

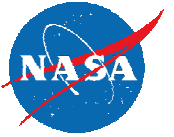
System Oriented Runway Management: Runway Configuration Management Component

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Operations Center (AOC)
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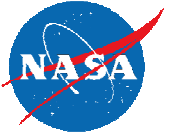
The Runway – A Constrained Resource



A resource
used for arrivals, departures
and taxiing

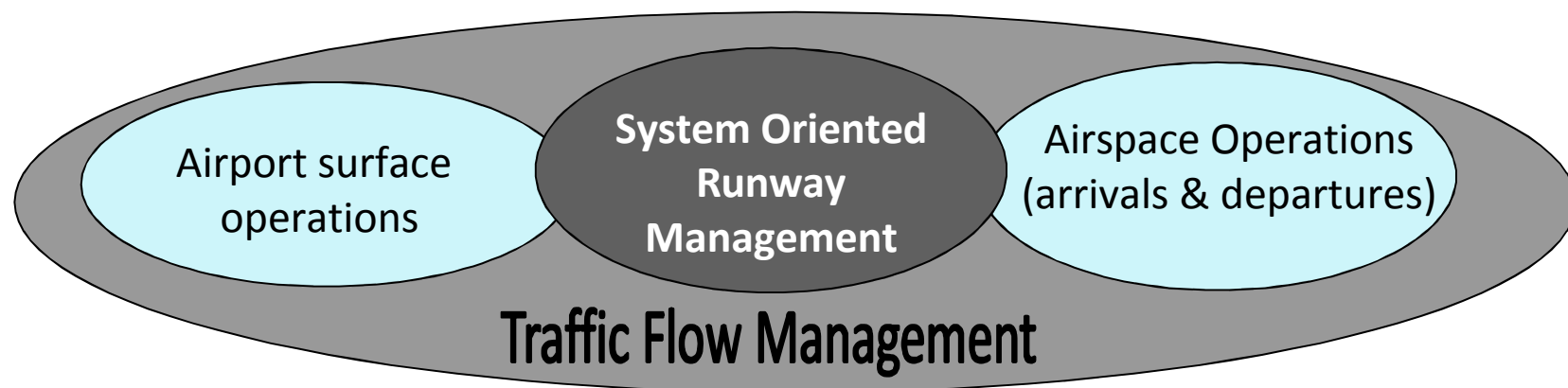


The Runway Management Challenge...

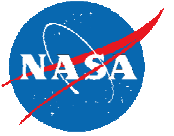


- Winds
- Traffic demand
- Terminal traffic flow
- Environmental considerations
- User requirements
- User preferences
- Capacity limiting factors
- Spacing between parallel runways
- Airspace restrictions
- Surface restrictions
- Dedicated vs. dual use runways
- Balancing by aircraft type
- Availability of Land and Hold Short Operations (LAHSO)
- Staffing issues
- Metroplex

Runway Management based on “System” requirements



Three SORM Components



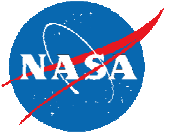
- **Strategic Runway Configuration Management (SRCM)**
 - Forecast airport/Metroplex configuration and capacity to support Traffic Flow Management
- **Tactical RCM (TRCM)**
 - Plan schedule of airport configurations to advise on configuration decisions
- **Combined Arrival/Departure Runway Scheduling (CADRS)**
 - Assign flights to runways and schedule flights on those resources

System Oriented Runway Management (SORM)

Decision Support Tool to assist air traffic personnel in the management of airport runways

- Runway configuration selection process
- Orchestration of traffic across runway configurations

SORM Information Flow



Airport Traffic Control Tower
Traffic Managers and
Supervisors



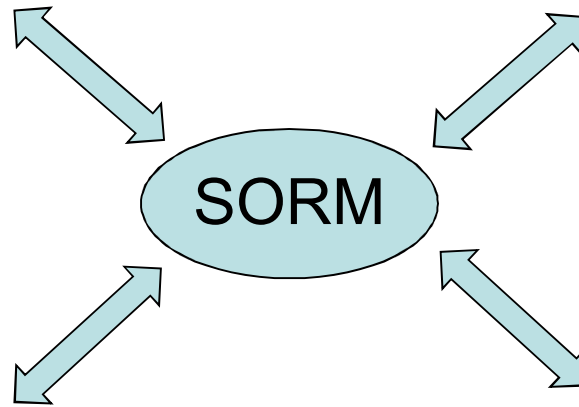
Airline Operations
Centers



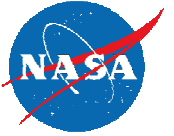
Terminal Radar Approach
Control Traffic Management
and Supervisors



Airport Operations
Centers

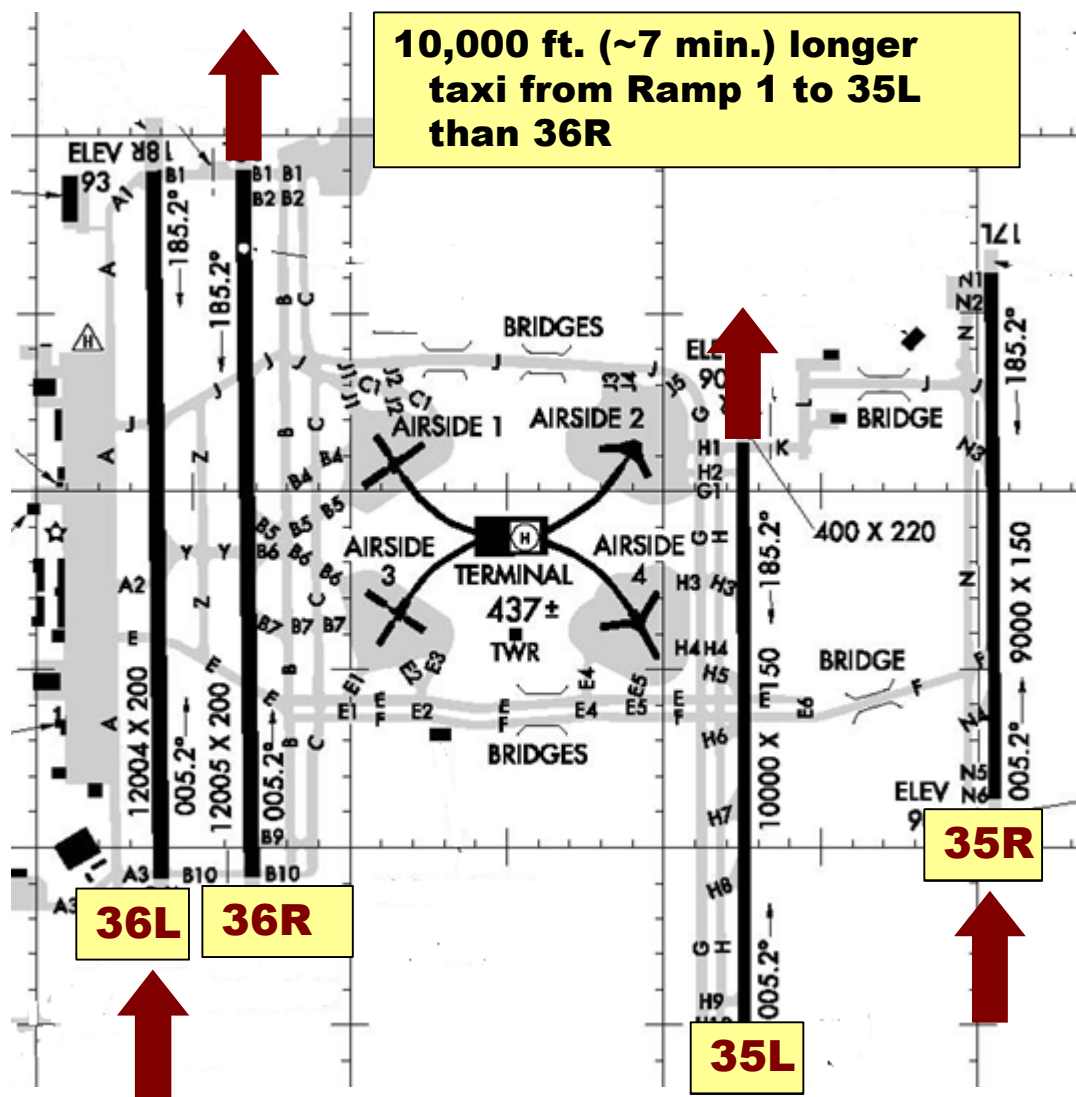


Initial evaluation of TRCM capability

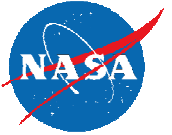


- Aggregate strategy for assigning departure runways is used
- Consideration of several variables is required to determine strategy
- Ultimate decision is the integration of benefits versus required coordination

Orlando International Airport



TRCM at Orlando Results



- Tradeoff between taxi time and runway delay
- Traffic recorded October 13, 2010 from 1055Z to 1155Z
- Actual runway assignment was **taxi for direction**
- TRCM advised **taxi for convenience** for entire time period
 - Taxi for convenience results in slightly longer runway delays but significantly shorter taxi times

**TRCM saves 24.9 min.
over 38 flights**

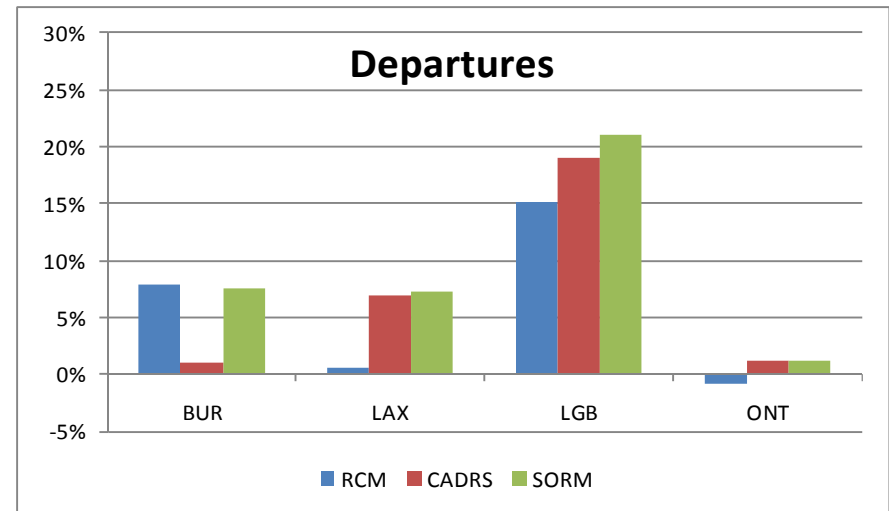
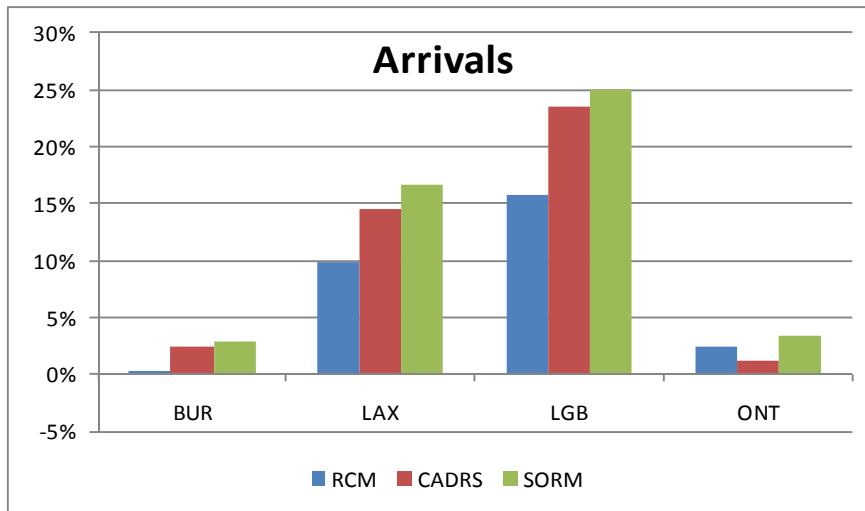
Metric	Taxi for Convenience (TRCM)	Taxi for Direction (Actual)
Total Delay (38 flights)	16.5 min.	41.4 min.
Avg. Delay / Flight	26 sec.	65 sec.
Avg. Travel Time / Flight	20.4 min.	21.1 min.
Avg. Rwy. Delay / Flight	26 sec.	24 sec.

2025 Demand for Los Angeles area airports

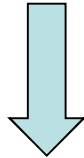
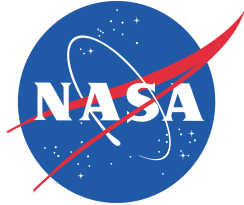
- Results shown are for individual Los Angeles area airports
 - Benefits are expected to be greater for integrated metroplex
 - In general, RCM provides larger benefits at airports with more configuration choices
- RCM seeks to minimize *total* Time In TRACON (arrivals + departures) which may result in increases for some flights

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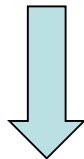
Percentage reduction in Time In TRACON calculated for each technology relative to the baseline



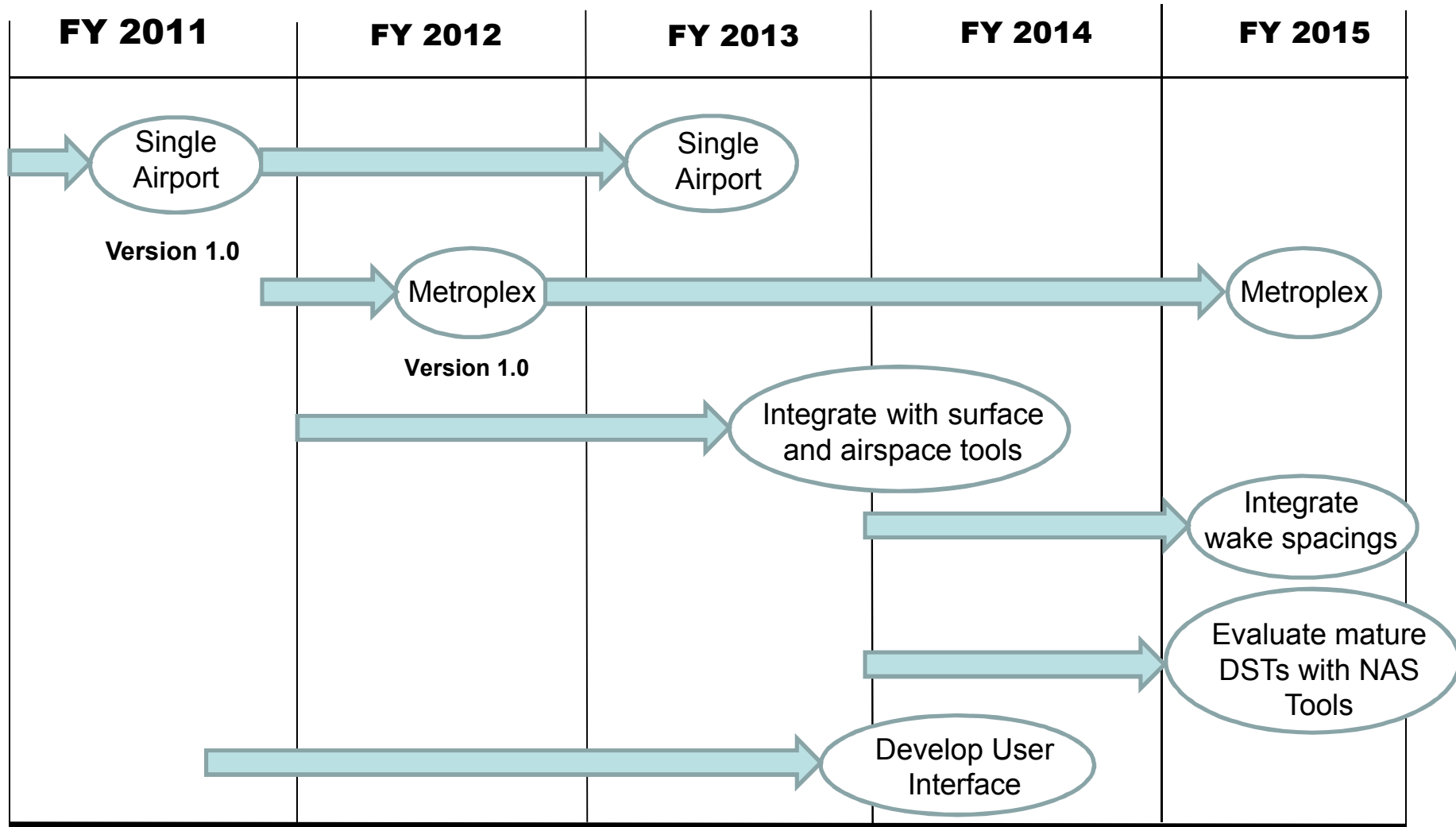
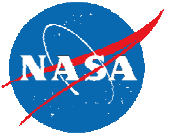
**Tactical Runway Configuration
Management Decision Support Tool**

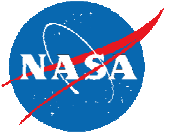
**Runway Configuration Management
for Metroplex operations**

**Integrated Arrival/Departure/Surface (IADS)
Research Transition Team (RTT)**



SORM Research Plans





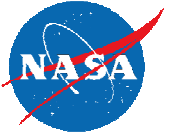
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QUESTIONS?



Summary



System Oriented Runway Management (SORM)

- Focuses on runway configuration planning and assignment (single and metroplex)
- Assessment of “total time in TRACON” indicate benefits for RCM, CADRS
- Provides greater predictability, efficiency gains, operational flexibility
- Has to be systemic in nature and incorporate user preferences and requirements