Collaborative Decision Making (CDM) and Surface CDM (SCDM)

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Purpose

Provide an overview of the FAA's

Surface CDM program

Contents

- CDM Overview
- Surface Collaborative Decision Making (S-CDM)
  - Concept
  - Data Elements
  - Approach
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What is CDM?

To achieve system goals ensuring the safest, most efficient aerospace system in the world.

- **No single stakeholder has all the information, no two stakeholders have the same values, and all stakeholders interpret information through different experiences.**
- **Sharing information, values and preferences, stakeholders learn from each other and build a common pool of knowledge.**
- **Resulting in ATFM decisions and actions that are most valuable to the system.**

CDM

Source: FAA's CDM Leadership, Strategies, Structure and Guidelines, December, 2014, Version 4.0

- Collaborative Decision Making (CDM) is defined as a **joint government/industry** initiative to improve the Air Traffic Management (ATM) system through **increased information exchange** among all stakeholders.
- The CDM process involves sharing data to create **a common view** of the ATM system in order to base decision-making, and includes stakeholders in the that process.
- The purpose is to provide a **Safe, Efficient and Secure** National Airspace System that provides flight operators the flexibility to operate within their own capabilities and economic objectives. CDM transcends specific programs, and is both a philosophy and a process by which to accommodate stakeholder preferences to the maximum extent possible.

S-CDM Concept

Source: U.S. Airport Surface Collaborative Decision Making (CDM) Concept of Operations (ConOps) in the Near-Term, FAA Air Traffic Organization, Surface Operations Directorate, July 26, 2013

- **Builds upon, and leverages CDM philosophy.**
- **Provides the basis for more efficient surface flows at U.S. airports while increasing safety.**
- **Decreases uncertainty in demand and increases predictability.**
- **Data exchange dependent.**
- **Leverages NextGen technologies / principals.**
- **Drives collaborative culture.**

S-CDM Foundation

Source: U.S. Airport Surface Collaborative Decision Making (CDM) Concept of Operations (ConOps) in the Near-Term, FAA Air Traffic Organization, Surface Operations Directorate, July 26, 2013

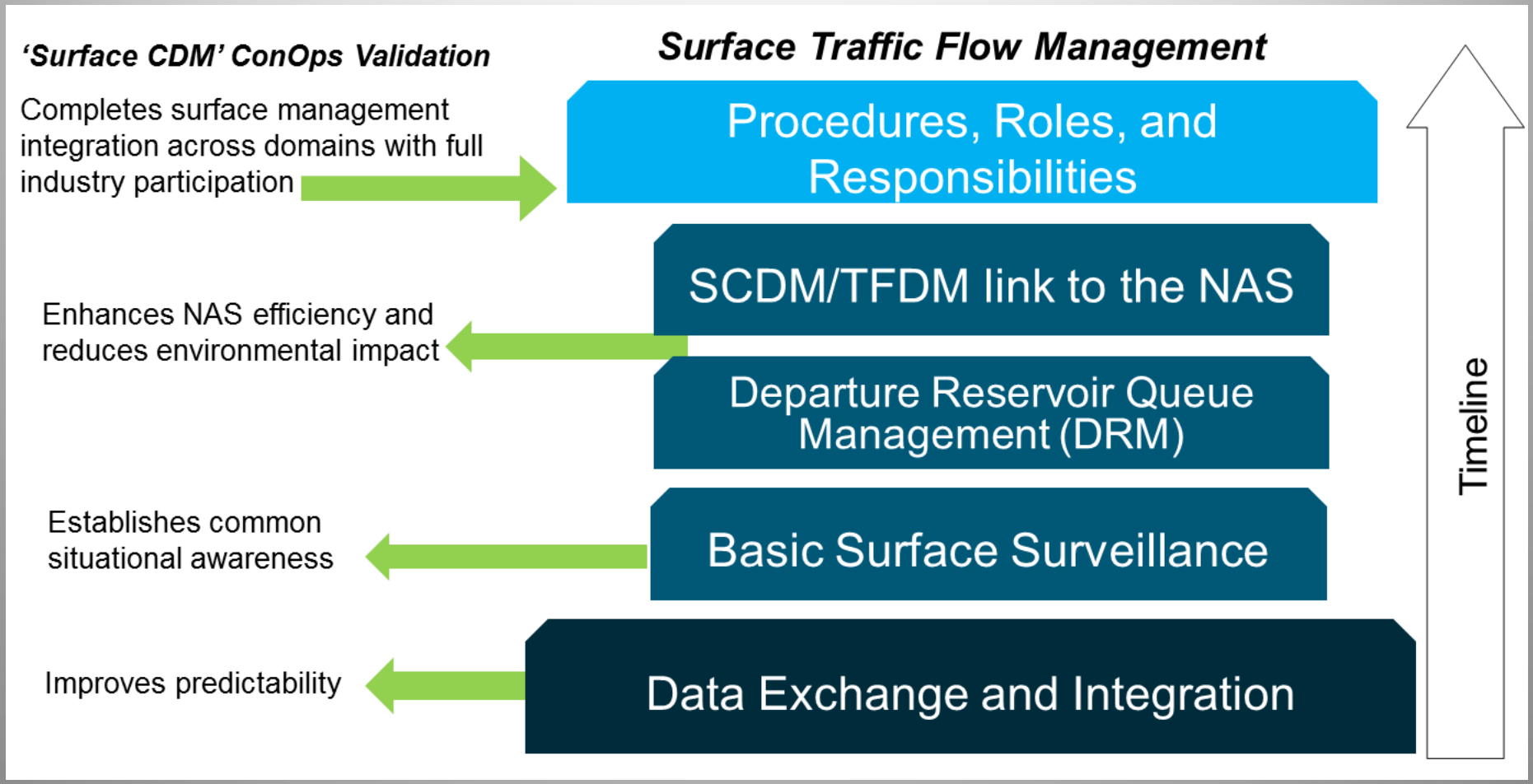
S-CDM required foundational components:

- Access to airport aircraft surface surveillance data.
- Electronic Flight Data Automation.
- Accurate and timely operational data.
- Ability to share operational data among the FAA, airport operators, flight operators, pilots, and other stakeholders.

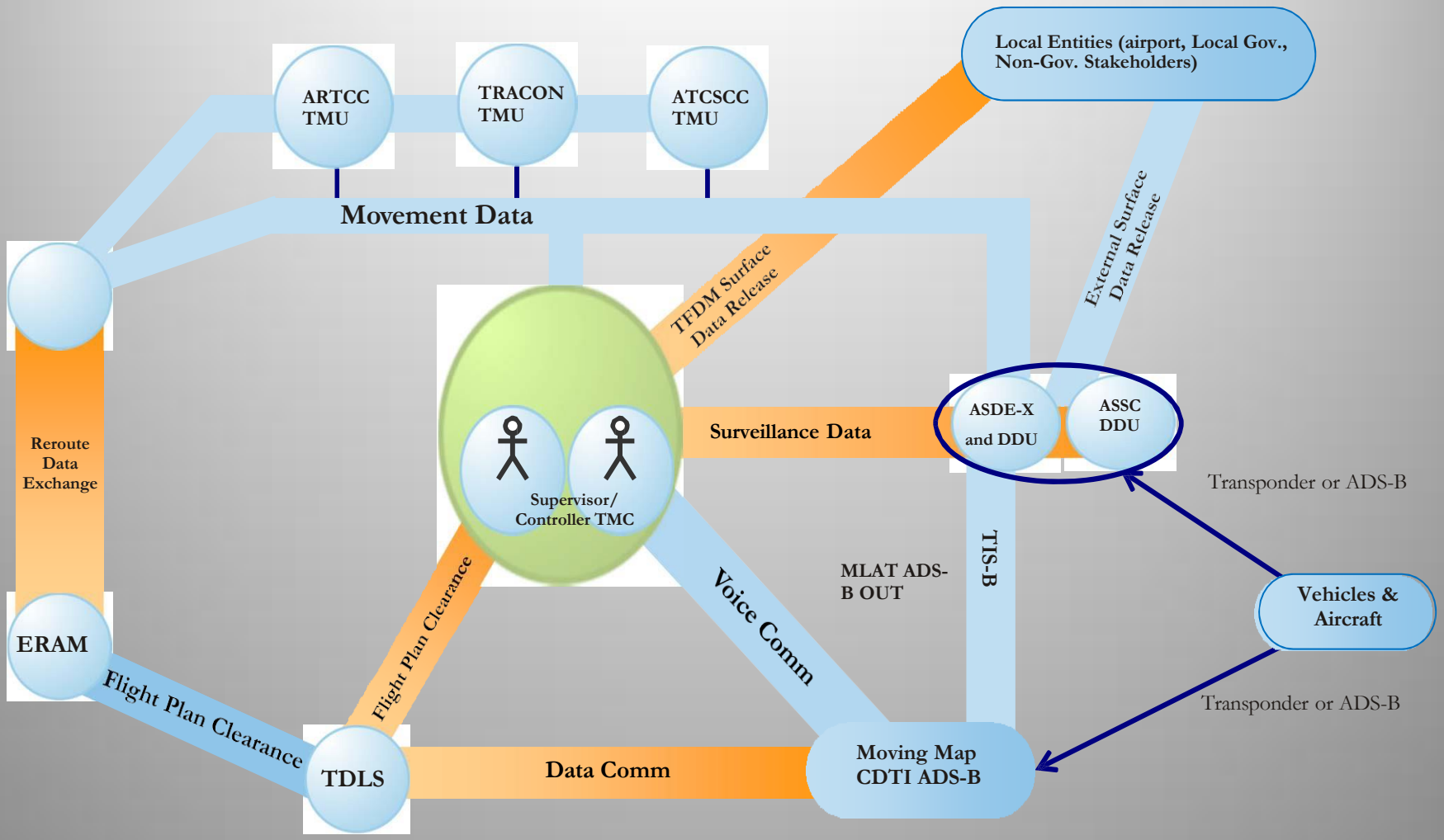
S-CDM Data Elements

Initial Surface CDM Data Elements	
Actual In-Block Time (AIBT)	Flight Cancellation
Actual Landing Time (ALDT)	Flight Intent
Actual Off-Block Time (AOBT)	Gate Assignment (Arrival and Departure)
Actual Take-Off Time (ATOT)	Initial Off-Block Time (IOBT)
Aircraft Tail / Registration Number	Target Movement Area entry Time (TMAT)
Earliest Off-Block Time (EOBT)	Off-Block Time – Estimated

S-CDM Layered Approach



Improved Surface Operations



S-CDM Capabilities and Procedures

- Processes, procedures and policy are the “mortar” that binds ATM technology and provides surface operational capability.
  - Role of diverse stakeholders is vital to realizing the desired departure metering capability.
- Transparent, real-time sharing of current and forecast operational information in order to *improve situational awareness among all stakeholders* and *enable continuous, accurate predictability of airport demand and capacity.*
- Tactical and strategic management of airport aircraft traffic flows *utilizing a Departure Reservoir Management (DRM) capability* to better manage departure queues *to eliminate excessive taxi-out times and measurably improve departure efficiency.*
- Management of arrival traffic flows to *increase total airport throughput* with balanced arrival and departure demand.

S-CDM Capabilities and Procedures

- Analysis, measurement and monitoring capabilities that position Stakeholders to *better understand operational performance and the impact on the NAS* utilizing a "Scorecard" that provides an objective, transparency measurement of the performance of the local Stakeholders.
- ***Global harmonization*** which facilitates standardization across international Airport CDM programs and the U.S. Surface CDM concept and *support ICAO ASBU "block 0" goals.*

TFDM Benefits

Flight Operators

- Improved Predictability
- Less Taxi Time / Out Fuel Burn
- Improved Crew Utilization

Electronic Flight Data (EFD) in the ATCT enables real time data sharing. This is vital to maximize the efficiency of Collaborative Decision-Making on the surface.

Airport Operators

- Reduced CO2 Footprint
- Improved Predictability
- Reduced Engine Noise

Air Traffic Control

- Better Information for Tactical Rerouting
- Fewer Aircraft in the Movement Area and Departure Queue (through departure metering)
- Better Sector Demand Loading Predictions
- Improved Surface Situational Awareness
- Improved Predictability
- Fewer Restrictions

Passengers

- Improved Predictability
- Fewer Delays
- More Reliable Schedule Completion
- More Time Using Terminal Amenities

S-CDM Differences from A-CDM

- **“Incoming leg” information not used in calculations**
- **Metered time begins at the Taxi entry point (TMAT)**
- **Substitutions will be allowed with S-CDM**
- **Departure slot will be the property of the airline**
- **Each airline will be allowed to swap flights within their own airline**
- **Departure slots for cancelled flights will be used in substitution or made available for others**
- **Airport operators included in ConOps but not prerequisite to implementation of S-CDM at an airport**

Current S-CDM Status

- **Final Investment Decision for TFDM - June 15,2016**
- **Prime contract awarded to Lockheed Martin - June 29, 2016**
- **Major subcontractor Saab-Sensis**
- **S-CDM will be in Build 2**
- **Build 2 expected Key Milestones**
  - Preliminary Design Review (PDR) - April 2018
  - Initial Operating capability (IOC) – August 2018
- **Continue Industry Engagement**
  - Expand flight operator onboarding for TFDM data exchange
  - Refine site-specific outreach – prepare for CSIT and other implementation activities
  - Develop communication materials (videos, factsheets, etc)

Questions?

Thank You