El Toro Airport Airspace Analysis

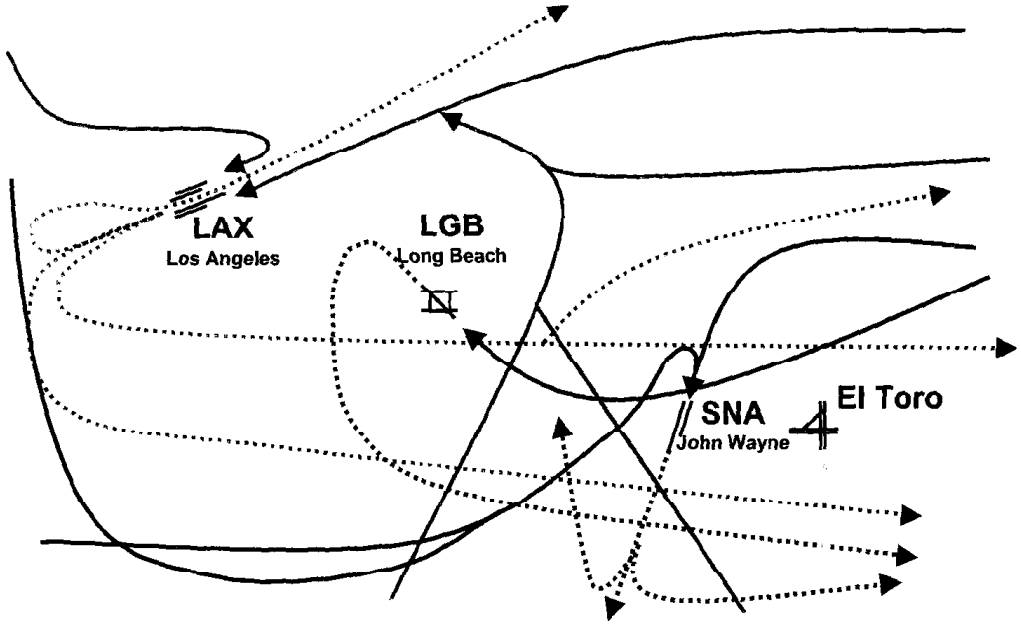
September 12, 2001

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**

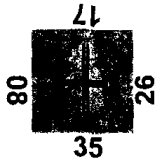
Airspace Constraints Impacting LRA El Toro Re-Use Proposal

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

Airspace Available for 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
2,000
1,000

Only high climb performance aircraft may depart to the East

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



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

Arrivals may approach El Toro from West and South

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

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

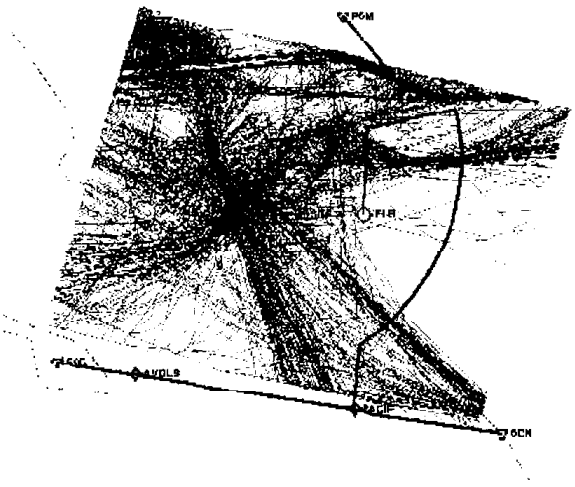
Airspace Conflicts

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.