

AD-A099 855 NATIONAL AVIATION FACILITIES EXPERIMENTAL CENTER ATL--ETC F/G 1/2
LOS ANGELES INTERNATIONAL AIRPORT DATA PACKAGE NUMBER 1, AIRPOR--ETC(U)
NOV 78

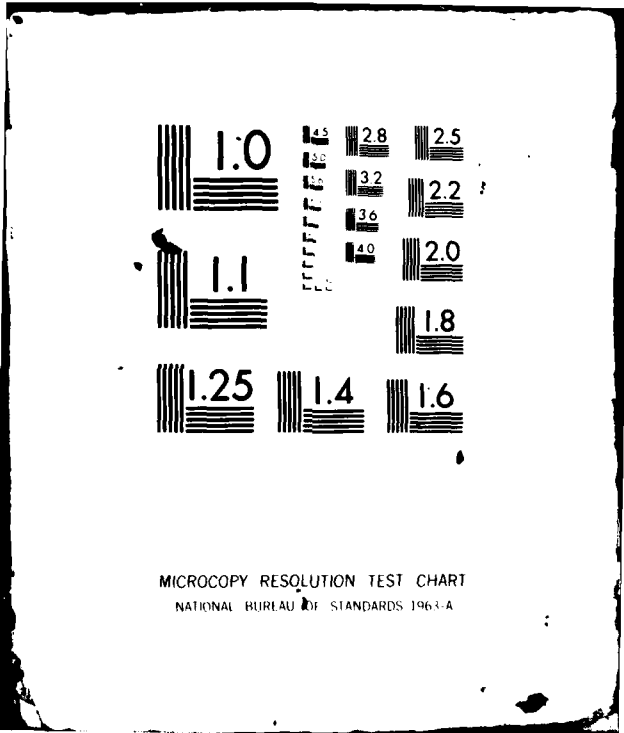
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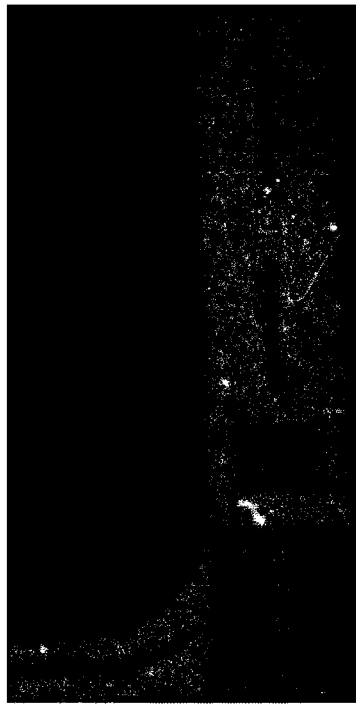
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A



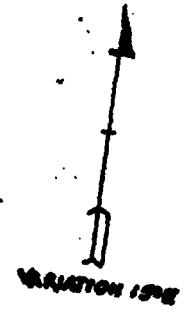
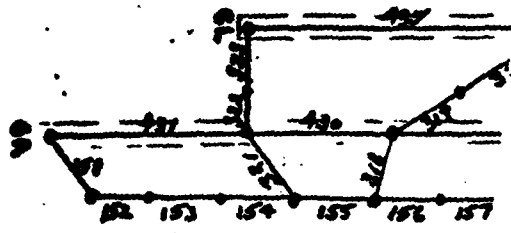
Attachment A

LOS ANGELES AIRPORT CONFIGURATIONS

Los Angeles International Airport

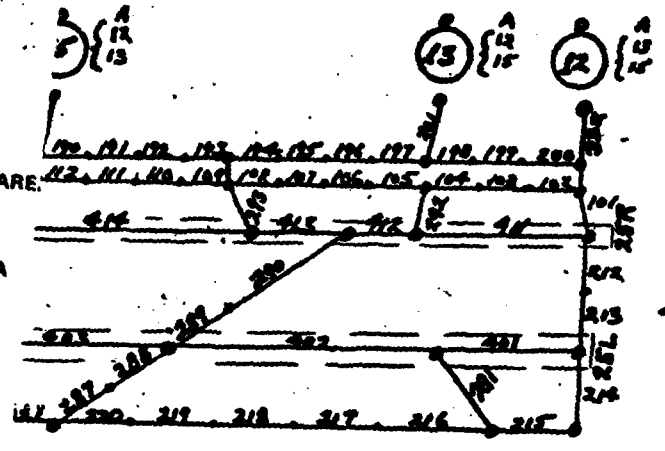
Los Angeles
Airport Improvement Task Force Delay Studies

November 1978



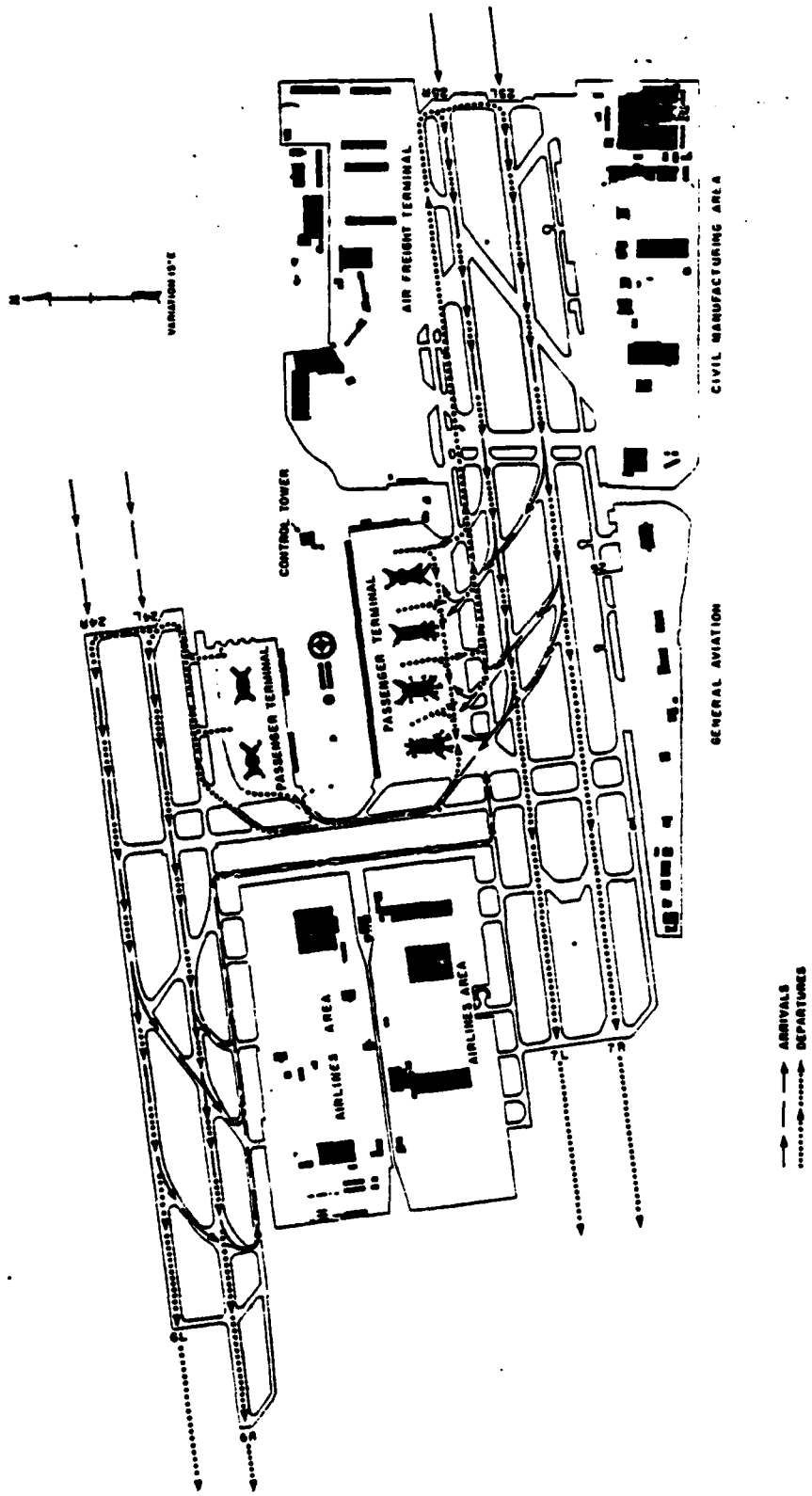
LEGEND

- AIRLINE MAINTENANCE/CARGO AREA
- GENERAL AVIATION BASING AREA
- HOLDING AREA
- APRON AREA



SCALE: 1" = 843'

DATE: 9/27/78
 REVISION 1: 10/1/78 (GATES + LINKS TO AIRTEL)



Configuration A
 Figure 2 ARRIVAL/DEPARTURE TAXI ROUTES

R.Y NAMES	
24R	24L 25R 25L
R.Y END LINKS	
432	423 411 401
R.Y XING LINKS	
LCS ANGELES CONFIGURATION A	
2	306
2	311
2	316
2	319
2	322
2	285
2	276
2	273
2	270
2	267
2	263
2	262
2	258
2	265
2	283

R.Y EXIT DISTANCES

21									
307	2580	312	4500	317	4501	320	6400	323	8290
145	2200	305	2600	310	4000	313	4600	315	5500
318	7500	277	5350	274	6500	271	7550	268	7820
284	3000	275	4280	272	5700	269	6150	266	7780
262	8250								

TAXIWAY TWO-WAY

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									
362	302	301							
003									
301	302	362							
005									
362	302	301	300	299					
005									
299	300	301	302	362					
007									
340	339	338	337	336	146	361			
007									
361	146	336	337	338	339	340			
009									
333	223	224	225	226	227	228	229	230	
009									
230	229	228	227	226	225	225	225	333	
003									
357	177	360							
003									
360	177	357							
004									
357	177	360	176						
004									
176	360	177	357						
006									
357	177	360	176	250	366				
006									
366	250	176	360	177	357				
005									
330	126	359	125	357					
005									
357	125	359	126	330					
004									
331	359	125	357						
004									
357	125	359	331						
004									
114	115	116	350						
004									
350	116	115	114						
005									
113	114	115	116	350					
005									
350	116	115	114	113					
003									
206	355	208							
003									
208	355	206							
003									
205	353	210							
003									
210	353	205							
004									
204	352	211	351						
004									
351	211	352	204						
003									
203	185	350							
003									
350	185	203							
006									
202	113	114	115	116	350				
006									
350	116	115	114	113	202				

RLY EXIT SELECTION

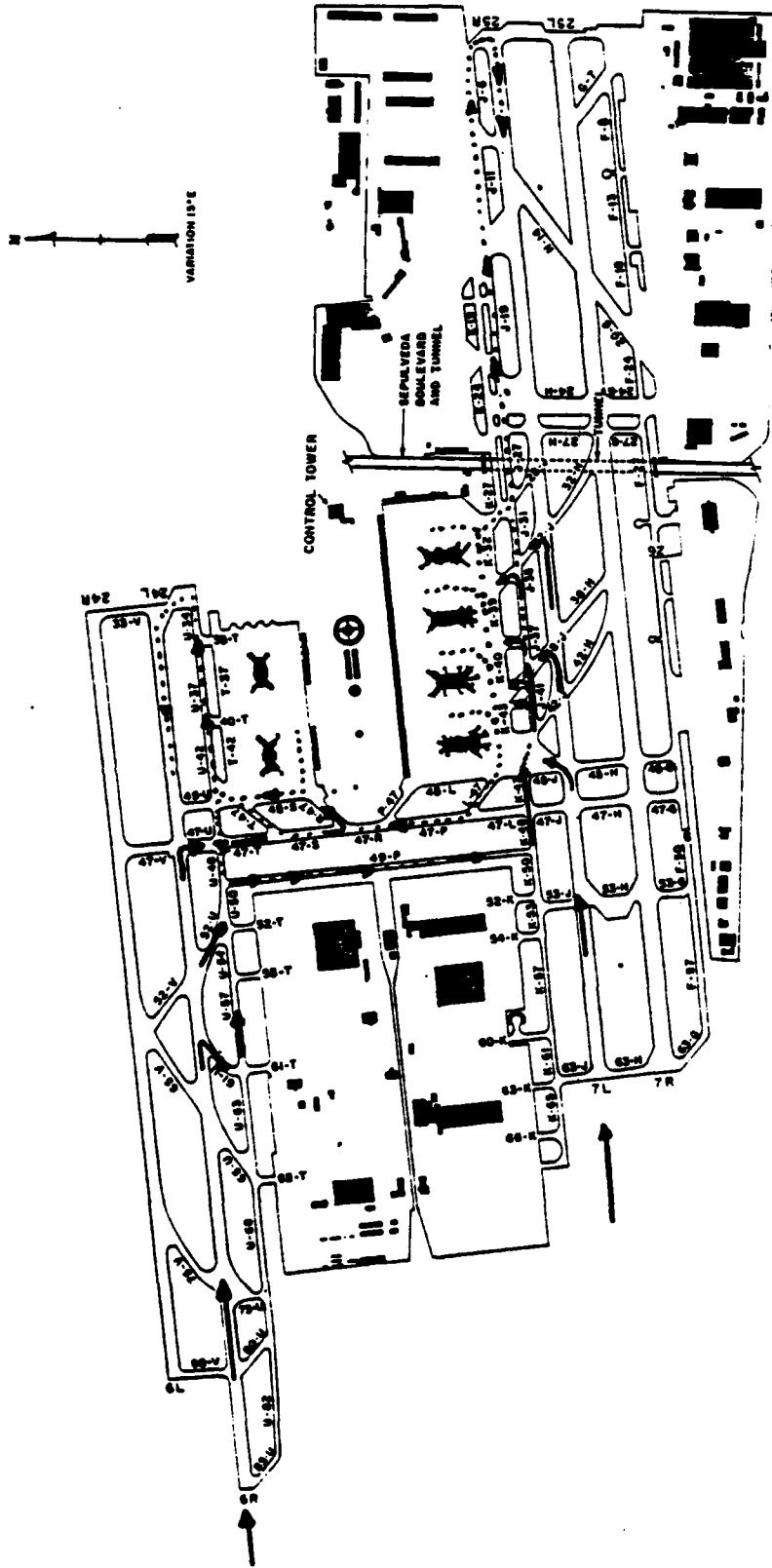
1	1	3							[28
317	.07	320	.86	323	.07				
2	1	5							[37
307	.27	312	.08	317	.32	320	.30	323	.0
3	1	3							[104
307	.78	312	.02	317	.20				
4	1	2							[21
307	.86	317	.14						
1	2	4							[15
310	.07	313	.13	315	.33	318	.47		
2	2	6							[17
145	.02	305	.24	310	.08	313	.03	315	.3
318	.33								
3	2	6							[30
145	.33	305	.50	310	.07	313	.04	315	.0
318	.03								
4	2	2							[4
145	.99	305	.01						
1	3	2							[2
274	.99	271	.01						
2	3	3							[269
277	.44	274	.37	271	.19				
3	3	4							[20
277	.45	274	.05	271	.30	268	.20		
4	3	2							[18
277	.99	271	.01						
1	4	5							[89
275	.06	272	.18	269	.40	266	.09	262	.06
2	4	5							[215
275	.09	272	.36	269	.40	266	.09	262	.06
3	4	6							[48
275	.19	272	.06	269	.04	266	.10	262	.06
284	.55	4							
4	4								[18
275	.22	272	.17	269	.11	284	.50		

TAXIWAY SPEEDS

5.00	10.00	15.00	23.00	25.00	35.00
------	-------	-------	-------	-------	-------

FIX TRAVEL TIMES

FIX	RUNWAY	CLASS	DISTANCE	SPEED	FIX	RUNWAY	CLASS	DISTANCE	SPEED
1 → +	1 → 2	1	25.5	204.0	4	1	4	0.	0.
1	1	2	25.5	191.3	4	2	1	33.0	180.0
1	1	3	25.5	180.0	4	2	2	33.0	180.0
1	1	4	25.5	180.0	4	2	3	0.	0.
1	2	1	24.0	192.0	4	2	4	0.	0.
1	2	2	24.0	192.0	4	3	1	0.	0.
1	2	3	24.0	180.0	4	3	2	34.5	197.1
1	2	4	24.0	180.0	4	3	3	34.5	180.0
1	3	1	24.0	192.0	4	3	4	0.	0.
1	3	2	24.0	192.0	4	4	1	0.	0.
1	3	3	24.0	192.0	4	4	2	31.5	180.0
1	3	4	24.0	180.0	4	4	3	31.5	180.0
1	4	1	24.0	192.0	4	4	4	0.	0.
1	4	2	24.0	192.0	5	1	1	0.	0.
1	4	3	24.0	180.0	5	1	2	18.0	180.0
1	4	4	24.0	180.0	5	1	3	18.0	180.0
2 →	1	1	25.5	191.3	5	1	4	18.0	180.0
2	1	2	25.5	191.3	5	2	1	0.	0.
2	1	3	25.5	191.3	5	2	2	22.5	192.9
2	1	4	25.5	180.0	5	2	3	22.5	180.0
2	2	1	22.5	192.9	5	2	4	0.	0.
2	2	2	22.5	192.9	5	3	1	0.	0.
2	2	3	22.5	180.0	5	3	2	18.0	180.0
2	2	4	0.	0.	5	3	3	18.0	180.0
2	3	1	0.	0.	5	3	4	0.	0.
2	3	2	21.0	210.0	5	4	1	0.	0.
2	3	3	21.0	180.0	5	4	2	21.0	180.0
2	3	4	0.	0.	5	4	3	0.	0.
2	4	1	18.0	180.0	5	4	4	0.	0.
2	4	2	18.0	180.0	6	1	1	0.	0.
2	4	3	18.0	180.0	6	1	2	0.	0.
2	4	4	18.0	180.0	6	1	3	18.0	180.0
3 → 2	1	1	28.5	180.0	6	1	4	0.	0.
3	1	2	28.5	180.0	6	2	1	0.	0.
3	1	3	28.5	180.0	6	2	2	0.	0.
3	1	4	0.	0.	6	2	3	18.0	180.0
3	2	1	0.	0.	6	2	4	18.0	180.0
3	2	2	0.	0.	6	3	1	0.	0.
3	2	3	31.5	180.0	6	3	2	18.0	180.0
3	2	4	0.	0.	6	3	3	0.	0.
3	3	1	0.	0.	6	3	4	0.	0.
3	3	2	36.0	180.0	6	4	1	0.	0.
3	3	3	36.0	180.0	6	4	2	0.	0.
3	3	4	0.	0.	6	4	3	18.0	180.0
3	4	1	0.	0.	6	4	4	18.0	180.0
3	4	2	0.	0.	7	4	1	0.	0.
3	4	3	18.0	180.0	7	4	2	18.0	180.0
3	4	4	0.	0.	7	4	3	0.	0.
4	1	1	36.0	196.4	7	4	4	18.0	180.0
4	1	2	36.0	180.0					
4	1	3	36.0	180.0					



Configuration B
Figure 3

RWT NAMES

06R 07L 24L 25R

R/WY END LINKS

151 422 423 411

9

LOS ANGELES CONFIGURATION B

TAXIWAY TWO-WAY

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

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

003

206 355 208

003

208 355 206

003

205 353 210

003

210 353 205

004

204 352 211 351

004

351 211 352 204

003

203 185 350

003

350 185 203

005

113 114 115 116 350

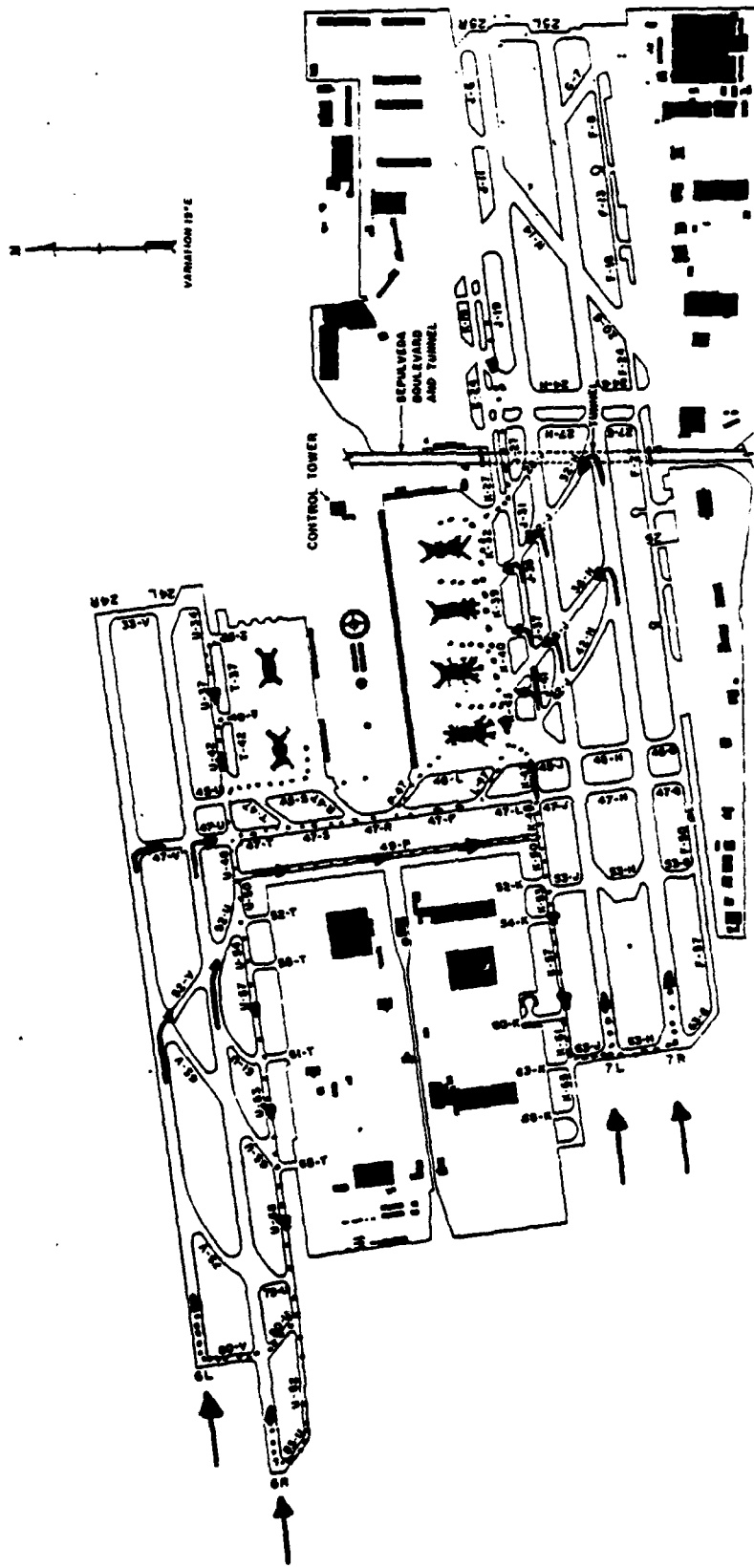
005

350 116 115 114 113

006

202 113 114 115 116 350

006						110
350	116	115	114	113	202	
005						
330	126	359	125	357		
005						
357	125	359	126	330		
004						
331	359	125	357			
004						
357	125	359	331			
002						
361	146					



Configuration C
Figure 4

R.Y. NAMES.

06R 06L 07R 07L

R.Y. END LINKS

12

151 323 410 422

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

330 126 359 125 357 177 360 176

008

176 360 177 357 125 359 126 330

005

330 126 359 125 357

005

357 125 359 126 330

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

Attachment B

PRELIMINARY CALIBRATION DATA PACKAGE

Los Angeles International Airport

Los Angeles
Airport Improvement Task Force Delay Studies

November 1978

CALIBRATION MODEL
INPUT DATA

A. LOGISTICS

1. Title: Los Angeles International Airport Airfield
Simulation Model Calibration Run
2. Random Number Seeds: 82651, 91921, 69011, 92157, 14577,
10493, 27011, 40961, 15011, 63661
3. Start and Finish Times: Thursday, 9/28/77, 1100 (a.m.) to
1400 (p.m.)
4. Print Options: Detailed run for one random number seed.
Summary run for ten random number seeds.

<u>5. Airline Names:</u>	<u>Name</u>	<u>Code</u>
	Pan American	PA
	PSA	PS
	Saturn	KS
	Scandinavian	SK
	Seaboard World	SB
	Texas International	TI
	Trans World	TW
	United	UA
	Varig	RG
	Western	WA
	World	WO
	Trans-International	TV
	Korean	KE
	Redwing	RWG
	Air Los Angeles	ALS
	Golden West	GLW
	Riverside	RAS
	Swift Aire	SWT
	Sky Train	TNA
	Sierra Pacific	SPA
	Pinky	PKY
	Douglas Racer	DRZ
	American	AA
	Air Canada	AC
	Aelmeas Argentina	AR
	Air Mexico	AM
	Air France	AF
	Air Lift	RD

<u>Name</u>	<u>Code</u>
Air New Zealand	TE
Hughes Air West	RW
Air Uta	UT
Aviana	AV
Braniff	BN
Caldeonia	BR
Capital	CL
Continental	CO
Delta	DL
Eastern	EA
Flying Tiger	FT
Lufthansa	LH
Japan	JL
Mexicana	MX
National	NA
Northwest	NW
Empress	CP
Overseas National	OV

6. Processing Options: First run to check input.
Other runs in COMPUTE mode.
7. Truncation Limits: ± 3 standard deviations.
8. Time Switch: Not applicable.

B. AIRFIELD PHYSICAL CHARACTERISTICS

9. Airfield Network:
10. Number of Runways:
11. Runway Identification:
12. Departure Runway End Links:
13. Runway Crossing Links:
14. Exit Taxiway Location:
15. Holding Areas:
16. Airline Gates:
17. General Aviation Basing Areas:

Configuration "A"

Attachment A

Page 3

C. ATC PROCEDURES18. Aircraft Separations:Arrival-Arrival Separation (nmi)

1. VFR: Accounting to Report No. FAA-EM-78-8.

		<u>Trail Aircraft Class</u>			
		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
Lead	A	1.9	1.9	1.9	1.9
Aircraft	B	1.9	1.9	1.9	1.9
Class	C	2.7	2.7	1.9	1.9
	D	4.5	4.5	3.6	2.7

2. IFR: Calibration to be done includes VFR only.

Departure-Departure Separations (seconds)

1. VFR:

		<u>Trail Aircraft Class</u>			
		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
Lead	A	35	35	45	50
Aircraft	B	35	35	45	50
Class	C	50	50	60	60
	D	120	120	120	90

2. IFR: Calibration to be done includes VFR only.

Departure-Arrival Separation (nmi):

1. VFR:

		<u>Trail Aircraft Class</u>			
		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
Lead	A	To be based on reduced			
Aircraft	B	field data or departure			
Class	C	runway occupancy times.			
	D				

2. IFR: Calibration to be done includes VFR only.

Arrival-Departure Separation (seconds):

1. VFR:

		<u>Trail Aircraft Class</u>			
		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
Lead	A	To be based on reduced			
Aircraft	B	field data or arrival			
Class	C	runway occupancy times.			
	D				

2. IFR: Calibration to be done includes VFR only.
19. Route Data: Configuration "A," Attachment A, Page 3
20. Two-Way Path Data: Configuration "A," Attachment A, Page 3
21. Common Approach Paths:

<u>Aircraft Class</u>	<u>Length of Common Approach Path</u>
A	6.0
B	6.0
C	6.0
D	6.0

22. Vectoring Delays:
- This input allocates delays among vectoring and holding. Model input values will be used that hold arrival aircraft if delays to arrival aircraft exceed 10 minutes.
23. Departure Runway Queue Control:
- Aircraft are assigned departure runways to preclude airspace crossovers, not to balance departure queues.
24. Gate Hold Control:
- Aircraft are held at gates when departure queue at runway is 10 or more, except when gate holds would cause gate congestion.
25. Departure Airspace Constraints:
- Aircraft are not held at gates due to departure airspace constraints.
26. Inter-Arrival Gap:
- With this runway use, arrival aircraft are delayed in the arrival airspace when departure delays exceed 10 minutes.
27. Runway Crossing Delay Control:
- Arrival and departure runway operations are only interrupted for a taxiing aircraft to cross an active runway when the taxiing aircraft is delayed by 10 minutes or more.

D. AIRCRAFT OPERATIONAL CHARACTERISTICS

28. Exit Taxiway Utilization: Configuration "A,"
Attachment A, Page 3

29. Arrival Runway Occupancy Times:

	<u>Runway Occupancy Times</u> <u>(Seconds)</u>				
<u>Class</u>	307	312	317	320	323
Runway 24R (42) A	36				
(50) B	33	41	38		
(50) C	31	37	43	46	
(56) D				54	

	<u>Runway Occupancy Times</u> <u>(Seconds)</u>					
<u>Class</u>	145	305	310	313	315	318
Runway 24L (44) A	35					
(47) B	31	36		46		
(50) C	35			54	39	
(56) D			37		45	56

	<u>Runway Occupancy Times</u> <u>(Seconds)</u>			
<u>Class</u>	277	274	271	268
Runway 25R (44) A	45			
(45) B	50		72	
(45) C	43	49	51	56
(52) D		52		

	<u>Runway Occupancy Times</u> <u>(Seconds)</u>					
<u>Class</u>	284	275	272	269	266	262
Runway 25L (43) A		39	52			
(47) B		59	60			
(47) C	52	42	44	53	59	62
(52) D		61	42	38	67	

30. Touch & Go Occupancy Times: Not applicable.

31. Departure Runway Occupancy Times:

<u>Aircraft Class</u>	<u>Runway Occupancy Time (Seconds)</u>	
	<u>Mean</u>	<u>Standard Deviation</u>
A	34	4
B	34	4
C	39	4
D	39	4

32. Taxi Speeds: Configuration "A," Attachment A, Page 333. Approach Speeds:

<u>Aircraft Class</u>	<u>Approach Speed (knots)</u>	
	<u>Mean</u>	<u>Standard Deviation</u>
A	120	10
B	120	10
C	130	10
D	140	10

34. Gate Service Times: Not applicable to calibration.35. Airspace Travel Times: Configuration "A," Attachment A, Page 3.36. Runway Crossing Times: P.M.M. data.37. Lateness Distribution: Not applicable to calibration.38. Demand: To be based on reduced field data.

Attachment C

PRELIMINARY ANNUAL DELAY BASELINE
DATA PACKAGE

Los Angeles International Airport

Los Angeles
Airport Improvement Task Force Delay Studies

November 1978

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 <u>Runway</u>	Departures <u>Runway</u>
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	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
% 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	<u>High</u>	<u>Average</u>	<u>Low</u>
% 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:

Month	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
-------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------	------------

<u>VFR</u>	Being compiled by											
<u>IFR1</u>	LAX Tower Personnel											
<u>IFR2</u>												

8. Hourly Runway Capacity Parameters:

<u>Runway Use</u>	Hourly Capacity (Operations/hour)		
	<u>VFR</u>	<u>IFR1</u>	<u>IFR2</u>
1	To be computed by NAFEC with Airport Capacity Model		
2			
3			
4			
5			
6			
7			

9. Runway Use/Weather Group Demand Factors:

For all runway uses:

	Weather		
	<u>VFR</u>	<u>IFR1</u>	<u>IFR2</u>
	1.0	1.0	0.95

10. Runway Use Occurrences:

<u>Runway Use</u>	Percent Occurrence		
	<u>VFR</u>	<u>IFR1</u>	<u>IFR2</u>
1	To be computed from PMS data subject to review of Los Angeles Tower personnel		
2			
3			
4			
5			
6			
7			

11. Hourly Traffic:

<u>Hour</u>	<u>% daily traffic</u>	<u>Hour</u>	<u>% daily traffic</u>	<u>Hour</u>	<u>% daily traffic</u>	<u>Hour</u>	<u>%daily traffic</u>
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:

<u>Hour</u>	<u>%Arrivals</u>	<u>Hour</u>	<u>%Arrivals</u>	<u>Hour</u>	<u>%Arrivals</u>	<u>Hour</u>	<u>%Arrivals</u>
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: To be provided by Task Force.

16. User-Specified Title: LAX ANNUAL BASELINE