



El Toro Airport Airspace Analysis

September 12, 2001

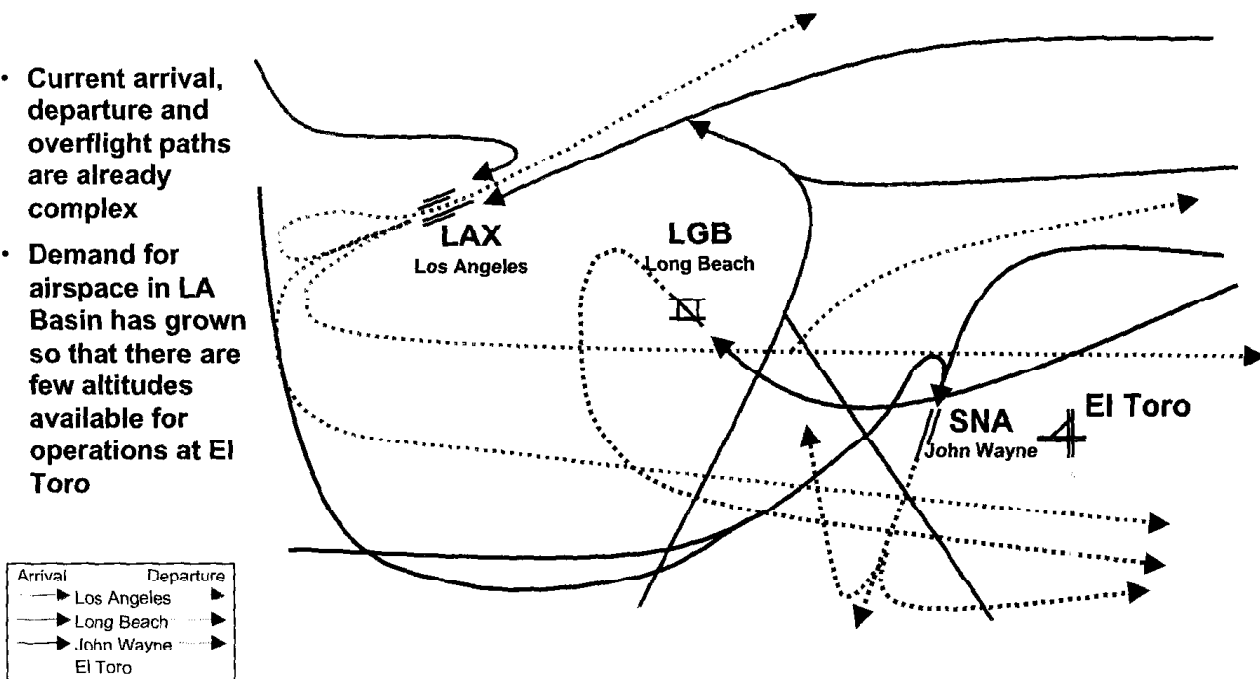


Analysis of Local Redevelopment Authority (LRA) Re-Use Proposal

- **Examine the LRA Plan in context of existing airspace**
- **LRA Plan consisted of:**
 - **Charted arrival and departure procedures from LRA via FAA's Office of Aviation System Standards**
 - **Runway Usage specified in the June 1999 Airport System Master Plan**
 - **Proposed airport traffic levels from a 3 February 2000 letter to Western Pacific Region from the LRA**
- **Model of existing airspace based on:**
 - **Published arrival and departure procedures for regional airports**
 - **Southern California TRACON (SCT) Standard Operating Procedure Manual**
 - **Analysis of 13 April 2000 radar data from SCT**

Complex, Congested Airspace

- Current arrival, departure and overflight paths are already complex
- Demand for airspace in LA Basin has grown so that there are few altitudes available for operations at El Toro



Not drawn to scale



Modeling Approach & Assumptions

- **Airspace Study:**
 - **The Analysis of Air Traffic Control operational and airspace impacts used FAA's Sector Design Analysis Tool**
 - **Used Local Redevelopment Authority (LRA) figures of 156 air carrier operations a day (@ 56,940 per year)**
 - **This is the initial traffic level predicted for 2000 - 2005 and represents approximately 4 million annual passengers.**
 - **At John Wayne Airport, there are approximately 7.5 million annual passengers, with 85,000 air carrier operations per year (388,000 total operations.) The LRA predicts a decrease in air carrier traffic at John Wayne Airport as El Toro grows.**
 - **At Long Beach Airport, there are currently 12,000 air carrier operations per year (380,000 total operations.)**
 - **Traffic levels were not altered in the modeling process to reflect future growth**
 - **The runway use in the model is what is proposed in the LRA draft Airport System Master Plan, dated June 1999**

Airspace Constraints Impacting LRA El Toro Re-Use Proposal

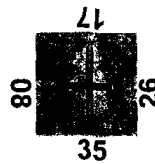
**Heavy, long-haul aircraft
departing to the North intersect
directly with existing flows**

Airspace Available for Arrivals from West
Altitude (ft.)
10,000
9,000
8,000
7,000
6,000
SNA Arrival Traffic - 5,000
LGB Arrival Traffic - 4,000
SNA Arrival Traffic - 3,000
2,000
1,000

**Arrivals may approach El Toro
from West and South**

Airspace Available for Departures to North
Altitude (ft.)

10,000 - LAX Arrival Traffic
9,000 - LAX Arrival Traffic
8,000 - LAX Arrival Traffic
7,000
6,000 - Overflights
5,000 - LAX Departure Traffic
4,000 - LGB Arrival Traffic
3,000 - SNA Arrival Traffic



Airspace Available for Arrivals from South
Altitude (ft.)

10,000
9,000
8,000
7,000
6,000 - Overflights
5,000
4,000
3,000
2,000
1,000

**Only high climb performance
aircraft may depart to the East**

Airspace Available for Departures to East
Altitude (ft.)
10,000
9,000
8,000
7,000
6,000 - Overflights
5,000 - Terrain
4,000 Terrain
3,000 - Terrain
2,000 - Terrain
1,000 Terrain

**Operating John Wayne and El Toro
as single airport with widely spaced
runways may reduce extensive
operational delays**



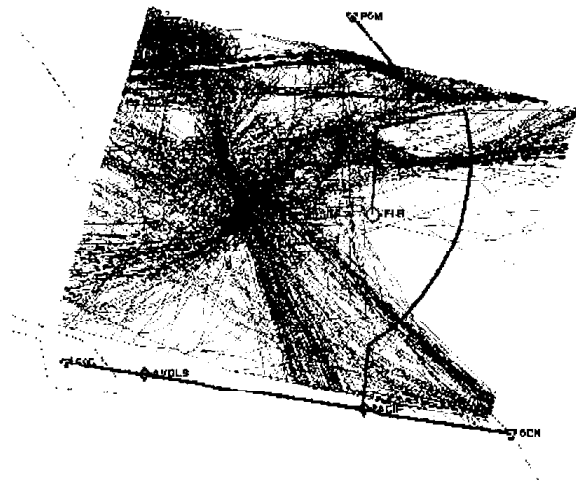
Airspace Conflicts

Local Time	El Toro Flights	Current Conver- gences	Current + El Toro	Increase	Percent Increase
6am-8am	20	464	538	74	15.9%
8am-10am	22	978	1,079	101	10.3%
10am-12pm	26	1,297	1,450	153	11.8%
12pm-2pm	24	1,165	1,302	137	11.8%
2pm-4pm	11	1,085	1,166	81	7.5%
4pm-5pm	4	563	590	27	4.8%
6am-5pm	107	5,552	6,125	573	10.3%

- **The LRA Re-Use Plan would increase airspace congestion by approximately 10%**
- **In order to maintain safety, this additional complexity would be offset with reduced sector capacity and increased delays for aircraft already in the airspace**

Airspace Delays for Other Airports

- **The runway 35 (North) departure procedures from El Toro would require an 8 minute halt to the John Wayne and Long Beach arrival flow**
- **This arrival flow could reach a rate of 36 aircraft per hour**
- **Worst-case, 24 arrivals for John Wayne and Long Beach could be delayed for a single El Toro departure**
- **Sector saturation will occur more often and airspace conflicts will increase by 10 %**





Summary

- **We can operate El Toro safely as proposed.**
- **Implementing this proposal will have a noticeable impact on the efficiency of the air traffic operation in the Los Angeles basin.**
- **Current studies included analysis of Air Traffic Control operation and efficiency based on LRA proposed procedures and startup operating levels (2000 - 2005).**
- **FAA modeled the El Toro north flow as proposed by the LRA.**
- **Alternate studies of runway usage and traffic levels were not conducted.**