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Report No. FAA-RD-78-154 II

NONDESTRUCTIVE EVALUATION OF AIRPORT PAVEMENTS

VOLUME II

OPERATION MANUAL FOR PAVBEN PROGRAM AT TCC

BY

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16. Abstract Cost/benefit analysis of alternative pavement design is the primary goal of the PAVBEN program at the Transportation Computer Center (TCC) in Washington, D.C. The integrated system is data independent based on defined mathematical models and operation logic. The program is written in a high level language FORTRAN IV. The job inputs consist of: 1) NDT field data; 2) types of existing pavements; 3) facility classifications; 4) demand forecast and 5) local cost values. The default system contains all design data for: 1) 15 air transports; 2) 9 FAA regional cost values; 3) 8 types of pavement design; 4) 22 layer components; 5) 20 types of existing pavement and 6) universal mechanistic design model. The major outputs will be: 1) NDT inventory file; 2) present functional life; 3) computed engineering data; 4) pavement thickness and cost data and 5) cost/benefit analysis for four new pavements, three overlays and three keel constructions. The operation of PAVBEN program involves extensive use of data storage, filing technique and computed data inputs. The current operation program and this manual are prepared for the execution on computer hardware system at TCC. Modification of these documents will be required if other computer system is to be used.			
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METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	*2.5	centimeters	cm
ft	feet	.30	centimeters	cm
yd	yards	.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	.09	square meters	m ²
yd ²	square yards	.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	.4	hectares	ha
MASS (weight)				
oz	ounces	.28	grams	g
lb	pounds	.45	kilograms	kg
	short tons (2000 lb)	.9	tonnes	t
VOLUME				
tsp	teaspoons	.5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	.30	milliliters	ml
c	cups	.24	liters	l
pt	pints	.47	liters	l
qt	quarts	.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	.03	cubic meters	m ³
yd ³	cubic yards	.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

1 ft = 2.54 (exactly). For other exact conversions and more detailed tables, see "BSI Metric Guide," 230, Units of Weights and Measures, Price 12.25, SD Catalog No. C1311 (26).

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	.04	inches	in
cm	centimeters	.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	acres
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	lb
VOLUME				
ml	milliliters	.03	fluid ounces	fl oz
l	liters	.21	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F
°F				
-40				212
0				
32				
40				
80				
96.6				
120				
160				
200				
-40				
-20				
0				
37				
40				
60				
80				
100				
100				
200				
212				
°C				

PROGRAM CONTROL CARDS

The user controls the data processing by means of card inputs. All PAVBEN control cards have two portions (1) control keyword field in columns 1 to 10 and (2) specification field or fields in columns 11 to 80 containing values or additional keywords required by the particular control card being used.

There are 7 control keywords:

1. USER Starting from column 11 is a 12-character user name.
2. JOBCODE Starting from column 11 are 7 characters to be printed in block letters on title page. Usually 3-letter airport code, dash, and 3-letter FAA regional code.
3. JOB Starting from column 11 is a 70-character space for job name. Usually airport, dash, FAA region.
4. RUN Field 2 identifies the program to be executed.
There are 5 allowable keywords: NDT1, NDT2, NDT3, PFL, and PAVDES. There is an additional field associated with NDT1. Field 3 may contain blanks or PLOT. If PLOT is specified, the printer will plot NDT machine data.
5. PRINT There are 2 allowable keywords in field 2:
DICTIONARY - prints all dictionary items in sorted groups.
INPUT - prints control cards and job inputs.
6. SITE Starting from column 11 is 4-character site code.
For TCC operation, this card is in the default system of inputs and is in the form of SITE ----- TCC.
7. LINE In column 11 is a single digit number indicates the lines skipped by the operating system on a printed page. For TCC operation, this card is in the default system of inputs and is LINE ----- 1.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
USER	D-YANG																																																																														
JOB CODE	BTY-ANE																																																																														
JOB	BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION																																																																														
RUN	NDT1	PLOT																																																																													
RUN	NDT2																																																																														
RUN	NDT3																																																																														
RUN	PFL																																																																														
RUN	PAVDES																																																																														
PRINT	DICTI O NARY																																																																														
PRINT	INPUT																																																																														

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

JOB INPUTS - NDT DATA PROCESSING

NDT GRID IDENTIFICATIONS

FIELD	IDENTIFIER	DESCRIPTIONS
1	GRID	defines 1 char. GRID identifier, A to Z
2	CODE	defines 9 char. GRID code

NDT CALIBRATIONS

FIELD	IDENTIFIER	DESCRIPTIONS
1	DATE	has 3 subfields, month, day and year
2	TIME/CAL.	has 3 subfields, day, time, and calibration index
3	RESPONSE	response calibration, if blank, computes from RES@ZERO and RES@CALIB
4	AMPLITUDE	amplitude calibration, if blank, computes from AMP@ZERO and AMP@CALIB
5	RES@ZERO	machine test data
6	AMP@ZERO	machine test data
7	RES@CALIB	machine test data
8	AMP@CALIB	machine test data

NDT TEST IDENTIFICATIONS

FIELD	IDENTIFIER	DESCRIPTIONS
1	TEST	defines test number, such as 8. Any repeated tests must have unique number, but can be identified by a sequence number. 8-1 for example. Test number can range from 1 to 999 with each number having a sequence number from 0 to 9. If test does not have sequence number then it is interpreted as 0. Sequence number, if any, must appear in Column 5. The test number must appear in the first three columns.
2	LOCATION	9 char. location code having 5 subfields; 1st char. grid identifier 5 char. station code 1 char. offset identifier 2 char. offset code
3	TIME/CAL.	3 subfields, day, time, calibration index
4	TEMP.	temperature readings
5	DSM(W)	DSM test data, kips per inch
6	LOAD/RAD.	2 subfields, peak to peak forcing function, lbs. radius of load plate, inches
7	PFLPAV	2 subfields, PFLPAV index PFLPAV Code
8	DRAINAGE	drainage code, NORM or WET

NDT MACHINE DATA

FIELD	IDENTIFIER	COLUMNS	DESCRIPTION
1	NO	1-5	test number
2	RESPNS	7-12	response at test frequency
3	AMPL	14-19	amplitude at test frequency
4	FREQ	21-26	test frequency
5	RESPNS	28-33	
6	AMPL	35-40	
7	FREQ	42-47	
8	RESPNS	49-54	
9	AMPL	56-61	
10	FREQ	63-68	

FREQ should not be repeated. Freq. in decreasing order. Do not leave any fields blank between frequency.

NDT2 STATISTICAL PROCESS OF NDT DATA

FIELD	IDENTIFIER	COLUMNS	DESCRIPTION
1	PLOT	1-10	defines NDT2 plot
2		11-70	defines title of plot
1		1-5	GRID
2		6-12	AVERAGE defines the statistical processing of group NDT data and NDT2 plotting. Blank defines just NDT2 plotting.
1		1-3	GRID identifier
2		5	Number of 5 char. station code
3		7	Number of 2 char. offset code
4		11-20	5 char. station code, starting from low station.
5		21-30	
6		31-40	
7		41-50	
8		51-60	10 column field. Continuation cards if necessary.
9		61-70	

CONTINUATION CARD

Continue 5 char. station code in 10 column field.

Following last station code, defines 2 char. offset code at low starting number, then, the last offset code in the next 10-column field.

10

三

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79

PLØT RUNWAY 15-33 / PROFILE

GRID AVERAGE

A 5 2 000.0 003.0 069.0 076.5 080.0 07 17

**

PLØT

CROSS SECTIONS/RW 15-33

GRID

A 1 015.0

GRID

A 1 063.5

**

PLØT

RUNWAY 1-19 / PROFILE

GRID AVERAGE

B 2 2 016.0 052.0 07 17

**

PLØT

TAXIWAY A / PROFILE

GRID AVERAGE

C 2 2 016.0 051.0 07 17

**

PLØT

LOAD SWEEP TESTS

GRID

C 1 020.0

GRID

D 1 027.5

**

JOB INPUTS - THICKNESS DESIGN AND COST-BENEFIT ANALYSIS

FACILITY AND STATION IDENTIFICATIONS

FIELD	IDENTIFIERS	DESCRIPTIONS
1	FACILITY	defines FACILITY index, 1 to 50
2	CODE	defines 9 char. FACILITY code, first 2 char. identify facility type code
3	STA-FROM	min. 5 char. station code in hundreds of feet
4	STA-TO	max. 5 char. station code in hundreds of feet

STATISTICALLY PROCESSED NDT GROUP DATA

FIELD	IDENTIFIERS	DESCRIPTION
1	FACILITY	FACILITY index
2	STA-FROM	min. 5 char. station code
3	STA-TO	max. 5 char. station code
4	SUMZ	blank
5	EVALUE	NDT E-value from NDT2 AREA-E, psi
6	DRAINAGE	DRAINAGE code, NORM or WET
7	TEMP.	temperature
8	PFLPAV	2 subfields, PFLPAV index, PFLPAV code

Max. number of STA-FROM and STA-TO is 7.

OPERATIONAL AIRCRAFT WEIGHTS

FIELD	IDENTIFIER	DESCRIPTION
1	AIRCRAFT	AIRCRAFT index
2	CODE	9 char. AIRCRAFT code
3	RANGE	range of aircraft; XLONG, LONG, MEDIUM, SHORT
4	LOAD FACTOR	load factor of aircraft; HIGH, MEDIUM

AVERAGE DAILY MOVEMENTS

Heading Card 1, Columns 11 to 20 contain the 6 char. ADM code.
Heading Card 2, Defines aircraft movements

FIELD	IDENTIFIER	DESCRIPTION
1	AIRCRAFT	AIRCRAFT index
2	year	previous year's traffic
3	year + 1	current year's traffic
4	year + 6	5 year ADM
5	year + 11	10 year ADM
6	year + 16	15 year ADM
7	year + 21	20 year ADM

All aircraft indexes must appear. If aircraft does not have any traffic than leave columns under the years blank.

AIRPORT TRAFFIC DISTRIBUTION

Heading card 1, columns 11 to 20 contain the 6 char. ATD code

FIELD	IDENTIFIER	DESCRIPTION
1	FACILITY	FACILITY index
2	STA-FROM	min. 5 char. station code
3	STA-TO	max. 5 char. station code
4	YEAR	year + 1 as defined in ADM
5	TOW%	percentage of take-off
6	LRW%	percentage of landing roll
7	TDW%	percentage of touchdown

YEAR should match the one defined in ADM. A given traffic distribution may change from year to year. Each sta-from and sta-to for a facility must have the same number of years. For example, FACILITY 1 defines a changed traffic distribution from 1978 to 1983 to 1998, and FACILITY 13 defines a new facility with no traffic from 1978 to 1983 but with traffic from 1983 to 1998.

REGIONAL COST VALUES

FIELD	IDENTIFIER	DESCRIPTION
1	COST	defines COST index 1 to 25
2	CODE	defines 6 char. cost code
3	DATE	date of cost values, month/date/year
4		3 char. airport code and then cost value for each index. If regional default cost values are used, defines 3 char. FAA regional code in field 4.

PFL PRESENT FUNCTIONAL LIFE

FIELD	IDENTIFIER	DESCRIPTION
1	FACILITY	FACILITY index
2	SERVYR	service year must be greater than 1 year
3	BANDWIDTH	BANDWIDTH index
4	FORECAST	FORECAST code

Controls the number of facilities that will be printed when the PFL program is run.

PAVDES PAVEMENT DESIGN

FIELD	IDENTIFIER	DESCRIPTION
1	FACILITY	FACILITY index
2	SERVYR	service year in 5, 10, 15 or 20 years
3	BANDWIDTH	BANDWIDTH index
4	FORECAST	FORECAST code

Controls the number of facilities which will be printed when the PAVDES program is run. Facility number may be repeated to get several different designs for the same facility.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
FACILITY AND STATION IDENTIFICATIONS																																																																																																			
FACILITY	CODE	STA-FROM												STA-TO																																																																																					
1	RW 15-33	000.0												080.0																																																																																					
2	RW 1-19	016.0												052.0																																																																																					
3	TWA	016.0												051.0																																																																																					
4	GATE/APRN	026.0												035.0																																																																																					
5	X TWS TO A	000.0												000.0																																																																																					
6	TWB	000.0												009.0																																																																																					
7	TWC	000.0												022.0																																																																																					
8	APRDN GA	006.0												015.0																																																																																					
9	TWD	000.0												025.0																																																																																					
10	TWE	001.0												006.0																																																																																					
11	TWF	001.0												049.0																																																																																					
12	APRN VANG	048.0												063.0																																																																																					
13	RWI-19 EXT	000.0												016.0																																																																																					
14	TW NEW	000.0												037.0																																																																																					
15	X TW-GA NU	000.0												010.0																																																																																					
16	TW - RW19	000.0												018.0																																																																																					
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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STATISTICALLY PROCESSED NDT GROUP DATA																																																																																
FACILITY	STA-FROM	STA-TØ	SUMZ	EVALU	DRAINAGE	TEMP.	PFLPAV																																																																									
1	000.0	003.0		179545.	NORM		13/CC7																																																																									
	003.0	069.0		34885.	NORM		2/AC2																																																																									
	069.0	076.5		27745.	NORM		1/AC1																																																																									
	076.5	080.0		165589.	NORM		13/CC7																																																																									
2	016.0	052.0		32267.	NORM		1/AC1																																																																									
3	016.0	051.0		29191.	NORM		14/BC1																																																																									
4	026.0	035.0		21726.	NORM		1/AC1																																																																									
5	000.0	000.0		23200.	NORM		1/AC1																																																																									
6	000.0	009.0		32320.	NORM		1/AC1																																																																									
7	000.0	022.0		34350.	NORM		1/AC1																																																																									
8	006.0	015.0		52994.	NORM		1/AC1																																																																									
9	000.0	025.0		35791.	NORM		1/AC1																																																																									
10	001.0	006.0		26376.	NORM		1/AC1																																																																									
11	001.0	049.0		36471.	NORM		1/AC1																																																																									
12	048.0	063.0		24670.	NORM		1/AC1																																																																									
13	000.0	016.0		10667.	NORM		0/SUB																																																																									
14	000.0	037.0		10577.	NORM		0/SUB																																																																									
15	000.0	010.0		10381.	NORM		0/SUB																																																																									
16	000.0	018.0		10327.	NORM		0/SUB																																																																									
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OPERATIONAL AIRCRAFT WEIGHTS

AIRCRAFT CODE RANGE LOAD FACTOR

1	B747		
2	DC10/30		
3	DC10/10		
4	L1011		
5	DC8(B707)	LONG	MEDIUM
6	B720		

7	B727-200	MEDIUM	MEDIUM
8	B727-100	MEDIUM	MEDIUM
9	DC9(B737)	SHORT	MEDIUM
10	F27	SHORT	MEDIUM
11	DCX-200		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
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12	B757		
13	B767-200		
14	A300B4		
15	CONCORDE		

**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	A
ADM	ADM SUG	AVERAGE DAILY MOVEMENTS, SUGGESTED																																																																													
		NUMBER OF AIRCRAFT MOVEMENTS - PEAK MONTH																																																																													

AIRCRAFT	1977	1978	1983	1988	1993	1998
----------	------	------	------	------	------	------

1						
2						
3						
4						
5	.1	.1	.2	.3	.4	.5
6						
7	0.	0.	6.	7.	9.	12.
8	0.	0.	0.	14.	16.	17.
9	18.	19.	20.	10.	6.	4.
10	11.	10.	9.	11.	20.	22.
11						
12						
13						
14						
15	*	*	*	*	*	*

NOTE: FACILITY 1 IN 1978 HAS TRAFFIC TURNING AROUND

6

REGIONAL COST VALUES

COST	CODE	DATE	BT
1	P C B T	10/01/77	46.00
2	F I A G T	10/01/77	5.50
3	C O A G T	10/01/77	5.75
4	A S C L T	10/01/77	78.00
5	H L B T	10/01/77	70.00
6	P O Z B T	10/01/77	4.00
7	S F S T	10/01/77	2.85
8	I W F A T	10/01/77	1.20
9	R S W L B	10/01/77	.36
10	L B B M	10/01/77	.31
11	C L H R	10/01/77	10.95
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35			
12	S L E H R	10/01/77	13.91

米

20

72

PAVEMENT DESIGN

FACILITY SERVER BANDWIDTH FORECAST

1	5	2	FAM SUG
1	20	2	FAM SUG
2	5	2	FAM SUG
2	20	2	FAM SUG
3	20	1	FAM SUG
4	20	1	FAM SUG
5	20	1	FAM SUG
6	20	1	FAM SUG
7	20	1	FAM SUG
8	20	1	FAM SUG
9	20	1	FAM SUG
10	20	1	FAM SUG
11	20	1	FAM SUG
12	20	1	FAM SUG
13	20	2	FAM SUG
14	20	1	FAM SUG
15	20	1	FAM SUG
16	20	1	FAM SUG

六

LISTING OF DEFAULT INPUTS

DICTIONARY OF COMPUTER PROGRAM CODES

FIELD	COLUMNS	DESCRIPTION
1	1-6	defines 6 character identifier
2	7-78	defines 72 character identifier description

Dictionary has several subgroups. The first card of subgroup has a blank identifier with the subgroup heading in field two. The last card of a subgroup is a blank card.

REGIONAL COST VALUES

FIELD	IDENTIFIER	DESCRIPTION
1	COST	defines cost index 1 to 25
2	CODE	defines 6 character cost code
3	DATE	date of cost values, month/date/year
4	REGION CODE	cost value for the region coded
5	REGION CODE	
6	REGION CODE	
7	REGION CODE	
8	REGION CODE	

There may be more than one data group. Each data group may have one or more regions. The region code is 4 characters long. The cost values of the last region on the last data group will be used in the computations. To use earlier defined regional cost values, the region to be the last region must be defined. See input for example, that the region ANE is defined to be the last region.

FACILITY TYPES

FIELD	IDENTIFIER	DESCRIPTION
1	TYPE	defines index 1 to 5
2	FACILITY	defines 2 character code
3	FACILITY	defines additional 2 character code
4	FACILITY	for example, the first two characters
5	FACILITY	of RUNWAY is the facility type code.
6	FACILITY	

BANDWIDTH FOR TRAFFIC DISTRIBUTION

FIELD	IDENTIFIER	DESCRIPTION
1	BANDWIDTH	defines bandwidth index 1 to 5
2+3	CODE	defines 12 character BANDWIDTH code
4	RW	bandwidth in feet
5	TW	bandwidth in feet
6	HP	bandwidth in feet

DYNAMIC INCREMENT OF AIRCRAFT VIBRATION

FIELD	IDENTIFIER	DESCRIPTION
1	DI	facility type location, keel or side
2	RW	dynamic increment, in g
3	TW	dynamic increment, in g
4	HP	dynamic increment, in g

VELOCITY OF AIRCRAFT

FIELD	IDENTIFIER	DESCRIPTION
1	VEL	facility type location, keel or side
2	RW	aircraft velocity in knots
3	TW	aircraft velocity in knots
4	HP	aircraft velocity in knots

AIRCRAFT DATA GROUP

FIELD	IDENTIFIER	DESCRIPTION
1	AIRCRAFT	defines index, 1 to 20
2	CODE	defines 9 char. AIRCRAFT code
3	MTOW	max. take-off weight, lbs.
4	MLRW	max. landing roll weight, lbs.
5	OEW	operational empty weight, lbs.
6	RANGE	range of aircraft, XLONG, LONG, MEDIUM, or SHORT

1	BLANK	
2	BLANK	
3	MLG	main landing gear weight as fraction of MTOW
4	WGT	single wheel weight as fraction of MTOW
5	PSI	tire pressure, psi
6	FREQ	natural frequency of rubber tire, Hz
7	NWHEEL	number of wheels of MLGS
8	XMAX	distance between outer wheels, inches.

1	BLANK	
2	BLANK	
3	WHEEL	NWHEEL transverse coordinates
4	X-COORD	number of cards is the integer of (NWHEEL-1)/6 plus 1.
5		
6		
7		
8		

1	BLANK	
2	BLANK	
3	WHEEL	NWHEEL longitudinal coordinates
4	Y-COORD	number of cards is the integer of (NWHEEL-1)/6 plus 1.
5		
6		
7		
8		

TOW AIRCRAFT TAKE-OFF WEIGHT

Columns 1-10 of 2nd heading card identifies the aircraft load factor;
Third heading card shows title of input listing RANGE OF AIRCRAFT.

FIELD	IDENTIFIER	DESCRIPTION
1	AIRCRAFT	define AIRCRAFT index
2	XLONG	aircraft weight in lbs. for load factor and range
3	LONG	aircraft weight in lbs. for load factor and range
4	MEDIUM	aircraft weight in lbs. for load factor and range
5	SHORT	aircraft weight in lbs. for load factor and range

FINANCIAL COST DATA

FIELD	IDENTIFIER	DESCRIPTION
1	FINANCE	blank
2	AIRB	annual interest rate of bond
3	ARCD	annual rate of cash discount
4	ASCCC	annual escalation rate of construction cost
5	ASCMC	annual escalation rate of maintenance need
6	NBL	maturity of revenue band in years
7	NSLP	mortgage payments of bond, in years

DEMAND FORECAST

FIELD	IDENTIFIER	DESCRIPTION
1	FORECAST	defines 6 char. FORECAST code
2	ADM	defines 6 char. ADM code
3	ATD	defines 6 char. ATD code

PFLDI, smoothness of pavement surface

FIELD	IDENTIFIER	DESCRIPTION
1	Col. 1-10	defines DI for deflection analysis
2	Col. 11-50	defines 40 char. smoothness description

DESIGN AIRCRAFT

FIELD	IDENTIFIER	DESCRIPTION
1	DESIGN	blank
2	AIRCRAFT	aircraft index to be used as design standard
3	WEIGHT	aircraft weight in lbs. to be used

CLASS, identification for design coefficients

FIELD	IDENTIFIER	DESCRIPTION
1	CLASS	defines CLASS index 1 to 20
2	CODE	defines 6 char. CLASS code
3	OVSFKL	overstress factor for keel
4	OVSFSD	overstress factor for side
5	STRESS	conversion factor from E-value to tensile stress
6	FATIST	coef. of fatigue stress
7	COVAR	coef. of variance
8	A1	coef. of transfer function (trans. to long def.)
 1	BLANK	
2	BLANK	
3	A2	coef. of transfer function (trans. to long def.)
4	D1	coef. of transfer function (elastic to cumulative)
5	D2	coef. of transfer function (elastic to cumulative)
6	DC	coef. of contact rigidity

LAYER, identification for default E-value and Poisson's ratio

FIELD	IDENTIFIER	DESCRIPTION
1	LAYER	defines LAYER index 1 to 25
2	CODE	defines 6 char. LAYER code
3	EVALUE	default E-value of layer
4	POISSON	default Poisson ratio of layer; if blank default Poisson ratio will be computed from E-value
5	MOD(S)	mobilization and demobilization cost for small job
6	MOD(N)	mobilization and demobilization cost for normal size of work.

LAYER COST DATA GROUP

FIELD	IDENTIFIER	DESCRIPTION
1	LAYER	defines LAYER index
2	PCBT	coef. for computing unit price of the layer
3	FIAGT	
4	COAGT	
5	ASCLT	
6	HLBT	
7	POZBT	
8	SFST	

Continuation Card

1	BLANK	
2	IWFAT	coef. for computing unit price of the layer
3	RSQLB	
4	LBBR	
5	CLHR	
6	SLEHR	

PAVEMENT DATE GROUP

FIELD	IDENTIFIER	DESCRIPTION
1	PAVEMENT	defines PAVEMENT index 1 to 20
2	CODE	defines 6 char. PAVEMENT code
3	LAYER	defines code of layer composition
4	THICKNESS	default thickness of layer, inches
5	EVALUE	if blank, use default E-value
6	POISSON	if blank, use default poisson

Last card in each defined pavement must have a layer code of SUB, PAV or PFLPAV. SUB defines new pavement on subgrade; PAV defines overlay pavement on existing pavement which is treated as one layer; PFLPAV defines overlay pavement on actual existing pavement.

DESIGN CHARTS - LAYER THICKNESSES

FIELD	IDENTIFIER	DESCRIPTION
1	ITERATE	blank
2	PAVEMENT	PAVEMENT index
3	LAYER	LAYER code
4	HMIN	min. thickness of design chart, inches
5	HMAX	max. thickness of design chart, inches
6	HSTEP	thickness increment of design chart, inches

NEW PAVEMENT ESUB GRID VALUES

FIELD	DESCRIPTION
1 to 8	subgrade E-values of design charts for new pavement and overlay pavements on actual existing pavement.

Continuation card also has same format.
number of cards = the integer of (number of E-values -1)/8 plus 1.
max. number of E-values = 20.

OVERLAY PAVEMENT EPAV GRID VALUES

FIELD	DESCRIPTION
1 to 8	E-values for overlay pavements on existing pavement which is treated as a single layer support.

Continuation card also has same format.
number of cards = the integer of (number of E-values -1)/8 plus 1.
max. number of E-values = 20.
Care should be taken in having E-values different from that of bottom layer of new pavements, i.e., the E-value of bottom layer of new pavement to be designed shall be different from the E-value of existing pavement.

CODES OF KEEL AND SIDE

FIELD	IDENTIFIER	DESCRIPTION
1	PAVEMENT	blank
2	NUMBER	blank
3	KEEL	defines pavement index for keel
4	SIDE	defines pavement index for side

EXISTING PAVEMENT DATA GROUP

FIELD	IDENTIFIER	DESCRIPTION
1	PFLPAV	defines PFLPAV index, 1 to 20
2	CODE	defines 6 char. PFLPAV code
3	LAYER	LAYER code
4	THICKNESS	thickness of layer, inches
5	EVALUE	if blank, default value is used
6	POISSON	if blank, default value is used

Each PFLPAV must end with a LAYER code SUB.

PFLPAV ESUB GRID VALUES

FIELD	DESCRIPTION
1 to 8	subgrade E-value for PFLPAV deflection and stress chart

Continuation card also has same format.

number of cards = the integer of (number of E-values -1)/8 plus 1.
max. number of E-values = 20.

PFLPAV DESIGN CHARTS CONTROL GROUP DATA

FIELD	IDENTIFIER	DESCRIPTION
1	PFLPAV	PFLPAV index
2	CLASS	CLASS code for design coefficients
3	LAYER FOR STR/MT	LAYER code for governing stress condition

PFLPAV IN AIRCRAFT EQUIVALENCY FOR PFL

FIELD	IDENTIFIER	DESCRIPTION
1	CLASS	CLASS index
2	PFLPAV FOR AND/ANS	PFLPAV index

PAVEMENT IN AIRCRAFT EQUIVALENCY FOR THICKNESS DESIGN

FIELD	IDENTIFIER	DESCRIPTION
1	CLASS	CLASS index
2	PAVEMENT	PAVEMENT index
3	PFLPAV FOR AND/ANS	PFLPAV index, (0 indicates subgrade)

Both PAVEMENT and PFLPAV indexes are used to define the representative pavement to be used in aircraft equivalency for thickness design.

DESIGN CHARTS FOR LIMITING DEFLECTION AND STRESS

FIELD	IDENTIFIER	DESCRIPTION
1	PAVEMENT	PAVEMENT index
2	PFLPAV	PFLPAV index
3	CLASS	CLASS code
4	LAYER FOR STR/MT	LAYER code for governing stress condition.

SITE TCC

LINE 1

DICTIONARY

A. TYPE OF PAVEMENT

AC ASPHALT PAVEMENT
ACC ASPHALT PAVEMENT WITH CTB
AC/AC ASPHALT OVERLAY ON EXISTING ASPHALT PAVEMENT
AC/CC ASPHALT OVERLAY ON EXISTING CONCRETE PAVEMENT
AC/CCA ASPHALT OVERLAY ON CONCRETE PAVEMENT
AC/PAV ASPHALT OVERLAY
CC CONCRETE PAVEMENT
CCA CONCRETE PAVEMENT WITH AGBS
CC/AC CONCRETE OVERLAY ON EXISTING ASPHALT PAVEMENT
CC/CC CONCRETE OVERLAY ON EXISTING CONCRETE PAVEMENT
CC/PAV CONCRETE OVERLAY
CLL ROLLED LEAN CONCRETE BASE PAVEMENT
LCF LIME-CEMENT-FLYASH PAVEMENT
LCFS LCF WITH INDUSTRY WASTE AS PAVEMENT AGGREGATE
LCF/ACLCF OVERLAY ON EXISTING ASPHALT PAVEMENT
LCF/CLLCF OVERLAY ON EXISTING CONCRETE PAVEMENT
LC/PAVLCF OVERLAY

B. PAVEMENT COMPONENTS

AGBS AGGREGATE BASE COURSE, P-206 TO P-214, P-217
ASBS ASPHALT BASE COURSE, P-201
ASTB ASPHALT TREATED BASE, P-215, P-216
ASTCP ASPHALT TCP COURSE, P-401, P-408
CTB CEMENT TREATED BASE, P-301, P-304
EXAC EXISTING ASPHALT LAYER
EXALLEXISTING ASPHALT OVERLAY
EXBSA EXISTING BASE OF ASPHALT PAVEMENT
EXCSC EXISTING BASE OF CONCRETE PAVEMENT
EXPC EXISTING PORTLAND CEMENT CONCRETE LAYER
EXPCEXISTING PORTLAND CEMENT CONCRETE OVERLAY
LCFA LCF-A MIX WITH NATURAL AGGREGATE
LCFB LCF-B MIX WITH NATURAL AGGREGATE
LCFC LCF-C MIX WITH NATURAL AGGREGATE
LCFS-A LCFS-A MIX WITH INDUSTRY WASTE AGGREGATE
LCFSB LCFS-B MIX WITH INDUSTRY WASTE AGGREGATE
LCFSC LCFS-C MIX WITH INDUSTRY WASTE AGGREGATE
LTSUB LIME TREATED SUBGRADE, P-155
PAV EXISTING PAVEMENT
PCC PORTLAND CEMENT CONCRETE, P-501
PCCR REINFORCED PORTLAND CEMENT CONCRETE, P-501, P-610
PFLPAVEXISTING PAVEMENT
RCL ROLLED LEAN CONCRETE
SSBS SELECTED SUB-BASE, P-154
SLB SUBGRADE SUPPORT

C. PAVEMENT AREA

END END PORTION OF RUNWAY AT LANDING ROLL
HP HOLDING PAD
KEEL CENTER STRIP OF RUNWAY OR TAXIWAY
LCC LOCATION
MID MID PORTION OF RUNWAY OR TAXIWAY
RW RUNWAY
SFSC SIDE FACTOR FOR UNIFORM PAVEMENT CROSS-SECTION
SIDE SIDE STRIPS OF RUNWAY OR TAXIWAY
TC TOUCH DOWN AREA
TM TERMINAL
TH TAXIWAY
XTW CROSS TAXIWAY

D. FUNCTIONAL CRITERIA FOR AIRCRAFT MOVEMENT

A1,A2 COEFFICIENTS OF TRANSFER FUNCTION (TRANSVERSE TO LONG. DEFLECTION)
AANC EQUIVALENT LOAD REPETITIONS OF ALL AIRCRAFT - DEFLECTION CRITERIA
AANS EQUIVALENT LOAD REPETITIONS OF ALL AIRCRAFT - STRESS CRITERIA
AND EQUIVALENT LOAD REPETITIONS OF ONE TYPE OF AIRCRAFT - DEFLECTION
ANLA ANTICIPATED SERVICE LIFE IN LOAD REPETITIONS - DEFLECTION CRITERIA
ANS EQUIVALENT LOAD REPETITIONS OF ONE TYPE OF AIRCRAFT - STRESS CRITERIA
APX TRANSVERSE DIRECTION PROBABILITY DISTRIBUTION OF WHEEL LOAD
APY LONGITUDINAL DIRECTION PROBABILITY DISTRIBUTION OF LANDING IMPACT
DC COEFF. OF CONTACT RIGIDITY

DEF/DIPAVEMENT FUNCTION GOVERNED BY SURFACE DEFLECTION AND AIRCRAFT VIBRATION
 DEF/WZPAVEMENT FUNCTION GOVERNED BY SURFACE DEFLECTION
 D1,D2 COEFFICIENTS OF TRANSFER FUNCTION (ELASTIC TO CUMULATIVE DEFORMATION)
 D3 COEFFICIENT D2 AT INITIAL STAGE OF TRANSVERSE DEFORMATION FOR PFL STUDY
 ILS INSTRUMENT LANDING SYSTEM
 LIGHTSIN PAVEMENT LIGHTING SYSTEM
 NLRM NORMAL AIRPORT NAVIGATION SIGNS
 NSLP EFFECTIVE FUNCTIONAL(SERVICE) LIFE OF PAVEMENT, NUMBER OF YEARS
 PFL PRESENT FUNCTIONAL LIFE IN YEARS OF AIRCRAFT MOVEMENT(ANDA/AAND)
 PFLPAVEXISTING PAVEMENT FOR PFL ANALYSIS
 STH/MTPAVEMENT FUNCTION GOVERNED BY WORKING STRESS AND MAINTENANCE NEEDS
 SERVYRDESIGN FUNCTIONAL(SERVICE) LIFE IN YEARS
 VISUALVISUAL LANDING SYSTEM
 >5.00 ANCA/AAND>5

E. AIRCRAFT FILE

ALF AIRCRAFT LOAD FACTOR
 DI DYNAMIC INCREMENT OF AIRCRAFT VIBRATION AT PAVEMENT-WHEEL INTERFACE
 EFW OPERATING EMPTY WEIGHT OF AIRCRAFT
 ESW EQUIVALENT SINGLE WHEEL LOAD
 ESWL EQUIVALENT SINGLE WHEEL LOAD
 FACTURINFLUENCE FACTOR OF ALL AIRCRAFT WHEELS
 FREQ NATURAL FREQUENCY OF AIRCRAFT GEAR SUPPORT ON PAVEMENT
 LRW LANDING ROLL WEIGHT
 MLG MAIN LANDING GEAR LOAD OF AIRCRAFT
 MLRW MAX. LANDING WEIGHT OF AIRCRAFT
 MTGW MAX. TAKE-OFF WEIGHT OF AIRCRAFT
 NWHEELNUMBER OF MLG WHEELS PER AIRCRAFT
 CEW OPERATIONAL EMPTY WEIGHT OF AIRCRAFT
 PLF BOARDING FACTOR
 PSI TIRE PRESSURE
 RADILSRADIUS OF CONTACT AREA OF AIRCRAFT MLG WHEEL
 RANGE DISTANCE RANGE OF AIRCRAFT (SHRT, MEDIUM, LGNG)
 RGF RANGE FACTOR
 RPWT RAAP WEIGHT OF AIRCRAFT
 TCK TOUCH-DOWN WEIGHT
 TOW TAKE-OFF WEIGHT
 VEL VELOCITY OF AIRCRAFT EQUIVALENT TO FULL STATIC LOAD WITHOUT WING LIFT
 WGT WEIGHT OF MLG PER TIRE
 XMAX DISTANCE BETWEEN OUTERMOST WHEELS
 XAZ TRANSVERSE WHEEL SPACING OF THE LANDING GEAR

F. MATERIAL FILE

ACTSTR ACTUAL WORKING TENSILE STRESS
 CLVAR COEFFICIENT OF VARIANCE - MATERIAL STRENGTH
 DRY DRY BASE
 EPAV E-VALUE OF EXISTING PAVEMENT
 ESLB E-VALUE OF SUBGRADE
 E-SUP E-VALUE OF PAVEMENT SUPPORT (SUBGRADE OR EXISTING PAVEMENT)
 FATSTICCOEFFICIENT OF FATIGUE STRESS (LOG CYCLE)
 HSTRS STRESS AT DESIGN LAYER OF PAVEMENT MODEL FROM GELS
 INFI SEMI-INFINITE THICKNESS OF SUPPORT LAYER OF PAVEMENT MODEL
 NCRM NORMAL DRY OPERATION
 OVSKLGVERSTRESS FACTOR FOR KEEL OR OTHER UNDEFINED AREA
 OVSFSCLVERSTRESS FACTOR FOR SIDES
 SIGMA HORIZONTAL STRESS IN PAVEMENT COMPONENT
 SIGMATHGRIZONTAL TENSILE STRESS IN PAVEMENT COMPONENT
 STRESSCONVERSION FACTOR E-VALUE TO TENSILE STRESS
 ULSTR ULTIMATE SAFE TENSILE STRESS
 WET WET BASE, OCCASIONALLY PONDED
 WESTR SAFE WORKING TENSILE STRESS
 WZ SURFACE DEFLECTION OF PAVEMENT
 WZERO WZ AT X = 0, Y = 0
 ZCEF SURFACE DEFLECTION OF PAVEMENT MODEL FROM GELS

G. COST FILE

AIRE ANNUAL INTEREST RATE OF BOND
 AMC ANNUAL MAINTENANCE COST, \$/S.Y.
 ARCD ANNUAL RATE OF CASH DISCOUNT
 ASCCC RATE OF ANNUAL ESCALATION OF CONSTRUCTION COST
 ASCLT COST OF ASPHALT GEL, CAR LOAD PER TON

ASCMG RATE OF ANNUAL ESCALATION OF MAINTENANCE NEED
CLHR RATE OF COMMON LABOR PER HOUR
CCAGT COST OF COARSE AGGREGATE PER TON
FIAGT COST OF FINE AGGREGATE PER TON
HLCI COST OF HYDRATED LIME, BULK PER TON
ICC INITIAL CONSTRUCTION COST OF TOTAL PAVEMENT, \$/S.Y.
IWAT COST OF INDUSTRY WASTE FINE AGGREGATE PER TON
LLEM COST OF CONSTRUCTION LUMBER PER BOARD MEASURE
MLD MOBILIZATION AND DEMOBILIZATION COST OF MATERIAL PROCESSING FACILITIES
MCD(N)MLO FOR NORMAL SIZE OF RUNWAY AND TAXIWAY CONSTRUCTION
MLD(S)MLO FOR SMALL SIZE OF CONSTRUCTION PROGRAM
NBL MATURITY OF REVENUE BOND, NUMBER OF YEARS
PCET COST OF PORTLAND CEMENT, BULK PER TON
PCV PRESENT CASH VALUE OF TOTAL PAVEMENT DURING SERVICE LIFE, \$/S.Y.
PLZBT COST OF FLYASH OR CLAY, BULK PER TON
RSKLB COST OF REINFORCING STEEL (WIRE MESH) PER POUND
SFST COST OF SELECTED FILL SAND PER TON
SEHR RATE OF SKILLED EQUIPMENT OPERATOR PER HOUR
WAPCV WEIGHTED AVERAGE OF PRESENT CASH VALUE

H. NDT DATA FILE

AREA-EVERAGE VALUE MINUS ONE STANDARD DEVIATION OF A GROUP OF E-VALUE
C CENTER LINE
CALIB THE CALIBRATION IDENTIFICATION NUMBER
DSM(W)DYNAMIC STIFFNESS MODULUS DEFINED BY WES
DSM(1)F(1)/Z(1) AT FIRST RESONANCE
EVAL MODULUS OF ELASTICITY OF RESPONSE SYSTEM IN NOT PROGRAM
EVALUEM MODULUS OF ELASTICITY OF RESPONSE SYSTEM IN NDT PROGRAM
F(I) FORCING FUNCTION, DOUBLE AMPLITUDE IN POUNDS
HSTEP FREQUENCY SCALE OF FREQUENCY RESPONSE PLCT,Z(I)/F(I) VS H(I)
H(I) FREQUENCY OF FORCING FUNCTION IN HZ AT ITH TEST
H(1) H(1) AT FIRST RESONANCE, Hz
L LEFT OF CENTER LINE
NDT NONDESTRUCTIVE TEST
R RIGHT OF CENTER LINE
SLMZ STATIC SURFACE DEFLECTION AS COMPUTED BY NOT PROGRAM
Z(I) DYNAMIC RESPONSE OF SUB OR PAV IN INCH AT ITH TEST
Z(N) DYNAMIC RESPONSE AT CUT-CFF HIGH FREQUENCY TEST

I. FORECAST FILE

ADM AVERAGE DAILY MOVEMENT
ADMAPCAVERAGE DAILY MOVEMENT PREPARED BY AIRPORT OPERATOR
ADMATAAVERAGE DAILY MOVEMENT PREPARED BY ATA
ADMFAAAVERAGE DAILY MOVEMENT PREPARED BY FAA
ADMUGAVERAGE DAILY MOVEMENT SUGGESTED FOR PAVEMENT DESIGN
ATC AIRPORT TRAFFIC DISTRIBUTION
ATDAPCAIRPORT TRAFFIC DISTRIBUTION PREPARED BY AIRPORT OPERATOR
ATDSUGAIRPORT TRAFFIC DISTRIBUTION SUGGESTED FOR PAVEMENT DESIGN
ATM AIRCRAFT TRAFFIC MOVEMENTS
FAM FORECAST OF AIRCRAFT MOVEMENT
FAMAPCFORECAST OF AIRCRAFT MOVEMENT PREPARED BY AIRPORT OPERATOR
FAMATAFCFORECAST OF AIRCRAFT MOVEMENT PREPARED BY AIR TRANSPORT ASSOCIATION
FAMSUGFCFORECAST OF AIRCRAFT MOVEMENT SUGGESTED FOR PAVEMENT DESIGN
FAM*2 ONE HALF VOLUME OF FAM FOR PAVEMENT DESIGN
FAM*2 DOUBLE VOLUME OF FAM FOR PAVEMENT DESIGN

J. COMPUTER PROGRAMS

CED COMPUTED ENGINEERING DATA
CCEEN COST BENEFIT PROGRAM
INPLT SUMMARY OF ALL INPUT PARAMETERS
GELS GENERAL EQUILIBRIUM LAYER SYSTEM PROGRAM
MWPPRTSUMMARY OF FAM STRESSES AND DEFLECTIONS FROM GELS
MWPPRTSUMMARY OF FFL STRESSES AND DEFLECTIONS FROM GELS
MWPPRT SUMMARY OF PAVEMENT DESIGN THICKNESSES FROM GELS
NDT NONDESTRUCTIVE TEST PROGRAM
PAVCESPAVEMENT DESIGN PROGRAM
PRCFTSUMMARY OF ALL DICTIONARIES

K. FAA REGIONS

ACE FAA CENTRAL REGION
AEA FAA EASTERN REGION

AEL FAA EUROPEAN REGION
 AGL FAA GREAT LAKES REGION
 ANE FAA NEW ENGLAND REGION
 ANW FAA NORTHWEST REGION
 ARM FAA ROCKY MOUNTAIN REGION
 ASC FAA SOUTHERN REGION
 ASW FAA SOUTHWEST REGION
 AWE FAA WESTERN REGION

L... PFLPAV... EXISTING PAVEMENTS

AC1	3 IN. EXAC
AC2	6 IN. EXAC
AC3	9 IN. EXAC
AC4	12 IN. EXAC
AC5	16 IN. EXAC
ACE	20 IN. EXAC
CC1	8 IN. EXPC
CC2	10 IN. EXPC
CC3	12 IN. EXPC
CC4	14 IN. EXPC
CC5	15 IN. EXPC
CC6	16 IN. EXPC
CC7	17 IN. EXPC
UL1	4 IN. EXACOV ON 8 IN. EXPC
UL2	4 IN. EXACOV ON 10 IN. EXPC
UC3	4 IN. EXACOV ON 12 IN. EXPC
UC4	6 IN. EXACOV ON 10 IN. EXPC
UC5	6 IN. EXACOV ON 12 IN. EXPC
UC6	6 IN. EXPCOV ON 10 IN. EXPC
UC7	6 IN. EXPCOV ON 12 IN. EXPC

**

REGIONAL COST VALUES

CCST	CODE	DATE	ASD	ANE	AGL	ASW
1	PCBT	11/09/78	43.50	43.00	50.00	52.60
2	FIAGT	11/09/78	4.51	4.75	2.50	4.90
3	CCAGT	11/09/78	5.35	4.00	3.50	7.21
4	ASCLT	11/09/78	80.00	85.00	82.00	83.00
5	HLBT	11/10/78	22.50	82.50	77.00	82.50
6	PCZBT	11/10/78	3.85	4.55	3.30	15.80
7	SFST	11/10/78	3.30	3.30	2.75	3.30
8	IWFAT	11/10/78	2.20	2.20	2.20	2.20
9	RSWLB	11/10/78	.396	.418	.396	.396
10	LBDM	11/05/78	.368	.390	.415	.398
11	CLHR	11/02/78	7.03	9.28	10.88	7.02
12	SLEHR	11/02/78	10.07	13.76	13.80	11.05

**

REGIONAL CCST VALUES

CCST	CODE	DATE	ARM	ACE	AWE	AEA	ANW
1	PCBT	11/09/78	51.30	40.55	58.00	40.29	58.20
2	FIAGT	11/09/78	7.00	3.25	5.55	5.25	6.55
3	CCAGT	11/09/78	5.00	3.50	5.55	6.20	6.15
4	ASCLT	11/09/78	72.50	75.00	71.00	81.00	75.00
5	HLBT	11/10/78	88.00	82.50	88.00	82.50	88.00
6	PCZBT	11/10/78	5.50	3.85	27.50	4.40	30.80
7	SFST	11/10/78	3.30	2.75	3.85	3.85	4.40
8	IWFAT	11/10/78	2.20	2.20	2.75	2.75	3.30
9	RSWLB	11/10/78	.418	.407	.418	.407	.418
10	LBDM	11/05/78	.340	.420	.362	.344	.315
11	CLHR	11/02/78	8.84	11.20	12.86	12.83	12.07
12	SLEHR	11/02/78	11.05	14.15	16.19	15.25	14.71

**

TYPE	FACILITY	FACILITY	FACILITY	FACILITY	FACILITY
1	RW	RUNWAY			
2	TW	TAXIWAY	XTW		
3	HP	AFREN	GATE	TM	

**

BANDWIDTH	CODE1	CODE2	RW	TW	HP
1	NCRM/VISUAL		40.	16.	16.
2	LIGHTS/ILS		20.	10.	16.

**

DI	RW	TH	HP
KEEL	.12	.12	.15
SIDE	.18	.18	.18

**

VEL	RW	TH	HP
KEEL	145.	50.	50.
SIDE	145.	50.	50.

**

AIRCRAFT	CODE	MTGW	MLRW	OEW	RANGE		NWHEEL	XMAX
		MLG	WGT	PSI	FREQ			
		WHEEL	X-CCORD					
		WHEEL	Y-CCORD					
1	B747	71000C.	564000.	353000.	LONG			
		.2336	.0584	185.	1.2	16	478.	
		.0	-44.	.0	-44.	106.	150.	
		106.	150.	-142.	-186.	-142.	-186.	
		248.	252.	248.	292.			
		.0	.0	-58.	-58.	.0	.0	
		-58.	-58.	53.	63.	121.	121.	
		63.	63.	121.	121.			
2	DC10/30	55500C.	403000.	264000.	LONG			
		.3772	.0943	170.	1.1	10	474.	
		.0	-54.	.0	-54.	366.	420.	
		366.	420.	164.	202.			
		.0	.0	64.	64.	0.	0.	
		64.	64.	2.	2.			
3	DC10/10	43000C.	364000.	235000.	LCNG			
		.4700	.1175	170.	1.1	8	474.	
		.0	-54.	.0	-54.	366.	420.	
		366.	420.					
		.0	.0	64.	64.	0.	0.	
		64.	64.					
4	L1011	42600C.	358000.	234000.	LONG			
		.4743	.1166	180.	1.1	8	484.	
		.0	-52.	0.	-52.	380.	432.	
		380.	432.					
		.0	.0	70.	70.	0.	0.	
		70.	70.					
5	DC9(B707)	35500C.	258000.	159000.	LONG			
		.4808	.12C2	185.	1.4	8	282.	
		0.	-32.	0.	-32.	218.	250.	
		218.	250.					
		.0	0.	55.	55.	0.	0.	
		55.	55.					
6	B720	21000C.	168000.	128000.	MEDIUM			
		.4800	.12C0	145.	1.4	8	295.	
		0.	-32.	0.	-32.	231.	263.	
		231.	263.					
		.0	0.	49.	49.	0.	0.	
		49.	49.					
7	B727-200	17200C.	150000.	97000.	MEDIUM			
		.4618	.23C9	170.	1.6	4	259.	
		0.	-34.	191.	225.			
		0.	0.	0.	0.			
8	B727-100	15000C.	132000.	95000.	MEDIUM			
		.4618	.23C9	170.	1.6	4	259.	
		0.	-34.	191.	225.			
		0.	0.	0.	0.			
9	DC9(B737)	10000C.	86000.	65000.	SHORT			
		.44C0	.22C0	150.	1.4	4	223.	
		0.	-26.	171.	197.			
		0.	0.	0.	0.			
10	F27	40000.	36000.	28000.	SHORT			
		.4200	.21C0	110.	1.5	4	300.5	
		0.	-17.5	265.5	283.			
		0.	0.	0.	0.			

11	CCX-200	382000.	310000.	200000.	LONG	8	474.
		.4700	.1175	170.	1.1	8	420.
		0.	-54.	0.	-54.	366.	
		366.	420.				
		0.	0.	64.	64.	0.	0.
		64.	64.				
12	B757	220000.	193000.	145000.	MEDIUM	8	319.
		.4700	.1175	158.	1.5	251.	285.
		0.	-34.	0.	-34.		
		251.	285.				
		0.	C.	45.	45.	0.	0.
		45.	45.				
13	B767-20C	280000.	255000.	173000.	MEDIUM	8	388.
		.4800	.1200	185.	1.2	292.	340.
		0.	-48.	0.	-48.		
		292.	340.				
		0.	C.	56.	56.	0.	0.
		56.	56.				
14	A300B4	347000.	295000.	199000.	MEDIUM	8	416.
		.4680	.1155	171.	1.1	340.	378.
		0.	-38.	0.	-38.		
		340.	378.				
		0.	0.	60.	60.	0.	0.
		60.	60.				
15	CCNCRUE	376000.	240000.	166000.	XLONG	8	330.25
		.4760	.1150	184.	1.2	277.75	304.
		0.	-26.25	0.	-26.25		
		277.75	304.				
		0.	0.	65.5	65.5	0.	0.
		65.5	65.5				

**
TCH AIRCRAFT TAKE-OFF WEIGHTS
HIGH AIRCRAFT LOAD FACTOR
RANGE OF AIRCRAFT

AIRCRAFT	XLCAG	LNG	MEDIUM	SHORT
1	71000.	61500.	530000.	530000.
2	55500.	51500.	420000.	420000.
3	43000.	39000.	360000.	360000.
4	42600.	39000.	340000.	340000.
5	35500.	32500.	280000.	280000.
6	22000.	22000.	220000.	200000.
7	17000.	17000.	170000.	157000.
8	15000.	15000.	150000.	135000.
9	10000.	10000.	100000.	100000.
10	5000.	5000.	50000.	50000.
11	35000.	35000.	300000.	300000.
12	218000.	218000.	218000.	198000.
13	270000.	270000.	270000.	248000.
14	333000.	333000.	333000.	303000.
15	355000.	355000.	313000.	313000.

**
TCH AIRCRAFT TAKE-OFF WEIGHTS
MEDIUM AIRCRAFT LOAD FACTOR
RANGE OF AIRCRAFT

AIRCRAFT	XLCAG	LNG	MEDIUM	SHORT
1	61500.	53000.	530000.	530000.
2	51500.	42000.	420000.	420000.
3	39000.	36000.	360000.	360000.
4	39000.	34000.	340000.	340000.
5	32500.	28000.	280000.	280000.
6	22000.	22000.	220000.	200000.
7	17000.	17000.	170000.	157000.
8	15000.	15000.	135000.	135000.
9	10000.	10000.	100000.	85000.
10	5000.	5000.	50000.	40000.
11	35000.	30000.	300000.	300000.
12	218000.	218000.	198000.	198000.
13	270000.	270000.	248000.	248000.
14	333000.	333000.	303000.	303000.
15	313000.	313000.	313000.	313000.

FINANCE	AIRB .08	ARCD .10	ASCCC .09	ASCMC .02	NBL 30.	NSLP 20.
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FCRECAST	ADM	ATD
FAMSUG	ACMSUG	ATDSUG
FAMAPC	ACMAPC	ATDAPC
FAMATA	ADMATA	ATDATA

**

PFLCI

.12 SMOOTH PAVEMENT SURFACE
 .1E OPERATIONAL SURFACE
 .25 UPPER LIMIT OF ROUGHNESS TOLERANCE
 .30 MAJOR REHABILITATION REQUIRED

**

DESIGN	AIRCRAFT	WEIGHT
		7 170000.

**

CLASS	CODE	OVSFKL	OVSFSO	STRESS	FATIST	CCVAR	A1
1	LCF	A2 .0125	C1 .54	C2 2.00	DC .092	.15	2.80
2	AC	0.9 .0170	1.2 .46	.65 2.00	.90 .086	.12	2.30
3	CC	1.0 .0104	1.3333 .61	.40 2.00	1.00 .082	.10	2.95
4	LC/PAV	1.0 .0125	1.3333 .54	.38 2.00	.092 .90	.15	2.80
5	AC/PAV	0.9 .0170	1.2 .46	.65 2.00	.086 .90	.12	2.30
6	CC/PAV	1.0 .0104	1.3333 .61	.40 2.00	.082 .62	.10	2.95
7	LCL	1.0 .0125	1.3333 .58	.40 2.00	.084 .90	.12	2.80
8	AC/AC	0.9 .0170	1.2 .46	.65 2.00	.086 1.00	.12	2.30
9	AC/CC	1.0 .0130	1.3333 .58	.40 2.00	.082 .90	.10	2.65
10	CC/AC	1.0 .0104	1.3333 .61	.40 2.00	.082 .62	.10	2.95
11	LC/CC	1.0 .0104	1.3333 .61	.40 2.00	.082 .62	.10	2.95

**

LAYER	CGDE	EVALUE	PEISSON	MOD(S)	MOD(N)
1	ASTGP	200000.		.0029	.0016
2	LCFA	1100000.		.0064	.0019
3	LCFU	600000.		.0051	.0015
4	LCFL	400000.		.0051	.0015
5	SUB	8000.		.0009	.0005
6	PAV	60000.		.0009	.0005
7	PCCR	5000000.		.0065	.0032
8	PCC	4000000.		.0054	.0027
9	KLC	1500000.		.0043	.0022
10	CTB	200000.		.0038	.0019
11	ASBS	150000.		.0026	.0014
12	ASTB	60000.		.0020	.0011
13	AGBS	40000.		.0017	.0010
14	SSBS	20000.		.0015	.0008
15	LTSLB	15000.		.0028	.0015
16	EXPCCV	4500000.		.0	.0
17	EXALCV	180000.		.0	.0
18	EXPC	3000000.		.0	.0
19	EXAC	140000.		.0	.0
20	EXBSC	30000.		.0	.0
21	EXBSA	50000.		.0	.0
22	PFLPAV	60000.		.0009	.0005

LAYER	PCBT	FLAGT	COAGT	ASCLT	HLBT	PCZBT	SFST
	IWFAT	RSWL8	LBBM	CLHR	SLEFR		
1	.C	.0235	.0500	.0051	.0	.0	.0
	.0	.C	.0	.0112	.0217		
2	.0007	.C	.0200	.0	.0020	.0067	.0374
	.C	.C	.0	.0027	.0102		
3	.0006	.C	.0064	.0	.0016	.0074	.0460
	.0	.C	.C	.0027	.0088		
4	.0005	.C	.C	.0	.0013	.0073	.0516
	.0	.C	.0	.0027	.0088		
5	.0	.C	.0	.0	.0	.0	.0
	.0	.C	.0	.0048	.0222		
6	.0	.C	.C	.0	.0	.C	.0
	.0	.C	.0	.0024	.0111		
7	.0102	.C181	.0433	.0	.0	.0	.0
	.0	.E440	.1430	.C321	.0127		
8	.0102	.C181	.0433	.C	.0	.C	.0
	.0	.C	.1430	.C321	.0127		
9	.0051	.0181	.C433	.C	.0	.C	.0
	.C	.C	.C	.0139	.0171		
10	.0051	.C	.0	.0	.0	.C	.0596
	.C	.C	.C	.0036	.0110		
11	.0	.0235	.0500	.0037	.0	.0	.0
	.0	.C	.C	.0112	.0217		
12	.0	.C	.0	.0025	.0	.0	.0593
	.0	.C	.C	.0042	.0110		
13	.0	.0	.0704	.0	.0	.0	.0
	.0	.C	.0	.0016	.0074		
14	.0	.C	.0	.0	.0	.0	.0651
	.C	.C	.0	.0016	.0074		
15	.0	.C	.C	.0	.0024	.0	.0
	.0	.C	.C	.0036	.0095		
16	.0	.C	.C	.0	.0	.0	.0
	.0	.C	.C	.0032	.0127		
17	.0	.C	.C	.C	.0	.0	.0
	.0	.C	.0	.0032	.0100		
18	.G	.C	.C	.0	.0	.0	.0
	.0	.C	.0	.0032	.0127		
19	.0	.C	.C	.0	.0	.C	.0
	.J	.C	.C	.0032	.0100		
20	.0	.0	.C	.0	.0	.0	.0
	.0	.C	.0	.0016	.0074		
21	.0	.C	.0	.0	.0	.0	.0
	.0	.C	.0	.0016	.0074		
22	.0	.C	.0	.0	.0	.0	.0
	.0	.C	.C	.0024	.0111		

PAVEMENT	CCODE	LAYER	THICKNESS	VALUE	PCISSON
1	LCF	ASTLP	3.		
		LCFA	6.		
		LCFB	6.		
		LCFC	9.		
		SUB			
2	AC	ASTCP	2.		
		ASBS	16.		
		AGBS	6.		
		SUB			
3	CC	PCL	12.		
		CTB	6.		
		SSBS	8.		
		SLB			
4	LC/PAV	ASTCP	3.		
		LCFA	12.		
		PAV			
5	AC/PAV	ASTCP	1.		
		ASBS	8.		
		PAV			
6	CC/PAV	PCCR	9.		
		ASTCP	1.		
		PAV			
7	CCL	PCC	8.		
		RLC	6.		
		SSBS	6.		
		SLB			
8	AC/PAV	ASTCP	1.		
		ASBS	8.		
		PFLPAV			

**

ITERATE	PAVEMENT	LAYER	HMIN	HMAX	HSTEP
1	LCFC	1.	25.	2.	
2	ASBS	1.	31.	2.5	
3	PCC	4.	18.	1.	
4	LCFA	1.	19.	1.5	
5	ASBS	1.	29.	2.	
6	PCCR	4.	18.	1.	
7	RLC	4.	12.	1.	
8	ASBS	1.	29.	2.	

**
NEW PAVEMENT ESUB GRID VALUES

1COJ.	150J.	2000.	3000.	4000.	6000.	8000.	12000.
1ECCOJ.	25000.	35000.	50000.	70000.	100000.		

**

OVERLAY PAVEMENT EPAV GRIC VALUES

1CCOJ.	1500.	20000.	30000.	40000.	60000.	80000.	120000.
1ECCOC.	250000.	350000.	500000.	700000.	1000000.		

**

PAVEMENT NUMBER	KEEL	SIDE
1	1	
2	2	
3	3	
7	7	
4	4	
8	8	
6	6	
1	8	
3	8	
7		

**

PFLPAV	CODE	LAYER	THICKNESS	VALUE
1	AC1	EXAC	3.	
		EXBSA	6.	
		SUB		
2	AC2	EXAC	6.	
		EXBSA	6.	
		SUB		
3	AC3	EXAC	9.	
		EXBSA	6.	
		SUB		
4	AC4	EXAC	12.	
		EXBSA	6.	
		SUB		
5	AC5	EXAC	16.	
		EXBSA	6.	
		SUB		
6	AC6	EXAC	20.	
		EXBSA	6.	
		SUB		
7	CC1	EXPC	8.	
		EXBSC	8.	
		SUB		
8	CC2	EXPC	10.	
		EXBSC	8.	
		SUB		
9	CC3	EXPC	12.	
		EXBSC	8.	
		SUB		
10	CC4	EXPC	14.	
		EXBSC	8.	
		SUB		
11	CC5	EXPC	15.	
		EXBSC	8.	
		SUB		
12	CC6	EXPC	16.	
		EXBSC	8.	
		SUB		
13	CC7	EXPC	17.	
		EXBSC	8.	
		SUB		
14	CC1	EXACCV	4.	
		EXPC	8.	
		EXBSC	8.	
		SUB		
15	CC2	EXACCV	4.	
		EXPC	10.	
		EXBSC	8.	
		SUB		
16	CC3	EXACCV	4.	
		EXPC	12.	
		EXBSC	8.	
		SUB		
17	CC4	EXACCV	6.	
		EXPC	10.	
		EXBSC	8.	
		SUB		
18	CC5	EXACCV	6.	
		EXPC	12.	
		EXBSC	8.	
		SUB		
19	CC6	EXPCCV	6.	
		EXACCV	1.	
		EXPC	10.	
		EXBSL	8.	
		SUB		
20	CC7	EXPCCV	6.	
		EXACCV	1.	
		EXPC	12.	
		EXBSC	8.	
		SUB		

**

PFLPAV ESLB GRID EVALUES

	2000.	3000.	4000.	6000.	8000.	12000.	16000.	25000.
35000.	45000.	70000.	100000.					

**

PFLPAV	CLASS	LAYER FCR STR/MT
1	AC	EXBSA
2	AC	EXAC
3	AC	EXAC
4	AC	EXAC
5	AC	EXAC
6	AC	EXAC
7	CC	EXPC
8	CC	EXPC
9	CC	EXPC
10	CC	EXPC
11	CC	EXPC
12	CC	EXPC
13	CC	EXPC
14	AC/CC	EXPC
15	AC/CC	EXPC
16	AC/CC	EXPC
17	AC/CC	EXPC
18	AC/CC	EXPC
19	CC/CC	EXPC
20	CC/CC	EXPC

**

CLASS	PFLPAV FCR AND/ANS
2	3
3	9
5	16
11	19

**

CLASS	PAVEMENT	PFLPAV FOR AND/ANS
1	1	0
2	2	0
3	3	0
4	4	0
5	5	0
6	6	0
7	7	0
8	8	3
9	8	9

**

PAVEMENT	PFLPAV	CLASS	LAYER FCR STR/MT
1	0	LCF	LCFC
2	0	AC	ASBS
3	0	CC	PCC
4	0	LC/PAV	LCFA
5	0	AC/PAV	ASBS
6	0	CC/PAV	PCCR
7	0	CCL	RLC
8	1	AC/AC	EXAC
8	2	AC/AC	EXAC
8	12	AC/CC	EXPC
8	14	AC/CC	EXPC
8	5	AC/CC	EXPC
8	11	AC/CC	EXPC
8	13	AC/CC	EXPC
8	17	AC/CC	EXPC
8	3	AC/AC	EXAC
8	4	AC/AC	EXAC
8	5	AC/AC	EXAC
8	10	AC/CC	EXPC
8	6	AC/AC	EXAC
8	7	AC/CC	EXPC
8	8	AC/CC	EXPC
8	15	AC/CC	EXPC
8	16	AC/CC	EXPC
8	18	AC/CC	EXPC
8	19	AC/CC	EXPC
8	20	AC/CC	EXPC

**

COMPUTED DATA INPUTS

GELS/NDT3 for each PFLPAV in design charts control group data.

FIELD DESCRIPTION
1 number of thickness
2 number of PFLPAV E-values

Continuation card or cards

1 to 8 surface deflection of PFLPAV under a single wheel having tire pressure = 200 psi and radius 9 inches
number of cards = the integer of (number of E-values -1)/8 plus 1.

Continuation card or cards

1 to 8 tensile stress in the governing layer under the same single wheel for deflection.
number of cards = the integer of (number of E-values -1)/8 plus 1.

GELS/PFLN for each PFLPAV in design charts control group data.

FIELD DESCRIPTION
1 number of layer thickness
2 number of PFLPAV E-values

Continuation card or cards

1 to 8 surface deflection of PFLPAV under all wheels of design aircraft.
number of cards = the integer of (number of E-values -1)/8 plus 1.

Continuation card or cards

1 to 8 tensile stress in governing layer under all wheels of design aircraft.
number of cards = the integer of (number of E-values -1)/8 plus 1.

GELS/PFLD for each CLASS under Design Aircraft.

FIELD DESCRIPTION
1 surface deflection of PFLPAV under all wheels of design aircraft
2 tensile stress in governing layer of PFLPAV under all wheels of design aircraft.

Continuation Card

1 surface deflection of PFLPAV under one wheel of design aircraft
2 tensile stress in governing layer of PFLPAV under one wheel of design aircraft.

Continuation of 2-card sets for classes defined in the default file.

GELS/PFL for each PFLPAV under operational aircraft.

FIELD DESCRIPTION
1 number of AIRCRAFT

for each AIRCRAFT, RANGE, and LOAD FACTOR

- 1 surface deflection of PFLPAV under all wheels of TOW
- 2 surface deflection of PFLPAV under all wheels of LRW
- 3 surface deflection of PFLPAV under all wheels of TDW
- 4 layer stress of PFLPAV under all wheels of TOW
- 5 layer stress of PFLPAV under all wheels of LRW
- 6 layer stress of PFLPAV under all wheels of TDW

Continuation card in same format shows surface deflection and stress under one wheel of AIRCRAFT.

The data set for each aircraft consists of eight subsets of data for four ranges of operation and two classifications of load factor, in the following orders:

RANGE	LOAD FACTOR
XLONG	HIGH
LONG	HIGH
MEDIUM	HIGH
SHORT	HIGH
XLONG	MEDIUM
LONG	MEDIUM
MEDIUM	MEDIUM
SHORT	MEDIUM

For each PFLPAV, the total number of data sets is equal to the number of aircraft defined.

GELS/FAMD for each PAVEMENT under design aircraft.

FIELD DESCRIPTION
1 surface deflection of PAVEMENT under all wheels of design aircraft weight.
2 layer stress of PAVEMENT or PFLPAV under all wheels of design aircraft.

Continuation card, same as above, except surface deflection or layer stress under one wheel of design aircraft.

GELS/FAM for each PAVEMENT under operational aircraft.

FIELD DESCRIPTION
1 number of AIRCRAFT

for each AIRCRAFT, RANGE, and LOAD FACTOR

1 surface deflection under wheel (0,0) due to all wheels of TOW
2 surface deflection under wheel (0,0) due to all wheels of LRW
3 surface deflection under wheel (0,0) due to all wheels of TDW
4 layer stress under wheel (0,0) due to all wheels of TDW
5 layer stress under wheel (0,0) due to all wheels of LRW
6 layer stress under wheel (0,0) due to all wheels of TDW

Continuation card is exactly the same except surface deflection or layer stress under one wheel of operational aircraft. There are sets of data for each class of pavements. Subset data for each aircraft are similar to GELS/PFL.

GELS/HDES for each PAVEMENT/PFLPAV in design charts

FIELD DESCRIPTION
1 number of layer thicknesses to be iterated
2 number of E-values

for each thickness

1 to 8 surface deflection under wheel (0,0) due to all wheels of design aircraft
number of cards = the integer of (number of E-values -1)/8 plus 1.
Number of sets = number of layer thickness to be iterated.

for each thickness

1 to 8 tensile stress in governing layer under wheel (0,0)
due to all wheels of design aircraft.
number of cards = the integer of (number of E-values -1)/8 plus 1.
There are sets of data for each PAVEMENT/PFLPAV combination defined in the default input file for design charts.

GELS	NOTE							
1	12							
0.484288	0.367159	C.301377	C.228033	C.187158	0.142052	C.117210	0.087903	
C.071678	0.062120	0.045477	0.042216					
329.508	279.014	243.886	154.054	159.736	113.800	83.746	42.653	
16.847	0.648	-21.661	-34.545					
1	12							
C.368822	C.281867	C.232806	0.177917	0.147254	0.113310	C.094562	0.072338	
C.055939	0.052633	C.042873	0.037216					
170.014	153.589	141.874	125.489	114.138	98.910	88.925	75.287	
66.781	61.503	54.405	50.456					
1	12							
C.294674	C.227017	C.188631	C.145447	C.121211	0.094291	0.079383	0.061663	
C.051741	0.045892	C.037553	0.033438					
175.661	159.710	148.417	132.552	121.569	106.780	96.992	83.400	
74.704	69.171	61.453	56.954					
1	12							
C.245421	C.190063	0.158862	0.123725	0.103913	0.081717	0.069420	0.054751	
C.046514	0.041509	C.035006	0.031248					
149.226	130.647	127.380	114.182	104.935	92.381	84.006	72.243	
64.600	59.670	52.666	48.483					
1	12							
C.203225	C.157270	C.131935	0.103767	C.087956	C.070267	0.060381	0.048526	
C.041956	0.037966	C.032608	0.029364					
112.770	104.081	97.458	87.802	80.759	71.076	64.479	55.082	
48.884	44.835	38.996	35.439					
1	12							
0.177095	C.136452	C.114454	C.090450	0.077176	0.062432	0.054204	0.044221	
C.038612	0.035162	C.037336	0.028093					
85.163	78.919	74.216	67.173	61.952	54.500	49.322	41.803	
36.762	33.437	28.587	25.594					
1	12							
C.155651	C.119252	C.097571	C.074122	0.061255	0.047058	C.039176	0.029737	
C.024414	0.021240	C.016982	0.014496					
874.386	831.555	800.047	753.566	719.454	671.159	638.018	590.419	
558.637	538.014	507.315	487.760					
1	12							
0.136819	C.100017	0.081700	0.061259	0.050279	0.038428	0.031955	0.024257	
C.015912	0.017308	C.013750	0.011718					
625.499	595.435	574.988	546.057	525.038	494.565	472.812	440.188	
417.590	402.300	379.236	364.249					
1	12							
C.120844	0.088962	0.071668	0.053136	0.043252	0.032720	0.027073	0.020476	
C.016751	0.014590	C.011606	C.009845					
473.064	447.821	431.885	410.922	396.456	375.952	361.334	338.793	
322.584	311.287	293.715	281.942					
1	12							
C.107609	C.075978	0.064484	C.047614	0.038529	0.028869	0.023730	0.017809	
C.014553	C.012627	0.010033	C.008507					
373.866	351.047	337.079	319.658	308.421	293.267	282.735	266.622	
254.862	246.459	233.136	223.902					
1	12							
C.101460	C.076013	C.061462	C.045408	0.036691	0.027390	0.022446	0.016766	
C.013665	C.011840	C.005398	C.007964					
336.721	314.506	301.564	285.208	274.852	261.307	252.105	238.198	
228.672	220.840	209.173	201.007					
1	12							
C.095635	0.072248	C.058649	0.043424	0.035077	0.026117	0.021344	0.015866	
C.012853	C.011157	C.008838	C.007482					
305.510	284.601	271.793	256.205	246.516	234.143	225.932	213.737	
204.527	198.630	188.414	181.194					
1	12							
C.089927	C.068652	C.055599	0.041619	0.033637	0.025006	C.020388	0.015092	
C.012226	C.010558	C.008345	C.007056					
278.824	258.937	246.613	231.648	222.451	210.939	203.470	192.557	
184.859	179.313	170.327	163.932					
1	12							
C.155010	0.115945	C.055108	C.072723	0.060522	0.047142	0.039747	0.030909	
C.026004	0.022947	C.018950	C.016616					
746.595	709.339	682.465	643.016	613.578	572.531	543.713	501.941	
473.581	455.470	428.103	410.637					

GELS	PFLN							
1	12							
C.5995E9	C.435992	0.247836	0.253454	C.202959	0.149208	0.120586	0.087811	
C.C7CC41	C.059786	C.046422	C.038879					
288.138	239.521	206.531	162.243	132.600	53.809	68.754	34.874	
13.668	C.400	-17.907	-28.456					
1	12							
0.45E424	C.364550	C.291804	C.213447	0.171356	0.126506	0.102631	0.075324	
C.06C584	0.032053	C.040917	C.034616					
150.673	133.067	121.115	105.222	94.743	81.307	72.858	61.758	
55.1C6	51.1C4	45.937	43.264					
1	12							
C.4226572	C.3140C5	C.252549	C.185902	C.145853	0.111211	C.090568	0.066875	
C.054111	0.046734	C.037060	C.031547					
163.882	145.270	132.485	115.398	104.112	89.614	80.454	68.254	
60.860	50.2E1	50.128	46.711					
1	12							
0.374568	0.276627	C.222386	C.165583	0.134180	C.100251	0.082066	0.061095	
C.045722	0.043075	C.034450	C.029595					
145.454	129.577	118.421	103.203	92.985	79.706	71.233	59.867	
52.827	48.438	42.438	39.017					
1	12							
C.327133	0.241420	C.195402	C.145826	0.118964	C.089959	C.074326	0.056144	
C.046221	C.040445	C.032851	C.028535					
116.147	104.070	95.472	E3.455	75.167	64.127	56.936	47.120	
40.934	37.027	31.600	28.440					
1	12							
C.294868	C.216854	C.175411	C.131163	0.107392	C.081815	0.067881	0.051820	
C.043C17	C.0378E5	C.031083	C.027211					
92.591	83.1C4	76.433	67.064	60.456	51.552	45.551	37.279	
31.536	28.519	23.706	20.859					
1	12							
C.281023	C.203125	C.161897	C.118136	C.094735	0.069662	C.056175	C.040528	
C.031969	0.026976	C.020405	C.016653					
55e.948	884.534	834.833	766.353	718.849	654.539	611.755	551.937	
513.231	488.143	451.762	429.071					
1	12							
C.250E59	C.1802E5	C.142E50	C.1C3473	0.082634	0.060557	C.048795	0.035215	
C.C27787	0.023435	C.017681	C.014373					
717.437	662.2E1	626.239	578.037	545.166	500.604	470.336	426.877	
357.684	378.278	345.440	331.076					
1	12							
C.22E151	C.1e4132	C.125834	C.093507	0.074328	0.054138	0.043478	0.031282	
C.C24656	C.020778	C.C15660	C.012710					
564.803	518.4C9	488.954	451.167	426.335	393.154	370.978	338.700	
31t.529	301.513	278.687	263.650					
1	12							
C.20E782	C.151230	C.119843	C.086214	0.068336	0.049505	C.039554	0.028326	
C.C22253	C.018727	C.014C81	C.011412					
461.006	421.064	395.503	363.411	342.975	316.445	299.050	274.043	
256.903	245.080	226.949	214.784					
1	12							
C.199813	0.145414	C.115480	C.083161	0.065887	0.047640	C.038033	C.027123	
C.021266	C.0178E5	C.013416	C.010859					
421.844	383.659	359.710	329.637	310.627	286.410	270.649	248.176	
232.883	222.357	206.112	195.078					
1	12							
C.191227	C.1359C9	C.111388	C.080376	0.063685	0.045954	0.036663	C.026071	
C.02C356	0.017113	C.012818	C.010360					
387.610	352.0C4	329.264	300.978	283.134	260.564	246.168	225.769	
211.893	202.4E6	187.813	177.876					
1	12							
C.182950	C.134623	C.1075C8	C.077787	0.061681	0.044520	C.035447	0.025145	
C.C15629	C.016444	C.012282	C.009909					
357.944	324.673	303.164	276.300	259.494	238.263	224.903	206.248	
193.636	185.049	171.721	162.743					
1	12							
C.274037	C.198258	C.158257	C.115984	0.093435	0.069371	C.056466	0.041559	
C.C33382	C.0280C1	C.022264	C.018664					
835.510	770.432	726.433	666.231	624.513	567.858	529.955	476.646	
441.751	419.027	385.585	345.344					

GELS	PFLD				
C.145853			104.112		
C.094815			58.798		
C.074328			426.335		
C.C35669			310.996		
C.C75619			382.239		
C.035608			271.648		
C.C6C967			267.528		
C.026211			181.862		
**					
GELS	PFL	DEFAULT			
15					
C.27740	C.22291	C.32762	94.4	85.2	101.0
C.100598	C.082477	C.116938	106.005	94.392	114.903
C.242127	C.201646	C.296502	88.730	80.956	97.120
C.088591	C.075189	C.106807	98.738	89.178	109.579
C.210056	C.182630	C.268666	82.693	76.674	93.100
C.078084	C.068679	C.097742	51.293	84.072	104.252
C.210056	C.182630	C.268666	82.693	76.674	93.100
C.078084	C.068679	C.097742	51.293	84.072	104.252
C.242127	C.201646	C.296502	88.730	80.956	97.120
C.088591	C.075189	C.106807	98.738	89.178	109.579
C.210056	C.182630	C.268666	82.693	76.674	93.100
C.078084	C.068679	C.097742	51.293	84.072	104.252
C.210056	C.182630	C.268666	82.693	76.674	93.100
C.078084	C.068679	C.097742	51.293	84.072	104.252
C.210056	C.182630	C.268666	82.693	76.674	93.100
C.210056	C.182630	C.268666	82.693	76.674	93.100
C.078084	C.068679	C.097742	51.293	84.072	104.252
C.24836	C.18417	C.26855	101.8	89.8	104.8
C.121702	C.092233	C.130971	112.196	97.288	116.140
C.221505	C.170113	C.257061	55.094	87.867	103.133
C.113986	C.088525	C.125635	108.724	95.026	113.901
C.191372	C.156671	C.228438	91.377	82.886	98.573
C.095551	C.079451	C.112570	59.215	89.191	108.066
C.191372	C.156671	C.228438	91.377	82.886	98.573
C.095551	C.079451	C.112570	59.215	89.191	108.066
C.221505	C.170113	C.257061	55.094	87.867	103.133
C.113986	C.088525	C.125635	108.724	95.026	113.901
C.191372	C.156671	C.228438	91.377	82.886	98.573
C.095551	C.079451	C.112570	59.215	89.191	108.066
C.191372	C.156671	C.228438	91.377	82.886	98.573
C.095551	C.079451	C.112570	59.215	89.191	108.066
C.22104	C.18915	C.27570	101.6	55.2	110.1
C.1118031	C.102021	C.144827	110.563	102.802	121.544
C.201736	C.170493	C.257164	57.855	92.221	107.498
C.108324	C.095665	C.135825	106.020	99.280	118.100
C.187268	C.166922	C.243185	54.755	89.812	105.341
C.101054	C.090853	C.128598	102.287	96.454	115.316
C.187268	C.166922	C.243185	54.755	89.812	105.341
C.101054	C.090853	C.128598	102.287	96.454	115.316
C.201736	C.170493	C.257164	57.855	92.221	107.498
C.108324	C.095665	C.135825	106.020	99.280	118.100
C.187268	C.166922	C.243185	54.755	89.812	105.341
C.101054	C.090853	C.128598	102.287	96.454	115.316
C.187268	C.166922	C.243185	54.755	89.812	105.341
C.101054	C.090853	C.128598	102.287	96.454	115.316
C.21898	C.13634	C.27145	107.0	59.6	116.4
C.111834	C.102203	C.145152	114.252	105.664	129.581
C.201687	C.175229	C.255163	103.268	96.661	113.752
C.111834	C.095665	C.137080	109.895	102.348	122.317
C.177734	C.159021	C.232270	57.340	92.220	109.635
C.097838	C.088560	C.125600	103.117	97.353	117.350
C.177734	C.159021	C.232270	57.340	92.220	109.635
C.097838	C.088560	C.125600	103.117	97.353	117.350
C.201687	C.175229	C.255163	103.268	96.661	113.752
C.111834	C.095665	C.137080	109.895	102.348	122.317

GELS	FAM	DEFAULT				
C.075922		57.048				
C.036138		67.516				
C.11C496		77.386				
C.062246		63.645				
C.067467		387.126				
C.025582		275.873				
C.021224		154.748				
C.J13756		137.406				
C.037566		45.802				
C.C29955		47.463				
C.017020		418.075				
C.009718		356.498				
C.071512		245.629				
C.031938		173.477				
C.11C568		66.536				
C.0E2426		54.492				
C.077025		316.663				
C.038262		216.218				
**						
GELS	FAM	DEFAULT				
15						
C.206893	0.165458	C.245164	100.269	80.281	118.757]
C.038377	0.031616	0.044391	71.424	57.332	84.301]
C.179956	C.1496C4	C.221511	E7.283	72.591	107.335]
C.033976	0.C29044	0.04C713	62.278	51.870	76.361]
C.155855	C.135452	C.200172	75.631	65.581	97.035]
C.030040	0.026811	0.037249	54.026	46.978	69.164]
C.155855	C.135452	C.200172	75.631	65.581	97.035]
C.03C040	0.C26811	C.037249	54.026	46.978	69.164]
C.179956	C.1496C4	C.221511	E7.283	72.591	107.335]
C.033976	0.C29044	0.04C713	62.278	51.870	76.361]
C.155855	C.135452	C.200172	75.631	65.581	97.035]
C.03C040	0.026811	0.037249	54.026	46.978	69.164]
C.155855	C.135452	C.200172	75.631	65.581	97.035]
C.03C040	0.C26811	C.037249	54.026	46.978	69.164]
C.164635	0.121438	C.178687	100.165	79.810	117.219	
C.045882	0.C35189	C.049350	88.446	65.471	95.672	
C.153310	0.115910	0.170510	100.770	76.204	112.001	
C.043111	0.033747	C.047301	62.509	62.511	91.505	
C.126289	0.1C2771	C.151325	E3.077	67.437	99.430	
C.C364C5	C.C30313	C.042671	68.092	55.434	81.428	
C.126289	0.102771	C.151325	E3.077	67.437	99.430	
C.C364C5	C.C30313	C.042671	68.092	55.434	81.428	
C.153310	0.115910	0.170510	100.770	76.204	112.001	
C.043111	0.033747	C.047301	62.509	62.511	91.505	
C.126289	0.1C2771	C.151325	E3.077	67.437	99.430	
C.C364C5	C.C30313	C.042671	68.092	55.434	81.428	
C.126289	0.1C2771	C.151325	E3.077	67.437	99.430	
C.0364C5	C.C30313	C.042671	68.092	55.434	81.428	
C.126289	0.1U2771	C.151325	E3.077	67.437	99.430	
C.C364C5	C.C30313	C.042671	68.092	55.434	81.428	
C.138175	0.118581	0.174366	102.730	87.791	128.424	
C.044555	0.C38848	C.054801	E5.605	73.232	106.483	
C.126538	0.110386	C.162084	53.753	81.727	119.821	
C.041113	0.036445	C.051204	78.146	68.182	99.468	
C.117351	C.104199	C.152951	E6.869	77.091	113.184	
C.038493	0.C346C2	C.048586	72.472	64.365	94.119	
C.117351	C.104199	C.152951	E6.869	77.091	113.184	
C.038493	0.C346C2	C.048586	72.472	64.365	94.119	
C.117351	C.104199	C.152951	E6.869	77.091	113.184	
C.038493	0.C346C2	C.048586	72.472	64.365	94.119	
C.117351	C.104199	C.152951	E6.869	77.091	113.184	
C.038493	0.C346C2	C.048586	72.472	64.365	94.119	
C.117351	C.104199	C.152951	E6.869	77.091	113.184	
C.038493	0.C346C2	C.048586	72.472	64.365	94.119	
C.117351	C.104199	C.152951	E6.869	77.091	113.184	
C.038493	0.C346C2	C.048586	72.472	64.365	94.119	

GELS	HDES							
13	14							
C.488257	0.352268	C.279715	C.202867	0.162103	0.118769	0.095545	0.070528	
C.056548	0.040568	0.032062	C.024857	C.019761	0.015577			
C.400462	0.332726	C.263951	C.190932	0.152178	0.111150	C.089298	0.065917	
C.053258	0.038455	C.030246	C.023562	0.018769	0.014927			
C.433486	0.314531	0.249815	C.180511	0.143645	0.104633	C.083938	0.061926	
C.050118	0.036332	0.026668	C.022453	0.017588	0.014400			
C.407715	0.297763	0.237210	0.171696	0.136604	0.099398	0.079685	0.058757	
C.047654	C.034712	0.027544	C.021737	C.017560	0.014197			
C.382628	0.281772	C.225341	C.163044	C.130309	0.094779	0.075922	0.055976	
C.045378	C.033129	0.026376	C.020915	0.016589	0.013824			
C.355126	0.266428	C.214044	0.156147	0.124534	C.090616	0.072544	0.053418	
C.043276	C.031600	0.025192	C.020024	0.016314	0.013321			
C.336902	C.251871	C.203377	C.149181	C.115279	0.086939	C.069608	0.051220	
C.041473	C.030280	0.024162	0.019246	C.015721	0.012880			
C.316525	0.238354	C.193471	C.142831	0.114611	C.083818	C.067201	0.049502	
C.040107	C.029332	0.023461	C.018157	C.015392	0.012683			
C.297888	C.225753	C.184157	0.136856	C.110261	0.080982	0.065062	0.048021	
C.038950	0.028546	C.022888	C.018367	0.015212	0.012619			
C.281069	0.214222	C.175562	0.131380	0.106335	0.078533	0.063294	0.046888	
C.038121	0.028055	C.022586	C.018225	0.015121	0.012629			
C.265685	C.203357	C.167331	C.125957	0.102411	0.076031	C.061459	0.045671	
C.037196	C.027441	0.022142	C.017923	C.014426	0.012525			
C.251670	C.153275	C.159564	0.120814	0.098599	0.073579	C.059653	0.044468	
C.036275	0.0260818	0.021665	0.017573	C.014672	0.012352			
C.238930	C.183412	0.152251	0.115819	0.094866	0.071133	C.057833	0.043237	
C.035318	0.026143	0.021144	C.017162	C.014351	0.012103			
263.074	241.033	227.360	207.973	154.596	175.634	161.955	142.414	
128.446	107.039	91.322	75.275	60.850	46.450			
238.013	216.969	203.440	185.876	173.780	157.147	145.133	128.010	
115.650	96.544	82.336	67.733	54.596	41.540			
210.756	191.135	178.611	162.455	151.803	137.199	126.944	112.289	
101.681	85.107	72.658	59.779	48.138	36.567			
186.799	168.610	150.957	142.086	132.474	119.599	110.709	98.147	
89.096	74.824	64.027	52.752	42.501	32.279			
160.433	149.763	139.045	125.286	116.439	C.04.905	57.048	86.140	
76.314	66.010	56.635	46.765	37.720	28.670			
149.293	134.058	124.110	111.461	103.278	92.748	85.728	76.070	
69.262	58.545	50.354	41.683	33.689	25.637			
134.740	120.911	111.816	100.191	92.516	82.760	76.378	67.695	
61.662	52.227	45.025	37.364	30.261	23.066			
122.176	105.801	101.483	90.598	83.576	74.498	68.555	60.725	
55.285	46.882	40.451	33.678	27.331	20.873			
111.274	100.285	92.639	82.058	76.122	67.634	62.116	54.865	
49.916	42.347	36.613	30.510	24.810	18.984			
101.737	91.963	85.075	75.845	69.726	61.823	56.652	49.919	
45.364	38.468	33.284	27.777	22.627	17.346			
93.349	84.655	78.471	69.971	64.280	56.869	52.026	45.656	
41.470	35.131	30.408	25.403	20.724	15.915			
85.944	78.150	72.610	64.806	59.550	52.016	48.037	42.082	
38.132	32.255	27.914	23.335	19.057	14.057			
79.368	72.431	67.400	60.284	55.395	48.870	44.577	38.952	
35.237	29.754	25.732	21.517	17.588	13.544			
13	14							
1.03e755	C.756605	C.604156	C.439666	0.351083	0.250252	C.205626	C.151750	
C.123124	C.090343	C.072663	C.058779	C.046136	C.041617			
0.873196	C.640684	C.513327	C.374871	C.294817	0.219164	C.175941	0.129956	
C.105542	C.077667	0.002086	C.050901	C.042676	0.036285			
C.753848	0.554708	C.445934	C.327380	C.262740	0.192834	C.155150	0.114889	
C.093449	J.068910	0.055657	C.045317	0.03E093	0.032464			
0.66e159	C.450969	0.395180	C.251304	C.234705	0.173272	C.139977	0.104212	
C.085074	0.063064	C.051185	C.041838	0.035325	C.030241			
C.006155	0.443537	0.356524	C.263033	C.212406	0.157555	C.127774	0.095659	
C.078391	0.058465	C.047688	C.039158	C.033169	0.028511			
C.560519	0.408517	0.327684	C.241520	C.195245	0.145387	C.118381	C.089225	
C.073502	0.035287	C.045403	C.037550	C.032011	C.027703			
C.524580	0.381368	C.305261	0.224512	C.181440	0.135341	C.110466	0.083726	
C.069281	C.052427	C.043260	C.035977	C.030864	0.026850			
C.494525	C.359307	C.287168	C.210739	C.170122	0.126844	0.103731	0.078867	
C.005474	C.049909	0.041323	C.034533	C.025810	0.026058			

DESCRIPTION OF SYSTEM OUTPUTS

TITLE PAGE Print the name of user, job code, job name, TCC site and line information. The top and bottom margin of title page is 2 and 1 inch respectively.

PRINT/DICTIONARY Under PRDICT page counter, upper right corner of the page, entire dictionary to be printed in alphabetical order, and in groups.

PRINT/INPUTS Lists the input cards

1. Program control cards;
2. Job inputs - NDT data processing;
3. Job inputs - thickness design and cost-benefit analysis.

RUN/NDT1/PLOT Under NDT1 page counter, data processing in sequence starts from the first set of each NDT data group and then the first card of each test number in NDT machine data;

1. Summary of NDT data on SUB for statistical correlation of E and DSM, if there are NDT and DSM data on subgrade;
2. Summary of NDT data on PAV for statistical correlation of E and DSM if there are NDT and DSM data on existing pavements;
3. Sorted by test number;
4. Sorted by location of test;
5. Sorted by date/calibration;
6. Calibration factor - input listings and computed factors;
7. Grid identification - input listing;
8. Test identification - only valid test numbers are printed.

Under DFPLLOT page counters, if PLOT is specified on RUN card, the machine data of each test in sequence of input order will be plotted on a sheet containing not more than five test sets.

RUN/NDT2 Under NDT2 page counter,

1. For each PLOT card, the E-value data group will be plotted on one or more pages with the heading specified.
2. If AVERAGE is specified on GRID card, the mean value minus one standard deviation of that group, coded as AREA-E, will also be plotted.
At the completion of NDT2 plotting, the computer operation will be temporarily interrupted. The AREA-E values shall be compiled for subsequent NDT3, PFL and PAVDES operations.

RUN/NDT3 Under NDT/3 page counter,

1. Listing of existing pavements in simplified group of PFLPAV for PFL analysis,
2. NDT inventory file showing four E-values for each facility segment.

RUN/PFL

1. Under ATM page counter, listing aircraft movements which is equal to the product of first year average daily movement and airport traffic distribution for each facility segment.
2. Under OPWGT page counter, the operational weights of all aircraft will be listed for the specified RANGE and LOAD FACTOR on the input cards. If the input range and load factor are blocks, default values will be used to analyze the aircraft movement defined in the ADM data group.
3. Under AND/ANS page counter, equivalent single type aircraft operation will be listed for each class and facility to be designed. For each class of pavement, only the first two facilities are printed.
4. Under PFL page counter, summary of present functional life is listed. The service life reflecting aircraft riding quality is shown under "Governed by DEF/DI" while that reflecting maintenance needs is given under "Governed by STR/MT". For any anticipated service life longer than five years, the listing shows only >5.00.

RUN/PAVDES

1. Under ATM page counter, listing aircraft movements which is equal to the product of average daily movement and airport distribution for each facility segment during the design service life in intervals of 5, 10, 15 and/or 20 years.
2. Under OPWGT page, the operational weights of all aircraft will be listed. It is similar to, but not necessary the same, that shown under "RUN PFL".
3. Under AND/ANS page counter, equivalent single type aircraft operation will be listed. The format is similar to that shown under "RUN PFL".
4. Under CED page counter, the computed engineering data relating to aircraft load repetitions, NDT E-value of subgrade deflection, stress limits, and thickness analysis to two drainage and three traffic conditions are tabulated. There are four new pavements, LCF, AC, CC and CCL, and three overlays, LC/PAV, CC/PAV and AC/PAV. The composition of existing pavement coded as PFLPAV, have been used in the design of asphalt overlay AC/PAV.
5. Under PAV page counter, the pavement data relating to functional requirements, governing condition of design and cost elements are tabulated. Similar to CED listing, seven types of pavement are compiled.
6. Under COBEN page counter, the results of cost-benefit analysis are listed. This is the summary of summaries of the PAVBEN computer operation.

BBBBBBBBBB	TTTTTTTTTT	VV	VV	AAAAAAA	NN	NN	EEEEEEEEE
BBBBBBBBBB	TTTTTTTTTT	VV	VV	AAAAAAA	NNN	NN	EEEEEEEEE
BB BB	TT	VV	VV	AA , AA	NNNN	NN	EE
BB BB	TT	VV	VV	AA AA	NNNNN	NN	EE
BB BB	TT	VV	VV	AA AA	NN NNN	NN	EE
BBBBBBBBBB	TT	VV	VV	-----	NN NNN	NN	EEEEE
BBBBBBBBBB	TT	VV VV	VV	-----	NN NNN	NN	EEEEE
BB BB	TT	VV VV	VV	AA AA	NN NNN NN	NN	EE
BB BB	TT	VVVV	VVVV	AA AA	NN NNNN	NN	EE
BB BB	TT	VVVV	VVVV	AA AA	NN NNNN	NN	EE
BBBDBBBB	TT	VV	VV	AA AA	NN NNN	NN	EEEEE
BBBDBBBB	TT	VV	VV	AA AA	NN NN	NN	EEEEE

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

NONDESTRUCTIVE PAVEMENT EVALUATION

A PARTIAL FULFILLMENT OF THE FAA VALIDATION PROGRAM BY NAI C. YANG AND ASSOCIATES, ENGINEERS, P. C.

THIS IS A PROPRIETARY PROGRAM DEVELOPED BY NAI C. YANG
AND ASSOCIATES, ENGINEERS, PC PRIOR TO FAA VALIDATION.
THE USE OF THIS COMPUTER PROGRAM SHALL BE CONFINED TO
THOSE APPROVED BY NAI C. YANG, AND ALSO, THE FAA UNTIL
THE PROGRAM OF NONDESTRUCTIVE EVALUATION OF CIVIL AIR-
PORT PAVEMENTS IS OFFICIALLY ADOPTED AND IMPLEMENTED.

USER: H. TOMITA

SITE: TCC

CREATED AT: 20:06:09 JAN 23, 1979

THE FAA UNDER THE PRESENT CONDITION ASSUMES NO
RESPONSIBILITIES NOR OBLIGATIONS FROM THE USE OF
THE PROGRAM AND THE INTERPRETATION OF ITS OUTPUTS

NAI C. YANG, ENGINEERING CONSULTANT

NDT1 1

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF NDT DATA ON SUB {30. IN. PLATE}
FOR STATISTICAL CORRELATION OF E AND DSM

TEST NO.	LOCATION STA	DATE/ OFFSET	TEMP DEGF	H(1) HZ	SUMZ E-6 IN/LB	DSM(1)		DSM(W)		E-VALUE
						KIP/IN	/E IN	KIP/IN	/E IN	
113-0	N301.0	R80	15/1	52.0	9.00	2.5499	478.	36.59	720.	55.08
114-0	RC25.0	R80	14/3		7.98	3.1564	355.	33.62	660.	62.50
115-0	R025.0	L80	15/1		7.99	3.2469	354.	34.47	600.	58.44
116-0	N035.5	R80	14/3		6.00	2.9130	470.	41.06	680.	59.43
117-0	P061.0	R80	14/3	53.5	5.97	3.2110	457.	44.03	620.	59.73
118-0	MC15.9	C00	14/1		6.99	2.8486	454.	38.00	580.	49.57
119-0	NC20.0	R42	14/1		7.00	3.2743	391.	38.41	590.	57.95
120-0	NJ22.0	L42	14/1		7.00	3.0105	453.	40.87	580.	52.38
121-0	PC12.5	L42	14/1		7.00	2.7615	508.	42.08	630.	52.19
122-0	R029.0	L42	14/1		7.99	2.4253	498.	36.21	770.	56.02
123-0	R029.0	R42	14/1		7.99	2.6891	506.	40.81	630.	50.82
124-0	MC37.0	L42	14/1		8.00	2.4778	488.	36.24	710.	52.78
125-0	M038.0	R42	14/1		7.00	3.1771	360.	34.34	610.	58.14
						MINIMUM VALUE:	354.	33.62	580.	49.57
						MAXIMUM VALUE:	508.	44.03	770.	62.50
						MEAN VALUE:	444.	38.27	645.	55.77
						COEF. OF VARIANCE:	0.131	0.087	0.093	0.071
						SUMMATION:	0.577E 04	0.838E 04		0.151E 05
						SUM OF SQUARES:	0.260E 07	0.544E 07		0.177E 10
						SUM OF LEVERAGE X β_1 :	0.676E 08	0.979E 08		
						NUMBER OF TESTS:	13			

LINEAR CORRELATION: E-VALUE = 16.76 X DSM(1) + 4162.
CORRELATION COEFFICIENT: 0.78LINEAR CORRELATION: E-VALUE = 16.24 X DSM(W) + 1134.
CORRELATION COEFFICIENT: 0.77

NAI C. YANG, ENGINEERING CONSULTANT

NDT1 2

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF NDT DATA ON PAV (18. IN. PLATE)
FOR STATISTICAL CORRELATION OF E AND DSM

TEST NO.	LOCATION STA OFFSET	DATE/ CALIB	TEMP DEGF	H(1) HZ	SUMZ IN/LB	DSM(1) KIP/IN	DSM(1) IN	DSM(W) KIP/IN	DSM(W) IN	/E	/E	E-VALUE
1-0	A000.5 R12	15/1	50.7	10.01	0.3094	2817.	15.69	6080.	33.86	179537.		
2-0	A002.5 L12	15/1		10.00	0.3094	2806.	15.63	6080.	33.86	179554.		
3-0	A004.5 R12	15/1		8.98	1.3634	695.	17.05	1600.	39.27	40747.		
4-0	A006.5 L12	15/1		8.98	1.2325	687.	15.25	1760.	39.04	45077.		
5-0	A008.5 R12	15/1		7.99	1.5585	610.	17.11	1360.	38.15	35647.		
6-0	A010.5 L12	15/1		7.98	1.5198	608.	16.65	1280.	35.32	36555.		
7-0	A012.5 R12	15/1		8.01	1.5004	633.	17.09	1280.	34.57	37028.		
8-0	A015.0 L12	15/2		7.99	1.5270	624.	17.15	1320.	36.28	36383.		
9-0	A017.5 R12	15/2		8.00	1.6016	599.	17.25	1200.	34.59	34688.		
10-0	A020.0 L12	15/2		9.02	1.3643	607.	14.90	1440.	35.36	40722.		
11-0	A023.0 R12	15/2	44.4	9.00	1.3628	606.	14.87	1600.	39.25	40766.		
12-0	A026.0 L12	15/2		9.00	1.5333	568.	15.58	1400.	38.64	36232.		
13-0	A029.0 R12	15/2		9.00	1.4591	587.	15.43	1520.	39.92	38075.		
14-0	A032.0 L12	15/2		9.01	1.2864	659.	15.25	1760.	40.75	43188.		
15-0	A035.0 R12	15/2		9.00	1.4227	624.	15.98	1200.	30.73	39049.		
16-0	A037.5 L12	15/2		8.99	1.3999	618.	15.56	1200.	30.24	39686.		
17-0	A040.0 R12	15/2		8.99	1.3760	635.	15.73	1560.	38.64	40375.		
18-0	A042.5 L12	15/2		9.02	1.3814	645.	16.05	1440.	35.81	40217.		
19-0	A045.5 R12	15/2	46.4	9.00	1.3675	632.	15.56	1440.	35.45	40625.		
20-0	A048.5 L12	16/1		8.00	1.7100	512.	15.75	1360.	41.86	32489.		
21-0	A051.5 R12	16/1		7.98	1.5080	619.	16.81	1480.	40.17	36839.		
22-0	A054.5 L12	16/1		8.01	1.3523	691.	16.82	1440.	35.05	41083.		
23-0	A057.5 R12	16/1		7.98	1.9025	456.	15.62	1200.	41.09	29202.		
24-0	A060.5 L12	16/1		8.00	1.2791	754.	17.26	1520.	35.00	43432.		
25-0	A063.5 R12	16/1		8.00	1.4294	645.	16.71	1440.	37.31	38597.		
26-0	A065.5 L12	16/1		8.00	1.4027	616.	16.21	1520.	40.02	37982.		
27-0	A067.5 R12	16/1		8.00	1.6085	547.	15.84	1360.	39.38	34538.		
28-0	A069.5 L12	16/1		7.99	1.7093	515.	15.85	1280.	39.38	32501.		
29-0	A071.5 R12	16/1		7.98	1.9295	456.	15.84	1200.	41.68	28792.		
30-0	A073.5 L12	16/1		8.00	1.8785	464.	15.69	1140.	39.22	29575.		
31-0	A075.5 R12	16/1		8.00	2.0217	465.	16.92	1000.	36.39	27480.		
32-0	A077.5 L12	16/1	54.6	10.01	0.3239	2702.	15.75	5440.	31.71	171542.		
33-0	A079.5 R12	15/4		10.00	0.3355	2608.	15.75	5840.	35.27	165589.		
34-0	B016.5 L12	13/2		7.98	1.7142	565.	17.43	960.	29.62	32409.		
35-0	B022.5 R12	13/2		7.99	1.5245	730.	20.05	1200.	32.93	36442.		
36-0	B025.5 L12	13/2		7.99	1.7184	644.	19.93	1040.	32.17	32331.		
37-0	B028.5 R12	13/2		7.98	1.4890	769.	20.61	1200.	32.16	37310.		
38-0	B031.5 L12	13/2		7.98	1.6361	671.	19.78	1120.	32.98	33955.		
39-0	B034.5 R12	13/2		8.01	1.7193	660.	20.44	1040.	32.18	32313.		
40-0	B037.5 L12	13/2		7.98	1.6466	686.	20.32	1080.	32.01	33740.		
41-0	B040.5 R12	13/2	59.7	7.99	1.7678	623.	19.84	1040.	33.09	31427.		
42-0	B044.0 L12	13/2		7.98	1.6156	674.	19.59	1120.	32.57	34387.		
43-0	B047.5 R12	13/2		9.01	1.4847	730.	19.51	1160.	31.00	37420.		

NAI C. YANG, ENGINEERING CONSULTANT

NDT1 3

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF NDT DATA ON PAV (18" IN. PLATE)
FOR STATISTICAL CORRELATION OF E AND DSM

TEST NO.	LOCATION STA	DATE/ OFFSET	TEMP DEGF	H(1) HZ	SUMZ	DSM(1) E-6 IN/LB	DSM(1) /E KIP/IN	DSM(W) /E KIP/IN	DSM(W) /E IN	E-VALUE	
44-0	B051.0	L12	13/2	8.98	1.4750	720.	19.12	1200.	31.86	37665.	
45-C	C017.0	R10	15/2	8.00	2.2169	405.	16.18	840.	33.52	25060.	
46-0	C020.0	L10	12/1	7.98	1.3197	718.	17.05	1600.	38.01	42098.	
47-0	C023.0	R10	12/2	61.0	7.98	1.8281	488.	16.04	1360.	44.75	30390.
48-0	C026.0	L10	12/2	7.99	1.5816	576.	16.39	1520.	43.27	35126.	
49-C	C029.0	R10	12/2	9.00	1.0440	943.	17.71	1600.	30.07	53213.	
50-C	C032.0	L10	12/2	8.99	1.0340	870.	16.98	1640.	32.00	51248.	
51-0	C035.0	R10	12/2	7.99	1.2321	868.	19.25	1360.	30.16	45091.	
52-C	C038.0	L10	12/2	9.00	1.1398	801.	16.43	1640.	33.65	48739.	
53-0	C041.0	R10	12/2	9.00	1.2584	793.	17.96	1400.	31.71	44149.	
54-C	C044.0	L12	12/2	7.98	1.8345	572.	18.89	1020.	33.68	30284.	
55-0	C047.0	R10	12/2	67.5	8.00	1.5758	671.	19.04	1160.	32.90	35256.
56-C	C050.0	L10	12/2	8.00	2.2606	467.	18.59	980.	35.81	24576.	
57-C	DC27.5	S50	12/1	6.00	2.9279	392.	20.64	540.	28.46	18975.	
58-0	D030.5	S50	13/2	60.3	8.00	1.6146	690.	20.06	1120.	32.55	34409.
59-0	D033.5	S50	12/2	8.10	1.7206	598.	18.54	1120.	34.69	32289.	
60-0	E032.5	N00	12/2	7.99	2.1595	449.	17.44	960.	37.32	25727.	
61-0	E044.0	N00	12/2	8.01	1.3622	780.	19.13	1440.	35.31	40782.	
62-C	E050.0	N00	12/2	6.99	2.3792	478.	20.48	780.	33.40	23350.	
63-0	F001.0	L10	16/2	52.5	8.00	1.7454	644.	20.24	1020.	32.04	31830.
64-C	F004.5	R10	13/2	7.98	1.6261	659.	19.30	1120.	32.78	34164.	
65-C	F008.0	L10	13/2	7.98	1.5983	720.	20.71	1120.	32.22	34759.	
66-C	G003.0	R12	12/2	8.00	1.6741	587.	17.70	1160.	34.96	33185.	
67-0	G006.0	L12	12/2	7.99	1.4899	720.	19.30	1280.	34.33	37288.	
68-C	G009.0	R12	12/2	7.99	1.4809	724.	19.30	1220.	32.52	37514.	
69-C	G012.0	L12	12/2	65.4	7.99	1.3870	793.	19.81	1260.	31.46	40055.
70-C	G015.0	R12	12/2	9.01	1.3470	760.	18.43	1380.	33.46	41245.	
71-C	G018.0	L12	12/2	8.00	1.5323	693.	19.12	1200.	33.10	36255.	
72-C	G021.0	R12	15/4	55.9	7.99	1.6352	703.	20.70	1040.	30.61	33974.
73-C	H007.5	U50	12/2	9.00	0.8288	1208.	18.02	1920.	28.64	67034.	
74-C	H010.5	U50	12/2	8.99	0.8242	1188.	17.62	1920.	28.49	67402.	
75-C	H013.5	U50	12/2	8.98	1.1213	857.	17.29	1700.	34.31	49545.	
76-C	I000.5	R10	13/1	8.99	1.1145	868.	17.42	1680.	33.70	49847.	
77-C	I003.5	L10	13/1	57.0	8.99	1.1204	851.	17.17	1560.	31.46	49584.
78-C	I006.5	R10	13/1	9.00	1.1398	842.	17.28	1600.	32.83	48742.	
79-C	I009.5	L10	13/1	9.00	1.0551	913.	17.34	1600.	30.39	52652.	
80-C	I012.5	R10	13/1	8.99	1.3092	729.	17.18	1400.	32.99	42434.	
81-C	I015.5	L10	13/1	9.00	1.1990	781.	16.86	1520.	32.80	46335.	
82-C	I018.5	R10	13/1	8.99	1.3497	743.	18.04	1360.	33.34	41160.	
83-C	I021.5	L10	13/1	58.7	8.98	1.4077	689.	17.47	1200.	30.41	39465.
84-C	I024.5	R10	15/4	10.00	0.4770	1919.	16.48	3440.	29.54	116463.	
85-C	I024.5	T00	15/4	9.00	1.0402	1919.	19.07	1920.	35.95	53406.	
86-C	J002.0	L10	16/3	58.8	8.01	2.1063	518.	19.65	880.	33.36	26376.

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF NOT DATA ON PAV (18. IN. PLATE)
FOR STATISTICAL CORRELATION OF E AND DSM

TEST NO.	LOCATION STA	DATE/ OFFSET	TEMP DEGF	H(1) HZ	SUMZ IN/LB	SUMZ	CSM(1)	DSM(1)	DSM(W)	DSM(W)	E-VALUE
						E-6 IN/LB	KIP/IN	/E IN	KIP/IN	/E IN	
87-0	J005.0	R10	16/3	8.00	1.7926	642.	20.71	960.	30.98	30992.	
88-0	K002.0	L10	15/1	4.99	1.4050	946.	23.93	1560.	39.45	39542.	
89-0	K004.0	R10	16/3	62.2	9.00	1.4882	715.	19.16	1160.	31.07	37330.
90-0	K006.5	L10	16/3		8.97	1.1042	969.	19.26	1600.	31.80	50309.
91-0	K009.0	R10	16/3		9.99	0.8430	1216.	18.45	1960.	29.74	65899.
92-0	K012.0	L10	16/3		8.99	0.9458	1107.	18.84	1800.	30.64	58742.
93-0	K015.0	R10	16/3		9.00	1.1856	848.	18.10	1520.	32.44	46858.
94-0	K018.0	L10	16/3		8.99	1.4124	698.	17.74	1320.	33.56	39335.
95-0	K021.0	R10	16/3		9.00	1.1283	921.	18.70	1520.	30.87	49237.
96-0	K024.0	L10	16/3		9.58	0.8559	1166.	18.00	2000.	30.81	64911.
97-0	K027.0	R10	16/3		9.00	1.1328	970.	19.78	1520.	30.99	49045.
98-0	K030.0	L10	16/3		8.98	1.0433	1028.	19.31	1720.	32.30	53248.
99-0	K033.0	R10	16/3	59.8	8.98	1.4498	682.	17.80	1200.	31.32	38319.
100-0	K036.0	L10	16/3		8.99	1.4414	709.	18.40	1160.	30.10	38543.
101-0	KL39.0	R10	16/3		8.02	1.5968	689.	19.82	1120.	32.19	34792.
102-0	KC42.0	L10	16/3		7.99	1.5202	743.	20.33	1080.	29.55	36544.
103-0	K045.0	R10	16/3		8.00	1.5557	721.	20.18	1080.	30.24	35710.
104-0	KU48.0	L10	16/3		9.00	1.3651	713.	17.52	1280.	31.45	40698.
105-0	LC51.0	C00	13/2		7.99	1.6638	667.	19.97	1160.	34.74	33391.
106-0	LC53.5	C00	13/2		8.00	1.6900	662.	20.13	1120.	34.07	32874.
107-0	L056.0	C00	13/1		7.99	2.0024	519.	18.72	960.	34.50	27745.
108-0	L049.0	N00	12/2		7.99	2.3665	444.	18.85	770.	32.80	23476.
109-0	LC51.0	N00	13/2		7.99	2.3443	457.	19.29	780.	32.91	23698.
110-0	L053.5	N00	13/2		8.00	2.2244	476.	19.06	810.	32.43	24975.
111-0	L060.0	N00	13/1		8.00	1.8288	575.	19.02	1020.	33.76	30213.
112-0	L062.0	N00	13/1		8.01	1.7654	610.	19.37	1020.	32.41	31469.
MINIMUM VALUE:						392.	14.87	540.	28.46	18975.	
MAXIMUM VALUE:						2817.	23.93	6080.	44.75	179554.	
MEAN VALUE:						780.	18.01	1488.	34.01	44130.	
COEF. OF VARIANCE:						0.551	0.097	0.615	0.101	0.629	
SUMMATION:						0.874E 05	0.167E 06	0.494E 07			
SUM OF SQUARE:						0.886E 08	0.341E 09		0.304E 12		
SUM OF (EVALUE X):						0.516E 10	0.101E 11				
NUMBER OF TESTS:						112					

LINEAR CORRELATION: E-VALUE = 63.84 X DSM(1) - 5667.
CORRELATION COEFFICIENT: 0.99LINEAR CORRELATION: E-VALUE = 29.93 X DSM(W) - 393.
CORRELATION COEFFICIENT: 0.99

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SUMMARY OF NOT DATA, SORTED BY TEST NUMBER

TEST NO.	LOCATION STA	DATE/ OFFSET	TEMP DEGF	H(1) HZ	SUM2 IN/LB	DSM(1) KIP/IN	DSM(1) IN	DSM(W) KIP/IN	DSM(W) IN	/E	/E	E-VALUE
1-0	AC00.5	R12	15/1	50.7	10.01	0.3094	2817.	15.69	6080.	33.86	179537.	
2-0	AC02.5	L12	15/1		10.00	0.3094	2806.	15.63	6080.	33.86	179554.	
3-0	AC04.5	R12	15/1		8.98	1.3634	695.	17.05	1600.	39.27	40747.	
4-0	AC06.5	L12	15/1		8.98	1.2325	687.	15.25	1760.	39.04	45077.	
5-0	AC08.5	R12	15/1		7.99	1.5585	610.	17.11	1360.	38.15	35647.	
6-0	AC10.5	L12	15/1		7.98	1.5198	608.	16.65	1280.	35.02	36555.	
7-0	AC12.5	R12	15/1		8.01	1.5004	633.	17.09	1280.	34.57	37028.	
8-0	AC15.0	L12	15/2		7.99	1.5270	624.	17.15	1320.	36.28	36383.	
8-1	AC15.0	L06	15/2		8.00	1.6250	570.	16.67	1240.	36.27	34187.	
8-2	AC15.0	L18	15/2		8.00	1.5860	583.	16.64	1280.	36.54	35028.	
9-3	AC15.0	L30	15/1		8.00	1.7794	506.	16.21	1290.	38.44	31221.	
8-4	AC15.0	L50	15/1		7.98	1.5648	602.	16.96	1320.	37.18	35503.	
8-5	AC15.0	L70	15/1	+7.8	8.01	2.2744	385.	15.77	1040.	42.58	24427.	
8-6	AC15.0	L80	15/1		7.98	3.2565	363.	35.48	580.	56.66	10236.	
9-0	AC17.5	R12	15/2		8.00	1.6016	599.	17.25	1200.	34.59	34688.	
10-0	AC20.0	L12	15/2		9.02	1.3643	607.	14.90	1440.	35.36	40722.	
11-0	AC23.0	R12	15/2	+4.4	9.00	1.3628	606.	14.87	1600.	39.25	40766.	
12-0	AC26.0	L12	15/2		9.00	1.5323	568.	15.68	1400.	38.64	36232.	
13-0	AC29.0	R12	15/2		9.00	1.4591	587.	15.43	1520.	39.92	38075.	
14-0	AC32.0	L12	15/2		9.01	1.2864	659.	15.25	1760.	40.75	43188.	
15-0	AC35.0	R12	15/2		9.00	1.4227	624.	15.98	1200.	30.73	39049.	
16-0	AC37.5	L12	15/2		8.99	1.3999	618.	15.56	1200.	30.24	39686.	
17-0	AC40.0	R12	15/2		8.99	1.3760	635.	15.73	1560.	38.64	40375.	
18-0	AC42.5	L12	15/2		9.02	1.3814	645.	16.05	1440.	35.81	40217.	
19-0	AC45.5	R12	15/2	+6.4	9.00	1.3675	632.	15.56	1440.	35.45	40625.	
20-0	AC48.5	L12	16/1		8.00	1.7100	512.	15.75	1360.	41.86	32489.	
21-0	AC51.5	R12	16/1		7.98	1.5080	619.	16.81	1480.	40.17	36839.	
22-0	AC54.5	L12	16/1		8.01	1.3523	691.	16.82	1440.	35.05	41083.	
23-0	AC57.5	R12	16/1		7.98	1.9025	456.	15.62	1200.	41.09	29202.	
24-0	AC60.5	L12	16/1		8.00	1.2791	754.	17.36	1520.	35.00	43432.	
25-0	AC63.5	R12	16/1		8.00	1.4394	645.	16.71	1440.	37.31	38597.	
25-1	AC63.5	R06	16/1	+3.4	7.98	1.7189	509.	15.76	1280.	39.60	32321.	
25-2	AC63.5	R18	16/1		7.98	1.5480	593.	16.51	1360.	37.89	35889.	
25-3	AC63.5	R30	16/1		8.01	1.4247	665.	17.05	1520.	38.98	38996.	
25-4	AC63.5	R50	16/1		8.00	1.4323	649.	16.74	1440.	37.13	38787.	
25-5	AC63.5	R70	16/1		7.99	1.6460	545.	16.15	1440.	42.68	33740.	
25-6	AC63.5	R80	14/3		7.97	2.0683	411.	35.41	640.	55.07	11621.	
26-0	AC65.5	L12	16/1		8.00	1.4627	616.	16.21	1520.	40.02	37982.	
27-0	AC67.5	R12	16/1		8.00	1.6085	547.	15.84	1360.	39.38	34538.	
28-0	AC69.5	L12	16/1		7.99	1.7093	515.	15.85	1280.	39.38	32501.	
29-0	AC71.5	R12	16/1		7.98	1.9295	456.	15.84	1200.	41.68	28792.	
30-0	AC73.5	L12	15/1		8.00	1.8785	464.	15.69	1160.	39.22	29575.	
31-0	AC75.5	R12	16/1		8.00	2.0217	465.	16.92	1070.	36.39	27480.	
32-0	AC77.5	L12	16/1	54.6	10.01	0.3239	2702.	15.75	5440.	31.71	171542.	

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SUMMARY OF NDT DATA, SORTED BY LOCATION

TEST NO.	LOCATION STA OFFSET	DATE/ TEMP	TEMP CALIB DEGF	H(1) HZ	SUMZ IN/LB	DSM(1) KIP/IN	DSM(11) IN	DSM(W) KIP/IN	DSM(W) IN	/E	/E	E-VALUE
1-C	A000.5 R12	15/1	50.7	10.01	0.3094	2817.	15.69	6080.	33.86	179537.		
2-C	A002.5 L12	15/1		10.00	0.3094	2806.	15.63	6080.	33.86	179554.		
3-C	A004.5 R12	15/1			8.98	1.3634	695.	17.05	1600.	39.27	40747.	
4-C	A006.5 L12	15/1			8.98	1.2325	687.	15.25	1760.	39.04	45077.	
5-C	A008.5 R12	15/1			7.99	1.5585	610.	17.11	1360.	38.15	35647.	
6-C	A010.5 L12	15/1			7.98	1.5198	608.	16.65	1280.	35.02	36555.	
7-C	A012.5 R12	15/1			8.01	1.5004	633.	17.09	1280.	34.57	37028.	
8-C	A015.0 L06	15/2			9.00	1.6250	570.	16.67	1240.	36.27	34187.	
8-C	A015.0 L12	15/2			7.99	1.5270	624.	17.15	1320.	36.28	36383.	
8-C	A015.0 L18	15/2			8.00	1.5860	583.	16.64	1280.	36.54	35028.	
8-C	A015.0 L30	15/1			8.00	1.7794	506.	16.21	1200.	38.44	31221.	
8-C	A015.0 L50	15/1			7.98	1.5648	602.	16.96	1320.	37.18	35503.	
8-C	A015.0 L70	15/1	47.8		8.01	2.2744	385.	15.77	1040.	42.58	24427.	
8-C	A015.0 L80	15/1			7.98	3.2565	363.	35.48	580.	56.66	10236.	
9-C	A017.5 R12	15/2			8.00	1.6016	599.	17.25	1200.	34.59	34688.	
10-C	A020.0 L12	15/2			9.02	1.3643	607.	14.90	1440.	35.36	40722.	
11-C	A023.0 R12	15/2	44.4		9.00	1.3628	606.	14.87	1600.	39.25	40766.	
12-C	A026.0 L12	15/2			9.00	1.5333	568.	15.68	1400.	38.64	36232.	
13-C	A029.0 R12	15/2			9.00	1.4591	587.	15.43	1520.	39.92	38075.	
14-C	A032.0 L12	15/2			9.01	1.2864	659.	15.25	1760.	40.75	43188.	
15-C	A035.0 R12	15/2			9.00	1.4227	624.	15.98	1200.	30.73	39049.	
16-C	A037.5 L12	15/2			8.99	1.3999	618.	15.56	1200.	30.24	39686.	
17-C	A040.0 R12	15/2			8.99	1.3760	635.	15.73	1560.	38.64	40375.	
18-C	A042.5 L12	15/2			9.02	1.3814	645.	16.05	1440.	35.81	40217.	
19-C	A045.5 R12	15/2	46.4		9.00	1.3675	632.	15.56	1440.	35.45	40625.	
20-C	A048.5 L12	16/1			8.03	1.7100	512.	15.75	1360.	41.86	32489.	
21-C	A051.5 R12	16/1			7.98	1.5080	619.	16.81	1480.	40.17	36839.	
22-C	A054.5 L12	16/1			8.01	1.3523	691.	16.82	1440.	35.05	41083.	
23-C	A057.5 R12	16/1			7.98	1.9025	456.	15.62	1200.	41.09	29202.	
24-C	A060.5 L12	16/1			8.00	1.2791	754.	17.36	1520.	35.00	43432.	
25-C	A063.5 R06	16/1	53.4		7.98	1.7189	509.	15.76	1280.	39.60	32321.	
25-C	A063.5 R12	16/1			8.00	1.4394	645.	16.71	1440.	37.31	38597.	
25-C	A063.5 R18	16/1			7.98	1.5480	593.	16.51	1360.	37.89	35889.	
25-C	A063.5 R30	16/1			8.01	1.4247	665.	17.05	1520.	38.98	38996.	
25-C	A063.5 R50	16/1			8.00	1.4323	649.	16.74	1440.	37.13	38787.	
25-C	A063.5 R70	16/1			7.99	1.6466	545.	16.15	1440.	42.68	33740.	
25-C	A063.5 R80	14/3			7.97	2.8683	411.	35.40	640.	55.07	11621.	
26-C	A065.5 L12	16/1			8.00	1.4627	616.	16.21	1520.	40.02	37982.	
27-C	A067.5 R12	16/1			8.00	1.6085	547.	15.84	1360.	39.38	34538.	
28-C	A069.5 L12	16/1			7.99	1.7093	515.	15.85	1280.	39.38	32501.	
29-C	A071.5 P12	16/1			7.98	1.9295	456.	15.84	1200.	41.68	28792.	
30-C	A073.5 L12	16/1			8.00	1.8785	464.	15.69	1160.	39.22	2957	
31-C	A075.5 R12	16/1			8.00	2.0217	465.	16.92	1000.	36.39	274	
32-C	A077.5 L12	16/1	54.6	10.01	0.3239	2702.	15.75	5440.	31.71	171		

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF NDT DATA, SORTED BY DATE/CALIB

TEST NO.	LOCATION STA OFFSET CALIB	DATE/ TEMP DEGF	H(1) HZ	SUMZ E-6 IN/LB	DSM(1) KIP/IN	DSM(W) IN	DSM(W) KIP/IN	/E IN	/E IN	E-VALUE
46-0	CC20.0 L10	12/1	7.98	1.2197	718.	17.05	1600.	38.01	42098.	
46-1	CC20.0 L10	12/1	8.99	1.2227	687.	15.12	1600.	35.21	45438.	
46-2	CC20.0 L10	12/1	8.00	1.3001	702.	16.42	1600.	37.44	42733.	
46-3	CC20.0 L10	12/1	7.98	1.2197	718.	17.05	1600.	38.01	42098.	
46-4	CC20.0 L10	12/1	7.98	1.3080	774.	18.23	1600.	37.67	42475.	
57-0	DC27.5 S50	12/1	6.90	2.9279	392.	20.64	540.	28.46	18975.	
57-1	DC27.5 S50	12/1	6.90	2.9279	392.	20.64	540.	28.46	18975.	
57-2	DC27.5 S50	12/1	6.90	3.4002	294.	18.02	540.	33.05	16339.	
57-3	DC27.5 S50	12/1	57.4	6.90	3.5272	293.	18.60	540.	34.28	15751.
57-4	DC27.5 S50	12/1	9.90	2.2624	539.	21.93	540.	21.99	24556.	
47-0	CD23.0 R10	12/2	61.0	7.98	1.8281	488.	16.04	1360.	44.75	30390.
48-0	CC26.0 L10	12/2	7.99	1.5816	576.	16.39	1520.	43.27	35126.	
49-0	CC29.0 R10	12/2	9.00	1.0440	943.	17.71	1600.	30.07	53213.	
50-0	CC32.0 L10	12/2	8.99	1.0840	870.	16.95	1640.	32.00	51248.	
51-0	CC35.0 R10	12/2	7.99	1.2321	868.	19.25	1260.	30.16	45091.	
52-0	CC38.0 L10	12/2	9.00	1.1398	801.	16.43	1640.	33.65	48739.	
53-0	CD41.0 R10	12/2	9.00	1.2584	793.	17.96	1400.	31.71	44149.	
54-0	CD44.0 L10	12/2	7.98	1.8345	572.	18.89	1320.	33.68	30284.	
55-0	CC47.0 R10	12/2	67.5	8.00	1.5758	671.	19.04	1160.	32.90	35256.
56-0	CD50.0 L10	12/2	8.00	2.2606	467.	18.99	880.	35.81	24576.	
59-0	DC33.5 S50	12/2	8.00	1.7206	598.	18.54	1120.	34.69	32289.	
60-0	CD32.5 N00	12/2	7.99	2.1595	449.	17.44	960.	37.32	25727.	
61-0	CD44.0 N00	12/2	8.01	1.3622	780.	19.13	1440.	35.31	40782.	
62-0	CD50.0 N00	12/2	6.99	2.3792	478.	20.48	780.	33.40	23350.	
66-0	GC03.0 R12	12/2	8.00	1.6741	587.	17.70	1160.	34.96	33185.	
67-0	GC06.0 L12	12/2	7.99	1.4899	720.	19.30	1280.	34.33	37288.	
68-0	GC09.0 R12	12/2	7.99	1.4809	724.	19.36	1220.	32.52	37514.	
69-0	GC12.0 L12	12/2	65.4	7.99	1.3870	793.	19.81	1260.	31.46	40055.
70-0	GC15.0 R12	12/2	9.01	1.2470	760.	18.43	1380.	33.46	41245.	
71-0	GC18.0 L12	12/2	8.00	1.5323	693.	19.12	1200.	33.10	36255.	
73-0	HC07.5 U50	12/2	9.00	0.8288	1208.	18.02	1920.	28.64	67034.	
74-0	HC10.5 U50	12/2	8.99	0.8242	1188.	17.62	1920.	28.49	67402.	
75-0	HC13.5 U50	12/2	8.98	1.1213	857.	17.29	1700.	34.31	49545.	
76-0	IC00.5 R10	13/1	8.99	1.1145	868.	17.42	1680.	33.70	49847.	
77-0	IC03.5 L10	13/1	57.6	8.99	1.1204	851.	17.17	1550.	31.46	49584.
78-0	IC06.5 R10	13/1	9.00	1.1398	842.	17.28	1600.	32.83	48742.	
79-0	IC09.5 L10	13/1	9.00	1.0551	913.	17.34	1600.	30.39	52652.	
80-0	IC12.5 R10	13/1	8.99	1.3092	729.	17.18	1400.	32.99	42434.	
81-0	IC15.5 L10	13/1	9.00	1.1990	781.	16.86	1520.	32.80	46335.	
82-0	IC18.5 R10	13/1	8.99	1.3497	743.	18.04	1360.	33.04	41160.	
83-0	IC21.5 L10	13/1	58.7	8.98	1.4077	689.	17.47	1200.	30.41	39465.
107-0	LC56.0 C00	13/1	7.99	2.0024	519.	18.72	960.	34.60	27745.	
111-0	LC60.0 N00	13/1	8.00	1.8388	575.	19.02	1020.	33.76	30213.	
112-0	LC62.0 N00	13/1	8.01	1.7654	610.	19.37	1020.	32.41	31469.	

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NDT1 17

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CALIBRATION FACTORS

DATE	TIME CODE	RESPONSE E-6	AMPLITUDE E-1	FREQUENCY E-3
9/12/77	12/0930/1	0.99900	0.99620	1.00000
9/12/77	12/1330/2	0.99960	0.99700	1.00000
9/12/77	12/1825/3	0.99810	0.99840	1.00000
9/13/77	13/0900/1	0.99810	0.99500	1.00000
9/13/77	13/1435/2	0.99950	0.99790	1.00000
9/13/77	13/1855/3	0.99950	0.99860	1.00000
9/14/77	14/0904/1	0.99960	0.99690	1.00000
9/14/77	14/1130/2	0.99800	0.99590	1.00000
9/14/77	14/2238/3	0.99920	0.99730	1.00000
9/15/77	15/2238/1	0.99920	0.99730	1.00000
9/15/77	15/0325/2	0.99680	0.99780	1.00000
9/15/77	15/0657/3	0.99990	0.99690	1.00000
9/15/77	15/2239/4	1.00000	0.99800	1.00000
9/16/77	16/2239/1	1.00000	0.99800	1.00000
9/16/77	16/0300/2	0.99960	0.99690	1.00000
9/16/77	16/1410/3	0.99900	0.99560	1.00000
9/16/77	16/1734/4	0.99950	0.99770	1.00000

GRID IDENTIFICATIONS

A	RW 15-33
B	Rw 1-19
C	TW A
D	GATE/APRN
E	XTWS TO A.
F	TW B
G	TW C
H	APRN GA
I	TW D
J	TW E
K	TW F
L	APRN VANG
M	RW1-19 EXT
N	TW NEW
P	XTW-GA NJ
R	TW - RW19

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TEST IDENTIFICATIONS

TEST NO.	LOCATION STA	TIME OFFSET	CODE	TEMP DEGF	CSM(W) E+3	LOAD/RAD.	PFLPAV	DRAINAGE
1-0	A000.5	R12	15/C057/1	50.7	6080.	3.0/ 9.0	13/CC7	NORM
2-0	A002.5	L12	15/0129/1		6080.	3.0/ 9.0	13/CC7	NORM
3-0	A004.5	R12	15/0142/1		1600.	3.0/ 9.0	2/AC2	NORM
4-0	A006.5	L12	15/0154/1		1760.	3.0/ 9.0	2/AC2	NORM
5-0	A008.5	R12	15/0212/1		1360.	3.0/ 9.0	2/AC2	NORM
6-0	A010.5	L12	15/0233/1		1280.	3.0/ 9.0	2/AC2	NORM
7-0	A012.5	R12	15/0245/1		1280.	3.0/ 9.0	2/AC2	NORM
8-0	A015.0	L12	15/0350/2		1320.	3.0/ 9.0	2/AC2	NORM
8-1	A015.0	L06	15/0400/2		1240.	3.0/ 9.0	2/AC2	NORM
8-2	A015.0	L18	15/0340/2		1280.	3.0/ 9.0	2/AC2	NORM
8-3	A015.0	L30	15/0317/1		1200.	3.0/ 9.0	2/AC2	NORM
8-4	A015.0	L50	15/C306/1		1320.	3.0/ 9.0	2/AC2	NORM
8-5	A015.0	L70	15/0257/1	47.8	1040.	3.0/ 9.0	2/AC2	NORM
8-6	A015.0	L80	15/0019/1		580.	1.5/15.0	0/SUB	NORM
9-0	A017.5	R12	15/0434/2		1200.	3.0/ 9.0	2/AC2	NORM
10-0	A020.0	L12	15/0444/2		1440.	3.0/ 9.0	2/AC2	NORM
11-0	A022.0	R12	15/0422/2	44.4	1600.	3.0/ 9.0	2/AC2	NORM
12-0	A026.0	L12	15/C507/2		1400.	3.0/ 9.0	2/AC2	NORM
13-0	A029.0	R12	15/0520/2		1520.	3.0/ 9.0	2/AC2	NORM
14-0	A032.0	L12	15/0535/2		1760.	3.0/ 9.0	2/AC2	NORM
15-0	A035.0	R12	15/0606/2		1200.	3.0/ 9.0	2/AC2	NORM
16-0	A037.5	L12	15/0620/2		1200.	3.0/ 9.0	2/AC2	NORM
17-0	A040.0	R12	15/0624/2		1560.	3.0/ 9.0	2/AC2	NORM
18-0	A042.5	L12	15/0644/2		1440.	3.0/ 9.0	2/AC2	NORM
19-0	A045.5	R12	15/0655/2	46.4	1440.	3.0/ 9.0	2/AC2	NORM
20-0	A048.5	L12	16/0252/1		1360.	3.0/ 9.0	2/AC2	NORM
21-0	A051.5	R12	16/0242/1		1480.	3.0/ 9.0	2/AC2	NORM
22-0	A054.5	L12	16/0213/1		1440.	3.0/ 9.0	2/AC2	NORM
23-0	A057.5	R12	16/0220/1		1200.	3.0/ 9.0	2/AC2	NORM
24-0	A060.5	L12	16/0211/1		1520.	3.0/ 9.0	2/AC2	NORM
25-0	A063.5	R12	16/0153/1		1440.	3.0/ 9.0	2/AC2	NORM
25-1	A062.5	R06	16/0201/1	53.4	1280.	3.0/ 9.0	2/AC2	NORM
25-2	A063.5	R18	16/0144/1		1360.	3.0/ 9.0	2/AC2	NORM
25-3	A063.5	R30	15/C136/1		1520.	3.0/ 9.0	2/AC2	NORM
25-4	A063.5	R50	16/0127/1		1440.	3.0/ 9.0	2/AC2	NORM
25-5	A063.5	R70	16/0119/1		1440.	3.0/ 9.0	2/AC2	NORM
25-6	A063.5	R80	14/2317/3		640.	1.5/15.0	0/SUB	NORM
26-0	A065.5	L12	16/0108/1		1520.	3.0/ 9.0	2/AC2	NORM
27-0	A067.5	R12	16/0059/1		1360.	3.0/ 9.0	2/AC2	NORM
28-0	A069.5	L12	16/0050/1		1280.	3.0/ 9.0	1/AC1	NORM
29-0	A071.5	R12	16/0042/1		1200.	3.0/ 9.0	1/AC1	NORM
30-0	A073.5	L12	16/0032/1		1160.	3.0/ 9.0	1/AC1	NORM
31-0	A075.5	R12	16/0024/1		1000.	3.0/ 9.0	1/AC1	NORM
32-0	A077.5	L12	16/0015/1	54.6	5440.	3.0/ 9.0	13/CC7	NORM
33-0	A079.5	R12	15/2355/4		5840.	3.0/ 9.0	13/CC7	NORM

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DFPLOT 1

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Z/F, IN/LB



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NOT2 1

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RUNWAY 15-33/PROFILE

LOCATION	E-VAL	AREA-E	EMIN= 4000.	ESTEP= 3000./*
	• • 179545.	*	*	•
AC00.5R12	179537.			X.
AC02.5L12	179554.			X.
	• • 34685.	*	*	•
AC04.5R12	40747.	X *		•
AC06.5L12	45077.	X *		•
AC08.5R12	35647.	X*		•
AC10.5L12	36555.	X*		•
AC12.5R12	37028.	X*		•
AC15.0L12	36383.	X*		•
AC17.5R12	34688.	X		•
AC20.0L12	40722.	X *		•
AC23.0R12	40766.	X *		•
AC25.0L12	36232.	X*		•
AC29.0R12	38975.	X*		•
AC32.0L12	43188.	X *		•
AC35.0R12	35049.	X *		•
AC37.5L12	35686.	X *		•
AC40.0R12	40375.	X *		•
AC42.5L12	40217.	X *		•
AC45.5R12	40625.	X *		•
AC48.5L12	32489.	*X		•
AC51.5R12	36839.	X*		•
AC54.5L12	41083.	X *		•
AC57.5R12	29202.	* X		•
AC60.5L12	43432.	X *		•
AC63.5R12	38597.	X *		•
AC65.5L12	37982.	X*		•
AC67.5R12	34538.	X		•
	• • 27745.	*	*	•
AC69.5L12	32501.	X *		•
AC71.5R12	28792.	X		•
AC73.5L12	29575.	X*		•
AC75.5R12	27480.	X		•
	• • 165589.	*	*	•
AC77.5L12	171542.			X.
AC79.5R12	165589.			X.

0000000000	TTTTTTTTTTTT	VV	VV	AAAAAAA	NN	NN	EEEEEEEEE
0000000000	TTTTTTTTTTTT	VV	VV	AAAAAAA	NNN	NN	EEEEEEEEE
00 00	TT	VV	VV	AA AA	NNNN	NN	EE
00 00	TT	VV	VV	AA AA	NNNN	NN	EE
00 00	TT	VV	VV	AA AA	NNNN	NN	EE
0000000000	TT	VV	VV	-----	NN NNN	NN	EEEEEE
0000000000	TT	VV	VV	-----	NN NNN	NN	EEEEEE
00 00	TT	VV	VV	AA AA	NN NNN NN	EE	
00 00	TT	VV	VV	AA AA	NN NNNNN	EE	
00 00	TT	VVVV		AA AA	NN NNNN	EE	
0000000000	TT	VV		AA AA	NN NNN	EE	
0000000000	TT	VV		AA AA	NN NN	EE	

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NONDESTRUCTIVE PAVEMENT EVALUATION

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A PARTIAL FULFILLMENT OF THE FAA VALIDATION PROGRAM BY NAI C. YANG AND ASSOCIATES, ENGINEERS, P. C.

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USER: H. TOMITA

SITE: TCC

CREATED AT: 20:12:26 JAN 23, 1979

THE FAA UNDER THE PRESENT CONDITION ASSUMES NO RESPONSIBILITIES NOR OBLIGATIONS FROM THE USE OF THE PROGRAM AND THE INTERPRETATION OF ITS OUTPUTS

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DICTIONARIES

AAND	EQUIVALENT LOAD REPETITIONS OF ALL AIRCRAFT - DEFLECTION CRITERIA
AANS	EQUIVALENT LOAD REPETITIONS OF ALL AIRCRAFT - STRESS CRITERIA
AC	ASPHALT PAVEMENT
AC/AC	ASPHALT OVERLAY ON EXISTING ASPHALT PAVEMENT
AC/CC	ASPHALT OVERLAY ON EXISTING CONCRETE PAVEMENT
AC/CCA	ASPHALT OVERLAY ON CONCRETE PAVEMENT
AC/PAV	ASPHALT OVERLAY
ACC	ASPHALT PAVEMENT WITH CTB
ACE	FAA CENTRAL REGION
ACSTR	ACTUAL WORKING TENSILE STRESS
AC1	3 IN. EXAC
AC2	6 IN. EXAC
AC3	9 IN. EXAC
AC4	12 IN. EXAC
AC5	16 IN. EXAC
AC6	20 IN. EXAC
ADM	AVERAGE DAILY MOVEMENT
ADMPO	AVERAGE DAILY MOVEMENT PREPARED BY AIRPORT OPERATOR
ADMATA	AVERAGE DAILY MOVEMENT PREPARED BY ATA
ADMFAA	AVERAGE DAILY MOVEMENT PREPARED BY FAA
ADMISUG	AVERAGE DAILY MOVEMENT SUGGESTED FOR PAVEMENT DESIGN
AEA	FAA EASTERN REGION
AEU	FAA EUROPEAN REGION
AGBS	AGGREGATE BASE COURSE, P-206 TO P-214, P-217
ACL	FAA GREAT LAKES REGION
AIRB	ANNUAL INTEREST RATE OF BOND
ALF	AIRCRAFT LOAD FACTOR
AMC	ANNUAL MAINTENANCE COST, \$/S.Y.
AND	EQUIVALENT LOAD REPETITIONS OF ONE TYPE OF AIRCRAFT - DEFLECTION
ANDA	ANTICIPATED SERVICE LIFE IN LOAD REPETITIONS - DEFLECTION CRITERIA
ANE	FAA NEW ENGLAND REGION
ANS	EQUIVALENT LOAD REPETITIONS OF ONE TYPE OF AIRCRAFT - STRESS CRITERIA
ANW	FAA NORTHWEST REGION
APX	TRANSVERSE DIRECTION PROBABILITY DISTRIBUTION OF WHEEL LOAD
APY	LONGITUDINAL DIRECTION PROBABILITY DISTRIBUTION OF LANDING IMPACT
ARCD	ANNUAL RATE OF CASH DISCOUNT
AREA-E	MEAN VALUE MINUS ONE STANDARD DEVIATION OF A GROUP OF E-VALUE
ARM	FAA ROCKY MOUNTAIN REGION
ASBS	ASPHALT BASE COURSE, P-201
ASCCC	RATE OF ANNUAL ESCALATION OF CONSTRUCTION COST
ASCLT	COST OF ASPHALT CIL, CAR LOAD PER TON
ASCMC	RATE OF ANNUAL ESCALATION OF MAINTENANCE NEED
ASC	FAA SOUTHERN REGION
ASTB	ASPHALT TREATED BASE, P-215, P-216

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

DICTIONARIES

ASTOP	ASPHALT TOP COURSE, P-401, P-408
ASW	FAA SOUTHWEST REGION
ATD	AIRPORT TRAFFIC DISTRIBUTION
ATDAOPO	AIRPORT TRAFFIC DISTRIBUTION PREPARED BY AIRPORT OPERATOR
ATCSUG	AIRPORT TRAFFIC DISTRIBUTION SUGGESTED FOR PAVEMENT DESIGN
ATM	AIRCRAFT TRAFFIC MOVEMENTS
AWE	FAA WESTERN REGION
A1,A2	Coefficients of Transfer Function (TRANSVERSE TO LONG. DEFLECTION)
C	CENTER LINE
CALIB	THE CALIBRATION IDENTIFICATION NUMBER
CC	CONCRETE PAVEMENT
CG/AC	CONCRETE OVERLAY ON EXISTING ASPHALT PAVEMENT
CC/CC	CONCRETE OVERLAY ON EXISTING CONCRETE PAVEMENT
CC/PAV	CONCRETE OVERLAY
CCA	CONCRETE PAVEMENT WITH AGGREGATE
CCL	ROLLED LAYER CONCRETE BASE PAVEMENT
CC1	8 IN. EXP C
CC2	10 IN. EXP C
CC3	12 IN. EXP C
CC4	14 IN. EXP C
CC5	15 IN. EXP C
CC6	16 IN. EXP C
CC7	17 IN. EXP C
CED	COMPUTED ENGINEERING DATA
CLHR	RATE OF COMMON LABOR PER HOUR
CCAGT	COST OF COARSE AGGREGATE PER TON
CBEN	COST BENEFIT PROGRAM
CCVAR	COEFFICIENT OF VARIANCE - MATERIAL STRENGTH
CTB	CEMENT TREATED BASE, P-301, P-304
DC	COEFF. OF CONTACT RIGIDITY
DEF/DI	PAVEMENT FUNCTION GOVERNED BY SURFACE DEFLECTION AND AIRCRAFT VIBRATION
DEF/WZ	PAVEMENT FUNCTION GOVERNED BY SURFACE DEFLECTION
DI	DYNAMIC INCREMENT OF AIRCRAFT VIBRATION AT PAVEMENT-WHEEL INTERFACE
DRY	DRY BASE
DSM(W)	DYNAMIC STIFFNESS MODULUS DEFINED BY WES
DSM(1)	F(1)/Z(1) AT FIRST RESONANCE
D1,D2	Coefficients of Transfer Function (ELASTIC TO CUMULATIVE DEFORMATION)
D3	Coefficient D2 at initial stage of transverse deflection for PFL study
E-SUP	E-value of Pavement Support (Subgrade or Existing Pavement)
END	END PORTION OF RUNWAY AT LANDING ROLL
EPAV	E-value of Existing Pavement
EPW	OPERATING EMPTY WEIGHT OF AIRCRAFT
ESUB	E-value of Subgrade
ESW	EQUIVALENT SINGLE WHEEL LOAD

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

DICTIONARIES

ESWL	EQUIVALENT SINGLE WHEEL LOAD
EVALUE	MODULUS OF ELASTICITY OF RESPONSE SYSTEM IN NDT PROGRAM
EVAL	MODULUS OF ELASTICITY OF RESPONSE SYSTEM IN NDT PROGRAM
EXACOV	EXISTING ASPHALT OVERLAY
EXAC	EXISTING ASPHALT LAYER
EXBSA	EXISTING BASE OF ASPHALT PAVEMENT
EXBSC	EXISTING BASE OF CONCRETE PAVEMENT
EXPCCV	EXISTING PORTLAND CEMENT CONCRETE OVERLAY
EXPCC	EXISTING PORTLAND CEMENT CONCRETE LAYER
F(I)	FORCING FUNCTION, DOUBLE AMPLITUDE IN POUNDS
FACTOR	INFLUENCE FACTOR OF ALL AIRCRAFT WHEELS
FAM	FORECAST OF AIRCRAFT MOVEMENT
FAM*2	DOUBLE VOLUME OF FAM FOR PAVEMENT DESIGN
FAM/2	ONE HALF VOLUME OF FAM FOR PAVEMENT DESIGN
FAMAP0	FORECAST OF AIRCRAFT MOVEMENT PREPARED BY AIRPORT OPERATOR
FAMATA	FORECAST OF AIRCRAFT MOVEMENT PREPARED BY AIR TRANSPORT ASSOCIATION
FAMSUG	FORECAST OF AIRCRAFT MOVEMENT SUGGESTED FOR PAVEMENT DESIGN
FATIST	CoeffICIENT OF FATIGUE STRESS (LUG CYCLE)
FIAGT	COST OF FINE AGGREGATE PER TON
FREQ	NATURAL FREQUENCY OF AIRCRAFT GEAR SUPPORT ON PAVEMENT
GELS	GENERAL EQUILIBRIUM LAYER SYSTEM PROGRAM
H(I)	FREQUENCY OF FORCING FUNCTION IN HZ AT ITH TEST
H(I)	H(I) AT FIRST RESONANCE, HZ
HLBT	COST OF HYDRATED LIME, BULK PFR TON
HP	HELDING PAD
HSTP	FREQUENCY SCALE OF FREQUENCY RESPONSE PLOT, Z(I)/F(I) VS H(I)
HSTRS	STRESS AT DESIGN LAYER OF PAVEMENT MODEL FROM GELS
ICC	INITIAL CONSTRUCTION COST OF TOTAL PAVEMENT, \$/S.Y.
ILS	INSTRUMENT LANDING SYSTEM
INFI	SEMI-INFINITE THICKNESS OF SUPPORT LAYER OF PAVEMENT MODEL
INPUT	SUMMARY OF ALL INPUT PARAMETERS
IWFAT	COST OF INDUSTRY WASTE FINE AGGREGATE PER TON
KEEL	CENTER STRIP OF RUNWAY OR TAXIWAY
L	LEFT OF CENTER LINE
LBIM	COST OF CONSTRUCTION LUMBER PER BOARD MEASURE
LC/PAV	LCF OVERLAY
LCF	LIME-CEMENT-FLYASH PAVEMENT
LCF/AC	LCF OVERLAY ON EXISTING ASPHALT PAVEMENT
LCF/CC	LCF OVERLAY ON EXISTING CONCRETE PAVEMENT
LCFA	LCF-A MIX WITH NATURAL AGGREGATE
LCFB	LCF-B MIX WITH NATURAL AGGREGATE
LCFC	LCF-C MIX WITH NATURAL AGGREGATE
LCFSAA	LCFS-A MIX WITH INDUSTRY WASTE AGGREGATE
LCFSB	LCFS-B MIX WITH INDUSTRY WASTE AGGREGATE

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DICTIONARIES

LCFSC	LCFS-C MIX WITH INDUSTRY WASTE AGGREGATE
LCFS	LCF WITH INDUSTRY WASTE AS PAVEMENT AGGREGATE
LIGHTS	IN PAVEMENT LIGHTING SYSTEM
LCC	LOCATION
LRW	LANDING ROLL WEIGHT
LTSUB	LIME TREATED SUBGRADE, P-155
MID	MIC PORTION OF RUNWAY OR TAXIWAY
MLG	MAIN LANDING GEAR LOAD OF AIRCRAFT
MLRW	MAX. LANDING WEIGHT OF AIRCRAFT
MCD	MOBILIZATION AND DEMOBILIZATION COST OF MATERIAL PROCESSING FACILITIES
MCD(N)	MCD FOR NORMAL SIZE OF RUNWAY AND TAXIWAY CONSTRUCTION
MCD(S)	MCD FOR SMALL SIZE OF CONSTRUCTION PROGRAM
MTOW	MAX. TAKE-OFF WEIGHT OF AIRCRAFT
MWFprt	SUMMARY OF FAM STRESSES AND DEFLECTIONS FROM GELS
MWPkt	SUMMARY OF PFL STRESSES AND DEFLECTIONS FROM GELS
MWPrt	SUMMARY OF PAVEMENT DESIGN THICKNESSES FROM GELS
NSL	MATURITY OF REVENUE BOND, NUMBER OF YEARS
NDT	NONDESTRUCTIVE TEST PROGRAM
NDT	NONDESTRUCTIVE TEST
NCRM	NCRMAL AIRPORT NAVIGATION SIGNS
NCRM	NCRMAL DRY OPERATION
NSLP	EFFECTIVE FUNCTIONAL(SERVICE) LIFE OF PAVEMENT, NUMBER OF YEARS
NWHEEL	NUMBER OF MLG WHEELS PER AIRCRAFT
OC1	4 IN. EXACOV ON 8 IN. EXPC
OC2	4 IN. EXACOV ON 10 IN. EXPC
OC3	4 IN. EXACOV ON 12 IN. EXPC
OC4	6 IN. EXACOV ON 10 IN. EXPC
OC5	6 IN. EXACOV ON 12 IN. EXPC
OC6	6 IN. EXPCOV ON 10 IN. EXPC
OC7	6 IN. EXPCOV ON 12 IN. EXPC
OEW	OPERATIONAL EMPTY WEIGHT OF AIRCRAFT
OVSFKL	OVERSTRESS FACTOR FOR KEEL OR OTHER UNDEFINED AREA
OVSFSO	OVERSTRESS FACTOR FOR SIDES
PAV	EXISTING PAVEMENT
PAVDES	PAVEMENT DESIGN PROGRAM
PCBT	COST OF PORTLAND CEMENT, BULK PER TON
PCC	PORTLAND CEMENT CONCRETE, P-501
PCCR	REINFORCED PORTLAND CEMENT CONCRETE, P-501, P-510
PCV	PRESENT CASH VALUE OF TOTAL PAVEMENT DURING SERVICE LIFE, \$/S.Y.
PFL	PRESENT FUNCTIONAL LIFE IN YEARS OF AIRCRAFT MOVEMENT(ANDA/AAND)
PFLPAV	EXISTING PAVEMENT FOR PFL ANALYSIS
PFLPAV	EXISTING PAVEMENT
PLF	BEARING FACTOR
PCZBT	COST OF POZZOLAN OR FLYASH, BULK PER TON

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DICTIONARIES

PRDICT	SUMMARY OF ALL DICTIONARIES
PSI	TIRE PRESSURE
R	RIGHT OF CENTER LINE
RADIUS	RADIUS OF CONTACT AREA OF AIRCRAFT MLG WHEEL
RANGE	DISTANCE RANGE OF AIRCRAFT(SHORT, MEDIUM, LONG)
RGF	RANGE FACTOR
RLC	ROLLED LEAN CONCRETE
RPWT	RAMP WEIGHT OF AIRCRAFT
RSWB	CCST OF REINFORCING STEEL (WIRE MESH) PER POUND
RW	RUNWAY
SCFC	SIZE FACTOR FOR UNIFORM PAVEMENT CROSS-SECTION
SERVYR	DESIGN FUNCTIONAL(SERVICE) LIFE IN YEARS
SFSF	CCST OF SELECTED FILL SAND PER TON
SIDE	SIDE STRIPS OF RUNWAY OR TAXIWAY
SIGMA	HORIZONTAL STRESS IN PAVEMENT COMPONENT
SIGMAT	HORIZONTAL TENSILE STRESS IN PAVEMENT COMPONENT
SLEHR	RATE OF SKILLED EQUIPMENT OPERATOR PER HOUR
SSBS	SELECTED SUB-BASE, P-154
STR/MT	PAVEMENT FUNCTION GOVERNED BY WORKING STRESS AND MAINTENANCE NEEDS
STRESS	CONVERSION FACTOR E-VALUE TO TENSILE STRESS
SUB	SUBGRADE SUPPORT
SUMZ	STATIC SURFACE DEFLECTION AS COMPUTED BY NDT PROGRAM
TD	TOUCH DOWN AREA
TCW	TOUCH-DOWN WEIGHT
TM	TERMINAL
TCW	TAKE-OFF WEIGHT
TK	TAXIWAY
ULSTR	ULTIMATE SAFE TENSILE STRESS
VEL	VELOCITY OF AIRCRAFT EQUIVALENT TO FULL STATIC LOAD WITHOUT WING LIFT
VISUAL	VISUAL LANDING SYSTEM
WAPCV	WEIGHTED AVERAGE OF PRESENT CASH VALUE
WET	WET BASE, OCCASIONALLY PONDED
WGT	WEIGHT OF MLG PER TIRE
WCSTR	SAFE WORKING TENSILE STRESS
WZ	SURFACE DEFLECTION OF PAVEMENT
WZERO	WZ AT X = 0, Y = 0
XMAX	DISTANCE BETWEEN OUTERMOST WHEELS
XNZ	TRANSVERSE WHEEL SPACING OF THE LANDING GEAR
XTW	CROSS TAXIWAY
Z(i)	DYNAMIC RESPONSE OF SUB OR PAV IN INCH AT iTH TEST
Z(N)	DYNAMIC RESPONSE AT CUT-OFF HIGH FREQUENCY TEST
ZDEF	SURFACE DEFLECTION OF PAVEMENT MODEL FROM GELS ANDA/AAND>5.

REGIONAL COST VALUES

REGIONAL COST VALUES

TYPE	FACILITY	FACILITY	FACILITY	FACILITY	FACILITY		
BANDWIDTH	CCDE1	CCDE2	RW	TW	HP		
DI	RW	TW	HP				
VFL	RW	TW	HP				
AIRCRAFT	CCCF	MTOW	MLRW	C EW	RANGE		
TCW	AIRCRAFT	TAKE-OFF	WEIGHTS				
TCW	AIRCRAFT	TAKE-OFF	WEIGHTS				
FINANCE	AIFD	AFCD	ASCCC	ASCMC	NBL	NSLP	
FORECAST	ADM	ATD					
PFLCI							
DESIGN	AIRCRAFT	WEIGHT					
CLASS	CCDE	DVSFL	DVSFD	STRESS	FATIST	COVAR	A1
LAYER	CCDE	EVALUE	PCISSON	MCD(S)	MCD(N)		
LAYER	PCDT	FIAGT	COAGT	ASCLT	HLBT	POZBT	SFST
PAVEMENT	CCDE	LAYER	THICKNESS	EVALUE	PGISSON		
ITERATE	PAVEMENT	LAYER	HMIN	HMAX	HSTEP		
NEW PAVEMENT ESUB GRID EVALUES							
OVERLAY PAVEMENT EPAV GRID EVALUES							
PAVEMENT NUMBER KEEL SIDE							
PFLPAV	CCDE	LAYER	THICKNESS	EVALUE			
PFLPAV	CLASS	LAYER FOR STR/MT					
CLASS	PFLPAV	FOR ANL/ANS					
CLASS	PAVEMENT	PFLPAV FOR AND/ANS					
PAVEMENT	PFLPAV	CLASS LAYER FOR STR/MT					
FACILITY AND STATION IDENTIFICATIONS							
STATISTICALLY PROCESSED NOT GROUP DATA							
OPERATIONAL AIRCRAFT WEIGHTS							
ADM	ADM SUG	AVERAGE DAILY MOVEMENTS, SUGGESTED					
ATD	ATD SUG	AIRPORT TRAFFIC DISTRIBUTION, SUGGESTED					
REGIONAL COST VALUES							

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RUN PFL
RUN PAVDES
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FACILITY AND STATION IDENTIFICATIONS

FACILITY	CODE	STA-FROM	STA-TO
1	RW 15-33	000.0	080.0
2	RW 1-19	016.0	052.0
3	TW A	016.0	051.0
4	GATE/APEN	026.0	035.0
5	XTHS TO A	000.0	000.0
6	TW B	000.0	009.0
7	TW C	000.0	022.0
8	AFRON GA	065.0	015.0
9	TW D	000.0	025.0
10	TW E	001.0	006.0
11	TW F	021.0	049.0
12	APRN VANG	048.0	063.0
13	RW1-19EXT	000.0	016.0
14	TW NEW	000.0	037.0
15	XTH-GA MU	000.0	010.0
16	TW = RW19	000.0	018.0

**

STATISTICALLY PROCESSED NOT GROUP DATA

FACILITY	STA-FROM	STA-TO	SUMZ	EVALUE	DRAINAGE	TEMP.	PFLPAV
1	000.0	003.0		179545.	NCRM		13/CC7
	003.0	069.0		34885.	NCRM		2 /AC2
	069.0	076.5		27745.	NCRM		1 /AC1
	076.5	080.0		165589.	NCRM		13/CC7
2	016.0	052.0		32267.	NCRM		1 /AC1
3	016.0	051.0		29191.	NCRM		1 /AC1
4	026.0	035.0		21726.	NCRM		1 /AC1
5	000.0	000.0		22234.	NCRM		1 /AC1
6	000.0	009.0		32320.	NCRM		1 /AC1
7	000.0	022.0		34350.	NCRM		1 /AC1
8	006.0	015.0		52994.	NCRM		14/OC1
9	000.0	025.0		31625.	NCRM		1 /AC1
10	001.0	006.0		26376.	NCRM		1 /AC1
11	001.0	049.0		36029.	NCRM		1 /AC1
12	048.0	063.0		24670.	NCRM		1 /AC1
13	000.0	016.0		10667.	NCRM		0 /SUB
14	001.0	037.0		10395.	NCRM		0 /SUB
15	000.0	010.0		10381.	NCRM		0 /SUB
16	000.0	018.0		10327.	NCRM		0 /SUB

**

OPERATIONAL AIRCRAFT WEIGHTS

AIRCRAFT	CODE	RANGE	LOAD FACTOR
1	B747		
2	DC10/30		
3	DC10/10		
4	L7011		
5	DC6(B707)		MEDIUM
6	B720		

7 0727-200 MEDIUM
 8 0727-100 MEDIUM
 9 C09(B737) MEDIUM
 10 F27 MEDIUM
 11 DCX-200
 12 B757
 13 B767-200
 14 A20084
 15 CONCORDE

** ACM ADMSUG AVERAGE DAILY MOVEMENTS, SUGGESTED
NUMBER OF AIRCRAFT MOVEMENTS - PEAK MONTH

AIRCRAFT	1977	1978	1983	1988	1993	1998
----------	------	------	------	------	------	------

1						
2						
3						
4						
5	.1	.1	.2	.3	.4	.5
6						
7	0.	0.	6.	7.	9.	12.
8	0.	0.	0.	14.	16.	17.
9	18.	19.	20.	10.	6.	4.
10	11.	10.	9.	11.	20.	22.
11						
12						
13						
14						
15						

** ATD ATDSUG AIRPCRT TRAFFIC DISTRIBUTION, SUGGESTED

FACILITY	STA-FROM	STA-TO	YEAR	TCW%	LRW%	TDW%
1	000.0	030.0	1978	120.	100.	70.
			1983	80.	100.	80.
	030.0	050.0	1978	140.	100.	0.
			1983	100.	100.	0.
	050.0	070.0	1978	40.	100.	30.
			1983	20.	100.	20.
2	010.0	050.0	1978	20.	20.	0.
3	010.0	050.0	1978	80.	80.	0.
4	020.0	025.0	1978	60.	60.	0.
5	000.0	000.0	1978	20.	20.	0.
6	000.0	009.0	1978	20.	20.	0.
7	000.0	020.0	1978	30.	30.	0.
8	000.0	015.0	1978	10.	10.	0.
9	000.0	025.0	1978	20.	20.	0.
10	001.0	006.0	1978	10.	10.	0.
11	001.0	040.0	1978	40.	40.	0.
12	004.0	060.0	1978	20.	20.	0.
13	000.0	010.0	1978	0.	0.	0.
			1983	20.	20.	10.
14	000.0	037.0	1978	0.	0.	0.
			1983	80.	80.	0.
15	000.0	010.0	1978	0.	0.	0.
			1983	20.	20.	0.
16	000.0	018.0	1978	0.	0.	0.
			1983	10.	10.	0.

** REGIONAL COST VALUES

CUST	CCDE	DATE	ANF
**			

PFL FACILITY	PRESINT SERVYR	FUNCTIONAL LIFE BANDWIDTH FORECAST
1	1	2 FAMSUG
2	1	2 FAMSUG
3	1	1 FAMSUG
4	1	1 FAMSUG
5	1	1 FAMSUG
6	1	1 FAMSUG
7	1	1 FAMSUG
8	1	1 FAMSUG
9	1	1 FAMSUG
10	1	1 FAMSUG
11	1	1 FAMSUG
12	1	1 FAMSUG
**		
PAVCES FACILITY	PAVEMENT SERVYR	DESIGN BANDWIDTH FORECAST
1	5	2 FAMSUG
1	20	2 FAMSUG
2	5	2 FAMSUG
2	20	2 FAMSUG
3	5	1 FAMSUG
3	20	1 FAMSUG
4	5	1 FAMSUG
4	20	1 FAMSUG
5	5	1 FAMSUG
5	20	1 FAMSUG
6	5	1 FAMSUG
6	20	1 FAMSUG
7	5	1 FAMSUG
7	20	1 FAMSUG
8	5	1 FAMSUG
8	20	1 FAMSUG
9	5	1 FAMSUG
9	20	1 FAMSUG
10	5	1 FAMSUG
10	20	1 FAMSUG
11	5	1 FAMSUG
11	20	1 FAMSUG
12	5	1 FAMSUG
12	20	1 FAMSUG
13	20	2 FAMSUG
14	20	1 FAMSUG
15	20	1 FAMSUG
16	20	1 FAMSUG
**		

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DEFAULT SYSTEM FOR PFL

PFLPAV	CODE	LAYER	THICKNESS	EVALUE	POISSON
1	AC1	EXAC	3.0	140000.	0.24
		EXBSA	6.0	50000.	0.27
		SUB	INFI	+++	
2	AC2	EXAC	6.0	140000.	0.24
		EXBSA	6.0	50000.	0.27
		SUB	INFI	+++	
3	AC3	EXAC	9.0	140000.	0.24
		EXBSA	6.0	50000.	0.27
		SUB	INFI	+++	
4	AC4	EXAC	12.0	140000.	0.24
		EXBSA	6.0	50000.	0.27
		SUB	INFI	+++	
5	AC5	EXAC	16.0	140000.	0.24
		EXBSA	6.0	50000.	0.27
		SUB	INFI	+++	
6	AC6	EXAC	20.0	140000.	0.24
		EXBSA	6.0	50000.	0.27
		SUB	INFI	+++	
7	CC1	EXPC	8.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
8	CC2	EXPC	10.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
9	CC3	EXPC	12.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
10	CC4	EXPC	14.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
11	CC5	EXPC	15.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

DEFAULT SYSTEM FOR PFL

PFLPAV	CODE	LAYER	THICKNESS	EVALUE	POISSON
12	CC6	EXPC	16.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
13	CC7	EXPC	17.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
14	OC1	EXACOV	4.0	180000.	0.23
		EXPC	8.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
15	OC2	EXACOV	4.0	180000.	0.23
		EXPC	10.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
16	OC3	EXACOV	4.0	180000.	0.23
		EXPC	12.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
17	OC4	EXACOV	6.0	180000.	0.23
		EXPC	10.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
18	OC5	EXACOV	6.0	180000.	0.23
		EXPC	12.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
19	CC6	EXPCCV	6.0	4500000.	0.12
		EXACOV	1.0	180000.	0.23
		EXPC	10.0	3000000.	0.13
		EXBSC	8.0	30000.	0.29
		SUB	INFI	+++	
20	CC7	EXPCCV	6.0	4500000.	0.12
		EXACOV	1.0	180000.	0.23
		EXPC	12.0	3000000.	0.13
		EXBSC	8.0	20000.	0.29
		SUB	INFI	+++	

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NDT INVENTORY FILE

FACILITY	CCDE	STA-FROM	STA-TO	DRAINAGE AT TEST	EPAV NORM	EPAV WET	ESUB NORM	ESUB WET	PFLPAV
1	RW 15-33	0.0	3.00	NCRM	179545.	126110.	34283.	23570.	13 CC7
		3.00	69.00	NCRM	24885.	25165.	14158.	8495.	2 AC2
		69.00	76.50	NCRM	27745.	19696.	13980.	8388.	1 AC1
		76.50	80.00	NCRM	165589.	117538.	30628.	18376.	13 CC7
2	RW 1-19	16.00	52.00	NCRM	32267.	22872.	17732.	10639.	1 AC1
3	TK A	16.00	51.00	NCRM	29191.	20480.	15015.	9009.	1 AC1
4	GATE/APRN	26.00	35.00	NCRM	21726.	15641.	9903.	5942.	1 AC1
5	XTWS TG A	0.0	0.0	NCRM	22234.	15992.	10239.	6143.	1 AC1
6	TK B	0.0	9.00	NCRM	32320.	22928.	17788.	10673.	1 AC1
7	TK C	0.0	22.00	NCRM	34350.	25115.	19810.	11886.	1 AC1
8	APRON GA	6.00	15.00	NCRM	52594.	37313.	7899.	4739.	14 DC1
9	TK D	0.0	25.00	NCRM	31625.	22208.	17037.	10222.	1 AC1
10	TK E	1.00	6.00	NCRM	26376.	18699.	12896.	7738.	1 AC1
11	TK F	1.00	49.00	NCRM	36029.	26245.	21310.	12786.	1 AC1
12	APRN VANG	48.00	63.00	NCRM	24670.	17331.	11656.	6994.	1 AC1
13	RW1-19LXT	0.0	16.00	NCRM	10667.	6400.	10667.	6400.	0 SUB
14	TK NEW	0.0	37.00	NCRM	10395.	6237.	10395.	6237.	0 SUB
15	XTW-GA NU	0.0	10.00	NCRM	10381.	6229.	10381.	6229.	0 SUB
16	TK - RW19	0.0	18.00	NCRM	10327.	6196.	10327.	6196.	0 SUB

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

ATM, AIRCRAFT TRAFFIC MOVEMENTS

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OPWGT 1

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

OPERATIONAL AIRCRAFT WEIGHTS

AIRCRAFT	CODE	RANGE	LEAD FACTOR	TOW	LRW	TDW
1	B747	LONG	HIGH	615000.	507852.	761777.
2	DC10/30	LONG	HIGH	515000.	383893.	575340.
3	DC10/10	LONG	HIGH	390000.	337538.	506308.
4	L1C11	LONG	HIGH	390000.	334750.	502125.
5	DC8(R7C7)	LONG	MEDIUM	280000.	220117.	330176.
6	B720	MEDIUM	HIGH	220000.	172878.	259317.
7	B727-200	MEDIUM	MEDIUM	157000.	139400.	209100.
8	B727-100	MEDIUM	MEDIUM	135000.	121909.	182864.
9	DC9(R737)	SHCRT	MEDIUM	85000.	77000.	115500.
10	F27	SHORT	MEDIUM	40000.	36000.	54000.
11	DCX-200	LONG	HIGH	250000.	290659.	435989.
12	B757	MEDIUM	HIGH	218000.	191720.	287580.
13	B757-200	MEDIUM	HIGH	270000.	247336.	371005.
14	A300B4	MEDIUM	HIGH	333000.	285919.	428878.
15	CONCORDE	XLONG	HIGH	355000.	232600.	348900.

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

EQUIVALENT SINGLE TYPE AIRCRAFT OPERATION

EQ. AIRCRAFT: B727-200
BANDWIDTH: LIGHTS/ILSWEIGHT: 170000. LBS
FORECAST: FAMSUGCLASS: 2/AC
YEAR: 1

FACILITY: RW 15-33

STATIONS 0° TO 30° LOCATION: KEEL

	DEFLECTION CRITERIA AND						STRESS CRITERIA ANS						AANS	
	TOW	LRW	TDW	TDW	LRW	TDW	TOW	LRW	TDW	TDW	LRW	TDW	TDW	TDW
B747	2.2E-00	1.4E-00	3.2E-00	0.0	0.0	0.0	5.1E-02	2.7E-02	3.4E-01	0.0	0.0	0.0	0.0	0.0
DC10/30	2.5E-00	1.3E-00	3.3E-00	0.0	0.0	0.0	4.6E-01	8.0E-02	8.6E-01	0.0	0.0	0.0	0.0	0.0
DC10/10	2.0E-00	1.4E-00	3.2E-00	0.0	0.0	0.0	3.8E-01	1.6E-01	1.7E-00	0.0	0.0	0.0	0.0	0.0
L1011	1.9E-00	1.4E-00	3.1E-00	0.0	0.0	0.0	8.8E-01	3.1E-01	4.5E-00	0.0	0.0	0.0	0.0	0.0
DC81(B707)	1.3E-00	6.0E-01	1.9E-00	2.3E-01	7.1E-00	7.9E-03	1.4E-01	2.5E-02	4.5E-01	2.3E-00	3.1E-01	1.0E-02		
B720	7.8E-01	3.0E-01	1.3E-00	0.0	0.0	0.0	5.2E-03	1.4E-03	1.3E-02	0.0	0.0	0.0	0.0	0.0
B727-200	7.9E-01	5.2E-01	1.7E-00	0.0	0.0	0.0	5.3E-01	2.1E-01	5.4E-00	0.0	0.0	0.0	0.0	0.0
B727-100	4.6E-01	3.0E-01	1.2E-00	0.0	0.0	0.0	1.6E-01	7.2E-02	1.8E-00	0.0	0.0	0.0	0.0	0.0
DC9(B737)	4.7E-02	2.4E-02	2.7E-01	1.4E-01	1.4E-02	9.4E-01	3.7E-03	1.9E-03	3.4E-02	4.9E-00	2.0E-00	2.9E-02		
F27	2.2E-05	3.5E-06	1.4E-03	6.6E-11	1.1E-12	8.8E-00	4.1E-05	2.5E-05	1.9E-04	2.5E-02	1.2E-02	5.7E-05		
DCX-200	1.6E-00	9.5E-01	2.5E-00	0.0	0.0	0.0	2.0E-01	6.2E-02	7.3E-01	0.0	0.0	0.0	0.0	0.0
B757	6.5E-01	3.9E-01	1.5E-00	0.0	0.0	0.0	5.7E-03	2.7E-03	2.7E-02	0.0	0.0	0.0	0.0	0.0
B767-200	8.9E-01	6.6E-01	2.0E-00	0.0	0.0	0.0	6.3E-02	3.6E-02	5.1E-01	0.0	0.0	0.0	0.0	0.0
A300B4	1.7E-00	1.2E-00	2.8E-00	0.0	0.0	0.0	2.1E-01	8.0E-02	1.1E-00	0.0	0.0	0.0	0.0	0.0
CCNCORDE	2.1E-00	6.7E-01	2.0E-00	0.0	0.0	0.0	2.6E-00	8.1E-02	2.2E-00	0.0	0.0	0.0	0.0	0.0

2.3E 01 7.1E 00 5.8E 00 4.0E 01

7.2E 00 2.3E 00 3.9E-02 9.6E 00

STATIONS 30° TO 53° LOCATION: KFEL

	DEFLECTION CRITERIA AND						STRESS CRITERIA ANS						AANS	
	TOW	LRW	TDW	TDW	LRW	TDW	TOW	LRW	TDW	TDW	LRW	TDW	TDW	TDW
B747	2.2E-00	1.4E-00	3.2E-00	0.0	0.0	0.0	9.1E-02	2.7E-02	3.4E-01	0.0	0.0	0.0	0.0	0.0
DC10/30	2.5E-00	1.3E-00	3.3E-00	0.0	0.0	0.0	4.6E-01	8.0E-02	8.6E-01	0.0	0.0	0.0	0.0	0.0
DC10/10	2.0E-00	1.4E-00	3.2E-00	0.0	0.0	0.0	3.8E-01	1.6E-01	1.7E-00	0.0	0.0	0.0	0.0	0.0
L1011	1.9E-00	1.4E-00	3.1E-00	0.0	0.0	0.0	8.8E-01	3.1E-01	4.5E-00	0.0	0.0	0.0	0.0	0.0
DC81(B707)	1.3E-00	6.0E-01	1.9E-00	2.3E-01	7.1E-00	7.9E-03	1.4E-01	2.5E-02	4.5E-01	2.3E-00	3.1E-01	0.0		
B720	7.8E-01	3.0E-01	1.3E-00	J.0	0.0	0.0	5.2E-03	1.4E-03	1.3E-02	0.0	0.0	0.0	0.0	0.0
B727-200	7.9E-01	5.2E-01	1.7E-00	0.0	0.0	0.0	5.3E-01	2.1E-01	5.4E-00	0.0	0.0	0.0	0.0	0.0
B727-100	4.6E-01	3.0E-01	1.2E-00	0.0	0.0	0.0	1.6E-01	7.2E-02	1.8E-00	0.0	0.0	0.0	0.0	0.0
DC9(B737)	4.7E-02	2.4E-02	2.7E-01	1.4E-01	1.4E-02	9.4E-01	3.7E-03	1.9E-03	3.4E-02	5.7E-00	2.0E-00	2.9E-02		
F27	2.2E-05	3.5E-06	1.4E-03	6.6E-11	1.1E-12	8.8E-00	4.1E-05	2.5E-05	1.9E-04	2.5E-02	1.2E-02	5.7E-05		
DCX-200	1.6E-00	9.5E-01	2.5E-00	0.0	0.0	0.0	2.0E-01	6.2E-02	7.3E-01	0.0	0.0	0.0	0.0	0.0
B757	6.5E-01	3.9E-01	1.5E-00	0.0	0.0	0.0	5.7E-03	2.7E-03	2.7E-02	0.0	0.0	0.0	0.0	0.0
B767-200	8.9E-01	6.6E-01	2.0E-00	0.0	0.0	0.0	6.3E-02	3.6E-02	5.1E-01	0.0	0.0	0.0	0.0	0.0
A300B4	1.7E-00	1.2E-00	2.8E-00	0.0	0.0	0.0	2.1E-01	8.0E-02	1.1E-00	0.0	0.0	0.0	0.0	0.0
CCNCORDE	2.1E-00	6.7E-01	2.0E-00	0.0	0.0	0.0	2.6E-00	8.1E-02	2.2E-00	0.0	0.0	0.0	0.0	0.0

2.7E 01 7.1E 00 0.0

3.4E 01

8.4E 00 2.3E 00 0.0

1.1E 01

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PFL 1

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF PRESENT FUNCTIONAL LIFE

AS MEASURED BY PROGRESSIVE DETERIORATION OF EXISTING
PAVEMENT SURFACE DUE TO ANTICIPATED AIRCRAFT MOVEMENTS

DI = 0.12G SMOOTH PAVEMENT SURFACE

DI = 0.18G OPERATIONAL SURFACE

DI = 0.25G UPPER LIMIT OF ROUGHNESS TOLERANCE

FACILITY	STATION FROM-TC	VEL	NDT/3		PFLPAV	DI	PFL IN YEARS (1977 TRAFFIC)											
			ESUB NORM	ESUB WET			.12G NORM	.18G NORM	.25G NORM	.12G WET	.18G WET	.25G WET	IMPACT NORM	.18G NORM	.30G NORM	.18G WET	.30G WET	
RW 15-33	0.- 3.	145.	34283.	20570.	13 CC7	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	
RW 15-33	3.- 30.	145.	14158.	8495.	2 AC2	2.16	>5.00	>5.00	1.19	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00
RW 15-33	30.- 53.	145.	14158.	8495.	2 AC2	2.50	>5.00	>5.00	1.39	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00
RW 15-33	52.- 69.	145.	14158.	8495.	2 AC2	1.51	>5.00	>5.00	0.84	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00
RW 15-33	69.- 77.	145.	13980.	8388.	1 AC1	0.31	>5.00	>5.00	0.19	3.78	>5.00	>5.00	>5.00	>5.00	4.03	0.00	0.00	0.00
RW 15-33	77.- 78.	145.	30628.	18376.	13 CC7	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00
TW 1-19	16.- 52.	145.	17732.	10639.	1 AC1	3.92	>5.00	>5.00	2.39	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	0.06	0.00	0.00
TW A	16.- 51.	50.	15015.	9009.	1 AC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	0.00	0.00	0.00
GATE/APRN	26.- 35.	50.	9903.	5942.	1 AC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	0.00	0.00	0.00	0.00
XTWS TC A	0.- 0.	50.	10239.	6143.	1 AC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	0.02	0.00	0.00	0.00
TW B	0.- 9.	50.	17788.	10673.	1 AC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	0.05	0.00	0.00
TW C	0.- 22.	50.	19810.	11886.	1 AC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	0.89	0.10	0.00
APRN CA	6.- 15.	50.	7899.	4739.	14 OC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	0.04	0.00	0.00	0.00
TW D	0.- 25.	50.	17037.	10222.	1 AC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	0.02	0.00	0.00
TW E	1.- 6.	50.	12896.	7738.	1 AC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	2.33	0.00	0.00	0.00
TW F	1.- 49.	50.	21310.	12786.	1 AC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	3.47	0.47	0.00
APRN VANG	48.- 63.	50.	11656.	6994.	1 AC1	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	>5.00	0.72	0.08	0.00	0.00

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ATM 1

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

ATM, AIRCRAFT TRAFFIC MOVEMENTS

FACILITY	SERVYR	FORECAST	FROM-TO	STATION		B747	DC10/30	DC10/10	L1011	DCB(B707)	B720	B727-200	B727-100	DC9(B737)
				F27	DCX-200	B757	B767-200	A300B4	CONCORDE					
RW 15-33	5	FAMSUG	0.- 30.	TOW:0.0 2.08CE 04 0.0 LRW:0.0 1.734E 04 0.0 TDW:0.0 1.214F 04 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	3.285E 02 0.0 0.0 0.0 2.737E 02 0.0 0.0 0.0 1.916E 02 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	6.570E 03 0.0 5.475E 03 0.0 3.832E 03 0.0 0.0 7.665E 03 0.0 0.0 0.0	4.270E 0 3.559E 0 2.491E 0 0.0 4.982E 0 0.0				
RW 15-33	5	FAMSUG	30.- 53.	TOW:0.0 2.427E 04 0.0 LRW:0.0 1.734E 04 0.0 TDW:0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	3.832E 02 0.0 0.0 0.0 2.737E 02 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	5.475E 03 0.0 0.0 0.0 0.0 0.0 0.0	3.559E 0 0.0 0.0 0.0 0.0 0.0				
RW 15-33	5	FAMSUG	53.- 78.	TOW:0.0 6.935E 03 0.0 LRW:0.0 1.734E 04 0.0 TDW:0.0 5.201E 03 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	1.095E 02 0.0 0.0 0.0 2.737E 02 0.0 0.0 0.0 8.212E 01 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	2.190E 03 0.0 5.475E 03 0.0 0.0 1.642E 03 0.0 1.068E 0	1.423E 0 3.559E 0 0.0 1.068E 0				
RW 15-33	20	FAMSUG	0.- 30.	TOW:0.0 8.865E 04 0.0 LRW:0.0 1.022E 05 0.0 TDW:0.0 8.003E 04 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	1.861E 03 0.0 0.0 0.0 2.190E 03 0.0 0.0 0.0 1.725E 03 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	4.307E 04 5.621E 04 8.358E 0 5.110E 04 7.026E 04 8.669E 0 4.033E 04 5.621E 04 6.579E 0 5.329E 04 7.026E 04 1.009E 0 5.110E 04 7.026E 04 8.669E 0	0.0 0.0 0.0 0.0 0.0				
				1.091E 05 0.0 1.022E 05 0.0 TDW:0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	2.190E 03 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0	5.110E 04 7.026E 04 8.669E 0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0				
				TOW:0.0 2.391E 04 0.0 LRW:0.0 1.022E 05 0.0 TDW:0.0 2.217E 04 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	4.927E 02 0.0 0.0 0.0 2.190E 03 0.0 0.0 0.0 4.654E 02 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	1.131E 04 1.405E 04 2.445E 0 5.110E 04 7.026E 04 8.669E 0 1.077E 04 1.405E 04 2.090E 0	0.0 0.0 0.0				

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OPWGT 1

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

OPERATIONAL AIRCRAFT WEIGHTS

AIRCRAFT	CODE	RANGE	LOAD FACTOR	TOW	LRW	TDW
1	8747	LONG	HIGH	615000.	507852.	761777.
2	DC10/30	LONG	HIGH	515000.	383893.	575340.
3	DC10/10	LONG	HIGH	390000.	337538.	506308.
4	L1011	LONG	HIGH	390000.	334750.	502125.
5	DC8(5707)	LONG	MEDIUM	280000.	220117.	330176.
6	8720	MEDIUM	HIGH	220000.	172878.	259317.
7	8727-200	MEDIUM	MEDIUM	157000.	139400.	209100.
8	8727-100	MEDIUM	MEDIUM	135000.	121909.	182864.
9	DC9(B737)	SHCRT	MEDIUM	85000.	77900.	115500.
10	F27	SHCRT	MEDIUM	40000.	36000.	54000.
11	DCX-200	LONG	HIGH	350000.	290659.	435989.
12	8757	MEDIUM	HIGH	218000.	191720.	287580.
13	8767-200	MEDIUM	HIGH	270000.	247336.	371005.
14	ASCOB4	MEDIUM	HIGH	333000.	285919.	428878.
15	CONCORDE	XL CNG	HIGH	355000.	232600.	348900.

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

EQUIVALENT SINGLE TYPE AIRCRAFT OPERATION

EQ. AIRCRAFT: B727-200
BANDWIDTH: LIGHTS/ILSWEIGHT: 170000. LBS
FORECAST: FAMSUGCLASS: 1/LCF
YEAR: 5

FACILITY: RW 15-33

STATIONS 0. TO 30. LOCATION: KEEL

	DEFLECTION CRITERIA AND						STRESS CRITERIA ANS						AANS
	TOW	LRW	TDW	TOW	LRW	TDW	TOW	LRW	TDW	TDW	LRW	TDW	
B747	3.6E 00	2.7E 00	4.6E 00	0.0	0.0	0.0	2.6E-01	3.5E-02	4.1E 00	0.0	0.0	0.0	
DC10/30	3.5E 00	2.1E 00	4.0E 00	0.0	0.0	0.0	1.7E 00	5.7E-02	7.8E 00	0.0	0.0	0.0	
DC10/10	2.7E 00	2.1E 00	3.9E 00	0.0	0.0	0.0	6.4E-01	1.2E-01	2.3E 01	0.0	0.0	0.0	
L1011	2.6E 00	2.0E 00	3.8E 00	0.0	0.0	0.0	6.2E-01	1.1E-01	1.9E 01	0.0	0.0	0.0	
DC8(B707)	1.8E 00	1.0E 00	2.5E 00	4.4E 02	9.5E 01	8.4E-02	1.9E-01	1.7E-02	1.4E 00	2.4E 01	1.6E 00	2.4E-01	
B720	1.2E 00	5.5E-01	1.7E 00	0.0	0.0	0.0	2.2E-02	3.1E-03	1.1E-01	0.0	0.0	0.0	
B727-200	7.8E-01	5.1E-01	1.7E 00	6.4E 02	1.4E 02	1.2E 00	3.7E-01	9.8E-02	1.8E 01	5.0E 02	1.0E 02	2.1E 01	
B727-100	4.6E-01	3.0E-01	1.2E 01	0.0	0.0	0.0	7.0E-02	2.6E-02	2.6E 00	0.0	0.0	0.0	
DC9(B737)	5.5E-02	3.0E-02	2.5E-01	1.2E 00	1.6E-01	1.8E 00	1.9E-03	1.0E-03	2.2E-02	1.3E 01	5.6E 00	9.9E-02	
F27	1.7E-05	2.6E-06	1.0E-03	1.4E-11	3.7E-14	5.2E-01	6.1E-05	4.3E-05	1.9E-04	1.7E-01	9.4E-02	2.7E-04	
DCX-200	2.2E 00	1.5E 00	3.2E 00	0.0	0.0	0.0	1.8E-01	2.7E-02	2.6E 00	0.0	0.0	0.0	
B757	9.9E-01	6.7E-01	2.0E 00	0.0	0.0	0.0	1.9E-02	6.5E-03	3.4E-01	0.0	0.0	0.0	
B767-200	1.4E 00	1.1E 00	2.7E 00	0.0	0.0	0.0	3.4E-02	1.5E-02	1.2E 00	0.0	0.0	0.0	
A30034	2.3E 00	1.7E 00	3.4E 00	0.0	0.0	0.0	5.0E-01	8.8E-02	1.5E 01	0.0	0.0	0.0	
CONCORDE	2.6E 00	1.0E 00	2.5E 00	0.0	0.0	0.0	3.5E 00	2.6E-02	2.7E 00	0.0	0.0	0.0	

1.1E 03 2.4E 02 3.6E 00 1.3E 03

5.4E 02 1.1E 02 2.1E 01 6.7E 02

STATIONS 30. TO 53. LOCATION: KEEL

	DEFLECTION CRITERIA AND						STRESS CRITERIA ANS						AANS
	TOW	LRW	TDW	TOW	LRW	TDW	TOW	LRW	TDW	TDW	LRW	TDW	
B747	3.6E 00	2.7E 00	4.6E 00	0.0	0.0	0.0	2.6E-01	3.5E-02	4.1E 00	0.0	0.0	0.0	
DC10/30	3.5E 00	2.1E 00	4.0E 00	0.0	0.0	0.0	1.7E 00	5.7E-02	7.8E 00	0.0	0.0	0.0	
DC10/10	2.7E 00	2.1E 00	3.9E 00	0.0	0.0	0.0	6.4E-01	1.2E-01	2.3E 01	0.0	0.0	0.0	
L1011	2.6E 00	2.0E 00	3.8E 00	0.0	0.0	0.0	6.2E-01	1.1E-01	1.9E 01	0.0	0.0	0.0	
DC8(B707)	1.8E 00	1.0E 00	2.5E 00	5.3E 02	9.5E 01	0.0	1.9E-01	1.7E-02	1.4E 00	2.8E 01	1.6E 00	0.0	
B720	1.2E 00	5.5E-01	1.7E 00	0.0	0.0	0.0	2.2E-02	3.1E-03	1.1E-01	0.0	0.0	0.0	
B727-200	7.8E-01	5.1E-01	1.7E 00	7.5E 02	1.4E 02	0.0	3.7E-01	9.8E-02	1.8E 01	5.8E 02	1.0E 02	0.0	
B727-100	4.6E-01	3.0E-01	1.2E 01	0.0	0.0	0.0	7.0E-02	2.6E-02	2.6E 00	0.0	0.0	0.0	
DC9(B737)	5.5E-02	3.0E-02	2.5E-01	1.4E 00	1.6E-01	0.0	1.9E-03	1.0E-03	2.2E-02	1.6E 01	5.6E 00	9.9E-02	
F27	1.7E-05	2.6E-06	1.0E-03	1.6E-11	3.7E-14	0.0	6.1E-05	4.3E-05	1.9E-04	1.9E-01	9.4E-02	0.0	
DCX-200	2.2E 00	1.5E 00	3.2E 00	0.0	0.0	0.0	1.8E-01	2.7E-02	2.6E 00	0.0	0.0	0.0	
B757	9.9E-01	6.7E-01	2.0E 00	0.0	0.0	0.0	1.9E-02	6.5E-03	3.4E-01	0.0	0.0	0.0	
B767-200	1.4E 00	1.1E 00	2.7E 00	0.0	0.0	0.0	3.4E-02	1.5E-02	1.2E 00	0.0	0.0	0.0	
A30084	2.3E 00	1.7E 00	3.4E 00	0.0	0.0	0.0	5.0E-01	8.8E-02	1.5E 01	0.0	0.0	0.0	
CONCORDE	2.6E 00	1.0E 00	2.5E 00	0.0	0.0	0.0	3.5E 00	2.6E-02	2.7E 00	0.0	0.0	0.0	

1.3E 03 2.4E 02 0.0

1.5E 03

6.3E 02 1.1E 02 0.0

7.4E 02

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CED:LCF

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF AIRCRAFT FORECAST, FUNCTIONAL LIMITS AND THICKNESS ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: 0727-200 WEIGHT: 1700000. LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALUATION PEGISON UNIT-PRICE

LCF	ASTCP	3.0	200000. 0.23	1.15
LCFA	6.0	1100000. 0.17	0.60	
LCFB	6.0	600000. 0.19	0.52	
LCFC	***	400000. 0.20	0.48	
SUB	INF1	**** 0.34	0.35	

FOR ESUB NORM AND FAM DEFINED

FACILITY	STATION FROM-TL	LOC	ESUB NURM	AANS	AAND	DEF/WZ	LIMIT	LIMIT	DESIGN SERVICE LCFC	THICKNESS OF		LCFC	LAYER FAM/2 FAM#2 WET	
							STRESS	YEAR		FAM NORM	FAM/2 NORM	FAM WET		
RW 15-33	0.- 3.	KEEL	34283.	669.	1323.	0.0861	135.0	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	3.- 30.	KEEL	14158.	669.	1323.	0.1340	135.0	5	1.0	1.0	1.7	3.9	3.3	4.5
RW 15-33	30.- 53.	KEEL	14158.	738.	1521.	0.1327	134.3	5	1.1	1.0	1.8	4.0	3.4	4.5
RW 15-33	53.- 69.	KEEL	14158.	299.	586.	0.1423	140.9	5	1.0	1.0	1.0	3.2	2.6	3.8
RW 15-33	69.- 77.	KEEL	13980.	299.	586.	0.1432	140.9	5	1.0	1.0	1.0	3.3	2.7	3.9
RW 15-33	77.- 78.	KEEL	30628.	299.	586.	0.0968	140.9	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	0.- 2.	SIDE	34283.	9.	13.	0.2347	210.5	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	3.- 30.	SIDE	14158.	9.	13.	0.3652	210.5	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	30.- 53.	SIDE	14158.	10.	15.	0.3558	209.5	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	53.- 69.	SIDE	14158.	4.	6.	0.3868	217.3	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	69.- 77.	SIDE	13980.	4.	6.	0.3893	217.3	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	77.- 78.	SIDE	30628.	4.	6.	0.2630	217.3	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	0.- 3.	KEEL	34283.	5762.	11625.	0.0755	119.3	20	1.0	1.0	1.0	1.0	1.0	1.6
RW 15-33	3.- 30.	KEEL	14158.	5762.	11625.	0.1174	119.3	20	3.3	2.6	4.0	5.7	5.1	6.4
RW 15-33	30.- 53.	KEEL	14158.	6505.	14025.	0.1163	118.4	20	3.4	2.7	4.1	5.8	5.2	6.5
RW 15-33	53.- 69.	KEEL	14158.	2477.	4555.	0.1238	125.4	20	2.4	1.6	3.1	5.0	4.4	5.6
RW 15-33	69.- 77.	KEEL	13980.	2477.	4555.	0.1246	125.4	20	2.5	1.7	3.2	5.0	4.4	5.6
RW 15-33	77.- 78.	KEEL	30628.	2477.	4555.	0.0842	125.4	20	1.0	1.0	1.0	1.0	1.0	1.4
RW 15-33	0.- 2.	SIDE	34283.	81.	116.	0.1730	190.2	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	3.- 30.	SIDE	14158.	81.	116.	0.2692	190.2	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	30.- 53.	SIDE	14158.	93.	140.	0.2640	189.0	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	53.- 69.	SIDE	14158.	39.	46.	0.3004	197.1	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	69.- 77.	SIDE	13980.	39.	46.	0.3023	197.1	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	77.- 78.	SIDE	30628.	39.	46.	0.2042	197.1	20	1.0	1.0	1.0	1.0	1.0	1.0

NAI C. YANG, ENGINEERING CONSULTANT

CED:AC

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF AIRCRAFT FORECAST, FUNCTIONAL LIMITS AND THICKNESS ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALVE POISSON UNIT-PRICE

AC	ASTOP	2.0	200000.	0.23	1.15
	ASBS	****	150000.	0.24	1.03
	AGBS	6.0	40000.	0.28	0.40
	SUB	INFI	****	0.34	0.35

FACILITY	STATION FROM-TO	LOC	ESUB NORM	FOR ESUB NORM AND FAM DEFINED				DESIGN SERVICE YEARS	FAM NORM	THICKNESS OF ASBS LAYER				
				AANS	AAND	DEF/WZ	STRESS ASBS			FAM/2 NORM	FAM/2 WET	FAM NORM	FAM WET	
RW 15-33	0.- 3.	KEEL	34283.	867.	1126.	0.0733	133.0	5	1.2	1.0	2.0	3.0	2.1	3.8
RW 15-33	3.- 30.	KEEL	14158.	867.	1126.	0.1140	133.0	5	4.0	3.1	5.0	6.7	6.0	7.7
RW 15-33	30.- 52.	KEEL	14158.	969.	1287.	0.1129	132.3	5	4.2	3.3	5.2	6.8	6.1	7.9
RW 15-33	52.- 69.	KEEL	14158.	414.	510.	0.1210	138.0	5	3.1	2.3	3.9	6.0	5.4	6.7
RW 15-33	69.- 77.	KEEL	13980.	414.	510.	0.1218	138.0	5	3.2	2.4	3.9	6.1	5.4	6.8
RW 15-33	77.- 78.	KEEL	30628.	414.	510.	0.0823	138.0	5	1.0	1.0	1.5	2.3	1.3	3.1
RW 15-33	0.- 3.	SIDE	34283.	12.	11.	0.1868	204.5	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	3.- 30.	SIDE	14158.	12.	11.	0.2907	204.5	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	30.- 53.	SIDE	14158.	13.	13.	0.2830	203.6	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	53.- 69.	SIDE	14158.	6.	5.	0.2981	210.2	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	69.- 77.	SIDE	13980.	6.	5.	0.3000	210.2	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	77.- 78.	SIDE	30628.	6.	5.	0.2027	210.2	5	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	0.- 3.	KEEL	34283.	7917.	9423.	0.0642	118.3	20	3.4	2.8	4.2	5.5	4.7	6.4
RW 15-33	3.- 30.	KEEL	14158.	7917.	9423.	0.0999	118.3	20	6.9	5.9	7.9	9.9	8.8	10.9
RW 15-33	30.- 52.	KEEL	14158.	9097.	11255.	0.0990	117.4	20	7.2	6.1	8.1	10.2	9.1	11.2
RW 15-33	52.- 69.	KEEL	14158.	3748.	3791.	0.1053	123.3	20	5.6	4.8	6.6	8.4	7.5	9.6
RW 15-33	69.- 77.	KEEL	13980.	3748.	3791.	0.1060	123.3	20	5.7	4.8	6.7	8.5	7.6	9.6
RW 15-33	77.- 78.	KEEL	30628.	3748.	3791.	0.0716	123.3	20	3.0	2.3	3.7	4.8	3.9	5.6
RW 15-33	0.- 3.	SIDE	34283.	109.	94.	0.1363	185.8	20	1.2	1.0	1.0	1.0	1.0	1.0
RW 15-33	3.- 30.	SIDE	14158.	109.	94.	0.2122	185.8	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	30.- 53.	SIDE	14158.	125.	113.	0.2081	184.6	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	53.- 69.	SIDE	14158.	56.	38.	0.2373	191.4	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	69.- 77.	SIDE	13980.	56.	38.	0.2388	191.4	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 15-33	77.- 78.	SIDE	30628.	56.	38.	0.1613	191.4	20	1.0	1.0	1.0	1.0	1.0	1.0
RW 1-19	16.- 52.	KEEL	17722.	149.	217.	0.1164	144.7	5	1.1	1.0	2.1	3.9	3.2	4.5
RW 1-19	16.- 52.	SIDE	17732.	2.	2.	0.2664	219.2	5	1.0	1.0	1.0	1.0	1.0	1.0

NAI C. YANG, ENGINEERING CONSULTANT

CED:CC

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF AIRCRAFT FORECAST, FUNCTIONAL LIMITS AND THICKNESS ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000, LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALUATION PCISSON UNIT-PRICE

CC	PCC	****	4000000.	0.12	1.23
	CTB	6.0	200000.	0.23	0.60
	SSBS	8.0	200000.	0.31	0.33
	SUB	INF	+++	0.34	0.35

FOR ESUB NORM AND FAM DEFINED

FACILITY	STATION FROM-TO	LOC	ESUB NORM	AANS	AAND	DEF/WZ	LIMIT PCC	LIMIT STRESS PCC	DESIGN SERVICE YEARS	THICKNESS OF PCC		LAYER		
										FAM NORM	FAM/2 NORM	FAM WET	FAM/2 WET	
RW 15-33	0.- 3.	KEEL	34283.	561.	1328.	0.0996	497.9	5	7.4	7.1	7.6	8.2	7.9	8.5
RW 15-33	3.- 30.	KEEL	14158.	561.	1328.	0.1550	497.9	5	8.7	8.5	9.0	9.6	9.3	9.9
RW 15-33	30.- 53.	KEEL	14158.	606.	1531.	0.1525	496.2	5	8.8	8.5	9.0	9.6	9.3	9.9
RW 15-33	53.- 69.	KILL	14158.	239.	577.	0.1649	517.5	5	8.4	8.1	8.7	9.2	8.9	9.5
RW 15-33	69.- 77.	KEEL	13980.	239.	577.	0.1659	517.5	5	8.4	8.1	8.7	9.2	9.0	9.5
RW 15-33	77.- 78.	KEEL	30628.	239.	577.	0.1121	517.5	5	7.2	6.9	7.5	8.0	7.7	8.3
RW 15-33	0.- 3.	SIDE	34283.	7.	13.	0.2781	755.3	5	4.0	4.0	4.0	4.1	4.0	4.4
RW 15-33	3.- 30.	SIDE	14158.	7.	13.	0.4327	755.3	5	4.8	4.5	5.1	5.8	5.6	6.1
RW 15-33	30.- 53.	SIDE	14158.	8.	15.	0.4213	752.2	5	4.9	4.5	5.2	5.9	5.6	6.1
RW 15-33	53.- 69.	SIDE	14158.	3.	6.	0.4585	778.0	5	4.5	4.1	4.8	5.5	5.3	5.8
RW 15-33	69.- 77.	SIDE	13980.	3.	6.	0.4615	778.0	5	4.5	4.1	4.8	5.6	5.3	5.8
RW 15-33	77.- 78.	SIDE	30628.	3.	6.	0.3118	778.0	5	4.0	4.0	4.0	4.0	4.0	4.3
RW 15-33	0.- 3.	KEEL	34283.	4670.	11669.	0.0873	449.4	20	8.3	7.9	8.6	9.1	8.8	9.4
RW 15-33	3.- 30.	KEEL	14158.	4670.	11669.	0.1259	449.4	20	9.7	9.3	10.0	10.5	10.2	10.8
RW 15-33	30.- 53.	KEEL	14158.	5119.	14164.	0.1345	447.3	20	9.7	9.4	10.0	10.5	10.2	10.9
RW 15-33	53.- 69.	KEEL	14158.	1851.	4394.	0.1436	470.6	20	9.2	8.9	9.5	10.1	9.8	10.4
RW 15-33	69.- 77.	KEEL	13980.	1851.	4394.	0.1445	470.6	20	9.3	9.0	9.6	10.1	9.8	10.4
RW 15-33	77.- 78.	KEEL	30628.	1851.	4394.	0.0976	470.6	20	8.0	7.7	8.3	8.8	8.5	9.1
RW 15-33	0.- 3.	SIDE	34283.	66.	117.	0.2050	692.3	20	4.2	4.0	4.6	5.1	4.8	5.4
RW 15-33	3.- 30.	SIDE	14158.	66.	117.	0.3190	692.3	20	5.7	5.5	6.0	6.7	6.4	6.9
RW 15-33	30.- 53.	SIDE	14158.	75.	142.	0.3127	688.4	20	5.8	5.5	6.1	6.7	6.4	7.0
RW 15-33	53.- 69.	SIDE	14158.	29.	44.	0.3578	715.7	20	5.4	5.1	5.7	6.3	6.1	6.6
RW 15-33	69.- 77.	SIDE	13980.	29.	44.	0.3600	715.7	20	5.4	5.2	5.7	6.4	6.1	6.6
RW 15-33	77.- 78.	SIDE	30628.	29.	44.	0.2432	715.7	20	4.0	4.0	4.4	5.0	4.6	5.3
RW 1-19	16.- 52.	KEEL	17732.	91.	232.	0.1592	539.6	5	7.7	7.4	7.9	8.5	8.2	8.8
RW 1-19	16.- 52.	SIDE	17732.	1.	2.	0.4098	806.8	5	4.0	4.0	4.0	4.7	4.3	5.0

NAI C. YANG, ENGINEERING CONSULTANT

CED:CCL

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF AIRCRAFT FORECAST, FUNCTIONAL LIMITS AND THICKNESS ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: 8727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CCDE LAYER THICKNESS EVALUE PCISSON UNIT-PRICE

CCL	PCC	8.0	4000000.	0.12	1.23
	RLC	****	1503000.	0.16	0.84
	SSBS	6.0	20000.	0.31	0.33
	SUB	INF1	****	0.34	0.35

FOR ESUB NCFM AND FAM DEFINED

FACILITY	STATION FROM-TC	LOC	ESUB NCRM	AANS	LIMIT AAND	LIMIT DEF/WZ	DESIGN STRESS RLC	SERVICE YEARS	FAM NORM	THICKNESS FAM/2 NORM	RLC	LAYER		
										FAM NORM	FAM NORM	FAM WET	FAM/2 WET	FAM*2 WET
RW 15-33	0.- 3.	KEEL	34283.	511.	1309.	0.0969	297.3	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	3.- 30.	KEEL	14158.	511.	1309.	0.1507	297.3	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	30.- 53.	KEEL	14158.	537.	1509.	0.1493	296.6	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	53.- 69.	KEEL	14158.	213.	569.	0.1603	309.6	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	69.- 77.	KEEL	13980.	213.	569.	0.1613	309.6	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	77.- 78.	KEEL	30628.	213.	569.	0.1090	309.6	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	0.- 3.	SIDE	34283.	7.	13.	0.2643	453.2	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	3.- 30.	SIDE	14158.	7.	13.	0.4112	453.2	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	30.- 53.	SIDE	14158.	7.	15.	0.4003	451.4	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	53.- 69.	SIDE	14158.	3.	6.	0.4246	467.5	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	69.- 77.	SIDE	13980.	3.	6.	0.4374	467.5	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	77.- 78.	SIDE	30628.	3.	6.	0.2955	467.5	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	0.- 2.	KEEL	34283.	4202.	11445.	0.0846	267.8	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	3.- 30.	KEEL	14158.	4202.	11445.	0.1321	267.8	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	30.- 53.	KEEL	14158.	4439.	13881.	0.1307	267.0	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	53.- 69.	KEEL	14153.	1592.	4321.	0.1396	281.4	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	69.- 77.	KEEL	13980.	1592.	4321.	0.1404	281.4	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	77.- 78.	KEEL	30628.	1592.	4321.	0.0949	281.4	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	0.- 3.	SIDE	34283.	58.	114.	0.1947	414.8	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	3.- 30.	SIDE	14158.	58.	114.	0.3029	414.8	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	30.- 53.	SIDE	14158.	66.	139.	0.2969	412.6	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	53.- 69.	SIDE	14158.	25.	43.	0.3398	429.8	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	69.- 77.	SIDE	13980.	25.	43.	0.3420	429.8	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 15-33	77.- 78.	SIDE	30628.	25.	43.	0.2311	429.8	20	4.0	4.0	4.0	4.0	4.0	4.0
RW 1-19	16.- 52.	KEEL	17732.	80.	230.	0.1547	323.4	5	4.0	4.0	4.0	4.0	4.0	4.0
RW 1-19	16.- 52.	SIDE	17732.	1.	2.	0.3884	484.9	5	4.0	4.0	4.0	4.0	4.0	4.0

NAI C. YANG, ENGINEERING CONSULTANT

CED:LC/PAV

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF AIRCRAFT FORECAST, FUNCTIONAL LIMITS AND THICKNESS ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALUE POISSON UNIT-PRICE

LC/PAV	ASTOP	3.0	200000.	0.23	1.15
LCFA	****	1100000.	0.17	0.60	
PAV	INFI	+++	0.27	0.18	

FOR EPAV NORM AND FAM DEFINED

FACILITY	STATION FRCM-TC	LOC	CPAV NCRM	AANS	AAND	LIMIT	LIMIT	DESIGN LCFA	FAM NORM	THICKNESS OF		LCFA FAM WET	LAYER FAM WET
						DEF/WZ	STRESS			FAM NORM	FAM/2 NORM	FAM/2 WET	
RW 15-33	0.- 3.	KEEL	179545.	887.	1351.	0.0302	220.4	5	1.0	1.0	1.0	1.0	1.0
RW 15-33	3.- 30.	KEEL	34885.	887.	1351.	0.0686	220.4	5	10.9	10.5	11.3	12.3	11.9
RW 15-33	30.- 53.	KEEL	34885.	992.	1529.	0.0680	219.1	5	11.0	10.6	11.4	12.4	12.0
RW 15-33	53.- 69.	KEEL	34885.	425.	654.	0.0724	229.3	5	10.5	10.1	10.9	11.9	11.5
RW 15-33	69.- 77.	KEEL	27745.	425.	654.	0.0811	229.3	5	11.4	11.1	11.8	12.7	12.4
RW 15-33	77.- 78.	KEEL	165589.	425.	654.	0.0532	229.3	5	1.0	1.0	1.0	1.0	1.0
RW 15-33	0.- 3.	SIDE	179545.	12.	14.	0.0823	344.9	5	1.0	1.0	1.0	1.0	1.0
RW 15-33	3.- 30.	SIDE	34885.	12.	14.	0.1867	344.9	5	6.6	6.4	6.9	8.0	7.7
RW 15-33	30.- 53.	SIDE	34885.	13.	15.	0.1824	343.2	5	6.7	6.4	6.9	8.0	7.7
RW 15-33	53.- 69.	SIDE	34885.	6.	7.	0.1985	355.2	5	6.4	6.1	6.6	7.7	8.0
RW 15-33	69.- 77.	SIDE	27745.	6.	7.	0.2226	355.2	5	7.3	7.0	7.6	8.4	8.2
RW 15-33	77.- 78.	SIDE	165589.	6.	7.	0.0911	355.2	5	1.0	1.0	1.0	1.0	1.0
RW 15-33	0.- 3.	KEEL	179545.	8209.	12282.	0.0265	193.5	20	1.0	1.0	1.0	1.0	1.0
RW 15-33	3.- 30.	KEEL	34885.	8209.	12282.	0.0600	193.5	20	12.3	11.8	12.8	13.7	13.2
RW 15-33	30.- 53.	KEEL	34885.	9449.	14452.	0.0595	191.8	20	12.4	11.9	12.9	13.8	13.3
RW 15-33	53.- 69.	KEEL	34885.	3913.	55t5.	0.3627	202.5	20	11.8	11.4	12.3	13.2	12.8
RW 15-33	69.- 77.	KEEL	27745.	3913.	5565.	0.0703	202.5	20	12.8	12.4	13.3	14.1	13.6
RW 15-33	77.- 78.	KEEL	165585.	3913.	5565.	0.0288	202.5	20	1.0	1.0	1.0	1.0	1.0
RW 15-33	0.- 3.	SIDE	179545.	112.	123.	0.3605	310.6	20	1.0	1.0	1.0	1.0	1.0
RW 15-33	3.- 30.	SIDE	34885.	112.	123.	0.1373	310.6	20	7.6	7.3	7.9	8.9	8.6
RW 15-33	30.- 53.	SIDE	34885.	129.	145.	0.1351	308.4	20	7.6	7.3	8.0	9.0	8.6
RW 15-33	53.- 69.	SIDE	34885.	58.	56.	0.1502	320.7	20	7.3	7.0	7.6	8.6	8.3
RW 15-33	69.- 77.	SIDE	27745.	58.	56.	0.1685	320.7	20	8.2	7.9	8.5	9.4	9.1
RW 15-33	77.- 78.	SIDE	165589.	58.	56.	0.0690	320.7	20	1.0	1.0	1.0	1.0	1.0
RW 1-19	16.- 52.	KEEL	32267.	153.	261.	0.0812	241.7	5	10.3	9.9	10.6	11.7	11.3
RW 1-19	16.- 52.	SIDE	32267.	2.	3.	0.2064	371.6	5	6.3	6.1	6.5	7.6	7.4

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF AIRCRAFT FORECAST, FUNCTIONAL LIMITS AND THICKNESS ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CCDF LAYER THICKNESS EVALUE PCISSON UNIT-PRICE

CC/PAV PCCR	****	5000000. 0.11	1.58
ASTCP	1.0	200000. 0.23	1.15
PAV	INFI	**** 0.27	0.18

FACILITY	STATION FROM-TL	LOC	EPAV NORM	FOR EPAV NORM AND FAM DEFINED				DESIGN YEARS	THICKNESS OF PCCR LAYER			
				AANS	AAND	DEF/WZ	STRESS PCCR		FAM NORM	FAM/2 NORM	FAM*2 NORM	FAM WET
RW 15-33	0.- 3.	KEEL	179545.	703.	966.	0.0370	551.0	5	4.0	4.0	4.0	4.3
RW 15-33	3.- 30.	KEEL	34885.	703.	966.	0.0838	551.0	5	8.3	8.1	8.6	9.0
RW 15-33	3.- 53.	KEEL	34885.	782.	1106.	0.0830	548.2	5	8.3	8.1	8.6	9.1
RW 15-32	53.- 69.	KEEL	34885.	319.	430.	0.0893	571.2	5	8.0	7.8	8.3	8.8
RW 15-33	69.- 77.	KEEL	27745.	319.	430.	0.1001	571.2	5	8.6	8.3	8.8	9.0
RW 15-33	77.- 78.	KEEL	165589.	319.	430.	0.0410	571.2	5	4.0	4.0	4.0	4.3
RW 15-33	0.- 3.	SIDE	179545.	9.	18.	0.1069	837.3	5	4.0	4.0	4.0	4.0
RW 15-33	3.- 30.	SIDE	34885.	9.	18.	0.2426	837.3	5	5.6	5.4	5.7	6.3
RW 15-33	30.- 53.	SIDE	34885.	10.	11.	0.2375	833.7	5	5.6	5.4	5.7	6.1
RW 15-33	53.- 69.	SIDE	34885.	5.	4.	0.2426	860.8	5	5.4	5.3	5.6	5.9
RW 15-33	69.- 77.	SIDE	27745.	5.	4.	0.2720	860.8	5	5.9	5.7	6.0	6.4
RW 15-33	77.- 78.	SIDE	165589.	5.	4.	0.1113	860.8	5	4.0	4.0	4.0	4.0
RW 15-33	0.- 3.	KEEL	179545.	6229.	7637.	0.0324	495.1	20	4.0	4.0	4.2	5.1
RW 15-33	3.- 30.	KEEL	34885.	6229.	7637.	0.0735	495.1	20	9.1	8.8	9.4	9.8
RW 15-33	30.- 53.	KEEL	34885.	7130.	9123.	0.0728	491.7	20	9.2	8.9	9.5	9.9
RW 15-33	53.- 69.	KEEL	34885.	2752.	2937.	0.0778	516.0	20	8.8	8.5	9.0	9.5
RW 15-33	69.- 77.	KEEL	27745.	2752.	2937.	0.0872	516.0	20	9.3	9.0	9.6	10.0
RW 15-33	77.- 78.	KEEL	165589.	2752.	2937.	0.0357	516.0	20	4.0	4.0	4.2	5.3
RW 15-33	0.- 3.	SIDE	179545.	87.	76.	0.0779	764.9	20	4.0	4.0	4.0	4.0
RW 15-33	3.- 30.	SIDE	34885.	87.	76.	0.1768	764.9	20	6.1	5.9	6.3	6.8
RW 15-33	30.- 53.	SIDE	34885.	100.	91.	0.1732	760.3	20	6.1	5.9	6.3	6.8
RW 15-33	53.- 69.	SIDE	34885.	42.	29.	0.2002	788.4	20	5.9	5.8	6.1	6.6
RW 15-33	69.- 77.	SIDE	27745.	42.	29.	0.2245	788.4	20	6.4	6.2	6.6	7.0
RW 15-33	77.- 78.	SIDE	165589.	42.	29.	0.0919	788.4	20	4.0	4.0	4.0	4.0
RW 1-19	16.- 52.	KEEL	32267.	119.	194.	0.0996	596.4	5	7.9	7.7	8.1	8.7
RW 1-19	16.- 52.	SIDE	32267.	2.	2.	0.2522	894.2	5	5.3	5.2	5.5	6.0

NAI C. YANG, ENGINEERING CONSULTANT

CED:AC/PAV

I

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

SUMMARY OF AIRCRAFT FORECAST, FUNCTIONAL LIMITS AND THICKNESS ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALUATION POISSON UNIT-PRICE

AC/PAV	ASTP	1.0	200000.	0.23	1.15
	ASBS	****	150000.	0.24	1.03
	PFLPAV				0.18

FOR ESUB NORM AND FAM DEFINED

FACILITY	STATION FROM-TC	LOC	ESUB NORM	AANS	AAND	DEF/WZ	LIMIT	LIMIT	DESIGN SERVICE YEARS	FAM NORM	THICKNESS OF		ASBS	LAYER	PFLPAV	
											FAM/2 NORM	FAM/2 NORM	FAM WET	FAM/2 WET	FAM WET	
RW 15-33	0.- 3.	KEEL	34283.	543.	1647.	0.0949	431.9	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	CC7
RW 15-33	3.- 30.	KEEL	14158.	1003.	1133.	0.1138	127.6	5	1.0	1.0	1.0	1.3	1.0	2.5	AC2	
RW 15-33	30.- 53.	KEEL	14158.	1120.	1294.	0.1127	126.9	5	1.0	1.0	1.0	1.6	1.0	2.7	AC2	
RW 15-33	53.- 69.	KEEL	14158.	494.	514.	0.1208	132.1	5	1.0	1.0	1.0	1.0	1.0	1.0	1.2	AC2
RW 15-33	69.- 77.	KEEL	13980.	494.	514.	0.1215	132.1	5	1.0	1.0	1.0	1.6	2.9	1.8	4.2	AC1
RW 15-33	77.- 78.	KEEL	30628.	231.	768.	0.1061	448.9	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	CC7
RW 15-33	0.- 3.	SIDE	34283.	7.	16.	0.2455	654.8	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	CC7
RW 15-33	3.- 30.	SIDE	14158.	14.	11.	0.2899	196.3	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	AC2
RW 15-33	30.- 53.	SIDE	14158.	15.	13.	0.2823	195.4	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	AC2
RW 15-33	53.- 69.	SIDE	14158.	7.	5.	0.2976	201.6	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	AC2
RW 15-33	69.- 77.	SIDE	13980.	7.	5.	0.2995	201.6	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	AC1
RW 15-33	77.- 78.	SIDE	30628.	3.	8.	0.2865	674.6	5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	CC7
RW 15-33	0.- 3.	KEEL	34283.	4515.	16052.	0.0830	389.9	20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	CC7
	3.- 30.	KEEL	14158.	9266.	9498.	0.0997	113.3	20	1.7	1.0	2.7	4.8	3.7	5.8	AC2	
	30.- 53.	KEEL	14158.	10650.	11342.	0.0988	112.4	20	2.0	1.0	2.9	5.0	4.0	6.1	AC2	
	53.- 69.	KEEL	14158.	4563.	3825.	0.1050	117.9	20	1.0	1.0	1.4	3.3	2.2	4.4	AC2	
	69.- 77.	KEEL	13980.	4563.	3825.	0.1057	117.9	20	3.4	2.5	4.4	6.3	5.1	7.4	AC1	
	77.- 78.	KEEL	30628.	1772.	6996.	0.0919	408.4	20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	CC7
	0.- 3.	SIDE	34283.	63.	161.	0.1823	600.4	20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	CC7
	3.- 30.	SIDE	14158.	126.	95.	0.2117	178.3	20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	AC2
	30.- 53.	SIDE	14158.	145.	113.	0.2076	177.2	20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	AC2
	53.- 69.	SIDE	14158.	67.	38.	0.2365	183.5	20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	AC2
RW 1-19	69.- 77.	SIDE	13980.	67.	28.	0.2380	183.5	20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	AC1
	77.- 78.	SIDE	30628.	28.	70.	0.2109	620.9	20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	CC7
RW 1-19	16.- 52.	KEEL	17732.	174.	218.	0.1162	138.9	5	1.0	1.0	1.0	1.0	1.0	1.8	AC1	
RW 1-19	16.- 52.	SIDE	17732.	2.	2.	0.2660	210.5	5	1.0	1.0	1.0	1.0	1.0	1.0	AC1	

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

LISTING OF PAVEMENT DESIGN AND COST ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALVE POISSON UNIT-PRICE

LCF	ASTOP	3.0	200000.	0.23	1.15
	LCFA	6.0	1100000.	0.17	0.63
	LCFR	6.0	600000.	0.19	0.52
	LCFC	****	400000.	0.20	0.48
	SUB	INFI	****	0.34	0.35

FACILITY	STATION FROM-TO	LUC	DI	VEL	ESUB NCRM +++	AIRPORT NAVIGATION SYSTEM	FORECAST AIRCRAFT MOVEMENT	DESIGN SERVICE YEARS	FUNCTION GOVERNED	AMC	ICC	PCV	THICKNESS ****
RW 15-33	0.- 3.	KEEL	0.12	145.	34283.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	10.96	11.61	1.0
RW 15-33	3.- 30.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	10.96	11.61	1.0
RW 15-33	30.- 53.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	11.01	11.65	1.1
RW 15-33	53.- 69.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	10.96	11.56	1.0
RW 15-33	69.- 77.	KEEL	0.12	145.	13980.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	10.96	11.56	1.0
RW 15-33	77.- 78.	KEEL	0.12	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	10.96	11.56	1.0
RW 15-33	0.- 3.	SIDE	0.18	145.	34283.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	10.96	11.27	1.0
RW 15-33	3.- 30.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	10.96	11.27	1.0
RW 15-33	30.- 53.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	10.96	11.29	1.0
RW 15-33	53.- 69.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.03	10.96	11.09	1.0
RW 15-33	69.- 77.	SIDE	0.18	145.	13980.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.03	10.96	11.09	1.0
RW 15-33	77.- 78.	SIDE	0.18	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.03	10.96	11.09	1.0
RW 15-33	0.- 3.	KEEL	0.12	145.	34283.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	10.96	11.70	1.0
RW 15-33	3.- 30.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	12.06	12.75	3.3
RW 15-33	30.- 53.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	12.12	12.81	3.4
RW 15-33	53.- 69.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	11.64	12.31	2.4
RW 15-33	69.- 77.	KEEL	0.12	145.	13980.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	11.68	12.35	2.5
RW 15-33	77.- 78.	KEEL	0.12	145.	30628.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	10.96	11.67	1.0
RW 15-33	0.- 3.	SIDE	0.18	145.	34283.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	10.96	11.62	1.0
RW 15-33	3.- 30.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	10.96	11.62	1.0
RW 15-33	30.- 53.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	10.96	11.64	1.0
RW 15-33	53.- 69.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.05	10.96	11.52	1.0
RW 15-33	69.- 77.	SIDE	0.18	145.	13980.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.05	10.96	11.52	1.0
RW 15-33	77.- 78.	SIDE	0.18	145.	30628.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.05	10.96	11.52	1.0

NAI C. YANG, ENGINEERING CONSULTANT

PAV:AC

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

LISTING OF PAVEMENT DESIGN AND COST ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CODE	LAYER	THICKNESS	EVALVE	POISSON	UNIT-PRICE	
					AC	ASTOP
					ASBS	****
					AGBS	6.0
					SUB	INF1
						**** 0.34 0.35

FACILITY	STATION FROM-TO	LOC	DI	VEL	ESUB NCRM ****	AIRPORT NAVIGATION SYSTEM	FORECAST AIRCRAFT MOVEMENT	DESIGN SERVICE YEARS	FUNCTION GOVERNED	AMC	ICC	PCV	THICKNESS

RW 15-33	0.- 3.	KEEL	0.12	145.	34283.	LIGHTS/ILS	FAMSUG	5	DEF/DI	0.08	6.23	7.59	1.2
RW 15-33	3.- 30.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	DEF/DI	0.08	9.16	10.42	4.0
RW 15-33	30.- 53.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	DEF/DI	0.08	9.37	10.63	4.2
RW 15-33	53.- 69.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	8.20	9.43	3.1
RW 15-33	69.- 77.	KEEL	0.12	145.	13980.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	8.30	9.53	3.2
RW 15-33	77.- 78.	KEEL	0.12	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	6.06	7.37	1.0
RW 15-33	0.- 3.	SIDE	0.18	145.	34283.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	6.06	6.96	1.0
RW 15-33	3.- 30.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	6.06	6.96	1.0
RW 15-33	30.- 53.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	6.06	6.99	1.0
RW 15-33	53.- 69.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	6.06	6.74	1.0
RW 15-33	69.- 77.	SIDE	0.18	145.	13980.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	6.06	6.74	1.0
RW 15-33	77.- 78.	SIDE	0.18	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	6.06	6.74	1.0
RW 15-33	0.- 3.	KEEL	0.12	145.	34283.	LIGHTS/ILS	FAMSUG	20	DEF/DI	0.09	8.52	9.94	3.4
RW 15-33	3.- 30.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	DEF/DI	0.09	12.14	13.42	6.9
RW 15-33	30.- 53.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	DEF/DI	0.09	12.40	13.68	7.2
RW 15-33	53.- 69.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	DEF/DI	0.09	10.83	12.12	5.6
RW 15-33	69.- 77.	KEEL	0.12	145.	13980.	LIGHTS/ILS	FAMSUG	20	DEF/DI	0.09	10.89	12.18	5.7
RW 15-33	77.- 78.	KEEL	0.12	145.	30628.	LIGHTS/ILS	FAMSUG	20	DEF/DI	0.09	8.09	9.49	3.0
RW 15-33	0.- 3.	SIDE	0.18	145.	34283.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	6.06	7.47	1.0
RW 15-33	3.- 30.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	6.06	7.47	1.0
RW 15-33	30.- 53.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	6.06	7.49	1.0
RW 15-33	53.- 69.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	6.06	7.34	1.0
RW 15-33	69.- 77.	SIDE	0.18	145.	13980.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	6.06	7.34	1.0
RW 15-33	77.- 78.	SIDE	0.18	145.	30628.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	6.06	7.34	1.0
RW 1-19	16.- 52.	KEEL	0.12	145.	17732.	LIGHTS/ILS	FAMSUG	5	DEF/DI	0.08	6.12	7.32	1.1
RW 1-19	16.- 52.	SIDE	0.18	145.	17732.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.02	6.06	6.27	1.0

NAI C. YANG, ENGINEERING CONSULTANT

PAV:CC

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

LISTING OF PAVEMENT DESIGN AND COST ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CCDE LAYER THICKNESS EVALVE POISSON UNIT-PRICE

CC	PCC	****	4000000.	0.12	1.23
	CTB	6.0	200000.	0.23	0.69
	SSBS	8.0	20000.	0.31	0.33
	SUB	INFI	****	0.34	0.35

FACILITY	STATION FRCM-TG	LOC	DI	VEL	ESUB NCRM ****	AIRPORT NAVIGATION SYSTEM	FORECAST AIRCRAFT MOVEMENT	DESIGN SERVICE YEARS	FUNCTION GOVERNED	AMC	ICC	PCV	THICKNESS

RW 15-33	0.- 3.	KEEL	0.12	145.	34283.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.09	15.62	16.74	7.4
RW 15-33	3.- 30.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.09	17.31	18.37	8.7
RW 15-33	30.- 53.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.09	17.35	18.41	8.8
RW 15-33	52.- 69.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.09	16.89	17.88	8.4
RW 15-33	69.- 77.	KEEL	0.12	145.	13580.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.09	16.92	17.91	8.4
RW 15-33	77.- 78.	KEEL	0.12	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.09	15.42	16.46	7.2
RW 15-33	0.- 3.	SIDE	0.18	145.	34283.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	11.51	12.13	4.0
RW 15-33	3.- 31.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	12.54	13.12	4.8
RW 15-33	30.- 53.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	12.60	13.22	4.9
RW 15-33	53.- 69.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	12.07	12.34	4.5
RW 15-33	69.- 77.	SIDE	0.18	145.	13580.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	12.10	12.37	4.5
RW 15-33	77.- 78.	SIDE	0.18	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	11.51	11.80	4.0
RW 15-33	0.- 3.	KEEL	0.12	145.	34283.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.10	16.74	17.98	8.3
RW 15-33	3.- 30.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.10	18.45	19.62	9.7
RW 15-33	30.- 53.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.10	18.50	19.68	9.7
RW 15-33	53.- 69.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	17.93	19.07	9.2
RW 15-33	69.- 77.	KEEL	0.12	145.	13580.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	17.96	19.09	9.3
RW 15-33	77.- 78.	KEEL	0.12	145.	30628.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	16.44	17.63	8.0
RW 15-33	0.- 3.	SIDE	0.18	145.	34283.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	11.80	13.02	4.2
RW 15-33	3.- 31.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	13.65	14.80	5.7
RW 15-33	30.- 53.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	13.72	14.90	5.8
RW 15-33	53.- 69.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	13.25	14.23	5.4
RW 15-33	69.- 77.	SIDE	0.18	145.	13580.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	13.28	14.25	5.4
RW 15-33	77.- 78.	SIDE	0.18	145.	30628.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	11.56	12.59	4.0
RW 1-19	16.- 52.	KEEL	0.12	145.	17732.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	16.00	16.90	7.7
RW 1-19	16.- 52.	SIDE	0.18	145.	17732.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.01	11.51	11.25	4.0

NAI C. YANG, ENGINEERING CONSULTANT

PAV:CCL

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

LISTING OF PAVEMENT DESIGN AND COST ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALVE POISSON UNIT-PRICE

CCL	PCC	8.0	4000000.	0.12	1.23
	RLG	****	1500000.	0.16	0.84
	SSBS	6.0	20000.	0.31	0.33
	SUB	INFI	****	0.34	0.35

FACILITY	STATION FROM-TC	LOC	DI	VEL	ESUB NCRM ****	AIRPORT NAVIGATION SYSTEM	FORECAST AIRCRAFT MOVEMENT	DESIGN SERVICE YEARS	FUNCTION GOVERNED	AMC	ICC	PCV	THICKNESS

RW 15-33	0.- 3.	KEEL 0.12	145.	34283.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	15.52	16.35	4.0	
RW 15-33	3.- 30.	KEEL 0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	15.52	16.35	4.0	
RW 15-33	20.- 53.	KEEL 0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	15.52	16.36	4.0	
RW 15-33	53.- 69.	KEEL 0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	15.52	16.28	4.0	
RW 15-33	69.- 77.	KEEL 0.12	145.	13980.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	15.52	16.28	4.0	
RW 15-33	77.- 78.	KEEL 0.12	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	15.52	16.28	4.0	
RW 15-33	0.- 3.	SIDE 0.18	145.	34283.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	15.52	15.79	4.0	
RW 15-33	3.- 30.	SIDE 0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	15.52	15.79	4.0	
RW 15-33	20.- 53.	SIDE 0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	15.52	15.82	4.0	
RW 15-33	53.- 69.	SIDE 0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.03	15.52	15.50	4.0	
RW 15-33	69.- 77.	SIDE 0.18	145.	13980.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.03	15.52	15.50	4.0	
RW 15-33	77.- 78.	SIDE 0.18	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.03	15.52	15.50	4.0	
RW 15-33	0.- 3.	KEEL 0.12	145.	34283.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	15.52	16.49	4.0	
RW 15-33	3.- 30.	KEEL 0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	15.52	16.49	4.0	
RW 15-33	20.- 53.	KEEL 0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	15.52	16.49	4.0	
RW 15-33	53.- 69.	KEEL 0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	15.52	16.43	4.0	
RW 15-33	69.- 77.	KEEL 0.12	145.	13980.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	15.52	16.43	4.0	
RW 15-33	77.- 78.	KEEL 0.12	145.	30628.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	15.52	16.43	4.0	
RW 15-33	0.- 3.	SIDE 0.18	145.	34283.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	15.52	16.31	4.0	
RW 15-33	3.- 30.	SIDE 0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	15.52	16.31	4.0	
RW 15-33	20.- 53.	SIDE 0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	15.52	16.33	4.0	
RW 15-33	53.- 69.	SIDE 0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	15.52	16.14	4.0	
RW 15-33	69.- 77.	SIDE 0.18	145.	13980.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	15.52	16.14	4.0	
RW 15-33	77.- 78.	SIDE 0.18	145.	30628.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	15.52	16.14	4.0	
RW 1-19	16.- 52.	KEEL 0.12	145.	17732.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	15.52	16.17	4.0	
RW 1-19	16.- 52.	SIDE 0.18	145.	17732.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.00	15.52	15.03	4.0	

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

LISTING OF PAVEMENT DESIGN AND COST ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALUE PCISSION UNIT-PRICE

FACILITY	STATION FROM-TO	LOC	DI	VEL	EPAV NCRM ****	AIRPCRT NAVIGATION SYSTEM	FORECAST AIRCRAFT MOVEMENT	DESIGN SERVICE YEARS	FUNCTION GOVERNED	LC/PAV	ASTOP	3.0	200000.	0.23	1.15
										L CFA	*****	1100000.	0.17	0.60	
										PAV	INFI	****	0.27	0.18	
RW 15-33	0.- 3.	KEEL	0.12	145.	179545.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	4.22	5.37	1.0		
RW 15-33	0.- 30.	K_EEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	10.13	11.07	10.9		
RW 15-33	20.- 53.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	10.17	11.12	11.0		
RW 15-33	53.- 69.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	9.88	10.79	10.5		
RW 15-33	69.- 77.	KEEL	0.12	145.	27745.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	10.45	11.33	11.4		
RW 15-33	77.- 78.	KEEL	0.12	145.	165589.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	4.22	5.32	1.0		
RW 15-33	0.- 3.	SIDE	0.18	145.	179545.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	4.22	5.00	1.0		
RW 15-33	3.- 30.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	7.58	8.24	6.6		
RW 15-33	30.- 53.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	7.60	8.29	6.7		
RW 15-33	53.- 69.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	7.43	7.91	6.4		
RW 15-33	69.- 77.	SIDE	0.18	145.	27745.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	7.97	8.44	7.3		
RW 15-33	77.- 78.	SIDE	0.18	145.	165589.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.04	4.22	4.82	1.0		
RW 15-33	0.- 3.	KEEL	0.12	145.	179545.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	4.22	5.48	1.0		
RW 15-33	3.- 30.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	10.96	11.98	12.3		
RW 15-33	30.- 53.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	11.02	12.04	12.4		
RW 15-33	53.- 69.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	10.66	11.66	11.8		
RW 15-33	69.- 77.	KEEL	0.12	145.	27745.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	11.25	12.23	12.8		
RW 15-33	77.- 78.	KEEL	0.12	145.	165589.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	4.22	5.45	1.0		
RW 15-33	0.- 3.	SIDE	0.18	145.	179545.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	4.22	5.42	1.0		
RW 15-33	3.- 30.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	8.14	9.20	7.6		
RW 15-33	30.- 53.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	8.18	9.26	7.6		
RW 15-33	53.- 69.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	7.96	8.93	7.3		
RW 15-33	69.- 77.	SIDE	0.18	145.	27745.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	8.51	9.46	8.2		
RW 15-33	77.- 78.	SIDE	0.18	145.	165589.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	4.22	5.32	1.0		
RW 1-19	16.- 52.	KEEL	0.12	145.	32267.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	9.75	10.58	10.3		
RW 1-19	16.- 52.	SIDE	0.18	145.	32267.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.02	7.38	7.48	6.3		

NAI C. YANG, ENGINEERING CONSULTANT

PAV:CC/PAV

BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

LISTING OF PAVEMENT DESIGN AND COST ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALVE PCISSON UNIT-PRICE

	CC/PAV	PCCR	****	5000000.	0.11	1.58
	ASTCP		1.0	200000.	0.23	1.15
	PAV	INFI		+++	0.27	0.18

FACILITY	STATION FROM-TO	LOC	DI	VEL	EPAV NRK	AIRPORT NAVIGATION SYSTEM	FORECAST AIRCRAFT MOVEMENT	DESIGN SERVICE YEARS	FUNCTION GOVERNED	AMC	ICC	PCV	THICKNESS ****
RW 15-33	0.- 3.	KEEL	0.12	145.	179545.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.12	7.64	9.56	4.0
RW 15-33	3.- 30.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.12	14.44	16.11	8.3
RW 15-33	30.- 52.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.12	14.50	16.18	8.3
RW 15-33	52.- 69.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.11	13.99	15.59	8.0
RW 15-33	69.- 77.	KEEL	0.12	145.	27745.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.11	14.85	16.41	8.6
RW 15-33	77.- 78.	KEEL	0.12	145.	165585.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.11	7.64	9.46	4.0
RW 15-33	0.- 3.	SIDE	0.18	145.	179545.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	7.64	8.79	4.0
RW 15-33	3.- 30.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	10.12	11.18	5.6
RW 15-33	30.- 52.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	10.16	11.27	5.6
RW 15-33	52.- 69.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	9.86	10.58	5.4
RW 15-33	69.- 77.	SIDE	0.18	145.	27745.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	10.60	11.29	5.9
RW 15-33	77.- 78.	SIDE	0.18	145.	165585.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	7.64	8.43	4.0
RW 15-33	0.- 3.	KEEL	0.12	145.	179545.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.13	7.64	9.76	4.0
RW 15-33	3.- 30.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.13	15.69	17.52	9.1
RW 15-33	30.- 52.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.13	15.78	17.62	9.2
RW 15-33	52.- 69.	KEEL	0.12	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.12	15.20	16.99	8.8
RW 15-33	69.- 77.	KEEL	0.12	145.	27745.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.12	16.03	17.79	9.3
RW 15-33	77.- 78.	KEEL	0.12	145.	165585.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.12	7.64	9.70	4.0
RW 15-33	0.- 3.	SIDE	0.18	145.	179545.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.12	7.64	9.56	4.0
RW 15-33	3.- 30.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.12	10.93	12.73	6.1
RW 15-33	30.- 52.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.12	10.99	12.82	6.1
RW 15-33	52.- 69.	SIDE	0.18	145.	34885.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.11	10.64	12.25	5.9
RW 15-33	69.- 77.	SIDE	0.18	145.	27745.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.11	11.45	13.03	6.4
RW 15-33	77.- 78.	SIDE	0.18	145.	165585.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.11	7.64	9.35	4.0
RW 1-19	16.- 52.	KEEL	0.12	145.	32267.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.10	13.79	15.24	7.9
RW 1-19	16.- 52.	SIDE	0.18	145.	32267.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.02	9.77	9.82	5.3

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PAV:AC/PAV

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BURLINGTON INTERNATIONAL AIRPORT - FAA NEW ENGLAND REGION

LISTING OF PAVEMENT DESIGN AND COST ANALYSIS

EQUIVALENT AIRCRAFT OPERATION: B727-200 WEIGHT: 170000. LBS

PAVEMENT MODEL: CODE LAYER THICKNESS EVALVE PCISSON UNIT-PRICE

AC/PAV	A STOP	1.0	200000.	0.23	1.15
ASBS		****	150000.	0.24	1.03
PFLPAV					0.18

FACILITY	STATION FROM-TO	LOC	DI	VEL	ESUB NCRM +***	AIRPORT NAVIGATION SYSTEM	FORECAST AIRCRAFT MOVEMENT	DESIGN SERVICE YEARS	FUNCTION GOVERNED	AMC	ICC	PCV	THICKNESS ***	PFLPA
RW 15-33	0.- 3.	KEEL	0.12	145.	34283.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	2.35	3.68	1.0	CC7
RW 15-33	3.- 30.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	2.35	3.87	1.0	AC2
RW 15-33	30.- 53.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.09	2.35	3.87	1.0	AC2
RW 15-33	53.- 69.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	2.35	3.81	1.0	AC2
RW 15-33	69.- 77.	KEEL	0.12	145.	13980.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	2.35	3.81	1.0	AC1
RW 15-33	77.- 78.	KEEL	0.12	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.07	2.35	3.61	1.0	CC7
RW 15-33	0.- 3.	SIDE	0.18	145.	34283.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	2.35	3.12	1.0	CC7
RW 15-33	3.- 30.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	2.35	3.43	1.0	AC2
RW 15-33	30.- 53.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.06	2.35	3.46	1.0	AC2
RW 15-33	53.- 69.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	2.35	3.22	1.0	AC2
RW 15-33	69.- 77.	SIDE	0.18	145.	13980.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.05	2.35	3.22	1.0	AC1
RW 15-33	77.- 78.	SIDE	0.18	145.	30628.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.03	2.35	2.85	1.0	CC7
RW 15-33	0.- 3.	KEEL	0.12	145.	34283.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	2.35	3.82	1.0	CC7
RW 15-33	3.- 30.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	DEF/DI	0.09	3.10	4.72	1.7	AC2
RW 15-33	30.- 53.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	DEF/DI	0.09	3.36	4.98	2.0	AC2
RW 15-33	53.- 69.	KEEL	0.12	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	2.35	3.96	1.0	AC2
RW 15-33	69.- 77.	KEEL	0.12	145.	13980.	LIGHTS/ILS	FAMSUG	20	DEF/DI	0.09	4.86	6.37	3.4	AC1
RW 15-33	77.- 78.	KEEL	0.12	145.	30628.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	2.35	3.76	1.0	CC7
RW 15-33	0.- 3.	SIDE	0.18	145.	34283.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.07	2.35	3.64	1.0	CC7
RW 15-33	3.- 30.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	2.35	3.91	1.0	AC2
RW 15-33	30.- 53.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.09	2.35	3.94	1.0	AC2
RW 15-33	53.- 69.	SIDE	0.18	145.	14158.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	2.35	3.80	1.0	AC2
RW 15-33	69.- 77.	SIDE	0.18	145.	13980.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.08	2.35	3.80	1.0	AC1
RW 15-33	77.- 78.	SIDE	0.18	145.	30628.	LIGHTS/ILS	FAMSUG	20	STR/MT	0.06	2.35	3.48	1.0	CC7
RW 1-19	16.- 52.	KEEL	0.12	145.	17732.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.08	2.35	3.71	1.0	AC1
RW 1-19	16.- 52.	SIDE	0.18	145.	17732.	LIGHTS/ILS	FAMSUG	5	STR/MT	0.03	2.35	2.78	1.0	AC1

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COPEN 1

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CUST/REFIT STUDY



ERROR MESSAGES AND DIAGNOSTICS

The input goes through two stages:

1. Identification stage in which the input data group or control card must be recognized. If it is not then an error message is printed. All cards are printed and the error is temporarily ignored until the next delimiter ** is encountered. If a control card is misspelled, the next data group will be flagged in error yet the program will assume as if the 1st card of a data group is in error.
2. Data verification in which the program prints a limited number of self-explanatory error messages. FORTRAN will print messages if the characters do not match the field, such as type of integer or floating point. FORTRAN will also print execution error messages, such as mispunched, incorrect or missing data.

Error messages printed in the system log at the beginning of each job listing can be referenced to the OS 360 Manual. These messages help identify whether the program, JCL or hardware caused the error.

REFERENCES

1. Yang, Nai C., DESIGN OF FUNCTIONAL PAVEMENTS, McGraw Hill Book Company, New York, 1972.
2. Yang, Nai C., "Nondestructive Evaluation of Civil Airport Pavements", FAA-RD-76-83, September, 1976.
3. Yang, Nai C., "Nondestructive Evaluation of Airport Pavements, Vol. I, Program References", FAA-RD-78-154 I, September 1979.

APPENDIX 1. OS 360 JOB CONTROL CARDS FOR OPERATION AT TCC
TCC OPERATION ON IBM 360/65

The program set-ups consist of two primary procedures: PAVDES, PRINT and one auxiliary procedure DELETE. These procedures may be stored on a permanent data set and referenced through use of the PROCLIB DD card, or instream procedures on cards. The following deck set-up describes the use of instream procedures:

```
//JOBNAME JOB
Instream procedure or //PROCLIB DD
//EXEC PAVDES,JOBCODE='jobcode',TIME.PAVDES=15
//PAVDES.INPUT DD *
Program control cards & data groups
/*
//EXEC PRINT,JOBCODE='jobcode'
Jobcode is normally 7 characters, 3 letter airport, dash, and 3 letter
FAA regional code. To have the output going directly to the printer
instead of a print file, deck should be:
//EXEC PAVDES,JOBCODE='BTV-ANE',TIME.PAVDES=15
//PAVDES.FTO6F001 DD SYSOUT=A,DCB=(RECFM=FA,LRECL=133,BLKS(28)-133)
//PAVDES.INPUT DD*
Program control cards & data groups
/*
//
```

The procedures assume the load module data set, DYIM, the default input data set DYDS and the job print file (jobcode.PRINT) which are on a single removable pack D00012. Several temporary data sets, as required, are allocated on any 2 available scratch packs. The temporary data sets may be placed on the single pack D00012, but the execution wall clock time will increase due to arm contention.

There is another procedure to delete existing print files from D00012 if they are no longer needed. The format for using it is as:

```
//EXEC DELETE
//DD1 DD DSNAME=jobcode.PRINT
Procedure consists of a utility program to be used to delete the file. It
can be used as a separate run or with the PAVDES procedure.
```

Job Control Cards for Operation at TCC

```
//DFLETF PROC
//X EXEC PGM=TEFBR14,PREGION=10K
//DD1 DD DUMMY,DISP=(OLD,DELETE),UNIT=3330,
// VOL=(PRIVATE,RETAIN,,,SER=D00012)
//DD2 DD DUMMY,DISP=(OLD,DELETE),UNIT=3330,VOL=SER=D00012
// PEND
//UPS PROC PRINT=YES
//UP EXFC PGM=UPSEQ,RFGION=86K
//STEPLTR DD DSNAME=DYLM,DISP=SHR,UNIT=3330,
// VOL=(PRIVATE,RETAIN,,,SER=D00012)
//FT01F001 DD DDNAME=ST
//FT02F001 DD DDNAME=SO
//FT04F001 DD UNIT=SYSDA,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT05F001 DD DDNAME=TCF
//FT06F001 DD DDNAME=&PRINT
//YFS DD SYSOUT=A
//NO DD DUMMY
//SI DD DUMMY,DISP=SHR,UNIT=3330,VOL=SER=D00012
//SO DD DUMMY,DISP=(,KEEP),UNIT=3330,VOL=SER=D00012,
// SPACE=(CYL,(2,2)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
// PEND
//PAVDES PROC
// EXEC PGM=IFFRR14,RFGION=10K
//DD1 DD DSNAME=&JOBCODE,,PRINT,DISP=(OLD,DELETE),UNIT=3330,
// VOL=(PRIVATE,RETAIN,,,SER=D00012)
//PAVDES EXEC PGM=GDC,RFGION=290K
//STEPLTB DD DSNAME=DYLM,DISP=SHR,UNIT=3330,
// VOL=(PRIVATE,RETAIN,,,SER=D00012)
//FT03F001 DD DSNAME=DYDS,DISP=SHR,UNIT=3330,VOL=SER=D00012
//FT04F001 DD DDNAME=TINPUT
//FT05F001 DD UNIT=(SYSDA,SEP=STEPLIH),VOL=(PRIVATE,RETAIN),
// SPACE=(CYL,(2,2)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT06F001 DD DSNAME=&JOBCODE,,PRINT,DISP=(,KEEP),UNIT=3330,
// VOL=SER=D00012,
// SPACE=(CYL,(4,4)),DCB=(RECFM=FRS,LRECL=133,BLKSIZE=1330)
//FT07F001 DD UNIT=SYSDA,VOL=REF=*,FT05F001,
// SPACE=(CYL,(2,2)),DCB=(RECFM=FR,LRECL=80,BLKSIZE=800)
//FT08F001 DD UNIT=SYSDA,VOL=REF=*,FT05F001,
// SPACE=(CYL,(2,2)),DCB=(RECFM=FH,LRECL=80,BLKSIZE=800)
//FT09F001 DD UNIT=(SYSDA,SEP=(STEPLIB,FT05F001)),VOL=(PRIVATE,RETAIN),
// SPACE=(CYL,(1,1)),DCB=(RECFM=VSR,LRECL=1284,BLKSIZE=2572)
//FT10F001 DD UNIT=SYSDA,VOL=REF=*,FT05F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=VSR,LRECL=1284,BLKSIZE=2572)
//FT11F001 DD UNIT=3330,VOL=SER=D00012,
// SPACE=(CYL,(2,2)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT12F001 DD UNIT=SYSDA,VOL=REF=*,FT05F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=VSB,LRECL=1284,BLKSIZE=2572)
//FT13F001 DD UNIT=3330,VOL=SER=D00012,
// SPACE=(CYL,(2,2)),DCB=(RECFM=FR,LRECL=80,BLKSIZE=800)
```

Job Control Cards (cont'd)

```
//FT14F001 DD UNIT=SYSDA,VOL=REF=*.FT05F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=VSB,LRECL=1284,BLKSIZE=2572)
//FT15F001 DD DUMMY
//FT16F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=VSB,LRECL=1284,BLKSIZE=2572)
//FT17F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=VSB,LRECL=1284,BLKSIZE=2572)
//FT18F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=VSB,LRECL=1284,BLKSIZE=2572)
//FT19F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(2,2)),DCB=(RECFM=VSB,LRECL=1284,BLKSIZE=2572)
//FT20F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(2,2)),DCB=(RECFM=VSB,LRECL=1284,BLKSIZE=2572)
//FT21F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT22F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT23F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT24F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(2,2)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT25F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT26F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(2,2)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT27F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT28F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT29F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT30F001 DD UNIT=SYSDA,VOL=REF=*.FT09F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT31F001 DD UNIT=SYSDA,VOL=REF=*.FT05F001,
// SPACE=(CYL,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//FT32F001 DD UNIT=SYSDA,VOL=REF=*.FT05F001,
// SPACE=(CYL,(4,4)),DCB=(RECFM=VSB,LRECL=1284,BLKSIZE=2572)
// PEND
//PRINT PROC
//PRINT EXEC PGM=IEBFNKR,REGION=86K
//SYSIN DD DUMMY
//SYSPRTNT DD DUMMY
//SYSUT1 DD DSNAME=&JOBCODE..PRINT,DISP=OLD,UNIT=3330,
// VOL=(PRTVATE,RETAIN..,SFR=D00012)
//SYSUT2 DD SYSOUT=A,DCB=(RECFM=FA,LRECL=133,BLKSIZE=133)
// PEND
```

APPENDIX 2 BASIC FORTRAN LISTING

- A2.01 SUBROUTINE NDTIN
Compute NDT calibration factors
- A2.02 SUBROUTINE NDTE
Compute E-value from NDT machine data
- A2.03 SUBROUTINE LINER
Linear regression for NDT2
- A2.04 SUBROUTINE STAT
Mean and standard deviation for NDT2
- A2.05 SUBROUTINE NDT3
Compute NDT inventory file
- A2.06 SUBROUTINE CALC(1)
Compute Poisson's ratio, and aircraft operational weights
- A2.07 SUBROUTINE CALC(2)
Longitudinal and transverse wheel probability distribution
- A2.08 SUBROUTINE PAVDES
Equivalent single type aircraft operation and unit price
of pavement components
- A2.09 SUBROUTINE FAM
Forecast of aircraft movement for equivalency computation
- A2.10 SUBROUTINE HDES
Limiting stress and deflection in pavement thickness design
- A2.11 SUBROUTINE PCVCAL
Compute present cash value
- A2.12 SUBROUTINE COBEN
Weighted average of present cash value

A2.01 Subroutine NDTIN

```

51      C   CALIBRATION FACTORS
52      225 WRITE(6,125)
53          IPTCAL(1)=1
54          K=0
55      230 K=K+1
56          READ(5,20,END=235) I,J,CDATE(1,1),CDATE(1,2),
57          +CTIME(I,J),ZCAL(I,J),FCAL(I,J),ZATZ,FATZ,ZATC,FATC
58          IF(J.NE.1)GO TO 231
59          IPTCAL(1)=IPTCAL(1)+1
60          L=IPTCAL(1)
61          IPTCAL(L)=I
62      231 HCAL(I,J)=1.0000
63          IF(ZATC.GT..01)GO TO 232
64          ZATZ=0.
65          FATZ=0.
66          ZATC=1.
67          FATC=1.
68      232 IF(ZCAL(I,J).LE..01)ZCAL(I,J)=(ZATC-ZATZ)/ZATC
69          IF(FCAL(I,J).LE..01)FCAL(I,J)=(FATC-FATZ)/FATC
70          IF(K.EQ.1) WRITE(6,130) CDATE(I,1),CDATE(1,2),
71          +I,CTIME(I,J),J,ZCAL(I,J),FCAL(I,J),HCAL(I,J)
72          GO TO 230
73      235 NCAL=K-1
74          GO TO 200
75      C   GRID DICTIONARY
76      237 WRITE(6,135)
77          I=0
78      240 I=I+1
79          READ(5,15,END=245) (DICTG(I,J),J=1,9)
80          IF(I.EQ.1) WRITE(6,120) (DICTG(I,J),J=1,9)
81          GO TO 240
82      245 NDICTG=I-1
83          GO TO 200
84      C   TEST IDENTIFICATIONS
85      247 WRITE(6,140)
86          I=0
87      250 I=I+1
88          READ(5,25,END=260) INUM(I,1),INUM(I,2),(LOC(I,J),J=1,5),
89          +IDATE(I,1),TIME(I),IDATE(I,2),TEMP(I),DSMW(I),LOAD(I),
90          +RAD(I),MSPORT(I,1),MSPORT(I,2),MOPUT(I,1),MOPUT(I,2)
91          IF(I.EQ.1) WRITE(6,145) INUM(I,1),INUM(I,2),(LOC(I,J),J=1,5),
92          +IDATE(I,1),TIME(I),IDATE(I,2),TEMP(I),DSMW(I),LOAD(I),
93          +RAD(I),MSPORT(I,1),MSPORT(I,2),MOPUT(I,1),MOPUT(I,2)
94          GO TO 250
95      260 NLOC=I-1
96          GO TO 200
97      900 RETURN
98          END

```

A2.02 Subroutine NDTE

```
1      SUBROUTINE NDTE(ZVAL,FVAL,HVAL,NVAL,ZNSUMZ,DSME,EVAL,DSM,RAD)
2      DIMENSION ZVAL(NVAL),FVAL(NVAL),HVAL(NVAL)
3      DIMENSION Z(50),F(50),H(50)
4      DO 100 I=1,NVAL
5          J=NVAL-I+1
6          Z(J)=ZVAL(I)
7          F(J)=FVAL(I)
8          H(J)=HVAL(I)
9      100 CONTINUE
10         N=NVAL
11         N1=N-1
12         SUMZ=(Z(1)/(2.*F(1)))*(H(1)+H(2))/(2.*H(1))
13         DO 210 I=2,N1
14         SUMZ=SUMZ+(Z(I)/(2.*F(I)))*(H(I+1)-H(I-1))/(2.*H(I))
15     210 CONTINUE
16         SUMZ=SUMZ+Z(N)/(4.*F(N))
17         ZNSUMZ=SUMZ
18         DSM=F(1)/1000./Z(1)
19         DSME=(F(1)/Z(1))*(2.*RAD*SUMZ)
20         EVAL=1./(2.*RAD*SUMZ)
21         RETURN
22         END
```

A2.03 Subroutine LINER

```

1      SUBROUTINE LINER(IPT,N,X,Y,NLOC,BZERO,BONE,ROE,
2      +SPX,SPX2,SPY,SPY2,SPXY)
3      DIMENSION IPT(N),X(NLOC),Y(NLOC)
4      DOUBLE PRECISION SUMX,SUMX2,SUMY,SUMY2,SUMXY,XD,YD,AN,SXX,SYY,SXY
5      SUMX=0.
6      SUMX2=0.
7      SUMY=0.
8      SUMY2=0.
9      SUMXY=0.
10     DO 100 IA=1,N
11     I=IPT(IA)
12     XD=X(I)
13     YD=Y(I)
14     SUMX=SUMX+XD
15     SUMX2=SUMX2+XD*XD
16     SUMY=SUMY+YD
17     SUMY2=SUMY2+YD*YD
18     SUMXY=SUMXY+XD*YD
19 100 CONTINUE
20     AN=N
21     SPX=SUMX
22     SPX2=SUMX2
23     SPY=SUMY
24     SPY2=SUMY2
25     SPXY=SUMXY
26     SXX=SUMX2-SUMX*SUMX/AN
27     SYY=SUMY2-SUMY*SUMY/AN
28     SXY=SUMXY-SUMX*SUMY/AN
29     ROE=SXY/DSQRT(SXX*SYY)
30     XD=SXY/SXX
31     BONE=XD

32     BZERO=SUMY/AN-XD*SUMX/AN
33     C      WRITE(6,5)
34     5 FORMAT(//5X,' N   SUMX      SUMX2      SUMY
35     +' , 'SUMY2      SUMXY' /)
36     C      WRITE(6,10)N,SUMX,SUMX2,SUMY,SUMY2,SUMXY
37     10 FORMAT(5X,15,5D14.7)
38     RETURN
39     END

```

A2.04 Subroutine STAT

```
1      SUBROUTINE STAT(IPT,N,X,NLOC,AMEAN,CV,XMIN,XMAX)
2      DIMENSION IPT(N),X(NLOC)
3      DOUBLE PRECISION SUM,SUM2,XD,AN,AN1,SDEV
4      SUM=0.
5      SUM2=0.
6      I=IPT(1)
7      XMIN=X(I)
8      XMAX=X(I)
9      DO 100 IA=1,N
10     I=IPT(IA)
11     IF(X(I).LT.XMIN)XMIN=X(I)
12     IF(X(I).GT.XMAX)XMAX=X(I)
13     XD=X(I)
14     SUM=SUM+XD
15     SUM2=SUM2+XD*XD
16 100 CONTINUE
17     AN=N
18     AN1=N-1
19     XD=SUM/AN
20     SDEV=DSQRT((SUM2-AN*XD*XD)/AN1)
21     AMEAN=XD
22     CV=SDEV/XD
23     RETURN
24     END
```

A2.05 Subroutine NDT3

```

102      DO 600 J=1,ISEPAV
103      IF(K.NE.IPFL(J))GO TO 600

104      WZ=2.*Z00.*S.*VALC(KP,10)/SEVAL(J)
105      IF(WZ.LT.WZH(1,1))GO TO 520
106      EV=PFLESG(1)*.75
107      GO TO 540
108      520 DC 530 I=2,NFLESG
109      IF(WZ.LT.WZH(1,I))GO TO 530
110      EV=(PFLESG(I)-PFLESG(I-1))*(WZ-WZH(1,I-1))
111      +(WZH(1,I)-WZH(1,I-1))+PFLESG(I-1)
112      GO TO 540
113      530 CONTINUE
114      EV=PFLESG(NFLESG)*1.25
115      540 IF(MURAIN(J).EQ.MNORM)GO TO 550
116      IS=J
117      I1=ISEPAV+J
118      EPAV(I1)=SEVAL(J)
119      ESUB(I1)=EV
120      ESUB(J)=EV*.6
121      GO TO 560
122      550 IS=ISEPAV+J
123      EPAV(J)=SEVAL(J)
124      ESUB(J)=EV
125      I1=ISEPAV+J
126      ESUB(I1)=.6*EV
127      560 IF(ESUB(IS).GT.PFLESG(1))GO TO 570
128      WZA=WZH(1,1)+.25*(WZH(1,1)-WZH(1,2))
129      GO TO 590
130      570 DC 580 I=2,NFLESG
131      IF(ESUB(IS).GT.PFLESG(I))GO TO 580
132      WZA=(WZH(1,I)-WZH(1,I-1))*(ESUB(IS)-PFLESG(I-1))
133      +(PFLESG(I)-PFLESG(I-1))+WZH(1,I-1)
134      GO TO 590
135      580 CONTINUE
136      WZA=WZH(1,NFLESG)-.25*(WZH(1,NFLESG-1)-WZH(1,NFLESG))
137      590 EPAV(IS)=SEVAL(J)*WZ/WZA
138      600 CONTINUE

```

A2.06 Subroutine CALC(1)

```

123      C *** APY
124      APY(I)=0.
125      N=NWHEEL(I)
126      DO 420 J=1,N
127      IF(WHEELX(I,J).NE.0.)GO TO 420
128      APY(I)=APY(I)+EXP(-(WHEELY(I,J)/(12.*450.))**2/2.)
129      420 CONTINUE
130      DO 450 J=1,3
131      C *** RADIUS FACTOR
132      RADIUS(I,J)=SQRT(.31830987E0*DOPWGT(I,J)*AIRC(I,5)/AIRC(I,6))
133      FACTOR(I,J)=0.
134      T1=(3./8.)**2
135      T2=(15./48.)**2
136      DO 440 K=1,N
137      WX=SQRT(ABS(WHEELX(I,K)**2)+ABS(WHEELY(I,K)**2))
138      IF(WX.NE.0.)GO TO 430
139      FACTOR(I,J)=FACTOR(I,J)+1.
140      GO TO 440
141      430 YK=(RADIUS(I,J)/WX)**2
142      WK=1.5708*(1.+.25*YK+T1*YK**2+T2*YK**3)
143      WE=1.5708*(1.-.25*YK-T1*YK**2/3.-T2*YK**3/5.)
144      FIRM=2./3.14159*WX/RADIUS(I,J)*(WE-(1-YK)*WK)
145      FACTOR(I,J)=FACTOR(I,J)+FIRM
146      440 CONTINUE
147      450 CONTINUE
148      APY(I)=APY(I)*.00157*RADIUS(I,3)/12.
149      460 CONTINUE
150      ID=IDESI(1)
151      RADIUS(20,1)=SQRT(.31830987E0*DOPWGT(1)*AIRC(ID,5)/AIRC(ID,6))
152      C *** APX
153      DO 560 K=1,NBAND
154      IAPX=NTYPE*(K-1)
155      DO 550 LA=1,NTYPE
156      L=IAPX+LA
157      DO 540 M=1,NOPWGT
158      I=IAIRC(M)
159      IF(I.LE.0)GO TO 540
160      NW=NWHEEL(I)
161      DO 530 J=1,3
162      APX(I,J,L)=0.
163      DO 520 N=1,NW
164      APX(I,J,L)=APX(I,J,L)+EXP(-10.8167*
165      +(WHEELX(I,N)/(12.*BAND(K,LA)))**2)
166      520 CONTINUE
167      APX(I,J,L)=APX(I,J,L)*3.2885*RADIUS(I,J)/(12.*BAND(K,LA))
168      530 CONTINUE
169      540 CONTINUE

```

A2.07 Subroutine CALC(2)

```

56      C *** PAVL CODE LAYE
57      DO 260 I=1,NPAVL
58      N=NLAYPA(I)
59      DO 250 J=I,N
60      K=1,NLAY
61      IF(LAYER(I,J,1).NE.MLAY(K,1))GO TO 240
62      IF(LAYER(I,J,2).NE.MLAY(K,2))GO TO 240
63      ILAYER(I,J)=K
64      IF(EVAL(I,J).LT.1.)EVAL(I,J)=VALAY(K,1)
65      IF(PUIS(I,J).LT.0.001)PCIS(I,J)=.65-.08*ALOG10(EVAL(I,J))
66      GO TO 250
67 240  CONTINUE
68      C *** ERER
69 250  CONTINUE
70 260  CONTINUE
71      C *** AIRC CODE TOW
72      DO 255 I=1,NAIRC
73      IALF(I)=0
74      IRANGE(I)=0
75 255  CONTINUE
76      DO 270 K=1,NSPWGT
77      I=IAIRC(K)
78      IF(I.LE.0)GO TO 270
79      IRANGE(I)=1
80      IF(LRANGE(K,1).NE.IBLANK)GO TO 261
81      LRANGE(K,1)=MRANG(I,1)
82      LRANGE(K,2)=MRANG(I,2)
83 261  DO 262 J=1,4
84      IF(LRANGE(K,1).NE.MRANGE(J))GO TO 262
85      IRANGE(I)=J
86      GO TO 262
87 262  CONTINUE
88 263  IALF(I)=1
89      IF(LALF(K,1).EQ.MALF(2))IALF(I)=2
90      L=IALF(I)
91      J=IRANGE(I)
92      IF(LALF(K,1).EQ.IBLANK.AND.TOW(J,I,L).GT.1.
93      +.AND.OPWGT(K,1).LT.1.)IALF(K,1)=MALF(1)
94      IF(TOW(J,I,L).LT.1..AND.OPWGT(K,1).LT.1.)OPWGT(K,1)=AIRC(I,1)
95      IF(OPWGT(K,1).LT.1.)OPWGT(K,1)=TOW(J,I,L)
96      IF(OPWGT(K,2).LT.1.)OPWGT(K,2)=(AIRC(I,2)-AIRC(I,3))
97      +*(UPWGT(K,1)-AIRC(I,3))/(AIRC(I,1)-AIRC(I,3))+AIRC(I,3)
98      IF(OPWGT(K,3).LT.1.)OPWGT(K,3)=1.5*OPWGT(K,2)
99 270  CONTINUE

```

A2.08 Subroutine PAVDES

```

350      1317 ELAY=VALC(KM,IHSA)
351      EBOT=VALC(KM,NL)
352      1318 CONSTA=VALC(KB,2)*SQRT(ELAY)*VALC(KB,3)*(1.-VALC(KB,4))
353      DO 1330 IA=1,NOPWGT
354      I=IAIRC(IA)
355      IF(I.LE.0)GO TO 1330
356      DO 1320 J=1,3
357      ANS(I,J)=-(ABS(STRFD(KAA))-ABS(STRFAM(I,J)))/CONSTA
358      1320 CONTINUE
359      1330 CONTINUE
360      ANS(20,1)=0.
361      DO 1350 IA=1,NOPWGT
362      I=IAIRC(IA)
363      IF(I.LE.0)GO TO 1350
364      DO 1340 J=1,3
365      FACTOR(I,J)=WZFAM(I,J)/WZW(I,J)
366      PRESS=AIRC(I,6)*FACTOR(I,J)
367      WO=2.*PRESS*RADIUS(I,J)*VALC(KB,10)/EBOT
368      D4=1./VALC(KB,8)
369      DODEF=WO***(1.-D4)*WZFD(KAA)**D4*VALC(KB,7)***(-D4)
370      AND(I,J)=DODEF
371      1340 CONTINUE
372      1350 CONTINUE
373      FACTOR(20,1)=WZFD(KAA)/WZWFD(KAA)
374      PRESS=AIRC(ID,6)*FACTOR(20,1)
375      WO=2.*PRESS*RADIUS(20,1)*VALC(KB,10)/EBOT
376      AND(20,1)=WO***(1.-D4)*WZFD(KAA)**D4*VALC(KB,7)***(-D4)
377      DO 1376 I=1,NPAVHD
378      IF(IPAVL(I).EQ.1)GO TO 1374
379      IF(IPAVL(I).GT.1)GO TO 1372
380      REWIND 9
381      ICL=0
382      1372 ICL=ICL+1
383      IF(IFAMDS(ICL,1).LE.0)GO TO 1372
384      READ(9)((ANS(IA,J),AND(IA,J),FACTOR(IA,J),IA=1,20),J=1,3)
385      IF(IPAVL(I).NE.1)GO TO 1372
386      1374 WRITE(12)((ANS(IA,J),AND(IA,J),FACTOR(IA,J),IA=1,20),J=1,3)
387      1376 CONTINUE
388      ENDFILE 12
389      REWIND 12
390      REWIND 9
391      REWIND L18
392      NSLP=FINA(6)
393      ASCM=(FINA(4)+FINA(3)-FINA(2))-FINA(2)*(FINA(3)+FINA(4))
394      PCVAMC=FLOAT(NSLP-1)*(1.+FLOAT(NSLP-2)*ASCM/2.*)
395      +(1.+FLOAT(NSLP-3)*ASCM/3.)
396      AIRBV=1.-1./(1.+FINA(1))
397      PCVICC=1.-(FINA(5)-2.)*(FINA(2)-AIRBV)/2.*+
398      +(1.-FINA(5)-3.)*FINA(2)/3.)
399
400
401
402
403
404

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A2.09 Subroutine FAM

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90      DO 415 J=1,3
91      ANSA(I,J)=10.**(IANS(I,J)/(OVERSF/(1.+DI(LOC,ITYP))))
92      415 CONTINUE
93      DO 420 J=1,3
94      CONST=2.28
95      C1=.01
96      C   DD=SQRT(DI(LOC,ITYP)/(1.+DI(LOC,ITYP)))
97      C   VV=DD*VEL(LOC,ITYP)+60.*(1.-DD)
98      C   XX=8.6*FACTOR(I,J)+XNZ(I)/RADIUS(I,J)
99      C   AK=CONST/VV*DI(LOC,ITYP)/SQRT(AIRC(I,7))
100     C   AAK=10.**(VALC(KP,5)*ALEG10(AK/VALC(KP,6)))
101     C   DN=12.*AAK*SQRT(XX*RADIIS(I,J)/12.)
102     C   ANDB(I,J)=(DN-C1)/AND(I,J)
103     C   ANDA(I,J)=10.**((AND(I,J)-AND(20,1))/AND(I,J))
104     420 CONTINUE
105     C   IF(KPAV(KP).LE.1)WRITE(6,40)DI(LOC,ITYP),VEL(LOC,ITYP),
106     C   +(FACTOR(I,J),J=1,3),XNZ(I),(RADIUS(I,J),J=1,3),AIRC(I,7),
107     C   +VALC(KP,5),VALC(KP,6)
108     C   40 FORMAT(1X,12F11.6)
109     425 CONTINUE
110     C   XX=8.6*FACTOR(20,1)+XNZ(ID)/RADIUS(20,1)
111     C   AK=CONST/VV*DI(LOC,ITYP)/SQRT(AIRC(ID,7))
112     C   AAK=10.**(VALC(KP,5)*ALEG10(AK/VALC(KP,6)))
113     C   DN=12.*AAK*SQRT(XX*RADIUS(20,1)/12.)
114     C   ANDB(20,1)=(DN-C1)/AND(20,1)
115     C   ANDA(20,1)=1.
116     C   IF(KPAV(KP).LE.1)
117     C   +WRITE(6,30)((AND(I,J),J=1,3),I=1,12)
118     C   IF(KPAV(KP).LE.1)
119     C   +WRITE(6,30)AND(20,1)
120     C   30 FORMAT(1X,1P6E13.5)
121     C   DO 600 K=1,NST1
122     C   DO 440 IA=1,NOPWGT
123     C   I=IAIRC(IA)
124     C   IF(I.LE.0)GO TO 440
125     C   DO 430 J=1,3
126     C   ANDA(I,J)=0.
127     C   IF(ATM(K,IA,J).LE.0.0001)GO TO 430
128     C   ANDA(I,J)=10.**((ANDB(20,1)-ANDB(I,J))
129     C   +)
130     C   +*ALOG10(ATM(K,IA,J)*APX(I,J,IAPX))/ANDB(20,1)
131     C   430 CONTINUE
132     C   440 CONTINUE
133     C   *** AANS
134     C   DC 450 J=1,3
135     C   450 SEQMOV(J)=0.
136     C   DO 470 IA=1,NOPWGT
137     C   I=IAIRC(IA)
138     C   IF(I.LE.0)GO TO 470
139     C   DO 460 J=1,2
140     C   EQS(I,J)=ATM(K,IA,J)*ANSA(I,J)*APX(I,J,IAPX)-

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A2.09 Subroutine FAM (cont'd)

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141      SEQMOV(J)=SECMOV(J)+ATM(K,IA,J)*ANSA(I,J)*APX(I,J,IAPX)
142      460 CONTINUE
143      J=3
144      EQS(I,J)=0.
145      IF(NW.GT.2)EWS(I,J)=ATM(K,IA,J)*ANSA(I,J)*APX(I,J,IAPX)
146      +*APY(I)
147      IF(NW.GT.2)SECMOV(J)=SECMOV(J)+ATM(K,IA,J)*ANSA(I,J)*
148      +APX(I,J,IAPX)*APY(I)
149      470 CONTINUE
150      AANS(K,LOC)=0.
151      DO 480 J=1,NW
152      AANS(K,LOC)=AANS(K,LOC)+SEQMOV(J)
153      480 CONTINUE
154      AANS(K,LOC)=AANS(K,LOC)*SPERC(LOC)
155      C *** AAND
156      DO 490 J=1,3
157      490 DEQMOV(J)=0.
158      DO 510 IA=1,NOPWGT
159      I=IAIRC(IA)
160      IF(I.LE.0)GO TO 510
161      DO 500 J=1,2
162      EQD(I,J)=0.
163      ALND=0.
164      IF(ATM(K,IA,J).GT.0.1)
165      +ALND=ALOG10(ATM(K,IA,J)*APX(I,J,IAPX))
166      IF(ALND.GT.3.)ALND=3.
167      IF(ATM(K,IA,J).GT.0.1)
168      +EQD(I,J)=(ANDA(I,J)**ALND)
169      +*ATM(K,IA,J)*APX(I,J,IAPX)
170      DEQMOV(J)=DEQMOV(J)+EQD(I,J)
171      500 CONTINUE
172      J=3
173      EQD(I,J)=0.
174      ALND=0.
175      IF(NW.GT.2.AND.ATM(K,IA,J).GT.0.1)
176      +ALND=ALOG10(ATM(K,IA,J)*APX(I,J,IAPX)*APY(I))
177      IF(ALND.GT.3.)ALND=3.
178      IF(NW.GT.2.AND.ATM(K,IA,J).GT.0.1)
179      +EQD(I,J)=(ANDA(I,J)**ALND)
180      +*ATM(K,IA,J)*APX(I,J,IAPX)*APY(I)
181      IF(NW.GT.2)DEQMOV(J)=DEQMOV(J)+EQD(I,J)
182      510 CONTINUE
183      AAND(K,LOC)=0.
184      DO 520 J=1,NW
185      AAND(K,LOC)=AAND(K,LOC)+DEQMOV(J)
186      520 CONTINUE
187      AAND(K,LOC)=AAND(K,LOC)*SPERC(LOC)

```

A2.10 Subroutine HDES

```

51      C *** STRESS LIMIT
52      NL=NAYER(KM)
53      NL1=NL-1
54      DO 190 J=1,NL1
55      STRL(K,LOC,J)=SQRT(EVAL(KM,J))*(1.-VALC(KP,3)*
56      +ALOG10(AANS(K,LOC)))/(1.+DI(LOC,ITYP))
57      STRL(K,LOC,J)=STRL(K,LOC,J)*VALC(KP,2)
58      OVERSF=VALC(KP,1)
59      IF(LOC.GT.1)OVERSF=VALC(KP,9)
60      STRL(K,LOC,J)=STRL(K,LOC,J)*OVERSF*(1.-VALC(KP,4))
61      190 CONTINUE
62      IF(KN.LE.0)GO TO 197
63      NLA=NPSLAY(KN)
64      NLA1=NLA-1
65      DO 195 J1=1,NLA1
66      J=J1+NL1
67      STRL(K,LOC,J)=SQRT(PSLE(KN,J1))*(1.-VALC(KP,3)*
68      +ALOG10(AANS(K,LOC)))/(1.+DI(LOC,ITYP))
69      STRL(K,LOC,J)=STRL(K,LOC,J)*VALC(KP,2)
70      OVERSF=VALC(KP,1)
71      IF(LOC.GT.1)OVERSF=VALC(KP,9)
72      STRL(K,LOC,J)=STRL(K,LOC,J)*OVERSF*(1.-VALC(KP,4))
73      195 CONTINUE
74      C *** WZL
75      197 CONST=2.28
76      C1=.01
77      XX=8.6*FACTOR(20,1)+XNZ(ID)/RADIUS(20,1)
78      PRESS=AIRC(ID,6)*FACTOR(20,1)
79      DD=SQRT(DI(LOC,ITYP)/(1.+DI(LOC,ITYP)))
80      VV=DD*VEL(LOC,ITYP)+60.*(1.-DD)
81      AK=CONST/VV*DI(LOC,ITYP)/SQRT(AIRC(ID,7))
82      C WRITE(6,20)KP,AK,VALC(KP,6)
83      C 20 FORMAT(1X,15,2F10.4)
84      AAK=10.**(VALC(KP,5)*ALOG10(AK/VALC(KP,6)))
85      DN=12.*AAK*SQRT(XX*RADIUS(20,1)/12.)
86      EBOT=EVAL(KM,NL)
87      IF(KN.GT.0)EBOT=PSLE(KN,NLA)
88      WO=2.*PRESS*RADIUS(20,1)*VALC(KP,10)/EBOT
89      D3=VALC(KP,7)*WO***(1.-VALC(KP,8))
90      IF(AAND(K,LOC).LE.10.)WZL(K,LOC)=(DN-C1)**VALC(KP,8)
91      IF(AAND(K,LOC).GT.10.)
92      +WZL(K,LOC)=((DN-C1)/ALOG10(AAND(K,LOC)))*VALC(KP,8)
93      D4=1./VALC(KP,8)
94      DODEF=VALC(KP,7)**(1.-D4)
95      IF(NXSL.LE.1)WZL(K,LOC)=(DN-C1)
96      C *** WO AND D3 TO BE CALCULATED LATER
97      C *** SHOULD USE ESUP

```

```

169      360 I1=IST-1
170      370 I1=IEST+IES
171          ESUP(K)=ESUB(I1)
172          NL=NAYER(KM)
173          NL1=NL-1
174          PRESS=AIRC(ID,6)*FACTOR(20,1)
175          W0=2.*PRESS*RADIUS(20,1)*VALC(KP,10)/ESUP(K)
176          D3=VALC(KP,7)*W0***(1.-VALC(KP,8))
177          D4=1./VALC(KP,8)
178          LOC2=2
179          IF(NXSL.LE.1)GO TO 501
180          DO 373 LOC=1,LOC2
181          WZLIM(K,LOC)=D3*WZL(IST,LOC)
182          TAND(K,LOC)=AAND(IST,LOC)
183          TANS(K,LOC)=AANS(IST,LOC)
184          DO 371 J=1,NL1
185          STRLIM(K,LOC,J)=STRL(IST,LOC,J)
186          371 CONTINUE
187          IF(KN.LE.0)GO TO 373
188          DO 372 J1=1,NLA1
189          J=J1+NL1
190          STRLIM(K,LOC,J)=STRL(IST,LOC,J)
191          372 CONTINUE
192          373 CONTINUE
193          C *** INTERPOLATE EVALUE
194          IF(ESUB(I1).GT.ESUBG(1))GO TO 375
195          C *** ERROR
196          375 DO 380 I=2,NE
197          IF(ESUB(I1).EQ.ESUBG(I))GO TO 390
198          IF(ESUB(I1).LT.ESUBG(I))GO TO 410
199          380 CONTINUE
200          C *** ERROR
201          I=NE
202          GO TO 410
203          390 DO 400 N=1,NHG
204          WZ(N)=WZH(N,I)
205          STR(N)=STRH(N,I)
206          400 CONTINUE
207          GO TO 422
208          410 DO 420 N=1,NHG
209          WZ(N)=(WZH(N,I)-WZH(N,I-1))*(ESUB(I1)-ESUBG(I-1))
210          +(ESUBG(I)-ESUBG(I-1))+WZH(N,I-1)
211          STR(N)=(STRH(N,I)-STRH(N,I-1))*(ESUB(I1)-ESUBG(I-1))
212          +(ESUBG(I)-ESUBG(I-1))+STRH(N,I-1)
213          420 CONTINUE
214          422 DO 500 J=1,2
215          IF(WZLIM(K,J).LT.WZ(1))GO TO 425
216          HDES(K,J)=HVAL(KM,1)
217          GO TO 460
218          425 DO 430 N=2,NHG
219          IF(WZLIM(K,J).GE.WZ(N))GO TO 450
220          430 CONTINUE

```

```

221      HDES(K,J)=HVAL(KM,2)+HVAL(KM,3)/2.
222      ICRIT(K,J)=-1
223      GO TO 500
224      450 HDES(K,J)=(HGRID(KM,N)-HGRID(KM,N-1))*(WZLIM(K,J)-WZ(N-1))
225      +/(WZ(N)-WZ(N-1))+HGRID(KM,N-1)
226      460 IH=IPAVHS(KI)
227      IF(KN.GT.0)IH=IH+NLI
228      IF(STRSLIM(K,J,IH).LT.STR(1))GO TO 465
229      H=HVAL(KM,1)
230      GO TO 480
231      465 DO 470 N=2,NHG
232      IF(STRSLIM(K,J,IH).GE.STR(N))GO TO 475
233      470 CONTINUE
234      HDES(K,J)=HVAL(KM,2)+HVAL(KM,3)/2.
235      ICRIT(K,J)=1
236      GO TO 500
237      475 H=(HGRID(KM,N)-HGRID(KM,N-1))*(STRSLIM(K,J,IH)-STR(N-1))
238      +/(STR(N)-STR(N-1))+HGRID(KM,N-1)
239      480 ICRIT(K,J)=-1
240      IF(HDES(K,J).GT.H)GO TO 500
241      HDES(K,J)=H
242      ICRIT(K,J)=1
243      500 CONTINUE
244      GO TO 510
245      501 IP=IPFL(I1)
246      IF(ESUP(K).GT.PFLESG(1))GO TO 502
247      WZ(IP)=WZH(IP,1)+.25*(WZH(IP,1)-WZH(IP,2))
248      STR(IP)=STRH(IP,1)+.25*(STRH(IP,1)-STRH(IP,2))
249      GO TO 504
250      502 DO 503 I=2,NFLESG
251      IF(ESUP(K).GT.PFLESG(I))GO TO 503
252      WZ(IP)=(WZH(IP,I)-WZH(IP,I-1))*(ESUP(K)-PFLESG(I-1))
253      +/(PFLESG(I)-PFLESG(I-1))+WZH(IP,I-1)
254      STR(IP)=(STRH(IP,I)-STRH(IP,I-1))*(ESUP(K)-PFLESG(I-1))
255      +/(PFLESG(I)-PFLESG(I-1))+STRH(IP,I-1)
256      GO TO 504
257      503 CONTINUE
258      WZ(IP)=WZH(IP,NFLESG)-.25*(WZH(IP,NFLESG-1)-WZH(IP,NFLESG))
259      STR(IP)=STRH(IP,NFLESG)-.25*(STRH(IP,NFLESG-1)-STRH(IP,NFLESG))
260      C 504 DODEF=W0**(.D4)*WZ(IP)**D4*VALC(KP,7)**(-D4)
261      504 DODEF=ESUB(I1)/(VALC(KP,7)*EPAV(I1))
262      DODEF=W0*10.**(D4*ALOG10(DODEF))
263      TAND(K,1)=AAND(IST,1)
264      C TAND(K,2)=10.**(WZL(IST,1)/DODEF)
265      TAND(K,2)=(WZL(IST,1)/DODEF)
266      IF(TAND(K,2).GT.30.)TAND(K,2)=30.
267      TAND(K,2)=10.**TAND(K,2)
268      TANS(K,1)=AANS(IST,1)
269      IH=IHS(IP)
270      SIGY=VALC(KP,1)*(1.-VALC(KP,4))*VALC(KP,2)*SQRT(EVAL(IP,IH))
271      SIGY=SIGY/(1.+DI(1,ITYP))
272      C TANS(K,2)=10.**((SIGY-STR(IP))/(VALC(KP,3)*SIGY))
273      TANS(K,2)=((SIGY-STR(IP))/(VALC(KP,3)*SIGY))
274      TANS(K,2)=10.**TANS(K,2)
275      510 CONTINUE

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A2.11 Subroutine PCVCAL

```

42      DO 300 LOC=1,2
43      DO 200 K=1,NAST1
44      IHS1=IPAVHS(K1)
45      IF(K1.LT.0)ELAY=VAL1(K1,IHS1)
46      IF(K1.GT.0)ELAY=PSLE(K1,IHS1)
47      IF(K1.GT.0)IHS1=IHS1+NAYER(K1)-1
48      TH=IHS1(K1)
49      IL=ILAYER(K1,I1)
50      AI0C(K,LOC)=C0ST(K1)+HDES(K,LOC)*UL(IL)
51      ULSR=VALC(KP,2)*S0RT(ELAY)*(1.-VALC(KP,4))
52      W0STR=ULST*(1.-VALC(KP,3)*ALOG10(TANS(K,LOC)))
53      UVERS=VALC(KP,1)
54      IF(LOC.GT.1)OVERS=VALC(KP,9)
55      ZMC=VALC(KP,4)*OVERS*(ULSTR-W0STR)/(ULSTR-STRELIM(K,LOC,IHS1)
56      +OVERS)
57      AM0(K,LOC)=ZMC*UL(IL)
58      PCV(K,LOC)=AM0(K,LOC)*PCVAMC+AI0C(K,LOC)*PCVICC
59      200 CONTINUE
60      300 CONTINUE
61      IF(FESTA(IFAU,2).GT.0.0)GO TO 320
62      APCV(1)=PCV(1,1)
63      APCV(2)=PCV(1,2)
64      GO TO 900
65      320 DO 400 LOC=1,2
66      APCV(LOC)=0.
67      DO 350 K=1,NAST1
68      APCV(LOC)=APCV(LOC)+PCV(K,LOC)*(ASTA(K+1)-ASTA(K))
69      350 CONTINUE
70      APCV(LOC)=APCV(LOC)/(ASTA(NAST)-ASTA(1))
71      400 CONTINUE

```

A2.12 Subroutine COBEL

```

287 C 287 IF( I .LT. IS .LE. 1 )PHEELY
288 D0 288 K=1,NAST1
289 WHEELY(K,IK)=PCV(K,1)
290 290 CONTINUE
291 291 C 291 GO
292 IF( LA(1,1).LE.IGC )D 270
293 DO R1=1,LCM+1
294 IF( IR( R1,1,1,1 ).LE.1 )G 270
295 LNLIN=0.
296 ITYP=ITYPL(IXFAC)
297 IR=IL=LAHE(IXBA,0,ITYP)+XMAX/10.
298 IC=WC=IL/WIDTHH(ITYP)
299 I=IPAVK+1
300 IF( IPAVAS(IXFAC).GT.0 )GO TO 2452
301 DO 2452 I=1,NPAVK
302 IK=IPAVK(I,1)
303 IS=IPAVK(I,2)
304 IF( IETYPE(IK).NE.ISUB )GO TO 2452
305 IF( IS.LE.0 )GO TO 2452
306 IF( IETYPE(IS).NE.ISUB )GO TO 2452
307 2450 CONTINUE
308 I=IPAVK+1
309 2452 IK=I-1
310 DO 260 I=1,NRK
311 IR=IPAVK(I,1)
312 IS=IPAVK(I,2)
313 APCV(I)=0.
314 IF( APCVA(IK,1).LE.0.0 )GO TO 260
315 IF( FSTA(IXFAC,2).GT.0.001 )GO TO 246
316 APCV(I)=APCVA(IK,1)
317 G 260
318 246 APCVT=APCVA(IK,1)
319 IF( IS.LE.0 )GO TO 2460
320 IF( IETYPE(IK).NE.ISUB.CR.IETYPE(IS).EQ.ISUB )GO TO 249
321 2460 APCVT=0.
322 DO 2462 J=1,NAST1
323 IR=IPHD(J)
324 KN=IPAVHD(KC,2)
325 APCVT=APCVT+(WHEELY(J,IK)+COSTP(KN)*PCV!CC)*(ASTA(J+1)-ASTA(J))
326 2462 CONTINUE
327 APCVT=APCVT/(ASTA(NAST)-ASTA(1))
328 IF( IS.GT.0 )GO TO 249
329 D 247 J=1,MLAY
330 IF( MLAY(J,1).EQ.IPAV )GO TO 248
331 247 CONTINUE
332 G 260
333 C 248 APCV(1)=APCVA(IK,1)*50./WIDTHH(ITYP)+PCV!CC*UL(J)
334 APCV(1)=APCVT*WK*PCV!CC*UL(J)
335 G 260
336 249 IF( APCVA(IS,2).LE.0.0 )GO TO 260
337 250 APCV(1)=(SCFC(1)+(1.-SCFC(1))*WK)*APCVT
338 APCV(1)=APCV(1)+(1.-SCFC(1))*(1.-WK)*APCVA(IS,2)

```