

Implementation of Operations at NAICM

Overview of Key Milestones for 2016

The purpose of this document is to provide general guidance to Servicios a la Navegación en el Espacio Aéreo Mexicano (SENEAM) on some key milestones to be achieved during the 2016 timeframe pertaining to the implementation of operations at Nuevo Aeropuerto Internacional de la Ciudad de México (NAICM). While this document attempts to cover many of the major milestones as possible, it is important to note that **many of the items in this document are outside the area of MITRE's expertise and scope of work**. Furthermore, it is not an exhaustive list. For example, it does not take into consideration requirements that may be "Mexico specific" in nature, such as environmental assessments or Safety Management System matters. **Therefore, this document should be used for general information purposes only.**

Additionally, it is important to mention that these items were discussed at length with experts from SENEAM during an intense two-day planning and coordination visit by MITRE engineers to Mexico City on 14 - 15 December 2015. During the visit, MITRE also discussed roles and responsibilities with SENEAM. Generally speaking, the roles of MITRE and SENEAM are as follows:

- MITRE: To provide guidance and assistance to SENEAM on many of the key actions and activities needed to transition to triple independent arrival and departure operations at NAICM, such as:
 - Assisting with identifying key elements to be considered in preparing for the transition, including Air Traffic Control (ATC) equipment needs. However, MITRE cannot provide information on the technical specifications of equipment or assist with installation matters.
 - Developing triple independent instrument approach and departure procedures (to be reviewed and validated by SENEAM)
 - Providing support regarding airspace design matters. SENEAM conducts the NAICM airspace design, and MITRE reviews it and provides feedback.
- SENEAM: To manage, take the actions, conduct the activities and make decisions necessary to implement operations at NAICM

Therefore, while MITRE can provide guidance and advice in many key areas, ultimately it is SENEAM that must manage, conduct, and oversee the overall implementation process and operate the airspace and ATC facilities that support operations at NAICM. MITRE will, of course, provide as much assistance to SENEAM as possible, so long as it is within MITRE's area of expertise.

The following list represents the key milestones to be achieved by SENEAM during the 2016 timeframe pertaining to the implementation of operations at NAICM. The list is not in a specific order of priority, but it does consider a possible sequence in which activities may need to be conducted. It is important to note that the list of key milestones may need to be updated and/or modified to address and reflect changes as the NAICM project progresses.

- SENEAM to set up NAICM project team points of contact with relevant stakeholders, including assigning specific roles and responsibilities. Some of these relevant stakeholders are specifically listed below with more detailed actions.
- SENEAM to set up NAICM teams to support necessary activities, such as:
 - Airspace and Procedures Design Team
 - ATC Equipment and Technical Matters Team
 - Flight Inspection and Validation Team
 - Regulatory and Performance-Based Navigation Team
- SENEAM to develop an initial project plan for the design and implementation of independent operations at NAICM. Note that MITRE can review the plan and provide feedback to SENEAM, if necessary.
- SENEAM to establish links with Dirección General de Aeronáutica Civil (DGAC) to determine requirements for regulatory approvals
- SENEAM to establish links with Fuerza Aérea Mexicana (FAM) in order to:
 - Confirm the closure of Santa Lucía's runway and the transfer of fixed-wing military operations to other airports
 - Integrate FAM into the airspace design team for the new Mexico Terminal Maneuvering Area (TMA)
 - Create a transition plan(s) for the closure of Santa Lucía's runway and the transfer of fixed-wing military operations

Note that FAM-related matters need to be closely coordinated with MITRE before links are established. This is because other entities, including the Secretaría de Comunicaciones y Transportes (SCT), may need to be involved in establishing links and relationships with FAM. See farther below for another FAM-related activity that also requires close coordination with MITRE and other entities.

- SENEAM to establish links with airline representatives and other aviation stakeholders

Note that airline-related matters need to be closely coordinated with MITRE before links are established. This is because other entities, including the SCT, may need to be involved in establishing links and relationships with airlines.

- SENEAM to begin workforce planning for staffing of controllers and other relevant essential support staff for NAICM (e.g., equipment technicians). This includes establishing the current staffing situation and any constraints that may affect the transition of operations to NAICM.
- SENEAM to assess the current training capabilities and training capacity to take account of the recruitment and training of controllers to support NAICM operations
 - Consideration should be given to the types of training that may be needed (e.g., Air Traffic Control Tower [ATCT] for the new airport, Approach Control and Area Control)
 - Consideration should be given to maximizing the use of facilities to meet peak training needs (e.g., use of shifts, training over weekends)
- SENEAM to establish the airports that will be under the responsibility of the new Mexico TRACON
 - Consideration should be given to the integration of Toluca, Puebla, Cuernavaca, and Querétaro Approach Control functions into the new Mexico TRACON
- SENEAM to determine the lead-times for ordering and delivery of the major ATC systems needed to support NAICM operations (including the need for competitive bidding processes and selection decisions)
 - Consideration should be given to having facilities ready for operation well in advance of NAICM opening-day. This is to assist with the management of the multiple changes to the ATC environment that must occur in a logical and well-planned manner, as well as to minimize risk of delays to the opening of NAICM.

The above considerations may require that ATC system acquisition planning activities begin during the 2016 timeframe
- SENEAM-MITRE to hold first NAICM airspace design workshop meeting to discuss design principles for independent operations and review conceptual routes and procedures, including enroute airspace matters

- SENEAM to determine ground infrastructure strategy and plan for NAICM. For example:
 - Confirm that a separate Ramp Control authority and operations room facility will be used to manage gate allocation, push-backs from the terminal, and clearance for arrivals to proceed to their allocated gate
 - Determine transfer of control points between Ramp Control and ATC, in conjunction with GACM, FAM and other relevant stakeholders
 - Determine who will manage the FAM, General Aviation and Cargo Ramps
 - Determine what taxiways are under the authority of SENEAM
 - Determine aircraft ground flows under different runway-usage strategies
- SENEAM to confirm the location and size of the new ATCT at NAICM (based on the above decision) in conjunction with NAICM master planners
 - Determine length of time for construction of the ATCT (e.g., when will it be available to SENEAM for installation of ATC equipment?)
 - Examine Line-of-Site matters and determine if additional monitoring equipment (e.g., cameras, surveillance equipment) is needed to monitor particular aprons/taxiways

Note that MITRE has requested information on the location and elevation of the ATCT to determine its potential impact on proposed NAICM instrument procedures.

- SENEAM to establish preliminary Operations Room layouts for the major NAICM-related ATC facilities (i.e., ATCT, TRACON and Area Control Center [ACC])
 - Consideration of the phased expansion of NAICM to an ultimate six-runway airport should be included in these plans
- SENEAM to establish plans with FAM for the closure of Santa Lucía's runway and the transfer of fixed-wing operations from Santa Lucía to other airports, as well as the location of helicopter training areas and other Special Use Airspace. For example:
 - Establish if an upgrade of ATC services is required at the airport the fixed-wing military operations are moving to (e.g., non-radar to a radar control environment), including what additional ATC facilities, equipment, and personnel will be required
 - Establish a separate plan to deliver this ATC upgrade in services in time for the proposed move by FAM fixed-wing aircraft to another airport

As previously mentioned, FAM-related matters need to be closely coordinated beforehand with MITRE and other entities, as necessary. Also, it is important that SENEAM and MITRE examine the impact of relocating FAM fixed-wing operations to another airport on current operations at that airport, and on future NAICM operations.

- SENEAM to determine any changes needed to Traffic Flow Management procedures, equipment and staffing, including requiring a new Operations Room, resulting from ATC procedure changes and traffic demand growth when NAICM opens
- SENEAM to determine (in conjunction with DGAC) the requirements for meeting regulatory obligations for environmental and SMS related analyses to support the timely approval and implementation of airspace design and other changes to ATC operations when NAICM opens
- SENEAM to establish the overall contingency strategy for any partial or total failure of the major ATC-related facilities supporting NAICM operations (e.g., total or partial closure of the ATCT, new Mexico ACC or new Mexico TRACON). This would include the transfer of responsibility of airspace sectors to other ACCs and an overall strategy for flight diversions to other Mexican airports.