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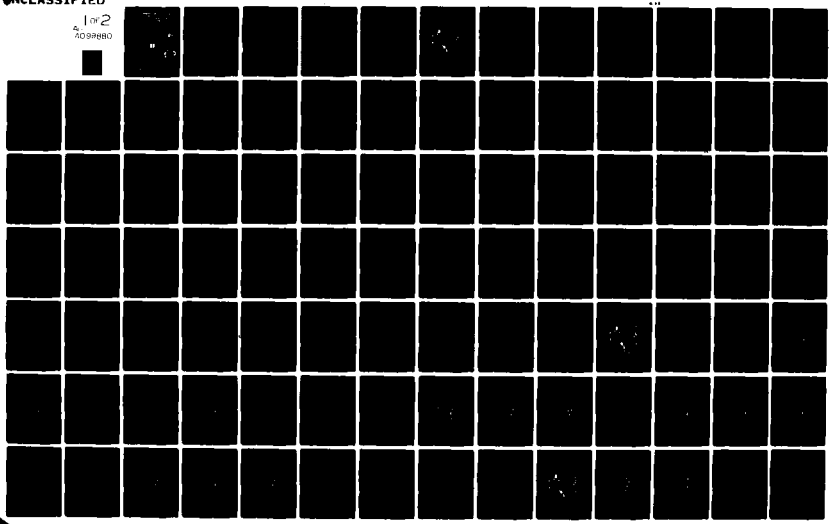

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AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES

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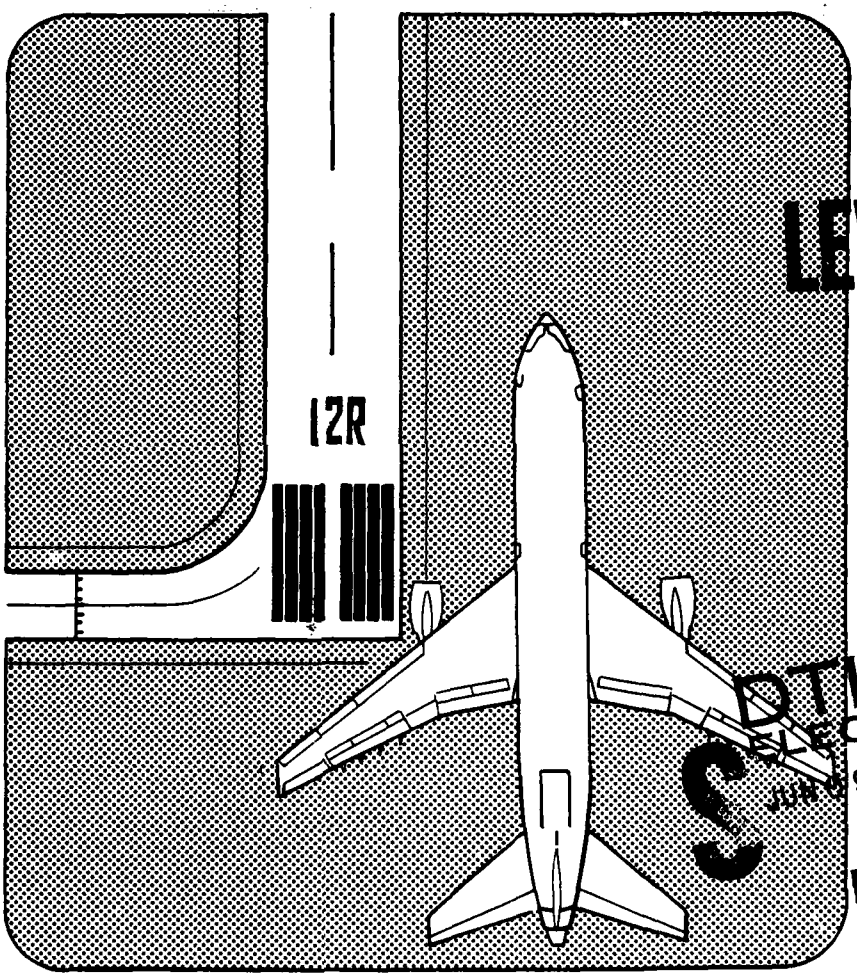

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PMM&Co. Peat, Marwick, Mitchell & Co.

JUNE 1980

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ATTACHMENT A
INPUT DATA SUMMARY

THREE BASELINE SCENARIOS AND INPUT CHANGES FOR ALL EXPERIMENTS -- AIRFIELD SIMULATION

Lambert-St. Louis International Airport

St. Louis
Airport Improvement Task Force Delay Studies

Prepared by

Peat, Marwick, Mitchell & Co.
San Francisco, California

June 1980

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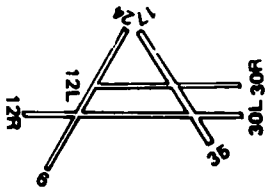
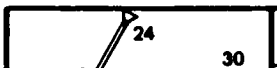
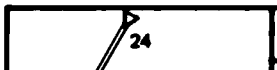
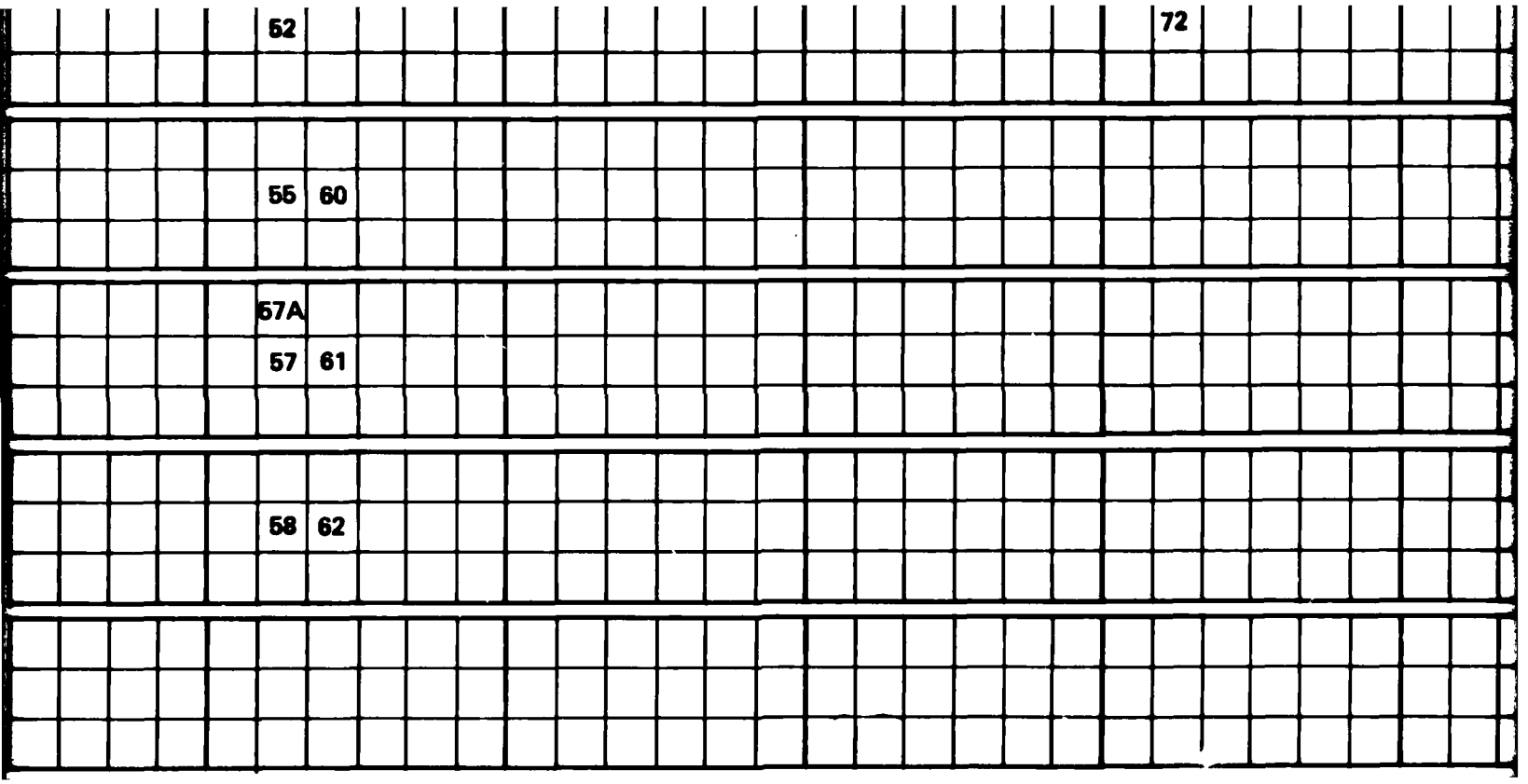


		PRESENT A																					
		1979 DEMAND 1979 MIX						1985 DEMAND															
								1985 MIX						INCREASE HEAVY						DECREAS			
		BASELINE 1	A/F DEVELOPMENT	LDA APPROACH	NOISE ABATEMENT 2			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	
	VFR	1			1A			26	35		44				35A						35B		
	IFR1	2						27	36														
	IFR2+3	3						28															
	VFR	4			4A			29															
	IFR1	5						30	38	41													
	IFR2+3	6						31															
	VFR	7A						32A	39A														
	IFR1	7						32	39	42													
	IFR2+3																						
	VFR	8																					
	IFR1	9						33	40	43													
	IFR2+3	10																					
	VFR																						
	IFR1																						
	IFR2+3	11																					
	VFR	12																					
	IFR1	13						34															
	IFR2+3																						
ANNUAL DELAY (ALL)	(ALL)	81 2	81A 2					82	83 2	84					85						86 3		

1. BASELINE INCLUDES PHYSICAL IMPROVEMENTS IN PLACE IN 1979 AND ADDITIONAL GATES NECESSARY TO ACC
2. SENSITIVITY ANALYSIS WITH DIFFERENT NOISE ABATEMENT SCENARIOS.
3. SENSITIVITY ANALYSIS WITH DIFFERENT LEVELS OF GENERAL AVIATION REDUCTIONS.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RIMENTAL DESIGN
dies

											FUTURE ATC																		
1990 DEMAND											1990 DEMAND																		
NCREASE HEAVY					DECREASE GA						1990 MIX						INCREASE HEAVY						DECREASE GA						
A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			BASELINE	A/F DEVELOPMENT	LDA APPROACH	TERMINAL EXPANSION			
51A						51B																							
												72																	
90						91[3]						92						93						94					

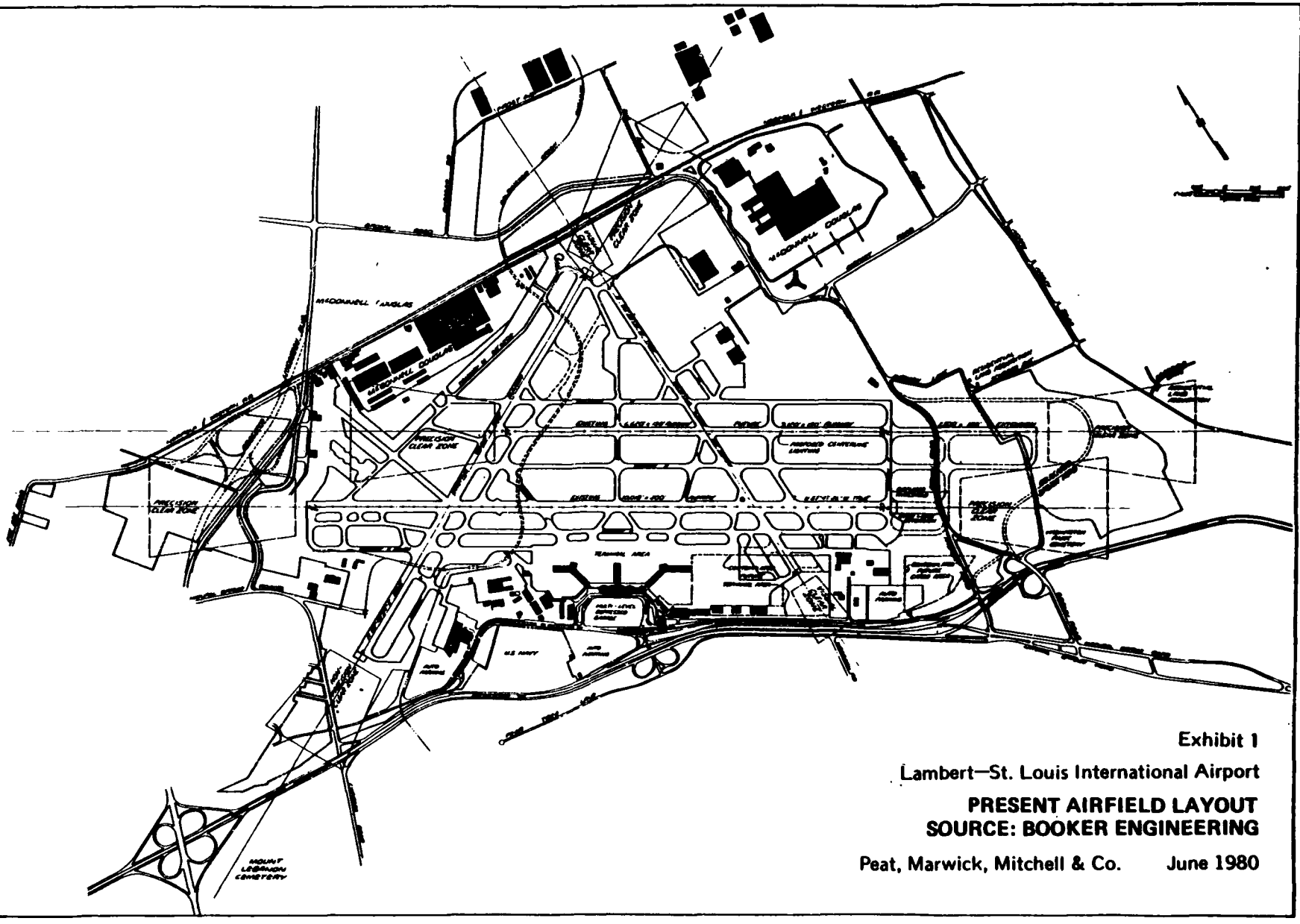

Exhibit 1

Lambert—St. Louis International Airport

PRESENT AIRFIELD LAYOUT
SOURCE: BOOKER ENGINEERING

Peat, Marwick, Mitchell & Co. June 1980

Experiment 7A (Revised) -- Runways 30R, 30L, and 24
VFR Baseline
1979 Demand and Mix
Present ATC Procedures

A. Logistics

1. Title: Lambert-St. Louis International Airport Experiment 7A

2. Random Number Seeds: 2017, 3069, 4235, 5873, 6981, 7137, 8099, 9355, 0123, 1985

3. Start and Finish Times: 0700 to 2200

4. Print Options: Standard options including summary outputs

5. Airline Names:
   AA - American
   AL - USAir
   BN - Braniff
   DL - Delta
   EA - Eastern
   FL - Frontier
   NW - Northwest Orient
   OZ - Ozark
   RC - Republic
   TI - Texas International
   TW - Trans World Airlines
   AT - Air Taxi
   AF - Air Freight
   ML - Military
   GA - General Aviation
   SS - Supplemental

6. Processing Options: COMPUTE

7. Truncation Limits: $\pm$ 2 standard deviations

8. Time Switch: Not applicable

B. Airfield Physical Characteristics

9. Airfield Network: See Exhibit 1

10. Number of Runways: 3

11. Runway Identification: 30R, 30L, and 24

12. Departure Runway End Links:
30R - Taxiway R
30L - Taxiway R

13. Runway Crossing Links Clearance Times (seconds):

Run-way	Crossing link	Crossing clearance times: Arrival on runway D	C	B	A	Departure on runway D	C	B	A	Arrival on final D	C	B	A
30R	17-35	32	32	38	46	27	27	28	32	20	20	20	20
30R	B	45	45	52	46	32	32	37	42	20	20	20	20
30R	G	32	32	38	46	27	27	28	32	20	20	20	20
30R	J	26	26	34	41	24	25	25	27	20	20	20	20
30R	B	45	45	54	52	32	32	37	43	20	20	20	20
30L	Midcoast	18	18	24	30	18	18	18	19	20	20	20	20
30L	E	57	57	54	52	40	40	42	42	20	20	20	20
30L	17-35	24	24	32	38	22	22	23	25	20	20	20	20
30L	G	35	35	43	52	28	28	30	34	20	20	20	20
24	A	67	67	57	48	0	0	0	0	20	20	20	20
24	F	25	25	33	39	0	0	0	0	20	20	20	20
24	I	34	34	42	48	0	0	0	0	20	20	20	20

14. Exit Taxiway Locations:

Runway	Exit	Feet from threshold
30R	C	6,563
30R	B	4,745
30R	G	3,325
30R	17-35	3,225
30L	E	6,200
30L	B-left	4,800
30L	B-right	4,800
30L	G	3,705
30L	J	2,735
30L	17-35	2,430
24	C	7,620
24	L	6,035
24	A	5,190
24	P	3,800

15. Holding Area-Link Number: 47

16. Airline Gates:

American -	3
Braniff -	1
Delta -	2
Eastern -	1,2
Frontier -	4
Northwest Orient -	6
USAir -	1
Ozark -	6
Republic -	5
TI -	1
TWA -	5
Air Taxi -	1,3
Air Freight -	6
Supplemental -	6

17. General Aviation Basing Areas: 7, 8, 9, 10, 11, 12, 13, and 14

C. ATC Procedures

18. Aircraft Separations:

Arrival-Arrival Separation-VFR (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	2.7	2.9	3.0	3.1
	B	2.7	2.9	3.0	3.1
	C	3.5	3.7	3.0	3.1
	D	5.3	5.5	4.7	3.9

Departure-Departure Separations-VFR (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	30	30	45	50
	B	35	40	45	50
	C	45	45	60	60
	D	120	120	120	90

Departure-Arrival Separation (nautical miles)

Lead Aircraft Class	Trail Aircraft Class A	B	C	D
A	1.1	1.4	1.5	1.6
B	1.1	1.4	1.5	1.6
C	1.8	1.8	1.8	1.8
D	1.8	1.8	1.8	1.8

Arrival-Arrival Separation Between Lead Aircraft on Runway 24 and Trail Aircraft on Runway 30L (nautical miles)

Lead Aircraft Class	Trail Aircraft Class A	B	C	D
A	0	0	0	0
B	0	0	0	0
C	0	0	0	3.1
D	0	0	0	3.9

Arrival-Arrival Separation Between Lead Aircraft on Runway 30L and Trail Aircraft on Runway 24 (nautical miles)

Lead Aircraft Class	Trail Aircraft Class A	B	C	D
A	0	0	0	0
B	0	0	0	0
C	0	0	0	0
D	0	0	4.7	3.9

Arrival-Departure Separation Between Lead Aircraft on Runway 24 and Trail Aircraft on Runway 30R (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	0	0	0	0
	B	37	37	37	37
	C	24	24	24	24
	D	20	20	20	20

Arrival-Departure Separation Between Lead Aircraft on Runway 24 and Trail Aircraft on Runway 30L (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	0	0	0	0
	B	0	0	0	0
	C	45	45	45	45
	D	45	45	45	45

Departure-Arrival Separation Between Lead Aircraft on Runway 30R and Trail Aircraft on Runway 24 (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	0	0	0	0
	B	1.6	2.0	2.2	2.3
	C	1.6	2.0	2.2	2.3
	D	1.6	2.0	2.2	2.3

Departure-Arrival Separation Between Lead Aircraft on Runway 30L and Trail Aircraft on Runway 24 (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	0	0	2.2	2.3
	B	0	0	2.2	2.3
	C	0	0	2.2	2.3
	D	0	0	2.2	2.3

19. Route Data: See Exhibits 2a and 2b.

20. Two-Way Path Data: See Exhibits 2a and 2b.

21. Common Approach Paths:

	Aircraft class	Length (nautical miles)
VFR	A	2.0
	B	2.0
	C	6.0
	D	6.0

22. Vectoring Delays: Report Sum of speed control, vectoring, and holding delay as one total.

23. Departure Runway Queue Control: Not used.

24. Gate Hold Control: When Runway 30R queue exceeds 6, when 30L exceeds 10.

25. Departure Airspace Constraints: Specified in separations and no aircraft held at gate due to airspace constraints.

26. Runway Interarrival Gap: Arrival separations increase from those specified in #18 to 8 miles when departure queue exceeds 6 on Runway 30L and 4 on Runway 30R.

27. Runway Crossing Delay Control: Arrival separations increase from those in #18 to 5 miles when crossing queue exceeds 4 on Runway 30L and 2 on Runway 30R.

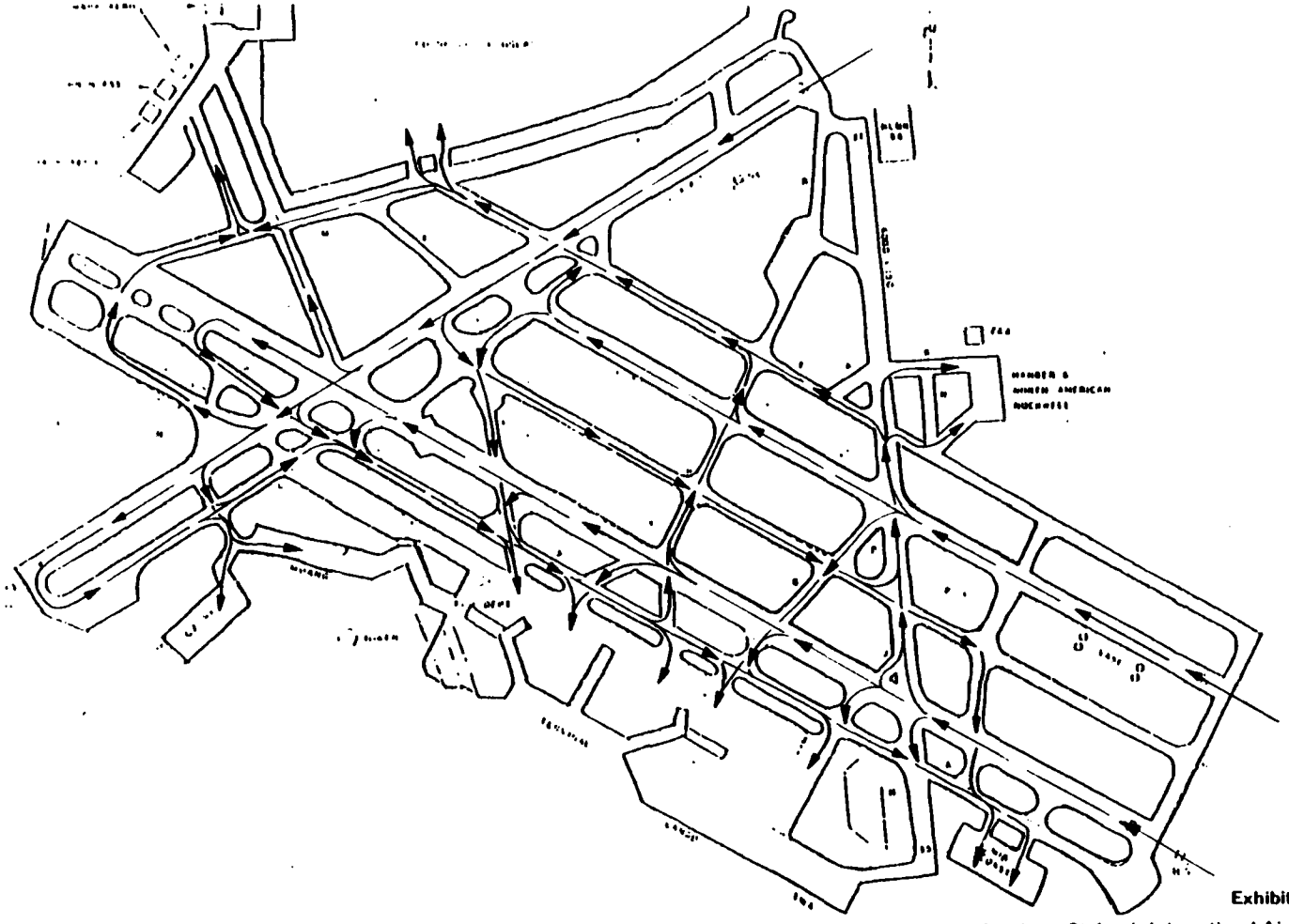

Exhibit 2A

Lambert—St. Louis International Airport

PRESENT CONFIGURATION
FLOW DIAGRAM
ARRIVALS ON RUNWAYS 30R AND 30L AND 24

Peat, Marwick, Mitchell & Co. June 1980

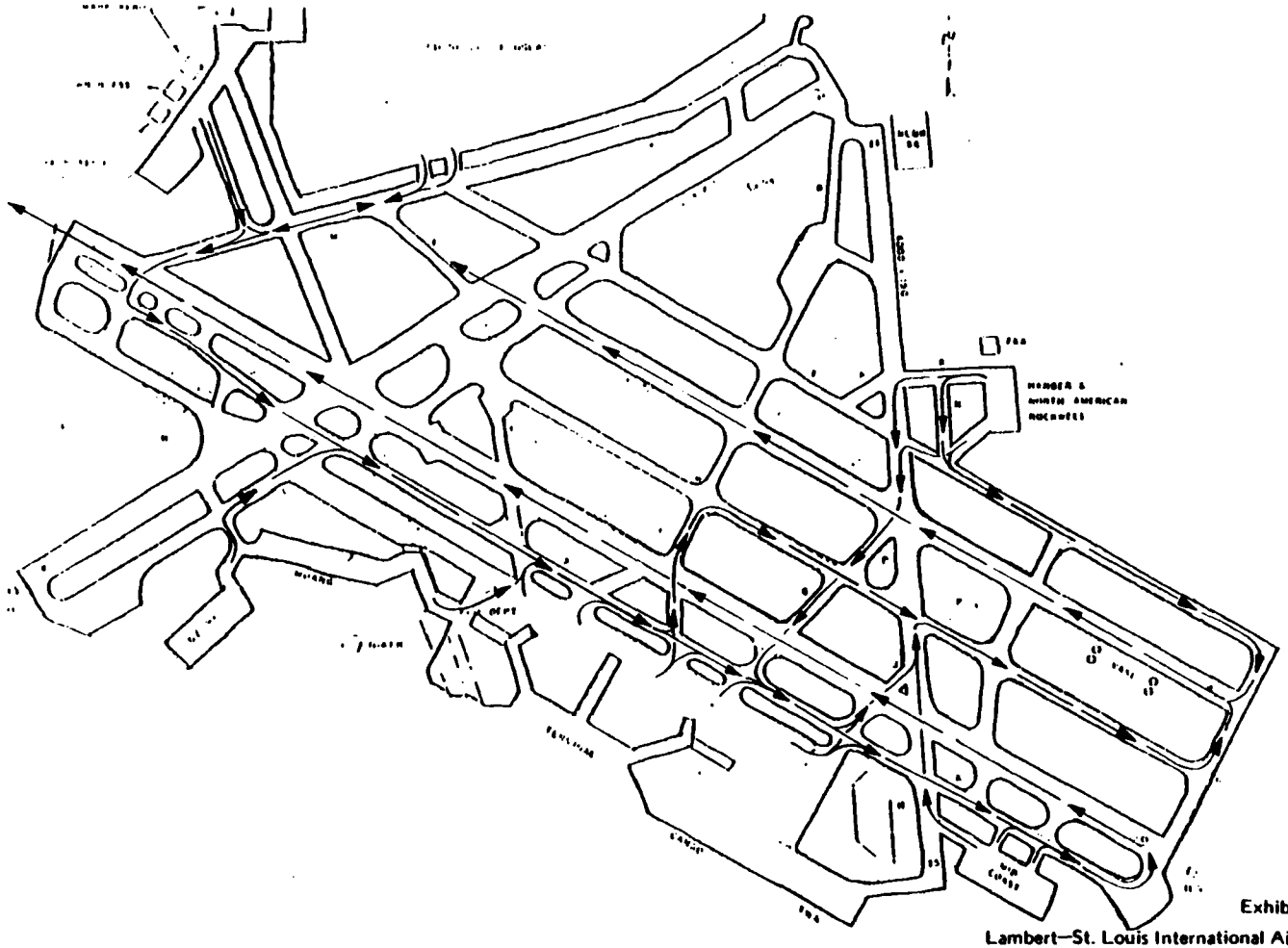

Exhibit 2B

Lambert—St. Louis International Airport

PRESENT CONFIGURATION
FLOW DIAGRAM
DEPARTURES ON RUNWAYS 30R AND 30 L

Peat, Marwick, Mitchell & Co. June 1980

28. Exit Taxiway Utilization (percent):

Runway	Class	Exit B	G	C	17-35
30R	A				100
	B	28	36		36
	C	34	2	64	
	D	4		96	

		C	L	A	P
24	A				100
	B			18	82
	C	8	40	50	2
	D	28	58	14	

		A	E	B-left	B-right	G	J	17-35
30L	A					1	4	95
	B			7		73	14	6
	C	16	44	28	12			
	D	17	78	5				

29. Arrival Runway Occupancy Times (seconds):

Runway	Class	Exit B	G	C	17-35	Weighted average
30R	A				46	46
	B	52	40		38	43
	C	45	45	58		53
	D	45		58		57

		A	E	B-left	B-right	G	J	17-35	Weighted average
30L	A					52	41	38	38
	B			54		43	34	32	42
	C	61	52	40	41				49
	D	72	57	41					59

		C	L	A	P	Weighted average
24	A			57	48	48
	B			48	41	44
	C	70	56	48	33	53
	D	70	56			59

30. Touch and Go Occupancy Times: No touch and go's.

31. Departure Runway Occupancy Times (seconds):

Aircraft class	Mean	Standard deviation
A	34	4
B	34	4
C	39	4
D	39	4

32. Taxi Speeds (mph): 5, 10, 15, 20, 25, and 35 (Exhibit 2c).

33. Approach Speeds (knots):

Aircraft class	Mean	Standard deviation
A	95	10
B	120	10
C	130	10
D	140	10

34. Gate Service Times: To be supplied by airport task force.

35. Airspace Travel Times: Table 1.

36. Runway Crossing Times: 20 seconds.

37. Lateness Distribution: To be supplied by airport task force.

38. Schedule: 1979 Demand and Mix (Table 15).

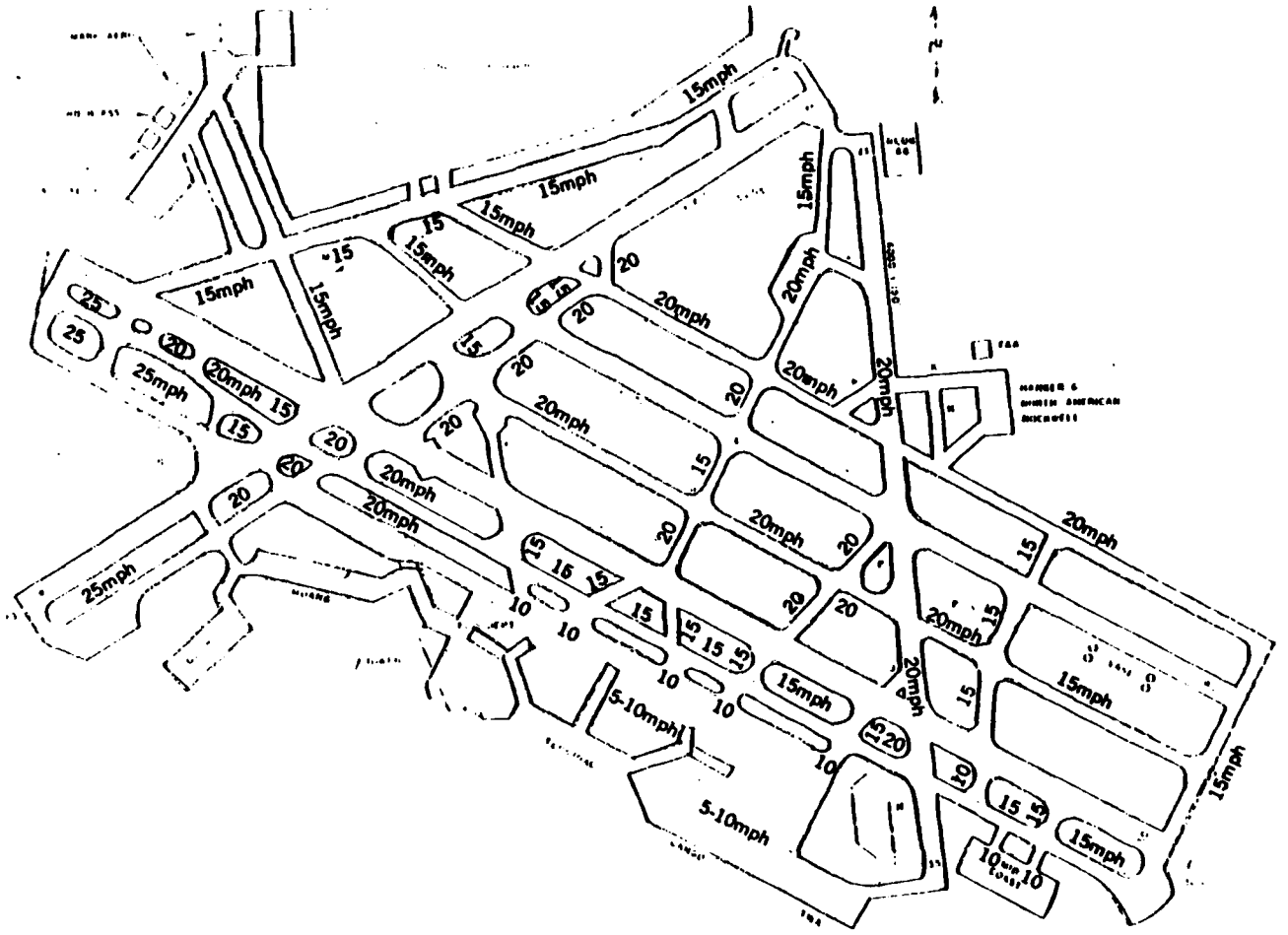

Exhibit 2C

Lambert—St. Louis International Airport

GENERALIZED TAXIWAY SPEEDS FOR ARRIVALS ON RUNWAYS 30R, 30L AND 24, AND DEPARTURES ON RUNWAYS 30R AND 30L

Peat, Marwick, Mitchell & Co. June 1980

Table 1

ARRIVAL FIX TRAVEL TIME--EXPERIMENT 7A
Lambert-St. Louis International Airport
Airport Improvement Task Force Delay Studies

Runway name	Fix code	Class	Travel time (minutes)
24	K	1	10.5
24	K	2	10.5
24	K	3	12.5
24	K	4	13.0
24	B	1	--
24	B	2	14.5
24	B	3	14.5
24	B	4	--
24	F	1	12.5
24	F	2	12.5
24	F	3	16.5
24	F	4	--
24	V	1	--
24	V	2	13.0
24	V	3	16.5
24	V	4	--
30R	K	1	--
30R	K	2	11.0
30R	K	3	14.5
30R	K	4	15.0
30R	B	1	--
30R	B	2	12.0
30R	B	3	14.0
30R	B	4	--
30R	F	1	--
30R	F	2	13.0
30R	F	3	17.0
30R	F	4	--
30R	V	1	11.0
30R	V	2	--
30R	V	3	13.0
30R	V	4	--
30L	K	1	11.0
30L	K	2	11.0
30L	K	3	11.0
30L	K	4	--
30L	B	1	9.5
30L	B	2	10.5
30L	B	3	12.5
30L	B	4	--
30L	F	1	13.0
30L	F	2	13.0
30L	F	3	14.5
30L	F	4	15.5
30L	V	1	13.0
30L	V	2	13.5
30L	V	3	17.0
30L	V	4	--

Experiment 8--Runways 6, 12R, and 12L
VFR Baseline
1979 Demand and Mix
Present ATC Procedures

A. Logistics

1. Title: Lambert-St. Louis International Airport Experiment 8

2. Random Number Seeds: 2017, 3069, 4235, 5873, 6981, 7137, 8099, 9355, 0123, 1985

3. Start and Finish Times: 0700 to 2200

4. Print Options: Standard options including summary outputs

5. Airline Names:
   AA - American
   AL - USAir
   BN - Braniff
   DL - Delta
   EA - Eastern
   FL - Frontier
   NW - Northwest Orient
   OZ - Ozark
   RC - Republic
   TI - Texas International
   TW - Trans World Airlines
   AT - Air Taxi
   AF - Air Freight
   ML - Military
   GA - General Aviation
   SS - Supplemental

6. Processing Options: COMPUTE

7. Truncation Limits: $\pm$ 2 standard deviations

8. Time Switch: Not applicable

B. Airfield Physical Characteristics

9. Airfield Network: See Exhibit 1.

10. Number of Runways: 3

11. Runway Identification: 12R, 12L, and 6

12. Departure Runway End Links:
    12R - Taxiway A
    12L - Taxiway C
    6 - Taxiway C

13. Runway Crossing Links Clearance Times (seconds):

Runway	Crossing link	Crossing clearance times: Arrival on runway D	C	B	A	Departure on runway D	C	B	A	Arrival on final D	C	B	A
12R	M	15	15	15	15	15	15	15	15	20	20	20	20
12R	R	60	57	60	50	47	47	42	42	20	20	20	20
12R	G	57	56	61	50	38	38	42	42	20	20	20	20
12R	E	34	38	44	50	27	27	29	32	20	20	20	20
12R	B	46	46	55	50	32	32	37	42	20	20	20	20
12R	Midcoast	60	57	60	50	43	43	42	42	20	20	20	20
12L	17-35	33	33	41	48	27	27	28	30	20	20	20	20
12L	B	20	20	27	33	18	18	18	19	20	20	20	20
12L	G	33	33	41	48	27	27	28	30	20	20	20	20
6	F	0	0	0	0	35	35	37	42	20	20	20	20
6	A	0	0	0	0	32	32	34	38	20	20	20	20
6	A-South	0	0	0	0	25	25	26	28	20	20	20	20
6	L	0	0	0	0	18	18	18	21	20	20	20	20

14. Exit Taxiway Locations:

Runway	Exit	Feet from threshold
12R	17-35	7,280
12R	J	6,975
12R	G	6,005
12R	B	4,910
12R	E	3,510
12L	R	6,630
12L	N	4,560
12L	G	3,465
12L	17-35	3,465
12L	B	1,945

15. Holding Area-Link Number: 47

16. Airline Gates:

American -	3
Braniff -	1
Delta -	2
Eastern -	1,2
Frontier -	4
Northwest Orient -	6
USAir -	1
Ozark -	6
Republic -	5
TI -	1
TWA -	5
Air Taxi -	1,3
Air Freight -	6
Supplemental -	6

17. General Aviation Basing Areas: 7, 8, 9, 10, 11, 12, 13, and 14

C. ATC Procedures

18. Aircraft Separations:

Arrival-Arrival Separation-VFR (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	2.7	2.9	3.0	3.1
	B	2.7	2.9	3.0	3.1
	C	3.5	3.7	3.0	3.1
	D	5.3	5.5	4.7	3.9

Departure-Departure Separations-VFR (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	30	30	45	50
	B	35	40	45	50
	C	45	45	60	60
	D	120	120	120	90

Departure-Arrival Separation (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	1.1	1.4	1.5	1.6
	B	1.1	1.4	1.5	1.6
	C	1.8	1.8	1.8	1.8
	D	1.8	1.8	1.8	1.8

Departure-Departure Separation Between Lead Aircraft on Runway 6 and Trail Aircraft on Runway 12R (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	30	30	30	30
	B	26	26	26	26
	C	25	25	25	25
	D	25	25	25	25

Departure-Departure Separation Between Lead Aircraft on Runway 12R and Trail Aircraft on Runway 6 (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	22	22	22	22
	B	20	20	20	20
	C	20	20	20	20
	D	20	20	20	20

Arrival-Departure Separation Between Lead Aircraft on Runway 12R and Trail Aircraft on Runway 6 (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	33	33	33	33
	B	23	23	23	23
	C	11	11	11	11
	D	10	10	10	10

Arrival-Departure Separation Between Lead Aircraft on Runway 12L and Trail Aircraft on Runway 6 (Seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	5	5	5	5
	B	5	5	5	5
	C	5	5	5	5
	D	120	120	5	5

Departure-Arrival Separation Between Lead Aircraft on Runway 6 and Trail Aircraft on Runway 12R (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	0.8	1.0	1.1	1.2
	B	0.7	0.9	0.9	1.0
	C	0.7	0.9	0.9	1.0
	D	0.7	0.9	0.9	1.0

Departure-Arrival Separation Between Lead Aircraft on Runway 6 and Trail Aircraft on Runway 12L (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	1.0	1.3	1.4	1.6
	B	0.9	1.2	1.3	1.4
	C	0.9	1.1	1.2	1.3
	D	0.9	1.1	1.2	1.3

19. Route Data: See Exhibits 3a and 3b.

20. Two-Way Path Data: See Exhibits 3a and 3b.

21. Common Approach Paths:

	Aircraft class	Length (nautical miles)
VFR	A	2.0
	B	2.0
	C	6.0
	D	6.0

22. Vectoring Delays: Report sum of speed control, vectoring, and holding delay as one total.

23. Departure Runway Queue Control: Not used.

24. Gate Hold Control: When Runway 12L queue exceeds 6, when Runway 12R queue exceeds 10, and when Runway 6 queue exceeds 10.

25. Departure Airspace Constraints: Specified in separations and no aircraft held at gate due to airspace constraints.

26. Runway Interarrival Gap: Arrival separations increase from those specified in No. 18 to 8 miles when departure queue is greater than 6 on Runway 12R and 6, and greater than 4 on Runway 12L.

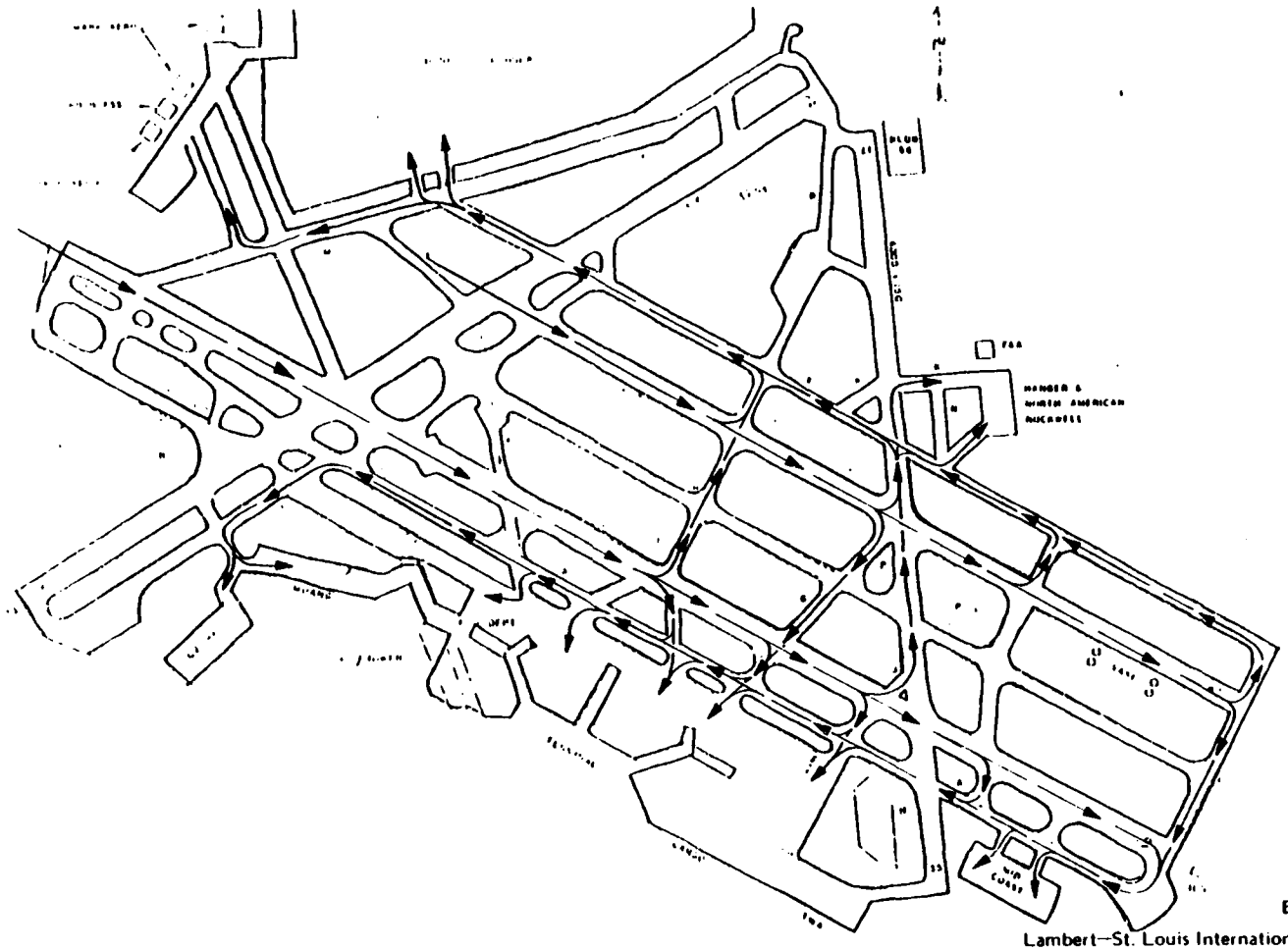

Exhibit 3A

Lambert—St. Louis International Airport

PRESENT CONFIGURATION
FLOW DIAGRAM
ARRIVALS ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

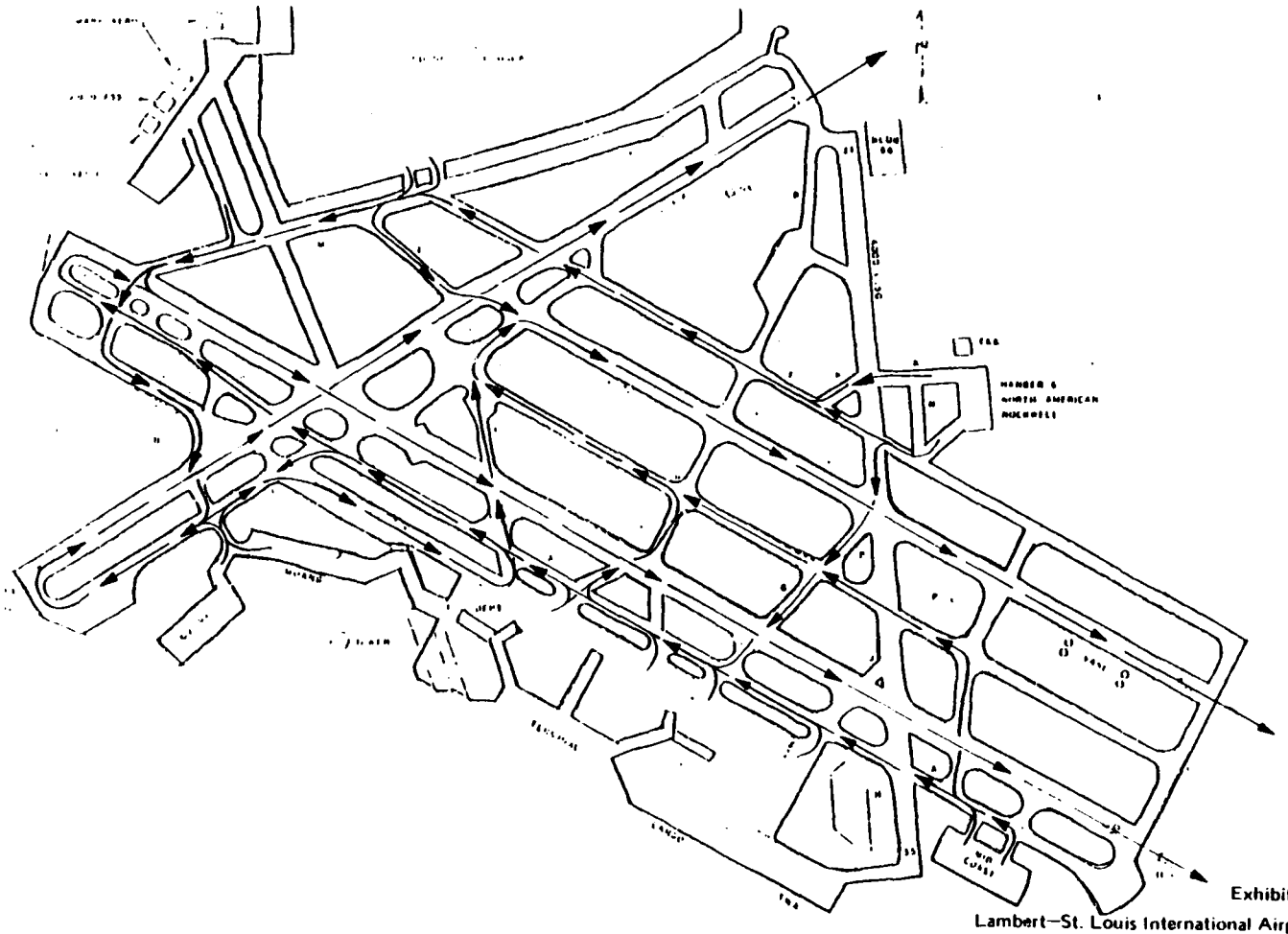

Exhibit 3B

Lambert—St. Louis International Airport

PRESENT CONFIGURATION
FLOW DIAGRAM
DEPARTURES ON RUNWAYS 12R, 12L AND 6

Peat, Marwick, Mitchell & Co. June 1980

27. Runway Crossing Delay Control: Arrival separations increase from those in No. 18 to 5 miles when crossing queue is greater than 4 on Runways 6 and 12R, and greater than 2 on Runway 12L.

28. Exit Taxiway Utilization (percent):

Runway	Class	Exit				
		17-35	J	G	B	E
12R	A					100
	B	17	6	13	46	18
	C	14	17	39	28	2
	D	15	29	42	14	

		R	N	G	17-35	B
12L	A			8	9	83
	B		16	40	42	2
	C	65	33		2	
	D	4		96		

29. Arrival Runway Occupancy Times (seconds):

Runway	Class	Exit					Weighted average
		17-35	J	G	B	E	
12R	A					50	50
	B	60	60	53	50	44	52
	C	57	56	50	41	38	50
	D	61	54	47	40		56

		R	N	G	17-35	B	Weighted average
12L	A			48	48	34	36
	B		52	42	42	27	43
	C	62	43		34		55
	D	62					62

30. Touch and Go Occupancy Times: No touch and go's.

31. Departure Runway Occupancy Times (seconds):

Aircraft class	Mean	Standard deviation
A	34	4
B	34	4
C	39	4
D	39	4

32. Taxi Speeds (mph): 5, 10, 15, 20, 25, and 35 (see Exhibit 3c).

33. Approach Speeds (knots):

Aircraft class	Mean	Standard deviation
A	95	10
B	120	10
C	130	10
D	140	10

34. Gate Service Times: To be supplied by airport task force

35. Airspace Travel Times: See Table 2.

36. Runway Crossing Times: 20 seconds

37. Lateness Distribution: To be supplied by airport task force

38. Schedule: 1979 Demand and Mix (Table 15).

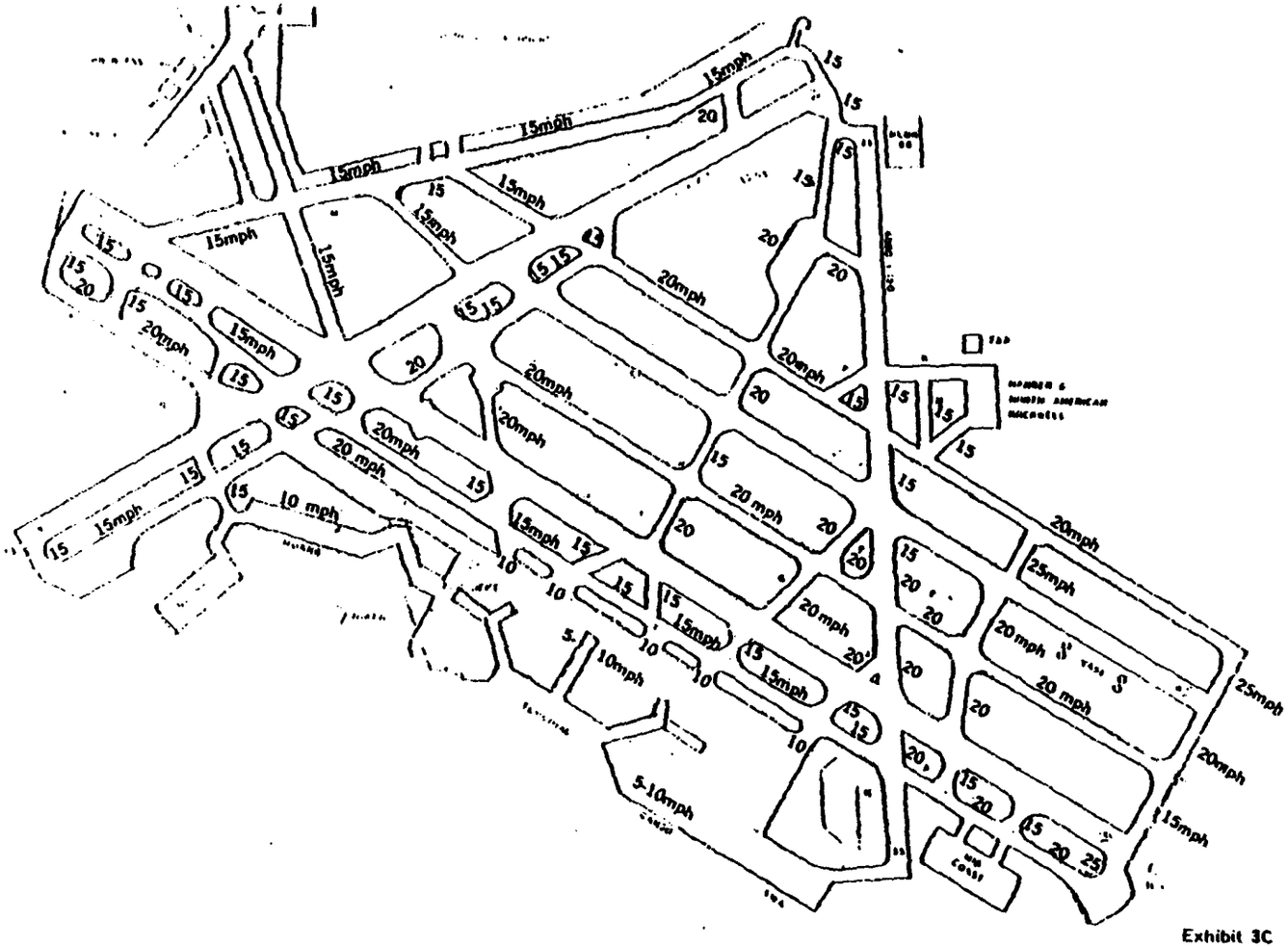

Exhibit 3C

Lambert - St. Louis International Airport

GENERALIZED TAXIWAY SPEEDS FOR ARRIVALS ON RUNWAYS 12R AND 12L AND DEPARTURES ON RUNWAYS 12R, 12L AND 6

Peat, Marwick, Mitchell & Co. June 1980

Table 2

ARRIVAL FIX TRAVEL TIME--EXPERIMENT 8
Lambert-St. Louis International Airport
Airport Improvement Task Force Delay Studies

Runway name	Fix code	Class	Travel time (minutes)
12R	K	1	13.0
12R	K	2	13.0
12R	K	3	15.0
12R	K	4	--
12R	B	1	13.0
12R	B	2	13.5
12R	B	3	16.5
12R	B	4	17.0
12R	F	1	11.0
12R	F	2	11.0
12R	F	3	11.5
12R	F	4	--
12R	V	1	11.0
12R	V	2	11.0
12R	V	3	11.5
12R	V	4	--
12L	K	1	--
12L	K	2	13.0
12L	K	3	14.5
12L	K	4	17.0
12L	B	1	--
12L	B	2	13.0
12L	B	3	14.5
12L	B	4	--
12L	F	1	--
12L	F	2	11.0
12L	F	3	15.5
12L	F	4	15.5
12L	V	1	--
12L	V	2	10.0
12L	V	3	14.5
12L	V	4	14.5

Experiment 11--Runway 24
IFR2 Baseline
1979 Demand and Mix
Present ATC Procedures

A. Logistics

1. Title: Lambert-St. Louis International Airport Experiment 11

2. Random Number Seeds: 2017, 3069, 4235, 5873, 6981, 7137, 8099, 9355, 0123, 1985

3. Start and Finish Times: 0700 to 2200

4. Print Options: Standard options including summary outputs

5. Airline Names:
   AA - American
   AL - USAir
   BN - Braniff
   DL - Delta
   EA - Eastern
   FL - Frontier
   NW - Northwest Orient
   OZ - Ozark
   RC - Republic
   TI - Texas International
   TW - Trans World Airlines
   AT - Air Taxi
   AF - Air Freight
   ML - Military
   GA - General Aviation
   SS - Supplemental

6. Processing Options: COMPUTE

7. Truncation Limits: $\pm$ 2 standard deviations

8. Time Switch: Not applicable

B. Airfield Physical Characteristics

9. Airfield Network: See Exhibit 1.

10. Number of Runways: 1

11. Runway Identification: 24

12. Departure Runway End Links: for 24 - Taxiway B

13. Runway Crossing Links: None

14. Exit Taxiway Locations:

Runway	Exit	Feet from threshold
24	C	7,620
	L	6,035
	A	5,190
	P	3,800

15. Holding Area-Link Number: 47

16. Airline Gates:

American -	3
Braniff -	1
Delta -	2
Eastern -	1,2
Frontier -	4
Northwest Orient -	6
USAir -	1
Ozark -	6
Republic -	5
TI -	1
TWA -	5
Air Taxi -	1,3
Air Freight -	6
Supplemental -	6

17. General Aviation Basing Areas: 7, 8, 9, 10, 11, 12, 13, and 14

C. ATC Procedures

18. Aircraft Separations:

Arrival-Arrival Separation (nautical miles)

Lead Aircraft Class	Trail Aircraft Class A	B	C	D
A	3.8	4.0	4.1	4.2
B	3.8	4.0	4.1	4.2
C	4.8	5.0	4.1	4.2
D	6.8	7.0	6.1	5.2

Departure-Departure Separations (seconds)

Lead Aircraft Class	Trail Aircraft Class A	B	C	D
A	60	60	60	60
B	60	60	60	60
C	60	60	60	60
D	120	120	120	90

Departure-Arrival Separation (nautical miles)

Lead Aircraft Class	Trail Aircraft Class A	B	C	D
A	2.0	2.0	2.0	2.0
B	2.0	2.0	2.0	2.0
C	2.0	2.0	2.0	2.0
D	2.0	2.0	2.0	2.0

19. Route Data: See Exhibits 4a and 4b.

20. Two-Way Path Data: See Exhibits 4a and 4b.

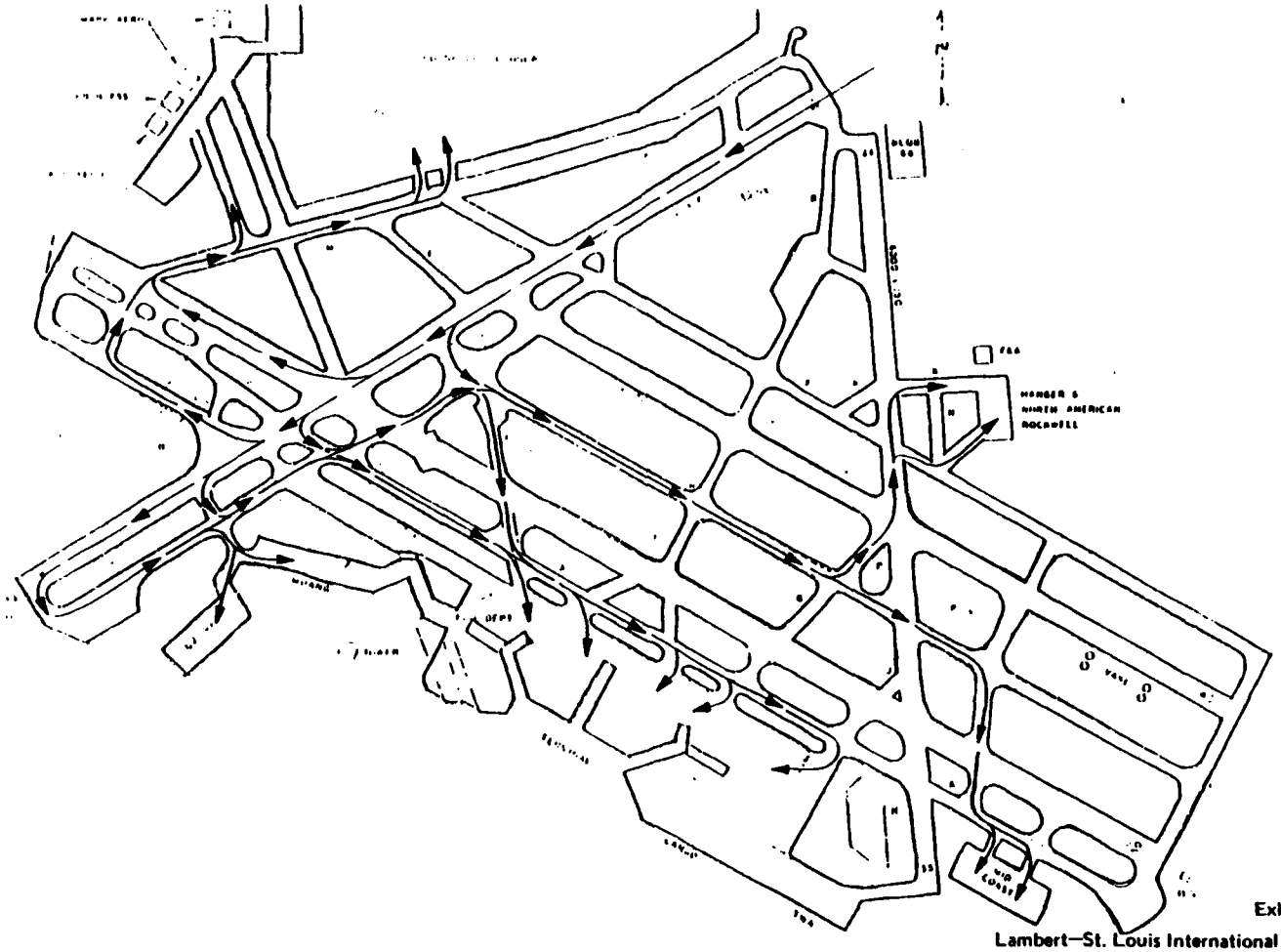

Exhibit 4A

Lambert—St. Louis International Airport

PRESENT CONFIGURATION
FLOW DIAGRAM
ARRIVALS ON RUNWAY 24

Peat, Marwick, Mitchell & Co. June 1980

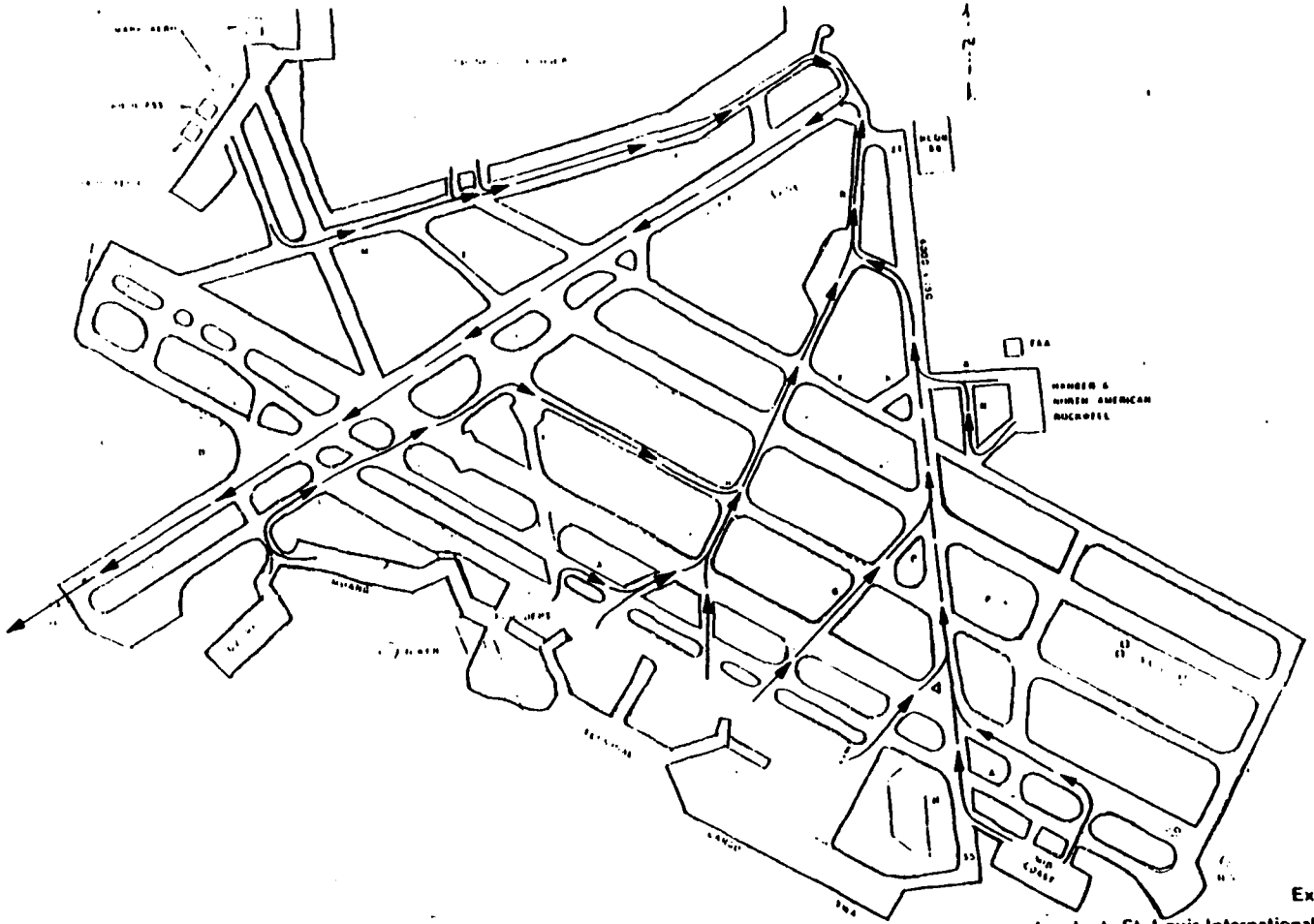

Exhibit 4B

Lambert—St. Louis International Airport

PRESENT CONFIGURATION
FLOW DIAGRAM
DEPARTURES ON RUNWAY 24

Peat, Marwick, Mitchell & Co. June 1980

21. Common Approach Paths:

Aircraft class	Length (nautical miles)
A	6.0
B	6.0
C	6.0
D	6.0

22. Vectoring Delays: Report sum of speed control, vectoring, and holding delay as one total.

23. Departure Runway Queue Control: Not used.

24. Gate Hold Control: When Runway 24 queue exceeds 10.

25. Departure Airspace Constraints: Specified in separations and no aircraft held at gate due to airspace constraints.

26. Runway Interarrival Gap: Arrival separations increase from those specified in No. 18 to 8 miles when departure queue exceeds 6 on Runway 24.

27. Runway Crossing Delay Control: No runway crossing links.

28. Exit Taxiway Utilization (percent):

Runway	Class	Exit			
		P	A	L	C
24	A	100			
	B	82	18		
	C	2	50	40	8
	D		14	58	28

29. Arrival Runway Occupancy Times (seconds):

Runway	Class	Exit				Weighted average
		P	A	L	C	
24	A	58				58
	B	51	67			54
	C	43	58	66	80	63
	D		58	66	80	69

30. Touch and Go Occupancy Times: No touch and go's.

31. Departure Runway Occupancy Times (seconds):

Aircraft class	Mean	Standard deviation
A	34	4
B	34	4
C	39	4
D	39	4

32. Taxi Speeds (mph): 5, 10, 15, 20, 25, and 35 (see Exhibit 4c).

33. Approach Speeds (knots):

Aircraft class	Mean	Standard deviation
A	95	10
B	120	10
C	130	10
D	140	10

34. Gate Service Times: To be supplied by airport task force

35. Airspace Travel Times: See Table 3.

36. Runway Crossing Times: 20 seconds

37. Lateness Distribution: To be supplied by airport task force

38. Schedule: 1979 Demand and Mix (Table 15)

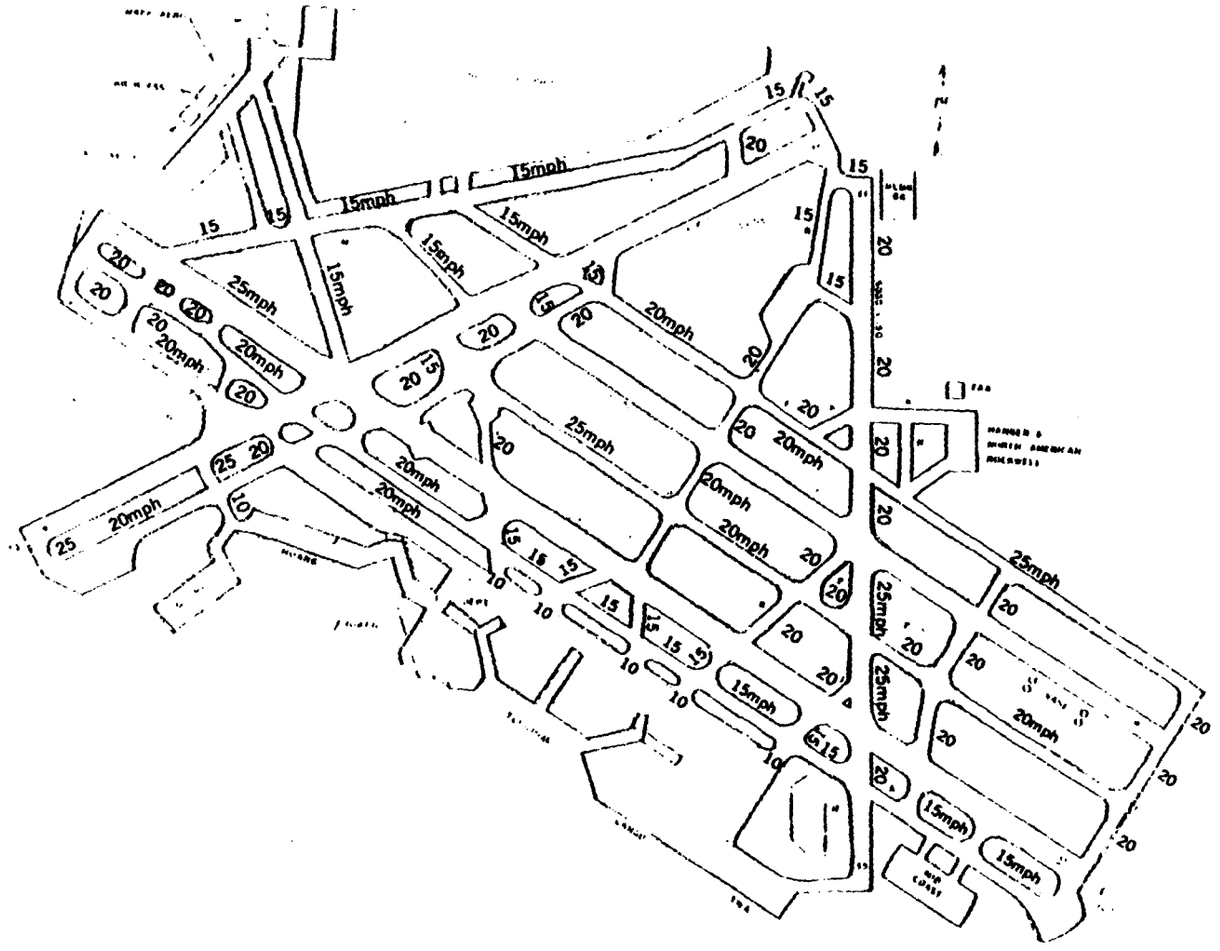

Exhibit 4C

Lambert–St. Louis International Airport

GENERALIZED TAXIWAY SPEEDS FOR ARRIVALS AND DEPARTURES ON RUNWAY 24

Peat, Marwick, Mitchell & Co. June 1980

Table 3

ARRIVAL FIX TRAVEL TIME--EXPERIMENT 11
Lambert-St. Louis International Airport
Airport Improvement Task Force Delay Studies

Runway name	Fix code	Class	Travel time (minutes)
24	K	1	10.5
24	K	2	10.5
24	K	3	12.5
24	K	4	13.0
24	B	1	--
24	B	2	14.5
24	B	3	14.5
24	B	4	--
24	F	1	12.5
24	F	2	12.5
24	F	3	16.5
24	F	4	--
24	V	1	--
24	V	2	13.0
24	V	3	16.5
24	V	4	--

Experiment Number: 2 (Input changes from experiment number 1)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 2
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR1 separations (Table 4)
19 Route data	
20 Two-way path data	
21 Common approach paths	All common approach path lengths are 6 nautical miles
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1979 IFR1 demand and mix (Table 15)

Table 4

Aircraft Separations (IFR1)

Arrival-Arrival Separation (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	3.8	4.0	4.1	4.2
	B	3.8	4.0	4.1	4.2
	C	4.8	5.0	4.1	4.2
	D	6.8	7.0	6.1	5.2

Departure-Departure Separations (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	60	60	60	60
	B	60	60	60	60
	C	60	60	60	60
	D	120	120	120	90

Departure-Arrival Separation (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	1.1	1.4	1.5	1.6
	B	1.1	1.4	1.5	1.6
	C	1.8	1.8	1.8	1.8
	D	1.8	1.8	1.8	1.8

Experiment Number: 3 (Input changes from experiment number 2)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	Lambert-St. Louis International Airport-Exp. 3
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR2 separations (Table 5)
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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	IFR2 exit taxiway utilizations (Table 6)
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	IFR2 crossing clearance times (Table 5)
37 Lateness distribution	
38 Demand	1979 IFR2 Demand and Mix (Table 15)

Table 5

Aircraft Separations (IFR2)

Arrival-Arrival Separation (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	3.8	4.0	4.1	4.2
	B	3.8	4.0	4.1	4.2
	C	4.8	5.0	4.1	4.2
	D	6.8	7.0	6.1	5.2

Departure-Departure Separations (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	60	60	60	60
	B	60	60	60	60
	C	60	60	60	60
	D	120	120	120	90

Departure-Arrival Separation (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	2.0	2.0	2.0	2.0
	B	2.0	2.0	2.0	2.0
	C	2.0	2.0	2.0	2.0
	D	2.0	2.0	2.0	2.0

Table 6

IFR2 EXIT TAXIWAY UTILIZATION AND
RUNWAY CROSSING CLEARANCE TIMES

Exit Taxiway Utilization (percent)

Runway	Class	17-35	J	G	B	E	R
12R	A					100	
	B	23	10	13	46	8	
	C	19	17	39	20		5
	D	15	28	43	4		10

		R	N	G	17-35	B
12L	A		10	8	9	73
	B	10	16	40	34	
	C	75	25			
	D	100				

Run-way	Crossing link	Crossing clearance times (seconds): Arrival on runway D	C	B	A	Departure on runway D	C	B	A	Arrival on final D	C	B	A
12R	R	71	67	70	60	57	57	52	52	20	20	20	20
12R	G	67	66	70	60	48	48	52	52	22	24	26	32
12R	E	44	48	54	60	37	37	39	42	34	37	40	40
12R	Midcoast	71	67	70	60	53	53	52	52	20	20	20	20
12R	C	39	39	47	54	26	26	28	30	37	40	43	55
12R	B	56	56	65	60	44	44	47	49	27	30	32	40
12L	17-35	43	43	51	58	37	37	38	40	34	37	40	50
12L	6-24	25	25	25	25	25	25	25	25	51	55	60	76

Experiment Number: 5 (Input changes from experiment number 4)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 5
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR1 separations (Table 4)
19 Route data	
20 Two-way path data	
21 Common approach paths	All common approach path lengths are 6 nautical miles
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1979 IFR1 demand and mix (Table 15)

Experiment Number: 6 (Input changes from experiment number 5)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 6
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR2 separations (Table 5)
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure runway queue control	
24 Gate hold control	
Departure airspace constraints	
26 Departure queue	
27 Runway crossing delay control	
d. Aircraft Operational Characteristics	
28 Exit taxiway utilization	IFR2 exit taxiway utilization (Table 7)
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	IFR2 runway crossing clearance times (Table 7)
37 Lateness distribution	
38 Demand	1979 IFR2 demand and mix (Table 15)

Table 7

1FR2 EXIT TAXIWAY UTILIZATION AND
RUNWAY CROSSING CLEARANCE TIMES

Exit Taxiway Utilization (percent):

Runway	Class	Exit			
		B	G	6-24	17-35
30R	A		10		90
	B	30	30	10	30
	C	30		70	
	D			100	

Runway	Class	Exit					
		6-24	E	B-Left	G	J	17-35
30L	A				5	10	85
	B			15	65	20	
	C	20	50	23	7		
	D	25	75				

Run-way	Crossing link	Crossing clearance times (seconds)											
		Arrival on runway				Departure on runway				Arrival on final			
		D	C	B	A	D	C	B	A	D	C	B	A
30R	B	55	55	62	56	42	42	47	52	32	34	37	47
30R	17-35	42	42	48	56	37	37	38	42	38	41	44	56
30R	6-24	68	68	62	56	52	52	52	52	22	24	26	32
30L	B	55	55	64	62	42		47	52	32	34	37	47
30L	E	67	67	64	62	50	50	52	52	26	28	30	38
30L	17-35	34	34	42	48	32	32	33	35	41	44	48	60
30L	Midcoast	28	28	34	40	28	28	28	29	45	49	53	67
30L	G	45	45	53	62	38	38	40	44	36	39	42	53

Experiment Number: 7 (Input changes from experiment number 7A)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 7
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	
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	
c. ATC Procedures	
18 Aircraft separations	Except for changes shown in Table 4
19 Route data	
20 Two-way path data	
21 Common approach paths	All common approach path lengths are 6 nautical miles
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1979 IFR1 demand and mix (Table 15)

Experiment Number: 9 (Input changes from experiment number 8)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 9
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	
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	
c. ATC Procedures	
18 Aircraft separations	Except for changes shown in Table 4
19 Route data	
20 Two-way path data	
21 Common approach paths	All common approach path lengths are 6 nautical miles
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1979 IFR1 demand and mix (Table 15)

Experiment Number: 10 (Input changes from experiment number 9)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 10
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR2 separations (Tables 5 and 8)
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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	IFR2 exit taxiway utilization (Table 6)
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	IFR2 runway crossing times (Table 9)
37 Lateness distribution	
38 Demand	1979 IFR2 demand and mix (Table 15)

Table 8

IFR2 SEPARATIONS FOR INTERSECTING RUNWAYS

Departure-Arrival Separation Between Lead Aircraft on Runway 6 and Trail Aircraft on Runway 12R (nautical miles)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	2.2	2.3	2.4	2.4
	B	2.1	2.3	2.3	2.4
	C	2.1	2.3	2.3	2.4
	D	2.1	2.3	2.3	2.4

Departure-Departure Separation Between Lead Aircraft on Runway 6 and Trail Aircraft on Runway 12R (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	40	40	40	40
	B	36	36	36	36
	C	35	35	35	35
	D	35	35	35	35

Table 8 - Continued

Departure-Departure Separation Between Lead Aircraft on Runway 12R and Trail Aircraft on Runway 6 (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	32	32	32	32
	B	30	30	30	30
	C	30	30	30	30
	D	30	30	30	30

Arrival-Departure Separation Between Lead Aircraft on Runway 12R and Trail Aircraft on Runway 6 (seconds)

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	33	33	33	33
	B	23	23	23	23
	C	11	11	11	11
	D	10	10	10	10

Table 9

RUNWAY CROSSING LINKS CLEARANCE TIMES

Run-way	Crossing link	Clearance crossing times (seconds)											
		Arrival on runway				Departure on runway				Arrival on final			
		D	C	B	A	D	C	B	A	D	C	B	A
12R	M	25	25	25	25	25	25	25	25	49	53	57	72
12R	R	70	67	70	60	57	57	52	52	20	20	20	20
12R	G	67	66	71	60	48	48	52	52	22	24	26	32
12R	E	44	48	54	60	37	37	39	42	34	37	40	50
12R	B	56	56	65	60	42	42	47	52	27	30	32	40
12R	Midcoast	70	67	70	60	53	53	52	52	20	20	20	20
12L	17-35	43	43	51	58	37	37	38	40	34	37	40	50
12L	B	30	30	37	43	28	28	28	29	42	45	49	62
12L	G	43	43	51	58	37	37	38	40	34	37	40	50
6	F	0	0	0	0	45	45	47	52	20	20	20	20
6	A	0	0	0	0	42	42	44	48	20	20	20	20
6	I	0	0	0	0	35	35	36	38	20	20	20	20
6	L	0	0	0	0	28	28	28	31	20	20	20	20

Experiment Number: 13 (Input changes from experiment number 12)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 13
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR1 separations (Table 4)
19 Route data	
20 Two-way path data	
21 Common approach paths	All common approach path lengths are 6 nautical miles
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1979 IFR1 demand and mix (Table 15)

Experiment Number: 26 (Input changes from experiment number 1)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 26
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 VFR demand and mix (Table 16)

Experiment Number: 27 (Input changes from experiment number 2)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 27
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 IFR1 demand and mix (Table 16)

Experiment Number: 28 (Input changes from experiment number 3)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 28
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 IFR2 demand and mix (Table 16)

Experiment Number: 30 (Input changes from experiment number 5)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 30
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 IFR1 demand and mix (Table 16)

Experiment Number: 31 (Input changes from experiment number 6)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 31
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	
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 separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 IFR2 demand and mix (Table 16)

Experiment Number: 32A (Input changes from experiment number 7A)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 32A
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 VFR demand and mix (Table 16)

Experiment Number: 32 (Input changes from experiment number 7)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 32
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 IFR1 demand and mix (Table 16)

Experiment Number: 33 (Input changes from experiment number 9)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 33
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 IFR1 demand and mix (Table 16)

Experiment Number: 34 (Input changes from experiment number 13)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 34
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 IFR1 demand and mix (Table 16)

Experiment Number: 35 (Input changes from experiment number 26)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 35
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	
9 Airfield network	Extension of parallel runways (Exhibit 5)
10 Number of runways	
11 Runway identification	
12 Departure runway end links	
13 Runway crossing links	
14 Exit taxiway Location	New runway exit distances (Table 10)
15 Holding areas	
16 Airline gates	
17 General aviation basing areas	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	New route data (Exhibits 6A and 6B)
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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	New exit taxiway utilization (Table 11)
29 Arrival runway occupancy times	New arrival runway occupancy times (Table 12)
30 Touch-and-go runway occupancy times	
31 Departure runway occupancy times	
32 Taxi speeds	New taxi speeds (Exhibit 6C)
33 Approach speeds	
34 Gate service times	
35 Airspace travel times	
36 Runway crossing times	
37 Lateness distribution	
38 Demand	1985 VFR demand and mix (Table 16)

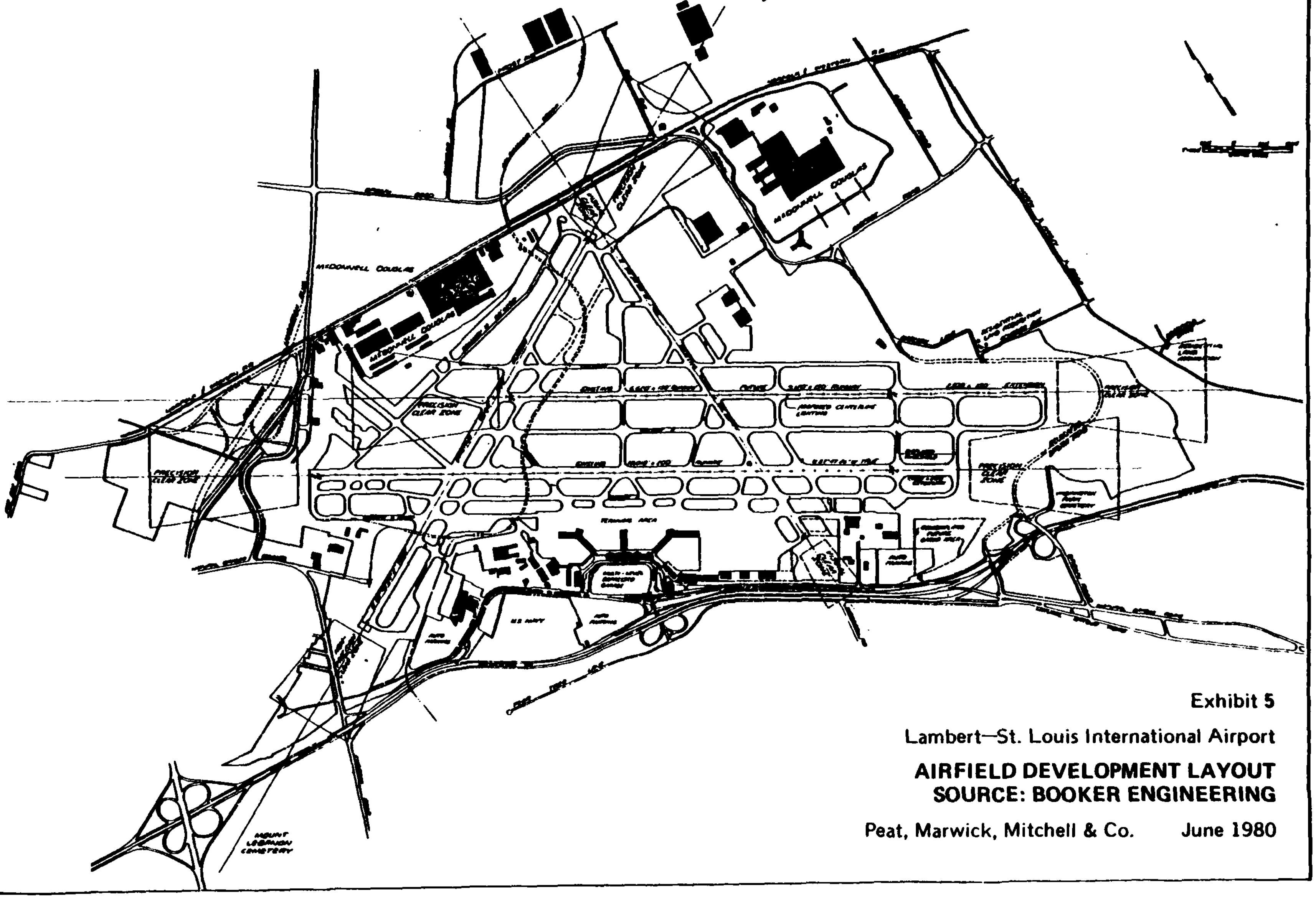

Exhibit 5

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT LAYOUT
SOURCE: BOOKER ENGINEERING

Peat, Marwick, Mitchell & Co. June 1980

Table 10

EXIT TAXIWAY LOCATIONS
AIRFIELD DEVELOPMENT EXPERIMENTS

Runway	Exit	Feet from threshold
12R	A	11,000
12R	R	9,590
12R	17-35	7,280
12R	J	6,975
12R	G	6,005
12R	B	4,910
12R	E	3,570
12L	P	9,120
12L	A	7,630
12L	R	6,630
12L	N	4,560
12L	G	3,465
12L	17-35	3,465
12L	B	1,945

Table 10 - continued

Runway	Exit	Feet from threshold
30L	A	9,900
30L	C	8,300
30L	E	7,300
30L	B	5,800
30L	G	4,500
30L	J	3,700
30L	17-35	3,250
30L	Midcoast	2,400
30L	R	1,000
30R	A	8,950
30R	B	7,250
30R	17-35	5,250
30R	Midcoast	4,600
30R	6-24	4,250
30R	R	2,500

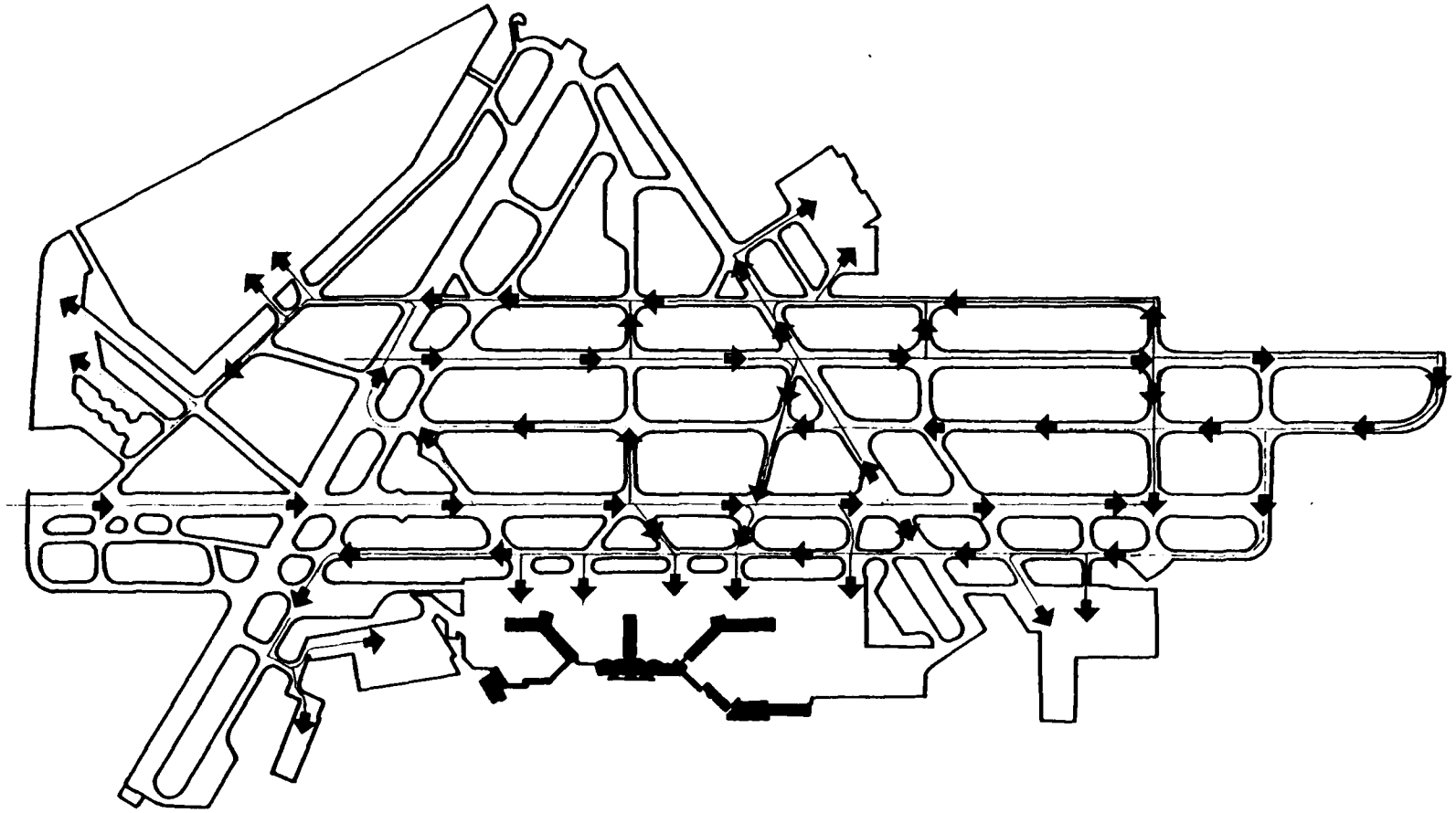

Exhibit **6A**

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION
FLOW DIAGRAM
ARRIVALS ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

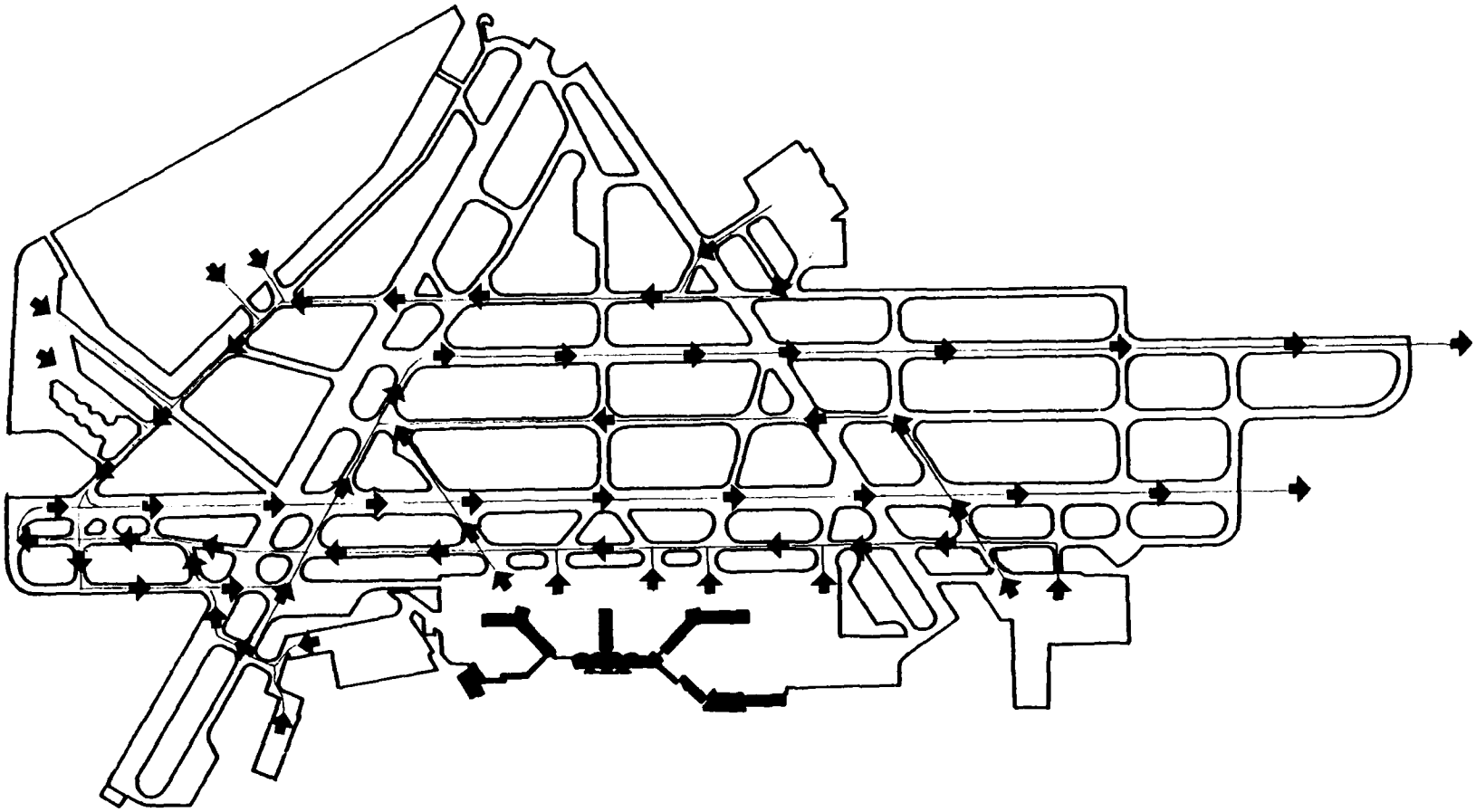

Exhibit 6B

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION FLOW DIAGRAM DEPARTURES ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

Table 11

EXIT TAXIWAY UTILIZATION
AIRFIELD DEVELOPMENT EXPERIMENTS

Runway 30R

Class	Exit R	Midcoast	G	B	6-24
A	84	16			
B	2	96	2		
C		8	15	75	2
D			9	83	8

Runway 30L

Class	Exit Midcoast	17-35	J	G	B	E	C
A	37	47	16				
B		40	45	10	5		
C				23	52	25	
D					36	56	8

Runway 12R

Class	Exit R	17-35	J	G	B-left	B-right	E
A							100
B		17	6	13	19	27	18
C		14	17	39	26	2	2
D	5	10	29	42	14		

Runway 12L

Class	Exit B	G	17-35	N	R	A	P
A	83	8	9				
B	2	40	42	16	10		
C			2	33	57	8	
D					71	27	2

Table 12

ARRIVAL RUNWAY OCCUPANCY TIMES (SECONDS)
AIRFIELD DEVELOPMENT EXPERIMENTS

Runway 30R

Class	Exit R	Midcoast	B	G	6-24	Weighted average
A	39	54				41
B	32	47		52		47
C		42	65	51	69	53
D			65	51	69	54

Runway 30L

Class	Exit Midcoast	17-35	J	G	B	E	C	Weighted average
A	38	47	52					44
B		39	44	51	54			43
C				42	50	67		52
D					50	67	77	61

Runway 12R

Class	Exit R	17-35	J	G	B-left	B-right	E	Weighted average
A							50	50
B		60	60	53	50	44	40	49
C		57	56	50	41	38	34	49
D	83	61	54	57	40			55

Runway 12L

Class	Exit B	G	17-35	N	R	A	P	Weighted average
A	34	48	48					36
B	27	42	42	52	62			49
C			32	42	65	75		57
D					67	75	90	69

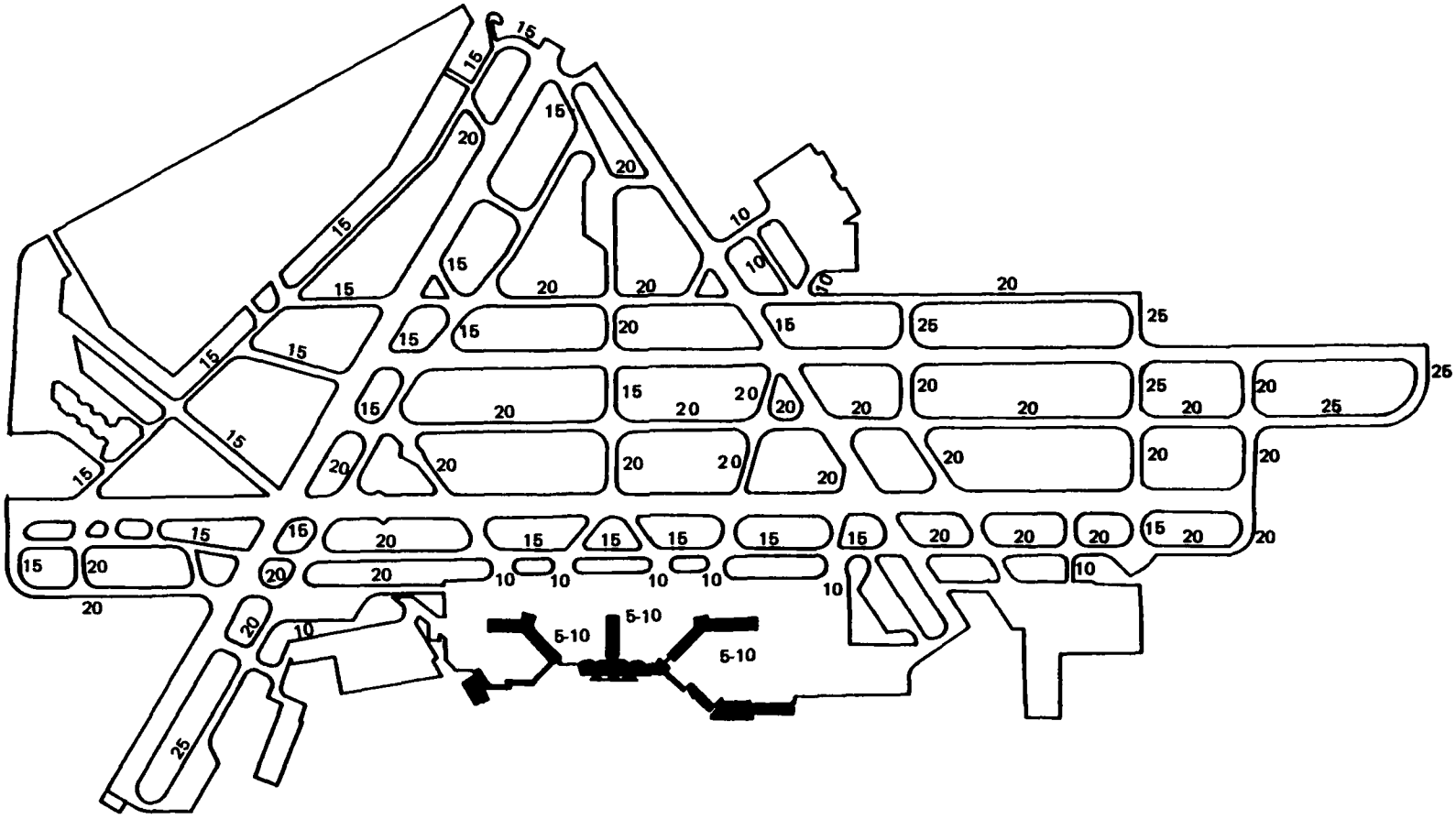

Exhibit 6C

Lambert—St. Louis International Airport

GENERALIZED TAXIWAY SPEEDS (MPH) FOR ARRIVALS AND DEPARTURES ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

Experiment Number: 36 (Input changes from experiment number 35)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 36
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR1 separations (Table 4)
19 Route data	
20 Two-way path data	
21 Common approach paths	All common approach path lengths are 6 nautical miles
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 IFR1 demand and mix (Table 16)

Experiment Number: 38 (Input changes from experiment number 30)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 38
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	
9 Airfield network	Runway extension (Exhibit 5)
10 Number of runways	
11 Runway identification	
12 Departure runway end links	Taxiway P for 30R, Taxiway A for 30L
13 Runway crossing links	Additional crossing links (Table 13)
14 Exit taxiway location	New exit distances (Table 10)
15 Holding areas	
16 Airline gates	
17 General aviation basing areas	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	Additional routes (Exhibits 7A and 7B)
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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	New exit taxiway utilization (Table 11)
29 Arrival runway occupancy times	New arrival runway occupancy times (Table 12)
30 Touch-and-go runway occupancy times	
31 Departure runway occupancy times	
32 Taxi speeds	New taxi speeds (Exhibit 7C)
33 Approach speeds	
34 Gate service times	
35 Airspace travel times	
36 Runway crossing times	New runway crossing times (Table 13)
37 Lateness distribution	
38 Demand	1985 IFR1 demand and mix (Table 16)

Table 13

RUNWAY CROSSING LINKS CLEARANCE TIMES

Runway	Crossing link	Crossing Clearance Times: Arrival on runway D	C	B	A	Departure on runway D	C	B	A	Arrival on final D	C	B	A
30R	R	24	24	30	36	21	21	22	25	20	20	20	20
30R	B	65	65	62	60	46	46	48	48	20	20	20	20
30R	17-35	53	53	50	48	37	37	39	39	20	20	20	20
30R	6-24	84	84	81	78	60	60	62	62	20	20	20	20
30L	B	53	53	50	48	37	37	39	39	20	20	20	20
30L	E	65	65	62	60	46	46	48	48	20	20	20	20
30L	17-35	33	33	39	47	28	28	29	33	20	20	20	20
30L	Midcoast	26	26	35	41	24	24	25	27	20	20	20	20
30L	G	44	44	50	45	31	31	36	41	20	20	20	20
30L	R	14	14	19	24	14	14	14	15	20	20	20	20
30L	J	35	35	42	50	30	30	31	35	20	20	20	20

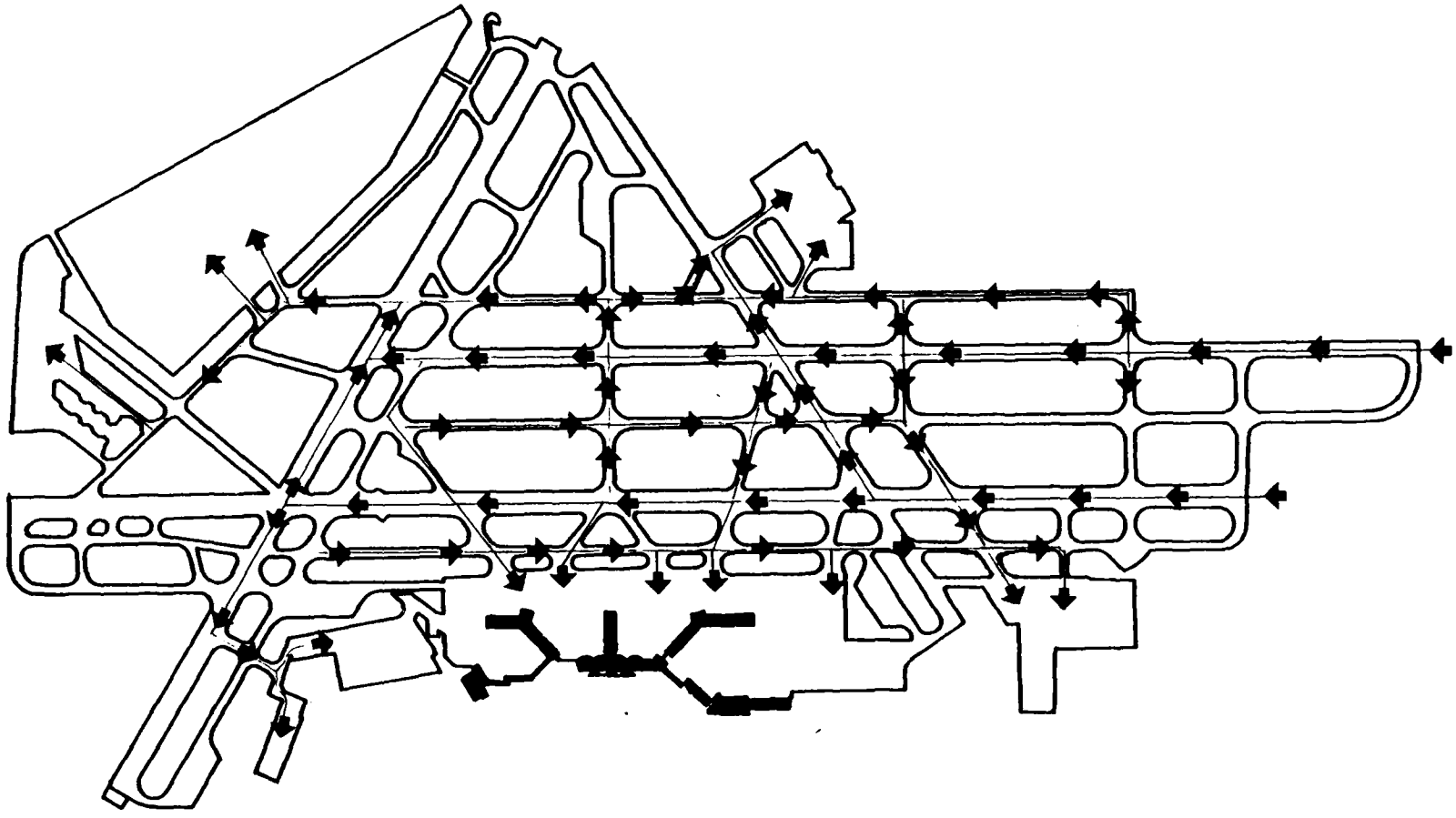

Exhibit 7A

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION FLOW DIAGRAM ARRIVALS ON RUNWAYS 30R AND 30L

Peat, Marwick, Mitchell & Co. June 1980

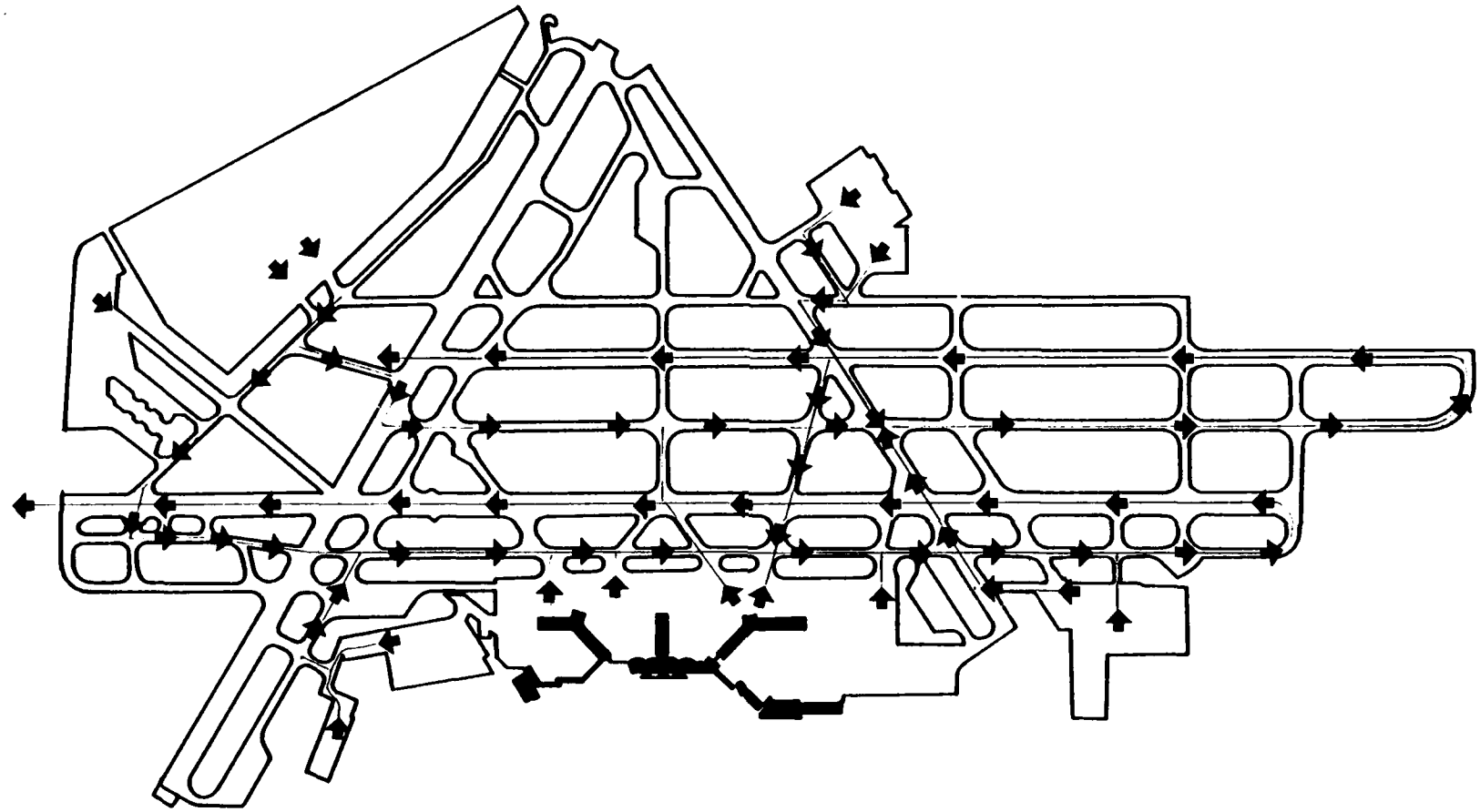

Exhibit 7B

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION FLOW DIAGRAM DEPARTURES ON RUNWAYS 30R AND 30L

Peat, Marwick, Mitchell & Co. June 1980

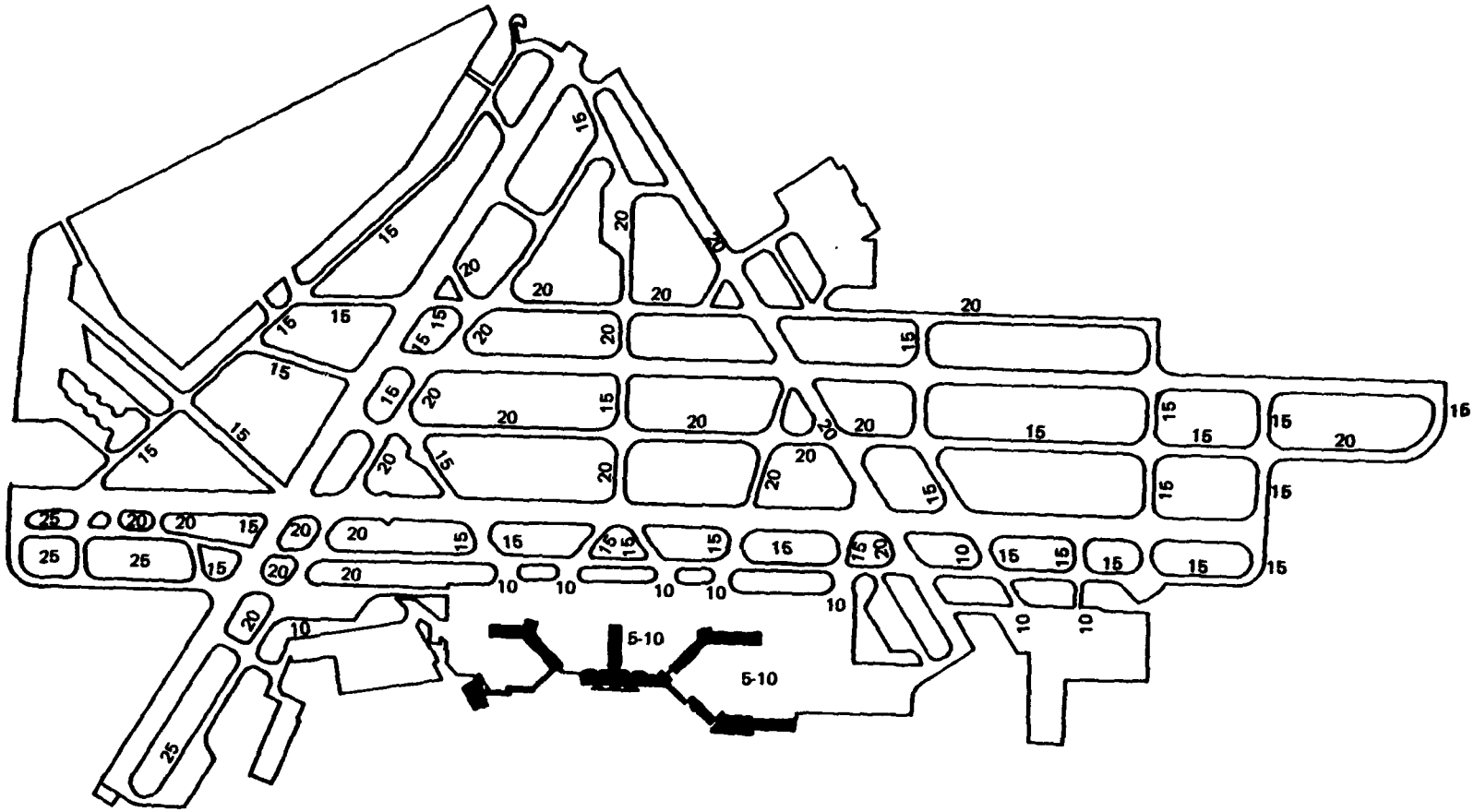

Exhibit 7C

Lambert—St. Louis International Airport

GENERALIZED TAXIWAY SPEEDS (MPH) FOR ARRIVALS AND DEPARTURES ON RUNWAYS 30R AND 30L

Peat, Marwick, Mitchell & Co. June 1980

Experiment Number: 39A (Input changes from experiment number 32A)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 39A
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	
9 Airfield network	Extension of parallel runways (Exhibit 5)
10 Number of runways	
11 Runway identification	
12 Departure runway end links	Taxiway "P" for 30R and Taxiway "A" for 30L
13 Runway crossing links	Additional crossing links (Table 13)
14 Exit taxiway location	New runway exit distances (Table 10)
15 Holding areas	
16 Airline gates	
17 General aviation basing areas	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	New route data (Exhibits 8A and 8B)
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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	New exit taxiway utilization (Table 11)
29 Arrival runway occupancy times	New runway arrival occupancy times (Table 12)
30 Touch-and-go runway occupancy times	
31 Departure runway occupancy times	
32 Taxi speeds	New taxi speeds (Exhibit 8C)
33 Approach speeds	
34 Gate service times	
35 Airspace travel times	
36 Runway crossing times	New crossing clearance times (Table 13)
37 Lateness distribution	
38 Demand	1985 VFR demand and mix (Table 16)

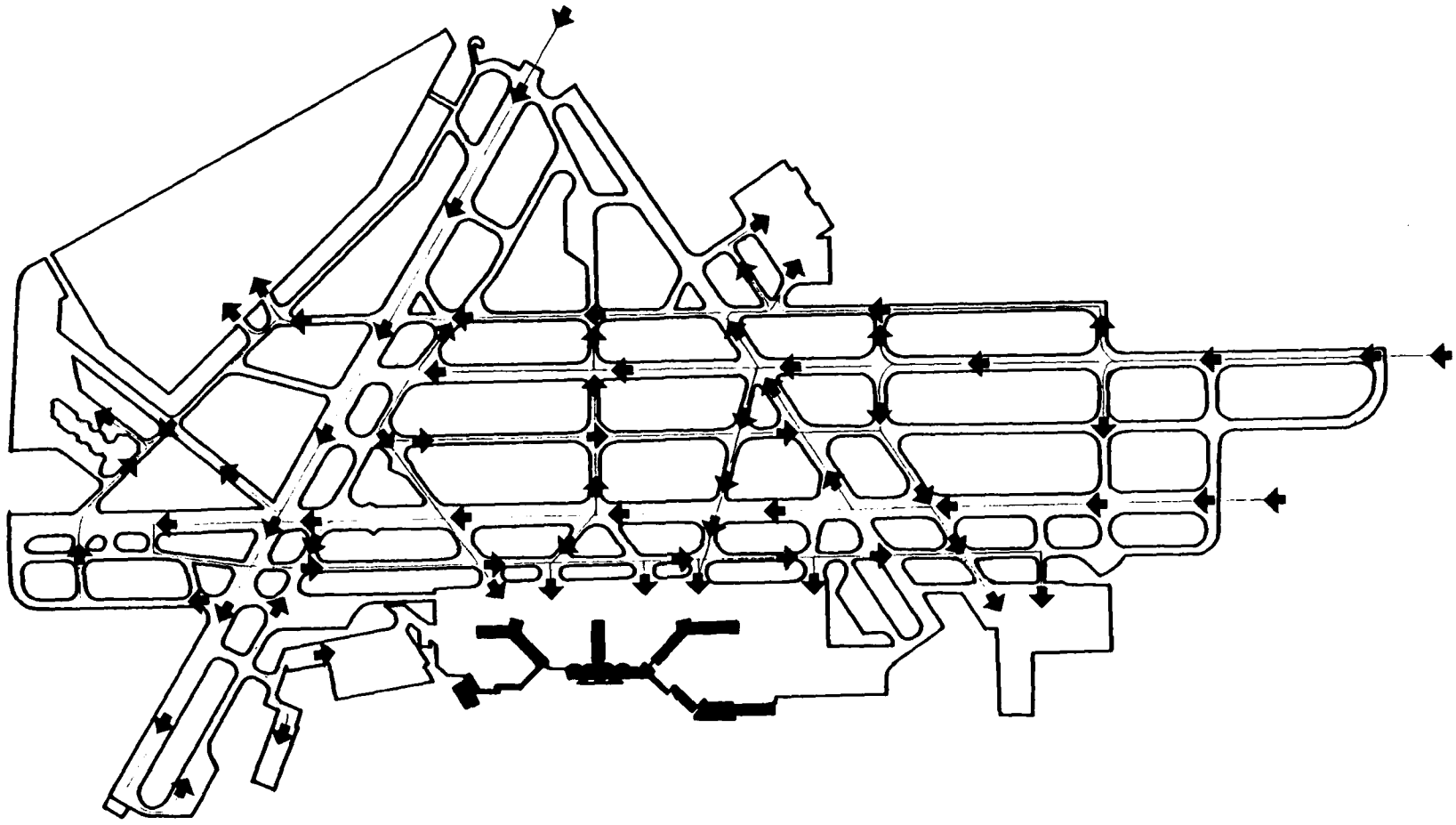

Exhibit **8A**

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION FLOW DIAGRAM

ARRIVALS ON RUNWAYS 30R, 30L, AND 24

Peat, Marwick, Mitchell & Co. June 1980

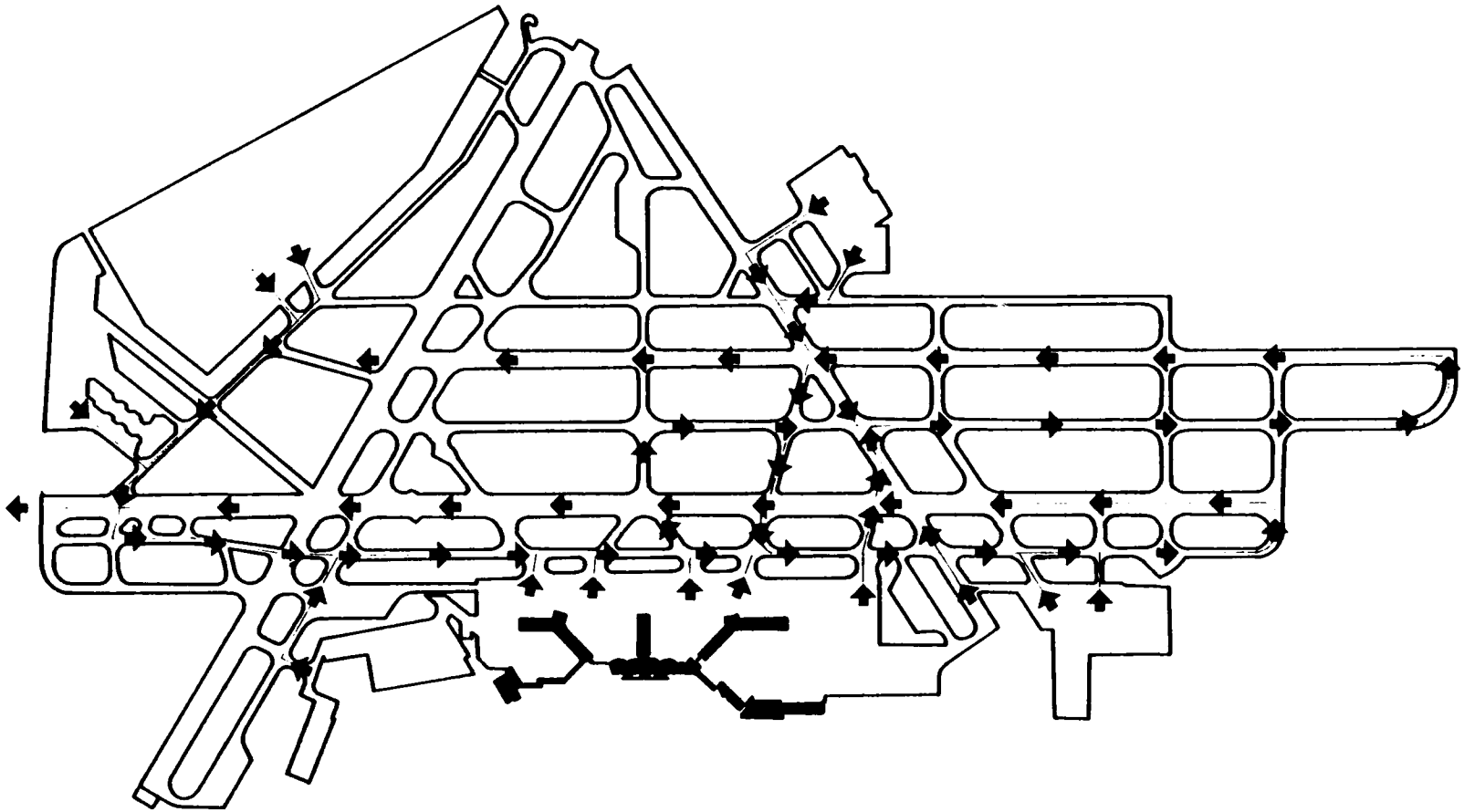

Exhibit 8B

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION FLOW DIAGRAM DEPARTURES ON RUNWAYS 30R AND 30L

Peat, Marwick, Mitchell & Co. June 1980

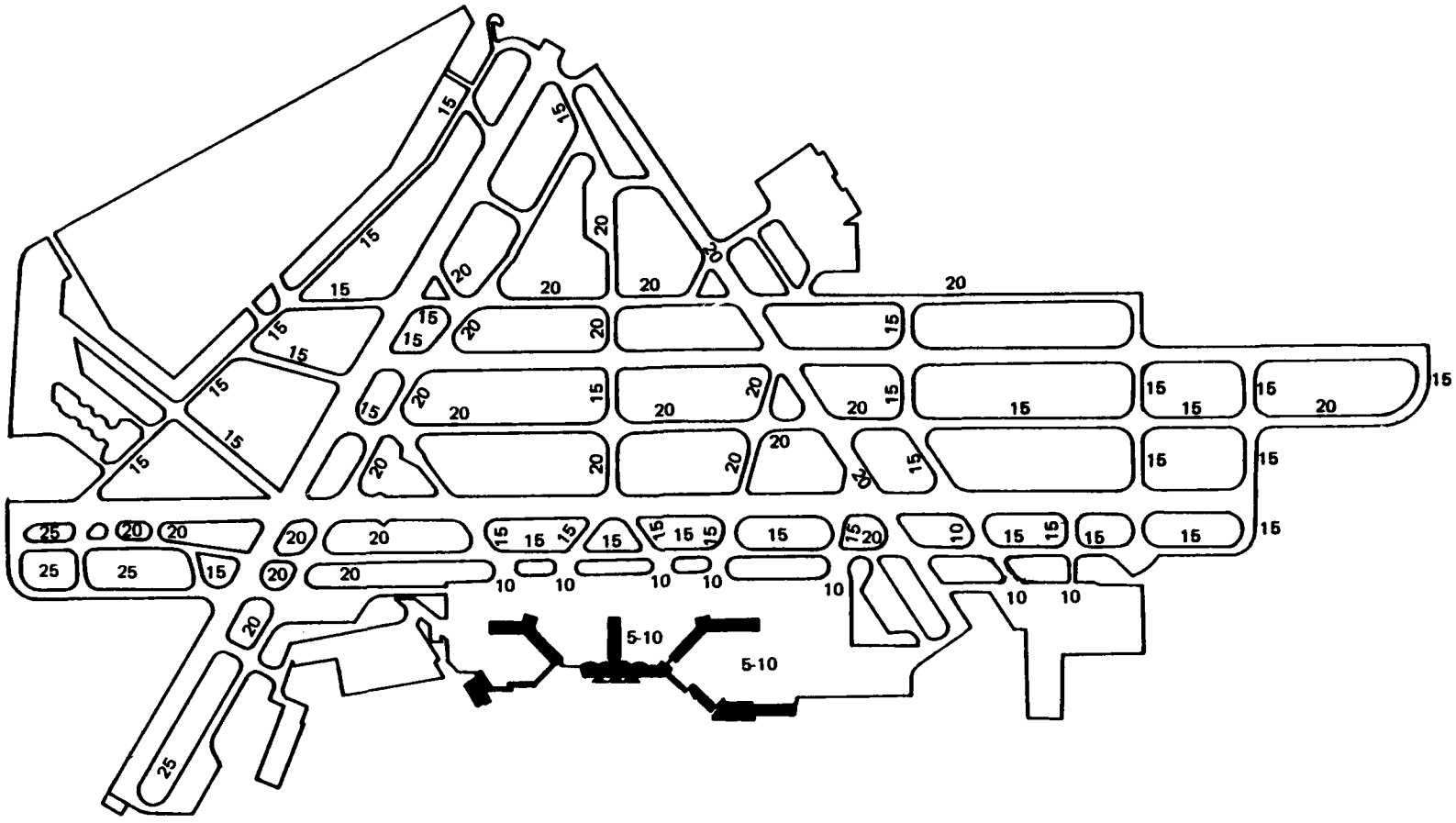

Exhibit 8C

Lambert—St. Louis International Airport

GENERALIZED TAXIWAY SPEEDS (MPH) FOR ARRIVALS ON RUNWAYS 30R, 30L AND 24, AND DEPARTURES ON RUNWAYS 30R AND 30L

Peat, Marwick, Mitchell & Co. June 1980

Experiment Number: 39 (Input changes from experiment number 39A)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 39
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR1 separations (Table 4)
19 Route data	
20 Two-way path data	
21 Common approach paths	All common approach path lengths are 6 nautical miles
22 Vectoring delays	
23 Departure 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	
[illegible] Touch-and-go runway occupancy times	
[illegible] Departure runway occupancy times	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	

Experiment Number: 40 (Input changes from experiment number 33)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 40
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	
9 Airfield network	
10 Number of runways	Extension of parallel runways (Exhibit 5)
11 Runway identification	
12 Departure runway end links	
13 Runway crossing links	
14 Exit taxiway location	New runway exit distances (Table 10)
15 Holding areas	
16 Airline gates	
17 General aviation basing areas	
c. ATC Procedures	
18 Aircraft separations	IFR1 separations (Table 4)
19 Route data	New route data (Exhibits 9A and 9B)
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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	New exit taxiway utilization (Table 11)
29 Arrival runway occupancy times	New runway arrival occupancy times (Table 12)
30 Touch-and-go runway occupancy times	
31 Departure runway occupancy times	
32 Taxi speeds	New taxi speeds (Exhibit 9C)
33 Approach speeds	
34 Gate service times	
35 Airspace travel times	
36 Runway crossing times	
37 Lateness distribution	
38 Demand	1985 IFR1 demand and mix (Table 16)

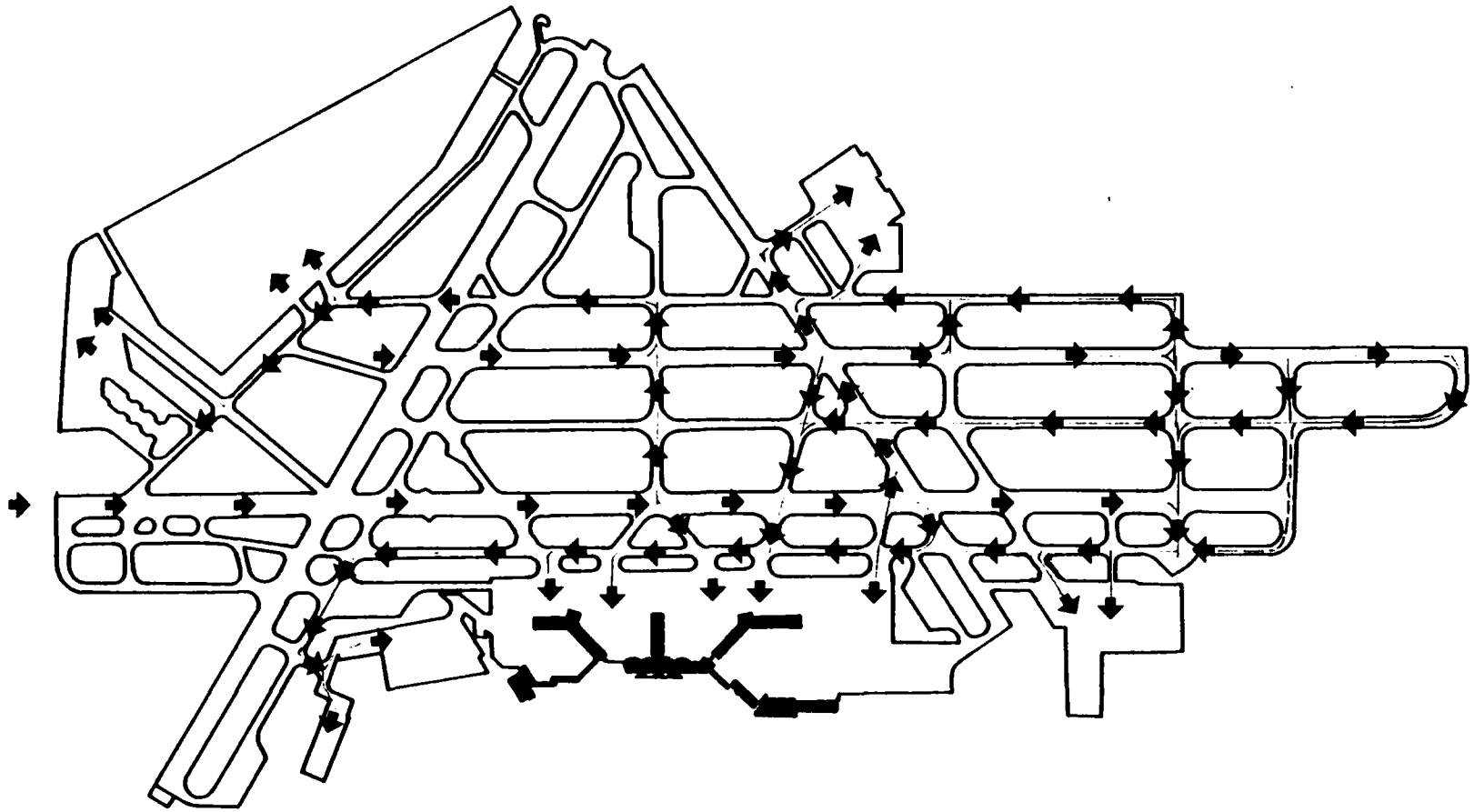

Exhibit **9A**

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION
FLOW DIAGRAM
ARRIVALS ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

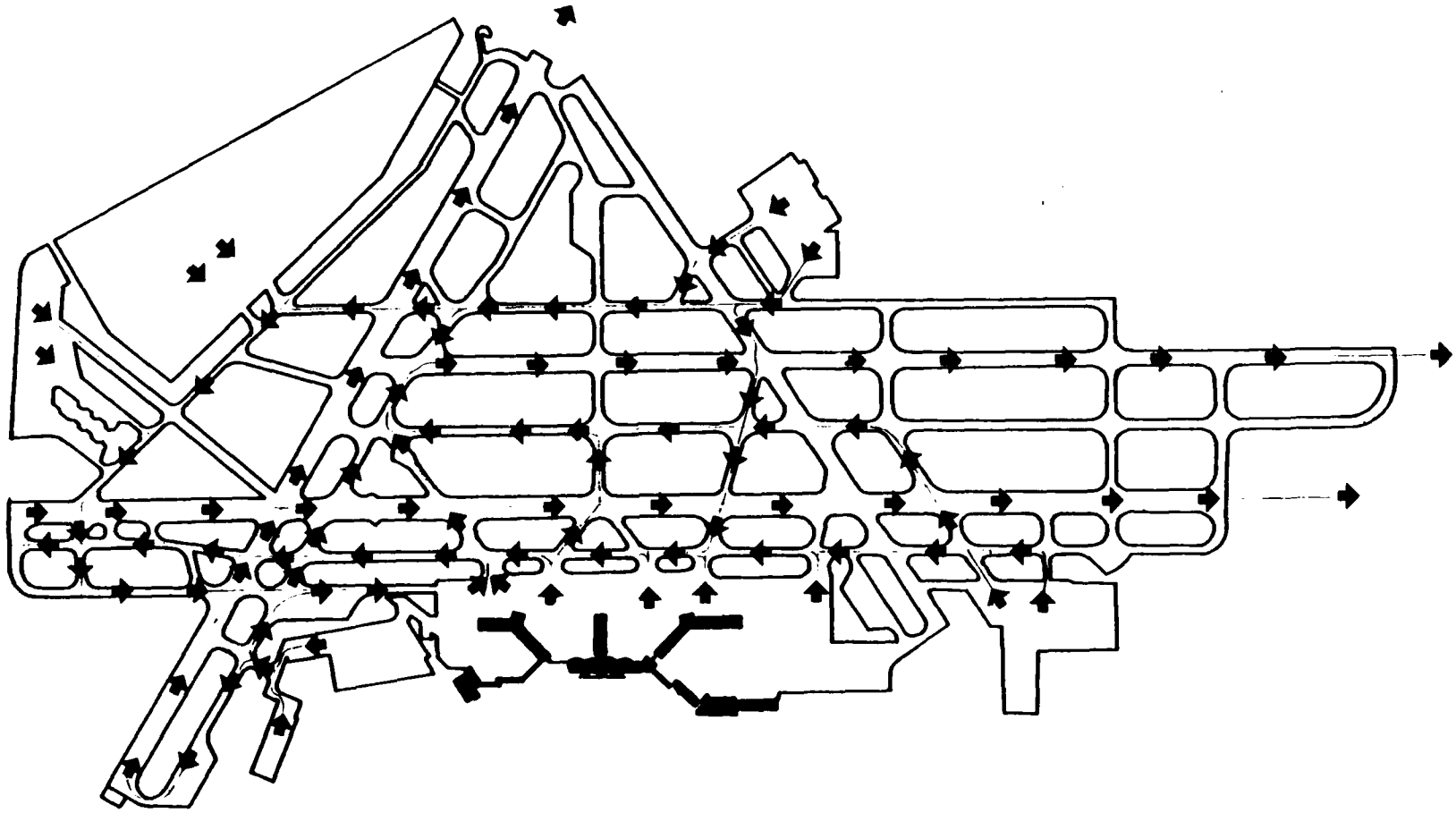

Exhibit 9B

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION FLOW DIAGRAM DEPARTURES ON RUNWAYS 12R, 12L, AND 6

Peat, Marwick, Mitchell & Co. June 1980

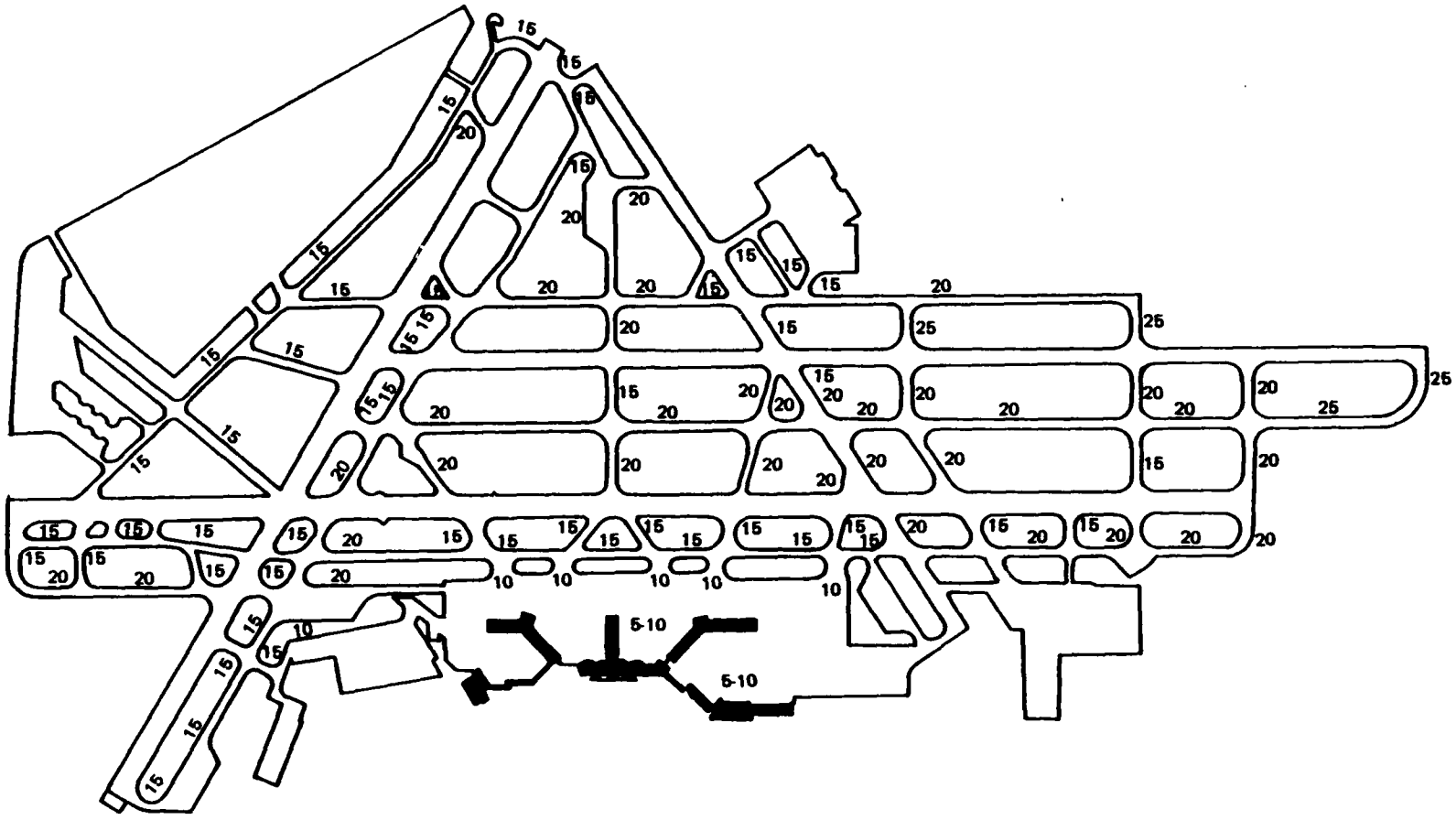

Exhibit 9C

Lambert—St. Louis International Airport

GENERALIZED TAXIWAY SPEEDS (MPH) FOR ARRIVALS ON RUNWAYS 12R AND 12L AND DEPARTURES ON RUNWAYS 12R, 12L AND 6

Peat, Marwick, Mitchell & Co. June 1980

Experiment Number: 41 (Input changes from experiment number 38)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 41
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR1 separations (Table 4) - Independent arrivals on parallel runways
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	

Experiment Number: 42 (Input changes from experiment number 39)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 42
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	
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	
c. ATC Procedures	
18 Aircraft separations	IFR1 separations (Table 4) - independent arrivals on parallel runways
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	

Experiment Number: 43 (Input changes from experiment number 40)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 43
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	
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 separations	IFRI separations (Table 4) - independent arrivals on parallel runways
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	

Experiment Number: 44 (Input changes from experiment number 35)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 44
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	
9 Airfield network	Includes the expanded terminal (Exhibit 10A)
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	Increased number of gates (Exhibit 10A)
17 General aviation basing areas	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	New route data (Exhibits 10B and 10C)
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	

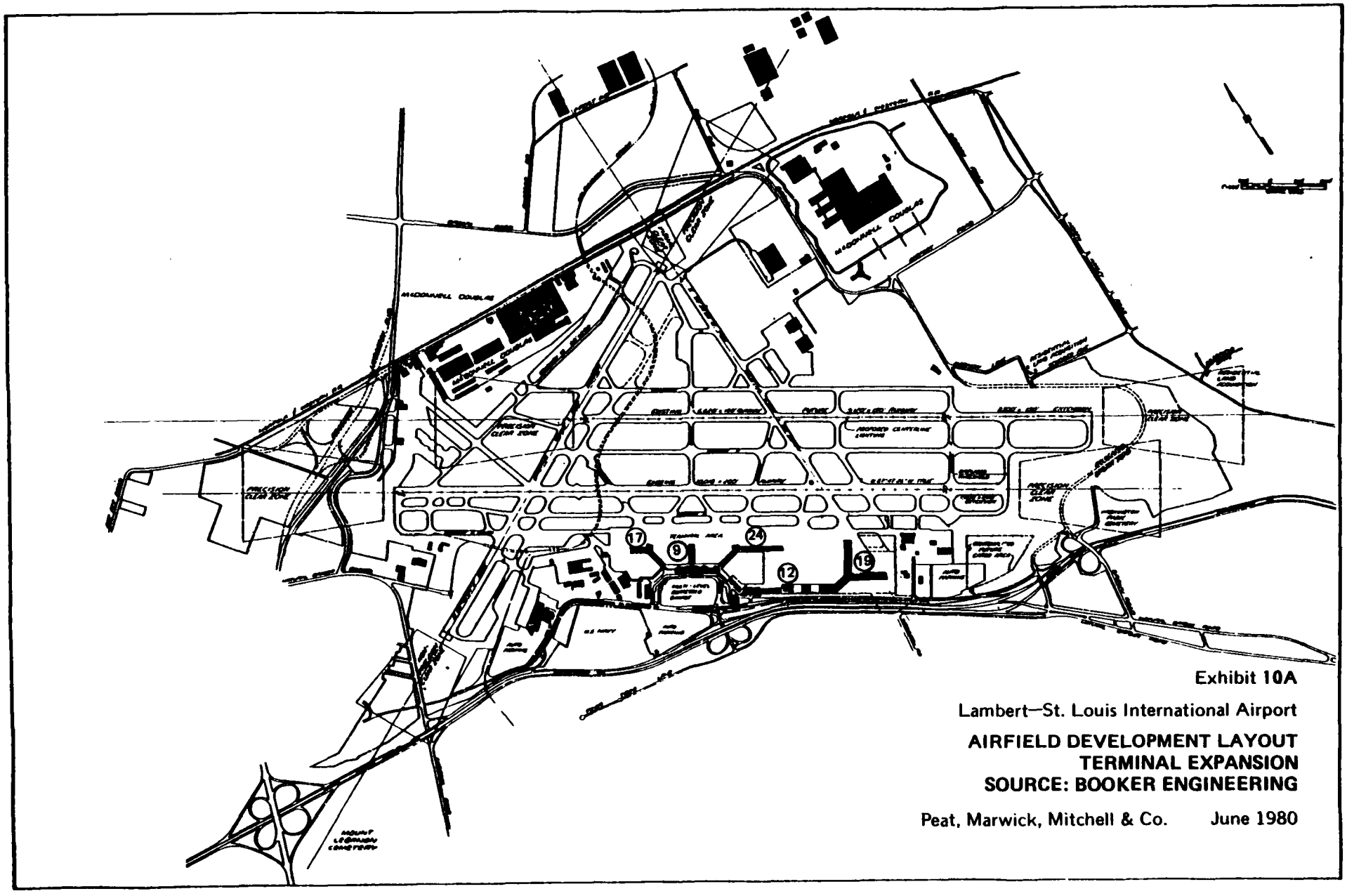

Exhibit 10A

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT LAYOUT
TERMINAL EXPANSION
SOURCE: BOOKER ENGINEERING

Peat, Marwick, Mitchell & Co. June 1980

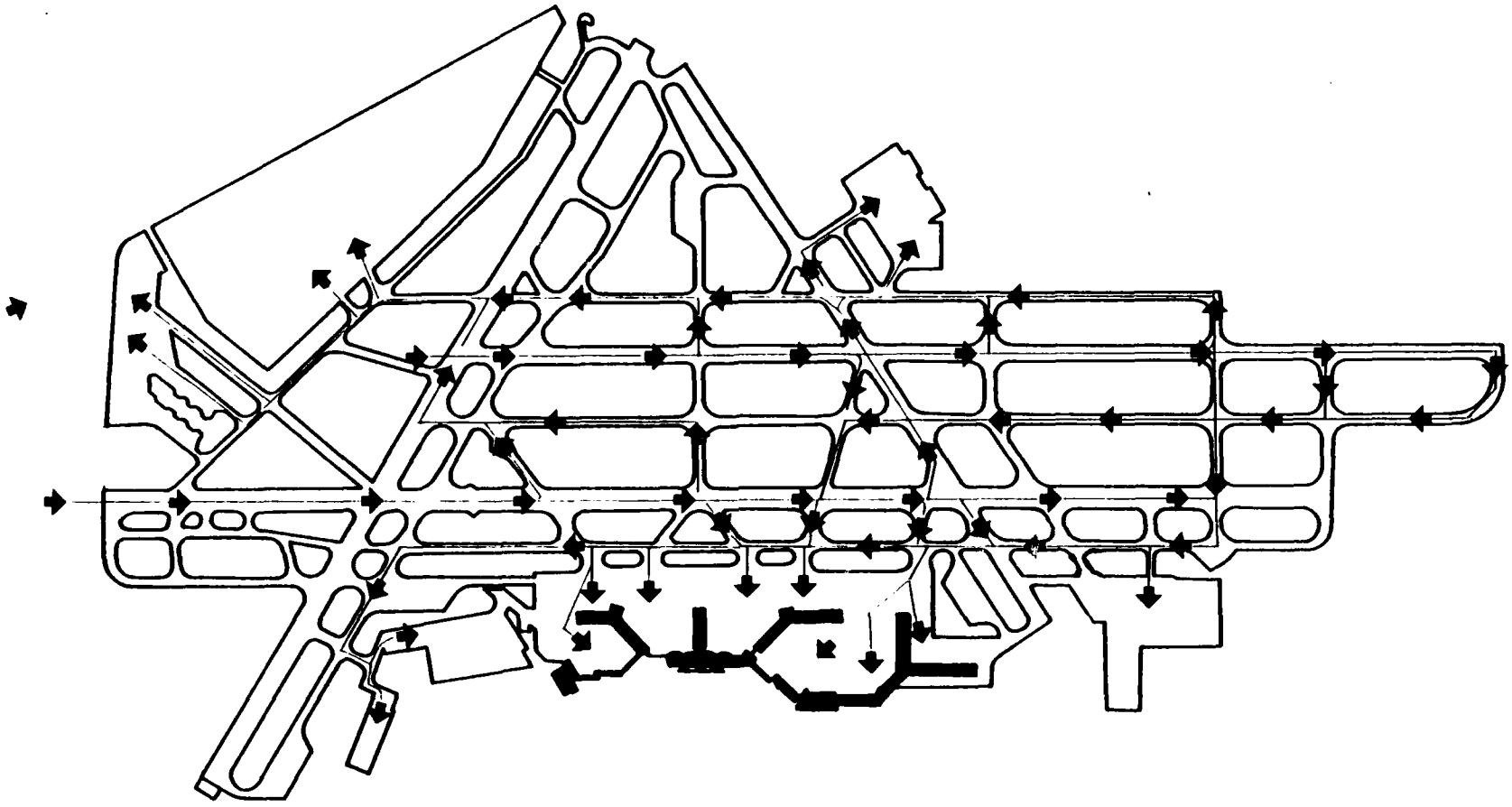

Exhibit 10B

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION
TERMINAL EXPANSION
FLOW DIAGRAM
ARRIVALS ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

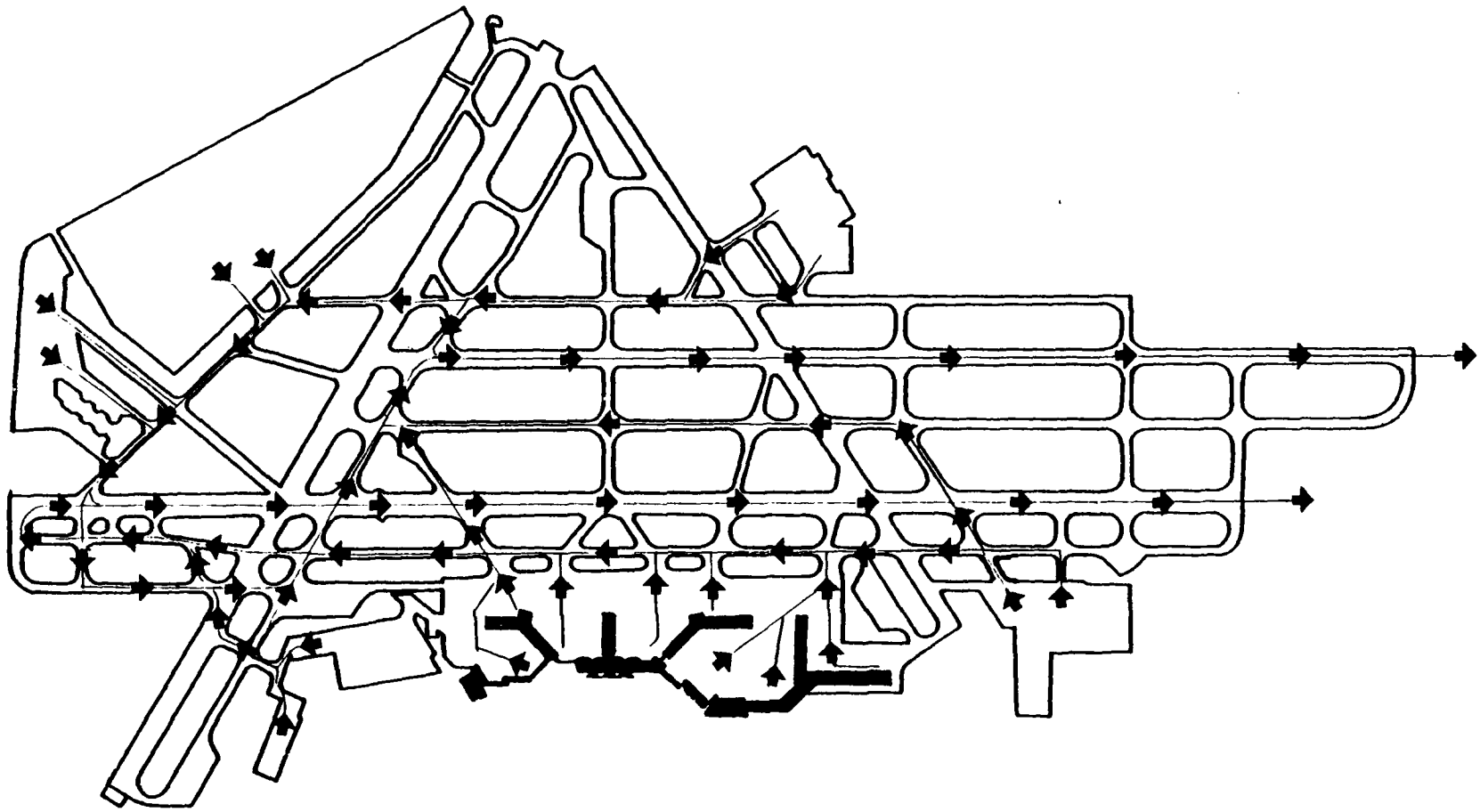

Exhibit 10C

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION
TERMINAL EXPANSION
FLOW DIAGRAM
DEPARTURES ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

Experiment Number: 35A (Input changes from experiment number 35)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 35A
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 VFR demand-increase heavy aircraft operations
	(Table 16)

Experiment Number: 35B (Input changes from experiment number 35)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 35B
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1985 IFR demand [illegible]

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Experiment Number: 51 (Input changes from experiment number 35)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 51
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 VFR demand and mix (Table 17)

Experiment Number: 52 (Input changes from experiment number 36)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	Lambert-St. Louis International Airport-Exp. 52
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 IFR1 demand and mix (Table 17)

Experiment Number: 55 (Input changes from experiment number 38)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 55
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 IFR1 demand and mix (Table 17)

Experiment Number: 57A (Input changes from experiment number 39A)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 57A
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	
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 separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 VFR demand and mix (Table 17)

Experiment Number: 57 (Input changes from experiment number 39)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 57
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 IFR1 demand and mix (Table 17)

Experiment Number: 58 (Input changes from experiment number 40)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 58
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 IFR1 demand and mix (Table 17)

Experiment Number: 60 (Input changes from experiment number 41)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 60
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 IFR1 demand and mix (Table 17)

Experiment Number: 61 (Input changes from experiment number 42)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 61
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 IFR1 demand and mix (Table 17)

Experiment Number: 62 (Input changes from experiment number 43)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 62
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 IFR1 demand and mix (Table 17)

Experiment Number: 63 (Input changes from experiment number 44)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 63
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 VFR demand and mix (Table 17)

Experiment Number: 64 (Input changes from experiment number 51)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 64
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	
9 Airfield network	Relocation of Mid Coast Aviation (Exhibit 11A)
10 Number of runways	
11 Runway identification	
12 Departure runway end links	
13 Runway crossing links	No crossing at old Mid Coast Aviation basing area
14 Exit taxiway location	
15 Holding areas	
16 Airline gates	
17 General aviation basing areas	Relocate Mid Coast Aviation basing area
c. ATC Procedures	
18 Aircraft separations	
19 Route data	New routes (Exhibits 11B and 11C)
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure runway queue control	
24 Gate hold control	
25 Departure airspace constr ints	
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 distribution	
38 Demand	

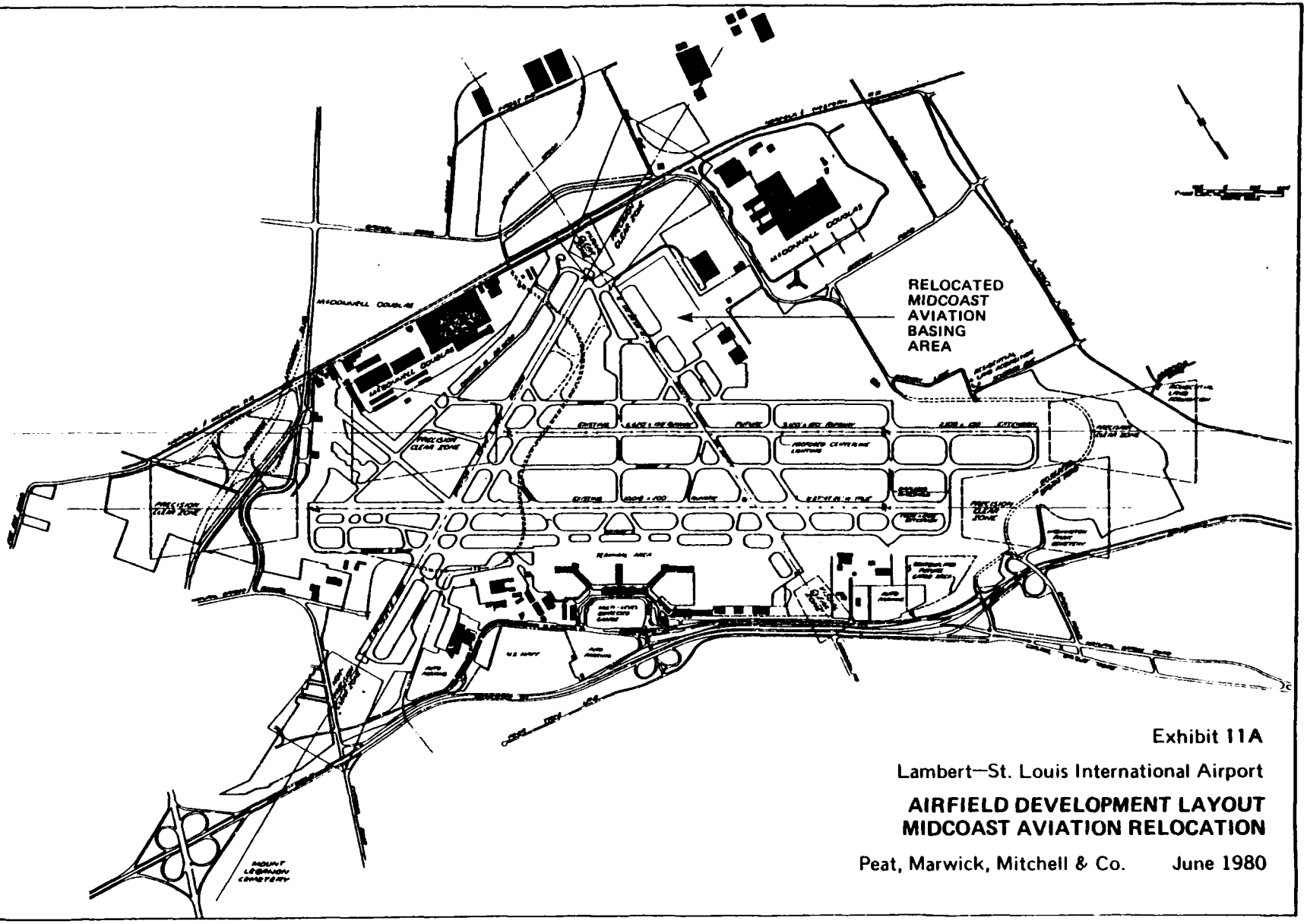


Exhibit 11A

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT LAYOUT
MIDCOAST AVIATION RELOCATION

Peat, Marwick, Mitchell & Co. June 1980

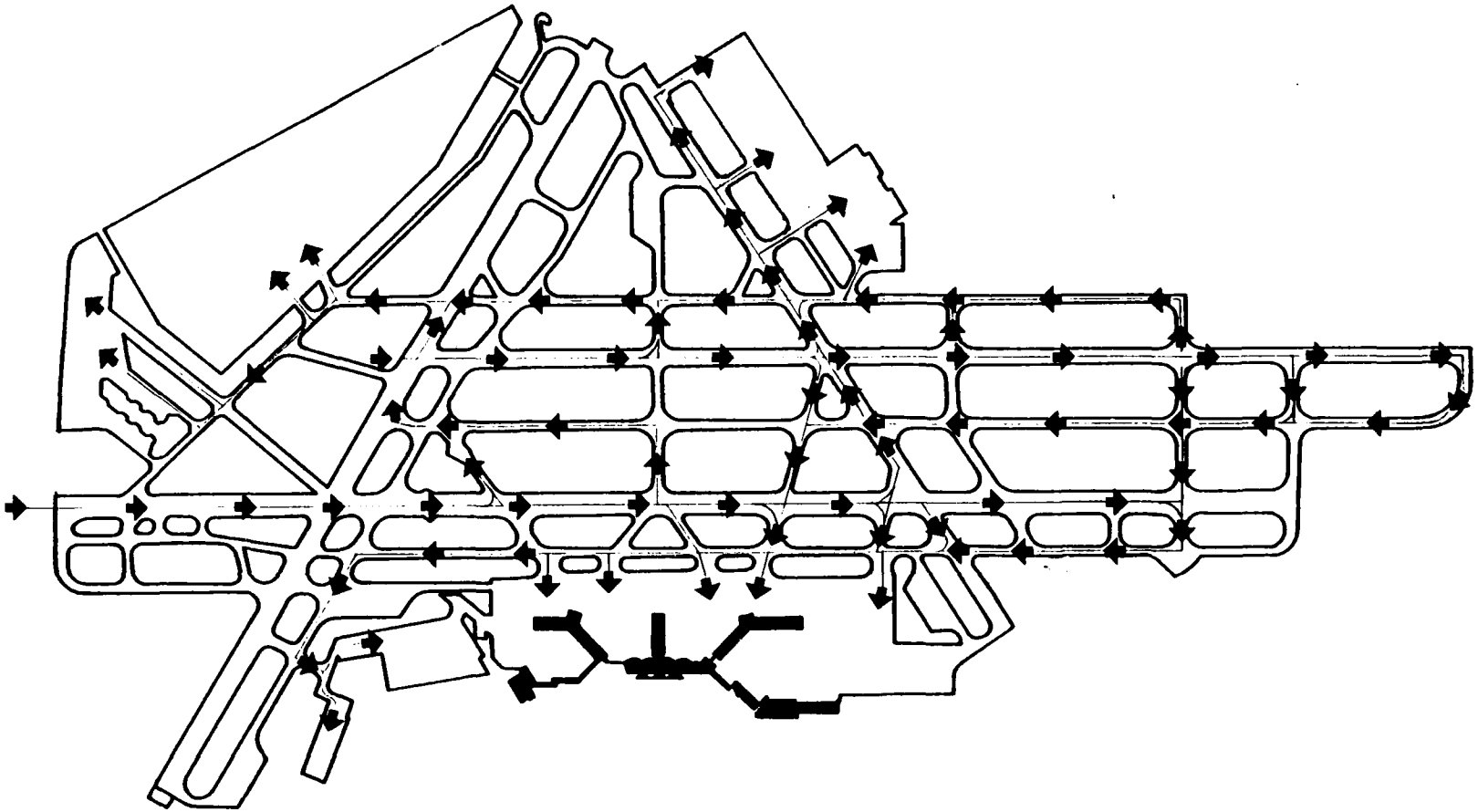


Exhibit **11B**

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION
MIDCOAST AVIATION RELOCATION
FLOW DIAGRAM
ARRIVALS ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

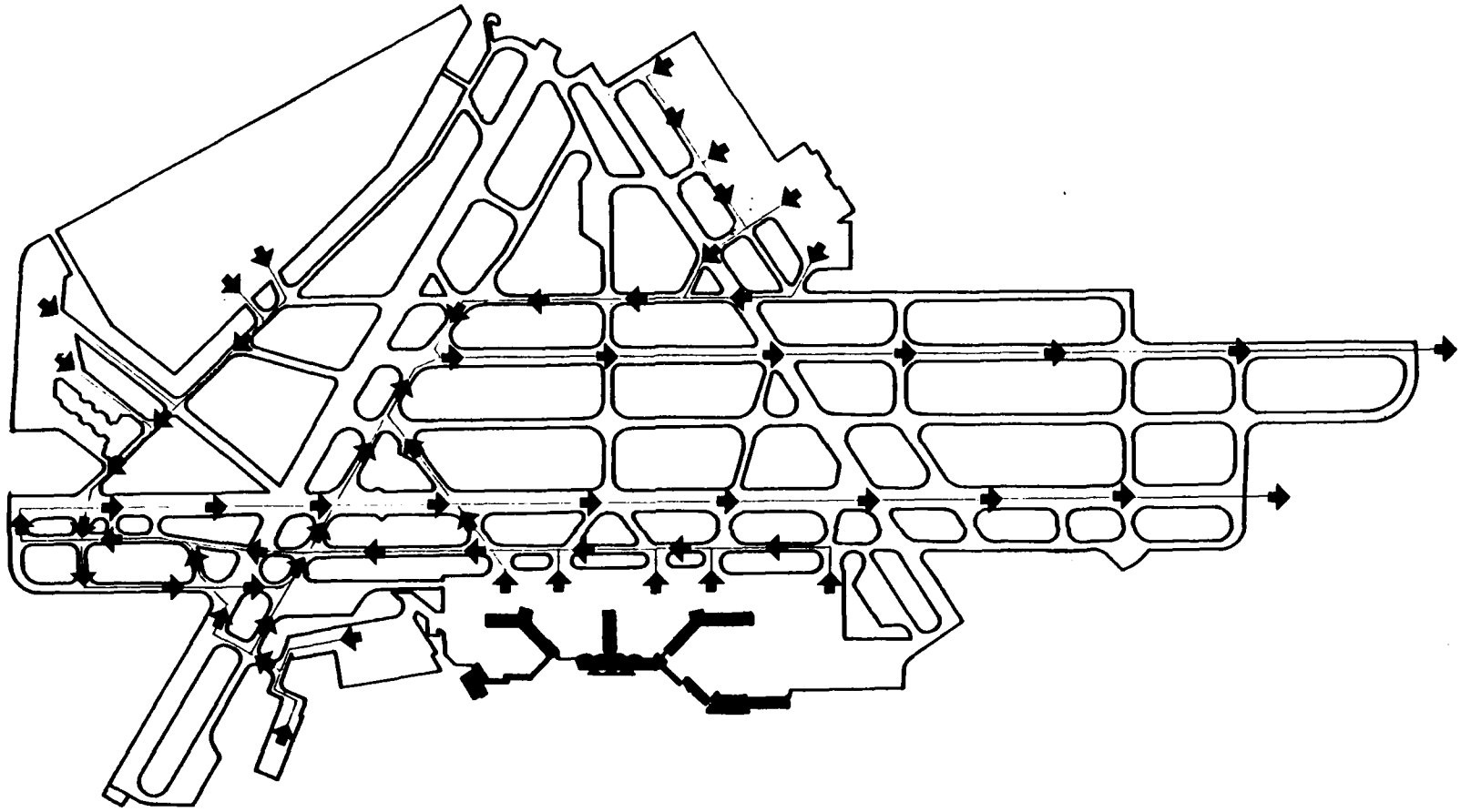


Exhibit **11C**

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION
MIDCOAST AVIATION RELOCATION
FLOW DIAGRAM
DEPARTURES ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

Experiment Number: 64A (Input changes from experiment number 64)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 64A
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	
9 Airfield network	
10 Number of runways	3
11 Runway identification	12L, 12R, 17
12 Departure runway end 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 separations	
19 Route data	New route data (Exhibits 12A and 12B)
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	

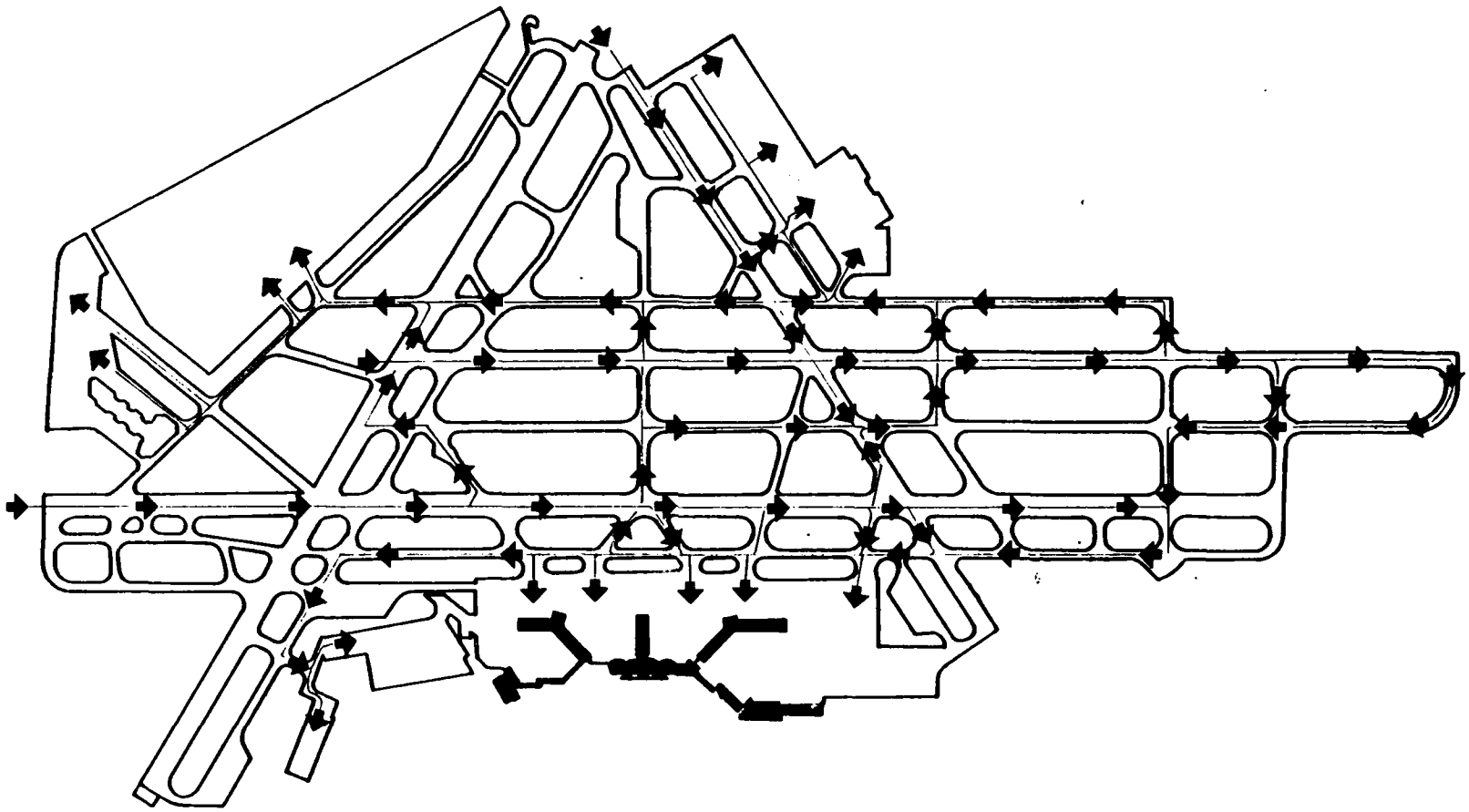


Exhibit 12A

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION
MIDCOAST AVIATION RELOCATION
FLOW DIAGRAM
ARRIVALS ON RUNWAYS 12R, 12L AND 17

Peat, Marwick, Mitchell & Co. June 1980

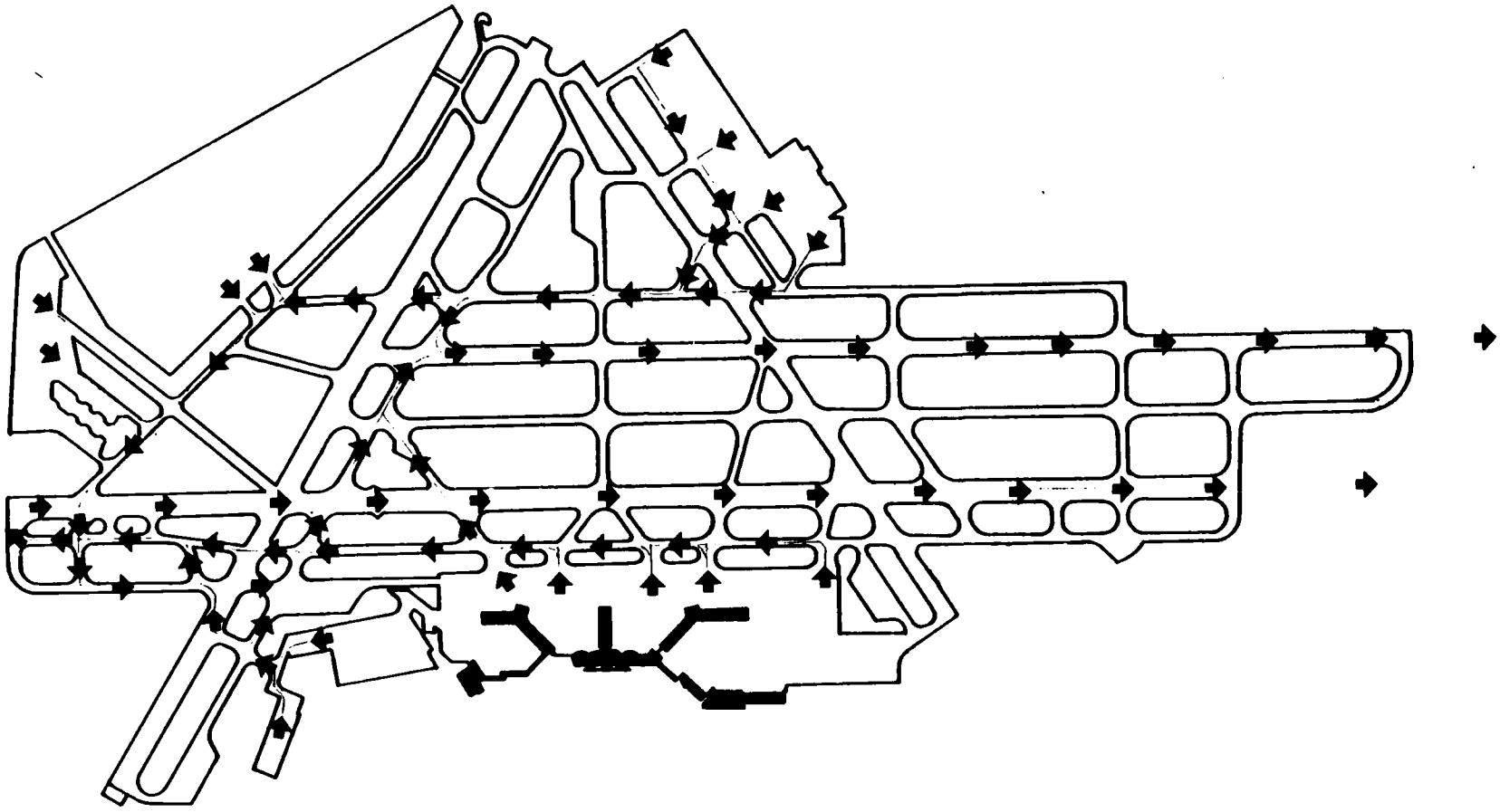


Exhibit 12B

Lambert—St. Louis International Airport

AIRFIELD DEVELOPMENT CONFIGURATION
MIDCOAST AVIATION RELOCATION
FLOW DIAGRAM
DEPARTURES ON RUNWAYS 12R AND 12L

Peat, Marwick, Mitchell & Co. June 1980

Experiment Number: 51A (Input changes from experiment number 51)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 51A
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 VFR demand-increase heavy aircraft operations (Table 17)

Experiment Number: 51B (Input changes from experiment number 51)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 51B
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	
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	
c. ATC Procedures	
18 Aircraft separations	
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	1990 VFR demand-decrease GA operations (Table 17)

Experiment Number: 72 (Input changes from experiment number 52)

SIMULATION MODEL INPUT	DESCRIPTION OF INPUT CHANGE
a. Logistics	
1 Title	Lambert-St. Louis International Airport-Exp. 72
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	
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	
c. ATC Procedures	
18 Aircraft separations	Post 1985 IFR separation (Table 14)
19 Route data	
20 Two-way path data	
21 Common approach paths	
22 Vectoring delays	
23 Departure 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 distribution	
38 Demand	

Table 14

AIRCRAFT SEPARATION (IFR1) - POST 1985 ATC

Arrival-Arrival Separations (nautical miles):

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	3.0	3.1	3.2	3.2
	B	3.0	3.1	3.2	3.2
	C	3.5	3.6	3.2	3.2
	D	4.0	4.1	3.7	3.2

Departure-Departure Separations (seconds):

		Trail Aircraft Class			
		A	B	C	D
Lead Aircraft Class	A	60	60	60	60
	B	60	60	60	60
	C	60	60	60	60
	D	60	60	60	60

Table 15

1979 DEMAND AND MIX

Annual Operations = 344,600

Aircraft Class	Mix of operations (percent) VFR	IFR1	IFR2
A	7%	4%	1%
B	28	24	19
C	63	70	77
D	2	2	3
Total	100%	100%	100%

Table 16

POST 1985 DEMAND AND MIX
(Stage I growth)

A. Baseline
Annual operations = 344,000

Aircraft Class	Mix of operations (percent) VFR	IFR1	IFR2
A	5%	3%	1%
B	25	20	13
C	55	61	68
D	15	16	18
Total	100%	100%	100%

B. Increased Heavy Jets
Annual operations = 336,000

Aircraft Class	Mix of operations (percent) VFR	IFR1	IFR2
A	5%	3%	1%
B	27	21	15
C	42	47	52
D	26	29	32
Total	100%	100%	100%

C. Reduced General Aviation
Annual operations = 319,000

Aircraft Class	Mix of operations (percent) VFR	IFR1	IFR2
A	3%	2%	1%
B	20	12	4
C	60	67	74
D	17	19	21
Total	100%	100%	100%

Table 17

POST 1990 DEMAND AND MIX
(Stage II growth)

A. Baseline
Annual operations = 374,000

Aircraft Class	Mix of operations (percent) VFR	IFR1	IFR2
A	3%	2%	1%
B	23	16	8
C	50	55	61
D	24	27	30
Total	100%	100%	100%

B. Increased Heavy Jets
Annual operations = 339,000

Aircraft Class	Mix of operations (percent) VFR	IFR1	IFR2
A	4%	2%	1%
B	25	19	11
C	34	37	42
D	37	42	46
Total	100%	100%	100%

C. Reduced General Aviation
Annual operations = 344,000

Aircraft Class	Mix of operations (percent) VFR	IFR1	IFR2
A	3%	2%	1%
B	19	11	4
C	53	59	65
D	25	28	30
Total	100%	100%	100%

Table 18

RUNWAY ASSIGNMENT - EXISTING AIRFIELD LAYOUT

		Percent of Aircraft							
		Arrivals				Departures			
Experiment No.	Runway	A	B	C	D	A	B	C	D
1,1A,26	12L	100	80	20	--	100	80	20	--
	12R	--	20	80	100	--	20	80	100
2,27	12L	100	70	--	--	100	100	20	--
	12R	--	30	100	100	--	--	80	100
3,28	12L	--	--	--	--	100	100	20	--
	12R	100	100	100	100	--	--	80	100
4,4A,29	30R	100	80	20	--	100	80	20	--
	30L	--	20	80	100	--	20	80	100
5,30	30R	100	70	--	--	100	100	20	--
	30L	--	30	100	100	--	--	80	100
6,31	30R	--	--	--	--	100	100	20	--
	30L	100	100	100	100	--	--	80	100
7A,32A	30R	--	90	20	--	100	90	20	--
	30L	--	10	80	100	--	10	80	100
	24	100	--	--	--	--	--	--	--
7,32	30R	--	--	--	--	100	100	20	--
	30L	--	--	100	100	--	--	80	100
	24	100	100	--	--	--	--	--	--
8	6	--	--	--	--	--	20	85	--
	12L	100	80	10	--	100	80	15	--
	12R	--	20	90	100	--	--	--	100
9,33	6	--	--	--	--	--	20	80	--
	12L	100	70	--	--	100	80	20	--
	12R	--	30	100	100	--	--	--	100
10	6	--	--	--	--	--	20	80	--
	12L	--	--	--	--	100	80	20	--
	12R	100	100	100	100	--	--	--	100
11	24	100	100	100	100	100	100	100	100
12	12L	--	100	20	--	100	95	20	--
	12R	--	--	80	100	--	5	80	100
	17	100	--	--	--	--	--	--	--
13,34	12L	--	100	--	--	100	100	20	--
	12R	--	--	100	100	--	--	80	100
	17	100	--	--	--	--	--	--	--

Table 19

RUNWAY ASSIGNMENT--WITH AIRFIELD DEVELOPMENT

		Percent of aircraft							
		Arrivals				Departures			
Experiment No.	Runway	A	B	C	D	A	B	C	D
35, 35A, 35B	12L	50	50	50	50	50	50	50	50
44, 51, 51A, 51B, 63	12R	50	50	50	50	50	50	50	50
36, 52, 72	12L	100	70	--	--	100	100	65	65
	12R	--	30	100	100	--	--	35	35
38, 55	30R	100	70	--	--	100	100	65	65
	30L	--	30	100	100	--	--	35	35
39A, 57A	30R	50	50	30	50	35	35	35	35
	30L	--	--	10	50	65	65	65	65
	24	50	50	60	--	--	--	--	--
39, 57	30R	50	50	--	--	100	100	65	65
	30L	--	--	50	100	--	--	35	35
	24	50	50	50	--	--	--	--	--
40, 58	6	--	--	--	--	50	50	60	--
	12L	100	70	--	--	50	50	40	65
	12R	--	30	100	100	--	--	--	35
41, 60	30R	50	50	50	50	50	50	50	50
	30L	50	50	50	50	50	50	50	50
42, 61	30R	50	50	30	50	10	10	10	10
	30L	--	--	10	50	90	90	90	90
	24	50	50	60	--	--	--	--	--
43, 62	6	--	--	--	--	40	40	40	40
	12L	50	50	50	50	30	30	30	30
	12R	50	50	50	50	30	30	30	30
64	12L	100	80	30	30	100	80	30	30
	12R	--	20	70	70	--	20	70	70
64A	12L	--	80	40	40	100	80	30	30
	12R	--	20	60	60	--	20	70	70
	17	100	--	--	--	--	--	--	--

ATTACHMENT B

INPUT DATA SUMMARY

ANNUAL DELAY EXPERIMENTS

Lambert-St. Louis International Airport

St. Louis
Airport Improvement Task Force Delay Studies

Prepared by

Peat, Marwick, Mitchell & Co.
San Francisco, California

June 1980

Experiment 81

1. Annual Demand: 344, 600

2. Group Specification:

   3 day groups - high, average, low
   12 week groups - 12 months, January through December (1978)
   3 weather groups - VFR, IFR1, IFR2 and 3
   6 runway uses

	Arrival runways	Departure runways
1.	12R, 12L	12R, 12L
2.	30R, 30L	30R, 30L
3.	30R, 30L, 24	30R, 30L
4.	12R, 12L	12R, 12L, 6
5.	24	24
6.	12R, 12L, 17	12R, 12L

3&
4. Traffic Distributions:[a]

Revised 79 from D.P. ~~#8~~ 3

Week group	Jan.	Feb.	Mar.	Apr.	May	June
Percent of annual in one week	1.70 1.74	1.71 1.75	1.84 1.88	1.92 1.97	2.06 2.11	2.05 2.10
Number of weeks in one month	4.43	4.0	4.43	4.29	4.43	4.29
Percent of annual in one month	.52 7.70	6.83 7.00	8.14 8.34	8.24 8.44	~~7.81~~ 9.13 9.35	8.81 9.01

Week group	July	Aug.	Sep.	Oct.	Nov.	Dec.
Percent of annual in one week	2.00 2.05	2.08 2.13	2.11 1.92	1.82 1.60	1.89 1.89	1.79 1.84
Number of weeks in one month	4.43	4.43	4.29	4.43	4.29	4.43
Percent of annual in one week	8.87 9.08	9.21 9.43	9.07 8.49	8.08 6.88	8.09 8.09	7.94 8.13

(a) Assumes no Ozark airline strike. Ozark airlines has an estimated 4,700 ops./month at STL. Strike affected sept., oct., Nov. traffic and lasted 52 days.

5&
6. Daily Traffic Distribution (August 1978 combined 2-week period 8/18/78 to 8/31/78):

Day group	High	Average	Low
Percent of weekly in one day	16.04	14.49	11.45
Number of days in day group	3	2	2
Percent of weekly traffic in day group	48.13	28.98	22.89

7. Weather Occurrences:

	Jan.	Feb.	Mar.	Apr.	May	June
Percent VFR	81.16	85.70	86.83	93.89	95.06	96.85
Percent IFR1	5.33	4.26	5.07	2.86	2.31	1.60
Percent IFR2&3	13.51	10.04	8.10	3.25	2.63	1.55

	July	Aug.	Sep.	Oct.	Nov.	Dec.
Percent VFR	97.12	94.04	92.38	92.97	89.65	85.78
Percent IFR1	1.88	3.29	3.13	3.25	4.93	5.25
Percent IFR2&3	1.00	2.67	4.49	3.78	5.42	8.97

8. Hourly Runway Capacity Parameters:

Runway use	Hourly Capacity (Ops/hr) VFR1	IFR1	IFR2&3
1	86	59	58
2	86	59	58
3	91	60	59
4	92	59	58
5	55	53	47
6	91	60	59

9. Runway Use/Weather Group Demand Factors:

	VFR	IFR1	IFR2&3
For all runways	1.0	0.9	0.81

10. Runway Use Occurrence:

Runway	Percent occurrence VFR1	IFR1	IFR2&3
1	45	41.8	23.9
2	53	56.7	74.1
3	0.7	0.5	0.3
4	0.3	0.2	0.2
5	0.7	0.6	1.4
6	0.3	0.2	0.1

11. Hourly Traffic:

Hour	Percent daily traffic	Hour	Percent daily traffic	Hour	Percent daily traffic	Hour	Percent daily traffic
00	0.2	06	1.2	12	6.5	18	7.0
01	0.2	07	4.2	13	6.7	19	6.8
02	0.2	08	6.0	14	6.5	20	5.3
03	0.1	09	7.8	15	4.8	21	3.7
04	0.6	10	6.6	16	6.8	22	2.7
05	0.8	11	6.4	17	7.7	23	1.2

12&
13. Delay Curve Specifications: To be determined after airfield simulation runs

14. Percent Arrivals - Daily percentage - 49.9%

Hour	Percent arrivals	Hour	Percent arrivals	Hour	Percent arrivals	Hour	Percent arrivals
00	50.0	06	50.0	12	46.0	18	45.0
01	50.0	07	50.0	13	48.0	19	49.0
02	50.0	08	59.0	14	41.0	20	48.0
03	50.0	09	46.0	15	59.0	21	50.0
04	50.0	10	39.0	16	60.0	22	50.0
05	50.0	11	57.0	17	54.0	23	50.0

15. Cancellation Diversion Specification: To be provided by Task Force

16. Title: St. Louis Annual Baseline 1979 Demand and Mix

Table 20

DEMAND AND TRAFFIC DISTRIBUTION
Lambert-St. Louis International Airport
Airport Improvement Task Force Delay Studies

Annual Demand: 1978 - 340,476
1979 - 336,578
Revised 1979[a] - 344,600

Traffic Distribution:

1978

Week group	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Percent of annual in one week	1.63	1.75	1.83	1.95	1.94	2.11	1.95	2.08	2.18	2.02	1.84	1.73
Number of weeks in one 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
Percent of annual in one month	7.21	7.01	8.10	8.36	8.60	9.05	8.62	9.21	9.34	8.95	7.90	7.65
1979												
Percent of annual in one week	1.74	1.75	1.88	1.97	2.11	2.10	2.05	2.13	1.92	1.60	1.89	1.84
Number of weeks in one 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
Percent of annual in one month	7.70	7.00	8.34	8.44	9.35	9.01	9.08	9.43	8.49	6.88	8.09	8.13
Revised 1979[a]												
Percent of annual in one week	1.70	1.71	1.84	1.92	2.06	2.05	2.00	2.08	2.11	1.82	1.89	1.79
Number of weeks in one 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
Percent of annual in one month	7.5[illegible]	6.83	8.14	8.24	9.13	8.81	8.87	9.21	9.07	8.08	8.09	7.94

a. Assumes no Ozark Airlines strike. Ozark Airlines has an estimated 4,700 operations per month at St. Louis. Strike affected September, October, and November traffic figures and lasted 52 days.

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	344, 600
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment 81A

Table 21

AIRFIELD DEVELOPMENT PLAN
RUNWAY USE OCCURENCE

Runway use	Percent occurence		
	VFR1	IFR1	IFR2 & 3
1	3	3	24
2	4	4	74.4
3	68.8	68.8	--
4	22.2	22.2	0.2
5	1	1	1.4
6	1	1	--

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1. Annual Demand	Stage I Demand - 344,000
2. Group Specification	
3. 4. Traffic Distribution	
5. 6. Daily Traffic Distribution	
7. Weather Occurrences	
8. Hourly Runway Capacity Parameter	To be computed
9. Runway Use/Weather Group Demand Factor	
10. Runway Use Occurrences	See Table 21
11. Hourly Traffic	
12. 13. Delay Curve Specification	To be determined by airfield simulation
14. Percent Arrivals	
15. Cancellation Diversion Specification	
16. Title	Lambert-St. Louis International Airport Experiment 82

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	Stage I Demand - 344,000
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment 83

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	Stage I Demand - 344,000
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment 84

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	Stage I Demand - Demand - Increased Heavy Jets 336,000
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment 85

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	Stage I Demand - Reduced G.A. 319,000
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment 86

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	Stage II Demand - 374,000
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment ___

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	Stage II Demand - 374,000
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment 88

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	Stage II Demand - 374,000
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment 89

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1. Annual Demand	Stage II Demand - Increased Heavy Jets 339,000
2. Group Specification	
3. 4. Traffic Distribution	
5. 6. Daily Traffic Distribution	
7. Weather Occurrences	
8. Hourly Runway Capacity Parameter	To be computed
9. Runway Use/Weather Group Demand Factor	
10. Runway Use Occurrences	See Table 21
11. Hourly Traffic	
12. 13. Delay Curve Specification	To be determined by airfield simulation
14. Percent Arrivals	
15. Cancellation Diversion Specification	
16. Title	Lambert-St. Louis International Airport Experiment 90

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1. Annual Demand	Stage II Demand - Reduced G.A. 344,000
2. Group Specification	
3. 4. Traffic Distribution	
5. 6. Daily Traffic Distribution	
7. Weather Occurrences	
8. Hourly Runway Capacity Parameter	To be computed
9. Runway Use/Weather Group Demand Factor	
10. Runway Use Occurrences	See Table 21
11. Hourly Traffic	
12. 13. Delay Curve Specification	To be determined by airfield simulation
14. Percent Arrivals	
15. Cancellation Diversion Specification	
16. Title	Lambert-St. Louis International Airport Experiment 91

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	Stage II Demand - 374,000
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment 92

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1. Annual Demand	Stage II Demand - Increased Heavy Jets
2. Group Specification	
3. 4. Traffic Distribution	
5. 6. Daily Traffic Distribution	
7. Weather Occurrences	
8. Hourly Runway Capacity Parameter	To be computed
9. Runway Use/Weather Group Demand Factor	
10. Runway Use Occurrences	See Table 21
11. Hourly Traffic	
12. 13. Delay Curve Specification	To be determined by airfield simulation
14. Percent Arrivals	
15. Cancellation Diversion Specification	
16. Title	Lambert-St. Louis International Airport Experiment 93

ST. LOUIS DATA PACKAGE

Annual Delay Model Changes From Experiment 81

1.	Annual Demand	Stage II Demand - Reduced G.A. 344,000
2.	Group Specification	
3. 4.	Traffic Distribution	
5. 6.	Daily Traffic Distribution	
7.	Weather Occurrences	
8.	Hourly Runway Capacity Parameter	To be computed
9.	Runway Use/Weather Group Demand Factor	
10.	Runway Use Occurrences	See Table 21
11.	Hourly Traffic	
12. 13.	Delay Curve Specification	To be determined by airfield simulation
14.	Percent Arrivals	
15.	Cancellation Diversion Specification	
16.	Title	Lambert-St. Louis International Airport Experiment 94

ATTACHMENT C

SUMMARY OF RESULTS OF

AIRFIELD SIMULATION MODEL EXPERIMENTS

(Six Baseline Scenarios and
Ten Noise Abatement Scenarios)

Lambert-St. Louis International Airport

St. Louis
Airport Improvement Task Force Delay Studies

Prepared by

Peat, Marwick, Mitchell & Co.
San Francisco, California

June 1980

Summary Description

Noise Abatement Scenarios

There are five scenarios studied for VFR operations on (1) Runways 12L and 12R; and (2) Runways 30L and 30R, with the existing airfield layout. The simulation runs are performed without stretching the arrival gaps.

Scenario 1:

In this scenario, the departures on both runways are assumed to make their turns 60 seconds after the beginning of their take off roll.

Scenario 2:

In this scenario, the departures on both runways are assumed to make their turns as soon as they are airborne and stabilized.

Scenario 3:

In this scenario, departures on Runway 12R (or 30L) are assumed to make their turns after reaching an altitude of 1,500 feet. Departures on Runway 12L (or 30R) operate in the same manner as in Scenario 1.

Scenario 4:

In this scenario, departures on Runway 12R (or 30L) are assumed to make their turns after reaching an altitude of 1,500 feet. Departures on Runway 12L (or 30R) are assumed to turn as soon as they are airborne and stabilized.

Scenario 5:

In this scenario, the departures on both runways are assumed to go straight out until they reach an altitude of 1,500 feet.

Table 22

SUMMARY RESULTS OF BASELINE EXPERIMENTS
Airfield Simulation Model Runs
St. Louis Task Force Delay Studies
Lambert-St. Louis International Airport

Experiment no.	Description	Runways used		Hourly flow rates						Runway delays (minutes)			
				Average[a]			Peak hour[b]			Average[b]		Peak hour	
		Arrivals	Departures	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Arrivals	Departures
1	1979 baseline	12R, 12L	12R, 12L	31.0	31.0	62.0	39.7	45.5	85.2	1.2	2.8	1.2	4.4
4	1979 baseline	30R, 30L	30R, 30L	30.9	31.0	61.9	40.7	45.1	85.8	0.7	2.3	0.8	2.8
7A	1979 baseline	30R, 30L, & 24	30R, 30L	30.9	31.0	61.9	40.0	49.6	89.6	0.6	0.8	0.7	1.2
8	1979 baseline	12R, 12L	12R, 12L, & 6	31.0	31.0	62.0	40.0	47.0	87.0	0.7	0.8	1.0	0.9
11	1979 baseline	24	24	20.2	21.7	41.9	20.6	23.7	44.3	105.6	14.6	123.9	12.6
12	1979 baseline	12R, 12L, & 17[c]	12R, 12L	31.0	31.0	62.0	40.0	46.0	86.0	0.7	2.2	0.8	3.5

a. Averaged over the entire simulation period (15 hours).
b. For the peak demand hour, 1700-1800 hours.
c. General aviation operations only on Runway 17.

Table 23

SUMMARY RESULTS OF NOISE ABATEMENT SCENARIOS
Airfield Simulation Model Runs
St. Louis Task Force Delay Studies
Lambert-St. Louis International Airport

Experiment no.[c]	Runways used		Hourly flow rates						Runway delays (minutes)			
			Average			Peak hour			Average[a]		Peak hour[b]	
	Arrivals	Departures	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Arrivals	Departures
1-Noise 1	12R, 12L	12R, 12L	30.9	31.0	61.9	40.7	43.7	84.4	0.7	3.8	0.8	5.4
1-Noise 2	12R, 12L	12R, 12L	31.0	31.0	62.0	40.6	48.0	88.6	0.7	2.2	0.8	3.6
1-Noise 3	12R, 12L	12R, 12L	31.0	31.0	62.0	40.7	41.6	82.3	0.7	4.9	0.8	6.2
1-Noise 4	12R, 12L	12R, 12L	31.0	31.0	62.0	40.6	42.1	82.7	0.7	4.4	0.8	5.3
1-Noise 5	12R, 12L	12R, 12L	31.0	31.0	62.0	40.9	37.5	78.4	0.7	8.8	0.8	8.3
4-Noise 1	30R, 30L	30R, 30L	30.9	31.0	61.9	40.7	45.9	86.6	0.8	2.2	0.8	2.8
4-Noise 2	30R, 30L	30R, 30L	30.9	31.0	61.9	40.8	48.7	89.5	0.8	1.6	0.9	2.3
4-Noise 3	30R, 30L	30R, 30L	30.9	31.0	61.9	40.8	45.4	86.2	0.7	2.9	0.8	3.5
4-Noise 4	30R, 30L	30R, 30L	30.9	31.0	61.9	40.5	44.7	85.2	0.7	2.7	0.8	3.1
4-Noise 5	30R, 30L	30R, 30L	30.9	31.0	61.9	40.6	41.4	82.0	0.7	5.7	0.8	8.1

a. Average over the entire simulation period (15 hours).
b. For the Peak demand hour, 1700-1800 hours.
c. For a description of the noise scenarios see page 137.

Lambert-St. Louis International Airport Experiments

Experiment No. 1

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

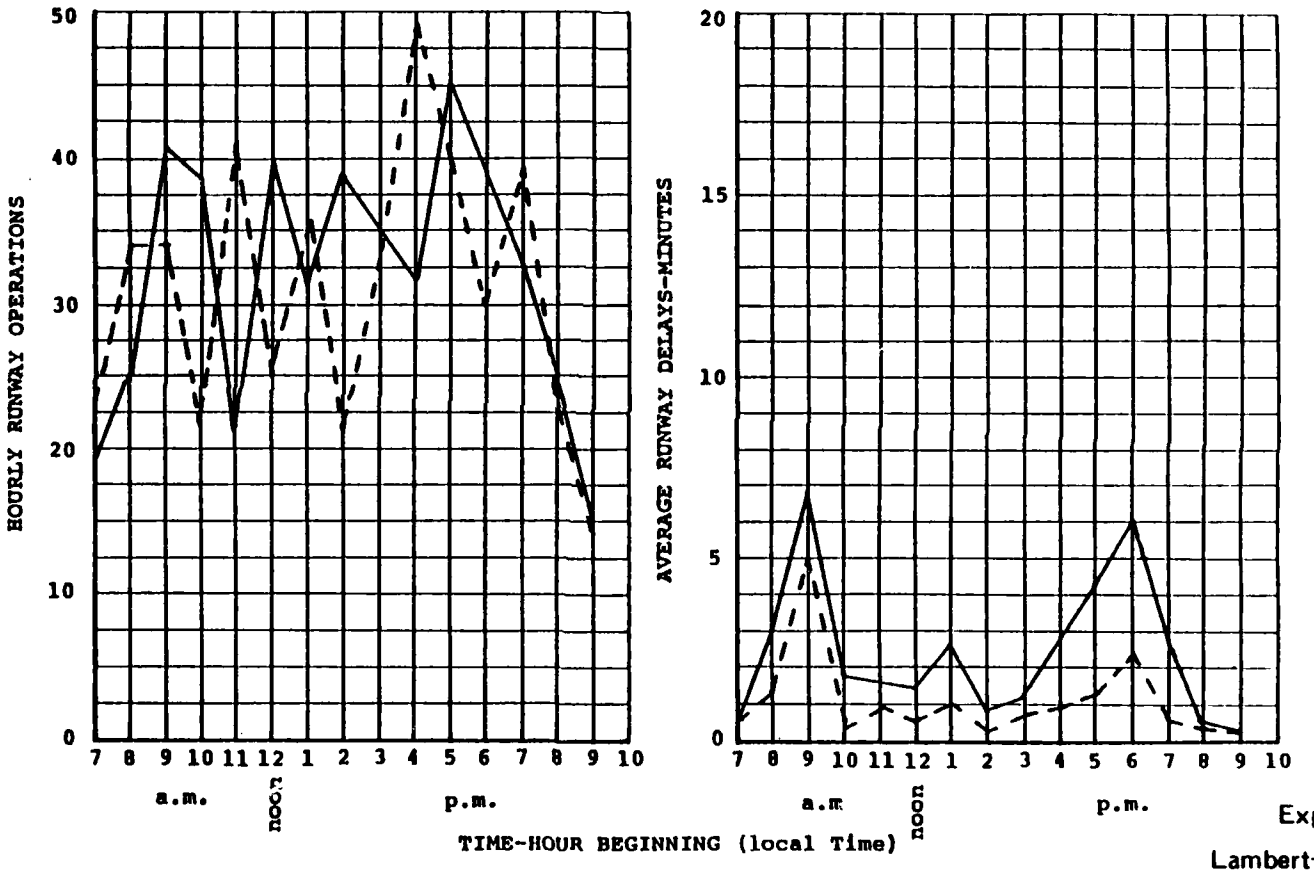
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	31.0	39.7
Arrival	Air delay	minute	1.2	1.2
Departure	Flow rate	a/c per hr.	31.0	45.5
Departure	Runway delay	minute	2.8	4.4

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
— — — Arrivals
——— Departures

LEGEND
— — — Arrival Delay
——— Departure Delay

Experiment 1

Lambert—St. Louis
International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L
VFR BASELINE

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

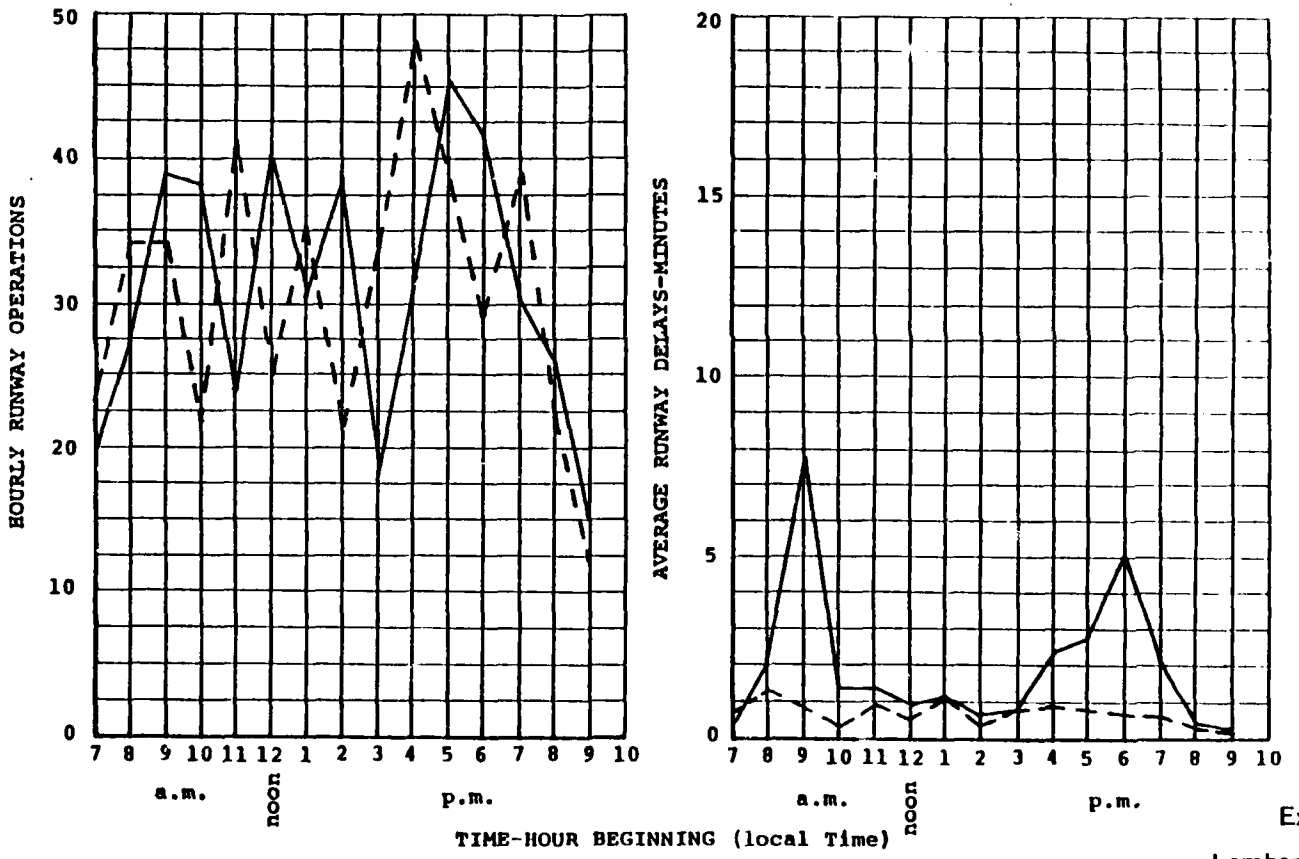
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	30.9	40.7
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr.	31.0	45.1
Departure	Runway delay	minute	2.3	2.8

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
— — — Arrivals
——— Departures

LEGEND
— — — Arrival Delay
——— Departure Delay

Experiment 4

Lambert—St. Louis
International Airport

ARRIVALS ON 30R, 30L
DEPARTURES ON 30R, 30L
VFR BASELINE

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 7A

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
30R, 30L, 24	30R, 30L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

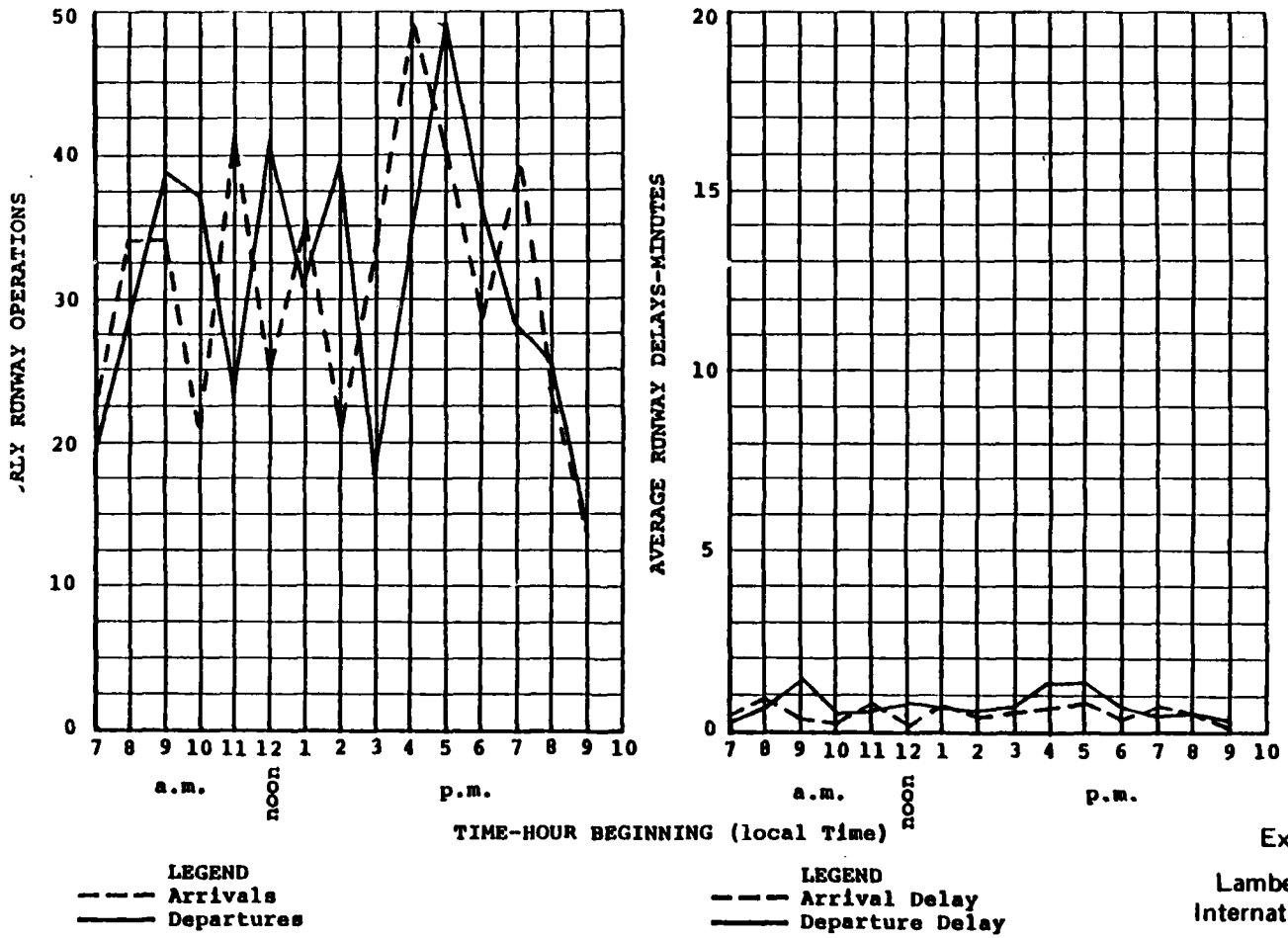
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	30.9	40.0
Arrival	Air delay	minute	0.6	0.7
Departure	Flow rate	a/c per hr.	31.0	49.6
Departure	Runway delay	minute	0.8	1.2

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
— — — Arrivals
——— Departures

LEGEND
— — — Arrival Delay
——— Departure Delay

Experiment 7A

Lambert—St. Louis
International Airport

ARRIVALS ON 30L, 30R, 24
DEPARTURES ON 30L, 30R
VFR BASELINE

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 8

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
12R, 12L	12R, 12L, 6

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

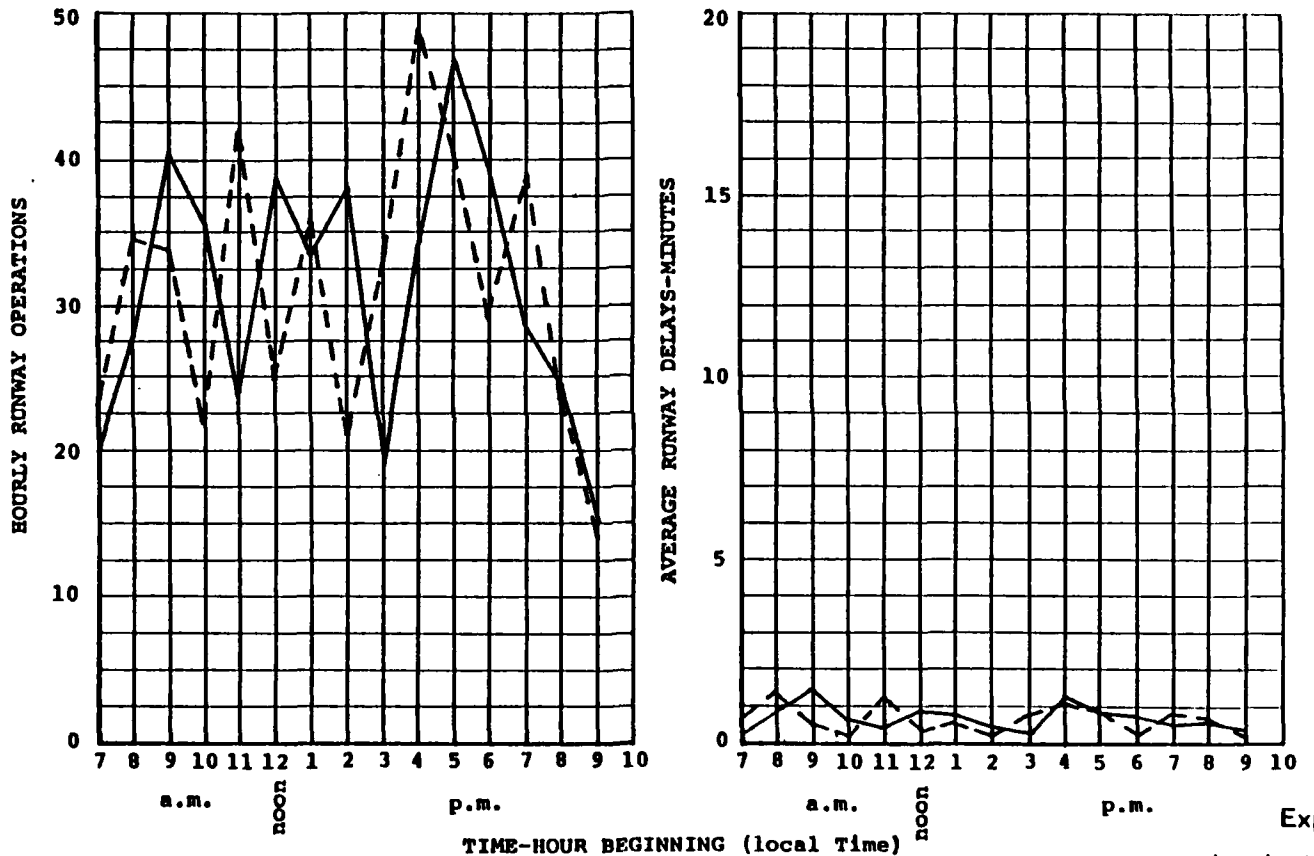
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	31.0	40.0
Arrival	Air delay	minute	0.7	1.0
Departure	Flow rate	a/c per hr.	31.0	47.0
Departure	Runway delay	minute	0.8	0.9

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
— — — Arrivals
——— Departures

LEGEND
— — — Arrival Delay
——— Departure Delay

Experiment 8

Lambert—St. Louis
International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L, 6
VFR BASELINE

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 11

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in IFR2 & 3 conditions for the following runway configuration:

Arrival Runways	Departure Runways
24	24

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries.

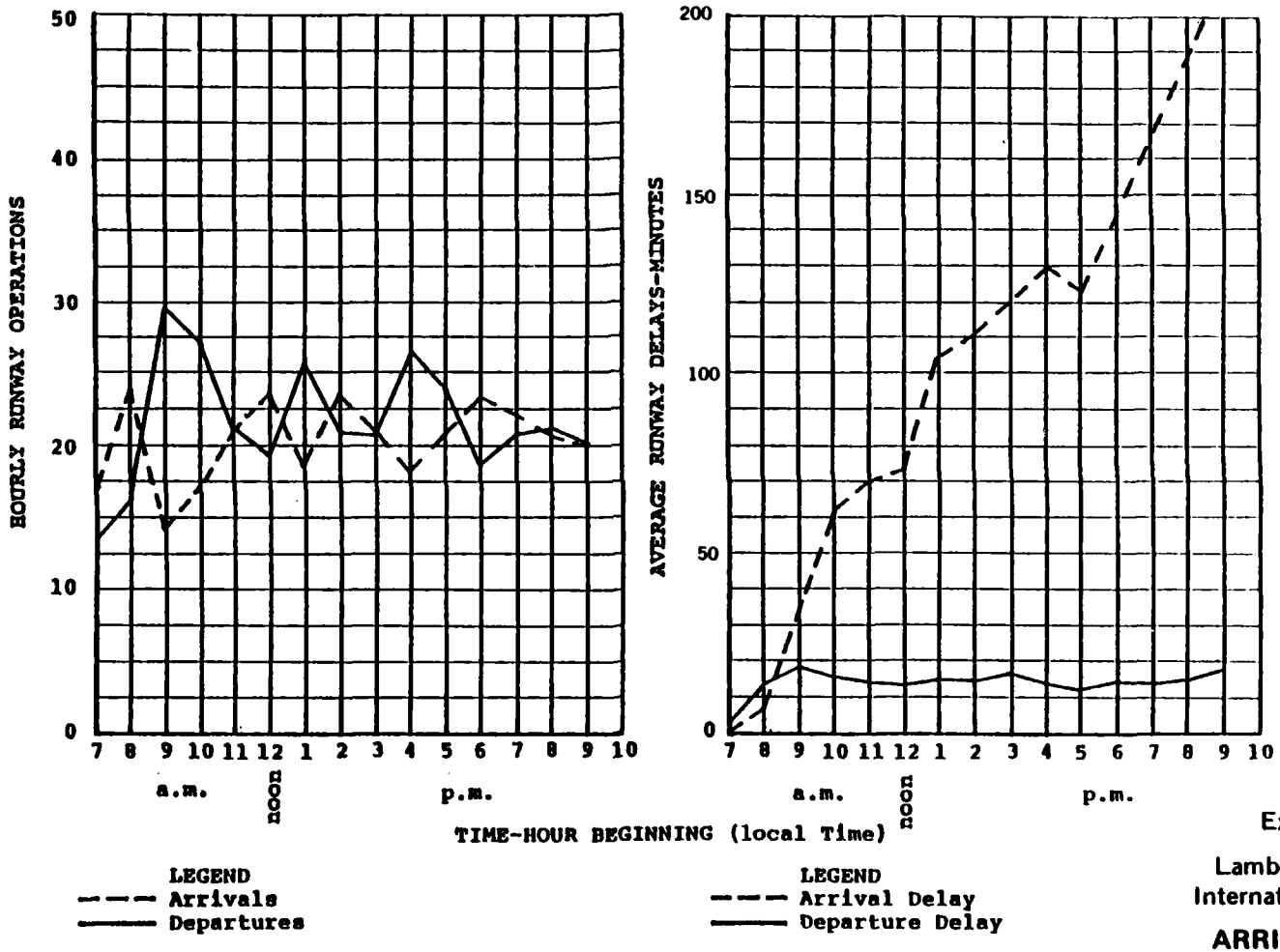
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	20.2	20.6
Arrival	Air delay	minute	105.6	123.9
Departure	Flow rate	a/c per hr.	21.7	23.7
Departure	Runway delay	minute	14.6	12.6

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
- - - Arrivals
——— Departures

LEGEND
- - - Arrival Delay
——— Departure Delay

Experiment 11

Lambert—St. Louis
International Airport

ARRIVALS ON 24
DEPARTURES ON 24
IFR2+3 BASELINE

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 12

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
12R, 12L GA Operations on 17	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

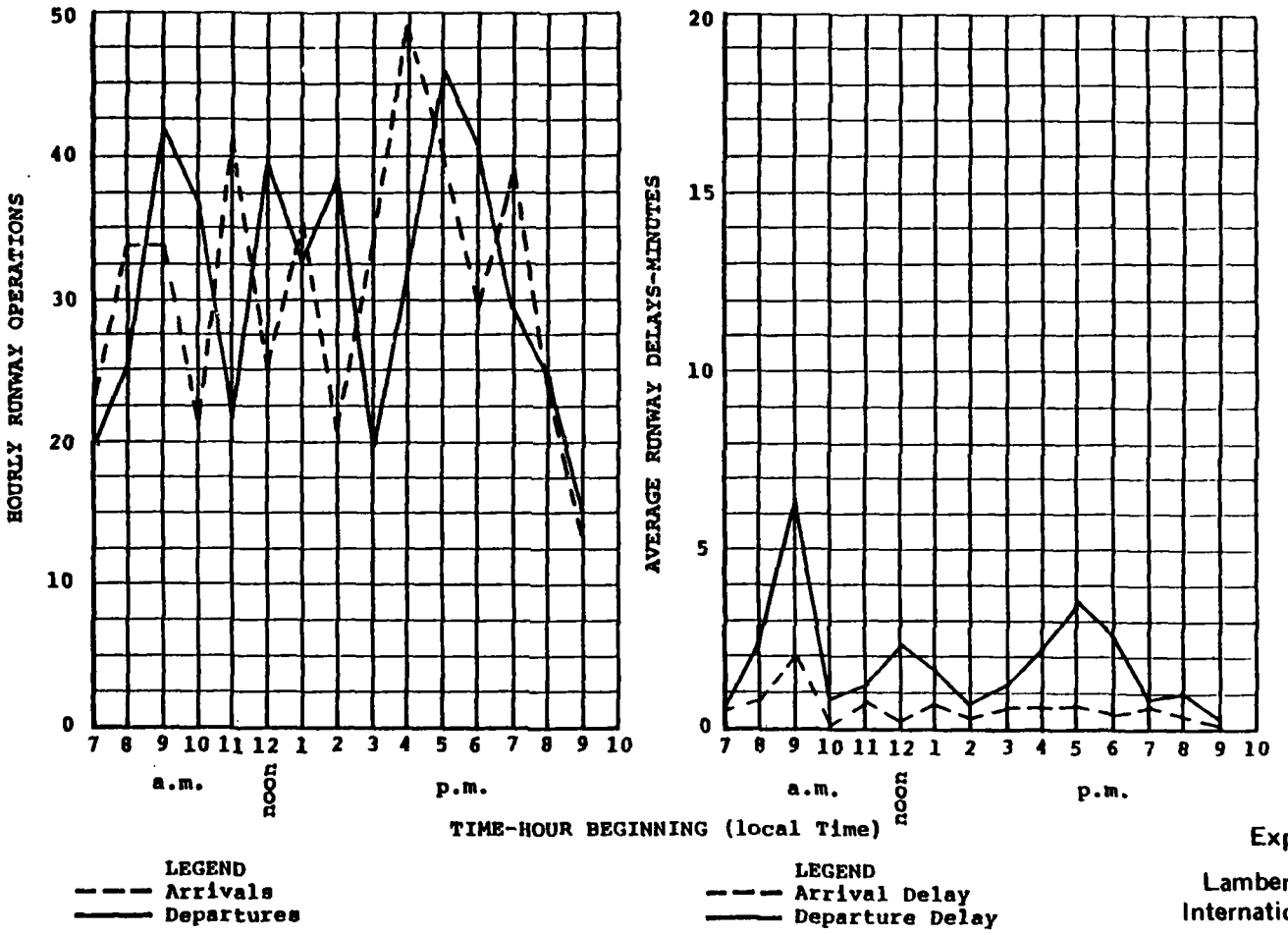
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	31.0	40.0
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr	31.0	46.0
Departure	Runway delay	minute	2.2	3.5

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



Experiment 12

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L, 17
DEPARTURES ON 12R, 12L
VFR BASELINE

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 1--NOISE 1

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

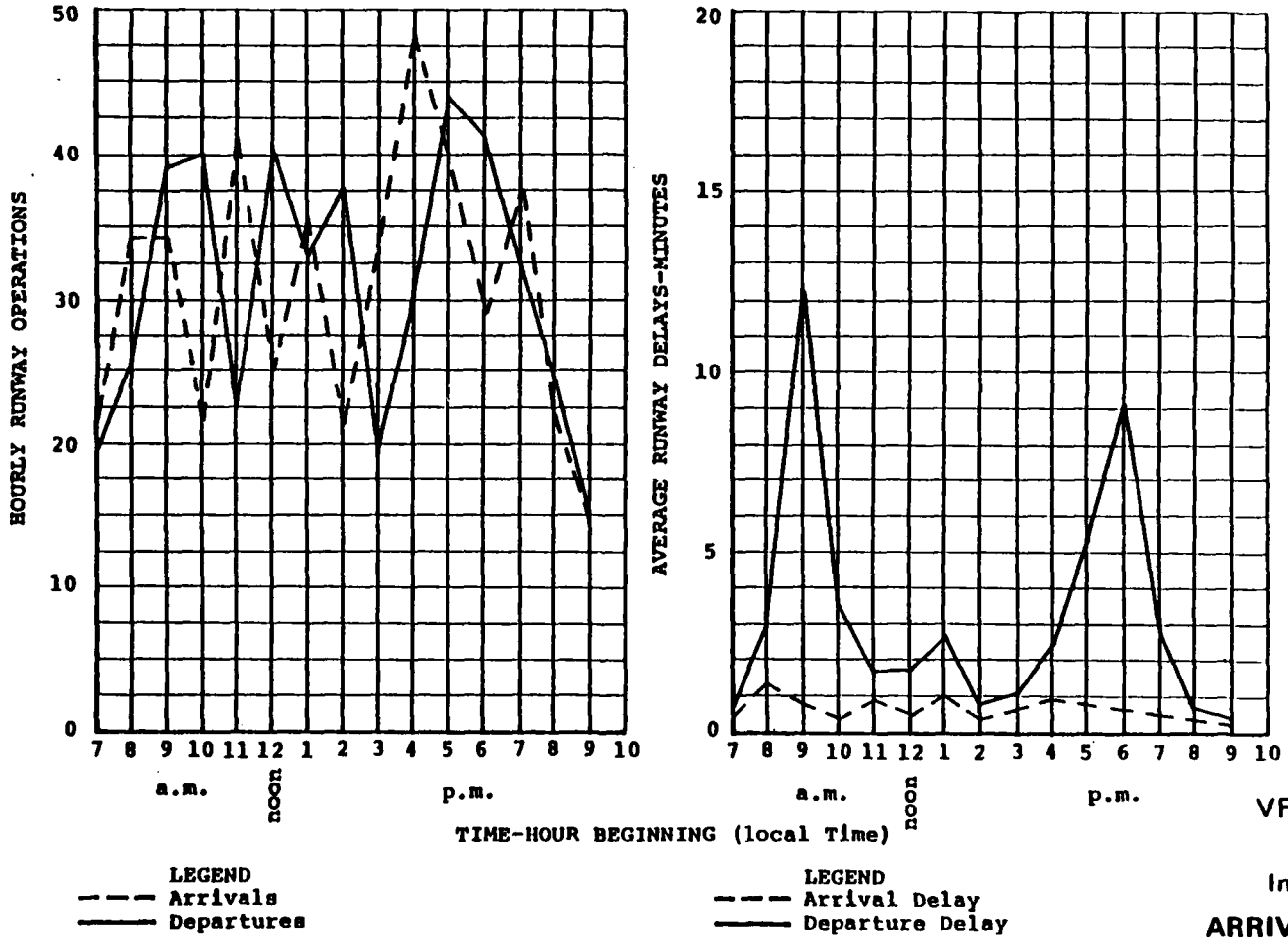
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	30.9	40.7
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr	31.0	43.7
Departure	Runway delay	minute	3.8	5.4

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



VFR Noise Scenario 1

Lambert—St. Louis International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 1--NOISE 2

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

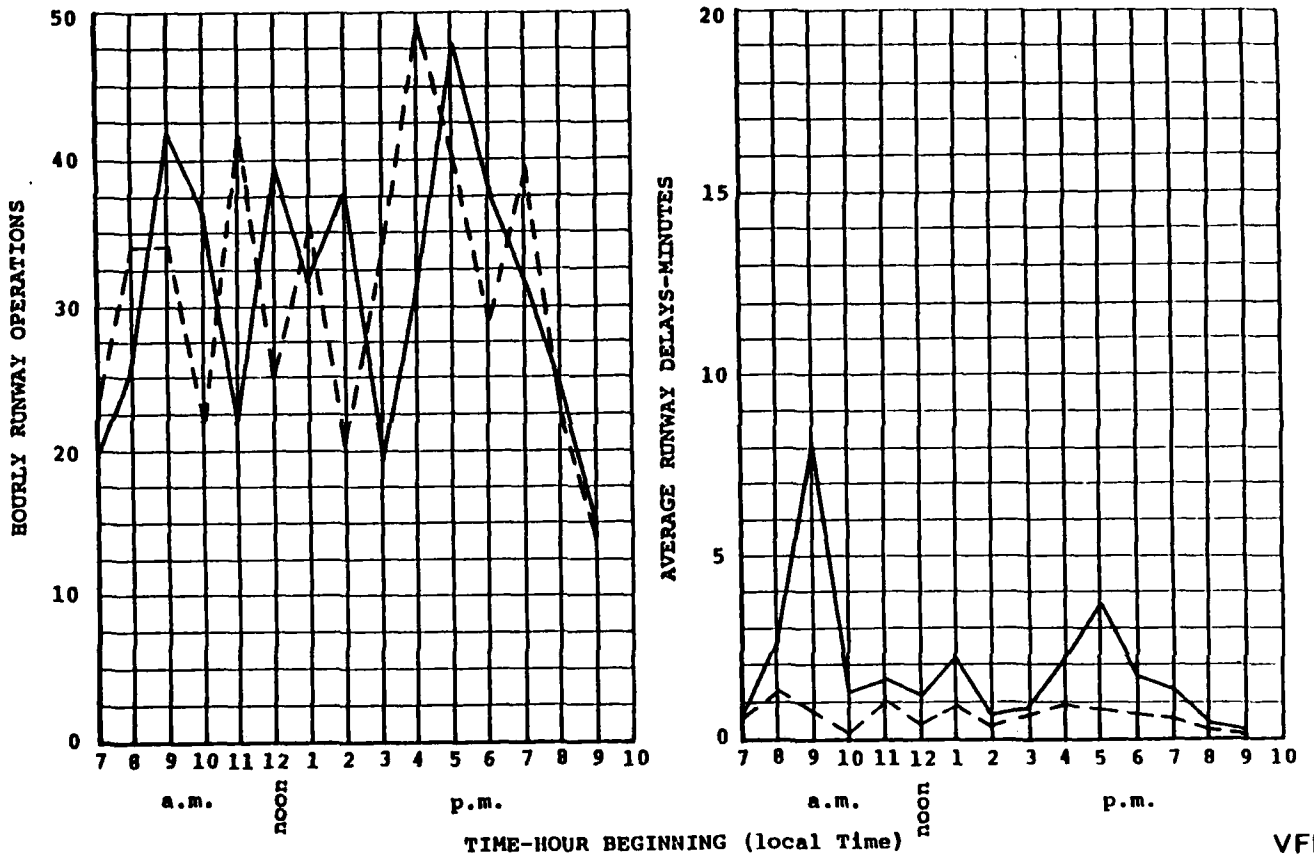
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	31.0	40.6
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr	31.0	48.0
Departure	Runway delay	minute	2.2	3.6

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
- - - - Arrivals
——— Departures

LEGEND
- - - - Arrival Delay
——— Departure Delay

VFR Noise Scenario 2

Lambert—St. Louis
International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 1--NOISE 3

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

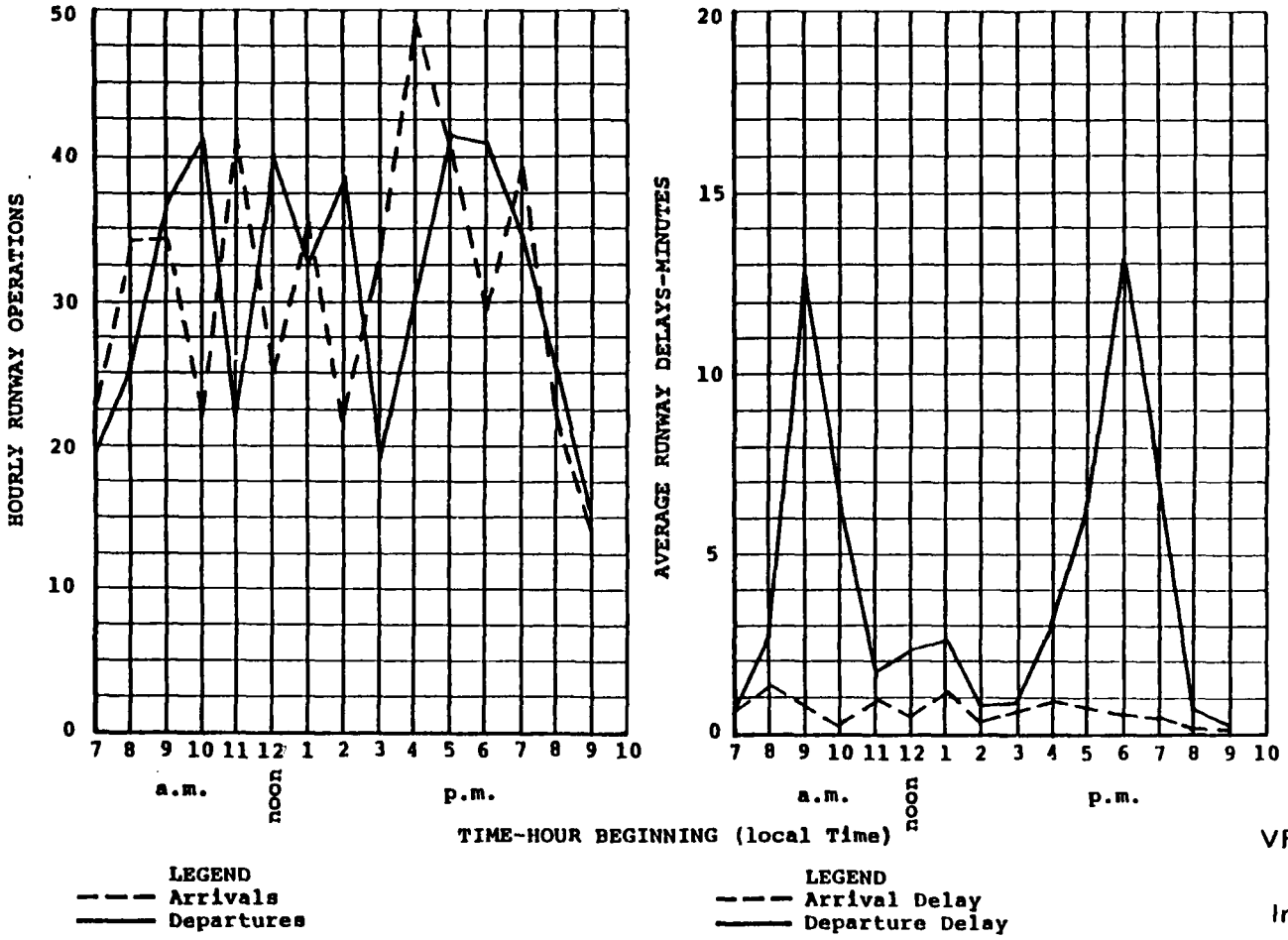
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	31.0	40.7
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr.	31.0	41.6
Departure	Runway delay	minute	4.9	6.2

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
- - - Arrivals
——— Departures

LEGEND
- - - Arrival Delay
——— Departure Delay

VFR Noise Scenario 3

Lambert—St. Louis
International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 1--NOISE 4

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

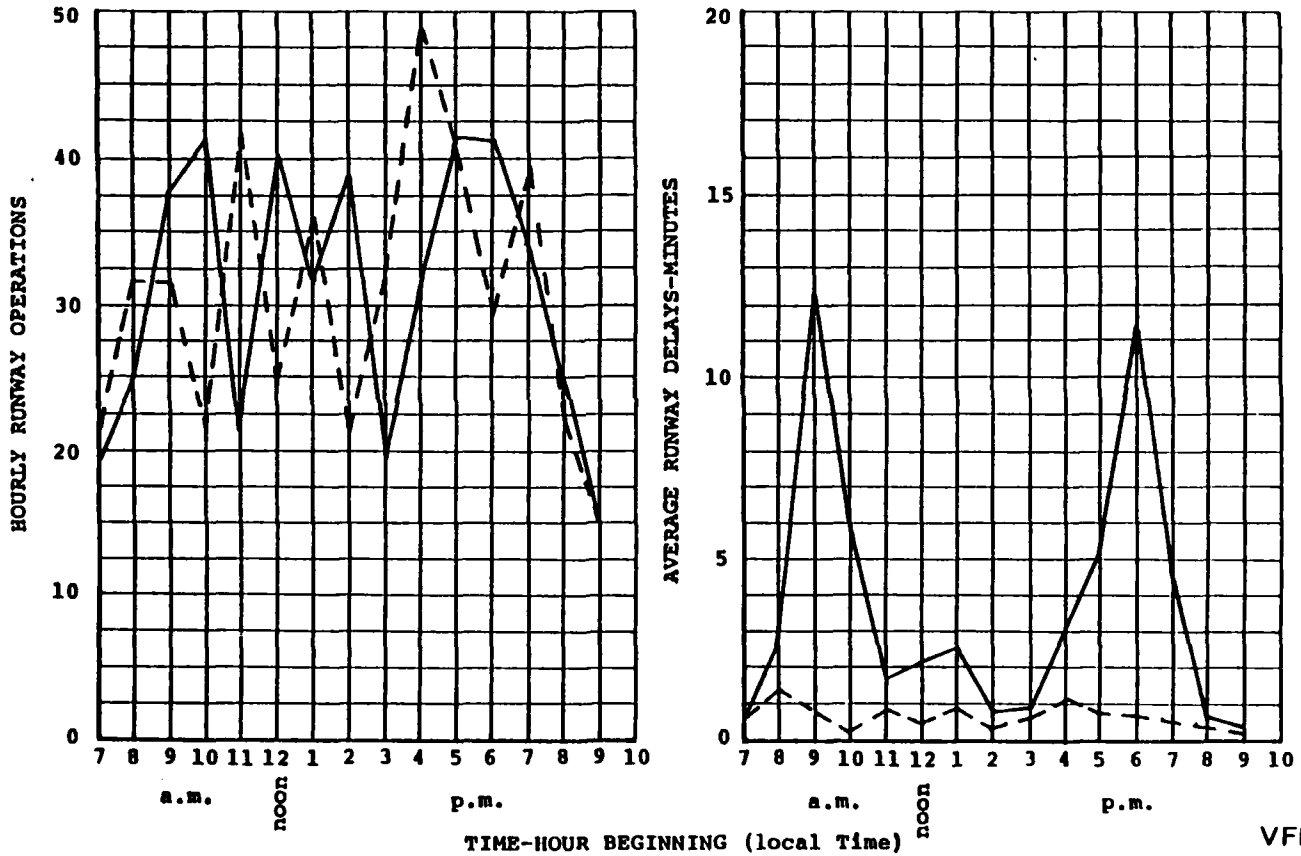
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	31.0	40.6
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr.	31.0	42.1
Departure	Runway delay	minute	4.4	5.3

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
- - - Arrivals
——— Departures

LEGEND
- - - Arrival Delay
——— Departure Delay

VFR Noise Scenario 4

Lambert—St. Louis
International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 1--NOISE 5

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
12R, 12L	12R, 12L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

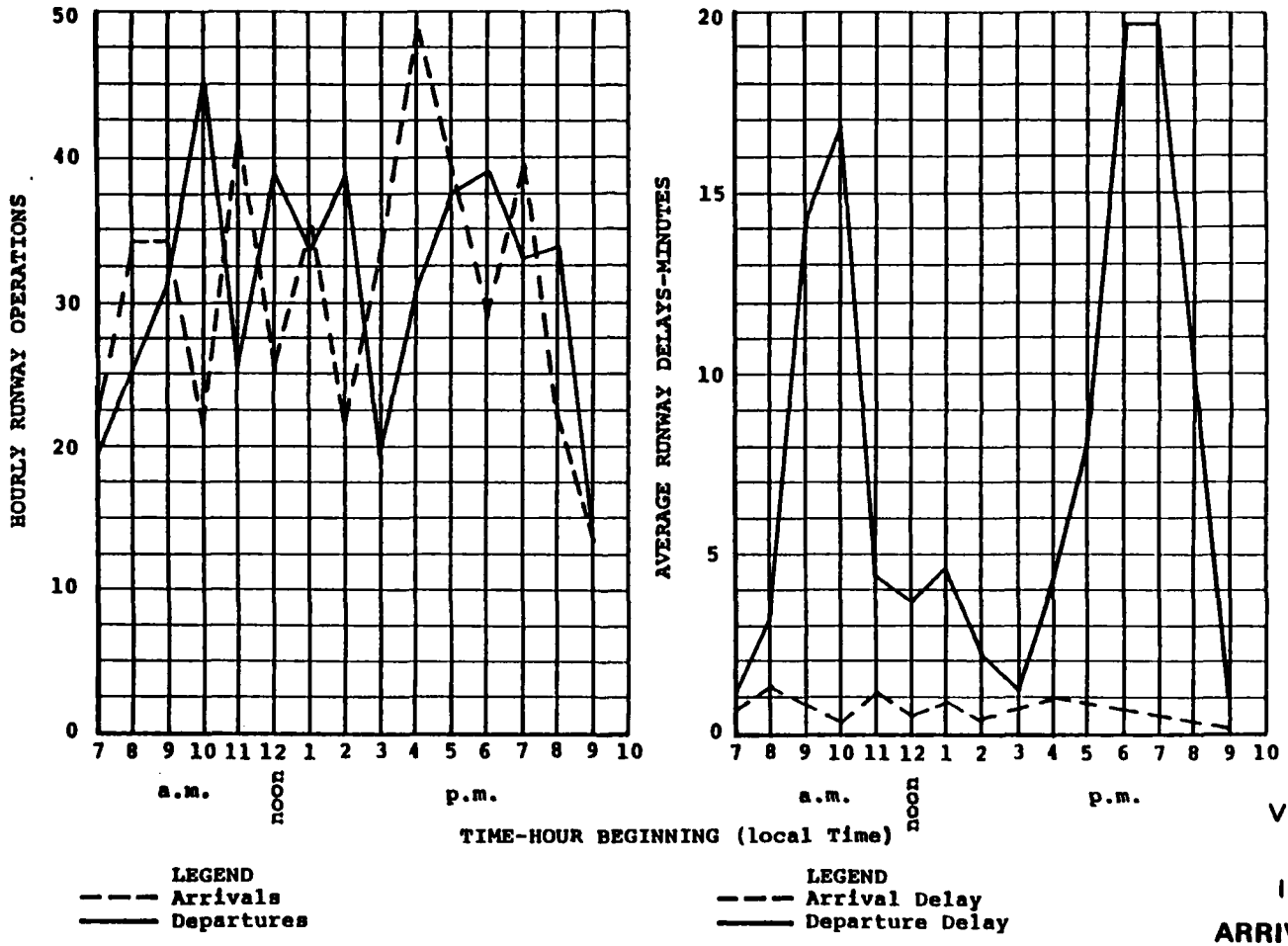
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	31.0	40.9
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr.	31.0	37.5
Departure	Runway delay	minute	8.8	8.3

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
— — — Arrivals
——— Departures

LEGEND
— — — Arrival Delay
——— Departure Delay

VFR Noise Scenario 5

Lambert—St. Louis
International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4--NOISE 1

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

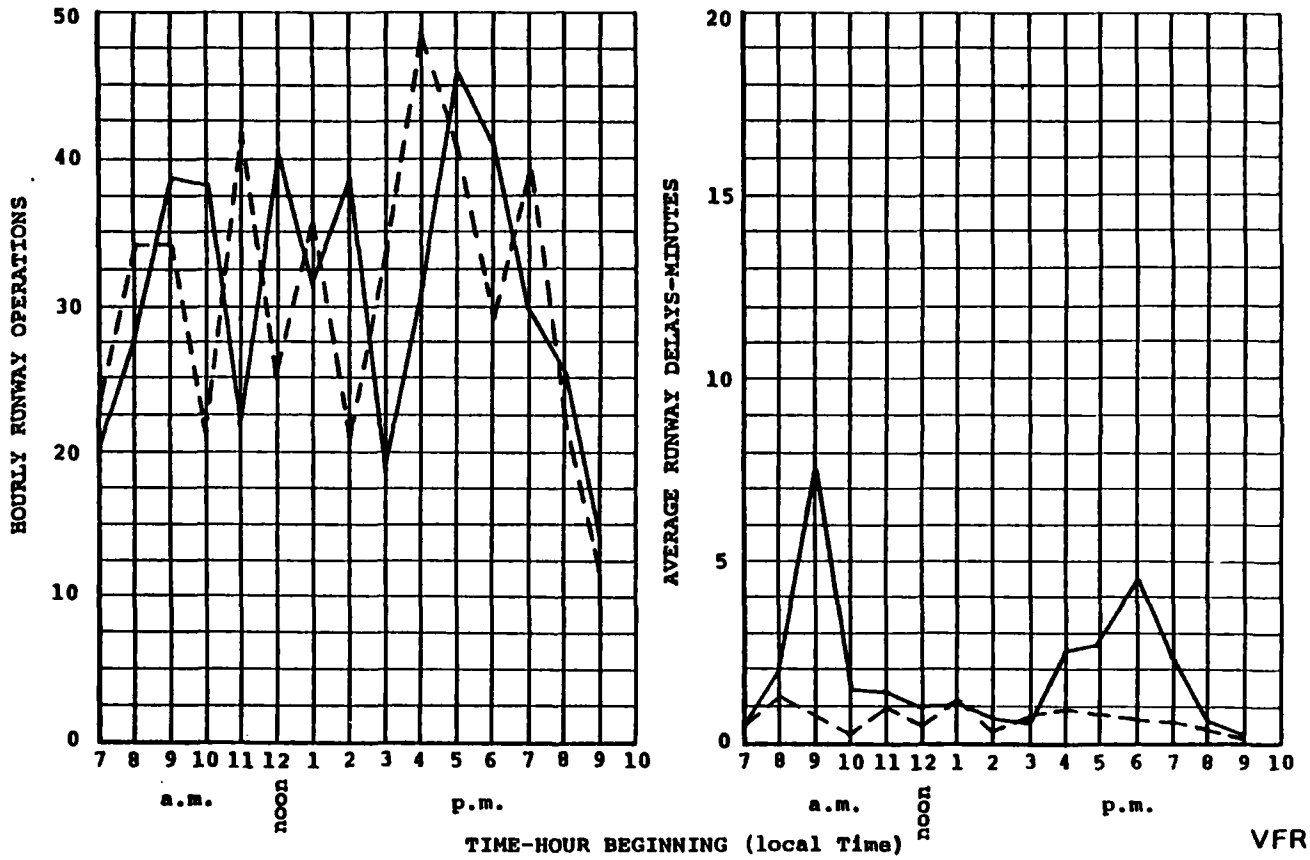
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	30.9	40.7
Arrival	Air delay	minute	0.8	0.8
Departure	Flow rate	a/c per hr.	31.0	45.9
Departure	Runway delay	minute	2.2	2.8

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
- - - Arrivals
——— Departures

LEGEND
- - - Arrival Delay
——— Departure Delay

VFR Noise Scenario 1

Lambert—St. Louis
International Airport

ARRIVALS ON 30L, 30R
DEPARTURES ON 30L, 30R

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4--NOISE 2

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

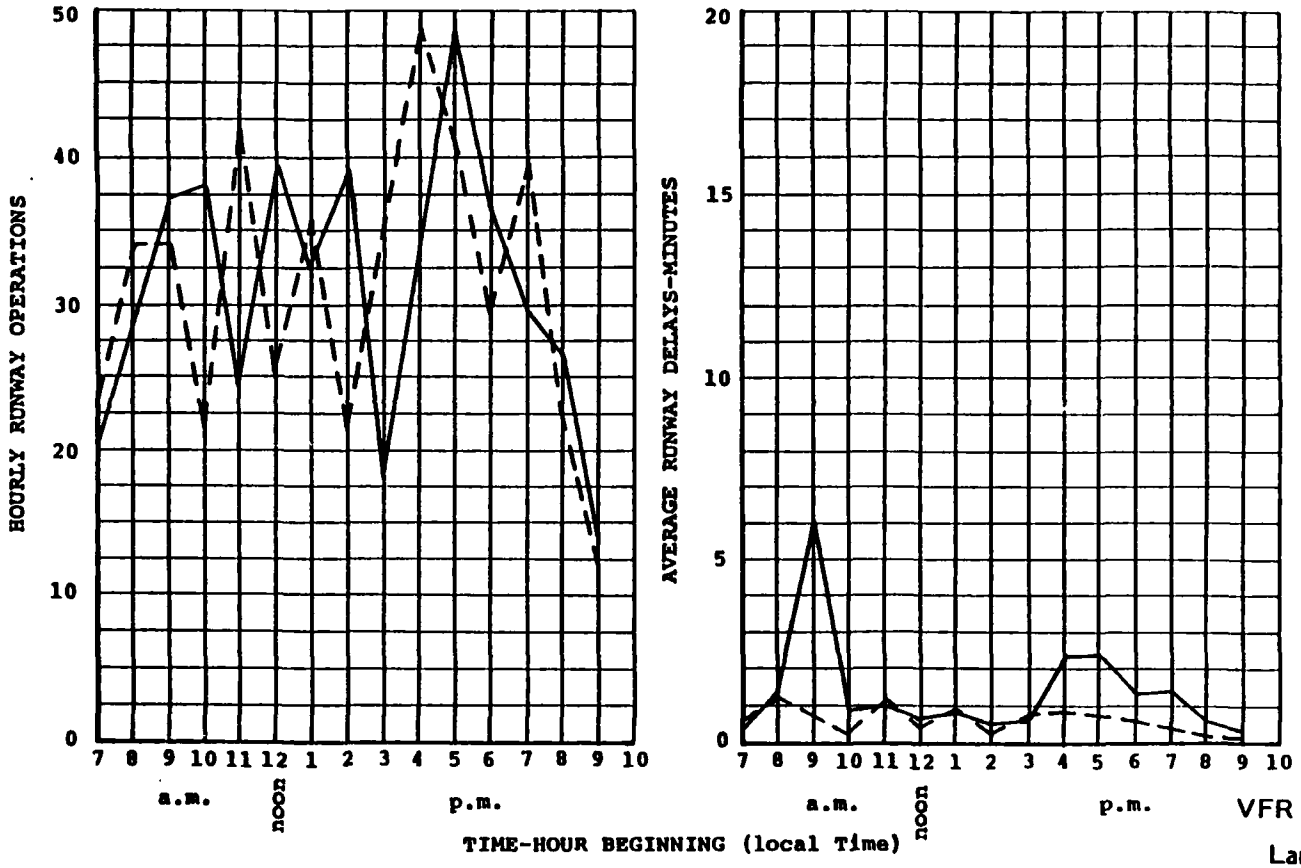
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	30.9	40.8
Arrival	Air delay	minute	0.8	0.9
Departure	Flow rate	a/c per hr	31.0	48.7
Departure	Runway delay	minute	1.6	2.3

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
Arrivals
Departures

LEGEND
Arrival Delay
Departure Delay

VFR Noise Scenario 2

Lambert—St. Louis
International Airport

ARRIVALS ON 12R, 12L
DEPARTURES ON 12R, 12L

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4--NOISE 3

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

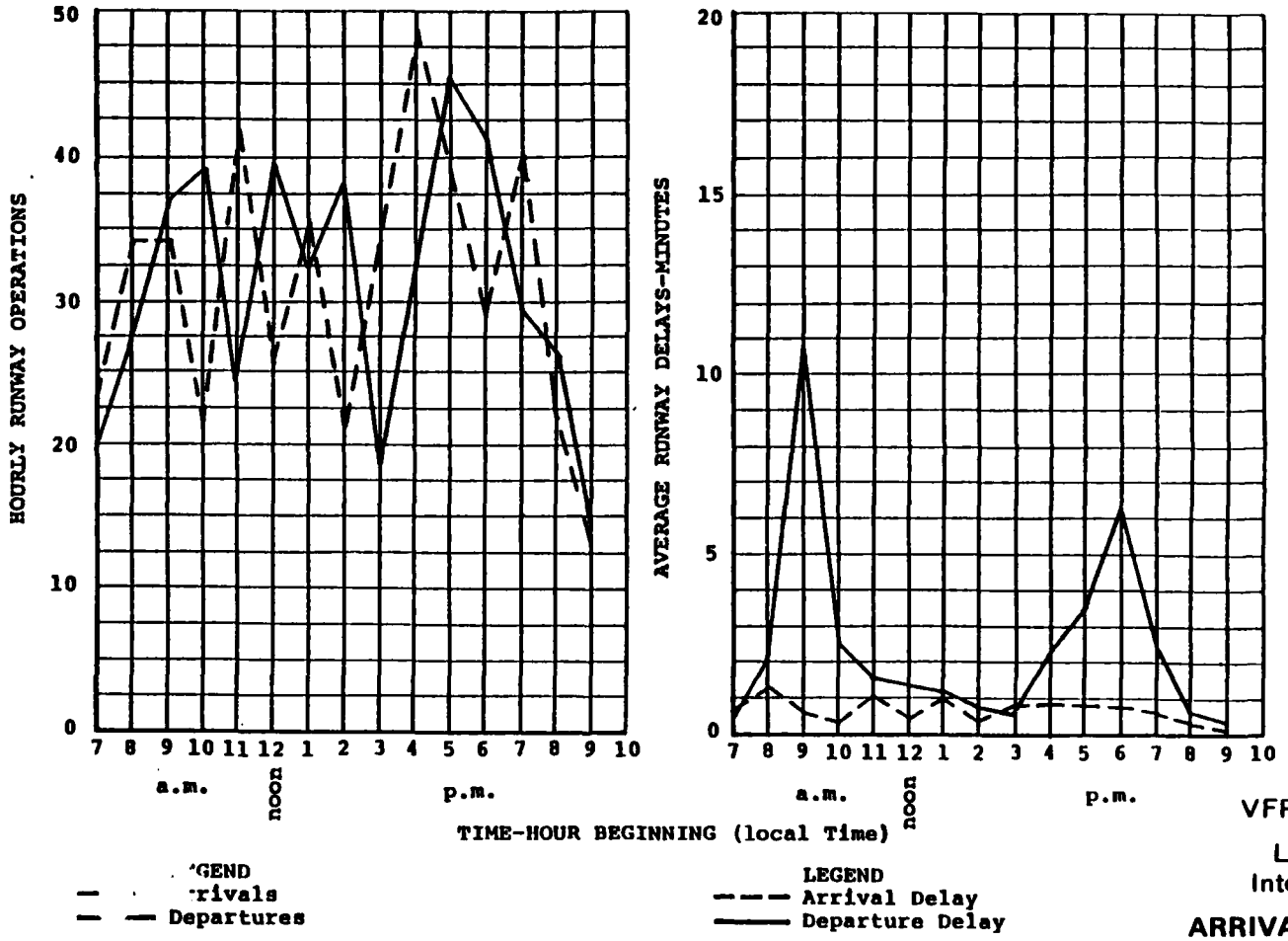
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	30.9	40.8
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr.	31.0	45.4
Departure	Runway delay	minute	2.9	3.5

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



VFR Noise Scenario 3

Lambert—St. Louis
International Airport

ARRIVALS ON 30L, 30R
DEPARTURES ON 30L, 30R

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4--NOISE 4

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

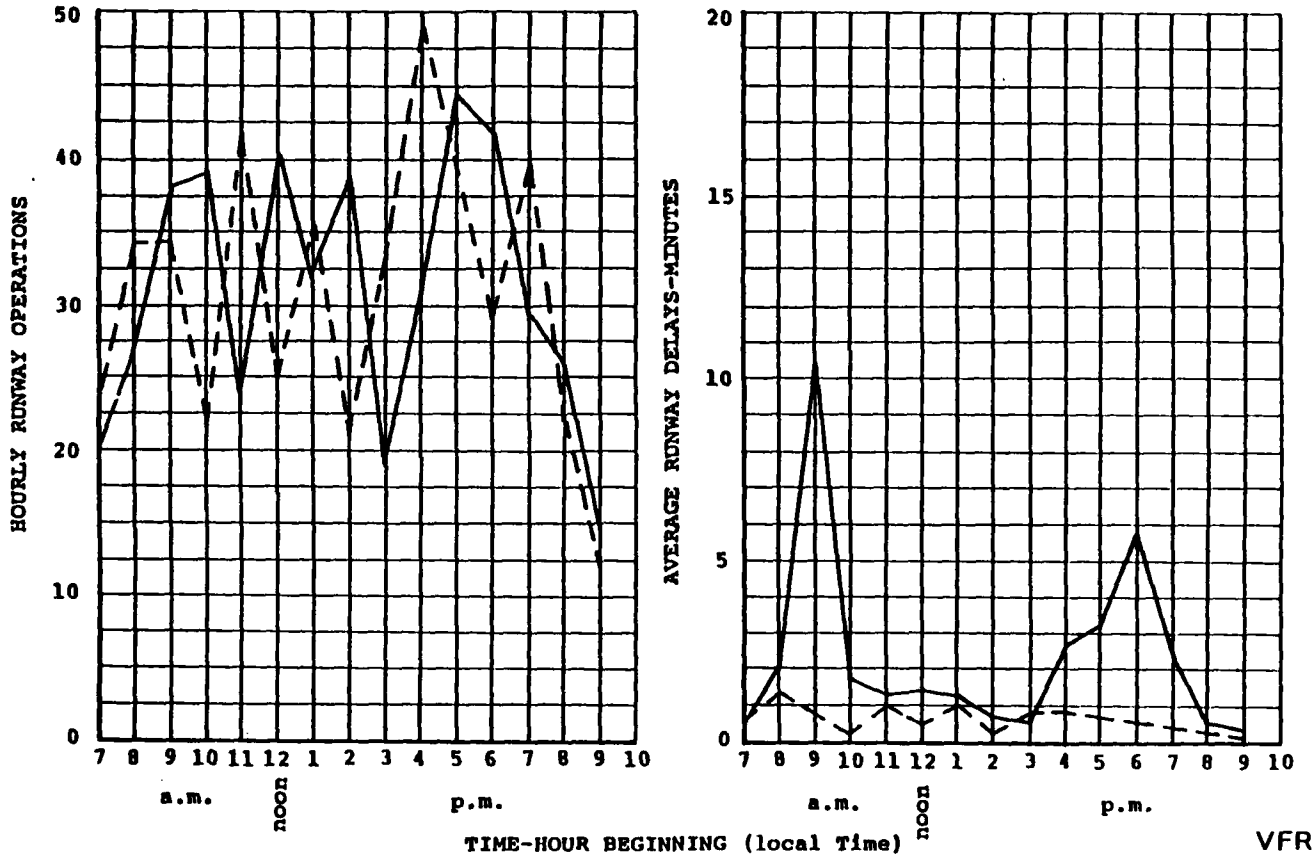
Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	30.9	40.5
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr.	31.0	44.7
Departure	Runway delay	minute	2.7	3.1

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT
AIRPORT IMPROVEMENT TASK FORCE DELAY STUDIES



LEGEND
— — — Arrivals
——— Departures

LEGEND
— — — Arrival Delay
——— Departure Delay

VFR Noise Scenario 4

Lambert—St. Louis
International Airport

ARRIVALS ON 30L, 30R
DEPARTURES ON 30L, 30R

Peat, Marwick, Mitchell & Co. June 1980

Lambert-St. Louis International Airport Experiments

Experiment No. 4--NOISE 5

Scenario:

This experiment is a baseline case using the existing airfield layout. Demand is at 1979 levels, and 1979 ATC Procedures are in effect in VFR conditions for the following runway configuration:

Arrival Runways	Departure Runways
30R, 30L	30R, 30L

Length and Level of Detail of Simulation Run:

From 0700 to 2200 with 1-hour summaries and a short-form network.

Results:

Below is a table that shows selected results for the peak-demand hour, 1700-1800 hours, and average values over the 15-hour simulation period.

Operation Type	Performance Measure	Units	Average[a]	Peak[b]
Arrival	Flow rate	a/c per hr.	30.9	40.6
Arrival	Air delay	minute	0.7	0.8
Departure	Flow rate	a/c per hr.	31.0	41.4
Departure	Runway delay	minute	5.7	8.1

a. Average over the entire simulation period.
b. For the peak-demand hour, 1700-1800 hours.

LME