



## Case Study – Kansas City Airport Department BIM and FM Planning Services New Terminal

**Overview:** The Kansas City Airport Department (KCAD) built a new, \$1.5 billion Single Terminal and Parking Garage at Kansas City International Airport (MCI). The new Single Terminal is 1.1M SF with two (2) levels of the terminal split between arrival and departure operations and increases MCI’s annual capacity from 3.8M passengers to more than 11M. The modern, single-terminal opened in February 2023 and features 39 gates, updated amenities and dining options, and the addition of a 6,000-spot, six-level parking garage with covered commercial curb connecting to the 2-level terminal via roadway crosswalks on each level.

**The Challenge – Ensuring operations and maintenance staff were in a position to use and maintain the entire new facility (the organizations most critical asset) from day one!** Imagine being the head of a Facilities Management group that has maintained a particular facility for almost 50 years and being told that the entire facility is being replaced. Literally, every system and asset you have grown to know and understand and maintain will be replaced by brand new systems and assets. Operational and maintenance procedures that you have developed over half a century will need to be rethought and restructured, or, at the very least, recreated for the new facility.

Faced with that type of once-in-a-lifetime organizational change, how do you ensure that you are putting your organization in the best possible position to efficiently utilize and effectively maintain the new facility? How do you ensure that you have the right information handed over to you by the OEM’s, designers, and builders along with the physical facility, systems and assets so you don’t spend the next 50 years collecting and defining it yourself at additional cost?



**The Solution – Create a comprehensive BIM-FM/EAM Asset Data Standard:** Arora Engineers (Arora), along with their wholly owned subsidiary, EDI, provided Building Information Models (BIM) for Facilities Management (FM) services and geospatial data configuration services to both the Kansas City Aviation Department and the Clark, Weitz and Clarkson (CWC) Joint Venture (JV) team for this project. The project team finalized the overall BIM-FM modeling and data collection strategy and delivered an approved set of BIM project delivery standards documents. Tasks involved reviewing KCAD's previously provided BIM documentation and drafting a new set of delivery standards. In addition, Arora prepared a geodatabase and populated it with data representing the locations of maintainable assets. This provided the data necessary to deliver a GIS-enabled field inspection application that shows operations and maintenance personnel the exact location of their assets and work orders.

**These data standards that the team developed ensured that there would be a smooth integration of model data with their Maximo Enterprise Asset Management system.**

The project team submitted and reviewed EDI's Strategic Asset Management (eSAM) standard data model for Airports, which identified standard asset types, systems, and attributes to be collected. A comprehensive BIM-FM/EAM asset data standard was finalized, which included required systems, asset types, attribution, and required operations and maintenance (O&M) documentation.

The BIM-FM/EAM asset data standard was achieved by facilitating on-site workshops that reviewed existing and previously submitted documents, performing follow-up interviews and discussions, and drafting a BIM-FM/EAM asset data standard. The team then facilitated the review of the standard document and incorporated feedback as needed. The standard included the definition of specific solutions, processes and data formats to be used to ensure the interoperability of the resulting data set with KCAD's enterprise systems.

Upon acceptance of the BIM-FM project delivery standards by both KCAD and CWC, the documents became the SOPs for BIM modelers and field data collection agents for all contractors and subcontractors on the new terminal project. Arora and EDI, with the support of VDCO Tech and Custom Engineering, Inc., also provided ongoing training, support and QA/QC services to the entire project team throughout the design, build and commissioning of the Terminal.

**The Benefits – A Smoother Integration:** These data standards that the team developed ensured that there would be a smooth integration of model data with their Maximo Enterprise Asset Management system. ***Now, BIM models and associated documentation being produced by the project are geo-located and can be migrated into and integrated with KCAD's Maximo system through an automated process.***

***This has enabled Maximo to be seeded with accurate, geospatially-referenced built asset and preventive maintenance data even prior to the terminal opening. It has also created an ability for the Operations and Maintenance departments to seamlessly navigate the 3D models of the buildings and systems while performing operations, inspections, and maintenance in those buildings and on those systems. KCAD has and will continue to experience significant cost savings on traditional methods of asset data capture and preventive maintenance program setup in addition to enabling the new time and cost-saving features that BIM integration provides.***

**Cost Savings:** KCAD reduced their implementation costs by 50% and began using the system on day 1 with digital delivery compared to a traditional asset management implementation cost and 18+ month post-handover timeline.

**For more information, contact [info@aroraengineers.com](mailto:info@aroraengineers.com) today!**

