

6 March 2014
F500-L14-018

Ing. Jorge Nevárez Jacobo
Aeropuertos y Servicios Auxiliares (ASA)
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México

Subject: Data Review

Dear Ing. Nevárez:

The MITRE team conducted a thorough review of the data that ASA sent to MITRE in late February. The intent of this letter is to provide feedback regarding MITRE's review of that data. Please note that this document itself contains new questions and requests, so it should be considered as a review and data request. Please send an e-mail confirming that you received this letter. Also, please send a response to the comments and requests of this letter by 24 March 2014, including the dates by when the remaining data will be sent to MITRE, if not by the 24th.

MITRE's data request document submitted to ASA in November 2013 (see Enclosure No. 6: Project Data Preparation and Computerized Database Loading, referenced in MITRE Technical Letter F500-L14-004) included information requested for MITRE's work regarding potential new airport sites in the State of Hidalgo. Now that MITRE has visited the potential new airport sites and met officials from the government of the State of Hidalgo, MITRE will request that data directly from those officials.

Data Review

The intent of this letter is to provide feedback regarding MITRE's review of data sent by ASA to MITRE in late February 2014. Much of the data is based on MITRE's above-mentioned data request document. Therefore, to make this review easier to follow, a format similar to that data request document has been used here. Note below that each request was copied, followed by a "MITRE Response"

General Data (Requested by 15 January 2014)

- A current version of Mexico's Aeronautical Information Publication (AIP), including all aeronautical charts. A subscription for MITRE, on behalf of Ing. Robert Kleinhans for amendments to the AIP for as long a period of time as possible (but no less than one year) should also be provided.

MITRE Response:

The Mexico AIP has been provided to MITRE. However, MITRE was informed that ASA has acquired its own one-year subscription for amendments, and would send amendments to MITRE as they are issued. However, MITRE prefers to have its own subscription so that amendments are sent directly to MITRE and less coordination is required. MITRE used to receive directly the AIP amendments until 2012 by mail.

MITRE has had difficulty in the past when trying to purchase the Mexico AIP and a subscription to amendments. For example, the method of payment often changes and causes confusion. Therefore, it would be greatly appreciated if ASA could assist MITRE in the AIP and subscription acquisition process as follows:

1. Inform MITRE of the cost of the AIP and a two-year subscription
2. Inform MITRE of the current method of payment (e.g., credit card, money order, etc.). If a money order is required, please indicate to whom or to what organization the money order should be made out to (e.g., Dirección General de Aeronáutica Civil)

MITRE will pay directly the DGAC if a credit card can be used. Otherwise, MITRE would submit the money order to ASA (i.e., a check), requesting your assistance in order to obtain the AIP subscription.

In the meantime, please continue to send any amendments to MITRE in a timely manner.

- Known plans for:
 - Changes to the existing navigational aid (NAVAID) infrastructure within a 100 NM radius of existing Mexico City International Airport (AICM). For example, the decommissioning of Very High Frequency (VHF) Omni-directional Range (VOR) or Distance Measuring Equipment (DME) facilities.
 - Changes to the existing enroute airways structure of Mexico.

MITRE Response:

This information has not yet been received.

Unless ASA objects, MITRE would like to request this information directly from SENEAM. Please let me know if that is acceptable.

- MITRE is assuming, unless specifically told otherwise by relevant Mexican authorities, that the existing MEX VOR/DME (located at existing AICM) and the SLM VOR/DME (located at existing Santa Lucía Air Base) will continue to operate after the opening of Nuevo Aeropuerto Internacional de la Ciudad de México (NAICM) and the consequent closure of those airports facilities. If this

changes, MITRE needs to be informed as this could affect the results of some of MITRE's aeronautical analyses.

MITRE Response:

MITRE is still assuming that the MEX VOR/DME and the SLM VOR/DME will continue to operate after the opening of NAICM. Has ASA discussed this matter with SENEAM and the DGAC? This is important as MITRE is counting on the availability of these navigational aids for procedure design purposes. If either of the navigational aids were to be decommissioned in the future it could affect the results of some of MITRE's procedure designs. Therefore, please investigate this matter and inform MITRE of any plans to decommission those navigational aids.

NAICM and NAICM Data (Requested by 28 February 2014)

This section provides a listing of data that MITRE requires in order to conduct tasks pertaining to NAICM-related work, as follows:

- Plans showing the official and legally definitive boundaries, including coordinates, which MITRE may consider for the location of NAICM runways with their associated safety areas in the NAICM project area (assuming only federal land is utilized).

MITRE has received information regarding the possible boundaries from ASA, but it has been informed that the boundaries have not been legally confirmed.

MITRE Response:

ASA provided MITRE with an AutoCAD drawing named "1 PLANO DEL POLIGONO DEL TERRENO FEDERAL.dwg", which includes the final and official boundary line that MITRE should consider for the location of NAICM runways with their associated safety areas.

MITRE requires the following confirmation and clarification:

1. Confirm that the final and official boundary line is shown on the AutoCAD drawing layer named "POLIGONAL VERSION 2"
 2. Several other lines and labels ("derecho de via", "TUBERIA-PROYECTO", "LIMITE DE PROTECCION DEL MACROCIRCUITO", etc.) are located to the east of the western boundary line. Please explain the significance of these other lines and if they should not be encroached upon by airport-related facilities.
- The location of any proposed developments or any other plans in the vicinity of the NAICM project area that could potentially impact aircraft operations or the siting of runways at NAICM (power lines, buildings, reservoirs, canals, highways, etc.).

MITRE Response:

ASA provided MITRE with information regarding plans by the government of the State of Mexico to construct an auditorium very close to the NAICM site. This concerns MITRE greatly as the height of the auditorium is approximately 50 m above the ground. MITRE has not examined the impact of the proposed auditorium, but it could penetrate an Obstacle Limitation Surface or worse affect approach, departure, and/or engine-out procedures.

Therefore, please inform the government of the State of Mexico right away that plans regarding the construction of this auditorium should be put on hold indefinitely. Furthermore, MITRE recommends that new construction in the vicinity of the NAICM site be avoided as it could cause serious problems to the feasibility of building an airport in the NAICM site.

- MITRE has been informed that a high-tension power line may be installed very close to the NAICM project area. MITRE has requested a geo-registered drawing showing the precise location and height of the power line. This information is needed as soon as possible.

MITRE Response:

MITRE is waiting for information on the ground elevation and height of the high-tension power line posts, as well as what portions of the power line will be underground. Ensure that the plans to build the power line do not continue until MITRE analyzes its impact.

- Any plans being developed by other stakeholders pertaining to the NAICM project including information, such as Master Plans, terminal buildings, auto parking, non-aviation support facilities, land-use plans, etc.

MITRE Response:

ASA provided MITRE with preliminary versions of the Master Plan for the new NAICM airport being developed by ARUP. Many discussions followed. The terminal will be built on the western side of the airport.

Please send MITRE any updates to the Master Plan, as well as the final version of the Master Plan.

- Existing aerial and/or satellite imagery, if available (as current as possible) of the NAICM project area and its surroundings. The images should preferably be in color and should be geo-registered (e.g., Geo-TIFF files) for insertion into AutoCAD.

MITRE Response:

ASA indicated that LIDAR-based data covering the federal land of the NAICM site that ASA collected for a land survey is available. MITRE would be very

interested in obtaining a copy of that data. Therefore, please send that data to MITRE.

- Operational information (excluding helicopters) of AICM, Toluca, Puebla, Querétaro, and Cuernavaca, including Santa Lucía Military Base.
 - Total number of annual operations (“movements”) for 2012 and 2013.
 - Total number of monthly operations for 2012 and 2013.
 - Total number of daily operations (arrivals and departures separately) for the two peak-traffic months of 2013.
 - Hourly operations (arrivals and departures separately) for the peak-day of the peak-traffic month of 2013 (this is essentially one 24-line table). Confirm whether the times are local or Coordinated Universal Time (UTC). If in local time, indicate the time difference from UTC that applied on that day. Ensure that the selected day was not a high-volume day due to unusual circumstances (e.g., a very high traffic day due to a major political event).
 - Seven continuous days of detailed daily operations data for AICM for any week considered by ASA as a relatively high-volume peak week (Sunday through Saturday) in 2013. Please choose a week during which both directions of the runways (Runway 05 and Runway 23) were being used. For a sample of what is expected, see Figure A-1 in Appendix A of this document.

The information being requested should include:

- Date
- Scheduled departure (STD) or arrival (STA) time. Indicate whether the time is local or UTC.
- Actual arrival or departure time. Indicate whether the time is local or UTC.
- Operator name (airline). If not a commercial operation, indicate whether it is General Aviation, military, or governmental.
- Operator flight number.
- Aircraft type (model and sub-model, for example, Boeing 777-200).
- Tail (or registration) number.
- Type of operation (arrival or departure).
- Origin airport (for arrivals) or destination airport (for departures).
- Runway used (e.g., Runway 05R).

- Route name (Standard Instrument Departure [SID], instrument approach procedure or departure/entry fix) utilized for that specific departure or arrival.

MITRE Response:

ASA provided part of the information, including total monthly and annual operations data for Cuernavaca, Mexico City (AICM), Puebla, Queretaro, and Toluca for 2012 and 2013. However, as this was urgent for a meeting with the SCT Undersecretary, MITRE had also separately requested and received monthly and annual operations data for AICM for 2011 through 2013 from SENEAM. Once MITRE received the data for AICM, it was clear that the ASA data did not match SENEAM's.

The totals from the ASA data are much higher than those from the SENEAM data. It seems clear to MITRE, after much analysis and discussions with SENEAM, that the ASA data includes helicopter flights (which should have been excluded) and also overflights. Therefore, MITRE decided to use the 2011 through 2013 total monthly and annual operations data for AICM provided by SENEAM.

If it is okay with ASA, MITRE will keep utilizing the SENEAM data and request all of the rest of the data under this request from SENEAM, to use a single source. Please let me know if that is acceptable.

For your information, see below SENEAM's data, which MITRE is now using:

2011

Total de estacion	353435
Jan	26952
Feb	24801
Mar	29332
Apr	28368
May	29618
Jun	29406
Jul	30486
Aug	31623
Sep	29976
Oct	30737
Nov	30485
Dec	31651

2012

Total de estacion	360813
Jan	28554
Feb	26777
Mar	29917
Apr	28282
May	30125
Jun	29929
Jul	31285
Aug	31208
Sep	29972
Oct	31921
Nov	31021
Dec	31822

2013

Total de estacion	367654
Jan	30767
Feb	27056
Mar	29758
Apr	30122
May	30751
Jun	29921
Jul	32001
Aug	32294
Sep	30410
Oct	31984
Nov	30870
Dec	31720

Notice, for example, that ASA's total for 2013 was almost 397,000 operations as opposed to SENEAM's being close to 368,000.

Finally, ASA also provided MITRE via e-mail an Excel file containing detailed data on General Aviation operations at AICM during 2012 and 2013. Although not requested by MITRE, these data may be utilized if the figures are confirmed by SENEAM.

- Provide radar data for the same seven days mentioned above with sufficient information to be able to cross-reference aircraft identification with a particular radar track. The radar data should include information on operations at AICM and all other key airports in the Mexico City basin (i.e., Toluca, Puebla, Querétaro, and Cuernavaca), including Santa Lucía Military Base. The information should include:

- Aircraft position data - format needs to include either:
 - Known origin (usually the radar antenna) in latitude/longitude and then displacement coordinates from the known origin, or
 - Latitude/longitude and altitude of each aircraft position.
- Time data for each position to at least the nearest second.

MITRE Response:

This information has not yet been received.

Unless ASA objects, MITRE would like to request this information directly from SENEAM. Please let me know if that is acceptable.

- Provide video maps that depict extended runway centerlines, airports, significant fixes, holding patterns, airspace boundaries, sector boundaries, etc. of AICM and all other key airports in the Mexico City basin (i.e., Toluca, Puebla, Querétaro, and Cuernavaca), including Santa Lucía Military Base

MITRE Response:

This information has not yet been received.

Unless ASA objects, MITRE would like to request this information directly from SENEAM. Please let me know if that is acceptable.

- Provide information regarding the future fleet mix expected to operate at NAICM once it opens.

MITRE Response:

ASA provided MITRE with a report prepared by ARUP that included future flight plan information for NAICM. MITRE will consult with ASA regarding the use of this data at an appropriate point of the project.

- Arrival Runway Occupancy Time (AROT) and Departure Runway Occupancy Time (DROT) for AICM. These data will be used to assist MITRE in determining the appropriate location and type of runway exits for new runways at NAICM by providing comparative baseline data. Please consult MITRE before this information is gathered.

MITRE Response:

This information has not yet been received.

Unless ASA objects, MITRE would like to request this information directly from SENEAM. Please let me know if that is acceptable.

Please do not hesitate to contact me if you need any clarification or any other assistance.

Sincerely,

A handwritten signature in black ink, appearing to read 'Robert W. Kleinhans', with a long horizontal flourish extending to the right.

Ing. Robert W. Kleinhans
Project Technical Coordinator

cc:

Gilberto Manuel Vázquez Alanís, ASA
Dr. Bernard Lisker, MITRE