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LOS ANGELES INTERNATIONAL AIRPORT DATA PACKAGE NUMBER 3, AIRPOR--ETC(U)
MAR 79

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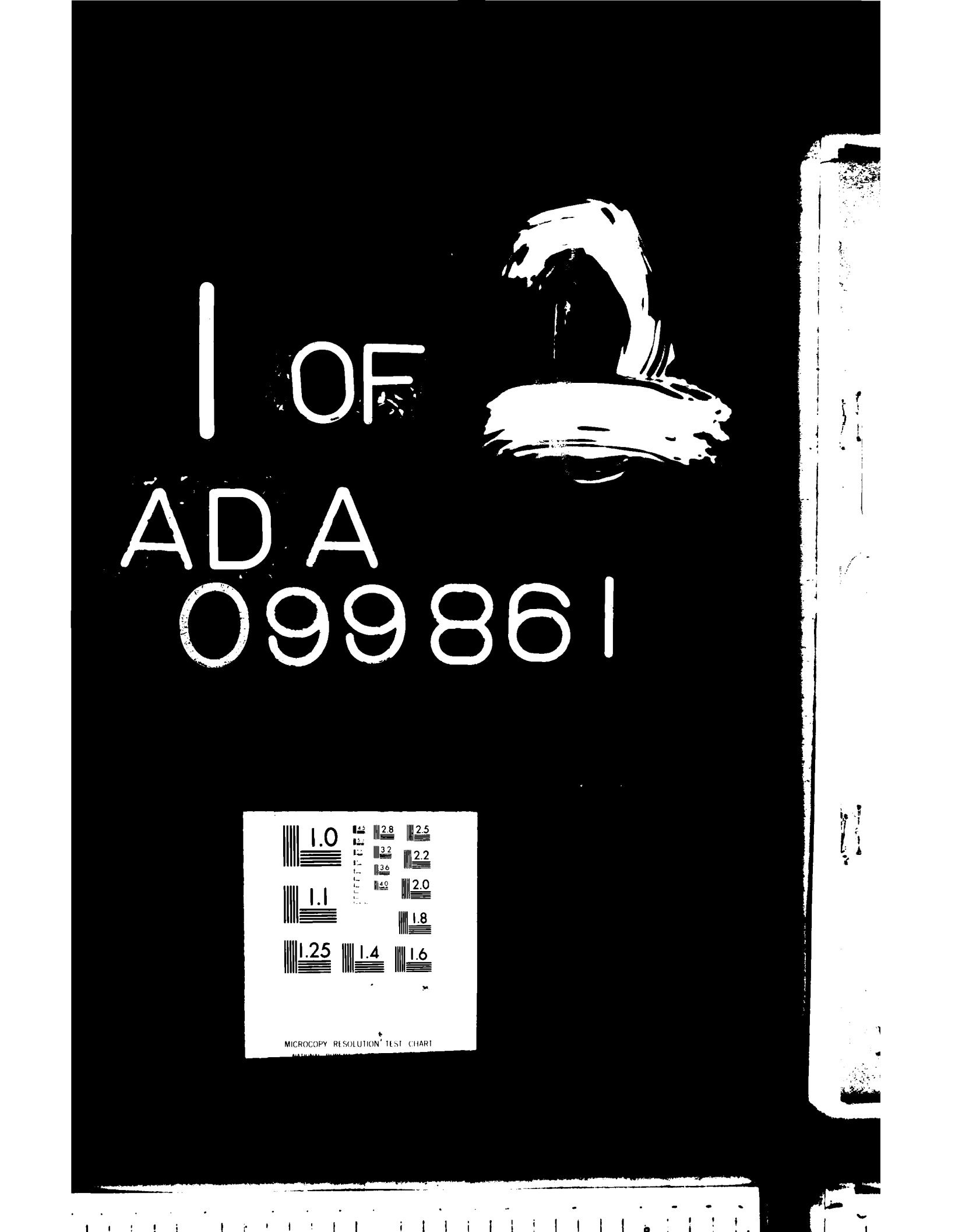
1 OF
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1.0
1.1
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1.4
1.6
2.8
3.2
3.6
4.0
2.5
2.2
2.0
1.8
MICROCOPY RESOLUTION TEST CHART

LEVEL III

(6)

LOS ANGELES INTERNATIONAL AIRPORT

(1)

Number

DATA PACKAGE NO. 3, AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES.

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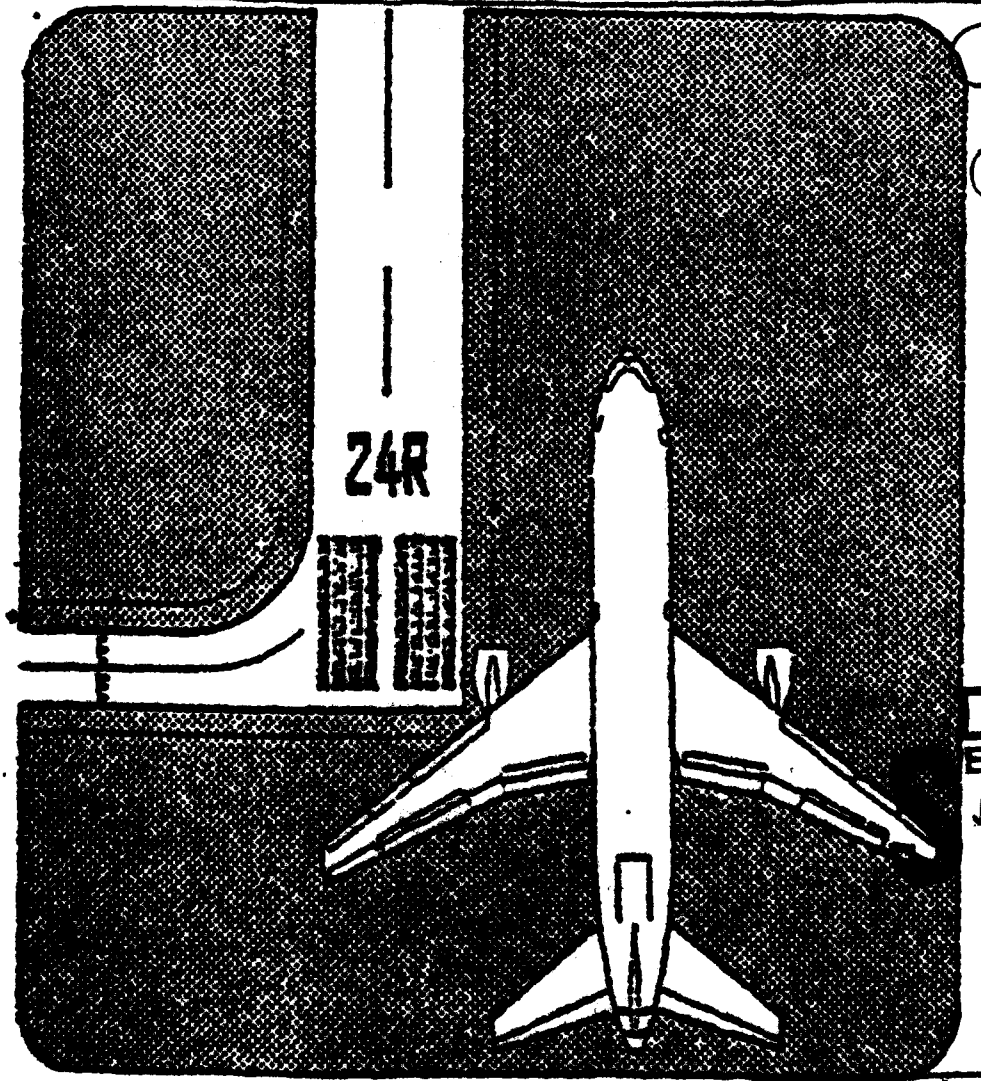

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MARCH 1979

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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

DATE: March 26, 1979

NATIONAL AVIATION FACILITIES
EXPERIMENTAL CENTER
ATLANTIC CITY, NEW JERSEY 08405

IN REPLY REFER TO: ANA-220

SUBJECT: Los Angeles Simulation Model Calibration
Results and Input Data for Stage 1 Experiments

FROM: NAFEC Program Manager, ANA-220

TO: Royal Mink, AWE-4

Enclosed are data packages for review by the Task Force members.

Attachment A presents the results of the Simulation Model Calibration. This calibration was rerun based on input from the Task Force on January 22, 1979, after reviewing data package #2. This calibration includes revised departure-to-departure separations considering aircraft which departed on the north end of the airfield and crossed over to a south departure fix.

Attachment B contains the model inputs (less the demand schedule) for the Los Angeles Stage 1 Experiments. The combined lateness distribution provided by American and United Airlines is included along with the revisions to Experiments #15 and #16 involving the by-pass taxiway to runway 7L. Separation values for all the experiments are included in accordance with comments made at the meeting and discussions with Los Angeles operations personnel. (Only model input changes from the previous experiments are noted under each new Stage 1 experiment number.)

Attachment C contains the revised arrival and departure runway, class, fix, and gate distributions which may be used to establish the demand (A/C schedule) for each experiment. In addition, an estimated percentage of departures from the north side of the field to a south departure fix is included in the appendix. The values used in the distributions were obtained during discussions of the operational procedures at Los Angeles.

Please forward the data package to the Task Force participants. The stage 1 experiments will be performed after completion of the demand schedule (A/C Schedule) by the Task Force. Any comments on the calibration and the model inputs would be appreciated and included in the experiments before making the computer runs.

JOHN R. VANDERVEER

Enclosure

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ATTACHMENT A

SIMULATION MODEL
CALIBRATION OUTPUT DATA

A. FLOW RATES
B. DELAYS
C. TRAVEL TIMES

} SEE HOURLY SUMMARY (TABLE 1) AND QUARTER HOUR FIGURES 1 TO 5

Los Angeles International Airport

Los Angeles
Airport Improvement Task Force Delay Studies

March 1979

Table 1

Hourly Comparison of Output Data
for Simulation Model Calibration

Time	Arrival Flow Rate		Departure Flow Rate	
	Data	Model (S.D.)	Data	Model (S.D.)
1800-1900	50	51 (0.53)	51	51 (0.63)
1900-2000	34	34 (0.53)	53	53 (1.32)
2000-2100	39	39 (0.42)	52	53 (1.58)

Time	Average Arrival Air Delay (minutes)		Average Fix to Threshold Travel Time (minutes)	
	Data	Model (S.D.)	Data	Model (S.D.)
1800-1900	0.92	1.84 (0.39)	9.33	7.97 (0.40)
1900-2000	1.31	0.98 (0.15)	9.69	9.33 (0.12)
2000-2100	1.12	0.61 (0.08)	9.75	8.83 (0.11)

Time	Average Arrival Threshold to Gate Travel Time (minutes)		Average Departure Gate to Roll Travel Times (minutes)	
	Data	Model (S. D.)	Data	Model (S. D.)
1800-1900	3.56	3.42 (0.08)	8.82	9.46 (0.58)
1900-2000	3.96	3.53 (0.22)	10.93	11.46 (1.34)
2000-2100	2.87	3.60 (0.22)	8.63	9.04 (1.27)

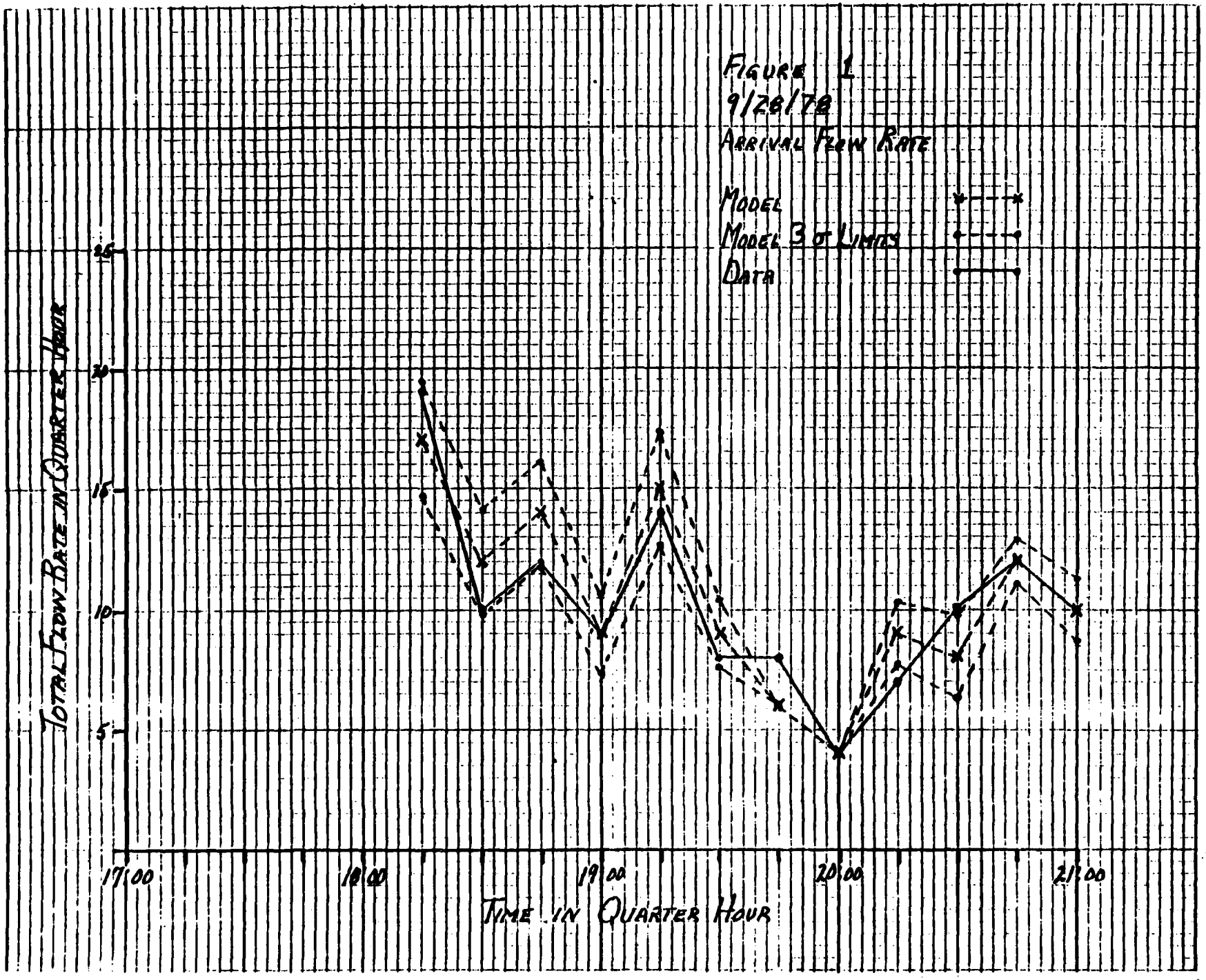


FIGURE 1
9/28/72
ARRIVAL FLOW RATE
MODEL
MODEL 3 OF LIMITS
DATA
TOTAL FLOW RATE IN QUARTER HOUR
25
20
15
10
5
17:00
18:00
19:00
20:00
21:00
TIME IN QUARTER HOUR

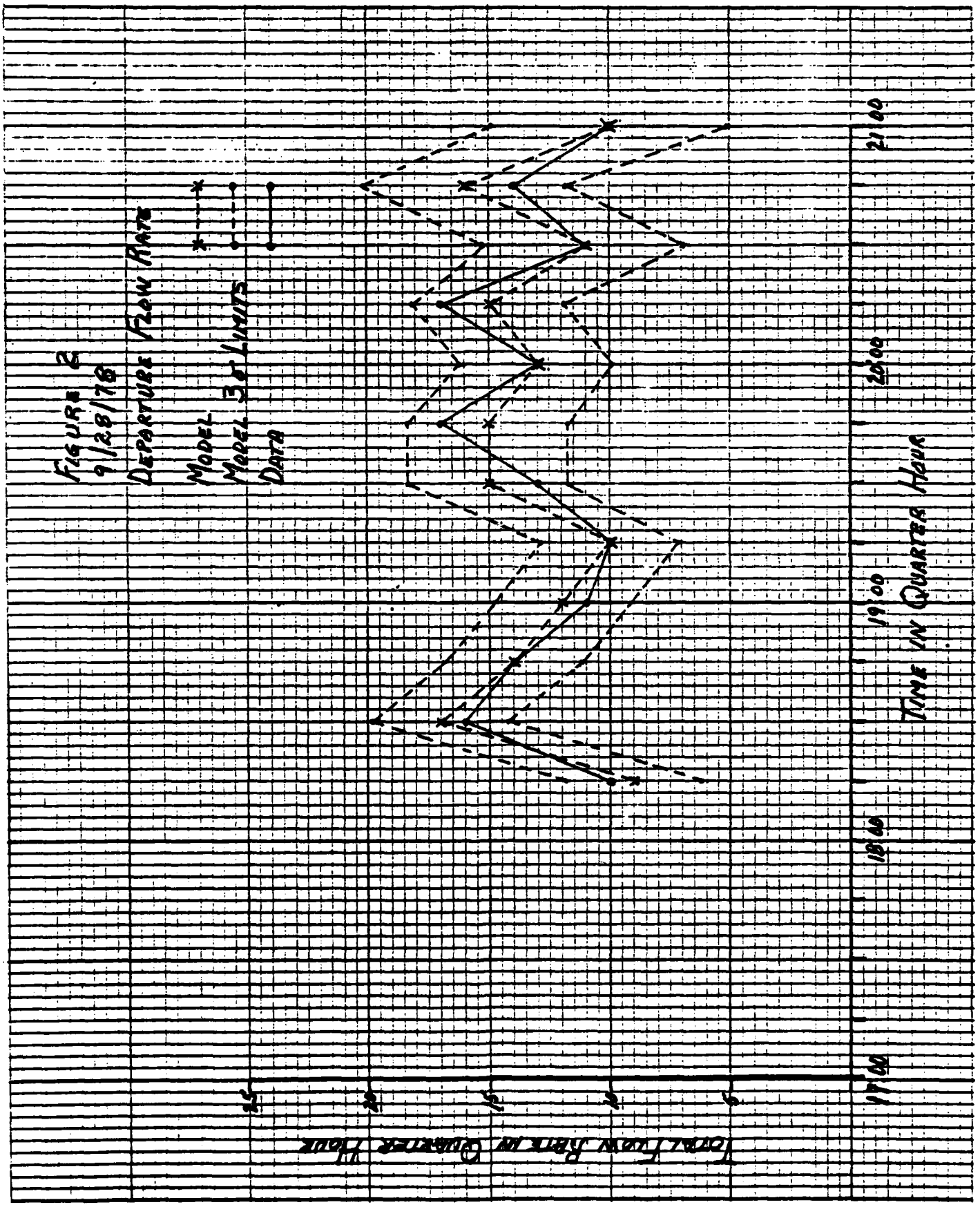


FIGURE 2
9/28/78
DEPARTURE FLOW RATE
MODEL
MODEL 3E LIMITS
DATA
Total Flow Rate in Quarter Hour
17:45
18:00
18:15
19:00
20:00
21:00
Time in Quarter Hours

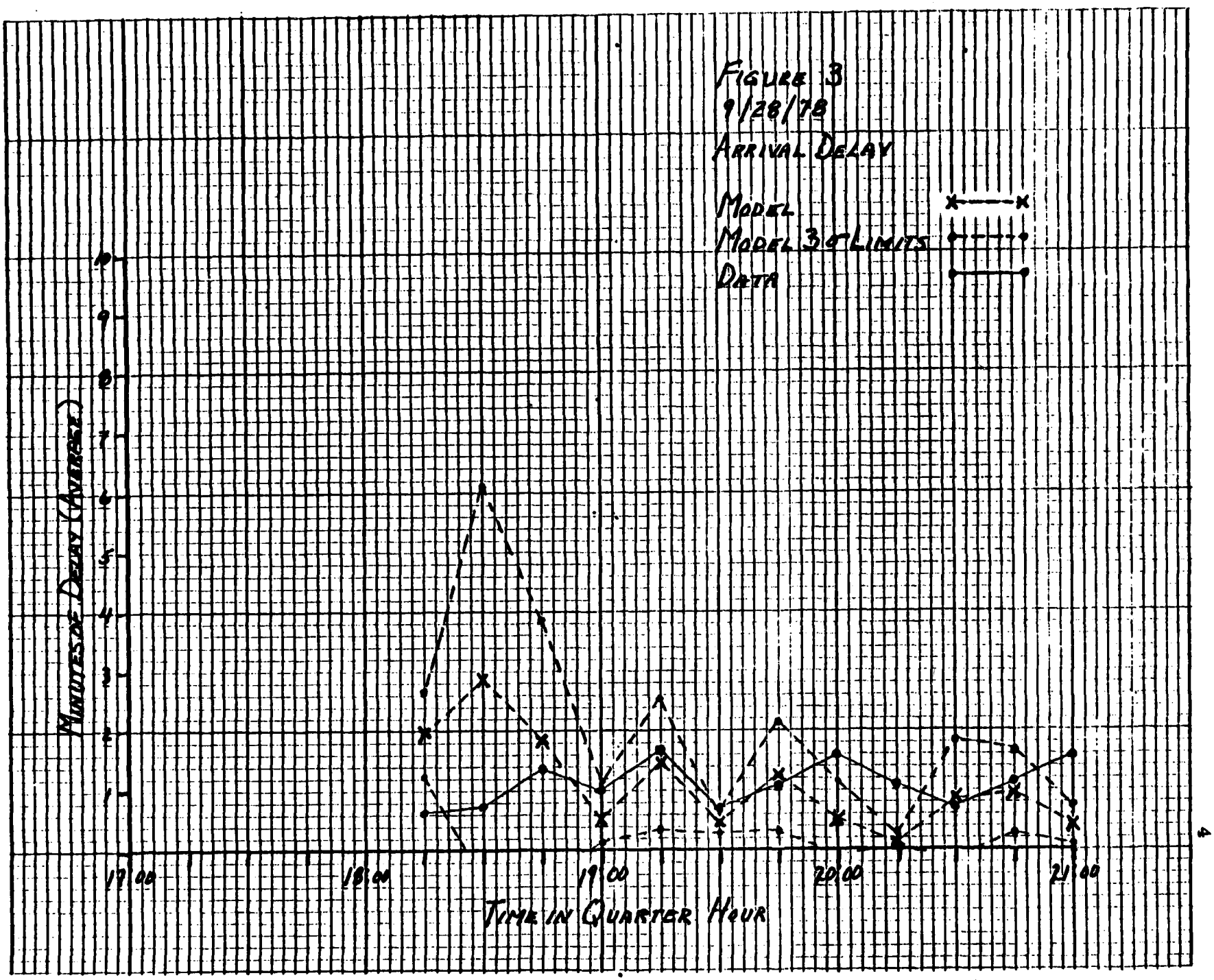


FIGURE 3
9/28/78
ARRIVAL DELAY
MODEL
MODEL 3σ LIMITS
DATA
MINUTES OF DELAY (AVERAGE)
0
1
2
3
4
5
6
7
8
9
10
17:00
18:00
19:00
20:00
21:00
TIME IN QUARTER HOUR

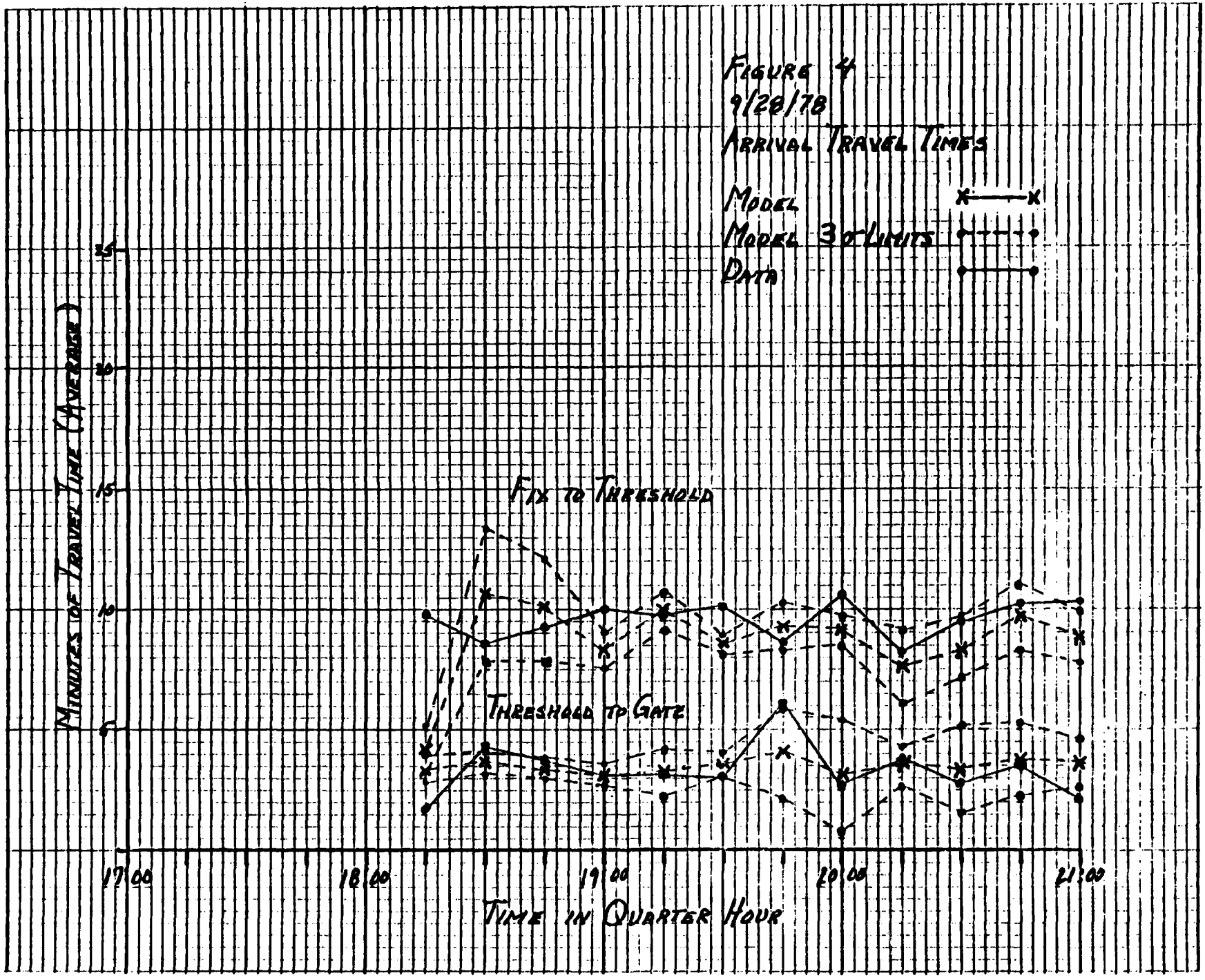


FIGURE 4
9/28/78
ARRIVAL TRAVEL TIMES
MODEL
MODEL 3σ LIMITS
DATA
FIX TO THRESHOLD
THRESHOLD TO GATE
MINUTES OF TRAVEL TIME (AVERAGE)
25
20
15
10
5
17:00
18:00
19:00
20:00
21:00
TIME IN QUARTER HOUR

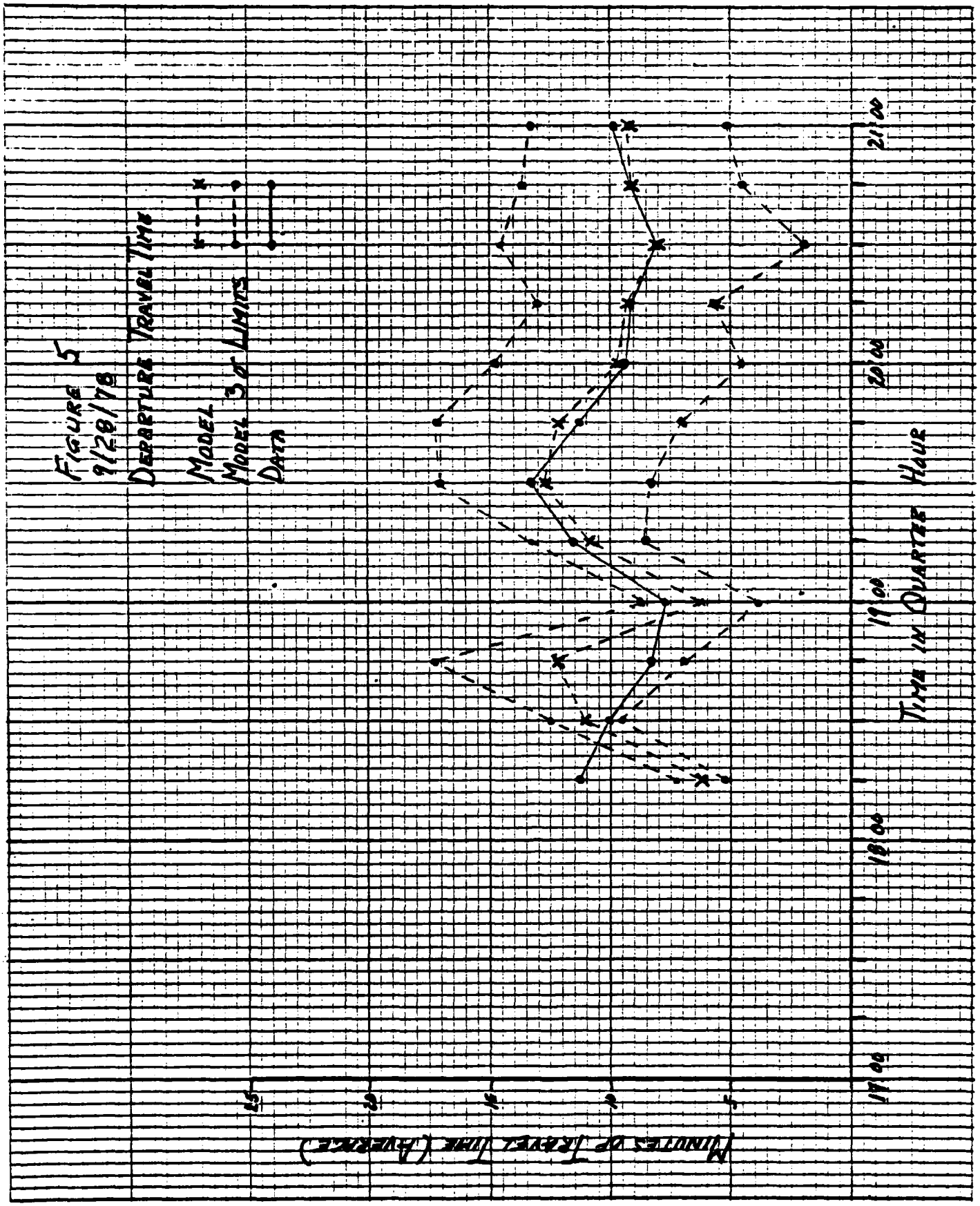


Figure 5
9/28/78
Departure Travel Time
Model 3σ Limits
Model
Data
Minutes of Travel Time (Average)
Time in Quarter Hour
1700
1800
1900
2000
2100

INPUT DATA

LOS ANGELES INTERNATIONAL AIRPORT SIMULATION MODEL CALIBRATION RUN

NUMBER OF RANDOM NUMBER SEEDS
10

RANDOM NUMBER SEEDS
82651 91921 49011 92157 14577 10493 27011 40961 15011 63661

START TIME AND FINISH TIME
18% 0 21% 5

PRINT OPTIONS
F E E E F

NUMBER OF AIRLINES
19

AIRLINE CODES

I1	I2	I3	01	PS	TI	TW	UA	WA	AA
A9	A2	A1	I4	CO	NW	EA	FT	GA	

NUMBER OF RUNWAYS
4

RUNWAY NAMES
24R 24L 26R 25L

RUNWAY END LINK NUMBERS
432 423 411 401

RUNWAY CROSSING LINKS--CLEARANCE TIMES FOR A/C CROSSING ACTIVE RUNWAY

XNG LINK	RUNWAY	ARRIVAL ON R/W	DEPARTURE ON R/W	ARRIVAL ON FINAL
307	2	25. 25. 33.	35. 22. 22. 23. 26.	20. 20. 20. 20.
312	2	42. 42. 46.	35. 31. 31. 33. 42.	20. 20. 20. 20.
317	2	62. 52. 46.	35. 36. 36. 38. 42.	20. 20. 20. 20.
320	2	56. 54. 46.	35. 43. 43. 42. 42.	20. 20. 20. 20.
323	2	56. 54. 46.	35. 46. 46. 42. 42.	20. 20. 20. 20.
284	3	38. 38. 47.	45. 29. 29. 21. 42.	20. 20. 20. 20.
275	3	51. 51. 60.	45. 35. 35. 37. 42.	20. 20. 20. 20.
272	3	52. 56. 72.	45. 42. 42. 42. 42.	20. 20. 20. 20.
269	3	52. 56. 72.	45. 43. 43. 42. 42.	20. 20. 20. 20.
266	3	52. 56. 72.	45. 45. 45. 42. 42.	20. 20. 20. 20.
262	3	67. 62. 60.	52. 46. 46. 42. 42.	20. 20. 20. 20.
258	4	67. 62. 60.	52. 47. 47. 42. 42.	20. 20. 20. 20.
265	4	67. 62. 60.	52. 44. 44. 42. 42.	20. 20. 20. 20.
283	4	38. 38. 47.	52. 29. 29. 31. 42.	20. 20. 20. 20.

RUNWAY CROSSING LINKS--OCCUPANCY TIMES (SECS)

CLASS	TIME
1	20.00
2	20.00
3	20.00
4	20.00

RUNWAY CROSSING TIME AND INTERARRIVAL GAP

LINK	DELAY	MEAN	STD DEV
307	5.00	1.50	.50
312	5.00	1.50	.50
317	5.00	1.50	.50
320	5.00	1.50	.50
323	5.00	1.50	.50
284	5.00	1.50	.50
275	5.00	1.50	.50
272	5.00	1.50	.50
269	5.00	1.50	.50
266	5.00	1.50	.50
262	5.00	1.50	.50
258	5.00	1.50	.50
265	5.00	1.50	.50
283	5.00	1.50	.50

NUMBER OF EXITS

21

DISTANCE IN FEET FROM THRESHOLD TO THE EXIT TAXIWAY (EXIT LINK NO. VERSUS DISTANCE)

307	2580.0	312	4500.0	317	4501.0	320	6400.0	323	8290.0
145	2280.0	305	2600.0	310	4000.0	313	4600.0	315	5500.0
318	7500.0	277	5350.0	274	6500.0	271	7550.0	268	7820.0
284	3000.0	275	4280.0	272	5700.0	269	6150.0	266	7780.0
262	8250.0								

NUMBER OF HOLDING AREAS

1

HOLDING AREA NUMBERS

99

NUMBER OF G/A BASING AREAS

1

G/A BASING AREA NUMBERS

9

AIRLINE GATES

I1	1	2
I2	3	
I3	10	
C1	11	
PS	2	
TI	8	
TW	2	
UA	7	8
MA	5	6
AA	4	
AR	1	
A2	6	
AI	5	
I4	1	3
CO	7	
NW	4	
EA	2	
FT	12	
GA	9	

TRUNCATION LIMITS
UPPER LIMIT = 3.00
LOWER LIMIT = 3.00

DEPARTURE QUEUE LENGTH AND INTERARRIVAL GAP
QUEUE = 5 MEAN = 2.00 STD DEV = 0.00

LENGTHS OF COMMON APPROACH PATHS FROM OUTER MARKER TO THRESHOLD IN NAUTICAL MILES (RUNWAY NO., A/C CLASS, LENGTH)

1	1	6.00
1	2	6.00
1	3	2.00
1	4	2.00
2	1	6.00
2	2	6.00
2	3	2.00
2	4	2.00
3	1	6.00
3	2	6.00
3	3	2.00
3	4	2.00
4	1	6.00
4	2	6.00
4	3	2.00
4	4	2.00

TAXIWAY PATH DATA
THIS AIRPORT USES THE FOLLOWINGS
LINKS: 266 PATHS: 540 PATH SEGMENTS: 13449
AVERAGE PATH LENGTH IS 24.91 SEGMENTS

TAXIWAY TWO-WAY PATHS

```
LINKS  2
     353     205
LINKS  2
     352     209
LINKS  7
     340     338     338     337     336     146     361
LINKS  7
     361     146     336     337     338     339     340
LINKS  4
     331     352     128     357
LINKS  4
     357     128     359     331
LINKS  3
     206     358     208
LINKS  3
     208     358     206
LINKS  3
     205     353     210
LINKS  3
     210     353     205
LINKS  4
     204     352     211     351
LINKS  4
     351     211     352     204
LINKS  3
     203     188     350
LINKS  3
     350     188     203
LINKS  9
     333     223     224     225     226     227     228     229     230
LINKS  9
     230     229     228     227     226     225     224     223     333
LINKS  5
     330     126     359     125     357
LINKS  5
     357     125     359     126     330
LINKS  6
     202     113     114     115     116     350
LINKS  6
     350     116     115     114     113     202
LINKS  3
     357     177     360
LINKS  3
     360     177     357
LINKS  4
     357     177     360     176
LINKS  4
     176     360     177     357
LINKS  6
     357     177     360     176     250     366
LINKS  6
     366     250     176     360     177     357
LINKS 12
     357     177     360     176     250     366     249     248     247     246
     245     367
LINKS 12
     367     245     246     247     248     249     360     250     176     360
     177     357
LINKS  4
     114     115     116     350
LINKS  4
     350     116     115     114
```

```
LINKS  5
   350    116    115    114    113
LINKS  4
   368    309    362    303
LINKS  4
   303    362    304    368
LINKS  6
   368    309    362    303    164    363
LINKS  6
   363    169    303    362    304    368
LINKS 10
   368    309    362    303    164    363    163    162    161    364
LINKS 10
   364    161    162    163    363    164    303    362    304    368
LINKS 14
   368    309    362    303    164    363    163    162    161    364
   160    159    365    324
LINKS 14
   324    365    159    160    364    161    162    163    303    164
   303    362    304    368
```

A/C SEPARATIONS
128 SEPARATION VALUES IN 4 SETS OF 32. ARRIVAL / ARRIVAL, DEPARTURE / ARRIVAL, DEPARTURE / DEPARTURE AND ARRIVAL / DEPARTURE
EACH SET OF 32 IS COMPOSED OF 16 PAIRS OF MEAN AND STANDARD DEVIATION
THE 16 SETS ARE POSSIBLE WAYS OF A/C CLASS X FOLLOWED BY A/C CLASS Y
THERE ARE 4 A/C CLASSES -- 1) D CLASS
2) C CLASS
3) B CLASS
4) A CLASS
THE ORDER OF SETS OF (X,Y) IS)
(1,1), (1,2), (1,3), (1,4), (2,1), (2,2), (2,3), (2,4)
(3,1), (3,2), (3,3), (3,4), (4,1), (4,2), (4,3), (4,4)

LEAD A/C RUNWAY 1 LEAD A/C FIX 9 TRAIL A/C RUNWAY 3 TRAIL A/C FIX 9
128 SEPARATION VALUES IN 4 SETS OF 32. A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.63	.08	1.91	.08	1.91	.08	1.91	.08
1.11	.08	1.11	.08	.94	.08	.94	.08
.94	.08	.85	.08	.68	.08	.68	.08
.94	.08	.85	.08	.68	.08	.68	.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAD A/C RUNWAY 1 LEAD A/C FIX 9 TRAIL A/C RUNWAY 4 TRAIL A/C FIX 9
128 SEPARATION VALUES IN 4 SETS OF 32. A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.63	.08	1.91	.08	1.91	.08	1.91	.08
1.11	.08	1.11	.08	.94	.08	.94	.08
.94	.08	.85	.08	.68	.08	.68	.08
.94	.08	.85	.08	.68	.08	.68	.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAD A/C RUNWAY 3 LEAD A/C FIX 2 TRAIL A/C RUNWAY 2 TRAIL A/C FIX 9
120 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINJTES)

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.22	.08	1.43	.08	1.43	.08	1.43	.08
.83	.08	.83	.08	.70	.08	.70	.08
.70	.08	.64	.08	.51	.08	.51	.08
.70	.08	.64	.08	.51	.08	.51	.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAD A/C RUNWAY 4 LEAD A/C FIX 9 TRAIL A/C RUNWAY 1 TRAIL A/C FIX 9
120 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINJTES)

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.22	.08	1.43	.08	1.43	.08	1.43	.08
.83	.08	.83	.08	.70	.08	.70	.08
.70	.08	.64	.08	.51	.08	.51	.08
.70	.08	.64	.08	.51	.08	.51	.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAD A/C RUNWAY 4 LEAD A/C FIX 9 TRAIL A/C RUNWAY 2 TRAIL A/C FIX 9
120 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.22	.08	1.43	.08	1.43	.08	1.43	.08
.83	.08	.83	.08	.70	.08	.70	.08
.70	.08	.64	.08	.51	.08	.51	.08
.70	.08	.64	.08	.51	.08	.51	.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAD A/C RUNWAY 2 LEAD A/C FIX 9 TRAIL A/C RUNWAY 3 TRAIL A/C FIX 9
128 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINJTES)

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.63	.08	1.91	.08	1.91	.08	1.91	.08
1.11	.08	1.11	.08	.94	.08	.94	.08
.94	.08	.85	.08	.68	.08	.68	.08
.94	.08	.85	.08	.68	.08	.68	.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAD A/C RUNWAY 2 LEAD A/C FIX 9 TRAIL A/C RUNWAY 4 TRAIL A/C FIX 9
128 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINJTES)

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.63	.08	1.91	.08	1.91	.08	1.91	.08
1.11	.08	1.11	.08	.94	.08	.94	.08
.94	.08	.85	.08	.68	.08	.68	.08
.94	.08	.85	.08	.68	.08	.68	.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAD A/C RUNWAY 3 LEAD A/C FIX 9 TRAIL A/C RUNWAY 1 TRAIL A/C FIX 9
128 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINJTES)

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.22	.08	1.43	.08	1.43	.08	1.43	.08
.83	.08	.83	.08	.70	.08	.70	.08
.70	.08	.64	.08	.51	.08	.51	.08
.70	.08	.64	.08	.51	.08	.51	.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAD A/C RUNWAY 0 LEAD A/C FIX 0 TRAIL A/C RUNWAY 0 TRAIL A/C FIX 0
128 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

3.06	.70	4.67	.65	5.49	.60	5.41	.55
3.06	.70	2.97	.65	3.69	.60	3.61	.55
3.06	.70	2.97	.65	2.89	.60	2.81	.55
3.06	.70	2.97	.65	2.89	.60	2.81	.55
1.51	.26	1.41	.25	1.30	.24	1.30	.24
1.51	.26	1.41	.25	1.30	.24	1.30	.24
1.32	.25	1.23	.24	1.13	.23	1.13	.23
1.32	.25	1.23	.24	1.13	.23	1.13	.23
1.63	.08	2.13	.08	2.13	.08	2.13	.08
1.13	.08	1.13	.08	.96	.08	.96	.08
.96	.08	.88	.08	.71	.08	.71	.08
.96	.08	.88	.08	.71	.08	.71	.08
.88	.16	.78	.19	.97	.23	.74	.09
.88	.16	.78	.19	.97	.23	.74	.09
.88	.16	.78	.19	.97	.23	.74	.09
.88	.16	.78	.19	.97	.23	.74	.09

LEAD A/C RUNWAY 1 LEAD A/C FIX 0 TRAIL A/C RUNWAY 2 TRAIL A/C FIX 0
128 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

2.89	.70	3.50	.65	4.12	.60	4.06	.55
2.29	.70	2.23	.65	2.77	.60	2.71	.55
2.29	.70	2.23	.65	2.17	.60	2.11	.55
2.29	.70	2.23	.65	2.17	.60	2.11	.55
.60	.26	.56	.25	.52	.24	.52	.24
.60	.26	.56	.25	.52	.24	.52	.24
.53	.25	.49	.24	.45	.23	.45	.23
.53	.25	.49	.24	.45	.23	.45	.23
1.31	.08	1.71	.08	1.71	.08	1.71	.08
.91	.08	.91	.08	.77	.08	.77	.08
.77	.08	.71	.08	.57	.08	.57	.08
.77	.08	.71	.08	.57	.08	.57	.08
.55	.16	.43	.11	.37	.11	.38	.10
.55	.16	.43	.11	.37	.11	.38	.10
.55	.16	.43	.11	.37	.11	.38	.10
.55	.16	.43	.11	.37	.11	.38	.10

LEAD A/C RUNWAY 3 LEAD A/C FIX 0 TRAIL A/C RUNWAY 4 TRAIL A/C FIX 0
128 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

2.89	.70	3.50	.65	4.12	.60	4.06	.55
2.29	.70	2.23	.65	2.77	.60	2.71	.55
2.29	.70	2.23	.65	2.17	.60	2.11	.55
2.29	.70	2.23	.65	2.17	.60	2.11	.55
.60	.26	.56	.25	.52	.24	.52	.24
.60	.26	.56	.25	.52	.24	.52	.24
.53	.25	.49	.24	.45	.23	.45	.23
.53	.25	.49	.24	.45	.23	.45	.23
1.31	.08	1.71	.08	1.71	.08	1.71	.08
.91	.08	.91	.08	.77	.08	.77	.08
.77	.08	.71	.08	.57	.08	.57	.08
.77	.08	.71	.08	.57	.08	.57	.08
.48	.15	.49	.18	.49	.18	.46	.09
.48	.15	.49	.18	.49	.18	.46	.09
.48	.15	.49	.18	.49	.18	.46	.09
.48	.15	.49	.18	.49	.18	.46	.09

128 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

2.89	.70	3.58	.65	4.12	.60	4.06	.55
2.29	.70	2.23	.65	2.77	.60	2.71	.55
2.29	.70	2.23	.65	2.17	.60	2.11	.55
2.29	.70	2.23	.65	2.17	.60	2.11	.55
.60	.26	.56	.25	.52	.24	.52	.24
.60	.26	.56	.25	.52	.24	.52	.24
.53	.25	.49	.24	.45	.23	.45	.23
.53	.25	.49	.24	.45	.23	.45	.23
1.31	.08	1.71	.08	1.71	.08	1.71	.08
.91	.08	.91	.08	.77	.08	.77	.08
.77	.08	.71	.08	.57	.08	.57	.08
.77	.08	.71	.08	.57	.08	.57	.08
.57	.19	.50	.19	.43	.14	.42	.09
.57	.19	.50	.19	.43	.14	.42	.09
.57	.14	.50	.19	.43	.14	.42	.09
.57	.14	.50	.19	.43	.14	.42	.09

LEAD A/C RUNWAY 4 LEAD A/C FIX 0 TRAIL A/C RUNWAY 3 TRAIL A/C FIX 0

128 SEPARATION VALUES IN 4 SETS OF 32, A/A (N.MILES), D/A (N.MILES), D/D (MINUTES) AND A/D (MINUTES)

2.89	.70	3.58	.65	4.12	.60	4.06	.55
2.29	.70	2.23	.65	2.77	.60	2.71	.55
2.29	.70	2.23	.65	2.17	.60	2.11	.55
2.29	.70	2.23	.65	2.17	.60	2.11	.55
.60	.26	.56	.25	.52	.24	.52	.24
.60	.26	.56	.25	.52	.24	.52	.24
.53	.25	.49	.24	.45	.23	.45	.23
.53	.25	.49	.24	.45	.23	.45	.23
1.31	.08	1.71	.08	1.71	.08	1.71	.08
.91	.08	.91	.08	.77	.08	.77	.08
.77	.08	.71	.08	.57	.08	.57	.08
.77	.08	.71	.08	.57	.08	.57	.08
.55	.06	.51	.14	.63	.13	.48	.09
.55	.06	.51	.14	.63	.13	.48	.09
.55	.06	.51	.14	.63	.13	.48	.09
.55	.06	.51	.14	.63	.13	.48	.09

VECTORING DELAY INPUTS

FIX	DELAY EVALUATION LEVEL	HOLDING PCT.	MAXIMUM VECTORING DELAY	MINIMUM HOLDING DELAY

3	10.00	100.00	10.00	0.00
4	10.00	100.00	10.00	0.00
5	10.00	100.00	10.00	0.00
6	10.00	100.00	10.00	0.00
7	10.00	100.00	10.00	0.00
8	10.00	100.00	10.00	0.00
10	10.00	100.00	10.00	0.00

TAKE-OFF QUEUE SWITCH FOR RUNWAY 1 = 99

TAKE-OFF QUEUE SWITCH FOR RUNWAY 2 = 99

TAKE-OFF QUEUE SWITCH FOR RUNWAY 3 = 99

TAKE-OFF QUEUE SWITCH FOR RUNWAY 4 = 99

TAKE-OFF QUEUE SWITCH FOR RUNWAY 5 = 0

GATE HOLD LIMIT = 9 HOLD TIME = 2.00

GATE HOLD LIMIT = 9 HOLD TIME = 2.00

GATE HOLD LIMIT = 9 HOLD TIME = 2.00

GATE HOLD LIMIT = 9 HOLD TIME = 2.00

AIRSPACE DELAYS

FIX	OCCURENCE PERCENTAGE	HOLD MEAN	HOLD SIGMA

A/C DEPARTURE RUNWAY OCCUPANCY TIME IN SECONDS (A/C CLASS, MEAN, AND STD. DEV.)

1	39.00	4.00
2	39.00	4.00
3	34.00	4.00
4	34.00	4.00

TOUCH-AND-GO RUNWAY OCCUPANCY TIME IN SECONDS (A/C CLASS, MEAN, AND STD. DEV.)

1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.00	0.00

GATE SERVICE TIME DISTRIBUTION (PROBABILITY VS TIME)

CLASS 1

0.00

CLASS 2

0.00

CLASS 3

0.00

CLASS 4

0.00

A/C APPROACH SPEED IN KNOTS (A/C CLASS, MEAN, STD. DEV.)

1	140.00	5.00
2	130.00	5.00
3	120.00	5.00
4	100.00	5.00

```
    317.     .07    320.     .93    323.    1.00
CLASS  2 RWY   1
    307.     .27    312.     .35    317.     .67    320.     .97    323.    1.00

CLASS  3 RWY   1
    307.     .78    312.     .80    317.    1.00
CLASS  4 RWY   1
    307.     .86    317.    1.00
CLASS  1 RWY   2
    310.     .07    313.     .20    315.     .53    318.    1.00
CLASS  2 RWY   2
    145.     .02    305.     .26    310.     .34    313.     .37    315.     .67
    318.    1.00
CLASS  3 RWY   2
    145.     .31    305.     .83    310.     .90    313.     .94    315.     .97
    318.    1.00
CLASS  4 RWY   2
    145.     .99    305.    1.00
CLASS  1 RWY   3
    274.     .99    271.    1.00
CLASS  2 RWY   3
    277.     .44    274.     .81    271.    1.00
CLASS  3 RWY   3
    277.     .45    274.     .50    271.     .80    268.    1.00
CLASS  4 RWY   3
    277.     .99    271.    1.00
CLASS  1 RWY   4
    275.     .08    272.     .31    269.     .86    262.    1.00
CLASS  2 RWY   4
    275.     .09    272.     .45    269.     .85    262.    1.00
CLASS  3 RWY   4
    275.     .19    272.     .25    269.     .29    262.     .45    284.    1.00

CLASS  4 RWY   4
    275.     .22    272.     .39    269.     .50    284.    1.00

THE ARRIVAL RUNWAY OCCUPANCY TIME IN SECONDS BY A/C CLASS (DISTANCE IN FEET FROM THRESHOLD TO EXIT TAXIWAY VERSUS TIME)
CLASS  1
  4000.0   37.00  4280.0   47.00  4501.0   54.40  5500.0   45.70  5700.0   43.00
  6150.0   42.00  6400.0   51.90  6500.0   49.20  7500.0   55.80  7550.0   53.50
  7780.0   54.20
CLASS  2
  2200.0   34.50  2580.0   37.80  3000.0   52.00  4280.0   40.60  4500.0   52.70
  4501.0   46.80  5350.0   42.40  5500.0   38.50  5700.0   42.80  6150.0   46.80
  6400.0   48.20  6500.0   49.20  7550.0   51.60  7780.0   54.00  7820.0   59.00
  8250.0   58.80
CLASS  3
  2200.0   31.60  2580.0   36.90  2600.0   35.00  3000.0   42.70  4000.0   33.80
  4280.0   59.30  4500.0   48.10  4501.0   38.00  4600.0   46.00  5350.0   50.30
  5700.0   60.00  7550.0   63.30  7780.0   86.00
CLASS  4
  2000.0   35.00  2580.0   32.40  4280.0   38.50  4500.0   45.00  5350.0   44.50
  5700.0   52.00  7780.0   50.00

TAXIING SPEEDS IN MPH
    5.00    10.00    19.00    20.00    25.00    35.00

A/C LATENESS DISTRIBUTION IN MINUTES (RANDOM NUMBER VERSUS TIME)
    0.00
```

		3	25.50	180.00
1	1	4	25.50	180.00
1	2	1	24.00	192.00
1	2	2	24.00	192.00
1	2	3	24.00	180.00
1	2	4	24.00	180.00
1	3	1	24.00	192.00
1	3	2	24.00	192.00
1	3	3	24.00	192.00
1	3	4	24.00	180.00
1	4	1	24.00	192.00
1	4	2	24.00	192.00
1	4	3	24.00	180.00
1	4	4	24.00	180.00
2	1	1	25.50	191.30
2	1	2	25.50	191.30
2	1	3	25.50	191.30
2	1	4	25.50	180.00
2	2	1	22.50	192.90
2	2	2	22.50	192.90
2	2	3	22.50	180.00
2	3	2	21.00	210.00
2	3	3	21.00	180.00
2	4	1	18.00	180.00
2	4	2	18.00	180.00
2	4	3	18.00	180.00
2	4	4	18.00	180.00
3	1	1	28.50	180.00
3	1	2	28.50	180.00
3	1	3	28.50	180.00
3	2	3	31.50	180.00
3	3	2	36.00	180.00
3	3	3	36.00	180.00
3	4	3	18.00	180.00
4	1	1	36.00	196.40
4	1	2	36.00	180.00
4	1	3	36.00	180.00
4	2	1	33.00	180.00
4	2	2	33.00	180.00
4	3	2	34.50	197.10
4	3	3	34.50	180.00
4	4	2	31.50	180.00
4	4	3	31.50	180.00
5	1	2	18.00	180.00
5	1	3	18.00	180.00
5	1	4	18.00	180.00
5	2	2	22.50	192.90
5	2	3	22.50	180.00
5	3	2	18.00	180.00
5	3	3	18.00	180.00
5	4	2	21.00	180.00
6	1	3	18.00	180.00
6	2	3	18.00	180.00
6	2	4	18.00	180.00
6	3	2	18.00	180.00
6	4	3	18.00	180.00
6	4	4	18.00	180.00
7	4	2	18.00	180.00
7	4	4	18.00	180.00
8	1	1	.00	180.00
8	1	2	.00	180.00
8	1	3	.00	180.00
8	1	4	.00	180.00

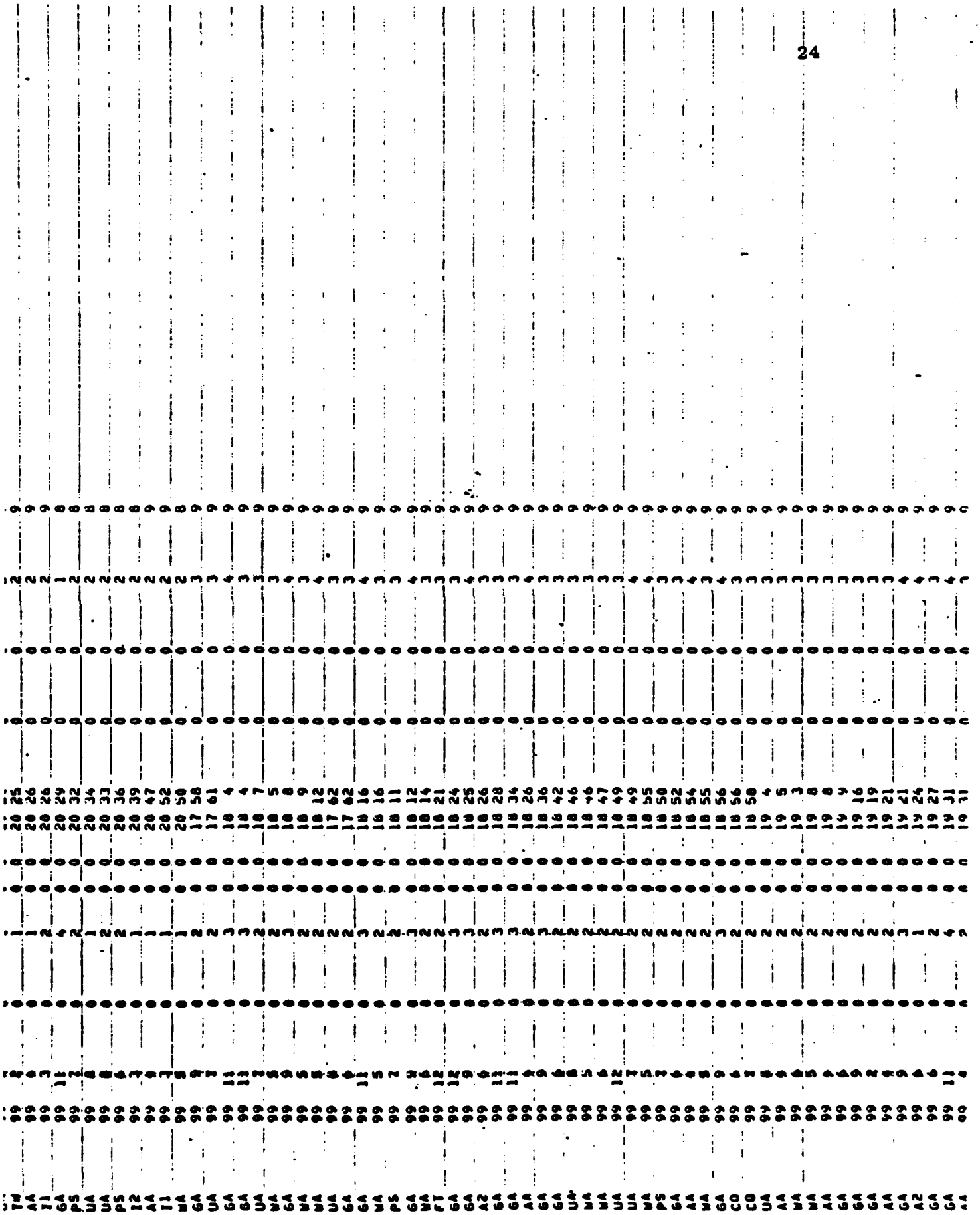
8	2	3	.00	180.00
8	2	4	.00	180.00
8	3	1	.00	180.00
8	3	2	.00	180.00
8	3	3	.00	180.00
8	3	4	.00	180.00
8	4	1	.00	180.00
8	4	2	.00	180.00
8	4	3	.00	180.00
8	4	4	.00	180.00
10	1	1	24.00	180.00
10	1	2	24.00	180.00
10	1	3	24.00	180.00
10	1	4	24.00	180.00
10	2	1	24.00	180.00
10	2	2	24.00	180.00
10	2	3	24.00	180.00
10	2	4	24.00	180.00
10	3	1	24.00	180.00
10	3	2	24.00	180.00
10	3	3	24.00	180.00
10	3	4	24.00	180.00
10	4	1	24.00	180.00
10	4	2	24.00	180.00
10	4	3	24.00	180.00
10	4	4	24.00	180.00

* * * MORE SCHEDULE DATA * * *

A/C NO.	AIRLINE	HOLD	DATE	FLT.TYPE	CLASS	ARRIVE	DEPART	SERV.TIME	ARR.RWY	ARR.FIX	DEP.RWY	DEP.DIF
BLOCK- TWO WAY PATH			53		60	359	331					

COMPLETE LISTING OF SCHEDULE INPUTS

TW	99	2	0	2	0	0	17	54	0	0	2	8
GA	99	11	0	3	0	0	17	56	0	0	1	8
GA	99	11	0	3	0	0	18	5	0	0	1	8
CO	99	7	0	1	0	0	18	6	0	0	2	9
PS	99	6	0	2	0	0	18	8	0	0	2	8
GA	99	11	0	4	0	0	18	12	0	0	2	8
NW	99	4	0	1	0	0	18	17	0	0	2	9
UA	99	7	0	2	0	0	18	16	0	0	2	8
GA	99	11	0	3	0	0	18	17	0	0	2	8
GA	99	11	0	4	0	0	18	19	0	0	2	8
UA	99	8	0	2	0	0	18	19	0	0	2	8
13	99	2	0	2	0	0	18	23	0	0	2	8
II	99	2	0	2	0	0	18	26	0	0	2	8
GA	99	11	0	3	0	0	18	27	0	0	1	8
UA	99	7	0	2	0	0	18	29	0	0	1	8
PS	99	6	0	2	0	0	18	37	0	0	2	8
PS	99	7	0	2	0	0	18	35	0	0	1	8
GA	99	11	0	3	0	0	18	41	0	0	1	8
UA	99	8	0	1	0	0	18	41	0	0	1	8
TW	99	2	0	1	0	0	18	56	0	0	2	9
GA	99	11	0	4	0	0	19	5	0	0	2	8
TW	99	2	0	2	0	0	19	5	0	0	2	9
GA	99	2	0	2	0	0	19	6	0	0	2	9
PS	99	6	0	2	0	0	19	7	0	0	2	8
UA	99	8	0	1	0	0	19	7	0	0	2	8
GA	99	11	0	3	0	0	19	11	0	0	1	8
UA	99	7	0	2	0	0	19	8	0	0	2	8
EA	99	2	0	1	0	0	19	14	0	0	2	9
UA	99	8	0	2	0	0	19	12	0	0	2	8
AA	99	4	0	1	0	0	19	18	0	0	2	9
GA	99	10	0	1	0	0	19	17	0	0	2	9
TW	99	2	0	2	0	0	19	25	0	0	2	9
AA	99	4	0	1	0	0	19	25	0	0	2	9
CO	99	7	0	1	0	0	19	23	0	0	2	8
AZ	99	6	0	1	0	0	19	29	0	0	2	9
TW	99	2	0	2	0	0	19	28	0	0	2	9
GA	99	11	0	3	0	0	19	27	0	0	1	8
CO	99	7	0	1	0	0	19	36	0	0	2	9
GA	99	11	0	4	0	0	19	32	0	0	1	8
AA	99	4	0	1	0	0	19	39	0	0	2	9
TW	99	2	0	1	0	0	19	48	0	0	2	9
UA	99	7	0	2	0	0	19	47	0	0	2	8
AA	99	4	0	1	0	0	19	47	0	0	2	9
GA	99	3	0	2	0	0	19	52	0	0	2	9
WA	99	5	0	1	0	0	19	55	0	0	2	8
TW	99	2	0	2	0	0	19	57	0	0	2	9
UA	99	8	0	1	0	0	19	54	0	0	2	9
WA	99	6	0	2	0	0	19	59	0	0	2	8
GA	99	2	0	1	0	0	19	62	0	0	2	9
PS	99	7	0	2	0	0	20	4	0	0	2	8
GA	99	3	0	1	0	0	20	7	0	0	2	8
UA	99	7	0	2	0	0	20	7	0	0	2	8
PS	99	6	0	2	0	0	20	4	0	0	2	8
GA	99	11	0	3	0	0	20	9	0	0	1	8
PS	99	7	0	2	0	0	20	10	0	0	2	8
TW	99	2	0	2	0	0	20	10	0	0	2	9
12	99	7	0	1	0	0	20	20	0	0	2	9



| | | |

UA	99	5	0	2	18	4	0	0	3	8	0	0	
CO	99	6	0	2	18	2	0	0	4	8	0	0	
TH	99	1	0	2	18	6	0	0	4	1	0	0	
WA	99	6	0	2	18	8	0	0	3	10	0	0	
AA	99	4	0	1	18	7	0	0	4	1	0	0	
PS	99	2	0	2	18	11	0	0	3	4	0	0	
UA	99	4	0	2	18	8	0	0	4	1	0	0	
PS	99	7	0	2	18	8	0	0	4	2	0	0	
UA	99	8	0	1	18	11	0	0	4	1	0	0	
UA	99	7	0	2	18	16	0	0	3	4	0	0	
GA	99	5	0	2	18	17	0	0	4	2	0	0	
GA	99	5	0	2	18	18	0	0	3	1	0	0	
WA	99	5	0	1	18	21	0	0	4	1	0	0	
AA	99	1	0	1	18	22	0	0	4	1	0	0	
GA	99	2	0	1	18	24	0	0	4	1	0	0	
UA	99	8	0	1	18	25	0	0	4	1	0	0	
AA	99	3	0	2	18	27	0	0	4	1	0	0	
TW	99	1	0	2	18	29	0	0	4	1	0	0	
GA	99	2	0	3	18	30	0	0	3	4	0	0	
AI	99	5	0	2	18	31	0	0	4	1	0	0	
UA	99	7	0	2	18	35	0	0	3	4	0	0	
A2	99	6	0	1	18	32	0	0	4	2	0	0	
UA	99	8	0	2	18	35	0	0	4	1	0	0	
UA	99	4	0	2	18	37	0	0	3	1	0	0	
GA	99	6	0	2	18	41	0	0	3	1	0	0	
UA	99	7	0	1	18	42	0	0	4	1	0	0	
WA	99	5	0	1	18	43	0	0	4	1	0	0	
GA	99	4	0	3	18	45	0	0	3	2	0	0	
PS	99	7	0	2	18	50	0	0	3	5	0	0	
TW	99	2	0	1	18	52	0	0	4	1	0	0	
AA	99	4	0	1	18	53	0	0	4	1	0	0	
PS	99	7	0	2	18	57	0	0	3	4	0	0	
AA	99	5	0	2	18	58	0	0	4	1	0	0	
UA	99	8	0	2	19	0	0	0	4	1	0	0	
UA	99	7	0	2	19	1	0	0	3	4	0	0	
WA	99	5	0	2	19	2	0	0	3	4	0	0	
UA	99	8	0	2	19	1	0	0	4	1	0	0	
GA	99	12	0	3	19	0	0	0	4	2	0	0	
UA	99	7	0	2	19	5	0	0	3	4	0	0	
AA	99	4	0	2	19	6	0	0	4	1	0	0	
WA	99	6	0	2	19	9	0	0	4	1	0	0	
PS	99	5	0	2	19	9	0	0	3	4	0	0	
UA	99	8	0	2	19	13	0	0	4	2	0	0	
AA	99	4	0	2	19	13	0	0	3	1	0	0	
GA	99	9	0	4	19	7	0	0	4	10	0	0	
PS	99	6	0	2	19	20	0	0	3	4	0	0	
WA	99	5	0	2	19	20	0	0	4	1	0	0	
AI	99	6	0	2	19	24	0	0	4	1	0	0	
A2	99	6	0	2	19	26	0	0	4	1	0	0	
II	99	1	0	2	19	30	0	0	4	1	0	0	
GA	99	9	0	2	19	34	0	0	4	1	0	0	
CO	99	6	0	2	19	36	0	0	4	1	0	0	
GA	99	9	0	3	19	35	0	0	4	4	0	0	
UA	99	12	0	2	19	35	0	0	4	5	0	0	
WA	99	6	0	2	19	38	0	0	3	2	0	0	
UA	99	8	0	2	19	46	0	0	3	4	0	0	
GA	99	9	0	4	19	47	0	0	4	2	0	0	
PS	99	6	0	2	19	48	0	0	3	4	0	0	
CO	99	7	0	1	19	55	0	0	4	1	0	0	
UA	99	8	0	2	20	2	0	0	4	2	0	0	
FT	99	12	0	2	20	3	0	0	4	1	0	0	
GA	99	8	0	2	20	5	0	0	4	1	0	0	
GA	99	6	0	2	20	8	0	0	4	1	0	0	
UA	99	7	0	2	20	7	0	0	3	4	0	0	

CD	99	2	0	1	20	15	0	0	4	1	0	0	
GA	99	10	0	2	20	19	0	0	3	6	0	0	
UA	99	2	0	1	20	18	0	0	4	1	0	0	
MA	99	0	0	2	20	23	0	0	4	1	0	0	
GA	99	9	0	3	20	25	0	0	4	1	0	0	
UA	99	8	0	2	20	26	0	0	3	1	0	0	
AA	99	4	0	1	20	27	0	0	4	1	3	0	
GA	99	9	0	3	20	29	0	0	4	1	0	0	
GA	99	4	0	3	20	31	0	0	3	2	0	0	
GA	99	9	0	4	20	38	0	0	4	6	0	0	
TW	99	2	0	1	20	38	0	0	4	1	0	0	
GA	99	9	0	4	20	26	0	0	4	10	0	0	
UA	99	2	0	2	20	41	0	0	3	4	0	0	
MA	99	6	0	2	20	42	0	0	4	4	0	0	
MA	99	6	0	2	20	43	0	0	3	4	0	0	
PS	99	6	0	2	20	46	0	0	3	4	0	0	
PS	99	11	0	2	20	53	0	0	3	4	0	0	
GA	99	9	0	3	20	47	0	0	4	1	0	0	
TW	99	2	0	2	20	53	0	0	4	1	0	0	
AA	99	0	0	2	20	55	0	0	3	1	0	0	
MA	99	5	0	2	20	57	0	0	3	1	0	0	
PS	99	2	0	2	20	58	0	0	3	4	0	0	
CO	99	7	0	1	20	58	0	0	4	1	0	0	

ATTACHMENT B

INPUT DATA
STAGE 1 EXPERIMENTS

LOS ANGELES INTERNATIONAL AIRPORT

LOS ANGELES
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES

MARCH 1979

TABLE 2

LOS ANGELES DELAY EXPERIMENTS

Experiment number	Model	Study case[a]	Arrival runways	Departure runways	Weather	Demand	ATC System scenario[b]	Near Term improvements[c]
Stage I Experiments								
1	ASM[d]	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1978	1978	None
2	ASM	2	24L, 24R, 25L, 25R	24L, 25R	IFR1	1978	1978	None
3	ASM	3	24R, 25L	24L, 25R	IFR2	1978	1978	None
4	ASM	5	6R, 7L	24L, 25R	VFR1	1978	1978	None
5	ASM	6	6R, 7L	24L, 25R	IFR1	1978	1978	None
6	ASM	4	6L, 6R, 7L, 7R	6L, 6R, 7L, 7R	VFR1	1978	1978	None
7	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1978	None
8	ASM	2	24L, 24R, 25L, 25R	24L, 25R	IFR1	1982	1978	None
9	ASM	4	6L, 6R, 7L, 7R	6L, 6R, 7L, 7R	VFR1	1982	1978	None
10	ASM	5	6R, 7L	24L, 25R	VFR1	1982	1978	None
10A	ASM	6	6R, 7L	24L, 25R	IFR1	1982	1978	None
11	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	1982[e]
12	ASM	2	24L, 24R, 25L, 25R	24L, 25R	IFR1	1982	1982	1982[f]
13	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	2, 3[g]
15	ASM	5	6R, 7L	24L, 25R	VFR1	1982	1982	5, 7[g] Change
16	ASM	4	6L, 6R, 7L, 7R	6L, 6R, 7L, 7R	VFR1	1982	1978	5, 7, 8[g]
17	ADM[h]	n.a.	n.a.	n.a.	n.a.	1978	1978	None
17A	RCM[i]	7	24L, 24R, 25L	24L, 24R, 25L	VFR1	1982	1982	Tunnel Construction[j]
17B	RCM	7	24L, 24R, 25L, 25x[k]	24L, 24R, 25L, 25X[k]	VFR1	1982	1982	Tunnel Construction
17C	RCM	7	24L, 24R, 25L, 26	24L, 24R, 25L, 26	VFR1	1982	1982	Comments-Usage for Light

n.a. = not applicable.

a. Study cases (combinations of runway use and weather conditions) are defined in Figure III-1.

b. FAA will describe impact of 1982 and post-1987 ATC systems on model inputs.

c. Potential near-term improvements are identified in the Los Angeles International Airport Improvement Task Force Interim Report, and in Appendix B.

d. Airfield Simulation Model.

e. Task Force establishes packages of near-term improvements most likely to be implemented in 1982 and 1987 time frames. The 1982 package includes improvement # 2 (high-speed taxiway off Runway 25L to the south), improvement # 3 (strengthening of the Sepulveda Tunnel), (cont.)

TABLE 2 (CONTINUED)

e. (cont.) new taxiway access to threshold of Runway 24R, and temporary holding areas on future Taxiway 75. The 1987 package includes all 1982 improvements plus Satellite 1, International Terminal, and/or remote parking for 20 aircraft at west end of airport. These packages of improvements are subject to Task Force review and revision.
f. Impact of absence of improvements # 2 and #3 (high-speed taxiway of Runway 25L and strengthening of the Sepulveda Tunnel).
g. Improvement # 5 is a high-speed taxi exit off Runway 7. Improvement # 7 is a high-spped taxi exit to Taxiway 47 from Runway 6R. Improvement #8 is a bypass area on the north side of Runway 7L.
h. Annual Delay Model.
i. Runway Capacity Model.
j. Runway 25R closed for tunnel construction.
k. During closure of 25R for tunnel construction, parts of Runway 25 are open for small aircraft arrivals and departures.

LAX STAGE 1, EXPERIMENT NO. 1 CONFIGURATION A
TIMES(START,FINISH)
07 00 13 00
A/C SERVICE TIMES
1 40.00 3.00
2 30.00 3.00
3 20.00 2.00
4 20.00 2.00
A/C LATENESS DISTRIBUTION
10
0.0 -30.0 .05 -15.0 .35 0.0 .47 0.0 .67 5.0
.79 10.0 .87 15.0 .95 30.0 .97 45.0 1.00 120.0
A/C SEPARATIONS (VFR-1)(INITIAL)
A/C SCHEDULE 1978 (INITIAL)(CLASS 1 RESTRICTED TO 24R AND 24L)(INSERT CROSSOVER DEPARTURES FROM NORTH END OF FIELD)

LAX STAGE 1, EXPERIMENT NO. 7 CONFIGURATION A
A/C SCHEDULE 1982 (INITIAL)(CLASS 1 RESTRICTED TO 24R AND 24L)(INSERT CROSSOVER DEPARTURES FROM NORTH END OF FIELD)

LAX STAGE 1 EXPERIMENT NO. 11 CONFIGURATION A
RWY XING LINKS (LINK 372 CROSSING 24L)
2 372 30 30 30 30
RWY EXIT SELECTION
4 4 3
275 0.22 284 0.50 272 0.28
TAXIWAY LINKS
25 1 0.01 2
370 300.0 5
321 300.0 5
372 300.0 5
373 1000.0 5
374 0.1 7
375 300.0 3
TAXIWAY ROUTES(ACCESS TO 24R AND GATE 75,NEW EXIT ROUTES FOR HIGH SPEED EXIT)
A/C SEPARATIONS (PRE-1985 VFR SEPARATIONS)
PRE-1985 VFR-1 SEPARATION CHANGES (ARRIVAL-TO-ARRIVAL FOR SAME RUNWAY)

	CLASS 1	CLASS 2	CLASS 3	CLASS 4
	NMI. (S.D.)	NMI. (S.D.)	NMI (S.D.)	NMI. (S.D.)
CLASS 1	3.7 (0.43)	3.9 (0.40)	4.9 (0.37)	4.7 (0.31)
CLASS 2	2.9 (0.43)	2.8 (0.40)	3.6 (0.37)	3.4 (0.31)
CLASS 3	2.9 (0.43)	2.8 (0.40)	2.8 (0.37)	2.6 (0.31)
CLASS 4	2.9 (0.43)	2.8 (0.40)	2.8 (0.37)	2.6 (0.31)

A/C SCHEDULE 1982 (USE OF 25R,25L BY HEAVYS AND USE OF GATE 75,REDUCED CROSSOVER DEPARTURES FROM NORTH END OF FIELD)

LAX STAGE 1 EXPERIMENT NO. 13 CONFIGURATION A
A/C SCHEDULE 1982 (INITIAL)(CLASS 1 RESTRICTED TO 24R AND 24L)(INSERT CROSSOVER DEPARTURES FROM NORTH END OF FIELD)
RWY EXIT SELECTION (INITIAL)
TAXIWAY ROUTES(ACCESS TO 24R AND GATE 75)

LAX STAGE 1, EXPERIMENT NO. 2 CONFIGURATION A
A/C SEPARATIONS (IFR-1)
IFR-1 SEPARATION VALUES FOR ARRIVAL-TO-ARRIVAL

	CLASS 1 NMI. (S.D.)	CLASS 2 NMI. (S.D.)	CLASS 3 NMI. (S.D.)	CLASS 4 NMI. (S.D.)
CLASS 1	5.2 (0.70)	6.1 (0.65)	7.0 (0.60)	6.8 (0.50)
CLASS 2	4.2 (0.70)	4.1 (0.65)	5.0 (0.60)	4.8 (0.50)
CLASS 3	4.2 (0.70)	4.1 (0.65)	4.0 (0.60)	3.8 (0.50)
CLASS 4	4.2 (0.70)	4.1 (0.65)	4.0 (0.60)	3.8 (0.50)

IFR-1 SEPARATION VALUES FOR DEPARTURE-TO-DEPARTURE

	CLASS 1 NMI. (S.D.)	CLASS 2 NMI (S.D.)	CLASS 3 NMI. (S.D.)	CLASS 4 NMI. (S.D.)
CLASS 1	1.66(0.08)	2.16(0.08)	2.16(0.08)	2.16(0.08)
CLASS 2	1.14(0.08)	1.14(0.08)	1.13(0.08)	1.13(0.08)
CLASS 3	1.13(0.08)	1.16(0.08)	1.13(0.08)	1.13(0.08)
CLASS 4	1.13(0.08)	1.14(0.08)	1.13(0.08)	1.13(0.08)

IFR-1 SEPARATION VALUES FOR DEPARTURE-TO-ARRIVAL

	CLASS 1 NMI. (S.D.)	CLASS 2 NMI. (S.D.)	CLASS 3 NMI. (S.D.)	CLASS 4 NMI. (S.D.)
CLASS 1	2.0 (0.26)	2.0 (0.25)	2.0 (0.24)	2.0 (0.24)
CLASS 2	2.0 (0.26)	2.0 (0.25)	2.0 (0.24)	2.0 (0.24)
CLASS 3	2.0 (0.25)	2.0 (0.24)	2.0 (0.23)	2.0 (0.23)
CLASS 4	2.0 (0.25)	2.0 (0.24)	2.0 (0.23)	2.0 (0.23)

IFR-1 ARRIVAL-TO-ARRIVAL AND DEPARTURE-TO-ARRIVAL SEPARATIONS FOR DEPENDENT RUNWAYS ARE 100 PERCENT AND 60 PERCENT OF SAME RUNWAY SEPARATIONS
A/C SCHEDULE 1978 (CLASS 1 RESTRICTED TO 24R AND 24L) (INSERT CROSSOVER DEPARTURES FROM NORTH END OF FIELD)(SHIFT DEPARTURE DEMAND FROM 24R TO 24L AND 25L TO 25R)

LAX STAGE 1, EXPERIMENT NO. 8 CONFIGURATION A
A/C SCHEDULE 1982 (CLASS 1 RESTRICTED TO 24R AND 24L) (INSERT CROSSOVER DEPARTURES FROM NORTH END OF FIELD)(SHIFT DEPARTURE DEMAND FROM 24R TO 24L AND 25L TO 25R)

LAX STAGE 1, EXPERIMENT NO. 12 CONFIGURATION A
RWY EXIT SELECTIONS

4		4		3	
275	0.22	284	0.50	272	0.28

TAXIWAY ROUTES(ACCESS TO 24R AND GATE 75,NEW EXIT ROUTES FOR HIGH SPEED EXIT)
TAXIWAY LINKS

75	1	0.01	7
370		300.0	5
371		300.0	5
372		300.0	5
373		1000.0	5
374		0.1	7
375		300.0	3

A/C SEPARATIONS (IFR-1)(PRE-1985 SEPARATION VALUES)
PRE-1985 IFR-1 SEPARATION VALUE FOR ARRIVAL-TO-ARRIVAL

	CLASS 1 NMI. (S.D.)	CLASS 2 NMI. (S.D.)	CLASS 3 NMI. (S.D.)	CLASS 4 NMI. (S.D.)
CLASS 1	4.0 (0.43)	3.9 (0.40)	4.9 (0.37)	4.7 (0.31)
CLASS 2	4.0 (0.43)	3.9 (0.40)	3.9 (0.37)	3.7 (0.31)
CLASS 3	4.0 (0.43)	3.9 (0.40)	3.9 (0.37)	3.7 (0.31)

CLASS 4 4.0 (0.43) 3.9 (0.40) 3.9 (0.37) 3.7 (0.31)
A/C SCHEDULE 1982 (USE OF 25R,25L BY HEAVYS AND USE OF GATE 75,REDUCED CROSSOVER DEPARTURES FROM NORTH END OF FIELD)

LAX STAGE 1, EXPERIMENT NO. 3 CONFIGURATION A
IFR-2 RUNWAY CROSSING LINK CLEARANCE TIMES (ADD 5 SECONDS TO ARRIVAL ON RUNWAY)

2	307	30	30	38	40	22	22	23	26	30	30	30	30
2	312	47	47	51	60	31	31	33	42	30	30	30	30
2	317	57	57	51	40	36	36	38	42	30	30	30	30
2	320	61	59	51	40	43	43	42	42	30	30	30	30
2	323	61	59	51	40	46	46	42	42	30	30	30	30
3	275	56	56	65	50	35	35	37	42	30	30	30	30
3	272	57	61	77	50	42	42	42	42	30	30	30	30
3	269	57	61	77	50	43	43	42	42	30	30	30	30
3	262	72	67	65	57	46	46	42	42	30	30	30	30
3	260	61	64	68	57	47	47	42	42	30	30	30	30
3	280	56	51	59	47	47	47	42	42	30	30	30	30
4	279	56	51	59	47	47	47	42	42	30	30	30	30
4	258	72	67	65	57	47	47	42	42	30	30	30	30
4	284	43	43	52	50	29	29	21	42	30	30	30	30
-4	265	72	67	65	57	44	44	42	42	30	30	30	30

RWY ARRIVAL OCCUPANCY TIMES (VFR PLUS 5.0 SEC.)
IFR-2 RUNWAY ARRIVAL OCCUPANCY TIMES (CALIBRATION DATA PLUS 5.0 SECONDS)

1	11								
4000	42.0	4280	52.0	4501	59.4	5500	50.7	5700	47.0
6150	47.0	6400	56.9	6500	56.2	7500	60.8	7550	58.5
7780	59.2								
2	16								
2200	39.5	2580	42.8	3000	56.0	4280	45.6	4500	57.7
4501	51.8	5350	47.4	5500	43.5	5700	47.8	6150	51.8
6400	53.8	6500	54.2	7550	56.6	7780	59.0	7820	64.0
8250	63.8								
3	13								
2200	36.6	2580	41.9	2600	40.0	3000	47.7	4000	38.8
4280	64.3	4500	53.1	4501	43.0	4600	51.0	5350	55.3
5700	65.0	7550	68.3	7780	91.0				
4	7								
2000	60.0	2580	37.6	4280	63.5	4500	50.0	5350	69.5
5700	57.0	7780	55.0						

A/C SEPARATIONS (IFR-2) (CHANGE IFR-1 A/D BASED ON ARRIVAL RUNWAY OCCUPANCY)
IFR-2 SEPARATION VALUES SPECIAL A/D SEPARATION BASED ON ARRIVAL RUNWAY OCCUPANCY

	CLASS 1		CLASS 2		CLASS 3		CLASS 4	
	MINUTES	(S.D.)	MINUTES	(S.D.)	MINUTES	(S.D.)	MINUTES	(S.D.)
CLASS 1	0.96	(0.16)	0.86	(0.19)	1.05	(0.23)	0.82	(0.09)
CLASS 2	0.96	(0.16)	0.86	(0.19)	1.05	(0.23)	0.82	(0.09)
CLASS 3	0.96	(0.16)	0.86	(0.19)	1.05	(0.23)	0.82	(0.09)
CLASS 4	0.96	(0.16)	0.86	(0.19)	1.05	(0.23)	0.82	(0.09)

IFR-2 SEPARATION CHANGES (IFR-1 VALUES AND 100 PERCENT OF SAME RUNWAY SEPARATIONS FOR DEPENDENT RUNWAY SEPARATIONS)
A/C SCHEDULE 1978 (CLASS 1 RESTRICTED TO 24R AND 24L) (INSERT CROSSOVER DEPARTURES FROM NORTH END OF FIELD) (NO ARRIVALS ON 24L AND 25R, NO DEPARTURES ON 24R AND 25L)

LAX STAGE 1, EXPERIMENT NO. 4 CONFIGURATION B
TIMES(START,FINISH)

```
   00 00   06 30
RWY NAMES
     06R     07L     24L     25R
RWY END LINKS
     151     422     423     411
LAX RWY XINGS CONFIG. B
     2      266      37  37  36  33                          30  30  30  30
     2      280      45  60  56  69                          30  30  30  30
     4      266                      45  45  42  42
     4      282                      29  29  21  42
     4      260
    -4      280                      29  29  21  42
RWY EXIT SELECTION
       1       1       3
     310    0.30     305    0.40     145    0.30
       2       1       3
     310    0.54     305    0.37     145    0.09
       3       1       3
     310    0.54     305    0.37     145    0.09
       4       1       3
     310    0.54     305    0.37     145    0.09
       1       2       4
     277    0.67     278    0.20     282    0.07     286    0.06
       2       2       4
     277    0.67     278    0.20     282    0.07     286    0.06
       3       2       4
     274    0.25     277    0.25     282    0.25     260    0.25
       4       2       2
     260    0.99     268    0.01
RWY EXIT DISTANCES
      10
     310    5630     305    7050     145    7490     274    4820     278    6650
     282    7130     286    7400     277    6030     260    1970     268    3440
RWY ARRIVAL OCCUPANCY TIMES
       1       7
    5630   47.0    6030   60.0    6650   66.0    7050   70.0    7130   76.0
    7400   76.0    7490   70.0
       2       7
    5630   48.0    6030   60.0    6650   66.0    7050   61.0    7130   76.0
    7400   76.0    7490   75.0
       3       5
    1970   42.0    4820   64.0    6030   63.0    7130   139.0   7490   139.0
       4       2
    1970   42.0    7490   139.0
TAXIWAY TWO-WAY
LOS ANGELES CONFIGURATION B
     002
     359     331
     002
     331     359
     002
     355     206
     002
     206     355
     002
     353     205
     002
     205     353
     002
```

352	204					
002						
204	352					
002						
361	146					
002						
146	361					
003						
206	355	208				
003						
208	355	206				
003						
205	353	210				
003						
210	353	205				
006						
204	352	211	351			
004						
351	211	352	204			
003						
203	185	350				
003						
350	185	203				
005						
113	114	115	116	350		
005						
350	116	115	114	113		
006						
202	113	114	115	116	350	
006						
350	116	115	114	113	202	
005						
330	126	359	125	357		
005						
357	125	359	126	330		
004						
331	359	125	357			
006						
357	125	359	331			
002						
361	146					
002						
146	361					
007						
361	146	336	337	338	339	340
007						
340	339	338	337	336	146	361
002						
366	250					
002						
250	366					
006						
366	250	176	360	177	357	
006						
357	177	360	176	250	366	

A/C SEPARATIONS (VFR-1 SPECIAL SEPARATIONS FOR D/A-15 NMI)

VFR-1 FOR 1978 SPECIAL D/A SEPARATIONS (RUNWAYS 24L-6R, 25R-7L)

CLASS 1	CLASS 2	CLASS 3	CLASS 4
NMI. (S.D.)	NMI. (S.D.)	NMI. (S.D.)	NMI. (S.D.)

CLASS 1	15.0 (0.01)	15.0 (0.01)	15.0 (0.01)	15.0 (0.01)
CLASS 2	15.0 (0.01)	15.0 (0.01)	15.0 (0.01)	15.0 (0.01)
CLASS 3	15.0 (0.01)	15.0 (0.01)	T5.0 (0.01)	15.0 (0.01)
CLASS 4	15.0 (0.01)	15.0 (0.01)	15.0 (0.01)	15.0 (0.01)

VFR-1 FOR 1978 SPECIAL A/D SEPARATIONS (RUNWAYS 6R-24L AND 7L-25R)

	CLASS 1	CLASS 2	CLASS 3	CLASS 4
	MINUTES (S.D.)	MINUTES (S.D.)	MINUTES (S.D.)	MINUTES (S.D.)
CLASS 1	0.88 (0.16)	0.78 (0.19)	0.97 (0.23)	0.74 (0.09)
CLASS 2	0.88 (0.16)	0.78 (0.19)	0.97 (0.23)	0.74 (0.09)
CLASS 3	0.88 (0.16)	0.78 (0.19)	0.97 (0.23)	0.74 (0.09)
CLASS 4	0.88 (0.16)	0.78 (0.19)	0.97 (0.23)	0.74 (0.09)

A/C SCHEDULE 1978 (INITIAL) (RESTRICT CLASS 1 TO 6R AND 24L)

FIX TRAVEL TIMES CONFIGURATION "B"

1	1	1	33.0	180.0
1	1	2	33.0	180.0
1	1	3	36.0	180.0
2	1	2	28.5	180.0
2	1	3	31.5	180.0
2	1	4	31.5	180.0
3	1	1	22.5	192.9
3	1	2	22.5	192.9
3	1	3	22.5	180.0
3	1	4	25.5	180.0
4	1	1	24.0	192.0
4	1	2	24.0	192.0
4	1	3	24.0	180.0
4	1	4	24.0	180.0
5	1	2	22.5	192.9
5	1	3	22.5	180.0
5	1	4	18.0	180.0
8	1	3	18.0	180.0
8	1	4	18.0	180.0
1	2	1	33.0	180.0
1	2	2	34.5	197.1
1	2	3	34.5	180.0
2	2	2	36.0	180.0
2	2	3	36.0	180.0
2	2	4	36.0	180.0
3	2	2	21.0	210.0
3	2	3	21.0	180.0
3	2	4	18.0	180.0
4	2	1	24.0	192.0
4	2	2	24.0	192.0
4	2	3	24.0	192.0
4	2	4	24.0	180.0
5	2	2	18.0	180.0
5	2	3	18.0	180.0
5	2	4	18.0	180.0
-8	2	2	18.0	180.0

LAX STAGE 1, EXPERIMENT NO. 10 CONFIGURATION B
A/C SCHEDULE 1982 (CLASS 1 RESTRICTED TO 6R AND 24L)(INITIAL)

LAX STAGE 1, EXPERIMENT NO. 15 CONFIGURATION B
ANY EXIT SELECTION

```
        1       1       2
      369    0.20     145    0.30
        2       1       2
      369    0.91     145    0.09
        3       1       2
      369    0.91     145    0.09
        4       1       2
      369    0.91     145    0.09
        1       2       2
      277    0.01     376    0.99
        2       2       2
      277    0.01     376    0.99
        3       2       3
      276    0.25     376    0.50    240    0.25
        4       2       2
      260    0.99     268    0.01
RWY EXIT DISTANCES
       12
      310    5630     305    7050     145    7490     274    4820     278    6650
      282    7130     286    7400     277    6030     260    1970     268    3660
      376    6030     369    6400
TAXIWAY LINKS
      369             800.0             6
      376             500.0             5
TAXIWAY ROUTES (NEW EXITS 369 AND 376 TO GATES)
A/C SEPARATIONS  (PRE-1985 VFR SEPARATIONS)


LAX STAGE 1, EXPERIMENT NO. 5  CONFIGURATION B
A/C SEPARATIONS (IFR-1)
IFR-1 FOR 1978 SPECIAL D/A SEPARATIONS (RUNWAYS 24L-6R,7L AND 25R-6R,7L)
                CLASS 1          CLASS 2          CLASS 3          CLASS 4
                NMI. (S.D.)      NMI. (S.D.)      NMI. (S.D.)      NMI. (S.D.)
CLASS 1         15.0 (0.01)      15.0 (0.01)      15.0 (0.01)      15.0 (0.01)
CLASS 2         15.0 (0.01)      15.0 (0.01)      15.0 (0.01)      15.0 (0.01)
CLASS 3         15.0 (0.01)      15.0 (0.01)      15.0 (0.01)      15.0 (0.01)
CLASS 4         15.0 (0.01)      15.0 (0.01)      15.0 (0.01)      15.0 (0.01)
A/C SCHEDULE 1978 (INITIAL) (RESTRICT CLASS 1 TO 6R AND 24L)


LAX STAGE 1, EXPERIMENT NO. 10A
A/C SCHEDULE 1982 (RESTRICT CLASS 1 TO 6R AND 24L)


LAX STAGE 1, EXPERIMENT NO. 6  CONFIGURATION C
TIMES(START,FINISH)
   07 00  13 00
RWY NAMES
     06R     06L     07R     07L
RWY END LINKS
     151     323     410     422
RWY XING LINKS
       1     312      64   61   58   50   47   47   42   42   30   30   30   30
       1     307      53   51   62   51   47   47   42   42   30   30   30   30
       3     265      32   49   39   35   47   47   42   42   30   30   30   30
       3     258      18   34   32   35   47   47   42   42   30   30   30   30
```

```
      3      279        53   50   62   51   47   47   42   42   30   30   30   30
      4      262        27   52   43   36   47   47   42   42   30   30   30   30
      4      260        18   35   29   21   47   47   42   42   30   30   30   30
      4      280        53   50   62   51   47   47   42   42   30   30   30   30
      4      266        37   49   39   35   47   47   42   42   30   30   30   30
      4      269        43   42   49   38   47   47   42   42   30   30   30   30
      4      272        52   45   47   45   47   47   42   42   30   30   30   30
      4      275        62   47   61   52   47   47   42   42   30   30   30   30
     -4      284        56   52   63   50   47   47   42   42   30   30   30   30
 RWY EXIT SELECTION
        1     1     3
      310  0.30   305  0.40   145  0.30
        2     1     3
      310  0.56   305  0.32   145  0.09
        3     1     3
      310  0.56   305  0.32   145  0.09
        4     1     3
      310  0.56   305  0.32   145  0.09
        1     2     2
      312  0.30   307  0.70
        2     2     2
      312  0.56   307  0.44
        3     2     2
      312  0.56   307  0.44
        4     2     2
      312  0.56   307  0.44
        1     3     3
      272  0.87   275  0.07   286  0.06
        2     3     3
      272  0.87   275  0.07   286  0.06
        3     3     2
      269  0.50   272  0.25   258  0.25
        4     3     2
      258  0.99   266  0.01
        1     4     4
      277  0.67   278  0.20   282  0.07   286  0.06
        2     4     4
      277  0.67   278  0.20   282  0.07   286  0.06
        3     4     4
      274  0.25   277  0.25   282  0.25   260  0.25
        4     4     2
      260  0.99   268  0.01
 RWY EXIT DISTANCES
      018
      310  5630   305  7050   145  7490   312  3840   307  5800
      272  4500   275  7430   284  7300   269  4090   258  1970
      277  6030   278  6650   282  7130   286  7400   274  4820
      260  1970   268  3440   266  3440
 RWY ARRIVAL OCCUPANCY TIMES
        1     8
     3840  47.0  5630  47.0  6030  60.0  6650  66.0  7050  70.0
     7130  76.0  7400  76.0  7490  70.0
        2     8
     3840  47.0  5630  48.0  6030  60.0  6650  66.0  7050  61.0
     7130  76.0  7400  76.0  7490  75.0
        3     4
     1970  42.0  6030  63.0  7130 139.0  7490 139.0
        4     2
     1970  42.0  7490 139.0
```

```
TAXIWAY TWO-WAY
LOS ANGELES CONFIGURATION C
     004
     363    164    303    362
     004
     362    303    164    363
     006
     363    164    303    362    302    301
     006
     301    302    362    303    164    363
     005
     164    303    362    302    301
     005
     301    302    362    303    164
     002
     368    250
     002
     250    366
     006
     366    250    176    360    177    357
     006
     357    177    360    176    250    366
     008
     330    124    359    125    357    177    360    176
     008
     176    360    177    357    125    359    124    330
     005
     330    124    359    125    357
     005
     357    125    359    124    330
     007
     331    359    125    357    177    360    176
     007
     176    360    177    357    125    359    331
     004
     331    359    125    357
     004
     357    125    359    331
     010
     246    247    248    249    366    250    176    360    177    357
     010
     357    177    360    176    250    366    249    248    247    246
     008
     246    247    248    249    366    250    176    360
     008
     360    176    250    366    249    248    247    246
     006
     202    113    114    115    116    350
     006
     350    116    115    114    113    202
     005
     113    114    115    116    350
     005
     350    116    115    114    113
A/C SEPARATIONS (VFR-1 INITIAL)
A/C SCHEDULE 1978 (INITIAL)(CLASS 1 RESTRICTED TO 6R AND 6L)(INSERT CROSSOVER
 DEPARTURES FROM NORTH END OF FIELD)
FIX TRAVEL TIMES CONFIGURATION "C"
       1      1      1    33.0   180.0
```

1	1	2	33.0	180.0
1	1	3	34.0	180.0
2	1	2	28.5	180.0
2	1	3	31.5	180.0
2	1	4	31.5	180.0
3	1	1	22.5	192.9
3	1	2	22.5	192.9
3	1	3	22.5	180.0
3	1	4	25.5	180.0
4	1	1	24.0	192.0
4	1	2	24.0	192.0
4	1	3	24.0	180.0
4	1	4	24.0	180.0
5	1	2	22.5	192.9
5	1	3	22.5	180.0
5	1	4	18.0	180.0
8	1	3	18.0	180.0
8	1	4	18.0	180.0
1	2	1	36.0	196.4
1	2	2	36.0	180.0
1	2	3	36.0	180.0
2	2	1	28.5	180.0
2	2	2	28.5	180.0
2	2	3	28.5	180.0
2	2	4	28.5	180.0
3	2	1	25.5	191.3
3	2	2	25.5	191.3
3	2	3	25.5	191.3
3	2	4	25.5	180.0
4	2	1	25.5	204.0
4	2	2	25.5	191.3
4	2	3	25.5	180.0
4	2	4	25.5	180.0
5	2	2	18.0	180.0
5	2	3	18.0	180.0
5	2	4	18.0	180.0
8	2	3	18.0	180.0
1	4	1	33.0	180.0
1	4	2	34.5	197.1
1	4	3	34.5	180.0
2	4	2	36.0	180.0
2	4	3	36.0	180.0
2	4	4	36.0	180.0
3	4	2	21.0	210.0
3	4	3	21.0	180.0
3	4	4	18.0	180.0
4	4	1	24.0	192.0
4	4	2	24.0	192.0
4	4	3	24.0	192.0
4	4	4	24.0	180.0
5	4	2	18.0	180.0
5	4	3	18.0	180.0
5	4	4	18.0	180.0
8	4	2	18.0	180.0
1	3	1	33.0	180.0
1	3	2	31.5	180.0
1	3	3	31.5	180.0
2	3	2	36.0	180.0
2	3	3	18.0	180.0

```
      3       3       1     18.0    180.0
      3       3       2     18.0    180.0
      3       3       3     18.0    180.0
      3       3       4     18.0    180.0
      4       3       1     24.0    192.0
      4       3       2     24.0    192.0
      4       3       3     24.0    180.0
      4       3       4     24.0    180.0
      5       3       2     21.0    180.0
      6       3       3     18.0    180.0
      7       3       2     18.0    180.0
      7       3       4     18.0    180.0
     -8       3       4     18.0    180.0
```

LAX STAGE 1, EXPERIMENT NO. 9 CONFIGURATION C
A/C SCHEDULE 1982 (INITIAL)(CLASS 1 RESTRICTED TO 6R AND 6L)(INSERT CROSSOVER DEPARTURES FROM NORTH END OF FIELD)

LAX STAGE 1, EXPERIMENT NO. 16 CONFIGURATION C
RWY XING LINKS (LINK 378 CROSSING 7L)

```
      4     378                                                    30   30   30   30
```

RWY EXIT SELECTION

```
      1       1       2
    369    0.70     165    0.30
      2       1       2
    369    0.91     165    0.09
      3       1       2
    369    0.91     165    0.09
      4       1       2
    369    0.91     165    0.09
      1       4       2
    277    0.01     376    0.99
      2       4       3
    277    0.01     376    0.99
      3       4       3
    276    0.25     376    0.50    260    0.25
      4       4       2
    260    0.99     268    0.01
```

RWY EXIT DISTANCES

```
     20
    310    5630     305    7050     145    7490     312    3840     307    5800
    272    6500     275    7430     284    7300     269    6090     258    1970
    277    6030     278    6650     282    7130     286    7400     274    4820
    260    1970     268    3440     266    3440     376    6030     369    6400
```

TAXIWAY LINKS

```
    377             0.1                7
    378           500.0                6
    379          1000.0                6
```

TAXIWAY ROUTES (NEW ROUTES TO RUNWAY 7R FROM BY PASS OF 7L, NEW HIGH SPEED EXIT ROUTES FOR RUNWAY 6R AND 7L)

DISTRIBUTIONS FOR
LOS ANGELES OPERATIONS

ATTACHMENT C

LOS ANGELES INTERNATIONAL AIRPORT

LOS ANGELES
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES

MARCH 1979

TABLE 3

% of Class 3: (B) Arrival Fix/Runway Distribution

Runway (RWY)	Ontario (T)	Seal Beach (G)	Ventura (V)	Fillmore (F)	Van Nuys (VNY)	Northeast Quadrant (NE)	Southeast Quadrant (SE)	Northwest Quadrant (NW)	Southwest Quadrant (SW)
24R	28.1	21.9	32.8	12.5	3.0	1.7			
24L	31.8	45.5	13.6	3.5	4.6	1.0			
25R	13.3	33.3	33.3	13.3	6.8				
25L	54.7	21.7	11.9	4.5		7.2			

% of Class 4: (A) Arrival Fix/Runway Distribution

Runway (RWY)	Ontario (T)	Seal Beach (G)	Ventura (V)	Fillmore (F)	Van Nuys (VNY)	Northeast Quadrant (NE)	Southeast Quadrant (SE)	Northwest Quadrant (NW)	Southwest Quadrant (SW)
24R	33.3	33.3	25.0		8.4				
24L	50.0	20.0	20.0		10.0				
25R	25.0	25.0	25.0		25.0				
25L	33.3	44.5	11.1		11.1				

TABLE 3
% of Class 1: (D) Arrival Fix/Runway Distribution

Runway (RWY)	Ontario (T)	Seal Beach (G)	Ventura (V)	Fillmore (F)	Van Nuys (VNY)	Northeast Quadrant (NE)	Southeast Quadrant (SE)	Northwest Quadrant (NW)	Southwest Quadrant (SW)
24R	36.8	5.3	5.3	52.6					
24L	53.8	7.7		38.5					
25R	90.0			10.0					
25L	89.3 (67)	3.7		7.0					

=100% per runway

% of Class 2: (C) Arrival Fix/Runway Distribution

Runway (RWY)	Ontario (T)	Seal Beach (G)	Ventura (V)	Fillmore (F)	Van Nuys (VNY)	Northeast Quadrant (NE)	Southeast Quadrant (SE)	Northwest Quadrant (NW)	Southwest Quadrant (SW)
24R	25.0	3.0	17.0	54.0	1.0				
24L	46.2	3.0	11.3	38.5	1.0				
25R	28.0	6.2	2.3	62.2	1.3				
25L	73.9	13.3	1.3	9.8	1.7				

% of Class 1(D): Arrival and Departure Runway/Gate Distributions

	Arrivals				Departures			
Rwy	24R	24L	25R	25L	24R	24L	25R	25L
Gate Area	(No.of Arcft)	( )	( )	( )	( )	( )	( )	( )
1	1.1 (1)							
2	7.4 (7)	2.1 (2)		9.6 (9)		19.2 (48)	0.4 (1)	
3	6.4 (6)	1.1 (1)				10.4 (26)		
4	1.1 (1)	3.2 (3)		16.0 (15)	0.8 (2)	21.6 (54)		0.4 (1)
5				6.4 (6)		8.4 (21)		
6	3.2 (3)			10.6 (10)	0.8 (2)	6.0 (15)		1.2 (3)
7	1.1 (1)		1.1 (1)	19.1 (18)		8.8 (22)		
8		1.1 (1)		9.3 (9)	0.8 (2)	17.2 (43)	0.4 (1)	
9								
10						2.4 (6)		
11						0.8 (2)		
12							0.4 (1)	
13								

Table 4 (continued)

% of Class 2(C): Arrival and Departure Runway/Gate Distributions

	Arrivals				Departures			
Rwy	24R	24L	25R	25L	24R	24L	25R	25L
Gate Area	(No.of Acft	( )	( )	( )	( )	( )	( )	( )
1	0.2 (1)		0.9 (4)	3.2 (14)	0.2 (1)	0.2 (1)	0.2 (1)	
2	1.4 (6)		0.2 (1)	1.8 (8)		7.3 (41)	2.5 (14)	0.2 (1)
3						3.2 (18)	0.2 (1)	0.4 (2)
4			1.6 (7)	2.5 (11)		0.2 (1)	7.4 (42)	2.8 (16)
5	0.7 (3)		5.4 (24)	7.3 (32)		3.0 (17)	9.0 (51)	3.7 (21)
6	1.4 (6)		15.2 (67)	11.3 (50)	1.4 (8)	5.5 (31)	12.0 (68)	2.8 (16)
7	0.7 (3)		17.5 (77)	5.7 (25)	1.4 (8)	5.7 (32)	7.8 (44)	3.0 (17)
8	0.2 (1)		7.9 (35)	6.3 (28)		2.6 (15)	8.5 (48)	2.8 (16)
9	0.2 (1)			0.5 (2)			0.5 (3)	0.5 (3)
10			0.2 (1)	0.5 (2)		0.4 (2)		0.7 (4)
11	2.0 (9)	0.5 (2)	0.7 (3)	1.1 (5)	0.5 (3)	0.2 (1)		
12			0.7 (3)	2.2 (10)			1.9 (11)	1.1 (6)
13							0.2 (1)	

Table 4 (continued)

% of Class 3(B): Arrival and Departure Runway/Gate Distributions

	Arrivals				Departures			
Rwy	24R	24L	25R	25L	24R	24L	25R	25L
Gate Area	(No.of Acrft)	( )	( )	( )	( )	( )	( )	( )
1								
2					0.5 (1)			
3								
4			2.7 (4)	1.4 (2)		0.5 (1)		1.0 (2)
5				0.7 (1)	0.5 (1)		0.5 (1)	1.0 (2)
6			1.4 (2)	0.7 (1)			2.2 (4)	
7			1.4 (2)	1.4 (2)			0.5 (1)	
8					0.5 (1)	0.5 (1)		
9			2.0 (3)	18.3 (27)			10.3 (19)	18.9 (35)
10	0.7 (1)			3.4 (5)		0.5 (1)	0.5 (1)	1.0 (2)
11	51.0 (75)	13.5 (20)	0.7 (1)		16.2 (30)	10.8 (20)	19.5 (36)	14.1 (26)
12				0.7 (1)			0.5 (1)	
13								

Table 4 (continued)

% of Class 4(A): Arrival and Departure Runway/Gate Distributions

	Arrivals				Departures			
Rwy	24R	24L	25R	25L	24R	24L	25R	25L
Gate Area	(No.of Acrft)	( )	( )	( )	( )	( )	( )	( )
1								
2								
3								
4								
5								
6								
7								
8								
9			5.9 (1)	5.9 (1)	2.2 (1)	2.2 (1)		27.3 (12)
10	5.9 (1)				2.3 (1)	2.3 (1)	2.3 (1)	
11	64.7 (11)	17.6 (3)			22.7 (10)	18.2 (8)	6.8 (3)	11.4 (5)
12								2.3 (1)

TABLE 5

ARRIVAL AIRCRAFT LATENESS DISTRIBUTION
(Average deviation from schedule, excluding delays due to destination airport)

Amount of time late or early	Percent of flights late or early (%)
More than 15 min. early	4.59
less than 15 min. early	29.83
On time	12.89
less than 5 minutes late	20.10
5 to 10 minutes late	11.35
10 to 15 minutes late	7.89
15 to 30 minutes late	7.83
30 to 45 minutes late	2.54
45 to 60 minutes late	1.14
more than 60 minutes late	1.84
Total =	100.00

Source: Combination of American and United Airline data provided to Los Angeles Task Force on 10/10/78.

TABLE 6

% of Departures From
Runways 24R and 24L
Which Crossover Departure
Paths of Runways 25R & 25L

	Class 1(b)	Class 2(c)
1978 Data	71.4%	26.7% (Convenience to Customer
Pre-1985 Convenience to customer (Under saturation conditions)	5.0%	5.0%

EXIT TAXIWAY UTILIZATION: Table 7

RUNWAY 7L

EXIT LINK NO. OBSERVED PROBABILITY OF USE (NUMBER OF AIRCRAFT) AVERAGE RUNWAY OCCUPANCY (SEC)

CLASS	274	277	278	282	260	286
1 (D)						
2 (C)		0.67 (10) 60	0.20 (3) 66	0.07 (1) 76		0.06 (1) 76
3 (B)	0.25 (1) 64	0.25 (1) 63		0.25 (1) 139	0.25 (1) 42	
4 (A)					1.00 (1) 42	

RUNWAY 6R

EXIT LINK NO. OBSERVED PROBABILITY OF USE (NUMBER OF AIRCRAFT) AVERAGE RUNWAY OCCUPANCY (SEC)

CLASS	310	305	145			
1 (D)	.30 (3) 47	.40 (4) 70	.30 (3) 70			
2 (C)	.54 (13) 48	.37 (9) 61	.09 (2) 75			
3 (B)						
4 (A)						

ATTACHMENT D

LINK NODE DIAGRAMS FOR STAGE 1 EXPERIMENTS

LOS ANGELES INTERNATIONAL AIRPORT

LOS ANGELES
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES

MARCH 1979

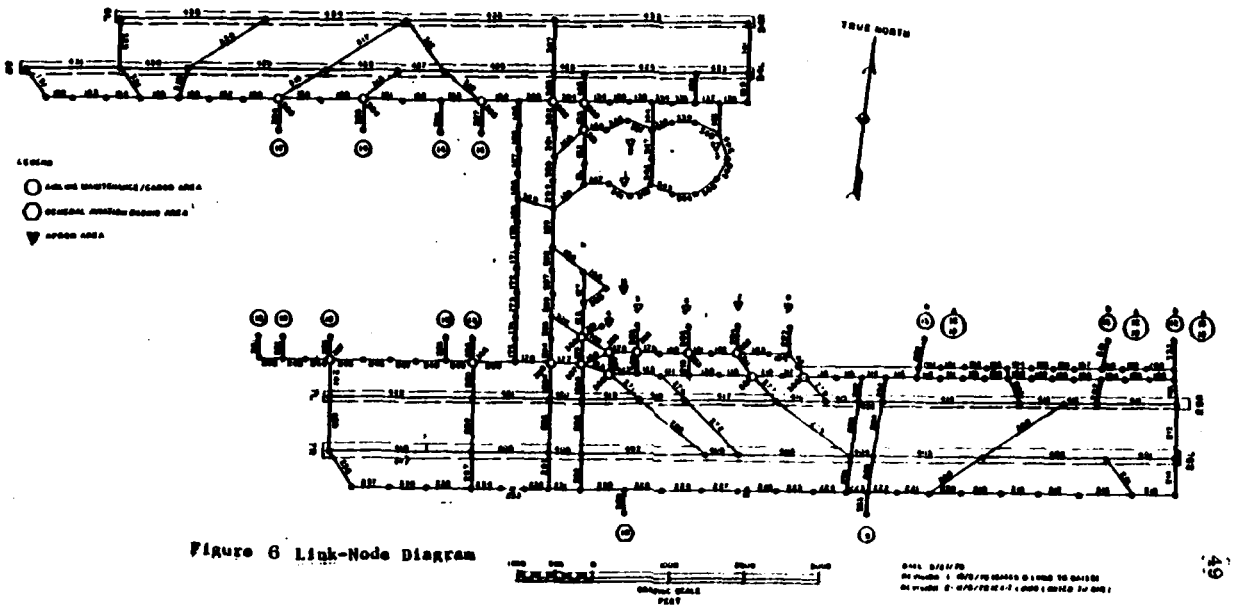


Figure 6 Link-Node Diagram

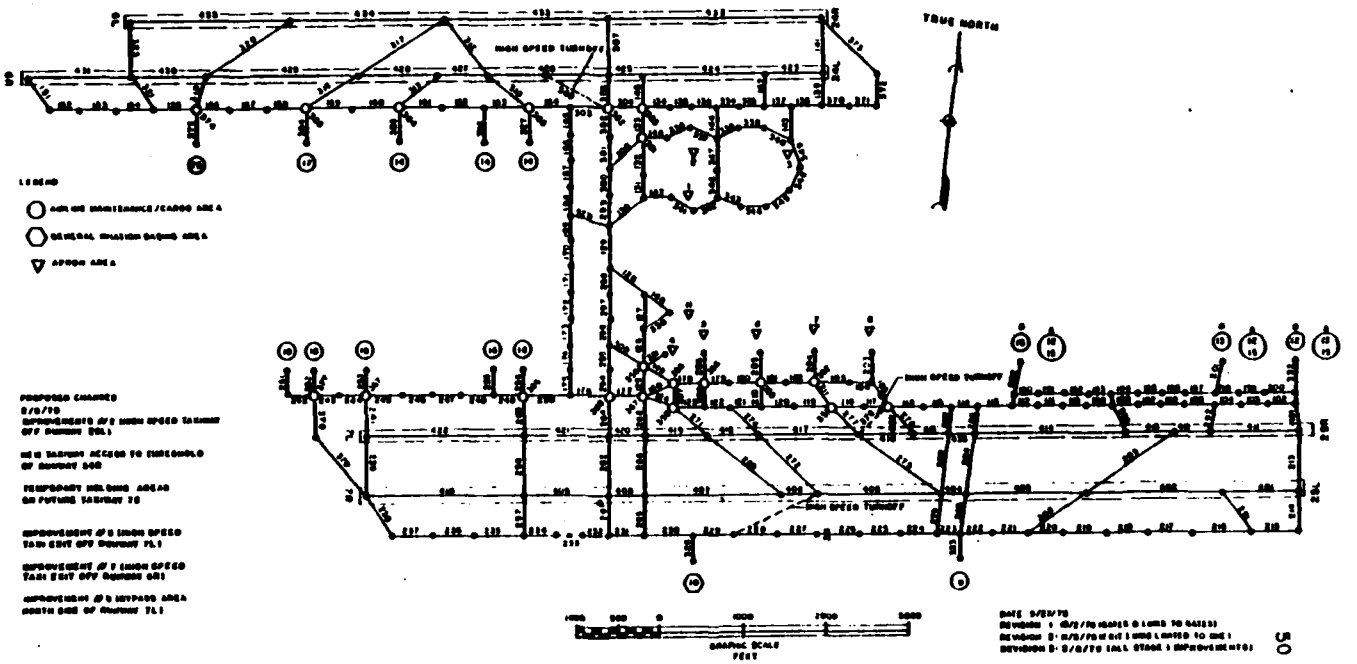


Figure 7. Link-Node Diagram for Improvements

ATTACHMENT E

DEMAND FORECASTS DATA

LOS ANGELES INTERNATIONAL AIRPORT

LOS ANGELES
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES

MARCH 1979

The demand forecasts data shown in tables 8 to 13 were taken from the FAA Aviation Forecasts for Los Angeles dated June 1978. The data from the report is shown in figure 8 of this data package.

The figure illustrates two points of interest over the time period from 1978 to 1987. First, the number of air carrier operations are shown to remain relatively constant while the air-taxi operations are projected to increase steadily. Second, the number of passengers will increase substantially over the period of interest.

The response to this increase in demand is reflected in the forecasts required for model demand inputs in two assumed ways. The number of wide-body aircraft operating into the Los Angeles International Airport will increase to accommodate the increase in passengers and the air-taxi operations will upgrade their aciraft fleet and increase the frequency of their operations.

Tables 15 and 16 show the effects of the data provided by the task force on the percentage of operations for each class of aircraft. There is a general trend towards higher number of wide-body aircraft (the percentage of heavy, Class D, aircraft of the total number of operations which increase from 1978 to 1987), and an increase in Class C aircraft due to the upgrading of the air-taxi fleet.

A 4-percent conversion of Class C to Class D operations in the demand forecast data between 1982 and 1987 results in the 30 percent of Class D aircraft operating into the Los Angeles International Airport. This assumption and the demand forecast data should be examined by the task force for use in the 1987 demand projection.

The total number of annual operations will be reduced to an average day in the peak month for the delay model aircraft demand (the actual 1978 annual demand approximates the 1982 projected demand).

DEMAND FORECASTS TABLES

TABLE 8

CIVIL, PUBLIC USE AIRPORTS
The Los Angeles Hub: 1977

AIRPORT NAME	TOWER	MAXIMUM RUNWAY LENGTH (ft)	BASED AIRCRAFT	ANNUAL OPERATIONS				
				AIR CARRIER	AIR TAXI	GENERAL AVIATION	MILITARY	TOTAL
Los Angeles Int'l	FAA	12,090	25	360,500	71,300	65,600	3,600	501,000

FORECAST OF GA OPERATIONS
The Los Angeles Hub: 1975-90

AIRPORT	ACTUAL		FORECAST		
	1975	1976	1980	1985	1990
Los Angeles International					
Local	9	7	7	7	7
Itinerant	45	51	53	53	33

TABLE 9

HOURLY PROFILES OF PASSENGER TRAFFIC ON SCHEDULED FLIGHTS
Los Angeles International
Friday, August 6, 1976

LOCAL TIME	DEPLANEMENTS		ENPLANEMENTS		TOTAL
		TOTAL		TOTAL	
00		1092		1443	2535
01		663		499	1162
02		357		155	512
03		87		54	141
04		102		0	102
05		0		0	0
06		763		162	925
07		1218		1558	2776
08		1598		3903	5501
09		1427		4416	5843
10		3367		3656	6023
11		3435		2530	5965
12		2533		4454	6987
13		1418		4189	5607
14		3450		1477	4927
15		2327		2526	4853
16		2433		2217	4650
17		3724		2040	5764
18		3611		2185	5796
19		3908		1802	5710
20		3259		1874	5133
21		2368		1869	4237
22		1180		1797	2977
23		1876		1725	3601
TOTAL DAY		46196		46331	92527

TABLE 10 and TABLE 11

PASSENGER AND FREIGHT AIRCRAFT OPERATIONS BY AIRPORT AND TYPE OF CARRIER

The Los Angeles Hub: 1976-90

Year	AIR CARRIER								AIR TAXI
	Domestic Certificated		U.S. Flag International		Foreign Flag International	Intrastate	Supplemental	† Total	COMMUTER
	Passenger	All-Cargo	Passenger	All-Cargo					
LAX									
1976	270,000	11,700	9,700	1,100	16,500	42,700	2,200	356,000	83,000
1980	270,400	12,000	10,500	3,900	19,500	45,000	3,500	364,700	85,000
1985	270,200	10,900	11,600	4,200	21,700	45,600	3,500	367,900	112,000
1990	267,600	8,900	12,400	4,700	23,200	45,600	4,600	368,000	132,000

TOTAL AIRCRAFT OPERATIONS AT FAA TOWERED AIRPORTS BY TYPE OF SERVICE

The Los Angeles Hub: 1960-90

Airport and Class of Traffic	ACTUAL†						FORECAST		
	1960	1965	1970	1975	1976	1977	1980	1985	1990
LOS ANGELES INTERNATIONAL									
Air Carrier	216.1	288.6	415.7	340.1	356.5	360.5	364.7	367.9	368.0
Air Taxi	†	†	58.2	58.3	63.6	71.3	85.0	112.0	132.0
General Aviation	51.3	73.3	61.7	54.0	58.7	65.6	60.0	60.0	40.0
Military	21.6	12.9	8.4	3.4	3.8	3.6	3.7	3.7	3.7
Total	289.0	374.8	544.0	455.8	482.6	501.0	513.4	543.6	543.7

TABLE 12 and TABLE 13

PASSENGER ENPLANEMENTS BY AIRPORT AND TYPE OF CARRIER

The Los Angeles Hub: 1976-90

(in thousands)

Year	AIR CARRIER					Commuter	Total
	Domestic Certificated	U.S. Flag International	Foreign Flag International	Intrastate	Supplemental		
LAX							
1976	9,384	418	1,075	1,761	128	226	12,992
1980	12,122	548	1,408	2,307	167	348	16,900
1985	13,604	718	1,844	2,482	219	468	19,335
1990	13,430	883	2,206	2,510	287	602	19,918

SCHEDULED ARRIVAL AND DEPARTURE HOURLY OPERATIONS BY TYPE OF SERVICE

Los Angeles International

Friday, August 5, 1977

HOUR	ARRIVALS						DEPARTURES						TOTAL OPERATIONS					
	DOM PAX	LOC PAX	INT PAX	AIR TAXI	CARGO	TOTAL	DOM PAX	LOC PAX	INT PAX	AIR TAXI	CARGO	TOTAL	DOM PAX	LOC PAX	INT PAX	AIR TAXI	CARGO	TOTAL
00	13	0	1	2	1	17	14	0	1	0	2	17	27	0	2	2	3	34
01	9	0	0	0	0	9	7	0	0	0	2	9	16	0	0	0	2	18
02	3	0	0	2	1	6	3	0	1	0	1	5	6	0	1	2	2	11
03	2	0	0	0	1	3	1	0	0	3	0	4	3	0	0	3	1	7
04	1	0	0	0	4	5	0	0	0	1	0	1	1	0	0	1	4	6
05	0	0	0	0	4	4	0	0	0	0	2	2	0	0	0	0	6	6
06	2	1	1	4	5	13	4	1	0	4	2	11	6	2	1	8	7	24
07	11	4	1	0	0	26	12	6	0	8	6	32	23	10	1	17	6	57
08	15	3	0	0	0	30	35	8	3	6	2	54	50	17	3	13	2	84
09	14	3	0	4	0	21	32	6	2	6	1	46	46	9	2	0	1	67
10	23	7	2	6	0	38	21	5	2	8	1	37	44	12	4	14	1	75
11	25	5	5	7	0	42	18	6	3	3	1	30	43	10	8	10	1	72
12	23	4	4	6	0	37	30	6	3	6	0	44	53	9	7	12	0	81
13	15	3	1	5	6	25	27	7	6	6	0	46	42	10	7	11	0	71
14	19	6	3	6	1	35	12	4	2	6	0	24	31	10	5	12	1	59
15	20	7	4	5	2	38	20	4	2	7	0	33	40	11	6	12	2	71
16	18	5	2	5	0	31	16	6	1	6	0	29	32	11	3	11	0	60
17	17	6	3	9	0	35	14	6	1	7	0	30	31	14	4	16	0	65
18	31	8	3	7	2	49	17	4	3	8	0	32	48	12	6	15	2	81
19	30	6	5	3	2	46	19	7	3	6	0	35	49	13	8	9	2	81
20	24	5	1	6	0	36	11	4	3	5	0	23	35	9	4	11	0	59
21	19	6	1	4	5	34	14	5	1	5	0	25	33	11	5	9	5	59
22	17	4	0	2	1	24	21	5	0	3	2	31	38	9	0	5	3	55
23	17	3	0	1	0	21	11	0	1	0	6	18	28	3	1	1	6	39
TOTAL DAY	365	90	37	103	29	624	359	90	38	103	28	618	724	180	75	206	57	1,242

AIRCRAFT OPERATIONS FORECASTS FOR LOS ANGELES INTERNATIONAL

TABLE 14

REGION: AWE
STATE: CA
CITY: LOS ANGELES
AIRPORT: LOS ANGELES INTL

TOWERED
DAILY OPERATING HRS: 24
COMMUTER SERVICE: YES
BASED AIRCRAFT: 25

1977 MIL. ITIN. OPS(000): 4
1977 MIL. LOCAL OPS(000): 0

LOCID: LAX
SEQ NO: 3535

YEAR	EMPLANEMENTS (000) AIR CARR.	AT & COMM.	TOTAL	AIRCRAFT OPERATIONS (000) ITINERANT AIR CARR.	ITINERANT AT & COMM.	ITINERANT GEN. AVIA.	ITINERANT TOTAL	LOCAL GEN. AVIA.	LOCAL TOTAL	TOTAL OPS.	INST. OPS. (000)	APPROACHES AIR CARR.	APPROACHES AT & COMM.	APPROACHES TOTAL
ACTUAL														
1977	13433*	3249	13757	356	69	58	489	7	7	496	688	37973	6913	49626
FORECAST														
1979	15435	343	15778	352	79	55	588	7	7	587	666	38461	7497	50926
1980	15552	345	15988	365	85	53	587	7	7	514	699	38718	8537	51642
1981	16491	369	17360	365	98	53	512	7	7	519	733	38780	9321	52196
1982	17448	392	17434)	365	95	53	518	7	7	525	759	38850	9517	52377
1983	17909	414	18328	367	105	51	524	7	7	531	785	38978	10878	53364
1984	18373	441	18820	367	106	53	530	7	7	537	801	38398	10645	54030
1985	18867	468	19335	368	112	53	537	7	7	544	816	39248	11249	54704
1986	13956	492	19448	368	116	54	536	7	7	543	851	39860	11624	54749
1987	19045	518	19563	368	120	54	536	7	7	543	832	39860	12013	54837
1988	19135	544	19679	368	124	48	536	7	7	543	833	39860	12419	54955
1989	19222	572	19797	368	128	38	536	7	7	543	976	39860	12823	55131
1990	19316	502	19918	368	132	33	537	7	7	544	1021	39860	13257	55329

TABLE 15

CLASS PERCENTAGES OF
AIR TAXI FLEET*

Class	A	B	C	D
Date				
1978		67%	33%	
1982		50%	50%	
1987		33%	67%	

*Source: Facilities Planning Bureau Memorandum dated 10/30/78 concerning commuter airline activity at LAX

TABLE 16

CLASS PERCENTAGES OF
LOS ANGELES OPERATIONS

Class	A	B	C	D
Date				
*1978	3%	19%	58%	20%
**1987	3%	11%	57%	29%
***1987	2%	9%	59%	30%

*Source: Data Collection

**Source: Table III-1 of Improvement Program Interim Report and Table 15 of this data package

***Source: Table 15 of this data package and an assumed 4% conversion of Class C operations to Class D by airlines at Los Angeles

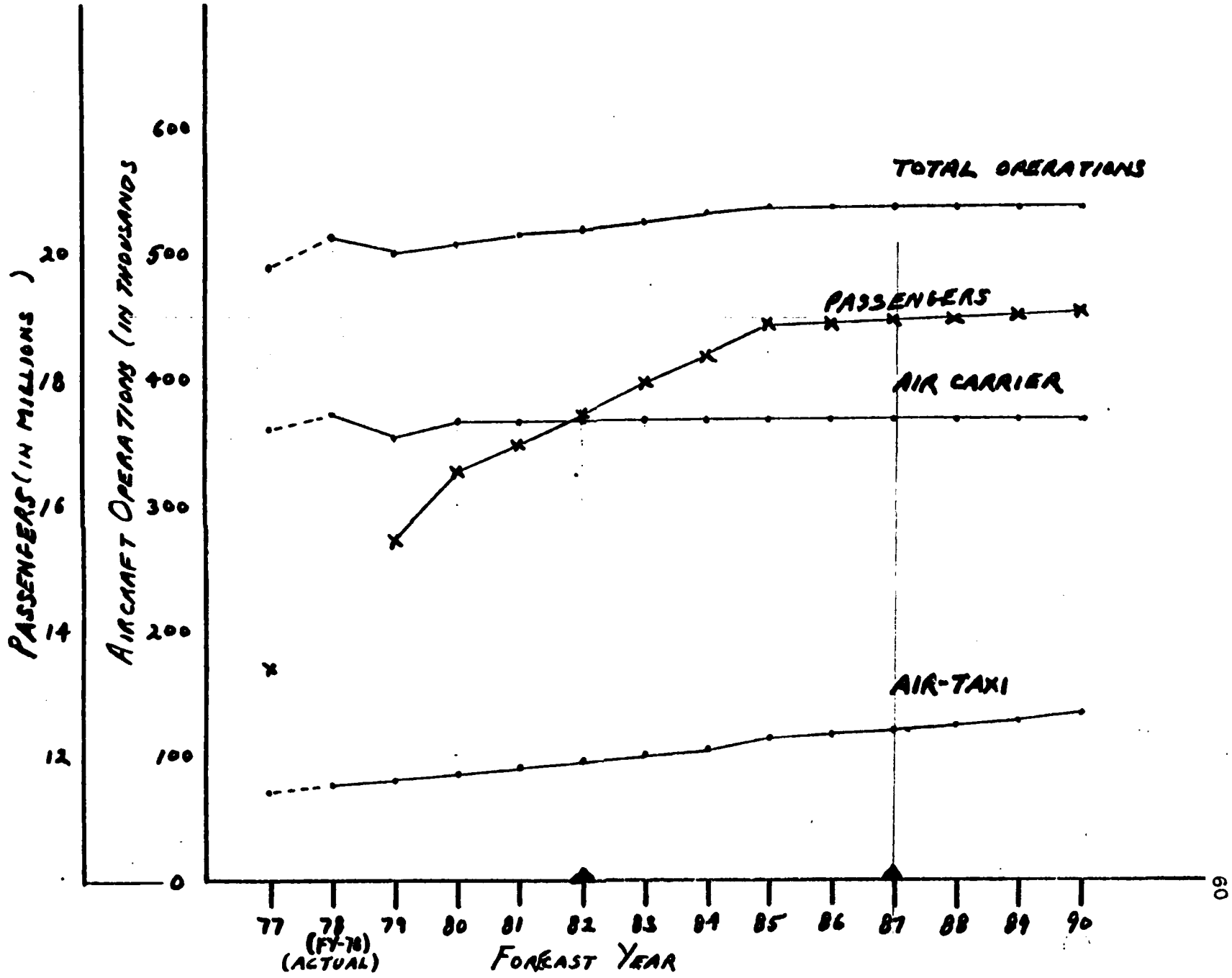


FIGURE 8 FORECAST DEMAND DATA

ATTACHMENT F

PRELIMINARY ANNUAL DELAY BASELINE DATA PACKAGE

LOS ANGELES INTERNATIONAL AIRPORT

LOS ANGELES
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES

MARCH 1979

1. Annual Demand: 500,976 (1977)

2. Group Specification:

3 day groups	:	High, Average, Low
12 week groups	:	12 months, January through December
3 weather groups	:	VFR, IFR1, IFR2

7 runway uses	: Arrivals Runway	Departures Runway
1.	24LR, 25LR	24LR, 25LR
2.	24LR, 25LR	24L, 25R
3.	24R, 25L	24L, 25R
4.	6R, 7L	24L, 25R
5.	6LR, 7LR	6LR, 7LR
6.	6LR, 7LR	6R, 7L
7.	6L, 7R	6R, 7L

3,4. Traffic Distribution:

Week Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
% of annual in one week	1.83	1.83	1.88	1.88	1.87	1.98	2.00	2.04	1.98	1.91	1.93	1.86
Number of weeks in month	4.43	4.00	4.43	4.29	4.43	4.29	4.43	4.43	4.29	4.43	4.29	4.43
% of annual in month	8.12	7.32	8.32	8.07	8.30	8.51	8.84	9.05	8.51	8.44	8.28	8.24

5,6. Daily Traffic Distribution:

Day Group	High	Average	Low
% of weekly in one day	15.21	14.58	12.92
Number of days	2	3	2
% of weekly traffic in day group	30.43	43.73	25.84

7. Weather Occurrences: (Task Force Report of LAX Operational Weather, Table 1)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
%VFR	97.7	83.2	99.1	90.6	96.8	72.7	85.3	84.6	86.4	66.6	93.0	78.1
%IFR1	2.3	13.0	0.9	8.4	3.0	27.3	14.6	15.4	12.3	29.5	5.0	17.6
%IFR2	0	3.8	0	1.0	0.2	0	0.1	0	1.3	3.9	2.0	4.3

8. Hourly Runway Capacity Parameters:

Runway Use	Hourly Capacity (Operations/hour) VFR	IFR1	IFR2
1	———		
2		———	
3			———
4	———	———	———
5	———		
6		———	
7			———

9. Runway Use/Weather Group Demand Factors:

For all runway uses:

Weather VFR	IFR1	IFR2
1.0	1.0	0.95

10. Runway Use Occurrences:

Runway Use	Percent Occurrence VFR	IFR1	IFR2
1	63.53		
2		9.14	
3			1.03
4	18.62	2.68	0.30
5	4.05		
6		0.58	0.07
7			———

86.2

11. Hourly Traffic:

Hour	% daily traffic	Hour	% daily traffic	Hour	% daily traffic	Hour	%daily traffic
00-01	2.7	06-07	1.9	12-13	6.5	18-19	6.5
01-02	1.5	07-08	4.6	13-14	5.7	19-20	6.5
02-03	0.9	08-09	6.8	14-15	4.8	20-21	4.8
03-04	0.6	09-10	5.4	15-16	5.7	21-22	4.8
04-05	0.5	10-11	6.0	16-17	4.8	22-23	4.4
05-06	0.5	11-12	5.8	17-18	5.2	23-24	3.1

12,13. Delay Curve Specification: To be determined after airfield simulation runs.

14. Percent Arrivals:

Hour	%Arrivals	Hour	%Arrivals	Hour	%Arrivals	Hour	%Arrivals
00-01	50	06-07	54	12-13	46	18-19	59
01-02	50	07-08	44	13-14	35	19-20	57
02-03	55	08-09	36	14-15	58	20-21	61
03-04	43	09-10	31	15-16	54	21-22	58
04-05	83	10-11	49	16-17	52	22-23	44
05-06	67	11-12	58	17-18	54	23-24	54

15. Cancellation Diversion Specification: 75 minutes

16. User-Specified Title: LAX ANNUAL BASELINE

TABLE 17

LAX OPERATIONAL WEATHER

hrs/mo 1977		VFR(%)	IFR(%)	CLOSED(%)*
31 x 24 = 744	Jan.	(97.74)	16:48(2.26)	-
28 x 24 = 672	Feb.	(83.23)	87:15(12.98)	25:29(3.79)
31 x 24 = 744	Mar.	(99.11)	6:37(.89)	-
30 x 24 = 720	Apr.	(90.59)	60:29(8.40)	7:15(1.01)
31 x 24 = 744	May	(96.76)	21:56(2.95)	2:11(.29)
30 = 720	June	(72.71)	196:30(27.29)	-
31 = 744	July	(85.29)	108:23(14.57)	1:02(.14)
31 = 744	Aug.	(84.64)	114:13(15.35)	-
30 = 720	Sept.	(86.35)	88:49(12.34)	9:24(1.31)
31 = 744	Oct.	(66.56)	219:20(29.48)	29:29(3.96)
30 = 720	Nov.	(92.97)	35:48(4.97)	14:51(2.06)
31 = 744	Dec.	(78.15)	130:35(17.55)	31:58(4.3)
1977 Totals		(86.20)	1080:403=1086:43 =1086.72 hrs. (12.41%)	118:219=121:39 =121.65 hrs. (1.39%)

*Closed includes take-off only.

VFR 1000' and three miles or better.

IFR Below VFR to 200' and/or one-half mile.

Take-off only Below IFR to CLR and one-fourth mile (2ENG.A/C) or 100' - one-fourth mile (4 ENG.A/C)

Closed alt. ops. Below take-off minima

Note: RVR T/O 2000' (some carriers approved 1600')
RVR LND 2600'

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Attachment G

PRELIMINARY MODEL INPUT DATA FOR STAGE 2 EXPERIMENTS

Los Angeles International Airport

Los Angeles
Airport Improvement Task Force Delay Studies

March 1979

LAX

INDEX OF STAGE 2 EXPERIMENTS

Sequence Number	Experiment Number	Study Case Number	Model	Type of Input Description	Page
1	18	1	ASM	Change-sheet	67
2	19	1	ASM	Change-sheet	69
3	20	1	ASM	Change-sheet	71
4	21	1	ASM	Change-sheet	72
5	25	1	ASM	Change-sheet	74
6	26	2	ASM	Change-sheet	76
7	22	7	ASM	Change-sheet	78
8	22A	8	ASM	Change-sheet	80
9	23	8	ASM	Change-sheet	82
10	24	8	ASM	Change-sheet	89

TABLE 18 (8)

LOS ANGELES DELAY EXPERIMENTS

Experiment number	Model	Study case[a]	Arrival Runways	Departure Runways	Weather	Demand	ATC System scenario[b]	Near-term improvements[c]
Stage 2 Experiments								
18	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	10[l]
19	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	11[m]
20	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	Terminal Expansion[n]
21	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1982	1982	Remote Terminal [o]
22	ASM	7	24L, 24R, 25L	24L, 24R, 25L	VFR1	1982	1982	Tunnel Construction[p] *Change
22A	ASM	8	24L, 24R, 25L	24L, 24R, 25L	VFR1	1982	1978	Dual Taxiway[p]
23	ASM	8	24R, 25L	24L, 25L	IFR1	1982	1982	Tunnel Construction 25R *Change
24	ASM	9	24R, 25R	24L, 25R	IFR1	1982	1982	Tunnel Construction 25L *Change
25	ASM	1	24L, 24R, 25L, 25R	24L, 24R, 25L, 25R	VFR1	1987	1987	1987[e]
26	ASM	2	24L, 24R, 25L, 25R	24L, 25R	IFR1	1987	1987	1987 * Change
27	ADM	n.a.	n.a.	n.a.	n.a	1982	1982	1982
28	ADM	n.a.	n.a.	n.a.	n.a.	1982	1982	None
29	ADM	n.a.	n.a.	n.a.	n.a.	1982	1978	1982
30	ADM	n.a.	n.a.	n.a.	n.a.	1982	1978	None
31	ADM	n.a.	n.a.	n.a.	n.a.	1987	1987	1987
32	ADM	n.a.	n.a.	n.a.	n.a.	1987	1987	None
33	ADM	n.a.	n.a.	n.a.	n.a.	1987	1978	1987
34	ADM	n.a.	n.a.	n.a.	n.a.	1987	1988	None

l. Improvement #10 consists of a series of taxiway improvements identified in Appendix B.

m. Improvement #11 contains temporary holding areas on present Taxiway 47 west of Satellites 3 and 4. The need for this experiment will be reviewed by the Task Force after consideration of temporary holding areas on future Taxiway 75.

n. Construction of Satellite 1 and International Terminal. The need for this experiment will be reviewed by the Task Force after consideration of future airline terminal locations.

o. Remote parking for 20 aircraft at west end of Airport.

p. Additional experiment may be needed to test value of dual taxiway system around Satellite 4 during tunnel construction!

LAX - STAGE 2

EXPERIMENT NO. 18

Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved ATC system scenario and improvement #10 (taxiways).

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24R, 24L, 25R, 25L	24R, 24L, 25R, 25L

Related Comparison Experiments:

Experiment #19 is identical except for improvement #11 (temporary holding areas on taxiway 47 west of satellites 3 and 4).

Prior Experiment #11 is identical except for improvement #10 (taxiway improvements).

Remaining Data Items:

- New route structure

Experiment Number: 18 (Input changes from experiment number 11)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	New routes
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	

LAX - STAGE 2

EXPERIMENT NO. 19

Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved ATC system scenario and improvement #11 (temporary holding areas on taxiway 47).

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24R, 24L, 25R, 25L	24R, 24L, 25R, 25L

Related Comparison Experiments:

Experiment #20 is identical except for terminal expansion. (Construction of satellite 1 and international terminal)

Prior Experiment #18 is identical except for improvement #11 (temporary holding areas on taxiway 47 west of satellites 3 and 4).

Remaining Data Items:

- New holding area
  (on present taxiway 47 west of satellites 3 and 4)

Experiment Number: 19 (Input changes from experiment number 18)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	New holding area
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	

LAX - STAGE 2

EXPERIMENT NO. 20

Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved ATC system scenario and terminal expansion.

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24R, 24L, 25R, 25L	24R, 24L, 25R, 25L

Related Comparison Experiments:

Experiment #21 is identical except for remote parking for 20 aircraft at west end of airport.

Prior Experiment #19 is identical except for terminal expansion.

Remaining Data Items:

- New demand distributions (Gate area assignments)
- New route structure

Experiment Number: 20 (Input changes from experiment number 19)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	New routes
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	New demand distribution

LAX - STAGE 2

EXPERIMENT NO. 21

Objective:

To assess delays to aircraft in 1982 for the following runway configuration in VFR 1 with an improved ATC system scenario and remote parking for 20 aircraft.

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24R, 24L, 25R, 25L	24R, 24L, 25R, 25L

Related Comparison Experiments:

Prior Experiment #20 is identical except for remote parking for 20 aircraft at west end of airport.

Remaining Data Items:

- New route structure (Gate area assignments)
- New demand distribution

Experiment Number: 21 (Input changes from experiment number 20)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	New routes to gate area
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	New demand distribution

LAX - STAGE 2

EXPERIMENT NO. 25

Objective:

To assess delays to aircraft in 1987 for the following runway configuration in VFR 1 with an improved 1987 ATC system scenario and 1982 improvements plus the satellite terminal and/or remote parking for 20 aircraft.

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24R, 24L, 25R, 25L	24R, 24L, 25R, 25L

Related Comparison Experiments:

Prior Experiment #11 is identical except for the improvements from 1982 to 1987 and the demand.

Remaining Data Items:

- Demand distributions

Experiment Number: 25 (Input changes from experiment number 11)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	1987 Demand

LAX - STAGE 2

EXPERIMENT NO. 26

Objective:

To assess delays to aircraft in 1987 for the following runway configuration in IFR 1 with an improved 1987 ATC system scenario and 1982 improvements plus the satellite terminal and/or remote parking for 20 aircraft.

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24R, 24L, 25R, 25L	24L, 25R

Related Comparison Experiments:

Prior Experiment #12 is identical except for the improvements from 1982 to 1987 and the demand.

Remaining Data Items:

- Demand distributions

Experiment Number: 26 (Input changes from experiment number 12)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	1987 Demand

LAX - STAGE 2

EXPERIMENT NO. 22

Objective:

To assess the delay impact to aircraft in 1978 for the following runway configuration in VFR 1 due to the runway closure of 25R during work on the Spulveda Tunnel.

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24R, 24L, 25L	24R, 24L, 25L

Related Comparison Experiments:

Prior Experiment #1 is identical except for closure of 25R for tunnel construction.

Remaining Data Items:

Experiment Number: 22 (Input changes from experiment number 1)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	Reassign arrivals and departures from 25R to 25L

LAX - STAGE 2

EXPERIMENT NO. 22A

Objective:

To assess the delay impact to aircraft in 1982 for the following runway configuration in VFR 1 due to the runway closure of 25R during work on the Sepulveda Tunnel with a dual taxiway system around satellite 4.

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24L, 24R, 25L	24L, 24R, 25L

Related Comparison Experiments:

- Prior Experiment #22 is identical except for a dual taxiway system and a 1982 demand.

Remaining Data Items:

Experiment Number: 22A (Input changes from experiment number 22)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10 Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	New route structure
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35 Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	Reassign arrivals and departures from 25R to 25L (1982 Demand)

LAX - STAGE 2

EXPERIMENT NO. 23

Objective:

To assess the delay impact to aircraft in 1978 for the following runway configuration in IFR 1 due to the runway closure of 25R during work on the Sepulveda Tunnel.

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24R, 25L	24L, 25L

Related Comparison Experiments:

Prior experiment #2 is identical except for the closure of runway 25R.

Remaining Data Items:

Experiment Number: 23 (Input changes from experiment number 2)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10. Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	New departure roures to 25R for Class 4
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	Reassign arrival and departures from 25R to 25L

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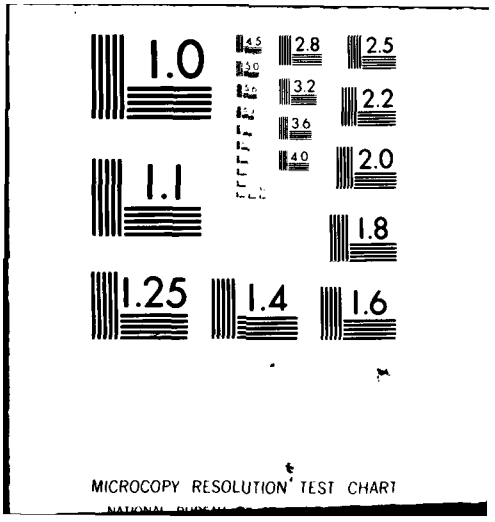
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MICROCOPY RESOLUTION TEST CHART

LAX - STAGE 2

EXPERIMENT NO. 24

Objective:

To assess the delay impact to aircraft in 1978 for the following runway configuration in IFR 1 due to the runway closure of 25L during work on the Sepulveda Tunnel (in 79).

ARRIVAL RUNWAYS	DEPARTURE RUNWAYS
24R, 25R	24L, 25R

Related Comparison Experiments:

Prior Experiment #2 is identical except for the closure of runway 25L for tunnel construction.

Remaining Data Items:

Experiment Number: 24 (Input changes from experiment number 2)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
A. Logistics	
1. Title	
2. Random number seeds	
3. Start and finish times	
4. Print options	
5. Airline names	
6. Processing options	
7. Truncation limits	
8. Time switch	
B. Airfield Physical Characteristics	Configuration "A"
9. Airfield network	
10. Number of runways	
11. Runway identification	
12. Departure runway and links	
13. Runway crossing links	
14. Exit taxiway location	
15. Holding areas	
16. Airline gates	
17. General aviation basing areas	
C. ATC Procedures	
18. Aircraft separation	
19. Route data	
20. Two-way path data	
21. Common approach paths	
22. Vectoring delays	
23. Departing runway queue control	
24. Gate hold control	
25. Departure airspace constraints	
26. Departure queue	
27. Runway crossing delay control	
D. Aircraft Operational Characteristics	
28. Exit taxiway utilization	
29. Arrival runway occupancy times	
30. Touch-and-go runway occupancy times	
31. Departure runway occupancy times	
32. Taxi speeds	
33. Approach speeds	
34. Gate service times	
35. Airspace travel times	
36. Runway crossing times	
37. Lateness distributions	
38. Demand	Reassign arrival and departures from 25L to 25R