not adhere to terrain avoidance restrictions on the STAR. Additionally, proper ICAO phraseology is not being used, adding to confusion on altitude restrictions.

### CONSIDERATIONS

It is recommended that crews consider carrying additional fuel to allow for the prolonged holding and possible diversions and also consider that MMMX is a high altitude airport and be prepared for operating in that environment.

It is also recommended that crews exercise heightened terrain situational awareness and strictly adhere to published altitude restrictions.

If you receive a clearance that you find questionable, resolve the clearance to your satisfaction.

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1. <https://www.elfinanciero.com.mx/opinion/dario-celis/2022/05/06/sedena-interviene-seneam/?outputType=amp>
2. [Airline Group IATA Calls Out 'Worrying Situation' in Mexico City - Bloomberg](#)