Tower Flight Data Management (TFDM)

Presented to: Technical Interchange
By: Carmine Primeggia ATO-T (SE)
Date: June 3, 2009
Airport Traffic Control Tower (ATCT) Positions and Equipment

**Gate Hold (GH)**
Gate management in delay situations

**Ground Control (GC)**
Movement area except active rwy.
Queue management

**Local Control (LC)**
Active runway
Airport airspace (Class D)

**Ramp Tower**
Non-ATC in Gate area
Non-movement area ramps
Aircraft push-back

**Supervisor (OS)**
Overall Tower operations

**Clearance Delivery (CD)**
Issues clearances

**Flight Data (FD)**
Prepares flight data
Prepares ATIS

**Traffic Mgmt. Coord. (TMC)**
Airport traffic management
Coordination with TRACON and Center TMUs

**ATCT “Infrastructure” Components**

- ARMT
- ARTS/STARS
- ASDE/AMASS
- ASOS Monitor
- ATIS
- D-BRITE
- AIM
- DSP
- FDOI
- Flight Strip Bays
- IDS-4
- ITWS
- LLWAS
- RAPT
- RVR
- TDLS
- TDWR
- WSP
- ASDE-X
Description

• Tower Flight Data Management (TFDM) is the integration of number of tower systems and subsystem into a common information management platform and it distributes the information on a common display platform TIDS.

• The Tower Flight Data Manager TFDM is made-up of the following module components: Data manager (DM), Information manager (IM), Display manager (dM), Target manager (TM), Flight data management (FDM), System Safety manager (SSM), Surface manager (SM), Terminal SWIM (T-SWIM), Decision Support Tools (DST’s): Arrival/departure management tool (A/DMT), Surface Trajectory Based Operation (STBO) and are key enablers for the Tower Information Display System (TIDS).
Example: Tower Information Display Suite

Information Display
Traffic Display
Surface Display
Airport Status Display
Flight Data Manager (FDM)
# Key Players

<table>
<thead>
<tr>
<th>ATO-T SE (Lead)</th>
<th>MIT - Lincoln Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATO-P Tech. Dev.</td>
<td>Metron Aviation</td>
</tr>
<tr>
<td>ATO-E (ERAM)</td>
<td>MITRE</td>
</tr>
<tr>
<td>ATO-R (TFM)</td>
<td>Mosaic</td>
</tr>
<tr>
<td></td>
<td>STI</td>
</tr>
<tr>
<td></td>
<td>Veracity</td>
</tr>
</tbody>
</table>
## Major Milestones/Goals

### Roadmap Capabilities

<table>
<thead>
<tr>
<th>Segment 1</th>
<th>Segment 2</th>
<th>Segment 3</th>
<th>Segment 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2012</td>
<td>2014</td>
<td>2017</td>
</tr>
<tr>
<td><strong>COLOR KEY</strong></td>
<td><strong>COLOR KEY</strong></td>
<td><strong>COLOR KEY</strong></td>
<td><strong>COLOR KEY</strong></td>
</tr>
<tr>
<td>Infrastructure/Support</td>
<td>TBO Evolution</td>
<td>Flow and Sequence Planning</td>
<td></td>
</tr>
<tr>
<td>Dep Route Assurance</td>
<td>Pre-Pushback Situation Advisories</td>
<td>Taxi Start Time Advisories</td>
<td></td>
</tr>
<tr>
<td>Dep Queue Mgt</td>
<td>Coded Taxi Routing</td>
<td>Taxi Conformance Monitoring</td>
<td></td>
</tr>
<tr>
<td>Off-nominal Mode Mgt</td>
<td>Airport Transition Planning</td>
<td>Surface Reconfig Support</td>
<td></td>
</tr>
<tr>
<td>Complete Queue Management</td>
<td>Conflict-free Taxi Plan</td>
<td>4DT’s on surface</td>
<td></td>
</tr>
<tr>
<td>Full Flight Level Clearance</td>
<td>Terminal A/D Flow Planning</td>
<td>Arrival Rwy Assignment</td>
<td></td>
</tr>
</tbody>
</table>

### Major Milestones
- **SWIM-compliant TFDM Data Infrastructure**
- **Consolidated TFDM Displays**
- **FDM Electronic Flight Strips**
- **Airport planning display**
- **DFM integrated into A/DMT**
- **Dep Route Assurance**
- **Virtual Takeoff Queue**
- **Pre-Pushback Situation Advisories**
- **Taxi Start Time Advisories**
- **Dep Queue Mgt**
- **Coded Taxi Routing**
- **Taxi Conformance Monitoring**
- **Surface Congestion Mgt**
- **Multiple Prefiled Dep Route Options**
- **Collaborative Departure Sequencing**
- **Improved Dep Sequencing**
- **Wake Turbulence Mitigation (Dep)**
- **Airport config/procedures selection tool**
- **Adaptation/Validation Tool**
- **Airport Performance Analysis Tool**
- **Taxi route via datacomm**
- **Non-standard Taxi Routing**
- **Dep Runway Assignment Tool**
- **RWSL/FAROS integration**
- **Taxi Right-of-Way Advisories**
- **On-board Taxi Conformance**
- **Off-nominal Mode Mgt**
- **Airport Transition Planning**
- **Surface Reconfig Support**
- **Complete Queue Management**
- **Conflict-free Taxi Plan**
- **4DT’s on surface**
- **Full Flight Level Clearance**
- **Terminal A/D Flow Planning**
- **Arrival Rwy Assignment**

**Revised 10/24/08**
Accomplishments To Date

• CRDA phase
Future Plans

See “Roadmap Capabilities” Slide