

Logical Expansion of Arrivals and Departures to Enhance RNP (LEADER)

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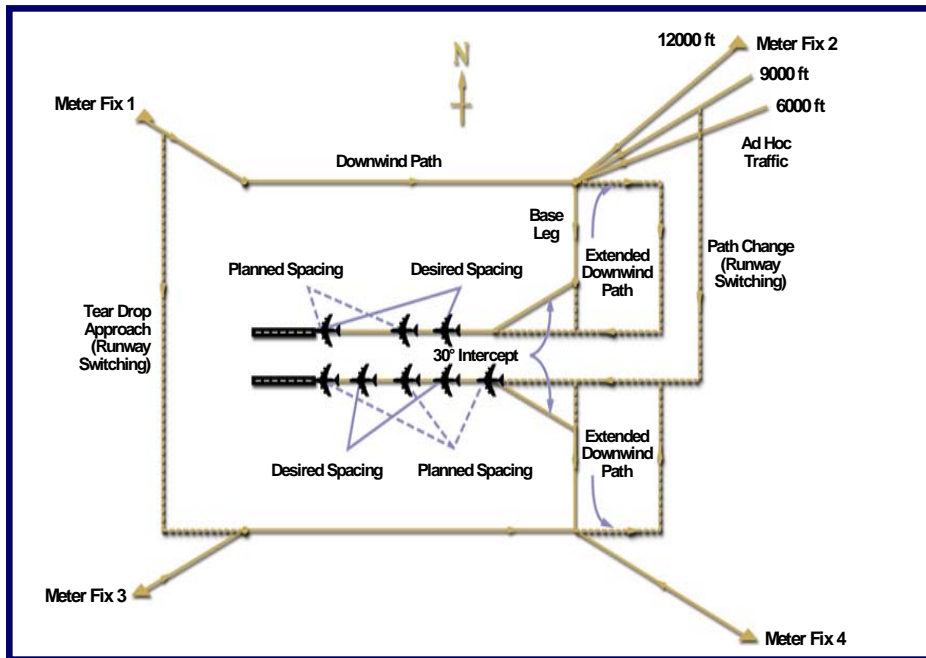
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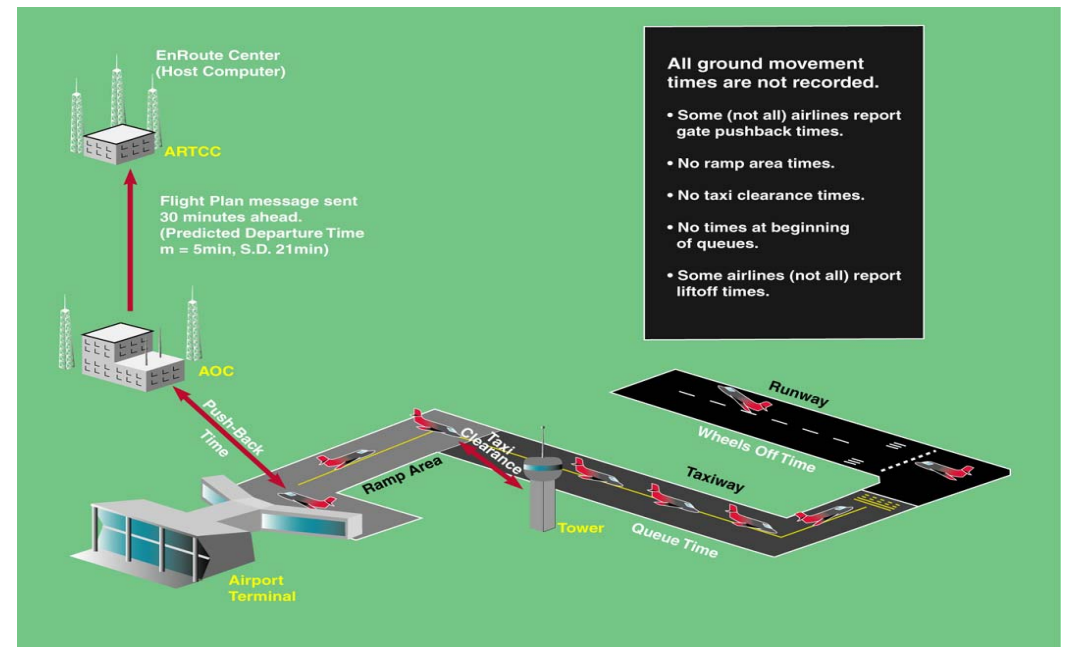
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Problem: Arrival/Departure



- Highly inaccurate gate push back times
- Poor terminal area flying time predictions due to a lack of defined paths, speed and altitude profiles

- Paths from end of Standard Terminal Arrival routes to final approaches are not defined.
- Planned inter-arrival spacings based on hourly airport acceptance rates are different than desired wake vortex-based separations.

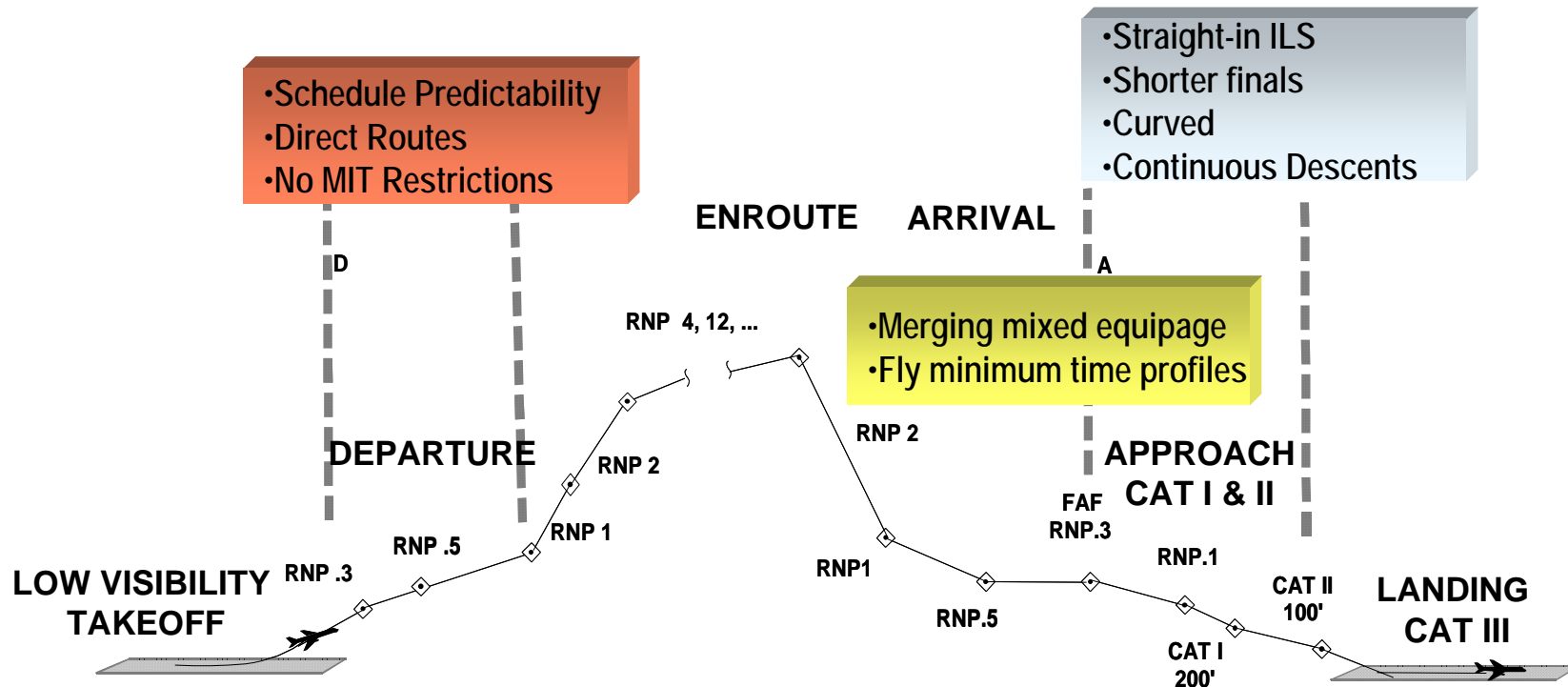


All ground movement times are not recorded.

- Some (not all) airlines report gate pushback times.
- No ramp area times.
- No taxi clearance times.
- No times at beginning of queues.
- Some airlines (not all) report liftoff times.

Background: RTCA Vision

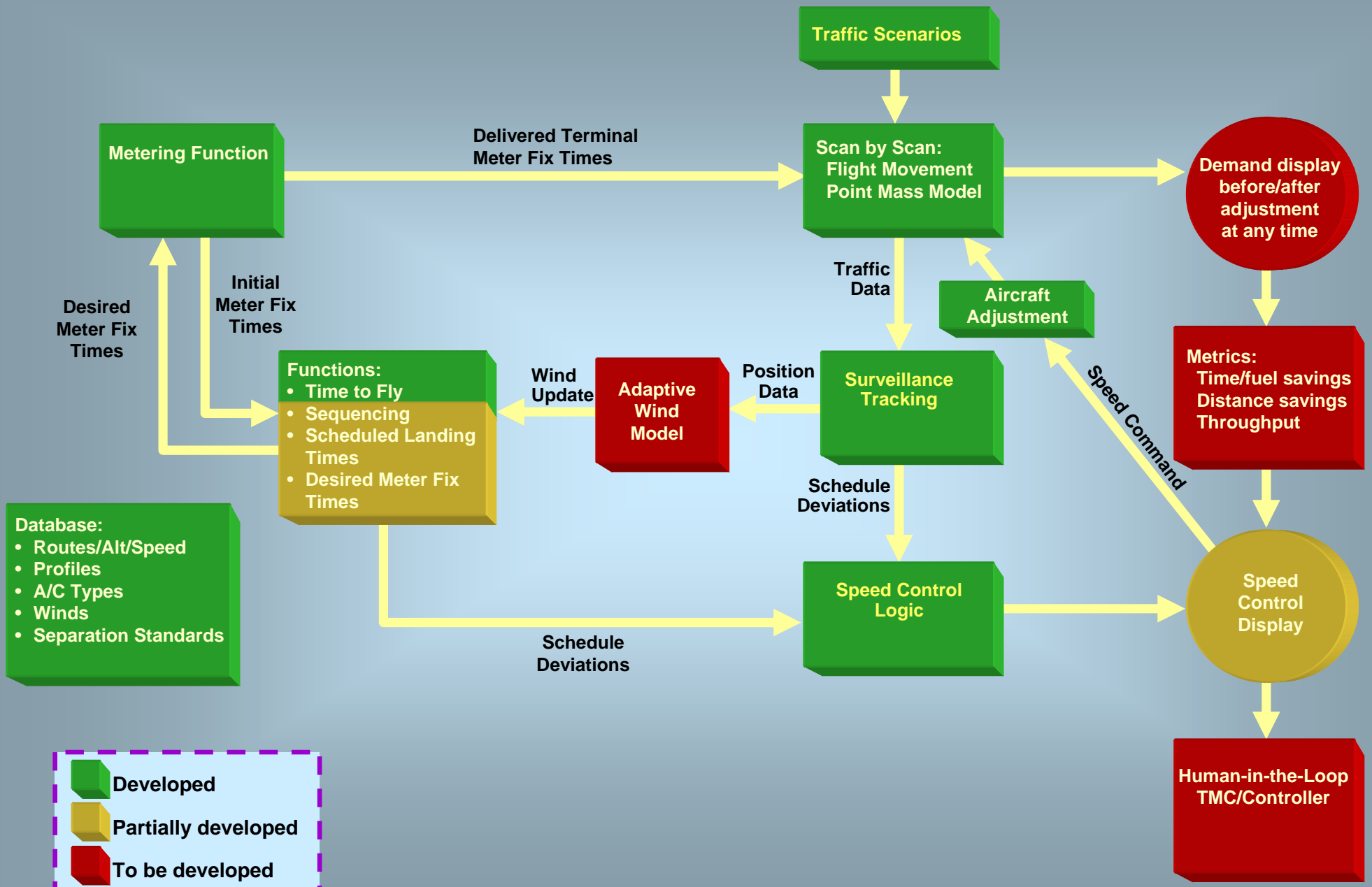
Highly accurate Required Navigation Performance (RNP) from takeoff to landing should provide gate-to-gate benefits.



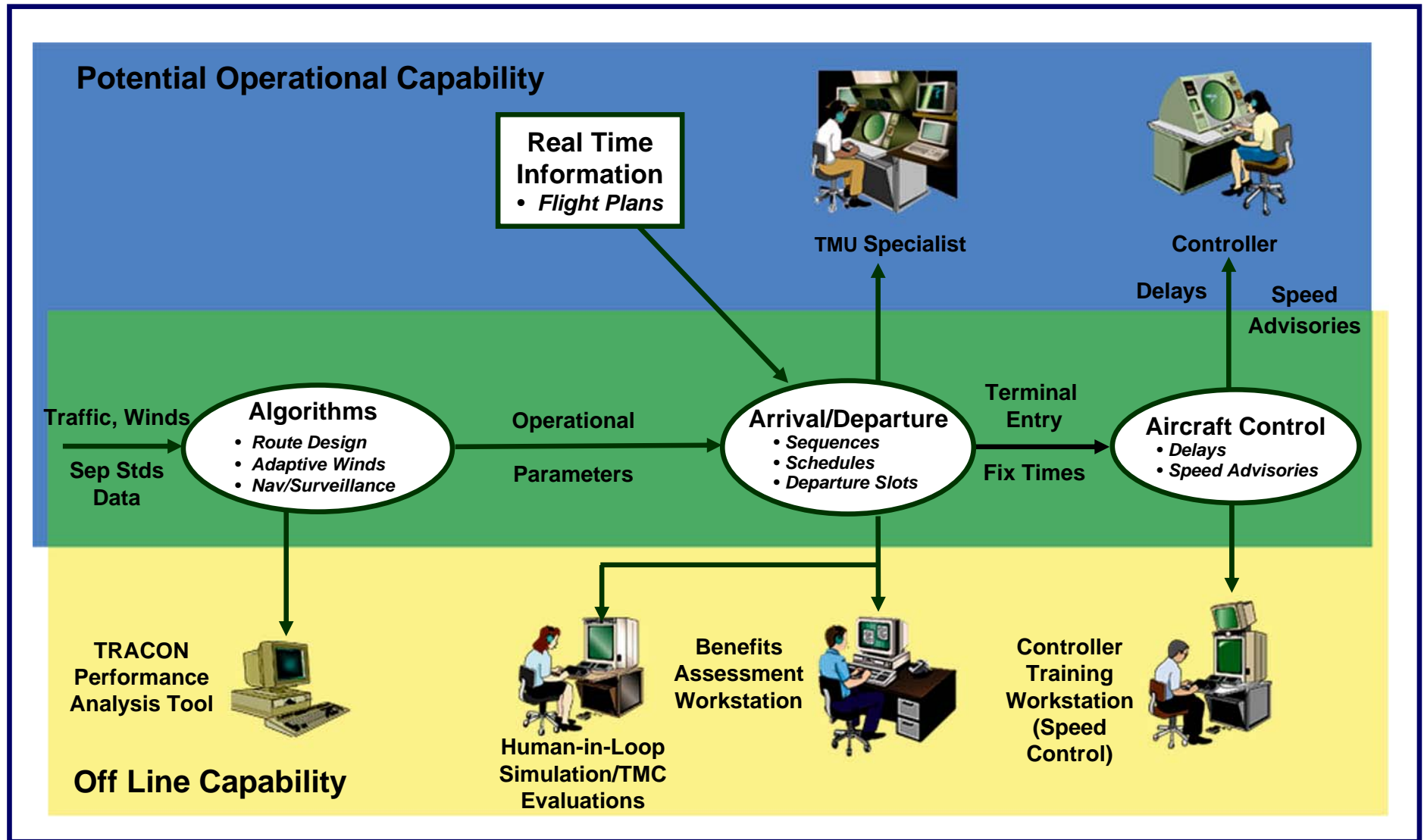
Objectives

- Eliminate vectoring for spacing RNAV aircraft
- Improve schedule predictability
- Achieve minimum time flight profiles in terminal areas
- For most aircraft, provide timely and accurate information on traffic demand at Traffic Management Unit (TMU) positions
- Help controllers learn to use speed control
- Provide a capability to conduct “what if” and benefits analyses of new terminal procedures

Activities



Highlight



Demonstration

LEADER
Metering Display

File

00:09:06

ACID	ACType	Class	Route	Seq#	FTE	ELT	SLT	Separation	MFTTime	NewMFT
ASA395	MD80	L	JAKSN	1	N/A	N/A	00:11:24	N/A	00:00:02	N/A
UAL677	B727	L	JAKSN	2	182	00:12:04	00:12:54	3.0	00:01:08	N/A
ASA94	MD80	L	OLM	3	401	00:15:44	00:15:02	3.0	00:01:08	N/A
AAL1401	MD80	L	JAKSN	4	450	00:16:33	00:16:33	3.0	00:05:10	N/A
UAL2404	B73J	H	JAKSN	5	536	00:17:59	00:17:59	3.0	00:06:26	N/A
FDX1802	MD11	H	JAWBN	6	652	00:19:54	00:19:54	4.0	00:07:44	00:08:25
ASA287	MD80	L	OLM	7	807	00:22:30	00:22:14	5.0	00:07:50	00:08:45
QXE628	D328	H	OLM	8	877	00:23:39	00:23:39	3.0	00:08:55	N/A
COA425	MD80	L	RADDY	9	921	N/A	00:25:58	5.0	00:09:16	00:10:38
AAL1863	MD80	L	FLAAK	10	790	N/A	00:27:29	3.0	00:12:15	00:14:20

**Meter Fix Times Display
at Traffic Management Unit**

**Speed Advisories Display
at Controller Position**



Impacts

- Provide a tool to conduct “what if” and benefits analyses of new RNP-based procedures
- Demonstrate use of a route design structure that minimizes problems associated with merging non-RNAV and RNAV aircraft in terminal maneuvering areas
- Help controllers learn to use speed control to improve efficiency of flight operations
- Complement Traffic Management Advisor (TMA) to make meter fix times more accurate by considering terminal flight dynamics and minimize delays

Future Plans

