



Efficiency Takes Off at Major Airports Thanks to Computerized Maintenance Management Systems

Airports today are quickly realizing the value of Computerized Maintenance Management Systems (CMMS). These systems allow airports to account for, track and manage the work associated with the thousands of assets needed to run an airport, from runway lights and luggage carousels to water pumps. Using these systems, airports can better manage their inventory, improve the efficiency of their maintenance and other daily operations, and also improve safety – especially when they integrate their CMMS with a solid, reliable wireless backbone.



NORTH AMERICAN AIRPORT STATISTICS

According to the U.S. Bureau of Transportation Statistics, over **800 million passengers** traveled on nearly **10 million domestic and international flights** in 2008

Source: Research and Innovative Technology Administration

Overcoming the Challenges of Airport Asset Management

Managing an airport today is as complex as running a small city. One of the more challenging tasks is managing the hundreds of thousands of assets a large airport must track and maintain simply to run smoothly. Every day, hundreds of maintenance tasks must be performed, from changing light bulbs and cleaning bathrooms to inspecting runways and maintaining electricity and water.

In many cases, large airports manage an inventory as large as that found in a major retail warehouse. And they need a system to track that inventory so they don't find themselves without a key part needed to fix a luggage carousel or a baggage cart when these assets break down.

Here's where Computerized Maintenance Management Systems can help. These systems create a centralized method of managing assets that allows airports to more efficiently:

- 1. Track assets:** Airports can know at a glance exactly what assets they have, when and where these assets were installed and when each one was last serviced.
- 2. Value assets:** Airports can keep up-to-date accounting records, including depreciation, maintenance and repair. They can also value their infrastructure for capital budget management, forecasting and planning.
- 3. Maintain assets:** Airports can better preserve their investments by automatically updating service records and generating scheduled maintenance work orders.
- 4. Visualize assets:** Airports can understand assets impacted by a specific work order or service event, and historic work maintained by the system on those individual assets.

Of course, asset management software is only one part of a complete Computerized Maintenance

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Management Systems are the same. In particular, airports that integrate their CMMS software with a wireless network and mobile devices can multiply the operational efficiencies.

Before an airport can begin to improve the efficiency of its operations using CMMS, however, it must first electronically catalog its assets. That is the first critical step in implementing a Computerized Maintenance Management System.

**STEP
1**

Identifying and Recording the Assets

The first step in setting up an effective asset maintenance management program involves identifying the assets and classifying and recording these assets into one centralized database. For instance, one set of assets might be the items needed to support the airport's lighting infrastructure, from wiring to light poles. Classifying these assets may sound like a daunting task, but airports can start realizing cost savings quickly by first entering higher-value assets into the database. And those airports that have paper-based inventory management processes already in place can often easily migrate these records to a centralized database.

Airports can also assign attributes to their assets. For instance, a 10-foot high light pole will be classified as having differing "attributes" than a 15-foot high light pole. As part of this first step, an airport not only determines and records what assets it has, it also enters information on where these asset are located and other information that is vital to streamlining and automating operations

**STEP
2**

Maintaining the Assets

Step two of implementing a Computerized Maintenance Management System involves streamlining the asset tracking process to reduce costs. For example, the efficiency of an airport's inventory management system can be vastly improved by automating the tracking of parts and materials cost, reserved stock and stock-on-hand amounts.

By doing this, airports will not only more fully understand what it costs to maintain these assets, they will also ensure that key assets are available when needed. For instance, by automating the inventory management system, airports can ensure the warehouse manager is automatically notified by the system when, for example, more 10-foot light poles are needed.

But improving inventory management is just the beginning. Computerized Maintenance Management Systems can also be used to streamline the maintenance process. Using CMMS, airports can initiate, track and monitor maintenance work orders throughout their life cycle, thus allowing airports to fully understand how many hours are spent on

repairing and replacing items – and how they can reduce those hours to improve productivity.

To illustrate, using CMMS, supervisors can quickly and easily dispatch crews in a more organized and logical manner, mitigating overlapping schedules, misplaced and double-booked crew assignments and optimizing routes – thereby saving the airport both time and money.

**STEP
3**

Enjoy the Benefits

Through better inventory management, airport managers can track parts and materials costs as well as quantity of stock available for repairs. And that means no more costly excess inventory. It also means work crews will have the part they need to fix a baggage cart or luggage carousel when it breaks down.

By automating the maintenance process, airports can reduce the number of equipment breakdowns by scheduling regular, automatic maintenance checks. They will also be able to see at the touch of a button how long these maintenance checks and other repairs are taking. And they will significantly reduce the time spent on paperwork by allowing maintenance crews to update work orders electronically from the field.

But the cost and productivity benefits are just the tip of the iceberg. Because effective CMMS systems not only improve efficiency, they also improve safety by making sure every piece of equipment – from runway lights and hallway lights to security systems – is functioning properly. By making sure there are no warehouse security breaches by accounting for every piece of equipment in the warehouse. And by ensuring critical maintenance checks – such as clearing debris off the runways – are performed when scheduled.

Selecting the Right Solution

Of course, all Computerized Maintenance Management Systems are not the same. For instance, CMMS software that integrates mapping/Geographic Information System (GIS)-based capabilities – with tight integration to Google Maps, Environmental Systems Research Institute (ESRI) or other mapping software – allows airports to not only record their assets but to easily view the location of those assets as well. For instance, a maintenance crew can actually view the location of a repair site on their handheld devices, thus

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allowing them to reach the location more quickly. This of course leads to faster repairs.

These integrated mapping capabilities are also particularly helpful when maintaining horizontal assets such as buildings, electrical plants, cable plants, water and sewage plants, where it is often difficult to track where these systems start and end – particularly when they are located underground.

Integrating the Power of Wireless Communications

And a good Computerized Maintenance Management System incorporates one other critical piece: a solid, reliable wireless backbone platform. Integrating wireless with your CMMS delivers much greater cost-efficiencies than a system that is not backed by a wireless network.

Airports today rely on a wide variety of wireless technologies – ranging from wireless local area networks and mesh networks to point-to-point and point-to-multipoint solutions – to support many different applications both inside and outside an airport's facilities, including video security, baggage tracking, parking management, concessions services and even the management of airplane traffic.

When it comes to maximizing the benefit airports get from their CMMS software, wireless technology plays a critical role. For instance, maintenance workers armed with mobile handheld devices or vehicle-mounted computers can update service orders in real-time, thus ensuring that repair time is measured accurately.

Work crews carrying devices with global positioning system (GPS) and camera technology can actually take a picture of the work site when it is finished and note their GPS-defined location, thus documenting that they have completed the required maintenance task as ordered. These work crews can also request parts from inventory without ever leaving the repair site. And they can be rerouted to handle an emergency repair in real-time.

It is critical that the wireless network can support many different types of mobile devices, including fixed wireless devices that might, for instance, set off an alarm when there is a problem with the airport security system; vehicular devices that allow assets to be effectively tracked; and mobile handheld devices, such as those used by work crews to log in work order updates in real-time.

Motorola's wireless networks support the highest level of security, with state-of-the-art encryption including triple DES, AES and WPA2 WiFi security plus GPS synchronization and authorization technology. In addition, Motorola's powerful AirDefense solution provides indoor WLAN security with 24x7 continuous sensing, intrusion protection, rogue device termination, vulnerability management, troubleshooting capabilities and compliance with a world of regulations.



The Bottom Line

The bottom line is that Computerized Maintenance Management Systems coupled with wireless broadband solutions help airports reduce inventory costs, complete maintenance tasks faster and in general improve the efficiency and safety of their operations. By better managing their assets, airports can improve the efficiency of both the vertical operations inside their facilities and the horizontal operations located beyond the four walls, such as buildings, electrical plants, cable plants and utilities.

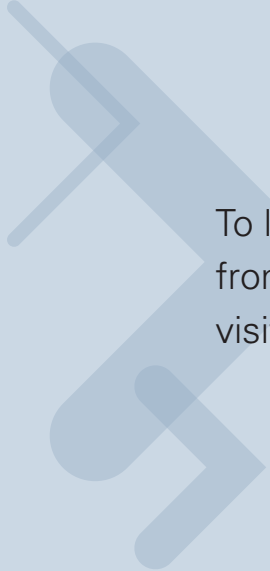
Wireless Industry Leadership

Motorola is a wireless industry pioneer and leader. We understand complex environments such as airports, and Motorola's integrated network hardware and software Computerized Maintenance Management System solutions empower airport operators to reduce costs and increase productivity while also improving security.

Motorola also offers a wide array of ruggedized devices, from the two-way portable radios already used by so many airports around the world to in-vehicle and handheld devices. Motorola mobile devices offer the very latest in architecture – from processors and power management to memory and more – and are equipped to handle the most demanding applications, including multimedia.

Working seamlessly together with its world-class devices, Motorola's unrivaled wireless network solutions include indoor WLAN, outdoor wireless mesh, point-to-multipoint, point-to-point networks and voice over WLAN solutions. And no one makes network design and management easier than Motorola. Motorola's One Point Management Suite software allows real-time remote management and monitoring of the entire network from a centralized control point.

Motorola's powerful mobile device and wireless broadband network solutions – combined with its software for wireless network design, security, management and troubleshooting – deliver trusted networking and anywhere access to organizations across the globe.



To learn more about how you can benefit
from Motorola's wireless broadband solutions,
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